COMPATIBILITY DETERMINATION

USE: Haying for Grassland Habitat Management

REFUGE NAME: Missisquoi National Wildlife Refuge

DATE ESTABLISHED: February 4, 1943

ESTABLISHING AUTHORITY: Migratory Bird Conservation Act of 1929

PURPOSE(S) 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, 715d, 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 the use a priority public use?

The use is haying. Its purpose is for grassland habitat management. The National Wildlife Refuge System identifies hunting, fishing, wildlife observation and photography, and environmental education and interpretation as the six priority public uses. Therefore, haying for grassland habitat management is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administrative Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997.

Haying is the cutting and processing (typically baling) of grass and forbs, with subsequent removal to an off-refuge location. Haying will be conducted by third parties on grasslands owned by the refuge. Haying of an area is usually conducted as a single event during any one year, but may be repeated periodically to: remove undesirable grasses and forbs; remove accumulated plant biomass; remove or reduce woody vegetation; or provide a desired vegetative condition. As a result, this use contributes to the mission of Missisquoi National Wildlife Refuge.

The removal of baled grass from the refuge for use by local farmers would have an economic value and thus, must be evaluated to determine if it is a compatible use and a use that contributes to the purpose of the refuge or the National Wildlife Refuge System mission. The use must be compatible in order to proceed with it; if it is not compatible, it is not an allowed use.

Mowing of refuge lands by refuge staff is a management action and is not subject to a compatibility determination. Haying is a technique that can be effective at maintaining and managing grasslands and open fields for a variety of nesting and migratory birds in accordance with refuge goals and objectives.

(b) Where would the use be conducted?

The proposed use would be conducted on the Missisquoi National Wildlife Refuge in the towns of Swanton and Highgate, Franklin County, Vermont. The use would occur on approximately 206 acres of grasslands, including:

Fields 9, 10 and 11 along Tabor Road

The field east of the Stephen J. Young Marsh

The southern 57 acres of Field 4 and the 10 acres of Field 5, both adjacent to and east of the Missisquoi River

(c) When would the use be conducted?

Haying would occur after July 15 through September 30. This delay allows the young of grassland nesting birds to mature to flight stage before the onset of haying.

(d) How would the use be conducted?

Individuals would be authorized to cut hay via Special Use Permit issued by the Refuge Manager. Refuge grasslands and open fields are currently mowed or hayed every 1-3 years depending on weather and field conditions, desirability of the hay by local farmers, and refuge wildlife and habitat management goals. Haying frequency and intensity would be determined by what is needed to suppress broadleaf and woody plant invasion and develop a mosaic of grassland vegetation in fields where open grassland is desired.

There is no selection process for haying permittees on Missisquoi NWR due to a general lack of interest by local farmers. Instead, local farmers who request to hay fields are issued a permit. The haying permittee is required to pay an annual fee of $6 per acre.

Administration of the haying program will be conducted in accordance with a Habitat Management Plan. Haying activities will be subject to the terms and conditions of a Special Use Permit issued by the Refuge Manager. The terms of the permit will ensure compatibility through application and implementation of Service policy and refuge-specific stipulations.

(e) Why is this use being proposed?

Missisquoi NWR was established to benefit migratory birds. One of the goals identified in the Missisquoi National Wildlife Refuge Draft Comprehensive Conservation Plan and Environmental Assessment is to, "Provide diverse upland habitats for Federal trust species

including migratory birds and other species of conservation concern in all seasons." Objective 2.3 (Grassland) Strategies of the Preferred Alternative in the Draft Comprehensive Conservation Plan are to, "Maintain fields 9, 10, and 11 and the field around Stephen J. Young marsh in grassland habitat by mowing after July 15" and "Pursue opportunities to conserve additional grassland habitat bordering the high-value refuge grasslands along Tabor Road to maintain landscape conditions conducive to area-sensitive species...." Specific habitat management strategies for maintaining productive grassland habitats on the refuge will be detailed in the Missisquoi National Wildlife Refuge Habitat Management Plan.

Rationale

Historically most of New England was forested, except for a period following European settlement, when much of the region was cleared for agriculture and subsequently grasslands and fields became abundant. Vermont was no exception. In the early 1700s, Vermont was a forested wilderness, with mountaintops, shores, Native American settlements, and wetlands being the only open places (Murin and Pfeiffer 2002). By the mid-1800s, settlers had cleared nearly three-quarters of Vermont's old growth forests for crops, grazing, and timber, leaving Vermont's landscape far from the wilderness it had been a mere one-hundred years before (DeGraaf and Yamasaki 2001).

Today, more than 90% of northern New England is forested and large grassland habitats are in decline. Grasslands in the Champlain Valley of Vermont, are now mostly artificial habitats that occur where there is agricultural land, an airport, or some other open area. As grassland habitats have disappeared, the populations of grassland birds have declined. The current trend of increasing forest species and decreasing open-habitat species in New England wildlife populations shows the dynamic nature of the landscape and the long-term effects of human activities (DeGraaf and Yamasaki 2001).

Grassland and shrubland species, especially birds, are the most rapidly declining species in New England (Askins 1993). Grassland birds are specialists that quickly disappear from a site as habitat patches become too small or as succession proceeds (Askins 1993). Generally, fields less than 20 acres are unsuitable for most obligate grassland breeding birds. Despite the loss of grassland habitats in New England, this region may still be important for grassland birds given the widespread loss of habitat and the decline of grassland birds in the Midwest and throughout North America (Norment 2002).

Grasslands need to be managed to prevent their natural succession to shrubland and forest. The pace of natural succession can be rapid if fields are not managed by haying, mowing, burning, or grazing. Rotational haying or mowing produces a varied complex of grassland successional stages that serves to meet the needs of several nesting grassland bird species at the same time. Haying and mowing are recommended grassland management techniques to benefit grasshopper sparrows, savannah sparrows, bobolink, and eastern meadowlarks.

The refuge now manages a dozen fields that vary in their physical (size, shape, and landscape context) and ecological (soil type, drainage, and vegetative structure) characteristics to benefit grassland-dependent wildlife. The largest grasslands on the refuge lie along Tabor Road; several smaller grasslands lie along Route 78 and the Missisquoi River corridor. Grassland bird surveys began on the Refuge in 1998 along Tabor Road and in the grasslands along the

Missisquoi River. The Tabor Road survey documented a diverse grassland bird community including bobolink, savannah sparrow, eastern meadowlark, red-winged blackbird, red-tailed hawk, and tree swallow.

As stated in the Missisquoi National Wildlife Refuge Draft Comprehensive Conservation Plan and Environmental Assessment, the refuge plans to modify its grassland management program to maximize benefits for wildlife dependent on that habitat, while shifting some fields to shrubland and floodplain forest conditions that benefit other priority species. In order to do this, the refuge may reduce the present 338 acres of grassland to 206 acres (Fields 9, 10, 11, along Tabor Road, the field east of the Stephen J. Young marsh, 57 acres at the southern end of Field 4, and the 10 acre Field 5). We would maintain these high quality grasslands to provide nesting habitat for bobolinks and eastern meadowlark, roosting habitat for American woodcock, and foraging opportunities for raptors such as northern harrier and American kestrel.

The refuge may abandon grassland management in additional areas after further study. Sixty-seven acres of grasslands adjacent to the Missisquoi River (portions of Fields 4 and 5) will be evaluated as habitat for nesting birds before allowing them to revert to shrubland. As part of the ongoing development of a step-down Missisquoi National Wildlife Refuge Habitat Management Plan, an analysis of all refuge habitats is being conducted to determine the best complement of habitat types to provide maximum benefit to trust resources of the refuge.

AVAILABILITY OF RESOURCES:

No additional fiscal resources are needed to conduct this use. The needed staff time is already committed and available. Most of the work to prepare for this use would be done as part of routine grassland management duties. The decision to use haying as a management tool will occur as part of the strategies developed under the Annual Habitat Management Work Plan. The additional time needed to coordinate issuance and oversight of the needed Special Use Permit for haying is relatively minor and within existing refuge resources.

ANTICIPATED IMPACTS OF THE USE:

Haying will result in both short-term disturbances and long-term benefits for resident and migratory wildlife using the refuge. Short-term impacts will include disturbance and displacement of some wildlife by noisy heavy-equipment operation. Cutting and removing standing grasses will result in short-term losses of habitat for those species requiring tall grasses for feeding and perching. Haying activities will also result in the short-term loss of habitat for species using those areas for nesting, feeding, or resting, however, all cutting and haying will be done after July 15, when most young of grassland nesting birds have already fledged.

Haying will have long-term positive impacts to refuge grassland habitat and the species that inhabit them. Haying suppresses invasion of grasslands by perennial forbs and shrubs and maintains grass-dominated plant communities. Rotational haying can help develop a mosaic of grassland vegetation that will provide habitat for a greater abundance and diversity of grassland

birds and other species. By haying, the resulting habitat will improve conditions for most of the species adversely affected by the short-term negative impacts. The haying program would also have positive economic impacts for the permittee, and would result in hay being available to local farmers.

PUBLIC REVIEW AND COMMENT:

As part of the haying program public notification process for Missisquoi National Wildlife Refuge, this compatibility determination will undergo public review, including a comment period of at least 30 days. A news release will be issued alerting the public that this program is available for review.

DETERMINATION:

THIS USE IS COMPATIBLE ___X___
THIS USE IS NOT COMPATIBLE _____ (Check one)

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

Haying or mowing will not be conducted during the early nesting season to avoid destruction of nests, eggs, and young of breeding grassland birds.

Conditions outlined in the Special Use Permit will limit the period that haying may take place to August 1 through September 30.

Haying of fields will be determined on an annual basis to ensure it supports the wildlife and habitat goals outlined in the Missisquoi NWR Comprehensive Conservation Plan and Environmental Assessment, Missisquoi NWR Habitat Management Plan, and the Annual Habitat Management Work Plan.

JUSTIFICATION:

The use of haying as a management tool can provide long-term habitat improvements to grasslands that otherwise would degrade through natural succession or though dominance of undesirable vegetation. Haying for grassland habitat management contributes to the purposes of the refuge by maintaining and enhancing habitat for grassland-dependent migratory birds, such as the American woodcock, bobolink, vesper sparrow, field sparrow, Savannah sparrow, and eastern meadowlark. Haying contributes to the mission of the National wildlife Refuge System by providing healthy fish, wildlife, and plant populations, maintaining productive habitats, and, providing quality environments. Haying also contributes to the Missisquoi NWR goals outlined in its Draft Comprehensive Conservation Plan and Environmental Assessment to, "Provide diverse upland habitats for Federal trust species including migratory birds and other species of

conservation concern in all seasons." Therefore, it is the determination of the Service that haying for grassland habitat management is a compatible use for the Missisquoi National Wildlife Refuge.

Signature: Refuge Manager: _____
(Signature and Date)

Concurrence: Regional Chief: _____
(Signature and Date)

Mandatory 10-Year Reevaluation Date: _____

References:

Askins, R.A. 2000. Restoring North America's Birds. Yale University Press.

DeGraff, R.M., and M. Yamasaki. 2001. New England Wildlife. University Press of New England.

Murin, T. and B. Pfeiffer. 2002. Birdwatching in Vermont. University Press of New England.

Norment, C. 2002. On grassland bird conservation in the northeast. The Auk 119(1):271-279. Robbins, C. S., D. Bystrak, and P. H. Geissler. 1986. The Breeding Bird Survey: its first fifteen years, 1965-1979. U.S. Fish and Wildlife Service Resource Publication 157.

Thompson, E.H., and E.R. Sorenson. 2005. Wetland, Woodland, Wildland, A Guide to the Natural Communities of Vermont. The Nature Conservancy and the Vermont Department of Fish and Wildlife. University Press of New England.

U.S. Fish and Wildlife Service. 1997. National Wildlife Refuge Improvement Act 1997. Public Law 105-57-Oct. 9, 1997.

U.S. Fish and Wildlife Service. 2007. Moosehorn National Wildlife Refuge Haying Compatibility Determination.

U.S. Fish and Wildlife Service. 2007. Missisquoi National Wildlife Refuge Draft Comprehensive Conservation Plan and Environmental Assessment.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Missisquoi National Wildlife Refuge

Use: Haying

This form is not required for wildlife-dependent recreational uses, 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?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(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?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	✓	

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 ✓ 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____ **Appropriate** ✓

Refuge Manager: Mark W. Sweeney Date: 4/17/07

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:_____

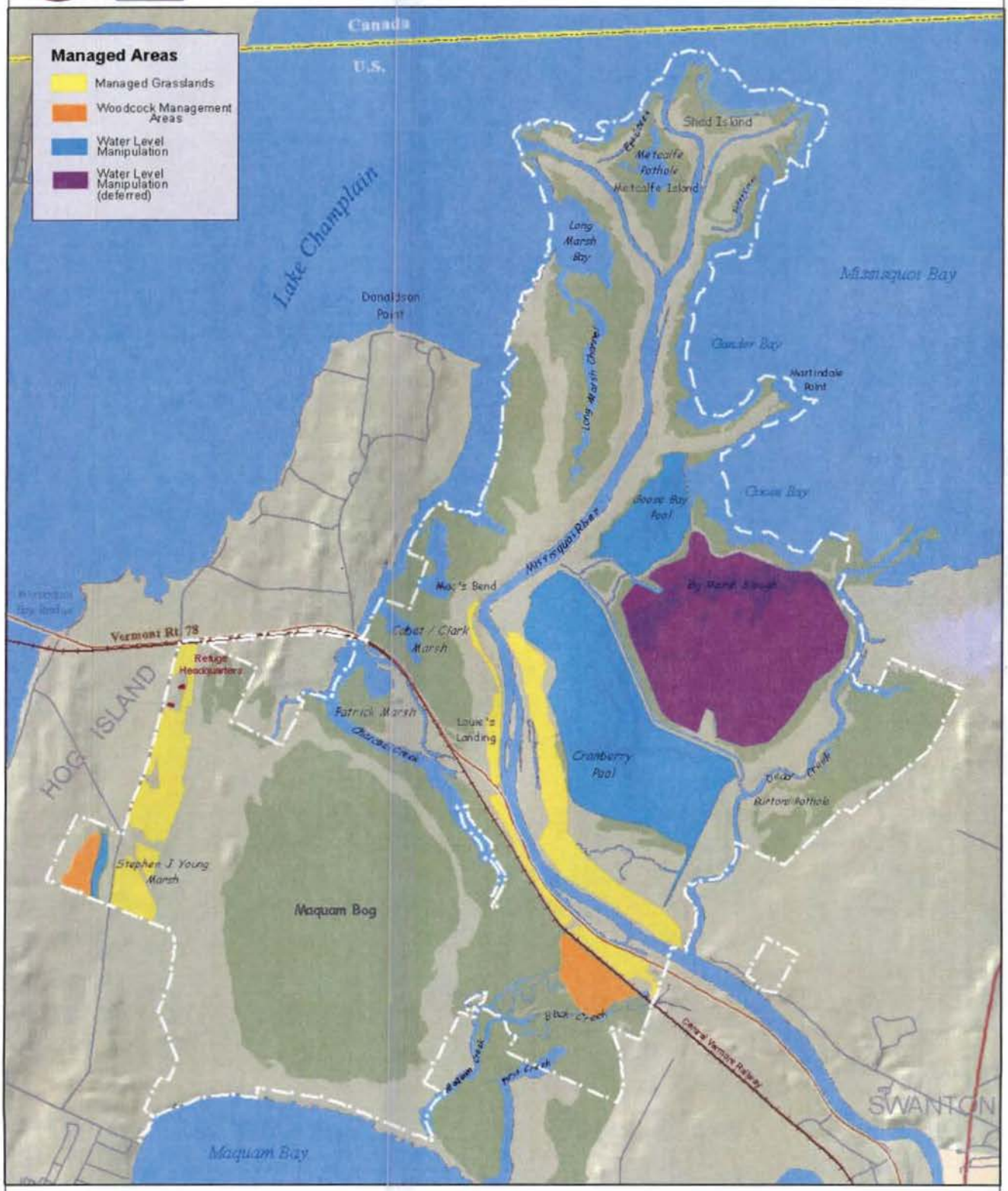
A compatibility determination is required before the use may be allowed.

JUSTIFICATION:

The use of haying as a management tool can provide long-term habitat improvements to grasslands that otherwise would degrade through natural succession or though dominance of undesirable vegetation. Haying for grassland habitat management contributes to the purposes of the refuge by maintaining and enhancing habitat for grassland-dependent migratory birds, such as the American woodcock, bobolink, vesper sparrow, field sparrow, Savannah sparrow, and eastern meadowlark. Haying contributes to the mission of the National wildlife Refuge System by providing healthy fish, wildlife, and plant populations, maintaining productive habitats, and, providing quality environments. Haying also contributes to the Missisquoi NWR goals outlined in its Draft Comprehensive Conservation Plan and Environmental Assessment to, "Provide diverse upland habitats for Federal trust species including migratory birds and other species of conservation concern in all seasons." Therefore, it is the determination of the Service that haying for grassland habitat management is a compatible use for the Missisquoi National Wildlife Refuge.

Missisquoi National Wildlife Refuge - Comprehensive Conservation Plan

Missisquoi NWR Current Managed Areas



Currently managed areas from USFWS.
Refuge Boundary from USFWS.
Roads from StreetMapUSA
Basemap USGS 100,000 data, modified to fit USGS DOQ's