COMPATIBILITY DETERMINATION

Use: Farming

Refuge Name: Swan Lake National Wildlife Refuge (NWR)

Establishing and Acquisition Authorities: Executive Order 7563 established Swan Lake National Wildlife Refuge on February 27, 1937.

Refuge Purposes:

- "... as a refuge and breeding ground for migratory birds and other wildlife: ..." Executive Order 7563, dated Feb. 27, 1937
- "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. 715d (Migratory Bird Conservation Act)
- "... particular value in carrying out the national migratory bird management program." 16 U.S.C. 667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife)

National Wildlife Refuge System Mission: The mission of the National Wildlife Refuge 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:

Is the use a priority public use?
Farming is not a priority public use of the National Wildlife Refuge System.

Where would the use be conducted?
Presently, farming occurs on up to 1,365 acres or about 12 percent of presently owned (11,473 acres as of 2008) Refuge lands annually.

When would the use be conducted?
Spring planting can begin as early as April and fall harvest may occur until late October.

How would the use be conducted?
The Refuge will allow farming by private individuals for the purpose of habitat management. Cooperative farming is the term used for cropping activities (growing agricultural products) conducted by a third party on land that is owned by or managed as part of the Refuge. Cooperative farming is conducted under the terms and conditions of a Cooperative Farming Agreement or Special Use Permit issued by the Refuge Manager. The terms of the Agreement or Permit ensure compliance with Service policy and area-specific stipulations to meet management objectives and safeguard resources. In most circumstances where farming

is permitted, the use agreement will require a portion of the area be planted to a mixture of species specified by the Refuge. This portion is left unharvested in the field for the benefit of wildlife.

Farming entails the use of mechanical equipment such as tractors, disks, and seeders. Each site is tilled prior to spring planting, once ground conditions permit the use of heavy equipment without damage to the soil. Tilling requires 1-2 days per site. Some sites may also be treated with herbicide prior to planting. Next, crops such as corn, milo, wheat, and soybeans are planted. Typically, planting is completed in one day or less on any individual site and planting on all sites usually begins as early as mid April and is completed as late as early July depending on soil conditions and type of crop planted.

The Refuge encourages the use of no-till farming, also known as conservation tillage. This method is practiced on about half of the sites annually. It is a way of growing crops from year to year without disturbing the soil through tillage. Tillage is the preparation of the soil to receive seeds, usually done with equipment such as a plow, disk, or harrow that is pulled behind a tractor. Tilling can lead to unfavorable effects like soil compaction from heavy machine traffic and erosion caused by pulverizing the soil and removing plant cover, allowing topsoil to easily blow away or run off in rainwater. In no-till farming the soil is left intact and crop residues—stalks, stubble, leaves, and seed pods left after harvesting—are left in the fields. Despite the advantages to soils, no-till farming usually requires planting herbicide-resistant crop plants and then chemically weeding with herbicides. All herbicide-resistant crops will be carried out within the guidelines of Regional Policy regarding genetically modified organisms. Herbicide may be applied up to two times annually on each site. This is usually done with a tractor-drawn sprayer or self-propelled sprayer and requires up to one day per site for each application.

Traditional farming which uses tillage, and often herbicide as well, is practiced on about half the sites annually. It entails disking the site one or more times before spring planting to remove competing vegetation. This requires 1-3 days per site. Later in the growing season herbicide is applied to reduce the amount of weedy competition. This takes up to one day per site for each application. A harrow or other tractor-drawn implement may be used in place of herbicide to reduce the amount of weedy competition. This also would require about one day per site. This practice may also be utilized in areas managed for moist soil as a maintenance tool. The moist soil units are mechanically disturbed every 4-6 years to maintain their vitality and the Refuge may utilize farming as a cost effective means of managing the moist soil units.

Harvest techniques are the same for both no-till and traditional farming practices. Harvest begins in the fall, using a self propelled harvesting implement such as a combine, and usually takes about one day per site and is complete on all sites by late October.

Table 1. Heavy equipment use days per site for no-till and conventional farming

Actvity	No-till Farming	Conventional Farming
Spring tilling		1-3 days
Spring planting	1 day	1 day
herbicide application	2 days	
Herbicide application or mechanical weeding		1 day
Harvesting	1 day	1 day
Total	4 days/year	4-6 days/year

Why is this use being proposed?
At Swan Lake NWR, farming is used as a low-cost means to maintain open habitats and reduce the amount of undesirable herbaceous and woody vegetation within moist soil management units. On some sites it is used to provide supplemental food for waterfowl and other wildlife. Farming may also occur if parcels containing currently farmed land are purchased as additions to the Refuge. However, over the long term we expect the amount of farmed Refuge lands will decrease as permanent native habitat is established on these areas.

Availability of Resources:

What resources are needed to properly (considering quality and compatibility) and safely administer use?
Are existing Refuge resources adequate to properly and safely administer the use?

The needed staff time for development and administration of a cooperative farming program is available. Most of the needed work to prepare for this use would be done as part of routine management duties. The decision to use cooperative farming as a management tool would occur as part of strategies developed under specific program or unit habitat management planning. The additional time needed to coordinate issuance and oversight of the needed Special Use Permit or Agreements is relatively minor and within existing Refuge resources.

Anticipated Impacts of the Use:

How does farming affect Refuge purposes, the NWRS mission, as well as fish, wildlife, plants, and their habitats; and the biological integrity, diversity, and environmental health of the Refuge/NWRS?

Refuge Purposes and NWRS Mission
Since its establishment, the Refuge has fulfilled its purposes by providing for the needs of migratory birds and other wildlife, with an emphasis on waterfowl. Farming is one tool used to accomplish this. It does this in two ways: 1) the residual crops left in the fields provide food, primarily for waterfowl, and 2) farming is used as a disturbance agent on some moist soil units to prevent the encroachment of woody vegetation. Although moist soil management is known to provide a greater diversity of foods with higher nutritive value than cereal grains produced by farming, it is not suited to all sites because it requires levees and water level control. Row crops are planted on a portion of the Refuge to ensure adequate food is available for migrating waterfowl.

Fish, Wildlife, Plants, and their Habitats

On sites where farming occurs there would be periodic short-term disturbance and displacement typical of any noisy heavy equipment operation. These sites may be used by wildlife for feeding and resting at times equipment is not operating, but successful nesting is unlikely because of soil and habitat disturbance. Soil disturbance from farming would reduce undesirable plant species in moist soil units, allowing native species that provide dense cover and foods of high nutritive value to flourish in years the sites are not farmed. The crops left on-site as well as other crop residue would provide supplemental food, attracting wildlife to sites where, at some locations, they could be easily viewed by Refuge visitors. Any herbicide application would be done with products approved by the Service for such use and in compliance with label instructions. No short-term or long-term adverse impacts are expected. Farming and any associated impacts are expected to occur on no more than 12 percent of Refuge lands annually.

Biological Integrity, Diversity, and Environmental Health

Service policy calls for maintaining or restoring Refuge habitats to historic conditions if doing so does not conflict with refuge purposes (U. S. Fish and Wildlife Service 2001). Retaining up to 1,365 acres of cropland departs substantially from the prairies that likely once occurred on these sites according to maps of pre-settlement vegetation, or the potential vegetation identified in soil surveys (USDA) but it helps fulfill Refuge purposes by providing food for migratory waterfowl.

Public Review and Comment:

This compatibility determination was posted at the Refuge Visitor Center for a 2-week period and was displayed during the monthly Refuge First Friday program that is attended by more than 200 people. It was also posted in the local US Post Office public bulletin board. There were no comments received during this period.

Determination (check one below):

____Use is Not Compatible
_X_Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Cooperative Farming Agreements will be issued on a 3-year cycle and will be highly regulated to minimize damage to natural resources and provide supplemental food source. Each year of the Cooperative Farming Agreement the Refuge Manager will issue the cooperator an annual crop plan that specifies the crops to be planted for that year. Agreements will be awarded to the highest bidder based upon a per acre dollar figure or a crop share left unharvested.
2. Cooperating farmers will be subject to Service policy and regulation regarding use of chemicals. Herbicide and pesticide use is restricted by type and to the minimum necessary amount applied.
3. Special conditions of Cooperative Farming Agreements will address unique local conditions as applicable.

4. Farming must meet specific habitat and related wildlife objectives and contribute to the purposes of the Refuge.
5. Planting and harvest activities are restricted to minimize disturbance of wildlife species.

Justification: In view of the above and with the stipulations previously described, farming will not materially interfere with or detract from the NWRS mission or purposes of the Refuge. As practiced at Swan Lake NWR, farming contributes to the achievement of Refuge purposes and the National Wildlife Refuge System mission because it provides food resources for migratory waterfowl.

Refuge Manager: Steve Whitson 2-3-11
(Signature and Date)

Concurrence:

Regional Chief: Rick Schultz 2/15/11
(*Signature and Date*)

Mandatory 10- or 15-year Re-evaluation Date: 2021

References:

de Szalay, F.A., D. Helmers, D. Humberg, S.J. Lewis, B. Pardo, M. Shieldcastle. 2000. Upper Mississippi Valley / Great Lakes Regional Shorebird Conservation Plan. Technical report prepared for the U.S. Shorebird Conservation Plan, Manomet, Massachusetts. Available URL: http://www.fws.gov/shorebirdplan/RegionalShorebird/downloads/UMVGL5.doc

Helmers D.L. 1992. Shorebird management manual. Western Hemisphere Shorebird Reserve Network, Manomet, Mass. 58 p.

Parker, George R.; Ruffner, Charles M. 2004. Current and historical forest conditions and disturbance regimes in the Hoosier-Shawnee ecological assessment area Gen. Tech. Rep. NC-244. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 267 p. Available URL: http://ncrs.fs.fed.us/pubs/gtr/gtr_nc244/gtr_nc244_ch3.pdf

USDA—Natural Resources Conservation Service website http://www.nrcs.usda.gov/programs/wrp/states/in.html .

U. S. Fish and Wildlife Service. 2001. Biological integrity, diversity, and environmental health. 601 FW 3. National Wildlife Refuge System, Department of Interior. Available URL: http://policy.fws.gov/601fw3.html