

Appendix B



USFWS

Boat tour on the Refuge

Findings of Appropriateness and Compatibility Determinations

Findings of Appropriateness

Snowmobiling	B-1
Access for commercial bait collecting	B-3
Berry picking	B-5
Bicycling	B-7
Dog walking	B-9
Motorized boating to facilitate priority public uses	B-11
Non-motorized boating to facilitate priority public uses	B-13
Research conducted by non-refuge personnel	B-15

Compatibility Determinations

Wildlife observation, photography, environmental education and interpretation	B-17
Hunting	B-25
Sport fishing	B-39
Furbearer management	B-43
Walking or hiking, cross-country skiing, snowshoeing	B-55
Bicycling	B-61
Hunting access to adjacent public, private or state land	B-67
Access for commercial bait collecting	B-71
Snowmobiling	B-75
Berry picking	B-81
Research conducted by non-refuge personnel	B-85
Motorized boating to facilitate priority public uses	B-97
Non-motorized boating to facilitate priority public uses	B-101
Oral vaccination by aerial baiting to control the raccoon variant of the rabies virus	B-105
Commercially guided tours	B-115
Commercially guided waterfowl hunting	B-121

Finding of Appropriateness of a Refuge Use

Refuge Name: Missisquoi National Wildlife Refuge

Use: Snowmobiling

This exhibit is not required for wildlife-dependent recreational uses, forms of take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?		X
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		X
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		X
(g) Is the use manageable within available budget and staff?		X
(h) Will this be manageable in the future within existing resources?		X
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?		X
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D. for description), compatible, wildlife-dependent recreation into the future?		X

Where we do not have jurisdiction over the use (“no” to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to (b), (c), or (d)) may not be found appropriate. If the answer is “no” to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes X No __

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate X **Appropriate** __

Refuge Manager: _____ Date: 07/14/06

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.

If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

Justification for a Finding of Appropriateness of a Refuge Use

Access via Missisquoi Refuge lands and facilities for minnow collecting is an established use and it is anticipated that historical users will continue to seek access. In a normal year, the refuge receives requests for about five Special Use Permits for access for commercial bait collecting.

Facilities or materials needed to support access for commercial minnow collecting include two parking areas, two boat launch areas, restrooms, and a brochure explaining fishing regulations. Associated costs are minimal and include routine maintenance costs of these facilities, costs of administering the special use permit, and costs of monitoring. These same facilities are used by refuge visitors in support of other public use activities such as boating, fishing, hunting and wildlife observation, and by refuge staff for many operational uses.

There may be some general disturbance caused by the mere presence of man while crossing refuge lands to access commercial minnow collecting sites. Traditionally however, Permittees park within one hundred meters of minnow collecting sites thereby traversing on foot a short portion of refuge forested riverine habitat that is not sensitive for wildlife disturbance nor habitat damage during the late fall or early winter period of use.

Introduction of aquatic nuisance species due to incomplete cleaning of boats and collecting equipment prior to their use at the refuge is a consideration, however, it is anticipated to be minimal and essentially non-threatening due to the season of use.

Though undocumented, access for minnow collecting has not been shown to have any adverse impacts on the fisheries resource at the refuge, or on other species of plants and animals. Minor problems associated with littering have been addressed through Special Use Permit Conditions and an effective law enforcement program.

Conditions of the Special Use Permit ensure that the Permittee will operate in such a way as not to be detrimental to the refuge.

All or parts of the refuge may be closed to access for commercial bait collecting at any time if necessary for public safety, to provide wildlife sanctuary, or for administrative reasons.

With the current State regulations in place for commercial fishing and the above-mentioned considerations, access for minnow collecting on Missisquoi National Wildlife Refuge is appropriate.

Overall, this use will not diminish the purposes for which the Refuge was established, will not pose significant adverse effects on trust species or other Refuge resources, will not interfere with public use of the Refuge, nor cause an undue administrative burden.

Justification for a Finding of Appropriateness of a Refuge Use

Berry picking is a historical use on the refuge by only a handful of people who are familiar with Maquam Bog and know where to go to get the berries. Berry growth is reportedly greatly diminished from the formerly enjoyed levels of bounty. The anticipated level of use, therefore, is very low and it is not anticipated that it will be necessary to set any limit on the number of pickers allowed. Refuge staff estimates that less than a dozen visits are made to the refuge each year for the purpose of picking berries. Pickers will be limited to collecting only enough for personal or family consumption. Commercial picking is not permitted.

Pickers will be required to obtain a Special Use Permit in order that regulations may be communicated to them regarding the non-commercial, family use nature of the refuge program and in order to communicate open and closed areas for picking, which may change annually.

Facilities needed to support berry picking include the Stephen J. Young Marsh parking area and the Old Railroad Bed Trail along Tabor Road. These facilities are also used by the public engaged in other priority public uses. The proportionate use of these facilities by berry pickers is so low as to suggest that the cost of maintaining these facilities for the sole purpose of berry picking would be negligible.

Staff time would be committed to administering the program and would require the preparation of Special Use Permits, open and closed collecting area information, and would require a commitment of time to interact with Permittees.

Refuge staff would also be required to make a field assessment of the berry crop annually in order to determine open and closed collecting sites.

All staff requirements described are minimal and within existing operational constraints.

Impacts such as trampling vegetation and temporarily disturbing wildlife would occur, but is not anticipated to be significant.

It is generally held that the harvest of berries by people in a wild, difficult to access environment such as the refuge is not sufficiently efficient nor so extensive so as to negatively impact the use and availability of the overall berry crop by wildlife.

Berry picking has been a historical use of the refuge for the six decades since the refuge was established and likely for many hundreds of years prior to that. No adverse impacts from the activity are known or documented at this refuge.

Finding of Appropriateness of a Refuge Use

Refuge Name: Missisquoi National Wildlife Refuge

Use: Bicycling

This exhibit is not required for wildlife-dependent recreational uses, forms of take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		X
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		X
(g) Is the use manageable within available budget and staff?		X
(h) Will this be manageable in the future within existing resources?		X
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D. for description), compatible, wildlife-dependent recreation into the future?		X

Where we do not have jurisdiction over the use (“no” to (a)), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to (b), (c), or (d)) may not be found appropriate. If the answer is “no” to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes X No ___

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate X **Appropriate** ___

Refuge Manager: _____ Date: 07/14/06

If found to be Not Appropriate, the refuge supervisor does not need to sign concurrence if the use is a new use. If an existing use is found Not Appropriate outside the CCP process, the refuge supervisor must sign concurrence.

If found to be Appropriate, the refuge supervisor must sign concurrence.

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

Justification for a Finding of Appropriateness of a Refuge Use

Hunting, fishing wildlife observation and photography, and environmental education and interpretation are the six priority public uses of the Refuge System, and have been determined to be compatible activities on many refuges nationwide. The Refuge System Improvement Act of 1997 instructs refuge managers to seek ways to accommodate those six uses. Motorized boating is an appropriate means of facilitating these priority public uses on Missisquoi Refuge. By allowing this use, we are providing opportunities and facilitating refuge programs in a manner and location that offer high quality, wildlife-dependent recreation and maintain the level of current fish and wildlife values.

Justification for a Finding of Appropriateness of a Refuge Use

Hunting, fishing wildlife observation and photography, and environmental education and interpretation are the six priority public uses of the Refuge System, and have been determined to be compatible activities on many refuges nationwide. The Refuge System Improvement Act of 1997 instructs refuge managers to seek ways to accommodate those six uses. Non-motorized boating is an appropriate means of facilitating these priority public uses on Missisquoi Refuge. By allowing this use, we are providing opportunities and facilitating refuge programs in a manner and location that offer high quality, wildlife-dependent recreation and maintain the level of current fish and wildlife values.

Justification for a Finding of Appropriateness of a Refuge Use

The Service encourages and supports research and management studies on refuge lands that will improve and strengthen decisions on managing natural resources. The refuge manager encourages and seeks research that clearly relates to approved refuge objectives, improves habitat management, and promotes adaptive management. Priority research addresses information on better managing the Nation's biological resources that generally are important to agencies of the Department of Interior, the National Wildlife Refuge System, and State Fish and Game Agencies that address important management issues, or demonstrate techniques for managing species or habitats.

COMPATIBILITY DETERMINATION

USE: Wildlife observation, photography, environmental education and interpretation

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The uses are wildlife observation, photography, environmental education and interpretation. They are priority public uses of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee) and the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

Wildlife observation occurs along the stretch of Route 78 that passes through the refuge, along Tabor Road, on designated trails, from vantage points such as the knoll on Tabor Road and the observation platform at Stephen J. Young Marsh, and on all navigable waters, including the Missisquoi River, Dead Creek, Missisquoi Bay and the shores of Lake Champlain.

The visiting public is allowed to take photographs in areas open for public entry. No facilities are reserved specifically for photography.

Interpretation and environmental education activities will occur only in areas designated for that activity, including the visitor contact station, proposed outdoor classroom, refuge trails, and observation areas. Any exceptions for uses in other areas of the refuge will require permission from the refuge manager. We would allow those exceptions only if no disturbance of species at a sensitive time in their life cycle would occur.

(c) When would the use be conducted?

We allow public access for these priority uses daily from dawn to dusk year-round. The distinct character of each season provides a good diversity of wildlife, habitat conditions, and scenery to explore, observe, photograph, study, and interpret. The hours for our visitor contact station change seasonally, and are posted outside at the kiosk. Trail closures or advisories in affect during the hunting seasons follow.

Trail closures (trails will be posted as “Closed”)

- Jeep Trail
 - ◆ April 1–August 1 (Nesting Season Closure)
 - ◆ Youth Deer Hunt Weekend (Early November–2 days)
 - ◆ Muzzle-loader Season (Early December–10 days)
- Discovery Trail
 - ◆ Regular Season – shotgun and rifle (Mid-November–16 days)
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season
- Old Railroad Trail
 - ◆ Regular Season – shotgun and rifle
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season
- Stephen J. Young Marsh Trail
 - ◆ Regular Season – shotgun and rifle
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season

Trail advisories (Trails will be posted to advise hikers and users that the area is open to hunting—visitors may proceed with caution)

- Discovery Trail
 - ◆ Archery Season (Early October – 23)
 - ◆ Upland Game Seasons (includes gray squirrel, rabbit and hare, ruffed grouse)
- Old Railroad Trail
 - ◆ Archery Season
 - ◆ Upland Game Seasons (includes gray squirrel, rabbit and hare, ruffed grouse)
- Stephen J. Young Marsh Trail
 - ◆ Archery Season
 - ◆ Upland Game Seasons (includes gray squirrel, rabbit and hare, ruffed grouse)

(d) How would the use be conducted?

We will offer staff- or volunteer-led programs and self-guided programs on and off the refuge. We are planning an additional observation platform overlooking Maquam Bay for the end of the Old Railroad Passage Trail. Interpretive signs at trailheads and access areas, refuge brochures, and information on the refuge webpage provide interpretive messages for visitors. We plan to make the Discovery Trail and outdoor classroom at the headquarters ponds accessible for wildlife observation, environmental education, interpretation and photography. We will place an ADA-accessible dock at Mac’s Bend for use in boarding refuge boats for tours and environmental education outings.

Interpretation and environmental education are activities that seek to increase public knowledge and understanding of wildlife, national wildlife refuges, ecology and land management, and contribute to the conservation of natural resources. We plan to offer structured, scheduled, teacher-led environmental education. We would conduct teacher workshops to familiarize teachers with wildlife and nature-based curricula and refuge facilities, and would expect teachers to direct their students in structured activities in several habitats available at the refuge.

Currently, the refuge manager must approve a special use permit with specific conditions to ensure compatibility and a \$150 fee for commercial guiding that would facilitate wildlife observation, photography and any commercial wildlife photography (see separate compatibility determination for commercially guided tours).

(e) Why is this use being proposed?

We are proposing this use to accommodate four of the priority public uses of the Refuge System. Our new visitor contact station and the wide variety of refuge habitats provide the local community with a tremendous opportunity for wildlife-oriented recreation, particularly for environmental education and nature study. We have the opportunity to provide compatible, priority public uses in a manner and in a location that will offer high quality, wildlife-dependent recreation and maintain the current level of fish and wildlife values.

AVAILABILITY OF RESOURCES

The routine maintenance of existing facilities and equipment, including refuge exhibits, interpretive panels, brochures, parking areas, boat launches, boats, restrooms, trails, and observation areas is needed to support these uses. A summary analysis of annual costs follows.

Table 1. Annual costs of the four priority public uses

Mac’s Bend Road, parking areas and boat launches	\$2,000 This is the cost to grade and fill low spots to maintain the Mac’s Bend Road and gravel parking lots at Mac’s Bend, Louie’s Landing, Maquam Creek and Black Creek Nature Trails, Overlook, and Old Railroad Passage and Stephen J. Young Marsh trailheads to allow parking for school buses and vehicles for all priority public uses at these sites. It includes the maintenance and repair of boat launches.
Outdoor restrooms	\$5,000 This is the maintenance cost of fully accessible outdoor vault toilets located at Louie’s Landing, along Mac’s Bend Rd. and at the Black Creek/ Maquam Creek trailhead. The public engaged in all priority uses of the site uses these restrooms.

Supplies and materials	\$4,500 We will reprint the refuge general brochure, self-guiding Black Creek/Maquam Creek Nature trail brochure, and trail maps to provide visitors with refuge information and regulations. Environmental education supplies, including specimen containers, dip nets, binoculars, field guides, etc. are needed to support the education program. We also purchase uniforms for the volunteers who support those activities.
Routine maintenance and staff days	\$7,500 This cost includes staff time in support of these activities and materials for routine maintenance of the headquarters/visitor contact station and boats. We routinely clean the staff offices, the exhibit area, restrooms, and the multi-purpose room. We routinely maintain the pontoon boat and the sea ark boat, and use them primarily for environmental education excursions and interpretive tours. The staff also spends time on planning and conducting interpretation and education programs and training volunteers.
Outdoor classroom	\$10,000 This cost includes labor, materials, and staff time to construct an outdoor classroom adjacent to the headquarters ponds to support environmental education and habitat and wildlife observation.
Habitat diorama exhibit	\$25,000 These funds are needed for the fabrication of a habitat diorama exhibit that has been designed for the visitor contact station.
Total	\$35,000 to develop the outdoor classroom and diorama, and up to \$19,000 annually

These facilities will accommodate the public engaging in all six, priority uses of the Refuge System. We calculated hunting and fishing program costs in separate compatibility determinations. If prorated according to expected use by activity, we estimate the cost for environmental education, wildlife observation, interpretation and photography to be \$22,750, or 65 percent of the initial costs, and \$12,350, or 65 percent of the annual maintenance costs. To help offset those costs, we accept donations at refuge headquarters and at an outdoor collection box at the Black Creek/Maquam Creek trailhead. We plan to charge entrance fees that could help offset annual maintenance costs even more.

- Collecting plants is prohibited, except for the collection of blueberries for personal consumption. That does not necessarily apply to management activities, e.g., approved research or surveys, which we evaluate on a case-by-case basis.
- 2) Develop and implement monitoring and research programs designed to study and allow assessment of visitor uses and associated impacts of wildlife and their habitats.
 - 3) Use information gained from monitoring and research to modify programs and uses appropriately to ensure their continued compatibility through an adaptive management system.
 - 4) Provide for visitor safety
 - Install adequate boundary signs, closed area signs, and hunting area signs.
 - Make visitors aware of hunting season dates and seasonal trail closures and recommend that they wear blaze orange if entering the woods.
 - Hire a law enforcement officer to aid in providing for visitor safety, monitor compliance with laws and regulations, perform outreach to visitors, and provide feedback to management staff about visitor use and associated impacts that will help enable adaptive management.
 - 5) Minimize or avoid conflicts among different types of uses
 - Make visitors aware of the priority status of wildlife observation, wildlife photography, environmental education, interpretation, hunting, and fishing on national wildlife refuges.
 - Use education and interpretation to explain the value of hunting, trapping, and habitat management for wildlife management.
 - 6) We will allow public access for wildlife observation only in areas that are open to public entry.
 - 7) We allow photography only in areas generally open to the public, such as nature trails or wildlife observation sites.

JUSTIFICATION

Wildlife observation is an activity especially suited for a national wildlife refuge. This activity is restricted to prevent any serious disturbance of wildlife. Providing the opportunity for people to see some of the wildlife that benefit from the establishment of the refuge will maintain public support for these areas.

Photography will occur primarily while observing wildlife, walking or hiking. It will have no additive impact on refuge habitats.

Interpretation and environmental education are high-priority forms of public use on refuges, providing refuge visitors with information about endangered species, wildlife and habitat management, and the need to protect our natural resources. The increased knowledge about the habitats and about the refuge system in particular will be beneficial to the continued protection of refuge lands.

Allowing wildlife observation, photography, environmental education and interpretation on the Missisquoi National Wildlife Refuge will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 15-year Re-evaluation Date: _____
(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Hunting

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is hunting, which includes big game hunting, upland small game hunting, waterfowl hunting and other migratory bird hunting. Hunting is a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), and the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

Much of the refuge is open for upland game and deer hunting, including the Maquam Bog and much of the delta north of Mudgett Island (marked as “Private” downriver from Mac’s Bend on refuge maps), on the west side of the river and north of Goose Bay on the east side of the river. The Cranberry Pool, Goose Bay Pool, Big Marsh Slough, and Burton’s Pothole areas are closed, as are the Clark Marsh, lands near Mac’s Bend Road and the area between Route 78 and Charcoal Creek east of Charcoal Creek. In addition, lands near the Black Creek and Maquam Creek trails are closed.

In accordance with the Migratory Bird Hunting and Conservation Stamp Act, less than 40 percent of the refuge is open for hunting migratory birds. Areas open for hunting migratory waterfowl include the delta east of the main branch and north of Goose Bay, Shad Island Pothole, Metcalfe Island Pothole, Long Marsh Bay and Channel, Patrick Marsh and Charcoal Creek, Maquam Swamp north of the Black Creek and Maquam Creek Nature Trails, and the Maquam Shore Area in Maquam Bay. Areas open for hunting woodcock and common snipe include the Maquam Swamp area north of the Black Creek and Maquam Creek Nature Trails; and the Stephen J. Young Marsh area, west of Tabor Road. Those are the only two areas open for hunting those two species.

(c) When would the use be conducted?

Big Game Season—Deer are the only big game animal people may hunt on the refuge. The refuge hunt coincides with the seasons and dates set by the state for deer hunting. Vermont has four types of deer seasons: Youth Deer Hunting Weekend, Archery Season, the November Rifle Deer Season, and the Muzzle-loader Deer Season. The youth deer-hunting weekend falls on the Saturday and Sunday before the opening of the regular November rifle season, which opens the second Saturday of November every year. Archery season runs the last three weeks of October and the first week of December. The firearm season always starts on the second Saturday of November, and runs for 16 consecutive days. The muzzle-loader season runs 9 days during the first full week of December.

Upland Game Season—Ruffed grouse, cottontail rabbit, snowshoe hare and gray squirrel are the only upland game species that may be hunted on the refuge. The hunting of these animals on the refuge coincides with the seasons and season dates set by the state for hunting these species. Normal state seasons for these species follow.

Ruffed grouse season runs from the last Saturday in September to the end of the year, annually.

Rabbit and hare season runs from the last Saturday in September to the second Sunday in March of the following year, annually.

Gray squirrel season runs from September 1 to the end of the year, annually.

No hunting of any species is permitted from the end of rabbit season through September 1.

Migratory Game Bird Season—The Missisquoi refuge lies entirely within the Lake Champlain waterfowl hunting regulatory zone established by the State of Vermont and the U.S. Fish and Wildlife Service. Refuge open seasons correspond to the season dates and lengths established by state and federal regulation annually. Recent history indicates that the season length is normally 60 days, and takes place between October 1 and December 31 annually. Likewise, the regulations promulgated annually by the State of Vermont and the U.S. Fish and Wildlife Service set the dates of the season for woodcock and snipe.

(d) How would the use be conducted?

Big Game and Upland Game—All persons hunting upland game or big game on the refuge must first hold a valid state hunting license, and must then obtain a refuge upland and big game hunting permit. We issue the refuge permit each year for January 1 through December 31, for a \$10 annual fee.

During the Youth Deer Hunting Weekend, youth hunters (16 years and younger) may hunt at no charge, but must obtain a big game permit before hunting, and must return completed harvest information to refuge headquarters by December 31.

All hunters are required to submit an annual report of the results of their hunt on the refuge by December 31 by completing the report portion of their permit. Failure to do so will result in denial of a permit for the following year.

Individuals hunting on the refuge are subject to the inspection of permits, licenses, hunting equipment, game bagged, boats, vehicles, and their contents by federal or state officers.

Unarmed hunters may scout areas that will be open to hunting before a particular season opens, but in no case before September 1. A hunting permit is not required for scouting.

Hunters may use only approved non-toxic shot for the shotgun hunting of all species except deer.

Dogs are allowed for hunting migratory game birds, cottontail rabbits, snowshoe hares, and ruffed grouse during designated seasons only. Other dogs and pets must be confined or on a leash.

Arrangements to accommodate persons with disabilities can be made by contacting the refuge manager.

Any person engaged in guiding others for compensation on the refuge must apply for and obtain a special use permit specifically for that activity from the refuge manager (see separate compatibility determination for commercially guided waterfowl hunting).

Upland-game-specific—Only ruffed grouse, cottontail rabbit, snowshoe hare, and gray squirrel may be hunted.

Hunters may not enter closed areas of the refuge for any reason, except for the recovery of legally harvested animals, and in that case may not carry a weapon.

Only shotguns, muzzle-loaders, or archery equipment may be used on open areas east of the Missisquoi River and on Shad Island.

Hunting is not permitted from the end of snowshoe hare and rabbit season through September 1.

Big-game-specific—Only deer may be hunted; there is no open season on the refuge for any other species of big game.

Hunters may not enter closed areas of the refuge for any reason, except for the recovery of legally harvested animals with the consent of a refuge employee and, in that case, may not carry a weapon unless circumstances warrant and the refuge employee approves it.

Only shotguns, muzzle-loaders, or archery equipment may be used on open areas east and north of Vermont Route 78. Rifles may not be used in those areas at any time.

All hunters during the state regular firearms season, the youth deer-hunting weekend and muzzle-loader deer hunt must wear in a conspicuous manner on head, chest and back a minimum of 400 square inches of solid-colored hunter orange clothing or material.

Permanent tree stands and ground blinds are prohibited. Temporary, portable tree stands and ground blinds are acceptable in accordance with state regulations. Written notation from the refuge manager is required on the big game permit before leaving a temporary stand or blind unattended. However, this does not grant exclusive use of an area or site.

Prohibited Activities in Hunting Big Game and Upland Game

- Littering
- Spotlighting or using artificial light to locate wildlife.
- Baiting or hunting over bait, salt or any attractant.
- Shooting for target practice.
- Using or possessing alcoholic beverages while hunting.
- Taking wildlife or plants, including cutting trees or brush, other than as specified above.
- Driving or screwing a nail, spike or other metal object into a tree or hunting from any tree into which such an object has been driven.
- Searching for or removing any object of antiquity, including arrowheads, pottery, or other artifacts.
- Using motorized vehicles in hunting areas, except for access by mobility-impaired hunters as permitted.
- Performing commercial guiding services without a refuge special use permit.

Migratory Game Bird Hunting—We have developed opportunities for migratory game bird hunting at the refuge to provide a wide variety of high quality hunting opportunities for refuge visitors. Within season dates set by state and federal regulations, the refuge provides the following migratory game bird hunting opportunities.

1. Youth waterfowl hunters, who have completed the annual refuge junior waterfowl hunter training course, may hunt in controlled hunting areas and other open areas of the refuge on youth weekend;
2. Youth waterfowl hunters, who have not completed the annual refuge junior waterfowl hunter training course, may hunt in other open areas of the refuge except the Junior Waterfowl Hunting Area on youth weekend;
3. All hunters may hunt in the public hunting areas including the Delta Lakeshore Area, the Maquam Swamp Area, and the Maquam Shore Area without a permit, however, other restrictions may apply (see below).
4. All hunters may apply for permits to hunt in controlled hunting areas including the Junior Waterfowl Hunting Area, the Long Marsh Channel/Metcalf Island Area, and the Saxs Pothole and Creek/Shad Island Area.

We detail the refuge-specific waterfowl hunting regulations outlined below in our brochure “Migratory Game Bird Hunting Map and Regulations” and in Title 50 of the Code of Federal Regulations.

General Regulations Relative to Migratory Birds—All persons hunting migratory birds on the refuge must hold a valid Federal Migratory Bird Conservation Stamp, Vermont State Duck Stamp and a Vermont State Hunting License. EXCEPTION: The Federal Migratory Bird Conservation Stamp and Vermont State Duck Stamp are not required to hunt woodcock.

During the youth waterfowl hunting weekend, youth hunters (15 years and younger) may hunt at no charge, but must obtain a waterfowl hunt permit before hunting in controlled hunting areas and, in all cases, must return a completed bag report to refuge headquarters or the drop box at Mac’s Bend.

Hunters may not enter closed areas of the refuge for any reason, except for the recovery of legally harvested animals and, in that case, may not carry a weapon.

Reporting—At the end of each daily hunt, all hunters are required to complete a bag report. Bag reports are included on the permits for controlled hunting areas and the Report of Birds Bagged forms available at refuge headquarters and the Mac’s Bend drop box for public hunting areas. Bag reports provide valuable information regarding species and numbers of waterfowl using the refuge.

Scouting—Unarmed hunters may scout open hunting areas before a particular season opens but in no case before September 1. A hunting permit is not required for scouting.

Ammunition—Hunters are required to use nontoxic shot for all game bird hunting on the refuge.

Dogs and Other Pets—Retrievers are required for hunting waterfowl in the following areas: Maquam Swamp Area, Long Marsh Channel/Metcalf Island, and Saxes Pothole/Creek and Shad Island Pothole. Other dogs and pets must be confined or on a leash.

Guiding or Other Commercial Activities—No person, including but not limited to a guide, guide service, outfitter, club, or other organization shall provide assistance, services, or equipment to any other person for compensation on national wildlife refuge lands unless such person, guide, guide service, outfitter, club, or other organization has obtained a special use permit from the refuge manager. Likewise, the individual using the services of a guide, guide service, etc., is responsible for verifying that the guide, guide service, etc., has obtained the required permit. Failure to comply with this provision subjects each hunter in the party to a fine if convicted of this violation (see separate compatibility determination for commercially guided waterfowl hunting).

Public Hunting Area

Permits and Fees—No permits or fees are required to hunt in these areas: the Delta Lakeshore, Maquam Swamp, and Maquam Shore.

Youth Waterfowl Hunting Weekend—Those areas are available to youth waterfowl hunters during the annual, 2-day, special Youth Waterfowl Hunting Weekend in late September.

Reporting—At the end of each daily hunt, hunters are required to complete bag reports and return them to refuge headquarters or the drop box at Mac’s Bend.

General Regulations—Blind-staking, permanent blinds, and unattended decoys are prohibited.

Hunters using boat blinds or temporary blinds are encouraged to maintain a 200-yard distance from other hunters.

Shooting hours will begin one-half hour before sunrise and end at sunset.

Delta Lakeshore Area Regulations—This hunting unit includes lakeshore areas from Shad Island to the south side of Martindale Point, but does not include Saxes Pothole/Creek and Shad Island Pothole.

Jump shooting is not allowed within 200 yards of a party hunting from a boat or blind.

Maquam Swamp Area Regulations—This hunting area encompasses about 200 acres west of the Central Vermont Railroad and south of the private inholding, and is open to migratory bird hunting with the following special requirements.

Jump shooting is allowed.

Each party of hunters (up to two people) must have a retriever.

No hunting is allowed within the area encompassing the headquarters nature trail. The signs “No Hunting Zone” identify this area.

Maquam Shore Area Regulations—This hunting unit encompasses 30 acres along the lakeshore of Maquam Bay, and is bounded by private land on the west and a Vermont Wildlife Management Area on the east.

Jump shooting is not allowed within 200 yards of a party hunting from a boat or blind.

Controlled Hunting Areas

Permits and Fees—All hunters hunting in a controlled area must have a permit. The permit must be completed, section A deposited in the drop box at refuge headquarters or Mac’s Bend at the beginning of the hunt day, and sections B and C carried while hunting and deposited at the end of the hunt day.

Hunters obtain permits for the first two weeks of the season through a preseason lottery. We issue successful lottery winners a non-transferable permit for a specific date and blind site for a \$10 fee. Thereafter, permits are available daily on a first-come, first-served basis at no charge. There is no charge for permits issued on the day of the hunt.

Preseason Lottery—We will require all hunters who draw a blind site during the preseason lottery to provide the \$10 fee no later than 2 days before the first day of the season. Otherwise, the permit will be forfeited and made available first to stand-by hunters identified at the time of the drawing, second to stand-by hunters who have called in, and third, to other hunters on a first-come, first-served basis.

Stand-by—Stand-by hunters are chosen from applications that were unsuccessful during the preseason lottery. Those individuals could be drawn if their preferred sites and dates become available.

Call List—Calls will be taken from any hunter wishing to be put on a stand-by call list starting on preseason lottery drawing day. We will use that list if no stand-by applicants are available.

First-come, First-served—**Preseason lottery hunt days:** After 7 a.m., hunters may sign in, self-register, and use any unoccupied blind site.

Other hunt days: At the conclusion of preseason lottery hunt days, permits and report cards will be available at refuge headquarters or the sign-in box at Mac’s Bend for self-service sign-in and permitting no more than 2 hours before legal shooting time.

Sign In and Sign Out—All hunters are required to sign in and out of their sites by completing the sign in, sign out sheet for their hunt area. Sheets for the Junior Waterfowl Hunting Area are located at refuge headquarters. Sheets for other areas are located at Mac’s Bend. When a party signs out, another party may sign in and use the vacated site. Hunters must sign out of one site before occupying a different site in any of the controlled hunting areas.

Youth Waterfowl Hunting Weekend—With the exception of the Junior Waterfowl Hunting Area, these areas are open on a first-come, first-served basis to youth waterfowl hunters during the 2-day special youth waterfowl hunting weekend in late September. No preseason drawing will be held, and no fee will be assessed; however, youth hunters must self-register and submit a report of their hunt.

Reporting—At the end of each daily hunt, hunters will have until 1 hour after sunset to sign out, and must complete sections B and C of their permits and return them to refuge headquarters or the Mac’s Bend drop box.

General Regulations—Permanent blinds and unattended decoys are prohibited. See exception under “Junior Waterfowl Hunting Area.”

A hunting party consists of the hunter named on the permit and one guest hunter per site per day. Non-hunters may accompany a hunting party.

Each hunting party must possess a permit for the specific site on the specific day they are hunting in these areas. Permits are not transferable.

Hunters must hunt within 100 feet of a numbered stake corresponding to their assigned site. Jump shooting is not allowed.

A hunter may not use or possess more than 25 shot shells per day.

Saxes Pothole/Creek and Shad Island Pothole Regulations—This controlled hunting area encompasses Saxes Creek, Saxes Pothole, and Shad Island Pothole. Five sites, numbered 1–5, are

staked and available to five hunting parties in Saxe's Pothole. One site, numbered 6, is staked and available to one hunting party in Shad Island Pothole.

A boat is required to access each of these blind sites.

Shooting hours will be one-half hour before sunrise to sunset.

Hunters obtain permits for the period from the opening day of duck hunting season through the first Sunday of the duck-hunting season, and for the second weekend of the duck-hunting season, by application to a preseason lottery. In years when the state elects a split season, permits for the second opening day through the following Sunday will also be obtained by application to the preseason lottery. On all other hunt days, hunters must acquire permits through self-registration at the Mac's Bend Landing no earlier than 2 hours before legal shooting time on the day of the hunt.

On those days for which we draw permits by preseason lottery, hunters must sign in at the Mac's Bend Landing by 7:00 a.m. before going to the assigned site. After 7:00 a.m., other hunters may sign in, self-register, and use unoccupied sites.

Each party is required to use a retriever.

Junior Waterfowl Hunting Area—This controlled hunting area encompasses Long Marsh Bay, Patrick Marsh and that portion of Charcoal Creek south of Vermont Route 78. Eleven blind sites are established for use by junior waterfowl hunters; blind sites 4–8 in Long Marsh Bay, blind sites C–F in Charcoal Creek, and blind sites A–B in Patrick Marsh.

A small, flat-bottom boat, car-top boat or canoe is necessary to access the blind sites at Charcoal Creek and Patrick Marsh. Access is available at the Charcoal Creek crossing on Route 78 or from a pull-off on Route 78 about three-quarters of a mile east of the Charcoal Creek access.

Shooting hours will be one-half hour before sunrise to 11:00 a.m.

Junior waterfowl hunters (ages 12–15 at the time of the hunt), vie for blind site assignments in a lottery drawing after successfully completing the annual refuge training program, usually held the third or fourth Saturday in August. The 11 blind sites are available exclusively for these junior waterfowl hunters the first four Saturdays and Sundays of the duck season.

As an incentive, the adult volunteers who serve as mentors to junior waterfowl hunters will vie for blind site assignments during a lottery drawing at the conclusion of the annual junior waterfowl hunter training for the use of blind sites in the junior hunt area on the first Wednesday following the second weekend of the season. That day is known as Mentor Day. No fee will be collected from the mentors on that day. Blinds not assigned in this lottery will be made available to other adult hunters by preseason lottery.

Hunters, including junior hunters, must sign in at refuge headquarters no later than 7:00 a.m. on the date of their scheduled hunt. After 7:00 a.m., other junior hunters may sign in, self-register, and

use unoccupied blind sites. Only junior hunters may hunt on the first four Saturdays and Sundays of the season.

Each junior hunter must possess a free permit for the assigned blind site and day. On Mentor Day, mentors must also possess this free permit for the assigned blind site. Each adult hunting party must possess a permit for the blind site and day they are hunting. Permits are not transferable.

A mentor must accompany the junior hunter who has completed the training program. The mentor is included on the permit assigned to the junior hunter. A mentor may simultaneously oversee up to two junior hunters at one blind site.

Only junior hunters may discharge a firearm in this area during the junior hunt periods.

Each party must use at least six decoys.

Junior Area Adult Regulations—Following the use of the blind sites in this area by junior hunters and mentors, all blinds sites are then available to all adult hunters by permit awarded in a preseason lottery for the second Wednesday following the second weekend of the duck season. Thereafter, the blinds are available Wednesdays and weekends following the junior hunt by first-come, first-served self-registration and permitting at refuge headquarters no more than 2 hours before legal shooting time.

Each adult hunter, except mentors on Mentor Day, must pay \$10 for each permit issued because of the preseason lottery. Permits acquired by self-registration are free.

Exceptions—Hunting is permitted, and recommended, from portable blinds and boat blinds constructed and placed by the refuge for the junior waterfowl hunting program at some of the blind sites. With the refuge manager’s approval, junior hunters may construct stationary blinds and leave them in place for the duration of the season. Otherwise, permanent blinds are not permitted.

The Junior Waterfowl Hunting Area during the youth waterfowl hunting weekend in late September is available only to current-year, refuge-trained junior waterfowl hunters.

Long Marsh Channel and Metcalfe Island Regulations—This controlled hunting area encompasses the Metcalfe Island Pothole and Long Marsh Channel. Three blind sites designated 1–3 are established in Long Marsh Channel. Three blind sites designated 8–10 are established on Metcalfe Island.

A boat is required to hunt at each of these blind sites.

Shooting hours are one-half hour before sunrise to 11:00 a.m.

Hunting will be limited to Tuesdays, Thursdays, and Saturdays throughout the waterfowl-hunting season for ducks.

Hunters obtain permits for the first 5 days of the duck season by application to a preseason lottery.

Following the first 5 days, hunters may acquire permits on a first-come, first-served basis with self-service permitting and sign in at the Mac's Bend Landing, no more than 2 hours before legal shooting time.

On those days for which hunters have drawn permits by preseason lottery, they must sign in at the Mac's Bend Landing by 7:00 a.m. before going to their assigned sites. After 7:00 a.m., other hunters may sign in, self-register, and use unoccupied sites.

A party must use at least six decoys.

Each party is required to use a retriever.

Other Migratory Birds—These include woodcock and common snipe.

Areas open for hunting woodcock and common snipe include the Maquam Swamp area north of the Black Creek and Maquam Creek Nature Trails; and the Stephen J. Young Marsh area, west of Tabor Road. Those are the only two areas open for hunting those two species. No permit is required to hunt woodcock and snipe in those areas.

Prohibited Activities

- Littering
- Using or possessing alcoholic beverages
- Taking of wildlife or plants, other than as specified in this brochure
- Searching for or removing any object of antiquity including arrowheads, pottery or other artifacts
- Camping overnight
- Burning open fires

(e) Why is this use being proposed?

We are proposing this use to acknowledge its importance for refuge visitors and accomplish the goal of providing them opportunities to engage in a compatible, high-priority public use. Hunting has continued on the lands of the refuge since Native Americans first came to the area more than 7,000 years ago. Since the establishment of the refuge in 1943, hunting has been a constant, popular, sustainable, high-priority public use of significant importance for local and regional residents. Their interest in hunting remains high.

AVAILABILITY OF RESOURCES

We have outlined below the funding required to administer and manage the annual costs of the refuge hunting program. The annual operating budget of the refuge includes them.

Table 2. Annual costs of the refuge hunting program

Maintaining parking areas and boat ramps	\$1,000
Maintaining roads	750
Maintaining signs and information kiosks	500
Maintaining access trails to blind sites	500
Identifying/posting blind sites and parking areas	500
Maintaining placement of boat blinds in junior hunting area	700
Conducting junior hunter training	1,250
Conducting hunter orientation	300
Developing and dispensing annual hunting information	1,200
Administering the controlled hunt	500
Reprinting hunting brochures	500
Selling annual hunting permits and dispensing information	1,000
Enforcing hunting laws and refuge regulations	\$1,000
Total	\$9,700

The annual contributions of volunteers who assist with virtually every aspect of the program, except the reprinting of the brochures, significantly defray some of those costs. The sale of big game/upland game permits at \$10/person/year and the sale of controlled waterfowl hunting site permits at \$10/permit/day generate additional funds.

ANTICIPATED IMPACTS OF THE USE

Big game hunting is a very popular, longstanding public use on the refuge. In recent years, we have sold approximately 100 permits. Before we charged an annual fee for the permit, we issued more than 300 permits each year. Upland game hunting is of much less interest on the refuge, primarily due to the relatively small amount of habitat available for grouse and low interest in hunting gray squirrels or rabbits.

The annual deer harvest in recent years fell in the low to mid-20’s, including all deer harvested and reported during the youth weekend, the archery hunt, the regular firearms hunt, and the muzzle-loader hunt. Deer move on and off the refuge to neighboring sanctuary habitats and food sources, and most of those areas are open for hunting as well. However, we have closed large portions of the refuge to hunters to minimize the disturbance of migratory birds. Because the Maquam Bog hunting area is difficult for most hunters to access, hunting activity there is limited. Hunting on the refuge poses no danger of reducing the deer population to unhealthy levels.

In recent years, a conflict has arisen among hunters using the delta portion of the refuge. Those areas generally are long, narrow, or relatively small islands that cannot accommodate many hunters without affecting the natural movement of wildlife and, therefore, decreasing the quality of the hunting experience and creating some level of competition among hunters. That has manifested itself in two ways.

- 1) Competition among hunters for choice sites is keen, and has led to unethical behavior. Hunters consider the area near their stands to be their exclusive hunting area, in spite of refuge regulations specifically stating that is not the case. Hunters with permits signed by the refuge manager can erect portable tree stands on the east side of the Missisquoi River in the open hunting area.
- 2) During the youth weekend hunt and the muzzle-loader season, several parties of local hunters have established the practice of organizing drives on those long, narrow portions of the open area and on Metcalfe and Shad Island. Although that method has proved successful for that group of hunters, it jeopardizes the success of other hunters not associated with the group and, again, leads to unethical behavior.

To resolve the problems associated with those hunting areas, the refuge manager will evaluate the effectiveness of a lottery permit system for deer hunting on the delta, including both sides of the river, and will seek opportunities to develop hunting programs for juniors, seniors, and disabled big game hunters in those and other areas of the refuge.

Hunting near open trails or trail closures may affect other refuge visitors. Most conflicts between hunters and trail users will be avoided by notification and posting trails of hunting activity in the area or by outright trail closures to non-hunters on actual hunting days. The comprehensive conservation plan for the refuge proposes the following trail closures or trail advisories during the hunting program.

- Implement the following trail closures (trails will be posted “Closed”)
 - Jeep Trail
 - ◆ Youth Deer Hunt Weekend (Early November–2 days)
 - ◆ Muzzle-loader Season (Early December – 10 days)
 - Discovery Trail
 - ◆ Regular Season – shotgun and rifle (Mid-November–16 days)
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season
 - Old Railroad Trail
 - ◆ Regular Season—shotgun and rifle
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season
 - Stephen J. Young Marsh Trail
 - ◆ Regular Season—shotgun and rifle
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season

Implement the following trail advisories. We will post the trails to advise users that the area is open to hunting—visitors may proceed with caution.

- Discovery Trail
 - ◆ Archery Season (early October—23 days and early December—9 days)
 - ◆ Upland Game Seasons (includes gray squirrel, rabbit and hare, ruffed grouse)
- Old Railroad Trail
 - ◆ Archery Season
 - ◆ Upland Game Seasons (includes gray squirrel, rabbit and hare, ruffed grouse)
- Stephen J. Young Marsh Trail
 - ◆ Archery Season
 - ◆ Upland Game Seasons (includes gray squirrel, rabbit and hare, ruffed grouse)

We manage migratory birds on a flyway basis, and establish refuge hunting regulations in each state based on flyway data. Atlantic Flyway and State of Vermont regulations apply to the migratory waterfowl-hunting program at the Missisquoi refuge. Its hunting regulations, which are more restrictive than state and other federal regulations, limit hunt days and hunting hours, and include shot shell restrictions, etc. Hunting would reduce the numbers of birds in the flyway, within allowable limits, as determined by state and federal agencies. Hunting and the associated hunter activity likely would cause the direct disturbance of non-target birds, but only for the short term.

Those temporary impacts are mitigated by the presence of adjacent refuge habitat where hunting does not occur, and where birds can feed and rest undisturbed. Refuge regulations ensure that areas of inviolate sanctuary remain free of disturbance throughout the season. The activity of waterfowl hunters has little impact on other refuge visitors, with the exception of those who wish to use the Jeep Trail for walking or observing or photographing wildlife. Those users are impacted by the presence and noise associated with waterfowl hunting on the delta and, especially, in the Long Marsh Channel and, to a lesser extent, Long Marsh Bay. The activity associated with waterfowl hunting can also affect paddlers, other boaters and anglers, although participation in those uses generally diminishes as their season ends. The length of the boating season depends largely on the weather.

PUBLIC REVIEW AND COMMENT

As part of the comprehensive conservation planning for the Missisquoi refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the release of our draft CCP/EA.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE ___

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

Adherence to the regulations highlighted above for each of the hunting programs will ensure compatibility with the purpose for which the refuge was established.

JUSTIFICATION

The Missisquoi refuge is located in a rural area where deer hunting is an established, traditional activity. It does not conflict with any other types of compatible public uses that may occur on the refuge. Deer hunting is compatible with the primary purpose for which the refuge was established, and provides an opportunity for a popular form of wildlife-oriented recreation. The deer hunt primarily satisfies a recreational need, but deer hunting on national wildlife refuges is also an important, proactive management action that can prevent overpopulation and the deterioration of habitat. Because state laws limit the hunting of deer to prevent overharvest, and the state can adjust hunting pressure by issuing antlerless hunting permits, there is no biological need to close the refuge completely to deer hunting.

The hunting of small game on the designated areas does not interfere with the primary purpose for which the refuge was established. Our hunting program excludes the most significant resting areas for migratory birds.

The areas open to upland small game hunting can easily accommodate woodcock and snipe hunting.

Allowing hunting on the Missisquoi National Wildlife Refuge contributes to, and does not materially interfere with or detract from, the mission of the National Wildlife Refuge System and the purposes for which the refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 15-year Re-evaluation Date: _____
(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Sport fishing

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is fishing. It is a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee) and the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

Except as noted below, sport fishing is permitted year round on waters surrounding and coursing through the refuge, including the shoreline areas of Lake Champlain, the Missisquoi River, and Dead Creek. Long Marsh Bay is also open to fishing until Labor Day, when it is closed for waterfowl hunting. Long Marsh Bay may also be closed seasonally to protect nesting habitat for sensitive migratory bird species.

Other internal waters of the refuge are closed, including Cranberry Pool, Goose Bay Pool, Big Marsh Slough, Burton’s Pothole, Saxes Creek, Metcalfe Pothole, Eel Creek, Long Marsh Channel, Black Duck Creek, and the backwaters of Charcoal Creek, including the Clark Marsh, and Charcoal Creek south of Route 78. Black Creek and Maquam Creek are closed where they lie within the refuge. Stephen J. Young Marsh is closed.

Bank fishing is permitted along Charcoal Creek where it passes under Route 78, and along the shoreline of the Missisquoi River from the southeast refuge boundary on Route 78 to the Mac’s

Bend boat launch. Bank fishing is accessible only on foot from Louie's Landing to Mac's Bend. Additionally, from April to November, we may close and poste areas to provide undisturbed nesting and resting areas for ospreys, black terns, great blue herons, and other migratory birds. The perimeters of those sensitive areas may change annually, and we ask anglers to observe and honor them.

Shoreline fishing access for disabled individuals is available at Louie's Landing.

(c) When would the use be conducted?

Sport fishing on the refuge follows all Vermont fishing regulations, including open seasons, limits and methods of fishing. For information, consult the Vermont Fish and Wildlife Department Annual Guide to Hunting, Fishing and Trapping Laws. The guide is available at refuge headquarters.

(d) How would the use be conducted?

Most fishing on the refuge takes place in accordance with state regulations, with additional restrictions to protect sensitive wildlife areas, via motor boat or paddle boat, using a rod and reel, hook and line, or bow and arrow. Regulations must be consulted for details. Fishing also takes place from shore at open locations, mainly during spring and early summer. Anglers use the boat launch at Louie's Landing to access the river and lake, or travel into the refuge by water from other access points along the lake.

A valid state fishing license would be required to fish on the refuge in accordance with state regulations.

Refuge regulations would not allow the use of firearms to take fish, even though permitted by state regulation for a limited time in the spring.

State law, the guide referenced above, and the refuge fishing brochure limit the consumption of certain fish caught in Vermont because of the potentially harmful contaminants they may contain.

The Vermont legislature prohibited the sale of lead sinkers used for fishing tackle in 2006. The use of lead sinkers will be illegal after January 1, 2007, in all Vermont waters, including the refuge.

(e) Why is this use being proposed?

Sport fishing is a historic, traditional, popular, and sustainable wildlife-oriented activity identified as a priority public use on national wildlife refuges.

AVAILABILITY OF RESOURCES

Facilities or materials needed to support sport fishing include; two parking areas, one boat launch area, restrooms, a refuge fishing brochure explaining fishing regulations, recurring maintenance costs, trash retrieval, public relations and enforcement of State and Federal fishing regulations.

The table below summarizes our analysis of the costs associated with sport fishing. These costs are not associated exclusively with sport fishing, but include other priority public uses as well. Approximately 50 percent, or \$2,750, of the costs could be attributed to sport fishing.

Table 3. Annual costs of sport fishing

Routine maintenance	\$3,000 This is the expected cost to maintain two parking areas, one boat launch area, and two fully accessible restrooms by cleaning and by pumping twice a year. It includes the cost of picking up trash. The public uses these access areas to engage in all the priority uses of the refuge.
Supplies and materials	\$1,500 This includes the cost of producing copies of the refuge fishing brochure and other written advisory materials, such as invasive species lookout cards.
Public relations and law enforcement	\$1,000 This includes the cost to provide law enforcement coverage by a refuge officer from another station during periods when critical nesting activity and heavy fishing pressure coincide. Otherwise, Vermont Fish and Wildlife Department game wardens include the refuge in their regular patrol area. The refuge staff conducts public relations in the course of regular duties while on the refuge
Total	\$5,500

ANTICIPATED IMPACTS OF THE USE

Bank fishing is popular in the spring. The problems associated with that activity include littering, open fires along the riverbank areas, and bank erosion.

Anglers operating or fishing from a boat too close to nesting areas may affect wildlife populations. That may lead to nest abandonment.

In late summer or fall, fishing in weed beds that provide food for waterfowl can conflict with the use of those areas by waterfowl.

The act of fishing or the mere presence of people in boats, whether motorized or non-motorized, can disturb and displace waterfowl, other migratory birds, and wildlife in general.

The unintentional transportation and introduction of aquatic nuisance species by anglers moving from one body of water to another without properly cleaning and disinfecting their boats, motors, and trailers could have obvious negative consequences for the refuge.

Occasionally, an angler will catch a non-target species of fish, bird, mollusk, or turtle that may be injured or killed during attempts to release it.

Overall, the anticipated impacts of sport fishing at the refuge have not been significant. Area closures, public relations and field visits, and law enforcement patrols minimize or mitigate many impacts.

PUBLIC REVIEW AND COMMENT

As part of the comprehensive conservation planning for the Missisquoi refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the release of our draft CCP/EA.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

Areas that provide important migratory bird nesting, feeding, and resting habitats will be closed to fishing. We will delineate those areas annually by posting them with refuge boundary signs and signs that read “Area Beyond This Sign Closed.” The refuge fishing leaflet and personal contacts will further advise Boaters to stay clear of those seasonally and annually shifting closed areas.

Brochures, leaflets, and signs are available to inform and educate anglers and boaters about the consequences of transporting invasive aquatic species by contaminated equipment.

Littering, burning open fires, and entering closed areas are prohibited on wildlife refuges during this or any other use. Law enforcement patrols and public relations will help control the negative impacts of those violations.

JUSTIFICATION

Fishing is a wildlife-oriented form of recreation the Service encourages, when it does not interfere with the management purposes of the refuge. Restricting this activity to certain areas and enforcing regulations ensure that the activity is compatible with the purpose for which the refuge was established. Allowing fishing on the Missisquoi National Wildlife Refuge will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 15-year Re-evaluation Date: _____
(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Furbearer management

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is furbearer management. We consider furbearer management a refuge management economic activity. Furbearer management is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee) or the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57). Furbearer management at the refuge occurs to support our mission to manage for migratory birds. The furbearers managed include species that prey upon migratory birds, their eggs or nestlings, or species that either impede water management for the benefit of migratory birds by damming waterways or by damaging dikes through burrowing and tunneling that leads to leaks or catastrophic failure.

(b) Where would the use be conducted?

Furbearer management would be conducted primarily in locations on the refuge where the targeted species cause damage to refuge resources, such as the flooding of riparian forest habitat or other sensitive plant communities, the flooding of refuge roads and trails, damage to dikes and dams, or the persistent damming of water control structures. The use would also be conducted in locations where it will accomplish the goals and objectives of our Habitat Management Plan, such as the balance of predator-to-prey levels, marsh ecosystem dependence and beaver cycling.

We will work seasonally to inventory targeted species activity and determine trapping locations.

State and refuge law enforcement personnel would ensure that trappers on the refuge comply with state and refuge regulations and that the data submitted to the refuge is accurate. Designating management zones and limiting the number of trappers in each zone may help prevent conflicts among trappers. In addition, designating trapping zones would allow the refuge to either concentrate or reduce trapping in areas where management intervention is desirable. Designating locations where specific trappers are permitted on the refuge will facilitate the enforcement of refuge and state regulations. Zoning may also provide better quality trapping experiences by preventing overlap with other trappers. However, if necessary, trapping may be concentrated or zoning eliminated to meet our goals for protecting refuge resources.

(c) When would the use be conducted?

Trapping would take place in the fall and early winter, during seasons established by the Vermont Department of Fish and Wildlife. Those seasons coincide with the period when the pelts of the target species are in good condition and when trapping activity will not affect nesting migratory birds. Trapping usually occurs late enough in the year that the peak of migratory activity has passed.

Typically, season dates resemble the 2005–2006 season dates.

- The Vermont muskrat-trapping season opened on 10/22/05 and closed on 4/19/06. The refuge muskrat trapping season, referred to as the “Fall Muskrat Trapping Program,” ran from 10/22/05 through 12/31/05.
- The Vermont beaver-trapping season opened on 12/01/05 and closed 2/25/2006. The refuge beaver-trapping season ran concurrently.
- The Vermont raccoon-trapping season opened on 10/22/05 and closed on 12/31/05. The refuge beaver-trapping season ran concurrently.

We will permit refuge trappers to scout their areas and set up bait stations, if desired, before the 2006–07 season opens. Annual furbearer management on the refuge will be at the discretion of the refuge manager, and will depend on the population size of the targeted species and management objectives.

(d) How would the use be conducted?

We would conduct furbearer management following Vermont state regulations and specific refuge regulations issued through a refuge special use permit, and allow furbearer management during state seasons under state limits for the targeted species. The refuge manager reserves the authority to regulate the numbers of target species taken in any one location or zone.

We would manage the furbearer management program through the special permit process and, if needed, will work with officials of the Vermont Fish and Wildlife Department to enact special furbearer management regulations. Administering the program under an annual permit will allow the refuge manager to have ready a list of contacts for specific management needs to accomplish refuge objectives.

We will require a weekly harvest report from each trapper during the trapping season. The report will include data about the trapping, the time span of trapping by species, the number of target and non-target species harvested, the refuge areas trapped, and remarks on observations of wildlife or other noteworthy ecological information. Those data can provide a basis for analyses of catch-per-unit and population trends. If the required information is lacking for a trapper from the previous year, we would not issue the permit for the next year.

The refuge biologist will assess furbearer populations annually and make a recommendation to the refuge manager for managing via the annual refuge trapping program the three key species: beaver, muskrat, and raccoon. In some years there may be no trapping if, for instance, beavers are not occupying an area where they are disrupting refuge management programs.

Each year, a public drawing at the refuge headquarters in the middle of October will select from among qualified candidates the permit holders for the “Fall Muskrat & Raccoon Trapping Program.” Applicants may apply for muskrat trapping permits, raccoon trapping permits, or both, as desired. Trapping units will be assigned by lottery selection based on first, second or third preferences listed by the applicants on their applications.

Similarly, beaver trappers will be selected by a drawing in mid-November annually.

We invite the public to attend the drawings, and notify by telephone or mail all selected applicants of the drawing results.

All trapping rules and regulations of the State of Vermont contained in the Vermont Digest of Hunting, Fishing & Trapping Laws, issued annually, apply to trapping on the refuge, including these.

- Trapping license requirements,
- Tagging and reporting of pelts and carcasses requirements,
- Checking and marking trap requirements,
- Maintaining a minimum distance of 10 ft. or more from the nearest point, above the water, of a beaver house or dam,
- Restriction against disturbing a muskrat house or place a trap therein, thereon, or at the entrance thereof, or in the entrance of or inside a muskrat burrow,
- Restriction against disturbing a trap lawfully set by another person, and
- Restrictions regarding trap types and sizes.

We provide these additional, refuge-specific regulations to refuge trappers as part of their permit.

- Only conibear type traps are allowed unless otherwise permitted by the refuge manager.

- Only 110-size, conibear-type traps will be used to trap muskrats.
- Either 160- or 220-size, conibear-type traps may be used to trap raccoons.
- Trappers may use the appropriate size of the conibear-type trap, either 330 or 440, for trapping beavers.

Trapping permit holders are authorized to be on their trapping units from sunrise to sunset only. Permit holders are authorized to scout their units in advance of the refuge trapping season, with the permission of the refuge manager. Scouting can include the placing of bait (stations) designed to draw in the target species.

A report of animals taken will be provided to the refuge manager weekly.

The permit holders notify the refuge manager when they intend to begin and end their trapping effort on the refuge.

Raccoon trappers must not set any traps within 100 yards of any waterfowl hunting access trails. Those access trails are identified by posted numbers. Contact the refuge manager if there is any question about these locations.

Any non-target animals taken incidental to permitted trapping must be reported immediately via weekly report to the refuge manager, and must be presented to a state game warden in accordance with state trapping regulations.

All licenses, permits, equipment and animals are subject to inspection by the refuge manager or designee at any time during the season.

(e) Why is this use being proposed?

We will conduct furbearer management first as a tool to maintain habitat and keep the predator-to-prey balance. A regulated furbearer management program on the refuge also affords a potential mechanism to collect survey and monitoring information or contribute to research on furbearer and other wildlife occurrence, activity, movement, population status, and ecology. By maintaining a trained, experienced group of trappers, the Service can use their skills and local knowledge to perform or assist in valuable management or research. Trappers who participate in the refuge program would provide assistance in implementing structured management objectives, such as the alleviation or reduction of wildlife damage conflicts, negative interactions among species, and habitat modifications. Refuge trappers typically have a stake in proper habitat and wildlife conservation and protection of the ecological integrity of the refuge so they can continue trapping. Accordingly, they are valuable assets for the refuge manager in providing on-site reports concerning the fundamental status of habitat, wildlife, and refuge conditions.

Furbearers are considered a renewable natural resource with cultural and economic values (Andelt et al 1999, Boggess et al. 1990 Northeast Furbearer Resources Technical Committee 1996, Payne 1980).

Several human dimensions studies have documented trapper profiles, cultural aspects of trapping, and the socioeconomic role of trapping in the United States (Andelt et al. 1999, Boggess et al. 1990, Daigle et al. 1998, Gentile 1987). A regulated trapping program on the refuge could also foster public appreciation of wildlife and nature, wildlife observation, environmental education, a greater understanding of ecological relationships, stewardship of natural resources, and inter-generational passage of the methodologies of renewable resource use. Trapping is an activity in which family members and friends often participate and share joint experiences that broaden their appreciation of natural resources and ecological awareness (Daigle et al. 1998).

We manage furbearers as part of the total environment of the refuge. The habits of muskrats and beavers are beneficial for waterfowl habitats by creating and maintaining nesting, brood-rearing, feeding and loafing areas. However, muskrats and beavers may also create negative impacts when their populations grow unchecked. Muskrat “eat-outs” of waterfowl food and cover plants, bank dens tunneled into refuge dikes, beaver girdling of valuable mast-producing trees, and new dams that back water onto adjacent private properties are not desirable. Population control is needed in such situations. These species also may threaten dams, dikes, and water control structures supporting refuge waterfowl habitat. Burrowing or tunneling into dams and dikes causes them to leak or fail, while plugging water control structures with woody debris and mud can render them inoperable.

Other furbearers, such as raccoons, may conflict with higher priority refuge objectives. Raccoons, in particular, prey on resident and migratory bird nests, disrupt waterfowl banding operations, and diminish trapper harvests by feeding on trapped furbearers, especially muskrats.

AVAILABILITY OF RESOURCES

The financial resources necessary to provide and administer this use at its current level are now available, and we expect them to be available in the future. The refuge manager would provide overall administration of the program. A wildlife biologist would be required to evaluate furbearer activity and current and potential impacts on refuge resources. The biologist would also evaluate trapper data and compile trapping reports. An administrative assistant is required to help process permits and enter trapping data into a database. A refuge law enforcement officer would be required to check refuge trappers and ensure compliance with state and refuge regulations.

The table below estimates the annual costs associated with administering the furbearer management program on the refuge.

Table 5. Annual costs of furbearer management

Refuge Biologist (GS 11): recommendations, surveys, data analysis—1 week/yr	\$1,500
Refuge Manager (GS 13): program administration—1 week/yr	2,000
Law Enforcement Officer (GS 12): trapper compliance—4 days/yr	1,400
Administrative Assistant (GS 6): office administration, permit issuance—2 days/yr	\$330
Total	\$5,230

We have attempted over the years to charge fees for the privilege of trapping on the refuge to generate some funds to offset the costs above, because the use is considered a privileged, economic use and, therefore, subject to fee collection in accordance with regional and Service policy. Initially, interested parties submitted bids at the amount they were willing to pay for the privilege of trapping on refuge units of interest to them. When fur prices and interest in trapping subsequently declined, we charged a flat fee for applicants chosen by lottery. For the last several decades, interest in trapping has decreased to a point where we charge no fee, and the refuge manager just hopes that there is enough interest in trapping to continue using it as a management tool to control certain furbearers. Currently, the refuge annual budget carries sufficient funds and personnel to operate this program. However, if public trappers are unavailable or uninterested in the program, it is doubtful whether the refuge would have sufficient resources to sustain it.

ANTICIPATED IMPACTS OF THE USE

The impacts of furbearer management on the purposes of the refuge and mission of the Refuge System can be either direct or indirect, and may have negative, neutral, or positive impacts on refuge resources.

Indirect impacts may include displacing migratory birds during the pair bonding/nesting season or the destruction of nests by trampling. Direct impacts may include the catch of target and non-target species that are predators on migratory birds or nests, or the removal of species that induce changes in habitat (e.g., beavers).

Because of the temporal separation of trapping activities with breeding wildlife using the refuge, indirect impacts on those resources by trappers would be negligible. Trappers using the refuge in early March may disturb individual early nesting waterfowl and cause their temporary displacement from specific, limited areas. Those impacts are occasional, temporary, and isolated to small geographic areas.

Indirect impacts on wildlife nesting and breeding success can result from the removal of animals under a furbearer management program. In many instances, those impacts are positive. Reductions in the populations of nest predators such as raccoon have positive impacts on nesting birds. The degree to which predator management benefits migratory bird production can vary widely depending on the timing of the removal of predators, the size of the habitat block, habitat isolation and adjacent land use.

The removal of plant-eating species such as beaver and muskrat can have both positive and negative impacts on refuge resources. Muskrats and beavers will dig bank dens into embankments and dikes. This causes considerable damage, and adds costs to the operations of the refuge. We must fill those dens and holes to prevent the compromise of the dike. Beavers will sometimes plug water control structures, causing damage, limiting access, and compromising the capabilities of the refuge to manage habitat. Managing beaver and muskrat populations at reasonable levels through a furbearer management program can reduce refuge costs in managing wildlife.

However, those same animals can enhance habitat management. Muskrats build houses and dens using aquatic vegetation, thus creating openings for fish, waterfowl and other migratory birds. Beaver dams create pond habitat, and their lodges are associated with openings in beds of aquatic vegetation.

Beavers are keystone species for cycling small wetland systems from pond to meadow to scrub-shrub and forested successional stages back to pond. That cycling benefits other species, including woodcock and black duck. Those benefits minimize the need to commit refuge resources to achieve those habitat conditions.

In considering impacts on refuge purposes, the impacts of the furbearer management program obviously include those on the furbearer populations themselves. Trapping harvests and removes individuals of the species. Yet, state natural resources agencies indicate that, with exceptions, furbearer populations are stable or increasing. The anticipated direct impacts of trapping on wildlife would be a reduction of furbearer populations in those areas with surplus furbearers. Their removal would maintain furbearer populations at levels compatible with the habitat and with refuge objectives, minimize furbearer damage to facilities and wildlife habitat, minimize competition with or interaction among wildlife populations and species that conflict with refuge objectives, and minimize threats of disease to wildlife and humans.

Non-target furbearer species could be taken in this trapping program. Traps will be set specifically around areas of targeted species activity to reduce the risk of taking species other than targeted species. The experience of the trappers and the selection of the appropriate trap size will reduce non-target furbearer captures (Northeast Furbearer Resources Technical Committee 1996, Boggess et. al 1990).

A national program operated under the guidance of the Fur Resources Technical Subcommittee of the International Association of Fish and Wildlife Agencies (IAFWA 1998) systematically improves the welfare of animals in trapping by testing traps and developing “Best Management Practices for Trapping Furbearers in the United States.” The refuge would cooperate with and contribute to the development and implementation of those practices by practicing an integrated, comprehensive approach to furbearer management, wherever and whenever possible.

PUBLIC REVIEW AND COMMENT

As part of the comprehensive conservation planning for the Missisquoi refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the release of our draft CCP/EA.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

- 1) Permit holders must comply with all conditions of the refuge furbearer management special use permit and all state trapping regulations.

- 2) Traps shall be set only where traps or trapped furbearers are not visible from public highways, overlooks, or other visitor facilities.

- 3) Trappers, when requested by federal or state enforcement officers, must display for inspection their state trapping license, refuge trapping permit, trapping equipment, and all animals in their possession.
- 4) One sub-permit holder is allowed. The sub-permit holder must be listed on the permit and have all applicable state licenses. The sub-permit holder may trap the unit without the permit holder only if the refuge manager grants prior approval to the permit holder.
- 5) Ingress to and egress from the refuge shall be only by routes that are currently open for travel. No motorized vehicles are allowed behind gates or off designated routes, unless specifically authorized by the refuge manager.
- 6) Permit holders shall provide the refuge manager with a report of animals taken and effort expended (trap nights), per unit, on a weekly basis. This requirement commences with the onset of trapping by the permit holder, with reports due within a week of the end of the week.
- 7) Permit holders may cut small trees or brush on the refuge for use only as trap stakes. Cutting is prohibited along public roads and trails or near visitor facilities.
- 8) Unless otherwise stated by the refuge manager, the refuge trapping season will run concurrently with the state season.
- 9) The Service assumes no responsibility for the theft of equipment or animals.
- 10) Failure by permit holders or sub-permit holders to comply with any of the provisions above or the violation of any refuge regulations or state laws or regulations applicable to trapping on the refuge, shall render him or her subject to prosecution under said laws and regulations and shall be cause for the revocation of this permit and for refusal of a trapping permit for the next 3 years.
- 11) This permit may be terminated at any time by agreement between the issuing officer and the permit holder; it may be revoked by the issuing officer for any violation of refuge or state laws or regulations applicable to trapping on the refuge or any conditions of the trapping permit; it may be revoked by the issuing officer for non-use.

JUSTIFICATION

Furbearer management on the refuge is a useful tool in maintaining balance between furbearers and habitat, safeguarding refuge infrastructure, and preventing the spread of disease. High populations of predators can decrease the nesting success of ground-nesting migratory birds, thus compromising one purpose of the refuge. Furbearer populations in Vermont, with local exceptions, are stable or increasing. The furbearer management program on the refuge has no appreciable negative impacts on furbearer populations.

Furbearer management contributes to the purposes of the refuge and the mission of the Refuge System by maintaining the vigor and health of furbearer populations and safeguarding the refuge infrastructure critical to habitat for scores of fish and wildlife species.

Trapping certain furbearers will help facilitate habitat management for migratory birds and reduce predation on those birds and their nests. Furbearer management on the Missisquoi National Wildlife Refuge contributes to, and does not materially interfere with or detract from, the mission of the National Wildlife Refuge System and the purposes for which the refuge was established.

Signature: Refuge Manager:

(Signature and Date)

Concurrence: Regional Chief:

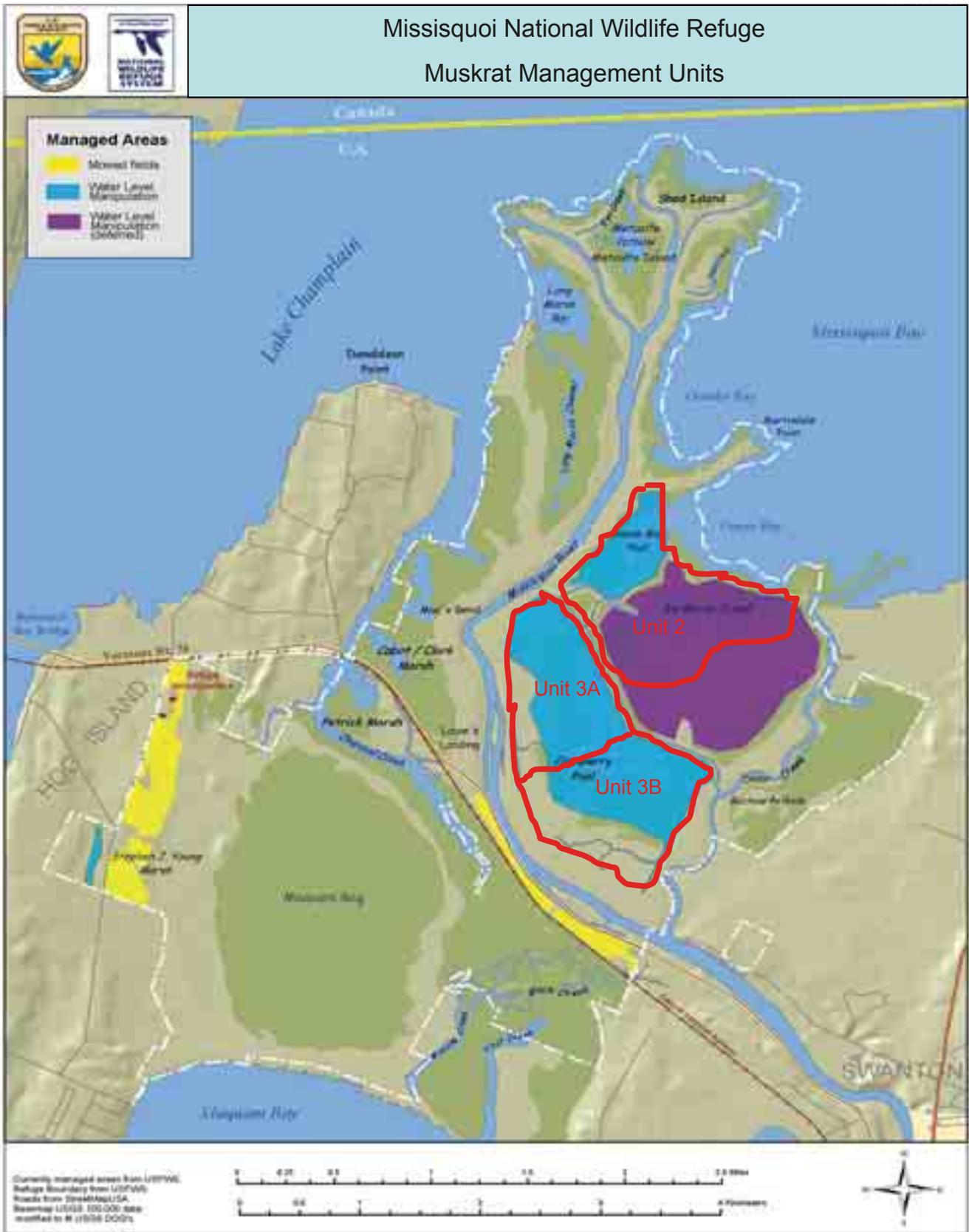
(Signature and Date)

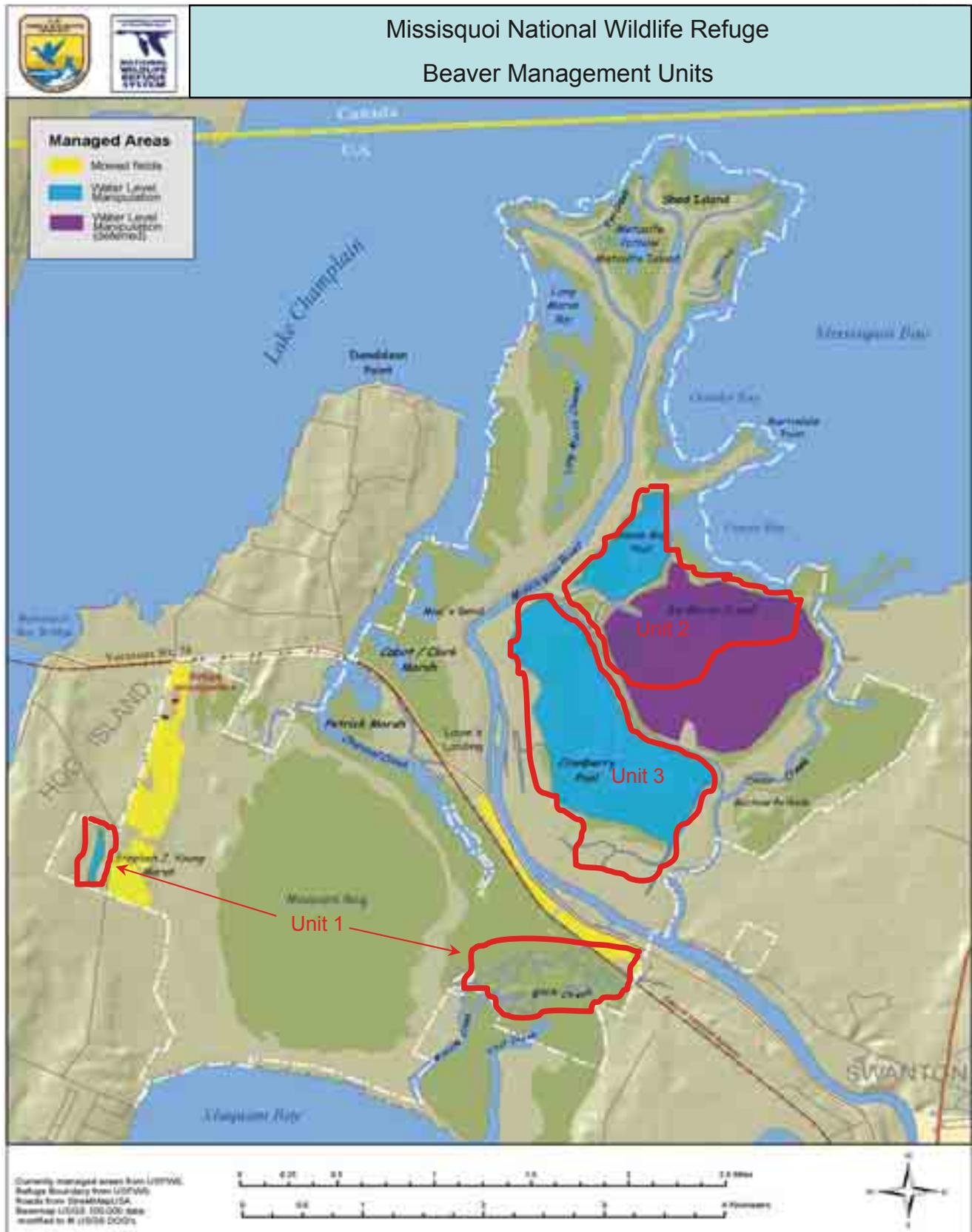
Mandatory 10 Year Re-evaluation Date:

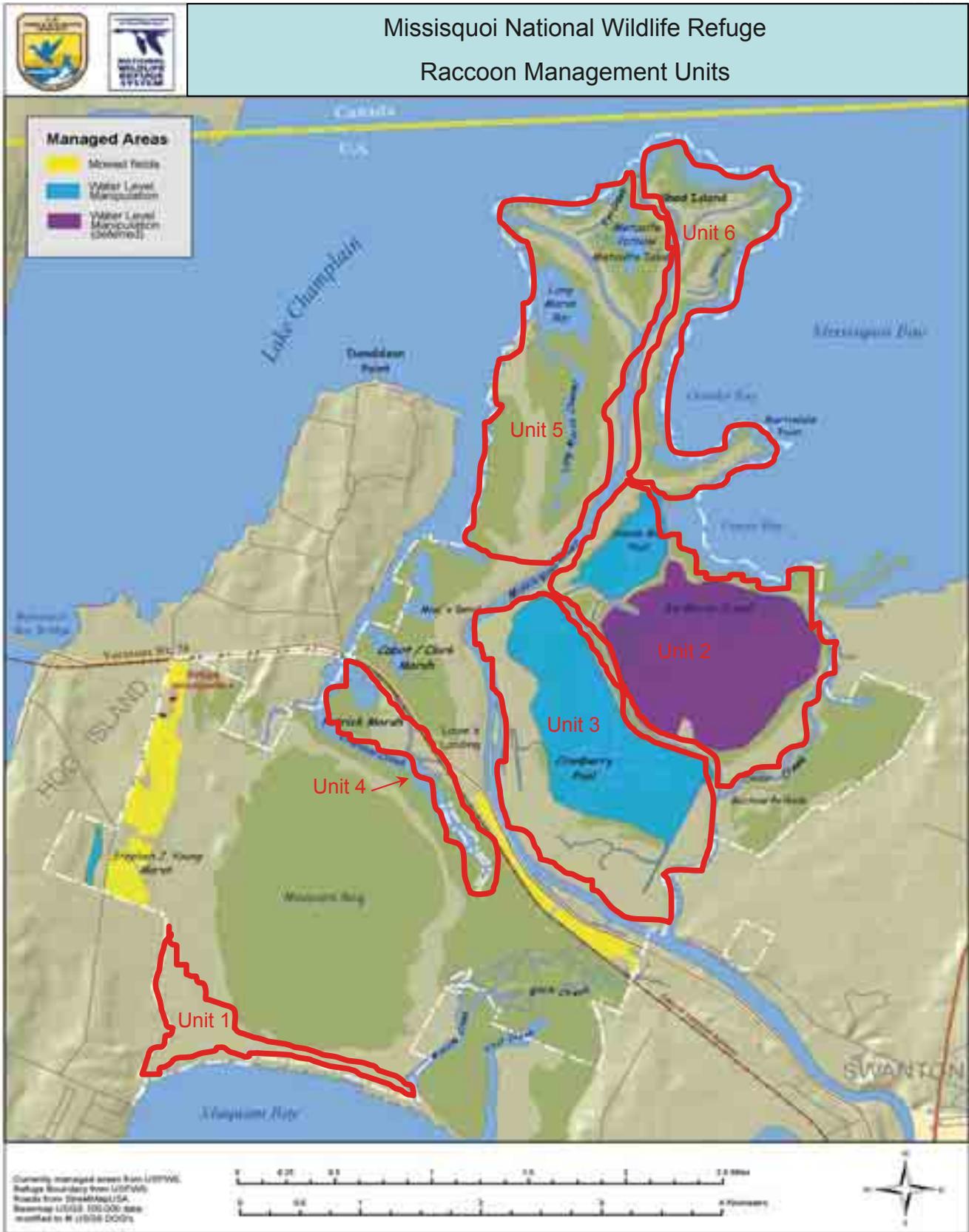
(Signature and Date)

Literature Cited

- Andelt, W.F. R.L. Phillips, R.H. Schmidt, and R.B. Gill. Trapping furbearers: an overview of the biological and social issues surrounding a public controversy. *Wildlife Society Bulletin* 27(1): 53-64.
- Bogges, E.K., G.R. Batcheller, R.G. Linscombe, J.W. Greer, M. Novak, S.B. Linhart, D.W. Erickson, A.W. Todd, D.C. Juve, and D.A. Wade. 1990. Traps, trapping, and furbearer management. *Wildlife Society Technical Review* 90-1, The Wildlife Society, Bethesda, Maryland.
- Daigle, J.J., R.M. Muth, R.R. Zwick, and R.J. Glass. 1998. Sociocultural dimensions of trapping: a factor analytical study of trappers in six northeastern states. *Wildlife Society Bulletin* 26:614-625.
- International Association of Fish and Wildlife Agencies. 1998. Best Management Practices for trapping furbearers in the United States. International Association of Fish and Wildlife Agencies, Washington, D.C.
- Northeast Furbearer Resources Technical Committee. 1996. Trapping and furbearer management: perspectives from the Northeast. 33pp.
- Payne, N.F. 1980. Furbearer management and trapping. *Wildlife Society Bulletin* 8:345-348.
- Attachments: Maps B-1, B-2, B-3







COMPATIBILITY DETERMINATION

USE: Walking or hiking, cross-country skiing, snowshoeing

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The uses are walking or hiking, cross-country skiing and snowshoeing. Those activities have occurred on the refuge for many years. They are not priority public uses of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee) or the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57). However, the refuge staff believes allowing these activities will expose the participants to the refuge and the Refuge System in a positive way. That may lead to better public understanding of the importance of the Refuge System to the American people.

(b) Where would the use be conducted?

These activities would be conducted on refuge trails, including the Black Creek and Maquam Creek Nature trails, Jeep Trail, Old Railroad Passage Trail, Stephen J. Young Marsh Trail, Discovery Trail, and Mac’s Bend Road.

(c) When would the use be conducted?

The trail system may be used daily from dawn to dusk, year-round, with the following exceptions.

Trail closures during hunting seasons (Trails will be posted closed)

- Jeep Trail
 - ◆ April 1–August 1 (Nesting Season Closure)
 - ◆ Youth Deer Hunt Weekend (Early November–2 days)
 - ◆ Muzzle-loader Season (Early December – 10 days)

- Discovery Trail
 - ◆ Regular Season – shotgun and rifle (Mid-November–16 days)
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season
- Old Railroad Trail
 - ◆ Regular Season – shotgun and rifle
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season
- Stephen J. Young Marsh
 - ◆ Regular Season – shotgun and rifle
 - ◆ Youth Deer Hunt Weekend
 - ◆ Muzzle-loader Season

Trail advisories during hunting seasons (Trails will be posted to advise users that the area is open for hunting—visitors may proceed with caution)

- Discovery Trail
 - ◆ Archery Season (Early October – 23 days)
 - ◆ Upland Game Seasons (includes gray squirrel, rabbit and hare, ruffed grouse)
- Old Railroad Trail
 - ◆ Archery Season
 - ◆ Upland Game Seasons (includes gray squirrel, rabbit and hare, ruffed grouse)
- Stephen J. Young Marsh Trail
 - ◆ Archery Season

(d) How would the use be conducted?

Refuge trails are open from dawn to dusk daily, unless closed for hunting seasons as indicated above or for maintenance or safety reasons. Occasionally, the trails are open before sunrise or after sunset for refuge-sanctioned activities such as owl prowls, woodcock walks, etc.

Bicycles are not allowed on any trails except the Mac’s Bend Road, but only when that road is also open for vehicles.

Visitors are required to remain on the improved portions of the trail to minimize environmental damage and prevent accidents.

Collecting of any kind is not allowed, nor is disturbing or feeding wildlife.

We monitor and maintain the refuge trails to provide a safe, relatively level surface free of limbs and branches that may be hazardous for visitors. The refuge staff removes fallen trees and limbs. The trail surfaces are maintained each year by applying gravel where needed, repairing the boardwalk and handrails, and so on.

Currently, dogs are allowed on the trails while on a leash of 10 ft. or shorter in length and under the control of their master. However, if approved in our comprehensive conservation plan, no dogs will be allowed on the refuge trails except those authorized for hunting, assisting the disabled, or emergencies.

We may close the Discovery Trail during certain light snow conditions when the sharp-tipped poles used with skis or snowshoes would mark or damage the surface of the boardwalks. In deep snow conditions, that would not be an issue. We will monitor snow conditions and enact closures when warranted.

(e) Why is this use being proposed?

These are longstanding uses on the Missisquoi refuge and most national wildlife refuges. Although they are not priority public uses, the refuge staff believes that allowing them will expose the participants to the refuge and the Refuge System in a positive way. That exposure may lead to better public understanding of the importance of the Refuge System to the American people and their support for refuge land acquisition and management.

AVAILABILITY OF RESOURCES

For many years, the refuge has been open for hunting, fishing, viewing and photographing wildlife, and environmental education and interpretation. The refuge has already built a trail system to support those priority public uses. The refuge infrastructure already exists to accommodate these activities. We expect the use of refuge facilities to increase incrementally the general operating cost for their maintenance (see below).

In a typical fiscal year, the refuge incurs the following costs.

The refuge requires 45 staff days and a 12-member YCC crew for 4 weeks to manage those activities, totaling approximately \$13,750 in salaries and \$20,000 for YCC work. Staff duties in support of the activities include planning, inquiries, news releases, enforcement, signs, trail maintenance and road maintenance. The total cost for the refuge on a typical fiscal year to administer those activities would be \$16,750. We expect that cost to increase by 1 percent or 2 percent annually.

Table 6. Annual costs for walking, hiking, skiing and snowshoeing

Forty-five staff days	\$13,750
Fuel	500
Supplies	2,000
Administrative overhead	\$500
Total	\$16,750

Based on our review of the refuge operating budget, if the refuge continues to receive funding to support YCC, funding will be adequate to administer and manage these activities and ensure their compatibility.

ANTICIPATED IMPACTS OF THE USE

The presence of vehicles and people walking, hiking, skiing, and snowshoeing could result in some disturbance of wildlife in habitats located next to the trail system. However, that should be only short-term disturbance. The use of the trails could lead to soil compaction causing some tree roots to

be exposed if they are close to the ground surface. The boardwalks and gravel surfacing maintain the trails and cover some exposed tree roots. Signs and refuge brochures advise trail users to stay on the trail to minimize effects on surrounding vegetation. Potential conflicts could arise with other public uses such as hunting, interpretation, etc. Using trailhead signs and other media to inform visitors about trail closures and advisories will minimize those conflicts. Other impacts could occur, such as littering or the illegal taking of wildlife in violation of refuge regulations. The refuge staff believes that with the proper management, walking, hiking, skiing, and snowshoeing will not result in any short- or long-term impacts that will adversely affect the purpose of the refuge or the mission of the National Wildlife Refuge System.

PUBLIC REVIEW AND COMMENT

As part of the comprehensive conservation planning for the Missisquoi refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the release of our draft CCP/EA.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE ___

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

Law enforcement patrols of visitor use areas will minimize violations of refuge regulations. Trail conditions will be monitored for adverse effects on wildlife populations and their habitats.

To minimize or avoid negative impacts to wildlife and habitat:

- 1) Harassment, baiting, playback tapes, or electronic calls are not allowable methods to attract wildlife for observation or photography. That does not necessarily apply to management activities, e.g., approved research or surveys, which we evaluate on a case-by-case basis).
- 2) Currently, dog owners must keep their dogs controlled on a leash no longer than 10 feet. This regulation is frequently and blatantly violated and, short of constant law enforcement presence, is unenforceable. As a result, dogs have posed a threat and created disturbance of refuge wildlife, visitors and management activities. Upon the approval of the comprehensive conservation plan, we will implement a policy of “no dogs on the refuge.” That policy will include accommodations for hunting dogs used or required for approved refuge hunting seasons and programs, dogs trained to assist people with disabilities, and dogs used in emergency conditions.
- 3) Plant collection is prohibited, except for collecting of blueberries for personal consumption. This does not necessarily apply to management activities, e.g., approved research or surveys, which we evaluate on a case-by-case basis.

JUSTIFICATION

The Service and the National Wildlife Refuge System maintain the goal of providing opportunities to view wildlife. Allowing the use of the trail system by persons engaging in walking, hiking, skiing, and snowshoeing will provide visitors the chance to view wildlife. That promotes public appreciation of the continued conservation and protection of wildlife and habitat. Walking, hiking, skiing, and snowshoeing would not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the Missisquoi National Wildlife Refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year Re-evaluation Date: _____
(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Bicycling

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is bicycling on trails on the refuge. It is not a priority public use. This proposal does not include the use of bicycles on roadways that traverse the refuge or on gravel roads open to motor vehicles. In those areas, including the 1-mile gravel road from Louie’s Landing north along the Missisquoi River to Mac’s Bend, bicycling is allowed concurrent with motor vehicle access as is customary statewide and nationwide.

(b) Where would the use be conducted?

The proposed use would be conducted on hiking trails on the refuge in the towns of Swanton and Highgate, Franklin County, Vermont. We propose the following trails for this use.

- The Jeep trail from Mac’s Bend north along the west bank of the Missisquoi River—3.25 miles each way
- The Old Railroad Bed Trail off Tabor Road from Stephen J. Young Marsh Parking Area southeast to the shore of Lake Champlain on Maquam Bay—1.5 miles each way
- The Stephen J. Young Marsh trail off Tabor Road from the Stephen J. Young Marsh Parking Area west to the marsh and woodcock habitat treatment areas—0.5 miles each way
- The Black Creek and Maquam Creek trails west from refuge headquarters—1.5-mile loop

- The 1-mile gravel road from Louie’s Landing north along the Missisquoi River to Mac’s Bend. The road is available for use by bicyclists when the road is open to motorists. We propose that it also be open during that time of year when the road is closed to motor vehicles.

(c) When would the use be conducted?

Bicycling would occur daily from sunrise to sunset at any time of the year when the weather is suitable.

(d) How would the use be conducted?

Some bicyclists would arrive by vehicle and park in the parking areas associated with the refuge trails they intend to use. Others would bike to the refuge, perhaps as part of a trip along the Lake Champlain Bikeway, and use the refuge trail of their choice. That bikeway does not include Route 78 through the refuge, but does include a portion of Route 36 2 miles south of refuge headquarters via Route 78.

This use would require no additional fee or registration. All of the areas we propose for bicycling would continue in use by visitors traveling on foot.

We do not expect to have to limit the number of users, given the present level of pedestrian use and the expected level of biking use. If those numbers increase to levels that would require us to limit them, potential methods would include charging a fee, requiring a trail user’s permit, controlling volume and traffic flow by refuge staff or trained volunteers, or developing additional biking and hiking opportunities to spread out the numbers to acceptable levels.

To accommodate the use of bicycles, we may have to reroute or harden parts of the trails to minimize damage to them or the areas around them. We would need to modify the trails in some areas to offset the increased potential for erosion and sedimentation from bicycle traffic, widen them to facilitate safe, two-way passage for bicyclists and pedestrians, and fix potholes or other irregularities to prevent accidents. Several of the trails change to elevated boardwalks where they pass through wetland areas. The boardwalks meet the accessibility standards of the Americans with Disabilities Act, and are easily passable by a person on a bicycle, but would not be wide enough for a person on a bicycle to pass a pedestrian or another person on a bicycle without using great caution. Funding would be necessary to widen the boardwalks to accommodate bicyclists and pedestrians and post signs warning all users to exercise caution.

Law enforcement personnel would monitor the program to determine its level of use, interact with users to educate them about the refuge and inform them about refuge regulations and potential safety concerns. We would post safety and information signs at trail entry points and other appropriate sites along the trails. Brochures would be available at refuge headquarters and in refuge kiosks informing users about the trails designated for bicycling and the regulations governing public use.

(e) Why is this use being proposed?

Refuge visitors have inquired about using bicycles on refuge trails. Some have already done so, apparently thinking it was acceptable. Bicycling on the refuge may increase opportunities for the public to participate in priority public uses. For example, anglers would be able to travel down Mac’s Bend Road to fish along the bank. Since vehicles are not allowed on Mac’s Bend Road most of the year, the option of bicycling down the road would appeal to some users and expedite their travel. Bicycling can also be less strenuous than walking, and provides a more convenient, faster mode of travel for visitors engaged in wildlife observation or photography.

The establishment of the Lake Champlain Bikeway reflects the increasing popularity of biking in the area. Eventually, the bikeway will encircle the 125-mile-long lake, and pass through Vermont, New York, and the Province of Quebec. Increasingly popular rail trails also have been developed near the refuge: one from Swanton to Enosburg east of the refuge, and another from Alburg west of the refuge. The increasing interest in the sport of mountain biking locally mirrors the increase nationwide. The demand for off-road sites to ride mountain bikes is increasing, and will undoubtedly continue to do so. Although undocumented, the number of refuge visitors who arrive with bicycles is slowly increasing.

AVAILABILITY OF RESOURCES

Staff time for administering this use at the levels we expect relates to assessing the need for maintaining and repairing roads, trails, kiosks and signs; posting signs on roads and trails; monitoring the use for possible impacts on refuge resources and visitors; and developing information about this use and providing it to the public. Staff time would also be required to develop plans to reroute, improve or widen portions of the trails, develop funding requests, assemble materials, and implement modifications and improvements. Law enforcement personnel and an outdoor recreation planner would be necessary to patrol the trails, interact with users, monitor this use, and recommend and implement improvements.

The refuge lacks enough staff to support this proposal, and our operating budget lacks the funding for the trail changes and improvements necessary to make this a safe use for bicyclists or pedestrians and minimize the detrimental environmental impacts described above. Although we would have to develop detailed costs for the proposed trail improvements, we speculate that they would cost several hundred thousand dollars, based on their cost in the past.

ANTICIPATED IMPACTS OF THE USE

Bicycling is likely to cause physical impacts on the soil. We did not construct the trails on the refuge with this use in mind. To accommodate it, we would have to partly reroute, widen, and resurface (harden) the trails, which would displace plants and animals.

The shearing action of a bicycle tire damages trails. That effect is more pronounced when the ground is wet or when the land slopes up (Cessford 1995). Braking hard when traveling down slope can loosen surfaces, leading to erosion and rutting. Frequent passage by bicycles would also compact the soils, especially when conditions are wet (Cessford 1995). The compacted soils would increase water runoff and accelerate erosion. Surrounding plant communities are likely to be degraded because of

loss of soil porosity, aeration and nutrients. Plant re-colonization will be limited because root growth and penetration is more difficult in compacted soils (Hammitt and Cole 1998). When a rider chooses or is forced to ride off-trail, the wheels of the bicycle can crush plants.

Bicycle tire tracks may increase water channeling and erosion in wet conditions. The refuge receives more than 40 inches of rainfall annually, and encompasses wetland communities with poorly drained soils high in organic matter. Areas with high rainfall, poor drainage and highly organic soils were identified as most prone to trail degradation (Simmons and Cessford 1989 *in* Cessford 1995). Increased moisture content reduces the ability of the soil to support recreational traffic, and plant species adapted to wet or moist habitats are highly sensitive to that traffic (Kuss 1986). Because the land on this refuge is naturally predisposed to erosion, bicycling on the refuge trails would likely increase and accelerate their degradation, thereby increasing their maintenance costs. The extent of those hydrological impacts on the refuge trails would depend on the number of cyclists using them.

Other impacts would include the impacts on pedestrians and the potential for greatly increasing rates of visitation by bicyclists. Although some parts of the trails are ADA-accessible, they are ill suited for use concurrently by pedestrians and cyclists. We may reasonably assume that bicyclists would not travel very fast on the trails because of their relatively rough, irregular surfaces, but bicyclists would still travel faster than pedestrians would. That would result in frequent passing situations, whether the users were traveling in the same direction or in opposite directions. The risk of collision and injury in those situations is significant unless the pedestrian and the rider are each aware of the other and are using caution to pass safely.

A similar concern arises concerning children, even when adults are supervising them. They may not be paying attention, or realize the potential hazards of cyclists using the trail. A bicyclist may be unable to avoid a child who darts into the path.

Although riding a bicycle carries some inherent risk of injury, the rough, uneven surfaces of the trails may raise that risk by causing bicyclists to lose control or injure themselves in collisions with trees or other vegetation next to the trails. Refuge signs and brochures warning of all the risks discussed in this section can help reduce them.

The only exception to those impacts is bicycling on the gravel road between Louie's Landing and Mac's Bend. The width of the road, its smooth surface, and the relatively low speed of the vehicles traveling on it do not constitute a particularly hazardous situation. Its gravel surface would require little additional maintenance and no modification to be suitable for bicycling. Its ~16-foot width minimizes the risk in bicyclists passing pedestrians or other bicyclists. However, public and official vehicles use it in October and November, and official vehicles use it year-round.

PUBLIC REVIEW AND COMMENT

As part of the comprehensive conservation planning for the Missisquoi refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the release of our draft CCP/EA.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE _____

THIS USE IS NOT COMPATIBLE X

JUSTIFICATION

We have determined that bicycling is not compatible at the Missisquoi refuge, except on the roads that are also open to motor vehicles as stated above. The potential conflicts with pedestrians create safety concerns for both bicyclists and pedestrians. The fact that we did not develop our trails with the intention that they be used for bicycling requires that they be widened, resurfaced and, possibly, rerouted in some locations, and that signs be posted with warnings advising users of possible conflicts and potential injury, all of which will require significant resources that are now unavailable. Nor are sufficient refuge personnel available to enact those costly, time-consuming changes without affecting other priority public uses or resource management activities.

Overall, allowing this use could materially interfere with or detract from the mission of the National Wildlife Refuge System and diminish the purposes for which the refuge was established. This use may pose significant short- or long-term adverse effects on trust species or other refuge resources, could substantially interfere with priority public uses of the refuge, and would require expensive administration and operation.

The perceived high cost and effort associated with modifying existing trails to accommodate bicyclists, the potential for conflict and injury among bicyclists and pedestrians even after trail modifications, and the potential environmental impacts resulting from both the modification and use of the trail and its environs combine to make this proposed use not compatible.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10 Year Re-evaluation Date: _____
(Signature and Date)

Literature Cited

Cessford, G. 1995. Off-road impacts of mountain bikes: A review and discussion. Department of Conservation Publication, Wellington, New Zealand

Hammitt, W. E. and D. N. Cole, 1998. Wildland Recreation. John Wiley & Sons, New York, 361 pp.

Kuss, F. R. 1986. A review of major factors influencing plant responses to recreation impacts. *Environmental Management* 10:638-650.

Simmons, D.G. and G.R. Cessford, 1989. The St James Walkway Study. *Occasional Paper* No. 1. Department of Parks, Recreation and Tourism, Lincoln University, Canterbury, New Zealand. *in* Cessford, G. 1995. Off-road impacts of mountain bikes: A review and discussion. Department of Conservation Publication, Wellington, New Zealand

COMPATIBILITY DETERMINATION

USE: Hunting access to adjacent public, private or state land

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is hunting access to adjacent public, private or state land. Historically, we have issued permits to those who own property within the refuge, granting them access across the refuge to hunt on their land. We also issue a few permits to allow access to hunt on a State Wildlife Management Area next to the refuge. This use is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

In the past, we have granted access to privately owned land and state land for waterfowl hunting by way of the Black Creek and Maquam Creek nature trails.

(c) When would the use be conducted?

We would issue permits for the duration of the waterfowl season, normally the 60 days between October 1 and December 31 each year. The period of use actually falls early in the season, because hunting success and effort normally decrease at these locations as the season progresses, and cease when these areas of shallow water freeze. They are among the first to freeze because of their protection from the wind, their shallow water and lack of current.

The permit holders generally access the refuge in the pre-dawn hours and conclude their hunts by mid-morning. They generally do not use the areas in the afternoon, except on a few days at the beginning of the hunting season.

(d) How would the use be conducted?

Our policy for more than 20 years has been to limit the permits to previous permit holders and private landowners. That has kept the actual intensity of this use to a minimal level, and has gradually reduced it over time. The present level of this use is easily manageable.

The permit holders use the beginning of the Black Creek Nature Trail, and park near the Black Creek to launch canoes for access to either private land or the State Management Area. Hunters may not hunt near the trail; they may only transport their hunting equipment by canoe or car-top boat down the creek to the off-refuge hunting site and back.

(e) Why is this use being proposed?

This use is being proposed because crossing the refuge is the path of least resistance for the hunters to access private or state lands. Other routes would require a longer trip by vehicle followed by a much longer ride by motorboat or canoe. At times, high winds and waves could endanger the boat trip along the shoreline of Maquam Bay to the creeks in or near the state or private lands.

AVAILABILITY OF RESOURCES

The costs of administering this program are contained wholly in the cost of preparing the special use permits and coordinating with the permit holders. Those costs are contained within the annual operating budget of the refuge.

ANTICIPATED IMPACTS OF THE USE

A maximum of three vehicles, more often only one or two, may be parked near Black Creek on the Black Creek Nature Trail at any one time during the waterfowl-hunting season. Visitors using the nature trail for wildlife observation in the fall may observe the vehicles and be curious about why they are there. There should be no impacts on trail users when permit holders arrive in the pre-dawn hours of the morning. There may be some limited interaction among permit holders and trail users, as the permit holders leave during the day, but the trail is wide and visibility is good, so passing the slow-moving vehicle can be done safely and courteously.

PUBLIC REVIEW AND COMMENT

As part of the comprehensive conservation planning for the Missisquoi refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the release of our draft CCP/EA.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE ___

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

The permit holders must not hunt within the refuge, or within the safety zone established around the Black Creek/Maquam Creek Nature Trail. Hunters must continue to be courteous to trail users and allow safe, easy passage.

JUSTIFICATION

For more than 30 years, we have extended the courtesy of allowing access through the refuge to hunt on privately owned or state-owned land. For the past 20 years, the refuge has limited the permits to previous permit holders and private landowners. That has kept the actual intensity of this use to a minimal level, and has gradually reduced it over time. The present level of this use is easily manageable. Allowing access across the Missisquoi National Wildlife Refuge for hunters to hunt on private or state land will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

Signature: Refuge Manager:

(Signature and Date)

Concurrence: Regional Chief:

(Signature and Date)

Mandatory 10 year Re-evaluation Date:

(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Access for commercial bait collecting

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is access for non-refuge commercial bait collecting. It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57). The proposed activity is to allow access via refuge lands and facilities to state-controlled, off-refuge waters for collecting minnows then selling them to anglers for bait.

(b) Where would the use be conducted?

The proposed use would be conducted on the refuge in the towns of Swanton and Highgate, Franklin County, Vermont. Some minnow collectors use undeveloped roadside parking areas along Route 78 where it passes through the refuge next to the Missisquoi River. They cross refuge lands on foot to access minnow collecting sites in the river, where they collect in accordance with state regulations and permits. Other collectors use the Mac’s Bend boat launch area, accessible through a refuge gate that is normally locked during the minnow collecting season (late fall and early winter). From there, they launch watercraft into the river to access minnow collecting sites, where they collect in accordance with state regulations and permits.

(c) When would the use be conducted?

Collectors normally collect between October 7 and December 31, depending on environmental conditions, such as the river freezing, and the presence of minnows, which school into the river near the onset of freezing weather.

(d) How would the use be conducted?

All bait collecting must adhere to state regulations for seasons, bag limits, species, methods of taking, and permits. The state authorizes commercial bait dealers to take and transport in excess of two quarts of minnows after acquiring a Commercial Bait Dealer’s Permit. A Special Use Permit from the refuge manager is required for access across refuge lands and via refuge roads and boat launches.

(e) Why is this use being proposed?

Access via Missisquoi refuge lands or facilities for minnow collecting is an established use, and we expect past users will continue to seek access. In a normal year, the refuge receives requests for about five special use permits for access for commercial bait collecting.

AVAILABILITY OF RESOURCES

The facilities or materials needed to support access for commercial minnow collecting include two parking areas, two boat launch areas, restrooms, and a brochure explaining refuge fishing regulations. Associated costs include routine maintenance of those facilities, administering the special use permit, and monitoring the activities of permit holders for compliance with the special use permits. The table below summarizes our analysis of the annual costs associated with providing access for commercial minnow collecting.

These costs are associated not only with access for commercial minnow collecting, but also with the public’s engaging in priority uses and refuge operational needs. If prorated according to expected use by activity, we estimate the cost for access for commercial minnow collecting to be \$100, or 2 percent of the annual maintenance costs, and \$250 of the monitoring costs, or 100 percent of the costs to monitor five permit holders each year.

Table 7. Annual costs of providing access for commercial minnow collecting

Routine maintenance	\$5,000 This is the estimated cost to maintain two parking areas, two boat launch areas, a 1-mile stretch of gravel road, and three fully accessible restrooms. However, their use by commercial bait collectors is negligible. Refuge visitors use the same facilities in other public uses, such as hunting, fishing, boating, and observing wildlife. The refuge staff also uses them in refuge operations.
Administering special use permits and monitoring compliance	We estimate this cost at less than \$100 each occurrence, based on 1 hour of staff time for reviewing and preparing the special use permit and an additional hour for checking compliance. Those usually are conducted during the normal course of duty.
Total	\$5,500

ANTICIPATED IMPACTS OF THE USE

the mere presence of humans crossing refuge lands to access commercial minnow collecting sites may cause some general disturbance. Traditionally, however, permit holders park within 100 meters of minnow collecting sites, and traverse on foot a short part of the forested riverine habitat that is not sensitive to wildlife disturbance or habitat damage in the late fall or early winter, the period of use. The introduction of aquatic nuisance species due to the incomplete cleaning of boats and collecting equipment before using them at the refuge is a consideration. However, we expect it to be minimal and, essentially, non-threatening due to the season of use.

Although undocumented, access for minnow collecting has not been shown to have any adverse impacts on the fisheries resource or other species of plants or animals on the refuge. The conditions of the special use permits and an effective law enforcement program have addressed minor problems such as littering.

PUBLIC REVIEW AND COMMENT

As part of the CCP process for Missisquoi National Wildlife Refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the draft CCP/EA. Additionally, we posted this draft compatibility determination at refuge headquarters from August 11-25, 2004. We received no comments.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE ___

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

- 1) Permit holders must comply with state commercial/sport fishing regulations.
- 2) A special use permit from the refuge manager is required annually. The permit fee is \$35, in accordance with regional standards.
- 3) The special use permit must be in the possession of the permit holder or an employee of the permit holder while on the refuge, and is not transferable to another individual or party.
- 4) The special use permit neither grants nor implies permission to obstruct any refuge road, parking area, boat launch or waterway at any time.
- 5) The permit holder must possess a Commercial Bait Dealer’s Permit from the Vermont Commissioner of Fish and Wildlife.
- 6) Excessive fish mortality and waste, as determined by the refuge manager, will result in revocation of the special use permit and denial of future permit applications.

- 7) All equipment used shall be cleaned so as not to introduce aquatic nuisance species. Tanks and other equipment used shall not be cleaned or emptied while on refuge lands.
- 8) Failure to comply with conditions of the special use permit will result in its revocation.
- 9) All or parts of the refuge may be closed to access for commercial bait collecting at any time if necessary for public safety, to provide wildlife sanctuary, or for administrative reasons.

JUSTIFICATION

With the current state regulations for commercial fishing in place and the above-mentioned considerations, access for minnow collecting on the Missisquoi National Wildlife Refuge is compatible with refuge purposes.

Allowing access for commercial bait collecting to occur within the Missisquoi National Wildlife Refuge contributes to, and does not materially interfere with or detract from, the mission of the National Wildlife Refuge System and the purposes for which the refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year Re-evaluation Date: _____
(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Snowmobiling

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use under consideration is to allow snowmobile access and use within the boundaries of the Missisquoi National Wildlife Refuge. Snowmobiling is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

The use would be conducted on the refuge, in the Towns of Swanton and Highgate, Franklin County, Vermont. The use of snowmobiles would focus primarily on the area of the Headquarters Nature Trail extending to the Lake Champlain Shoreline at First Creek and Maquam Creek. No other portion of the refuge would be open for use by snowmobiles.

(c) When would the use be conducted?

Vermont’s snowmobiling season usually starts in mid-December and ends in early April. The use of snowmobiles depends entirely on suitable snow conditions and the waters of Lake Champlain and the Missisquoi River freezing solid near the refuge. Snowmobile access would occur during daytime and nighttime hours.

(d) How would the use be conducted?

We would establish a marked trail from the side of the Missisquoi River at refuge headquarters along the nature trail to Black Creek, thence to Maquam Creek to the shoreline of Lake Champlain at

Maquam Bay. We would post signs to mark the trail and discourage users from entering closed areas. Law enforcement personnel would patrol snowmobile access areas to ensure users are not entering closed areas, and to monitor impacts on other users, wildlife and natural resources. No other portion of the refuge would be open for use by snowmobiles.

(e) Why is this use being proposed?

This use would facilitate the passage of snowmobiles from the Hog Island section of Swanton and other points west of the refuge to points in Swanton and beyond to the east. That would preclude having to take a circuitous route from Hog Island to Swanton or vice versa, and reduce the distance traveled by as much as 12 miles.

Arguably, snowmobile access would facilitate travel for priority public uses on the refuge in the winter. Most snowmobile use near the refuge is for pleasure riding or access to Lake Champlain for ice fishing. The popular fishing locations lie outside the refuge boundary; however, depending on the starting point, snowmobile users may access them most easily via the refuge.

AVAILABILITY OF RESOURCES

Staff time for administering this use would relate to posting trail signs, monitoring the use and its possible impacts on refuge resources and other visitors, and providing information to the public. Law enforcement personnel would be essential to ensure compliance and monitor impacts.

ANTICIPATED IMPACTS OF THE USE

Direct, negative impacts resulting from this use include habitat loss, air pollution, and the disturbance of wildlife and pedestrian visitors.

Impacts on Environmental Quality

In one hour, an unregulated two-stroke snowmobile can emit as much hydrocarbon, carbon monoxide and nitrous oxide as 100 automobiles (EPA 2002). A snowmobile may expel 25 percent to 30 percent of its unburned fuel (gas and oil mix) out its tailpipe. Air pollution at trailheads and along snowmobile trail corridors in areas of heavy use causes increases in acidity and the development of lethal concentrations of nitrogen, sulfate and hydrocarbon compounds in snow.

Pollutants from snowmobile emissions, including benzene, 1,3-butadiene, polycyclic aromatic hydrocarbons (PAH) and methyl tertiary-butyl ether (MTBE) become locked within the snowpack. The U.S. Environmental Protection Agency (EPA) classifies all of those as known or probable human carcinogens. The toxic effects of those accumulated pollutants are magnified during the spring snowmelt (Bluewater Network). Surrounding waterways have higher acidity levels, and correspondingly higher mortality rates of aquatic insects and amphibians. The hydrocarbons and lead emitted from snowmobiles have also been determined to adversely affect brook trout (Adams 1975).

The Vermont Agency of Natural Resources states that nearly all gasoline sold in Vermont contains MTBE (VANR 2002). The amount of MTBE released from a single two-stroke snowmobile may be as much as 800 grams a day, with a significant amount incorporated into the snowpack (Einarson 2002). During the snowmelt, the dissolved MTBE enters nearby surface water and groundwater,

thereby migrating further and more quickly. MTBE does not adhere to soil particles and resists biodegradation (VANR 2002). Low levels of MTBE can make drinking water supplies undrinkable due to its offensive taste and odor (EPA 1997). The EPA states that MTBE in drinking water at concentrations between 20 and 40 parts per billion (ppb) or below is not likely to cause adverse health effects. Vermont's rules on ground water recommend a limit of 40 ppb.

The extent of the impact on environmental quality resulting from the use of snowmobiles would be contingent upon the amount of this activity on or around the refuge. Anticipated activity, while undocumented, would likely result in minimal levels of the environmental quality impacts described above.

Impacts on Wildlife

Snowmobiles have less obvious effects on larger animals, moderate effects on medium-sized animals and drastic effects on small animals, notably those overwintering in sub-snow environments (Bury 1978). Deer are known to be tolerant of the noise produced by snowmobiles and are not seriously effected by the physical impacts (snow compaction) of snowmobiles, although the snowmobile path can provide easier access for predators to deer yarding locations thus producing an indirect impact.

Snowmobile use is likely to impact the small animals that live in the subnivean layer (the space between snow and soil) during the winter time. Jarvinen and Schmid (1971) found marked increases in winter mortality of small mammals underneath snowmobile-compacted snowfields. The snowmobiles compact the snow, destroying air spaces between the snow and soil, reduce snow depth, increase the density of the snow, and decrease snow insulation of the small subnivean air space. The air in the subnivean layer may also become toxic with unusually high amounts of carbon monoxide emitted from snowmobile exhaust (Neumann and Merriam 1972).

The noise produced by snowmobiles may alarm some wintering wildlife and cause them to avoid searching for food near snowmobile trails. The Bureau of Land Management found that the most significant impact of snowmobiles on wildlife appears to be changes in the animals' daily routine rather than direct mortality.

As stated above, toxins emitted from the snowmobiles build up in the snowpack and are released into waterways during spring snowmelt, potentially and probably impacting fish, amphibians and aquatic insects.

Impacts on Other Users

Conflicts may arise between snowmobile users and other users when the two uses converge. Conflicts with other users are often asymmetric. Cross-country skiers and snowshoers tend to feel a conflict with snowmobilers because the noise from snowmobiles disturbs their quiet solitude while visiting the refuge. Likewise, they complain about the smell of the machines' fuel emissions. In those situations, conflicts arise because the motivations for participation of the pedestrian users are compromised and anticipated experiences are unfulfilled (Jackson and Wong 1982). Snowmobilers, on the other hand, may be tolerant or indifferent of the pedestrian users.

Safety problems may also arise when differing uses coincide. Snowmobile users may collide with other users who are snowshoeing or cross-country skiing. Snowmobile users may collide with other snowmobiles or stationary trailside objects such as trees, rocks or signs, resulting in injury or death and property damage. The U.S. Consumer Product Safety Commission reports that hospital emergency rooms in the United States treated an average of 13,400 snowmobile-related injuries from 1990 to 1996. Finally, depending on the number of snowmobiles in use, snowmobile users and other users may be exposed to significant levels of carbon monoxide from snowmobile exhaust emissions, and risk carbon monoxide poisoning.

PUBLIC REVIEW AND COMMENT

As part of the CCP process for Missisquoi National Wildlife Refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the draft CCP/EA. Additionally, we posted this draft compatibility determination at refuge headquarters from August 11-25, 2004. We received no comments.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE

THIS USE IS NOT COMPATIBLE

JUSTIFICATION

We have determined this use to be not compatible. It may materially interfere with or detract from the mission of the National Wildlife Refuge System or diminish the purposes for which the refuge was established. This use may impose significant short- and long-term adverse effects on trust species or other refuge resources, and could interfere substantially with public use of the refuge.

Specifically, we determined that adequate opportunities off-refuge are available for snowmobiling: the frozen waters of Lake Champlain and the Missisquoi River and thousands of acres of private land and other public land, including portions of the Rail Trail system east and west of the refuge. The passage of snowmobiles through the refuge near the nature trails and refuge headquarters creates conflicts among user groups that routing snowmobiles around the refuge can avoid. Likewise, routing snowmobiles around the refuge can avoid the potential impacts on wildlife, including impacts on deer using the Maquam Bog deer wintering area and impacts on subnivean¹ wildlife. Likewise, routing snowmobiles around the refuge can avoid impacts on sensitive wildlife species such as the leopard frog and green frog, which we are studying on the refuge because of the significant percentage of growth abnormalities in sampled populations.

¹ subnivean *adj* : situated or occurring under the snow (~burrows and runways—W.A. Fuller). Webster's Third

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year Re-evaluation Date: _____
(Signature and Date)

Literature Cited

Adams, E. S. 1975. Effects of lead and hydrocarbons from snowmobile exhaust on brook trout. *Transactions of the American Fisheries Society* 104 (2): 363-73.

Bluewater Network. "Top Five Snowmobile Myths." http://bluewaternetwork.org/reports/rep_pl_snow_myths.pdf

Bury, R.L. 1978. Impacts of snowmobiles on wildlife. *Transactions of the North American Wildlife Natural Resources Conference* 43: 149-156.

Einarson, M.D. 2002. *Impacts to South Lake Tahoe water supply wells resulting from non-point sources of MTBE*. California Groundwater Resources Association.

Jackson, E.L., and R.A.G. Wong. 1982. Perceived conflict between urban cross-country skiers and snowmobilers in Alberta. *Journal of Leisure Research*. 14(2):47 – 62.

Jarvinen, J.A., and W.D. Schmid. 1971. Snowmobile use and winter mortality of small mammals. In Chubb, M. (ed.) *Proceedings of the Snowmobile and Off the Road Vehicle Research Symposium*. College of Agriculture and Natural Resources, Department of Park and Recreation Resources, Recreation Resources and Planning Unit, Tech. Rep. 8, Michigan State University, East Lansing, MI.

Neumann, P.W., and H.G. Merriam. 1972. Ecological effects of snowmobiles. *The Canadian Field Naturalist*. 86:207-212.

United States Consumer Product Safety Commission. 1997. "Hazard Sketch Snowmobiles." http://bluewaternetwork.org/reports/rep_snow_cpsscstudy.pdf

United States Environmental Protection Agency. 2002. "Environmental Impacts of Newly Regulated Nonroad Engines." <http://www.epa.gov/otaq/regs/nonroad/2002/f02033.pdf>

COMPATIBILITY DETERMINATION

USE: Berry picking

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

Berry picking, primarily of blueberries with some opportunity also for picking cranberries, is the proposed use. It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

The proposed use would be conducted on the Missisquoi refuge in the Towns of Swanton and Highgate, Franklin County, Vermont. Traditionally, berry picking has taken place on the west and south sides of the Maquam Bog near Tabor Road.

(c) When would the use be conducted?

Berries are usually ripe for picking from mid-July until the end of August.

(d) How would the use be conducted?

Visitors participating in this use park at the Stephen J. Young Marsh parking lot, and walk on the Old Railroad Bed trail to pick berries in the Maquam Bog. This is a historical use on the refuge by only a handful of people who are familiar with the bog, and know where to go to get the berries. Berry growth reportedly has diminished greatly from the bounty that pickers formerly enjoyed. Therefore, the level of use we expect is very low, and do not expect that it will be necessary to set any limit on

the number of pickers. Refuge staff estimates that the refuge receives fewer than a dozen visits each year for picking berries. Pickers will be limited to collecting only enough for personal or family consumption. Commercial picking is not permitted.

Pickers will be required to obtain a special use permit communicating to them the regulations regarding the non-commercial, family use nature of the refuge berry picking program and the areas open and closed for picking, which may change annually.

(e) Why is this use being proposed?

Berry picking is a historic, traditional, sustainable activity at the refuge. A small number of refuge neighbors and local citizens persist in this activity.

AVAILABILITY OF RESOURCES

The facilities needed to support berry picking include the Stephen J. Young Marsh parking area and the Old Railroad Bed Trail along Tabor Road. Those facilities are also used by the public engaged in priority public uses. The proportionate use of these facilities by berry pickers is so low as to suggest that the cost of maintaining these facilities for the sole purpose of berry picking would be negligible.

Staff time would be committed to administering the program, and would require the preparation of special use permits, information on the areas open and closed for collecting, and a commitment of time to interact with permit holders. Refuge staff would also be required to make a field assessment of the berry crop annually in order to determine open and closed collecting sites. All staff requirements described are minimal, and within existing operational constraints.

Longstanding refuge berry pickers report the berry resource is declining as the evolution of the Maquam Bog continues. Fire, an important factor in maintaining habitats suitable for berry production, has not occurred in the bog for decades, and is probably a major factor in the perceived but undocumented reduction in berry production.

ANTICIPATED IMPACTS OF THE USE

Impacts such as trampling vegetation and temporarily disturbing wildlife would occur, but we do not expect them to be significant.

Significant numbers of visitors walking off established trails to collect blueberries can impact plants indirectly by compacting soils and diminishing soil porosity, aeration and nutrient availability, affecting plant growth and survival (Kuss 1986). The re-colonization of plants will be limited because root growth and penetration becomes more difficult in compacted soils (Hammit and Cole 1998). Foot travel increases root exposure, the effects of trampling, and the crushing of plants. Plants adapted to wet or moist soils are most sensitive to disturbance from the effects of trampling (Kuss 1986).

In that way, this use will cause some vegetation loss. However, we expect that, under current levels of use, the incidence of these problems will be minor and insignificant. Many of the berry bushes are located right next to the trail, alleviating the need for a lot of traffic off the trail.

Wildlife may avoid using otherwise suitable habitat when temporarily disturbed by visitors. Again, we expect that, under current levels of use, the incidence of this will be minor and insignificant. Generally, the harvest of berries by people in a wild, difficult to access environment such as the refuge is not sufficiently efficient or so extensive as to affect negatively the use and availability of the overall berry crop by wildlife.

PUBLIC REVIEW AND COMMENT

As part of the CCP process for Missisquoi National Wildlife Refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the draft CCP/EA. Additionally, we posted this draft compatibility determination at refuge headquarters from August 13-27, 2004. We received no comments.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

Blueberry picking will be permitted only in designated areas to minimize the damage to vegetation by trampling. These areas may be adjusted annually or more frequently as necessary. Parts of the berry picking area or, if appropriate, the entire area can be closed at any time for any length of time if the refuge manager determines that the activity is affecting wildlife or wildlife habitat.

JUSTIFICATION

With the above-mentioned consideration, blueberry picking on the Missisquoi National Wildlife Refuge is compatible with refuge purposes. Berry picking has been a historical use of the refuge for the six decades since the refuge was established and likely for many hundreds of years before that. No adverse impacts from the activity are known or documented at this refuge.

Berry picking will not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year Re-evaluation Date: _____
(Signature and Date)

Literature Cited

Hammit, W.E. and D.N. Cole, 1998. *Wildland Recreation*. John Wiley & Sons, New York, 361 pp.

Kuss, F. R. 1986. A review of major factors influencing plant responses to recreation impacts. *Environmental Management* 10:638-650.

COMPATIBILITY DETERMINATION

USE: Research conducted by non-refuge personnel

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is research conducted by non-Service personnel. It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

The locations of the research will vary by project. The entire refuge is open and available for scientific research. Research projects usually are limited to a particular habitat type, plant or wildlife species. Occasionally, research projects will encompass an assemblage of habitat types, plants or wildlife. The locations will be limited to those areas of the refuge that are necessary for conducting the research.

(c) When would the use be conducted?

The timing of the research will depend entirely on the project. We will allow scientific research on the refuge throughout the year. Some projects could be short-term in design, requiring one or two visits over the course of a few days. Others could be multiple year studies that require daily visits to the location. The timing of each will be limited to the minimum required for completion. If a research project occurs during the hunting season on the refuge, we will require and enforce special precautions to ensure public health and safety.

(d) How would the use be conducted?

The mechanics of the research will depend entirely on the individual project. We will carefully scrutinize the objectives, methods, and approach of each research project before allowing it on the refuge. We will not allow any research project that lacks an approved study plan and protocol or compromises public health and safety.

(e) Why is this use being proposed?

Research by non-Service personnel conducted by colleges, universities, federal, state, and local agencies, non-governmental organizations, and qualified members of the public furthers our understanding of the natural environment and improves the management of refuge natural resources. Much of the information research generates applies to management on and near the refuge. Past projects on the refuge have studied the endangered eastern spiny softshell turtle, parasitic wasps, vernal pools, canoe trail use by paddlers, refuge ecological cover types and mapping, the impacts of double-crested cormorants on great blue heron colony behavior and success, studies associated with Vermont's Breeding Bird Atlas, the Vermont Butterfly Atlas, attracting upland sandpipers with recorded vocalizations to increase nesting territory establishment, and others.

The Service encourages and supports research and management studies that will improve and strengthen decisions on managing natural resources on refuge lands. The refuge manager encourages and seeks research that clearly relates to approved refuge objectives, improves habitat management, and promotes adaptive management. Priority research addresses information on better managing the Nation's biological resources that generally are important to agencies of the Department of Interior, the National Wildlife Refuge System, and state fish and game agencies, and addresses important management issues or demonstrates techniques for managing species or habitats.

We also consider research for other purposes that may not relate directly to refuge objectives, but contributes to the broader enhancement, protection, use, preservation or management of native populations of fish, wildlife and plants, and their natural diversity in the region or the Atlantic flyway. All proposals must comply with Service policy on compatibility.

Refuge support in research that relates directly to refuge objectives may take the form of funding, in-kind services such as housing, the use of other refuge facilities, vehicles, boats, or equipment, the direct assistance of refuge staff in collecting data, providing historical records, conducting management treatments, or providing other assistance as appropriate.

AVAILABILITY OF RESOURCES

We incur the bulk of the cost for research in staff time to review research proposals, coordinate with researchers, and write special use permits. In some cases, a research project may require only one day of staff time to write a permit. In other cases, a research project may take many weeks, because the refuge staff must coordinate with students and advisors and accompany researchers on site visits. The table below shows the estimated annual costs associated with the administration of outside research on the refuge.

Table 8. Estimated annual costs of outside research on the refuge

Refuge biologist (GS11)	\$5,800 Four weeks/yr: review proposals, coordinate with researchers
Refuge manager (GS13)	\$3,800 Two weeks/yr: review proposals, special use permits, housing and vehicle coordination, general coordination; budgeting
Administrative assistant (GS6)	\$1,000 One week/yr: office administration
Maintenance worker (WG9)	\$750 One week/yr: vehicle, boat, housing maintenance
Total \$11,350	

ANTICIPATED IMPACTS OF THE USE

The Service encourages approved research to further the understanding of natural resources. Research by non-Service personnel adds greatly to the information base for refuge managers to make proper decisions. The disturbance of wildlife and vegetation by researchers could occur through observation, banding, collecting blood, or accessing the study area by foot, boat, or vehicle. Multiple, concurrent research projects could exacerbate those impacts. Direct mortality could result as a by-product of research activities. Overall, however, allowing non-Service personnel to conduct research should have little impact on Service interests. If researchers conduct their projects with professionalism and integrity, the knowledge gained far outweighs potential adverse impacts.

PUBLIC REVIEW AND COMMENT

As part of the comprehensive conservation planning process for the Missisquoi National Wildlife Refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the release of our draft CCP/EA.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE ___

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

We will require all researchers to submit a detailed research proposal that follows Missisquoi National Wildlife Refuge study proposal guidelines (see attachment I) and Service Policy (FWS Refuge Manual Chapter 4, Section 6). Researchers must give us at least 45 days to review proposals before the research begins. If the research involves the collection of wildlife, the refuge must be given 60 days to review the proposal. Researchers must obtain all necessary scientific collecting or other permits before starting the research. We will prioritize and approve proposals based on the need, benefit, compatibility, and funding required for the research.

Proposals

We will expect researchers to submit a final report to the refuge on completing their work. For long-term studies, we may also require interim progress reports. We also expect that research will be published in peer-reviewed publications. All reports, presentations, posters, articles or other publications will acknowledge the Refuge System and the Missisquoi refuge as partners in the research. All posters will adhere to Service graphics standards. We insert that requirement to ensure that the research community, partners, and the public understand that the research could not have been conducted without the refuge having been established, its operational support, and that of the Refuge System.

We will issue special use permits for all research conducted by non-Service personnel. The permits will list all conditions necessary to ensure compatibility. The permits will also identify a schedule for annual progress reports and the submittal of a final report or scientific paper.

We may ask our regional refuge biologists, other Service divisions, state agencies, or academic experts to review and comment on research proposals. We will require all researchers to obtain appropriate state and federal permits.

JUSTIFICATION

The Service encourages approved research to further our understanding of refuge natural resources and management. Research by non- Service personnel adds greatly to the information base for refuge managers to make proper decisions. Research conducted by non-Service personnel contributes to, and does not materially interfere with or detract from, the mission of the National Wildlife Refuge System and the purposes for which the refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10 Reevaluation Date: _____
(Signature and Date)

Literature Cited

U.S. Fish and Wildlife Service. 1985. *Refuge Manual*. Washington, D.C.: U.S. Government Printing Office.

Attachment I. Missisquoi National Wildlife Refuge Study Proposal Guidelines

A study proposal is a justification and description of the work to be done, and includes cost and time requirements. The proposals must be specific enough to serve as blueprints for the investigation. They must spell out in advance systematic plans for the investigation at a level of detail commensurate with the cost and scope of the project and the needs of management. Please submit proposals electronically as a Microsoft® Word® document or hard copy to the refuge manager.

The following list provides a general outline of first-order headings/sections for study proposals.

- Cover Page
- Table of Contents (for longer proposals)
- Abstract
- Statement of Issue
- Literature Summary
- Objectives/Hypotheses
- Study Area
- Methods and Procedures
- Quality Assurance/Quality Control
- Specimen Collections
- Deliverables
- Special Requirements, Concerns, Necessary Permits
- Literature Cited
- Peer Review
- Budget
- Personnel and Qualifications

Cover Page

The cover page must contain the following information.

- Title of Proposal
- Current Date
- Investigator's(s')—name, title, organizational affiliation, address, telephone and fax numbers and e-mail address of all investigators or cooperators.
- Proposed Starting Date
- Estimated Completion Date
- Total Funding Support Requested from the U.S. Fish and Wildlife Service
- Signatures of Principal Investigator(s) and other appropriate institutional officials

Abstract

The abstract should contain a short summary description of the proposed study, including reference to major points in the sections “Statement of Issue,” “Objectives,” and “Methods and Procedures.”

Statement of Issue

Provide a clear precise summary of the problem to be addressed and the need for its solution. This section should include statements of the importance, justification, relevance, timeliness, generality,

and contribution of the study. Describe how any products will be used, including any anticipated commercial use. What is the estimated probability of success of accomplishing the objective(s) within the proposed timeframe?

Literature Summary

This section should include a thorough but concise literature review of current and past research that pertains to the proposed research, especially any pertinent research conducted at the Missisquoi National Wildlife Refuge. A discussion of relevant legislation, policies, and refuge planning and management history, goals, and objectives should also be included.

Objectives/Hypotheses

A very specific indication of the proposed outcomes of the project should be stated as objectives or hypotheses to be tested. Project objectives should be measurable. Provide a brief summary of what information will be provided at the end of the study and how it will be used in relation to the problem. These statements should flow logically from the statement of issue and directly address the management problem.

Establish data quality objectives in terms of precision, accuracy, representativeness, completeness, and comparability as a means of describing how good the data need to be to meet the project's objectives.

Study Area

Provide a detailed description of the geographic area(s) to be studied and include a clear map delineating the proposed study area(s) and showing specific locations where work will occur.

Methods and Procedures

This section should describe as precisely as possible, how the objectives will be met or how the hypotheses will be tested. Include detailed descriptions and justifications of the field and laboratory methodology, protocols, and instrumentation. Explain how each variable to be measured directly addresses the research objective/hypothesis. Describe the experimental design, population, sample size, and sampling approach (including procedures for sub-sampling). Summarize the statistical and other data analysis procedures to be used. List the response variables and tentative independent variables or covariates. Describe the experimental unit(s) for statistical analysis. Also include a detailed project time schedule that includes start, fieldwork, analysis, reporting, and completion dates.

Quality Assurance/Quality Control

Adequate quality assurance/quality control (QA/QC) procedures help insure that data and results are credible and not an artifact of sampling or recording errors; of known quality; able to stand up to external scientific scrutiny; and accompanied by detailed method documentation. Describe the procedures to be used to insure that data meet defined standards of quality and program requirements, errors are controlled in the field, laboratory, and office, and data are properly handled, documented, and archived. Describe the various steps (e.g. personnel training, calibration of equipment, data verification and validation) that will be used to identify and eliminate errors introduced during data

collection (including observer bias), handling, and computer entry. Identify the percentage of data that will be checked at each step.

Specimen Collections

Clearly describe the kind (species), numbers, sizes, and locations of animals, plants, rocks, minerals, or other natural objects to be sampled, captured, or collected. Identify the reasons for collecting, the intended use of all the specimens to be collected, and the proposed disposition of collected specimens. For those specimens to be retained permanently as voucher specimens, identify the parties responsible for cataloging, preservation, and storage and the proposed repository.

Deliverables

The proposal must indicate the number and specific format of hard and/or electronic media copies to be submitted for each deliverable. The number and format will reflect the needs of the refuge and the refuge manager. Indicate how many months after the project is initiated (or the actual anticipated date) that each deliverable will be submitted. Deliverables are to be submitted or presented to the refuge manager.

The following deliverables are required. Additional deliverables may be required of specific studies.

Reports and Publications

Describe what reports will be prepared and the timing of reports. Types of reports required in fulfillment of natural and social science study contracts or agreements include:

- 1). Progress report(s) (usually quarterly, semiannually, or annually): (may be required)
- 2). Draft final and final report(s): (always required).

A final report must be submitted in addition to a thesis or dissertation (if applicable) and all other identified deliverables. Final and draft final reports should follow refuge guidelines (attachment I).

In addition, investigators are encouraged to publish the findings of their investigations in refereed professional, scientific publications and present findings at conferences and symposia. Investigator publications will adhere to Service design standards. The refuge manager appreciates opportunities to review manuscripts in advance of their publication.

Data Files

Provide descriptions of any spatial (GIS) and non-spatial data files that will be generated and submitted as part of the research. Non-spatial data must be entered onto Windows CD-ROMs in Access or Excel. Spatial data, which includes GPS-generated files, must be in a format compatible with the refuge's GIS system (ArcGIS 8 or 9, Arcview 3.3, or e00 format). All GIS data must be in UTM 19, NAD 83. A condition of the permit will be that the Service has access to and may utilize in future mapping and management all GIS information generated.

Metadata

For all non-spatial and spatial data sets or information products, documentation of information (metadata) describing the extent of data coverage and scale, the history of where, when, and why the data were collected, who collected the data, the methods used to collect, process, or modify/ transform

the data, and a complete data dictionary must also be provided as final deliverables. Spatial metadata must conform to U.S. Fish and Wildlife Service (FGDC) metadata standards.

Oral Presentations

Three types of oral briefings should be included: pre-study, annual, and closeout. These briefings will be presented to refuge staff and other appropriate individuals and cooperators. In addition, investigators should conduct periodic informal briefings with refuge staff throughout the study whenever an opportunity arises. During each refuge visit, researchers should provide verbal updates on project progress. Frequent dialogue between researchers and refuge staff is an essential element of a successful research project.

Specimens and Associated Project Documentation

A report on collection activities, specimen disposition, and the data derived from collections, must be submitted to the refuge following refuge guidelines.

Other

Researchers must provide the refuge manager with all of the following.

- 1) Copies of field notes/ notebooks/ datasheets
- 2) Copies of raw data (in digital format), including GIS data, as well as analyzed data
- 3) Copies of all photos, slides (digital photos preferred), videos, films
- 4) Copies of any reports, theses, dissertations, publications or other material (such as news articles) resulting from studies conducted on refuge.
- 5) Detailed protocols used in study
- 6) Aerial photographs
- 7) Maps/GIS
- 8) Interpretive brochures and exhibits
- 9) Training sessions (where appropriate)
- 10) Survey forms
- 11) Value-added software, software developed, models

Special Requirements, Permits, and Concerns

Provide information on the following topics where applicable. Attach copies of any supporting documentation that will facilitate processing of your application.

Refuge Assistance

Describe any refuge assistance needed to complete the proposed study, such as use of equipment or facilities or assistance from refuge staff. It is important that all equipment, facilities, services, and logistical assistance expected to be provided by the Fish and Wildlife Service be specifically identified in this section so all parties are in clear agreement before the study begins.

Ground Disturbance

Describe the type, location, area, depth, number, and distribution of expected ground-disturbing activities, such as soil pits, cores, or stakes. Describe plans for site restoration of significantly affected areas.

Proposals that entail ground disturbance may require an archeological survey and special clearance prior to approval of the study. You can help reduce the extra time that may be required to process such a proposal by including identification of each ground disturbance area on a USGS 7.5-minute topographic map.

Site Marking and/or Animal Marking

Identify the type, amount, color, size, and placement of any flagging, tags, or other markers needed for site or individual resource (e.g. trees) identification and location. Identify the length of time it is needed and who will be responsible for removing it. Identify the type, color, placement of any tags placed on animals (see special use permit for stipulations on marking and handling of animals)

Access to Study Sites

Describe the proposed method and frequency of travel to and within the study site(s). Explain any need to enter restricted areas. Describe the duration, location, and number of participants, and approximate dates of site visits.

Use of Mechanized and Other Equipment

Describe any vehicles, boats, field equipment, markers, or supply caches by type, number, and location. You should explain the need to use these materials and if or how long they are to be left in the field.

Safety

Describe any known potentially hazardous activities, such as electro-fishing, scuba diving, whitewater boating, aircraft use, wilderness travel, wildlife capture or handling, wildlife or immobilization.

Chemical Use

Identify chemicals and hazardous materials that you propose using within the refuge. Indicate the purpose, method of application, and amount to be used. Describe plans for storage, transfer, and disposal of these materials and describe steps to remediate accidental releases into the environment. Attach copies of Material Safety Data Sheets.

Animal Welfare

If the study involves vertebrate animals, describe your protocol for any capture, holding, marking, tagging, tissue sampling, or other handling of these animals (including the training and qualifications of personnel relevant to animal handling and care). If your institutional animal welfare committee has reviewed your proposal, please include a photocopy of their recommendations. Describe alternatives considered, and outline procedures to be used to alleviate pain or distress. Include contingency plans to be implemented in the event of accidental injury to or death of the animal. Include state and federal permits. Where appropriate, coordinate with and inform state natural resource agencies.

Literature Cited

List all reports and publications cited in the proposal.

Peer Review

Provide the names, titles, addresses, and telephone numbers of individuals with subject-area expertise who have reviewed the research proposal. If the reviewers are associated with the investigator's research institution or if the proposal was not reviewed, please provide the names, titles, addresses, and telephone numbers of 3 to 5 potential subject-area reviewers who are not associated with the investigator's institution. These individuals will be asked to provide reviews of the proposal, progress reports, and the draft final report.

Budget

The budget must reflect both funding and assistance that will be requested from the U.S. Fish and Wildlife Service and the cooperator's contributions on an identified periodic (usually annual) basis.

Personnel Costs

Identify salary charges for principal investigator(s), research assistant(s), technician(s), clerical support, and others. Indicate period of involvement (hours or months) and pay rate charged for services. Be sure to include adequate time for data analysis and report writing and editing.

Fringe Benefits

Itemize fringe benefit rates and costs.

Travel

Provide separate estimates for fieldwork and meetings. Indicate number of trips, destinations, estimated miles of travel, mileage rate, air fares, days on travel, and daily lodging and meals charges. Vehicle mileage rate cannot exceed standard government mileage rates if federal funds are to be used. Charges for lodging and meals are not to exceed the maximum daily rates set for the locality by the Federal Government (contact the Misisquoi refuge for appropriate rates).

Equipment

Itemize all equipment to be purchased or rented and provide a brief justification for each item costing more than \$1,000. Be sure to include any computer-related costs. For proposals funded under US Fish and Wildlife Service agreement or contract, the refuge reserves the right to transfer the title of purchased equipment with unit cost of \$1,000 or more to the Federal Government following completion of the study. These items should be included as deliverables.

Supplies and Materials

Purchases and rentals under \$1,000 should be itemized as much as is reasonable.

Subcontract or Consultant Charges

All such work must be supported by a subcontractor's proposal also in accordance with these guidelines.

Specimen Collections

Identify funding requirements for the cataloging, preservation, storage, and analyses of any collected specimens that will be permanently retained.

Printing and Copying

Include costs for preparing and printing the required number of copies of progress reports, the draft final report, and the final report. In general, a minimum of two copies of progress reports (usually due quarterly, semiannually, or as specified in agreement), the draft final report, and the final report are required.

Indirect Charges

Identify the indirect cost (overhead) rate and charges and the budget items to which the rate is applicable.

Cooperator's Contributions

Show any contributing share of direct or indirect costs, facilities, and equipment by the cooperating research institution.

Outside Funding

List any outside funding sources and amounts.

Personnel and Qualifications

List the personnel who will work on the project and indicate their qualifications, experience, and pertinent publications. Identify the responsibilities of each individual and the amount of time each will devote. A full vita or resume for each principal investigator and any consultants should be included here.

Interim Final Report Guidelines

Draft final and final reports should follow Journal of Wildlife Management format, and should include the following sections.

- Title Page
- Abstract
- Introduction/ Problem statement
- Study Area
- Methods (including statistical analyses)
- Results
- Discussion
- Management Implications
- Management Recommendations
- Literature Cited

COMPATIBILITY DETERMINATION

USE: Motorized boating to facilitate priority public uses

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715-715d, and 715f – 715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The proposed use is motorized boating, usually to facilitate travel associated with priority public uses. Motorized boating is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

The proposed use would be conducted on the refuge in the Towns of Swanton and Highgate, Franklin County, Vermont. Motorized boating occurs along the Missisquoi River, Dead Creek, and in Lake Champlain, where they border or transect the refuge. Boating in those waterways falls under the jurisdiction of the U.S. Coast Guard, and has not been determined to fall under the management authority of the refuge manager. Motorized boating is not allowed inside refuge impoundment areas. Motorized boating is not allowed in Charcoal Creek south and west of State Route 78 or in Long Marsh Channel, except during the waterfowl-hunting season, and then only by hunters holding permits to hunt in those controlled hunting areas. Black Creek and Maquam Creek, accessible from refuge headquarters, are not open for motorized boating. Any open areas or portions of the refuge may be closed to motorized boating seasonally to protect sensitive wildlife areas: usually, osprey, black tern or waterfowl nesting areas. Annual seasonal closures usually occur in Goose Bay, Gander Bay, Metcalfe Pothole, and the Charcoal Creek marshes north of Route 78 (known locally as the Clark Marshes).

(c) When would the use be conducted?

Motorized boating, where allowed, may take place all year long. However, the river and lake usually freeze in winter, which precludes boating. Most motorized boating activity takes place from May through November or until the Missisquoi River freezes.

(d) How would the use be conducted?

Two public boat launching access areas are maintained on the refuge to provide boat access to the Missisquoi River and Missisquoi Bay. The Louie’s Landing boat ramp is open to the public all season, and the Mac’s Bend boat ramp is open from late September through November or until the Missisquoi River freezes, whichever occurs first.

Boundary signs are placed to keep the public from entering protected areas. Refuge staff and law enforcement personnel monitor the number of boaters seen during patrols, interact with visitors, and patrol the refuge to ensure that users are complying with closed area demarcations. Refuge brochures are available to inform users of boating regulations and to provide other general information.

(e) Why is this use being proposed?

Motorized boating continues to be a popular, traditional activity at the refuge. Normally, visitors engage in this activity to facilitate their enjoyment of the priority public uses. Fishing is the activity most commonly associated with this use, followed closely by hunting. In addition, most the refuge can be seen only by boat or air travel.

AVAILABILITY OF RESOURCES

Staff time to accommodate this use would relate to maintaining the two refuge public boat launches, posting of boundary and “area closed” signs, monitoring the possible impacts of motor boating on refuge resources and visitors, and providing information to the public about this use. Law enforcement personnel are also needed to patrol the refuge to ensure that users are complying with area closures and other refuge and state regulations. Brochures are needed to inform users of regulations and to provide other general refuge information.

ANTICIPATED IMPACTS OF THE USE

The operation of motorized boats may affect water clarity in the river and lake. The propeller action and wake turbulence associated with motorized boats may increase the amount of sediment particles in the water column. Nutrients stored in the sediments, such as phosphorus, could become available for algal growth. Suspended solids affect the health of fish and the settling of suspended solids can smother the eggs of fish and aquatic insects (Mitchell and Stapp 1995). Boat motors can also add various pollutants to bodies of water including metals and hydrocarbons.

Boat wakes create waves that can initiate or exacerbate shoreline erosion. When operating near shore, propeller turbulence may destabilize the bottom and erode the shoreline as well. The shoreline erosion may affect water clarity and interfere with fish use of shallow water habitat.

Plant communities may be affected directly through contact with the propeller or the boat, or indirectly through water turbidity or wave damage. Boats can also serve as a physical transport

mechanism to distribute aquatic invasive species such as the zebra mussel, Eurasian water milfoil or water chestnut from an infected body of water or part of the lake to uninfected areas. The introduction of these exotics can displace native species.

Operation of motorized boats within the refuge may disturb the wildlife using those areas. Of particular significance is the observed disruption of osprey nesting success in areas frequented by anglers on portions of the refuge. The closure of these areas to all public access by the posting of “area closed” signs has resulted in a significant, dramatic increase in osprey nesting success. Likewise, motorized boats have been observed to cause turtle species (eastern spiny softshell, map, and painted turtles) basking on logs near the mouth of the Missisquoi River to enter the water thereby disrupting their basking activity, which if done with sufficient frequency, could impact reproductive success. Observations have also determined that the turtles usually reclaim their basking position within a minute of boat passage.

The operation of personal watercraft or airboats present additional disruptive considerations related to extreme noise and accessibility to areas that are shallow, narrow or otherwise normally inaccessible to other motorized boats. The highly disruptive nature of these boats to nesting, feeding or resting migratory birds make it especially important that the operators of such craft observe refuge boundaries and area closures. To date, airboat use is very infrequent, amounting to one or fewer visits per year. Personal watercraft operation is also relatively infrequent, estimated at fewer than 10 visits per year. The latter occurs only after the water has warmed sufficiently to allow the operator to operate comfortably, normally not until mid-June.

We do not expect the use of motorized boats to have a significant impact, based on current levels of use and the observation that visitors are complying with postings and other regulations. Normally, at peak visitor use (generally June through August), aquatic vegetation has grown significantly and lake levels lowered sufficiently to make it difficult or impossible for most visitors to enter closed areas, thereby effectively reducing or eliminating human disturbance impacts on waterfowl or other migratory birds.

PUBLIC REVIEW AND COMMENT

As part of the CCP process for Missisquoi National Wildlife Refuge, this compatibility determination will undergo a comment period of 30 days concurrent with the draft CCP/EA. Additionally, we posted this draft compatibility determination at refuge headquarters from August 11-25, 2004. We received no comments.

DETERMINATION (Check one):

THIS USE IS COMPATIBLE X

THIS USE IS NOT COMPATIBLE _____

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

This activity is limited to the areas within the navigable waters of the refuge, such as the river and shoreline of the Missisquoi Bay, or by special use permit, hunting permit, or guided tour to other areas where motorized boating activity is controlled and monitored. Otherwise, boaters are advised that interior marshes and areas posted as such are closed to public entry.

JUSTIFICATION

Within the limits of management authority, this use has been determined to be compatible at this refuge. We do not expect it to interfere materially with or detract from the mission of the National Wildlife Refuge System or diminish the purposes for which the refuge was established. This use will not substantially interfere with priority public uses of the refuge or cause undue administrative burden. Rather, with the exception of airboat and personal watercraft use, this use generally supports and facilitates priority uses.

The use of motorized boats in the spring when waterfowl are starting to nest is relatively light, and does not occur near nest sites that are protected by “area closed” postings. By the summer season, when interest in boating increases, the aquatic vegetation has grown and the lake level has receded to the point that any trespass into closed areas is very difficult or impossible.

Overall, this use will not diminish the purposes for which the refuge was established, will not pose significant adverse effects on trust species or other refuge resources, will not interfere with public use of the refuge, or cause an undue administrative burden.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year Re-evaluation Date: _____
(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Non-motorized boating to facilitate priority public uses

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is non-motorized boating to facilitate priority public uses. It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

(b) Where would the use be conducted?

The proposed use would be conducted on the refuge in the Towns of Swanton and Highgate, Franklin County, Vermont. Non-motorized boating is allowed along the Missisquoi River, Dead Creek, and in Lake Champlain where they border or transect the refuge. Boating in those waterways falls under the jurisdiction of the U.S. Coast Guard, and has not been determined to fall within the management authority of the refuge manager.

Non-motorized boating is not allowed anywhere else on the refuge except when associated with a special event overseen by a refuge staff member or trained volunteer, or during the waterfowl hunting season, and then only by hunters holding permits to hunt in refuge-controlled hunting areas or by hunters holding special use permits to use these areas to access off-refuge waterfowl hunting areas. Any open areas or parts of the refuge may be closed to non-motorized boating seasonally to protect sensitive wildlife areas; usually osprey, black tern or waterfowl nesting areas. Annual, seasonal closures usually occur in Goose Bay, Gander Bay, Metcalfe Pothole, and the Charcoal Creek marshes north of Route 78 (known locally as the Clark marshes).

(c) When would the use be conducted?

Non-motorized boating, where allowed, may take place all year long. However, the river and lake usually freeze in winter, which precludes boating. Most non-motorized boating takes place from May through September, with significantly lesser amounts taking place in April and October.

(d) How would the use be conducted?

Two public boat launching access areas are maintained on the refuge to provide boat access to the Missisquoi River and Missisquoi Bay. The Louie's Landing boat ramp is open to the public all season, and the Mac's Bend boat ramp is open from late September through November.

Boundary signs are placed to advise the public against entering protected areas. Refuge staff and law enforcement personnel monitor the number of boaters seen during patrols, interact with visitors, and patrol the refuge to ensure that users are complying with closed area demarcations. Refuge brochures are available to inform users of boating regulations and provide other general information.

(e) Why is this use being proposed?

Non-motorized boating, such as canoeing and kayaking, has been a popular, traditional activity at the Missisquoi refuge, and is growing in popularity. Normally, visitors engage in this activity to facilitate their enjoyment of the priority public uses. One of the best ways for a visitor to experience the natural beauty and special character of the refuge and observe wildlife is to visit by canoe.

AVAILABILITY OF RESOURCES

Accommodating non-motorized boating requires the posting of boundary signs by refuge staff. Those boundary signs are also necessary for other purposes and, because non-motorized boating is not the primary reason for posting them, do not pose significant costs. Law enforcement personnel must patrol the off-limit areas to ensure user compliance with established boundaries. Brochures are also needed to inform users of open areas and provide other general refuge information.

ANTICIPATED IMPACTS OF THE USE

The lake shoreline supports emergent vegetation, which provides some food and cover for waterfowl during the summer. If the intensity of this use along the shoreline was high, it could keep waterfowl from using the shore area during the day. That may affect individual birds, but is unlikely to affect populations. At the current and expected levels of use, this impact will be slight.

Shad Island, at the northern tip of the refuge, is home to the largest great blue heron rookery in Vermont. Canoeists and kayakers sometimes get too close to the rookery, and may disturb nesting birds. Nest abandonment may occur if too many visitors get too close to the rookery. In recent years, posting and patrolling have been sufficient to curtail this activity, which is much more common by motorized boaters. Likewise, non-motorized boats have been observed to cause turtle species (eastern spiny softshell, map, and painted turtles) basking on logs near the mouth of the Missisquoi River to enter the water, thereby disrupting their basking activity. If sufficiently frequent, that could affect reproductive success. Observations have shown that non-motorized boats have a greater disruptive

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year Re-evaluation Date: _____
(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Oral vaccination by aerial baiting to control the raccoon variant of the rabies virus

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, of migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is oral vaccination by aerial baiting to control the raccoon (*Procyon lotor*) variant of the rabies virus. It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee) as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57).

In cooperation with the U.S. Department of Agriculture Animal and Plant Health Inspection Service, Wildlife Services (APHIS-WS) and various state agencies, (e.g., state health departments and state agriculture departments), we propose to implement an oral rabies vaccination (ORV) program in Vermont to stop the spread of the raccoon variant, or “strain,” of the rabies virus.

(b) Where would the use be conducted?

The proposed use would be conducted on the refuge in the towns of Swanton and Highgate, Franklin County, Vermont. The program would support and cooperate with the Vermont Department of Health and Department of Fish and Wildlife, and the Agency of Agriculture, Food and Markets in their ongoing efforts to eliminate the raccoon rabies strain or stop its further spread in the Eastern United States. If we do not prevent the new strain of rabies from spreading to new areas, we expect the health threats and costs associated with rabies to increase substantially. Livestock and domestic animals in those areas would be at risk of exposure. More importantly, if the raccoon strain of rabies infects a much broader geographic area, we expect human health concerns to increase substantially as well.

The use would involve fixed-wing aircraft distributing ORV baits over the refuge as part of a broader program to create zones of vaccinated target species to serve as barriers against the further advance of the variant virus. Those vaccination zones would be determined in cooperation with the state rabies task force, the previously mentioned state agencies, or other agencies with jurisdiction over the application of vaccine in species of wildlife and domestic animals.

(c) When would the use be conducted?

We would conduct the ORV distribution annually, most likely during July, August, or September. The annual baiting would recur until the program meets its goals, expected to be at least 5 to 10 years.

(d) How would the use be conducted?

On an annual basis, a fixed-wing aircraft would distribute ORV baits. Those airdrops typically would be conducted at about 500 feet above ground level. The aircraft would fly only momentarily over any one point on the ground. It would not circle repeatedly to distribute ORV baits, but would fly in straight “transects,” or flight lines. We estimate eight east-west transects over a period of 2.5 hours to drop approximately 2,100 baits on the refuge at an average density of 75 baits/km² (195 baits/mi²).

The ORV baits are small blocks of fishmeal, soy meal, and fish oil held together with a wax polymer binding agent. The baits are rectangular (approximately 32 × 32 × 19 mm, or 1.25 × 1.25 × 0.75 in) with hollow centers. The plastic sachet (approximately 51 mm × 29 mm, or 2 in × 1.125 in) containing the liquid vaccine is folded in half in the hollow center of the bait. The same plastic sachet with a simple coating of fishmeal attractant (known as coated sachets) have also been field-tested; their effectiveness appears comparable to that of the fishmeal polymer baits containing the sachet (Linhart et al. *unpublished* 2001). Each fishmeal polymer bait weighs 26 grams (0.91 oz) and costs \$1.27, while each coated sachet bait weighs 6 grams (0.21 oz) and costs \$1.00.

Using the coated sachet may equal the effectiveness of the fishmeal polymer bait at a lower cost per vaccinated target. All baits are marked with a warning label that includes a phone number to call for additional information. The baits may contain a non-toxic biomarker (e.g., tetracycline or iophenoxic acid) to aid in determining whether the animals collected for monitoring have eaten one or more ORV baits. The sachet containing the liquid vaccine is plastic (in both the square fishmeal polymer and the coated sachet baits), and is not biodegradable. The bait manufacturer, Merial Limited (Athens, Georgia, USA), is not aware of any studies done to assess the biodegradability of fishmeal in the environment.

As in past programs, the oral rabies vaccine this program would use is the recombinant vaccinia-rabies glycoprotein vaccine (RABORAL V-RG® Merial Limited) currently licensed by the USDA for use in raccoons and coyotes in the United States and for experimental use in gray foxes in Texas. It has been used extensively and has been distributed successfully in Europe to combat fox rabies. Each animal that finds and ingests a single bait receives a single dose of the vaccine.

(e) Why is this use being proposed?

Rabies is an acute, fatal viral disease of mammals most often transmitted through the bite of a rabid animal. The disease can be prevented in humans and many species of domestic animals. However, widely distributed reservoirs among wild mammals complicate rabies control. In most of the United States, those reservoirs occur in geographically discrete regions where the virus is

transmitted primarily between members of the same species (Krebs et al. 2001). Those species include raccoons, coyotes (*Canis latrans*), skunks (primarily, *Mephitis mephitis*), gray foxes (*Urocyon cinereoargenteus*), and red foxes (*Vulpes vulpes*). Species-specific variants of the virus may be transmitted to other animal species. However, those encounters rarely result in sustained virus transmission within that animal species. Once established, virus transmission within a specific animal species can persist at epidemic levels for decades, perhaps even for centuries (Krebs et al. 2001).

The majority of rabies cases reported to the Center for Disease Control and Prevention (CDC) each year occur in raccoons, skunks, and bats (Order *Chiroptera*). Red foxes account for less than 10 percent of the reported rabies cases, with domestic cats, dogs and cattle among those most often reported (CDC 2001). Two canine rabies epizootics (epidemics in animals) emerged in Texas in 1988: one involving coyotes and dogs in South Texas and the other in gray foxes in West/Central Texas. The South Texas epizootic alone has resulted in two human deaths and caused more than 3,000 people to receive post exposure rabies treatment (TDH 2001).

Public Health Importance of Rabies

Over the last 100 years, rabies in the United States has changed dramatically. About 90 percent or more of all animal cases reported annually to CDC now occur in wildlife (Krebs et al. 2000; CDC 2001). Before 1960, the majority of cases were reported in domestic animals. The principal hosts of rabies today are wild carnivores and bats. The number of rabies-related human deaths in the United States has declined from more than 100 annually at the turn of the century to an average of one or two people/year in the 1990s. Modern-day prophylaxis, which is the series of vaccine injections given to people who potentially or actually have been exposed, has proved nearly 100-percent successful in preventing mortality when administered promptly (CDC 2001). In the United States, human fatalities associated with rabies occur in people who fail to seek timely medical assistance, usually because they were unaware of having been exposed.

Although human deaths from rabies are rare, the estimated public health costs associated with detection, prevention, and control have risen, and are estimated to exceed \$300 million to \$450 million annually. Those costs include the vaccination of companion animals, the maintenance of rabies laboratories, medical costs, such as those incurred in investigating exposure cases, rabies post-exposure prophylaxis (PEP), and animal control programs (CDC 2001).

Raccoon Rabies in the Eastern United States

Rabies in raccoons was virtually unknown before the 1950s. It was first described in Florida, and spread slowly during the next three decades into Georgia, Alabama, and South Carolina. It was introduced into the Mid-Atlantic States unintentionally, probably by the translocation of infected animals (Krebs et al. 1999). The first cases appeared in West Virginia and Virginia in 1977 and 1978. Since then, raccoon rabies in the area expanded to form the most intensive rabies outbreak in the United States. The strain is now enzootic in all of the Eastern coastal states, as well as Alabama, Pennsylvania, Vermont, West Virginia, and, most recently, parts of Ohio (Krebs et al. 2000). In the past 21 years, all of the Mid-Atlantic and New England states have experienced at least one outbreak. The raccoon rabies epizootic front reached Maine in 1994, reflecting a movement rate of about 30–35 miles per year (48.3 km/yr). It was also first confirmed in northeastern Ohio in 1996 (Krebs et al.

1998). In 1999, the first three cases of raccoon rabies were confirmed in southern Ontario (Rosatte et al. 2001), and the strain has recently been reported in New Brunswick.

Raccoon rabies presents a human health threat directly through potential exposure to rabid raccoons, or indirectly through the exposure of a pet that encountered a rabid raccoon. To date, no known cases of rabies in humans have been attributable to raccoon rabies. However, the number of pets and livestock examined and vaccinated for rabies, the number of diagnostic tests requested, and the number of post exposure treatments are all greater when raccoon rabies is present in an area. The human and financial resources allocated to rabies-related human and animal health needs also increase, often at the expense of other important activities and services.

If new rabies strains, such as those transmitted by raccoons, gray foxes and coyotes, are not prevented from spreading to new areas of the United States, the health threats and health costs associated with rabies are expected to increase substantially. The current distribution area of raccoon rabies stretches from Alabama northeastward along the Appalachian Mountains through coastal Maine. In the area that stretches west from the leading edge of that current distribution to the Rocky Mountains and north from the distribution of gray fox and coyote rabies in Texas live more than 111 million livestock animals, including cattle, horses, mules, swine, goats, and sheep, which are valued at \$42 billion (65 FR 76606-76607, December 7, 2000). If raccoon, gray fox, or coyote rabies were to spread into that area, many of those livestock would be at risk of contracting those specific rabies variants. More importantly, human health concerns would be expected to increase substantially as well, if raccoon, coyote and gray fox strains of rabies infect a much broader geographic area, which would add to the current high costs of living with those strains.

Goals of the ORV program

The primary goals of the program in Vermont are (1) stop the forward advance of the raccoon strain of rabies from areas where it now occurs by immunizing portions of target species populations along the leading edges of the rabies fronts (U.S.—Canada border); and, (2) reduce the incidence of rabies cases involving wild and domestic animals and rabies exposures to humans in the areas where the ORV program is conducted (northern Vermont). If the ORV program is successful in stopping the forward advance of the raccoon strain, then the ultimate goal could include the elimination of this rabies variant.

AVAILABILITY OF RESOURCES

The program would involve the use of APHIS-WS federal funds to purchase and distribute ORV baits. Bait distribution and ORV monitoring and surveillance are the responsibility of the APHIS-WS (the permit holder). Refuge staff time associated with the administration of this use includes the issuance of the Special Use Permit, answering questions of the permit holder or the public concerning the use and the conditions of the permit, monitoring compliance with those conditions, and monitoring the potential impacts of the use on refuge resources and visitors. The refuge manager will administer the program. The refuge outdoor recreation planner will monitor visitor impacts. The refuge wildlife biologist will monitor resource impacts. Administering this use requires no special equipment, facilities, or resources. We conduct the maintenance and repair of refuge facilities and property as needed to facilitate priority public uses; therefore, those operations are not being

performed for the purposes of this special use. The law enforcement resources of the refuge are not directed toward providing safety for the permit holder or security for their property, beyond that which is expected for the visiting public. We estimate the salaries, equipment, fuel and other costs associated with refuge involvement in this use at less than \$1000 annually.

ANTICIPATED IMPACTS OF THE USE

This use is part of a larger, national program to identify and reduce the spread of various strains of rabies across the United States and into Canada. The Service will be assisting the effectiveness of that national program by participating in it. Combating these rabies virus variants would likely have beneficial impacts on both humans and wildlife.

Oral Rabies Baits and Vaccine

This vaccine was laboratory-tested extensively for safety in more than 50 animal species with no adverse effects, regardless of route or dose. Rupprecht et al. (1992) report there has been no mortality or morbidity (i.e., signs or symptoms of disease) and no lesions typical of pox virus infections caused by V-RG vaccine in more than 350 individual animals representing 20 taxonomic families of animals. They concluded that the extensive laboratory safety experiments showed V-RG to be safe in all species tested to date, including raccoons, coyotes, and gray foxes. In addition, a domestic animal's annual rabies vaccination can be safely administered even if it recently ingested a dose of oral rabies vaccine. There is no possibility of vaccine-induced rabies with V-RG because the vaccine contains only the non-infective surface protein of the rabies virus. The vaccine contains none of the viral nuclear material (i.e., RNA), which would be required for the rabies virus to replicate.

Since 1990, more than 50 million doses have been distributed in the United States; to date, only one case of vaccinia virus infection, resulting in localized skin rashes, has been reported in humans. The ORV program would reduce the likelihood of wildlife being exposed to the rabies virus. If threatened or endangered species were to find and consume an ORV bait, we expect they would experience no effect other than possibly becoming immunized against rabies. Therefore, the Raboral V-RG® vaccine distributed in baits would have no adverse effects on any state- or federal-listed threatened or endangered species or their critical habitats.

The newest supplement of the APHIS-WS national programmatic Environmental Assessment (EA) and Decision/Finding of No Significant Impact, approved in June 2003, analyzes the potential environmental effects of a proposal to continue and expand the involvement of APHIS-WS in cooperative ORV programs in a number of Eastern States and Texas. That document is available for inspection at the refuge office. The following conclusions concern the issues that EA analyzes in detail.

- We expect negligible adverse impacts on wildlife from ORV program flights, because of their short duration, infrequency, and negligible intensity over any given area and the tolerance of wildlife for such flights.
- We expect negligible adverse impacts on the environment from the limited number of baits dropped in a specific area, the biodegradability of the baits and vaccine liquid, their high consumption rate by animal species, the safety and efficacy of the vaccine, and the standard operating procedures for dropping baits near a large source of water.

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY

Mitigation measures are any features of an action that serve to prevent, reduce, or compensate for impacts that otherwise might result. Thanks to extensive public and interagency involvement in the development of ORV programs and strategies, a number of key mitigating measures are now part of the standard operating procedures of state-operated ORV programs.

- 1) *Public information, education, and media announcements to inform the public in each county about ORV bait distribution activities before they occur*—APHIS-WS will coordinate with the appropriate state agency on preparing leaflets, posters, press releases or other media for posting in schools, hospitals, campgrounds, visitor centers, and state and county public agency offices. Notification of the ORV bait drop also may be sent to the State Police, State Emergency Management Associations, County hazardous materials coordinators, County cooperative extension agents, state and federal correctional facilities, wildlife rehabilitators, and medical and veterinary facilities in the ORV area informing them about the program and providing information on the ORV bait and vaccine and potential exposure issues.
- 2) *Toll-free telephone numbers advertised in the media and on websites*—for people to call for answers to questions. The toll-free numbers will allow the caller an opportunity to speak in English or Spanish.
- 3) *An additional level of assurance that a human reaction would be treated successfully*—in the unlikely event that an adverse vaccinia virus exposure occurs in humans. The CDC can make vaccinia immune globulin available to a state on a case-by-case basis.
- 4) *Training distribution navigators to avoid dropping baits on people or structures*—during aerial bait drops, navigators turn off the bait dispensing equipment temporarily over human dwellings, cities, towns, greenhouses, certain sensitive domestic animal pens, and when people are observed below.
- 5) *Adherence of aircraft to air safety standards*—the Ontario Ministry of Natural Resources (OMNR) personnel, as well as all aircraft, are fully certified under Transport Canada Regulations (comparable to the U.S. Federal Aviation Administration [FAA]). The FAA has authorized the OMNR to fly at an altitude of 500 feet over all rural and residential habitats.
- 6) *Aircraft will not fly below 500 feet.*
- 7) *Before distributing ORV baits along the U.S.-Canada border*—the appropriate government authorities/officials would be notified.
- 8) *Before distributing ORV baits on federal lands*—the appropriate federal land management agency would be notified.
- 9) *Training personnel in hand distribution of baits*—to avoid properties with greater risk of human or pet encounters with baits.
- 10) *Labels on each ORV bait*—instructing persons not to disturb or handle them and containing a toll-free telephone number to call for further information and guidance in the event of accidental exposure to the vaccine.

- 11) *Should surveillance trapping ever occur on the refuge*—to monitor program effectiveness, it would be coordinated with the refuge staff. Methods of capturing raccoons would involve mainly the use of cage traps. However, other methods, such as shooting and foot-hold traps, may be used in some programs. Animals that are caught in cage traps and must be sacrificed (killed) for testing, local depopulation, or by cooperating landowner’s request would be killed in accordance with recommendations of the American Veterinary Medical Association.
- 12) *Field personnel*—involved in trapping, handling, monitoring or surveying animals would be immunized against rabies and tetanus.
- 13) *All drug use*—in capturing and handling raccoons and other animals would be under the direction and authority of state veterinary authorities, either directly or through procedures agreed upon between those authorities and APHIS-WS.
- 14) *Ear tagging or other marking of an animal*—drugged and released close to hunting/trapping season alerts hunters and trappers that they should contact state officials before consuming the animal. Most animals administered immobilizing drugs would be released well before state-controlled hunting/trapping seasons, which would give the drug time to metabolize completely out of the animals before humans might take or consume them.
- 15) *The permit holder will provide a summary*—of all ORV activities involving the refuge to the refuge manager on an annual basis.
- 16) *The refuge manager reserves the right*—to review the compatibility of this activity or rescind the permit at any time.

JUSTIFICATION

We have determined this use to be compatible, benefiting wildlife and human populations in the project area, provided the special conditions of the permit are implemented. This use will not diminish the purpose for which the refuge was established, pose significant adverse effects on trust species or other refuge resources, interfere with public use of the refuge, or cause an undue administrative burden. We will re-evaluate its compatibility every **5 years** before reissuing a special use permit.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 5-year Re-evaluation Date: _____
(Signature and Date)

Literature Cited

- CDC (Centers for Disease Control and Prevention). 2001a. Rabies prevention and control. Information obtained at web site: <http://www.cdc.gov/ncidod/dvrd/rabies>
- Clark, K.A. and P.J. Wilson. 1995. Canine and gray fox rabies epizootics in Texas. *Great Plains Wildl. Damage Workshop* 12:83-87.
- Clark, K.A., S.U. Neill, J.S. Smith, P.J. Wilson, V.W. Whadford, and G.W. McKirahan. 1994. Epizootic canine rabies transmitted by coyotes in south Texas. *J. Amer. Vet. Med. Assoc.* 204:536-540.
- Krebs, J.W., C.E. Rupprecht, and J.E. Childs. 2000. Rabies surveillance in the United States during 1999. *J. Amer. Vet. Med. Assoc.* 217:1799-1811.
- Krebs, J.W., J.S. Smith, C.E. Rupprecht, and J.E. Childs. 1999. Rabies surveillance in the United States during 1998. *J. Amer. Vet. Med. Assoc.* 215:1786-1798.
- Krebs, J.W., J.S. Smith, C.E. Rupprecht, and J.E. Childs. 1998. Rabies surveillance in the United States during 1997. *J. Amer. Vet. Med. Assoc.* 213:1713-1672.
- Linhart, S.B., J.C. Wodlowski, D.M. Kavenaugh, L. Motes-Kreimeyer, A.J. Montoney, R.B. Chipman, D. Slate, L.L. Bigler, and M.G. Fearneyhough. *unpublished* 2001. A new flavor-coated sachet bait for delivering oral rabies vaccine to raccoons and coyotes. Manuscript submitted to *J. Wildl. Dis.* 02/28/01. 35 pp.
- Rosatte, R.C., D. Donovan, M. Allan, L-A. Howes, A. Silver, K. Bennett, C. MacInnes, C. Davies, A. Wandeler, and B. Radford. 2001. Emergency response to raccoon rabies introduction in Ontario. *J. Wildl. Dis.* 37:265-279.
- Rupprecht, C.E., C.A. Hanlon, H. Koprowski, and A.N. Hamir. 1992a. Oral wildlife rabies vaccination: development of a recombinant virus vaccine. *Trans. 57th N.A. Wildl. & Nat. Res. Conf.* 439-452.
- TDH (Texas Department of Health), Zoonosis Control Division. 2001. The Texas Oral Rabies Vaccine Program. Information from website: www.tdh.state.tx.us/zoonosis
- USDA, APHIS-WS. 2003. Environmental assessment – Oral vaccination to control specific rabies virus variants in raccoons, gray foxes, and coyotes in the United States. USDA, APHIS-WS, 4700 River Road, Unit 87, Riverdale, MD 20737-1234.

COMPATIBILITY DETERMINATION

USE: Commercially guided tours

Supporting Uses: Boating (motorized and non-motorized), interpretation (not conducted by refuge staff or authorized agents), hunting (upland/big game—guiding or outfitting), hunting (waterfowl—guiding or outfitting), wildlife photography, wildlife observation

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a) What is the use? Is it a priority public use?

The use is commercially guided tours. It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105–57). However, commercially guided tours contribute to the fulfillment of refuge purposes and to the National Wildlife Refuge System Mission by facilitating priority public uses.

We will consider only wildlife-dependent activities, but will consider additional activities on a case-by-case basis. Those must meet several tests before we approve them. Activities currently permitted are guided interpretive or educational canoe or kayak tours, commercial wildlife/wild land photography, and guided bird walks.

(b) Where would the use be conducted?

Guided tours are allowed in areas open to public entry and waterways open to public boating. No facilities or areas are reserved specifically for tour groups. Any exceptions to tours in other areas of the refuge will require permission from the refuge manager. These exceptions would only be allowed if no disturbance to species at a sensitive time in their life cycle would occur.

(c) When would the use be conducted?

Commercially guided tours can be conducted year-round, during daylight hours only.

(d) How would the use be conducted?

A formal process allows tour guides to operate on refuge lands. The refuge manages commercial guiding activities at a level that is compatible with refuge purposes and ensures high-quality guiding services are available for the public. We will review applications for special use permits only when we have received the complete application package. If we approve the request, we mail the permits within two weeks. If we do not approve the request, we will mail back the entire application package, including the check. Application packages containing false statements or fraudulent or misleading information will be denied, and the application fee will be forfeited.

All permit activities are regulated by provisions listed in 50 CFR, subpart D—Permits, 15.41–45. In conducting business, the permit holder will comply with all federal, state, and local laws and Department of the Interior, U. S. Fish and Wildlife Service regulations.

Presently, we do not limit the number of permit holders for a particular activity. However, we may place restrictions on the amount, time, or location of activities, as we deem appropriate, to sustain the resource and the quality of experience for other refuge visitors. Whenever possible, the permit will explain those restrictions clearly. However, we reserve the right to enforce further restrictions or to change the restrictions by amending the permit **at any time during the permit period** when we deem it appropriate for the protection of the resource and the quality of experience for the public.

The permit holder must comply with refuge regulations and permit conditions listed below under “Stipulations Necessary to Ensure Compatibility,” unless the permit allows an exception. One guide now operating on the refuge must operate legally under the requirements of the State of Vermont, and is required to understand refuge regulations and policies.

(e) Why is this use being proposed?

Refuge visitors enjoy watching wildlife and participating in recreation associated with wildlife, but few understand how best to provide the habitat essential to wildlife’s survival. Commercially guided tours will help increase public understanding of wildlife’s needs and when people value something, they are motivated to action. When people understand the connections between land management and larger resource issues in their lives, they are in a better position to make wise resource decisions. To protect refuge lands and waters better and to serve visitors better, we have established refuge regulations and policies regarding commercial tour guides.

AVAILABILITY OF RESOURCES

Adequate refuge personnel and operating funds are available to manage guided tours at their existing and projected levels. Administrative staff time primarily involves issuing and renewing special use permits each year, ensuring that licenses and certifications are current, collecting client use-day fees; and reporting annual data. The fieldwork associated with administering the program primarily

2. The permit holder agrees to hold the U.S. Government harmless from liability for any accident or injury to their clients or employees resulting from the activities the permit authorizes. The permit holder must provide adequate, appropriate liability insurance: a Certificate of Insurance with adequate Comprehensive General Liability coverage, the minimum limit of liability being \$300,000 per occurrence. The insurance certificate must name the U. S. Fish and Wildlife Service as additional insured, specify that the service or activity the permit authorize is covered by the policy, and provide a telephone number for verification.
3. The permit holder must provide a copy of the appropriate documentation of current Red Cross First Aid and CPR certification for all guides.
4. All special use permits will expire on the last day of the refuge fiscal year, September 30, regardless of their date of issue. The refuge needs public use figures for end-of-year reports (both fiscal year and calendar year). Therefore, permit holders must turn in their permit use figures to the refuge by October 10, and must report the following information: the total number of trips, total number of participants, and total fees.
5. A copy of a valid special use permit must be available for inspection on request by any law enforcement officer or refuge staff member, whenever an activity authorized by the permit is occurring. Storing permits in the glove box of a vehicle is acceptable; however, all guides must be knowledgeable about the permit and its conditions.
6. Violation of any special conditions of the permit or of any federal, state, local, or refuge regulations may result in a Notice of Violation (NOV) being issued or the revocation or cancellation of the permit without written or verbal warning. In that case, the permit holder will receive immediate notification by phone with follow-up notification by mail. The permit holders are responsible for the actions of their employees, agents, others working under their special use permit, and their clients.
7. Regardless of the reason for the revocation or cancellation of a permit, no refund will be made to the permit holder.
8. Canoe or kayak tour permits for the Missisquoi refuge will be issued only for those waterways open to boating, including the Missisquoi River, Dead Creek, and Long Marsh Bay, putting in at Louie's Landing. In addition, permit holders will be authorized to use only the mowed area adjacent to the boat launch for instructional purposes. The gravel area may be used only for parking and launching. The ramp may not be blocked for use by other refuge visitors at any time.
9. We do not presently limit the number of commercial guide and participant vehicles (plus trailers) allowed to park at Louie's Landing. However, we may place restrictions on that number, as we deem appropriate, to allow space for other refuge visitors (e.g., anglers, hunters, wildlife observers). If necessary, we will instructed participants, (except those

whose vehicles display a valid, handicapped placard, to park their personal vehicles at the site of the old refuge headquarters. The permit holder will shuttle participants to Louie's Landing in vans or other vehicles.

10. For those businesses that had a special use permit in a previous year, we will not issue a permit for the current year until the refuge office has received an accounting of the tours and activities conducted under the old permit.
11. We issue permits on a year-to-year basis, and do not reissue them automatically on consecutive years.
12. All permit holders and their employees who guide on the Missisquoi refuge must attend a training course that describes the refuge and its mission, the habitats and history of the area, and the customer service standards we expect.
13. Permit holders will provide all participants with relevant refuge information, including the regulations and conditions of the permit. The Service will supply information to the permit holder, on request.
14. Vehicle(s) will be used only on designated roadways and in parking areas.
15. All boats must carry standard USCG-approved safety equipment.
16. Tours must begin and end during daylight hours only.
17. Groups will police their routes for litter, vandalism, etc., and report any problems to the refuge office.

JUSTIFICATION

Commercial tour guides provide unique, high quality, safe, educational, recreational opportunities to the public. These visitor services are a valuable benefit for a segment of the American public that is not comfortable with or, for other reasons, chooses not to participate in unguided tours on the refuge.

The requirements the Service places on commercial tour guides through its application process and the terms of its special use permits, and the regulations of the State of Vermont ensure that those commercial tour guides provide safe, high-quality experiences for their clients. These operations can help the refuge achieve its purposes of protecting fish and wildlife resources of the refuge and meet its requirements to provide compatible opportunities for the public to use and enjoy those resources. Allowing commercially guided tours within the Missisquoi National Wildlife Refuge contributes to, and does not materially interfere with or detract from, the mission of the National Wildlife Refuge System and the purposes for which the refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year Re-evaluation Date: _____
(Signature and Date)

COMPATIBILITY DETERMINATION

USE: Commercially guided waterfowl hunting

Supporting Uses: Boating (motorized and non-motorized), waterfowl hunting, observing wildlife.

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE FOR WHICH ESTABLISHED

The Missisquoi National Wildlife Refuge was established “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” [Migratory Bird Conservation Act, 16 U.S.C. 715–715d, and 715f–715r].

MISSION OF THE NATIONAL WILDLIFE REFUGE SYSTEM

“To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

DESCRIPTION OF USE

(a)What is the use? Is it a priority public use?

The use is commercially guided waterfowl hunting. It is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997. By facilitating priority public uses, commercially guided waterfowl hunting contributes to the fulfillment of refuge purposes and the mission of the National Wildlife Refuge System.

No waterfowl hunting guides are now operating on the refuge. However, we expect this use in the future. Guides must be qualified, licensed by the State of Vermont, and are required to understand refuge regulations and policies.

No person, including but not limited to a guide, guide service, outfitter, club, or other organization shall provide assistance, services, or equipment to any other person for compensation on national wildlife refuge lands unless the refuge manager has issued a special use permit such person, guide, guide service, outfitter, club, or other organization. Likewise, each individual using the services of such a guide, guide service, etc. is responsible for verifying that the guide, guide service, etc. has obtained the required permit. Failure to comply with this provision subjects each hunter in the party to a fine if convicted of this violation.

(b) Where would the use be conducted?

In accordance with the Migratory Bird Hunting and Conservation Stamp Act, less than 40 percent of the refuge is open for hunting migratory birds. The areas open for hunting migratory waterfowl include the delta east of the main branch and north of Goose Bay, Shad Island Pothole, Metcalfe Island Pothole, Long Marsh Bay and Channel, Patrick Marsh and Charcoal Creek, Maquam Swamp north of the Black Creek and Maquam Creek Nature Trails, and the Maquam Shore Area in Maquam Bay. No specific facilities or areas are reserved for guides and their clients.

(c) When would the use be conducted?

Waterfowl hunting guides may operate on the refuge in accordance with seasons established by State of Vermont hunting regulations. Guiding occurs during the waterfowl hunting season. Guides are in the field before the season, scouting and preparing for the hunting season, but in no case before September 1. A guiding permit for waterfowl hunting is not required for scouting. Guides report their activities annually as required under the terms of their special use permits.

Migratory Game Bird Season—Missisquoi National Wildlife Refuge lies entirely within the Lake Champlain waterfowl hunting regulatory zone established by the State of Vermont and the U.S. Fish and Wildlife Service. Refuge open seasons correspond with the season dates and lengths established by state and federal regulations annually. Recent history indicates that the season is normally 60 days long, and takes place between October 1 and December 31. Likewise, the regulations promulgated annually by the State of Vermont and the U.S. Fish and Wildlife Service set the season dates for woodcock and snipe.

(d) How would the use be conducted?

A formal permitting process allows waterfowl hunting guides to operate on refuge lands. The refuge manages commercial guiding activities at a level that is compatible with refuge purposes and ensures high-quality guiding services are available for the public. We will review permit applications only after we have received the complete application package. If we approve the application, we mail the permit within two weeks. If we do not approve it, we return the entire application package, including the check, by mail. We will deny application packages containing false statements or fraudulent or misleading information, and the application fee will be forfeited.

The provisions in 50 CFR, subpart D, 15.41–45, “Permits,” regulate all permit activities. The permit holders will comply with all federal, state, and local laws and regulations of the Department of the Interior, U.S. Fish and Wildlife Service in conducting their business.

We do not presently restrict the number of permit holders for this activity. However, we may place restrictions on the amount, time, and location of activities, as we deem appropriate, to sustain the resource and the quality of experience for refuge waterfowl hunters. Whenever possible, the permit will clearly explain those restrictions. However, we reserve the right to enforce further restrictions or to change the restrictions by amending the permit **at any time during the permit period** when we deem it appropriate to protect the resource or the quality of experience for the public.

We have developed opportunities for waterfowl hunting at the refuge to provide a wide variety of high quality hunting opportunities for refuge visitors. The permit holders and their clients must comply with the following waterfowl hunting regulations.

1. Youth waterfowl hunters who have completed the annual refuge Junior Waterfowl Hunter Training Course may hunt in controlled hunting areas and other open areas of the refuge on Youth Weekend.
2. Youth waterfowl hunters who have not completed the annual refuge Junior Waterfowl Hunter Training Course may hunt in other open areas of the refuge except the Junior Waterfowl Hunting Area on Youth Weekend.
3. All hunters may hunt without a permit in the public hunting areas, including the Delta Lakeshore Area, the Maquam Swamp Area, and the Maquam Shore Area; however, other restrictions may apply (see below).
4. All hunters may apply for permits to hunt in controlled hunting areas, including the Junior Waterfowl Hunting Areas, the Long Marsh Channel/Metcalf Island Area, and the Saxes Pothole and Creek/Shad Island areas.

The refuge brochure “Migratory Game Bird Hunting Map and Regulations” and 50 CFR detail the refuge-specific waterfowl hunting regulations outlined below

General regulations relative to migratory birds—All persons hunting migratory birds on the refuge must hold a valid Federal Migratory Bird Conservation Stamp, Vermont State Duck Stamp and a Vermont state hunting license. EXCEPTION: The Federal Migratory Bird Conservation Stamp and Vermont State Duck Stamp are not required for hunting woodcock.

During the Youth Waterfowl Hunting Weekend, youth hunters 15 years and younger may hunt at no charge, but must obtain a waterfowl hunt permit before hunting in controlled hunting areas, and, in all cases, must return a completed bag report to refuge headquarters or to the drop box at Mac’s Bend.

Hunters may not enter closed areas of the refuge for any reason, except for the recovery of legally harvested animals and, in that case, may not carry a weapon.

Reporting—At the end of each daily hunt, all hunters are required to complete a bag report. Bag reports are included on permits for Controlled Hunting Areas and Report of Birds Bagged forms are available at refuge headquarters and the Mac’s Bend drop box for public hunting areas. Bag reports provide valuable information regarding species and numbers of waterfowl utilizing the refuge.

Scouting—Unarmed hunters may scout open hunting areas before a particular season opens, but in no case before September 1. A hunting permit is not required for scouting.

Ammunition—Hunters are required to use nontoxic shot for all game bird hunting on the refuge.

Dogs and Other Pets—Retrievers are required for hunting waterfowl in the following areas: the Maquam Swamp Area, Long Marsh Channel/Metcalf Island, and Saxes Pothole/Creek and Shad Island Pothole. Other dogs and pets must be confined or on a leash.

Public Hunting Area

Permits and Fees—No permits or fees are required to hunt in these areas: the Delta Lakeshore, Maquam Swamp, Maquam Shore

Youth Waterfowl Hunting Weekend—Those areas are available to Youth Waterfowl Hunters during the annual 2-day special Youth Waterfowl Hunting Weekend in late September.

Reporting—At the end of each daily hunt, hunters are required to complete bag reports and return them to refuge headquarters or the drop box at Mac’s Bend.

General regulations—Blind staking, permanent blinds, and unattended decoys are prohibited.

Hunters using boat blinds or temporary blinds are encouraged to maintain a 200-yard distance from other hunters.

Shooting hours will begin one-half hour before sunrise and end at sunset.

Delta Lakeshore Area Regulations—This hunting unit includes lakeshore areas from Shad Island to the south side of Martindale Point, but does not include Saxes Pothole/Creek and Shad Island Pothole.

Jump shooting is not allowed within 200 yards of a party hunting from a boat or blind.

Maquam Swamp Area Regulations—This hunting area encompasses about 200 acres west of the Central Vermont Railroad and south of the private in-holding, and is open to migratory bird hunting with the following special requirements.

- Jump shooting is allowed.
- Each party of hunters (up to two people) must have a retriever.
- No hunting is allowed within the area encompassing the headquarters nature trail. “No Hunting Zone” signs identify this area.

Maquam Shore Area Regulations—This hunting unit encompasses a 30-acre area along the lakeshore of Maquam Bay, and is bounded by private land on the west and a Vermont Wildlife Management Area on the east.

Jump shooting is not allowed within 200 yards of a party hunting from a boat or blind.

Controlled Hunting Areas

Permits and fees—All hunters hunting in a controlled area must have a permit. The permit must be completed, section A deposited in the drop box at refuge headquarters or at Mac’s Bend at the beginning of the hunt day, and sections B and C carried while hunting and deposited at the end of the hunt day.

Permits for the first two weeks of the season are obtained through a preseason lottery. Successful permit holders are issued a non-transferable permit for a specific date and blind site for a \$10 fee. Thereafter, permits are available daily on a first-come, first-served basis at no charge. There is no charge for permits issued on the day of the hunt.

Preseason Lottery—The refuge will require all hunters who draw a blind site during the preseason lottery to provide the required \$10 fee no later than two days before the first day of the season. Otherwise, the permit will be forfeited and made available first to stand-by hunters identified at the time of the drawing, second to stand-by hunters who have called in, and lastly to other hunters on a first-come, first-served basis.

Stand-by—Stand-by hunters are chosen from applications that were unsuccessful in the preseason lottery. Those individuals then could be drawn if their preferred sites and dates become available.

Call List—Calls will be taken from any hunter wishing to be put on a stand-by call list starting on preseason lottery drawing day. We will use that list if no stand-by applicants are available.

First Come-First Served—**Preseason lottery hunt days:** After 7 a.m., hunters may sign in, self-register, and use any unoccupied blind site.

Other hunt days: At the conclusion of the preseason lottery hunt days, permits and report cards will be available at refuge headquarters or the sign-in box at Mac’s Bend for self-service signing in and permitting no more than two hours before legal shooting time.

Sign In and Sign Out—All hunters are required to sign in and out of their sites by completing the sign in, sign out sheet for their hunt area. Sheets for the Junior Waterfowl Hunting Area are located at refuge headquarters. Sheets for other areas are located at Mac’s Bend. When a party signs out, another party may sign in and use the vacated site. Hunters must sign out of one site before occupying a different site in any of the controlled hunting areas.

Youth Waterfowl Hunting Weekend—With the exception of the Junior Waterfowl Hunting Area, these areas are open on a first-come, first-served basis to Youth Waterfowl Hunters during the two-day special Youth Waterfowl Hunting Weekend in late September. No preseason drawing will be held, and no fee will be assessed. However, youth hunters must self-register and submit a report of their hunt.

Reporting—At the end of each daily hunt, hunters will have until one hour after sunset to sign out, and must complete sections B and C of their permits and return them to refuge headquarters or the drop box at Mac’s Bend.

General regulations—Permanent blinds and unattended decoys are prohibited. (See exception under “Junior Waterfowl Hunting Area.”)

A hunting party consists of the hunter named on the permit and one guest hunter per site per day. Non-hunters may accompany a hunting party.

Each hunting party must possess a permit for the specific site on the specific day they are hunting in those areas. Permits are not transferable.

Hunters must hunt within 100 feet of a numbered stake corresponding to their assigned site.

Jump shooting is not allowed.

A hunter may not use or possess more than 25 shot shells per day.

Saxes Pothole/Creek and Shad Island Pothole Regulations—This hunting unit encompasses Saxes Creek, Saxes Pothole, and Shad Island Pothole. It is a controlled hunting area. Five sites, numbered 1–5, are staked and available to five hunting parties in Saxe’s Pothole; one site, numbered 6, is staked and available to one hunting party in Shad Island Pothole.

A boat is required to access each of those blind sites.

Shooting hours will be one-half hour before sunrise to sunset.

Permits for the period from the opening day of duck hunting season through the first Sunday of the duck-hunting season and, for the second weekend of the duck-hunting season, are obtained by application to a preseason lottery. During years when the State elects to have a split season, permits for the second opening day through the following Sunday will also be obtained by application to the preseason lottery. On all other hunt days, hunters must acquire permits through self-registration at the Mac’s Bend Landing no earlier than two hours before legal shooting time on the day of the hunt.

On those days for which permits are drawn by preseason lottery, hunters must sign in at the Mac’s Bend Landing by 7:00 a.m. before going to the assigned site. After 7:00 a.m., other hunters may sign in, self-register, and use unoccupied sites.

Each party is required to use a retriever.

Junior Waterfowl Hunting Area—This controlled hunting area encompasses Long Marsh Bay, Patrick Marsh, and that portion of Charcoal Creek south of Route 78. Eleven blind sites are established for use by Junior Waterfowl Hunters: blind sites 4–8 in Long Marsh Bay, blind sites C–F in Charcoal Creek, and blind sites A–B in Patrick Marsh.

A small, flat bottom boat, car top boat or canoe is necessary for access to Charcoal Creek and Patrick Marsh blind sites. Access is available at the Charcoal Creek crossing on Route 78 or from a

pulloff on Route 78 about three-quarters of a mile east of the Charcoal Creek access. Shooting hours will be one-half hour before sunrise to 11:00 a.m.

Following the successful completion of the annual refuge training program, usually held the third or fourth Saturday in August, Junior Waterfowl Hunters ages 12–15 at the time of the hunt vie for blind site assignments in a lottery drawing at the conclusion of the training. The 11 blind sites are available exclusively for those Junior Waterfowl Hunters the first four Saturdays and Sundays of the duck season.

As an incentive for the adult volunteers who serve as mentors to Junior Waterfowl Hunters, they will vie for blind site assignments during a lottery drawing at the conclusion of the annual junior waterfowl hunter training for the use of blind sites in the Junior Hunt area on the first Wednesday following the second weekend of the season. That day is known as Mentor Day. No fee will be collected from the mentors for this hunt day. Blinds not assigned because of this lottery will be made available to other adult hunters by preseason lottery.

Hunters, including Junior Hunters, must sign in at refuge headquarters no later than 7:00 a.m. on the date of their scheduled hunt. After 7:00 a.m., other Junior Hunters may sign in, self-register, and use unoccupied blind sites. Only Junior Hunters may hunt on the first four Saturdays and Sundays of the season.

Each Junior Hunter must possess a free permit for the assigned blind site and day. On Mentor Day, mentors must also possess this free permit for the assigned blind site. Each adult hunting party must possess a permit for the blind site and day they are hunting. Permits are not transferable.

A mentor who has completed the training program must accompany the Junior Hunter, and is included on the permit assigned to the Junior Hunter. A mentor may simultaneously oversee up to two junior hunters at one blind site.

Only Junior Hunters may discharge a firearm in this area during the Junior Hunt periods.

Each party must use at least six decoys.

Junior Area Adult Regulations—Following the use of the blind sites in this area by Junior Hunters and mentors, all blinds sites will then be available to all adult hunters by permit awarded by preseason lottery for the second Wednesday following the second weekend of the duck season. Thereafter, the blinds are available Wednesdays and weekends following the Junior Hunt by first-come, first-served self-registration and permitting at refuge headquarters no more than two hours before legal shooting time.

Each adult hunter, except mentors on Mentor Day, must pay \$10 for each permit issued due to the preseason lottery. Permits acquired by self-registration are free.

Exceptions—Hunting is permitted, and recommended, from portable blinds and boat blinds constructed and placed by the refuge at some of the blind sites for the Junior Waterfowl Hunting

Program. Stationary blinds may be constructed and left in place for the duration of the season by Junior Hunters with the refuge manager's approval. Otherwise, permanent blinds are not permitted.

During the Youth Waterfowl Hunting Weekend in late September, the Junior Waterfowl Hunting Area is available only to Junior Waterfowl Hunters trained by the refuge that year.

Long Marsh Channel and Metcalfe Island Regulations—This controlled hunting area encompasses the Metcalfe Island Pothole and Long Marsh Channel. Three blind sites designated 1–3 are established in Long Marsh Channel. Three blind sites designated 8–10 are established on Metcalfe Island.

A boat is required to hunt at each of those blind sites.

Shooting hours are one-half hour before sunrise to 11:00 a.m.

Hunting will be limited to Tuesdays, Thursdays, and Saturdays throughout the waterfowl-hunting season for ducks.

Hunters obtain permits for the first 5 days of the duck season by application to a preseason lottery. Following the first 5 days, hunters may acquire permits on a first-come, first-served basis with self-service permitting and sign-in at the Mac's Bend Landing no more than 2 hours before legal shooting time.

On those days for which permits are drawn by preseason lottery, hunters must sign in at the Mac's Bend Landing by 7:00 a.m. before going to the assigned site. After 7:00 a.m., other hunters may sign in, self-register, and use unoccupied sites.

A party must use at least six decoys.

Each party is required to use a retriever.

Prohibited Activities

- Littering
- Using or possessing alcoholic beverages
- Taking wildlife or plants other than as specified in this brochure
- Searching for or removing any object of antiquity including arrowheads, pottery or other artifacts
- Camping overnight
- Burning open fires

The permit holder must comply with the refuge regulations and permit conditions listed under "Stipulations Necessary to Ensure Compatibility," unless the permit allows an exception.

(e) Why is this use being proposed?

Hunting on the lands of refuge has gone on since Native Americans first came to the area more than 7,000 years ago. Since the establishment of the refuge in 1943, hunting has been a constant, popular, sustainable high-priority public use of significant importance to local and regional residents. Their interest in hunting remains high. We are proposing this use to acknowledge its importance to refuge visitors and accomplish the goal of providing them with opportunities to engage in that compatible, high-priority public use.

The habitat that makes the Missisquoi refuge attractive to wildlife also makes it attractive to people, offering countless opportunities to witness some amazing wildlife spectacles. Waterfowl hunters come to the refuge not only to hunt, but also to share with family and friends the sights and sounds of wildlife and wetlands. The refuge is a special place, where hunting can link children and adults with the land and its resources. Commercially guided waterfowl hunting trips will help instill a land ethic in our hunters and strengthen the connection between wildlife and people. By enjoying this activity, the hunters further develop an appreciation for fish and wildlife.

AVAILABILITY OF RESOURCES

Adequate refuge personnel and base operating funds are available to manage guided waterfowl hunting trips at their existing and projected levels. Administrative staff time primarily involves issuing and renewing special use permits each year, ensuring licenses and certifications are current, collecting client use-day fees; and reporting data annually. The fieldwork associated with administering the program primarily involves monitoring the permit holders' compliance with the terms of the permit.

We estimate the refuge staff time to administer and monitor these permits annually at 1 month.

Transportation and other operational costs for monitoring is about \$2,000 per year. We assess a nonrefundable administrative fee of \$150.00 when each permit is issued, and charge clients \$10/permit/day for the controlled hunting site permits acquired through the preseason lottery. Following the preseason lottery, permits are available daily on a first-come, first-served basis at no charge. There is no charge for permits issued on the day of the hunt.

ANTICIPATED IMPACTS OF THE USE

Migratory birds are managed on a flyway basis, and hunting regulations are established in each state based on flyway data. Atlantic Flyway and State of Vermont regulations apply to the migratory waterfowl-hunting program at the Missisquoi refuge. Missisquoi hunting regulations may be more restrictive than state and other federal regulations in limiting hunt days, hunt hours, shot shell restrictions, etc. Hunting would reduce the numbers of birds in the flyway within allowable limits determined by state and federal agencies. The direct disturbance of non-target birds would likely occur from hunting and associated hunter activity, but would be short-term. Those impacts are temporary, and are mitigated by the presence of adjacent refuge habitat where hunting does not occur, and where birds can feed and rest undisturbed. The refuge regulations implementing the program ensure periods free from the disturbance of hunting during the hunting season, and areas of

3. The permit holder must provide a copy of the appropriate documentation of current Red Cross First Aid and CPR certification for all guides.
4. All special use permits will expire on the last day of the refuge fiscal year, September 30, regardless of their date of issue. The refuge needs public use figures for its end-of-year reports (both fiscal year and calendar year). Therefore, special permit holders must turn in their use figures to the refuge by October 10, and must include the following information: total number of trips, total number of participants, and total fees.
5. A copy of a valid permit must be available for inspection by any law enforcement officer or refuge staff member, on request, whenever an activity authorized by the permit is occurring. Storing the permit in the glove box of a vehicle is acceptable; however, all guides must be knowledgeable about the permit and its conditions.
6. The violation of any special conditions of the permit, or of any federal, state, local, or refuge regulation may result in a Notice of Violation (NOV) being issued or the revocation or cancellation of the permit without written or verbal warning. In that case, the permit holder will receive immediate notification by phone with follow-up notification by mail. Permit holders are responsible for the actions of their employees, agents, others working under their special use permit, and their clients.
7. No refund will be made to the permit holder, regardless of the reason for the revocation or cancellation of a permit.
8. Presently, we do not limit the number of commercial waterfowl hunting guides and participant vehicles (plus trailers) allowed to park at Louie's Landing and Mac's Bend; however, we may place restrictions on the quantity as we deem appropriate to allow space for other refuge visitors and hunters.
9. For those commercial guides who had a special use permit in a previous year, we will not issue a permit for the current year until the refuge office has received an accounting of the tours and activities conducted under the old permit.
10. We issue permits on a year-to-year basis, and do not reissue them automatically on consecutive years.
11. All permit holders and their employees who guide on the Missisquoi refuge must attend a training course that describes the refuge and its mission, the habitats and history of the area, and the customer service standards we expect.
12. Permit holders will provide all participants with relevant refuge information, including the regulations and conditions of the permit. The Service will supply information to the permit holder, on request.
13. Vehicle(s) will be used only on designated roadways and in parking areas.

- 14. All boats must carry standard USCG-approved safety equipment.
- 15. The permit holders and their clients do not have the exclusive use of the blind site(s) or lands covered by the permit, and must apply for the use of sites through the same lottery as other hunters.

JUSTIFICATION

Commercial waterfowl hunting guides provide the public with high-quality, safe, waterfowl hunting opportunities. These visitor services are a valuable benefit to a segment of the American public that is not comfortable with or, for other reasons, chooses not to participate in unguided waterfowl hunting on the refuge.

The requirements the Service places on commercial tour guides through the application process and the terms of their special use permits and regulations of the State of Vermont ensure that these commercial operators provide safe, high-quality experiences for their clients. Those operations can help the refuge achieve its purposes of protecting the fish and wildlife resources of the refuge and meeting legal requirements to provide compatible opportunities for the public to use and enjoy those resources.

Allowing commercially guided waterfowl hunting on the Missisquoi National Wildlife Refuge contributes to, and does not materially interfere with or detract from, the mission of the National Wildlife Refuge System and the purposes for which the refuge was established.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-year Re-evaluation Date: _____
(Signature and Date)