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COMPATIBILITY DETERMINATION

Use: Gathering Antlers, Nuts, Berries, or Mushrooms

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?

No. Gathering (antlers, nuts, berries, and mushrooms) is not a priority public use of the National Wildlife Refuge System.

Where would the use be conducted?

Gathering is permitted in any portion of the Refuge open to the public. Mushroom and berry gathering is typically concentrated along roadsides and foot paths and is limited to one gallon per person per day. Antler gathering does occur over the entire Refuge but is typically carried out during the first couple weeks of March and is limited to four antlers per person and restricted to shed antlers only (antlers that have been sawed or still attached to the skull are prohibited from being gathered).

When would the use be conducted?

Gathering of antlers, nuts, berries, or mushrooms would occur during daylight hours from early March (once the Refuge is opened to the public) through late October (when the Refuge is closed to public access).

How would the use be conducted?

Antlers, nuts, berries and mushrooms are seasonally collected on the Refuge for personal use. This occurs without ground disturbance along road sides, edges of fields, and bottomland forests. Harvest of nuts, berries and mushrooms typically occurs during a stretch of several days in early spring and summer as particular items ripen. These foods are hand harvested by picking the products from the plant or gathering what has fallen to the ground. Mushrooms are picked by hand in the spring. Most antler collecting occurs in March after the Refuge opens to the public. Harvest is during daylight hours and generally involves individuals or small groups. Access to harvest sites is typically accomplished by walking from a parking area or along the side of Refuge roadways.

Why is this use being proposed?

This use has historically been allowed on the Refuge and has become a custom of the local community. The Refuge is open to the public during the time periods that the use is allowed so no additional disturbance is created by allowing this use. Gathering allows the public to build a connection to the Refuge through personal outdoor experiences that engage the senses and foster an appreciation of the outdoors. The Refuge along with Yellow Creek State Conservation Area and Fountain Grove State Conservation Area are the only public lands located in the area that provide the public this type of use. Otherwise opportunities exist on private lands where access is limited for the public.

Availability of Resources:

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

Staff is needed to post regulations regarding these activities, which is accomplished in conjunction with posting other Refuge regulations. Law Enforcement is needed to ensure access at allowed times is adhered to, which is done in conjunction with other Refuge access. Law Enforcement is also

periodically necessary to check gatherers to ensure compliance with the restrictions placed on gathering limits.

Are existing Refuge resources adequate to properly and safely administer the use?

Existing Refuge resources are adequate to ensure this activity is safely administered and carried out according to compatibility requirements.

Anticipated Impacts of the Use:

How does gathering affect Refuge purposes and the NWRs mission?

The Refuge was established to provide for the needs of migratory birds and other wildlife. Gathering does not adversely affect the ability of the Refuge to fulfill this purpose.

How does gathering affect fish, wildlife, plants, and their habitats; and the biological integrity, diversity, and environmental health of the Refuge/NWRs?

Wildlife disturbance and removal of wildlife foods are the direct impacts associated with this activity.

Disturbance

In *Managing Visitor Use and Disturbance of Waterbirds: A Literature Review of Impacts and Mitigations* DeLong (2002) includes a summary of effects on wildlife from disturbance from various forms of recreation. The author documents that disturbance can alter behavior (e.g. foraging time), population structure, and distribution patterns of wildlife. It is probable that gathering would cause some or all of these effects to some degree on Refuge wildlife, but at present and expected future levels is not expected to adversely affect wildlife populations on the Refuge. A number of measures mitigate these effects.

Habitat

No adverse impacts to Refuge habitats are expected from this activity. Presently, the level of this use is estimated at 50 visits annually and is not expected to increase much above present rates in the future. The use occurs for short durations during spring and summer when nuts, berries, mushrooms, or antlers are most likely available. Gathering occurs in the same areas as other public uses and practiced at prescribed levels is not expected to harm Refuge habitats.

Biological Integrity, Diversity, and Environmental Health

Gathering of nuts, berries, mushrooms, or antlers conducted in accordance with Refuge regulations is

not expected to adversely affect fish and wildlife populations or the biological integrity, diversity, and environmental health of the Refuge as it is defined in Service policy (USFWS 2001). Historically, public participation in the collection of nuts, berries, mushrooms, and antlers on the Refuge is estimated at about 50 visits per year, and future participation is also expected to be at or slightly above the current level. Individuals gathering wild edibles are limited to 1 gallon per day of mushrooms, 1 gallon per day of nuts or berries, and 4 shed antlers per day. This is not anticipated to adversely impact the biological integrity, diversity, or environmental health of the Refuge. Archeological evidence from within the Refuge shows it has been inhabited by humans for more than 12,000 years. Many of the early inhabitants relied heavily on wild plants for food. It is reasonable to conclude that individual gathering today is consistent with the historic conditions of the area.

Other Uses and Public Safety

Gathering is not expected to adversely affect other Refuge uses or public safety. As public use levels on the Refuge expand across time, unanticipated conflicts between user groups may occur. The Refuge's Visitor Services programs would be adjusted as needed to eliminate or minimize each problem and provide quality wildlife-dependent recreational opportunities which include promoting public safety. Experience on many National Wildlife Refuges has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. Overall, the cumulative impact of gathering on priority wildlife-dependent recreation activities or public safety at Swan Lake NWR is expected to be minor.

Public Review and Comment: This compatibility determination was part of the Swan Lake NWR Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments received and agency responses are included in the final version of the Swan Lake NWR Comprehensive Conservation Plan.

Determination:

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Digging of plants or their roots is prohibited.
2. Plant products are for personal use only and cannot be sold or traded.
3. Quantities are restricted to the gathering of 1 gallon per day of nuts, berries, or mushrooms and 4 shed antlers per day
4. Damaging trees, shrubs or any other vegetation is prohibited.
5. The host plant can not be destroyed or removed for berry picking.
6. Shed Antlers are only allowed to be gathered (those with a bur that indicates it was shed and not forcibly removed). Antlers that have been sawed or still attached to the skull are prohibited from being gathered.

Justification: The use has little impact to wildlife or habitat since it is non-motorized, involves few visitors, and disturbance is local and short-duration. Little harvest occurs in the fall, which is the beginning of the peak of the waterfowl migration. Due to the relatively small number of visitors for this activity and the personal-use-only stipulation, the amount of plants or parts harvested will not create any shortage of wild foods for any particular wildlife species. Refuge infrastructure and law enforcement staff already in place will be sufficient to facilitate and administer this use into the future. In view of the above and with the stipulations previously described, gathering nuts, berries, mushrooms, and antlers will not materially interfere with or detract from the purposes of the Refuge or the mission of the Refuge System. These uses also foster an appreciation of our natural resources by the public and are a means of allowing the Refuge to more effectively connect people to nature as per the Region 3 “Lets Go Outside-Connecting People With Nature” Initiative.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

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

References:

- DeLong, A. K. 2002. Managing visitor use and disturbance of waterbirds — a literature review of impacts and mitigation measures — prepared for Stillwater National Wildlife Refuge. Appendix L (114 pp.) *in* Stillwater National Wildlife Refuge Complex final environmental impact statement for the comprehensive conservation plan and boundary revision (Vol. II). Dept. of the Interior, U.S. Fish and Wildlife Service, Region 1, Portland, OR. Available URL: <http://www.fws.gov/stillwater/lit-review.pdf>
- 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>

Compatibility Determination

Use: Environmental Education, Interpretation, Special Events, and other programs

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 (NWRS) 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?

Environmental Education and Interpretation are priority public uses of the National Wildlife Refuge System as stated in the 1999 National Wildlife Refuge Improvement Act.

Where would the uses be conducted?

Environmental Education

Environmental education encompasses planned, often sequential, instructional programs and activities aimed at building skills, abilities, and knowledge about wildlife-related environmental topics. This use would primarily occur at an area of the Refuge developed as an environmental education site with an outdoor classroom.

Interpretation, Including Special Events

Interpretation is a communication process that forges emotional and intellectual connections between the audience and the resource. Interpretation is less instructional than environmental education and is usually self-guided or directed. This use would primarily occur at existing interpretive facilities at the visitor center, along a 10-mile auto tour route, and the Refuge nature trail.

Other Programs

Other programs include conservation-related activities such as outdoor skills classes, landowner workshops, and scouting activities. These activities would occur at the Visitor Center, the Environmental Education site, the Nature Trail and as tours along open Refuge roadways.

When Would the Use be Conducted?

These activities would occur throughout the year with greater activity expected when school is in session.

How would the use be conducted?

Environmental Education

Environmental Education is a priority public use that currently contributes about 500 visits to the Refuge each year. The Environmental Education program will be developed with a focus on partnerships with area schools, clubs, organizations, State and Federal agencies and Missouri Department of Conservation all participating in staff/volunteer led and self led Environmental Education activities on the Refuge. Programs will be designed to complement the Missouri public schools curriculum that requires students to learn about natural resources in preparation for the annual Missouri Mastery and Achievement Test. Environmental education programs will focus on Refuge specific issues including wildlife, history, archaeology, culture, and habitats. The Refuge will also connect and coordinate educational activities with resources at surrounding locations such as Fountain Grove Wildlife Management Area, Pershing State Park, and The Land Learning Foundation, all of which are near Swan Lake NWR.

Interpretation Including Special Events

In addition to interpretive facilities, Refuge staff and volunteers will provide guided tours and programs upon request. Special events will be planned out each year and posted on a Refuge calendar of events.

Other Programs

Other conservation related programs would be led by Refuge staff, volunteers, or others from State agencies or conservation organizations.

Why is this Use Being Proposed?

Environmental education and Interpretation are priority general public uses of the National Wildlife Refuge System. These programs promote understanding and appreciation of natural and cultural resources and their management on all lands and waters of the Refuge System.

Availability of Resources:

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

Existing Refuge staff will be utilized when necessary to assist the environmental education, interpretation, and other programs in addition to their normal duties. The Refuge volunteer program will be utilized to carry the bulk of environmental education, interpretation, and other related duties through the use of volunteers, work campers, and interns. If funding is sufficient, seasonal employees or an additional permanent employee may also be used to carry out these programs.

Are existing Refuge resources adequate to properly and safely administer the use?

At the present level of use there are adequate Refuge resources to administer programs for environmental education, interpretation and other events. There is an opportunity to provide increased services through expansion of the Refuge volunteer program.

Anticipated Impacts of the Use:

How does environmental education affect Refuge purposes and the NWRS mission?

The Refuge was established to provide for the needs of migratory birds and other wildlife. Environmental education, interpretation, and other programs and events do not adversely affect the ability of the Refuge to fulfill this purpose. Environmental education and interpretation are priority general public uses of the National Wildlife Refuge System and supports two of the goals the NWRS.

How does environmental education affect fish, wildlife, plants, and their habitats; and the biological integrity, diversity, and environmental health of the Refuge/NWRS?

Migratory Birds

Environmental education, interpretation, and other similar activities are not expected to adversely affect migratory bird populations that occur on the Refuge.

Disturbance

In *Managing Visitor Use and Disturbance of Waterbirds: A Literature Review of Impacts and Mitigations* DeLong (2002) includes a summary of effects on wildlife from disturbance from various forms of recreation. The author documents that disturbance can alter behavior (e.g. foraging time), population structure, and distribution patterns of wildlife. It is probable that outdoor environmental education, interpretation, or other similar activities would cause some or all of these effects to some degree on Refuge wildlife. A number of measures mitigate these effects, and they are not expected to occur at levels that would interfere with the purposes of the Refuge. The area most directly impacted would be the environmental education site located along the perimeter of the Refuge at the site of the existing hunting headquarters building. School buses and personal vehicles would utilize developed roads and parking areas to access trails which are already in place. Self-guided interpretation would be sporadic use by small groups of people at established trails and kiosks. This may cause short term disturbance as well, but again would have minimal impact.

Habitat

Environmental education, interpretation and other similar activities may cause minor habitat disturbance, but are not expected to adversely affect Refuge habitats.

Biological Integrity, Diversity, and Environmental Health

Environmental education, interpretation and other similar activities are not expected to adversely impact the biological integrity, diversity, and environmental health of the Refuge.

Other Uses and Public Safety

Environmental education, interpretation and other similar activities are not expected to adversely affect other Refuge uses or public safety. As public use levels on the Refuge expand across time, unanticipated conflicts between user groups may occur. The Refuge's Visitor Services program would be

adjusted as needed to eliminate or minimize each problem and provide quality wildlife-dependent recreational opportunities that include promoting public safety. Experience on many National Wildlife Refuges has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. Overall, the cumulative impact of environmental education, interpretation and other similar activities on other wildlife-dependent recreation or public safety at Swan Lake NWR is expected to be minor since it is concentrated in a few locations.

Public Review and Comment:

This compatibility determination was part of the Swan Lake NWR Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments received and agency responses are included in the final version of the Swan Lake NWR Comprehensive Conservation Plan.

Determination (check one below):

- Use is Not Compatible
- Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Use of motorized vehicles is limited to maintained roads and parking areas except for extenuating circumstances approved by the Refuge Manager.
2. Environmental education activities not led by Refuge staff would require verbal approval or a Special Use Permit by the Refuge Manager to minimize conflicts with other groups, safeguard students and resources, and to allow tracking of use levels.
3. Harassment of wildlife or excessive damage to vegetation is prohibited.
4. Educational groups are required to have a sufficient number of adults to supervise their groups, a minimum of 1 adult per 10 students.
5. Visitors involved in environmental education or interpretive activities are to adhere to all Refuge regulations unless approved by the Refuge Manager.

Justification:

In view of the above and with the stipulations previously described, environmental education, interpretation and other similar programs will not materially interfere with or detract from the NWRS mission or purposes of the Refuge. Environmental education and interpretation are priority public uses of the Refuge System and providing these programs contributes to achieving one of the Refuge goals. Well-designed environmental education and interpretation programs can be effective resource management tools that provide an opportunity to influence visitor attitudes about natural resources, refuges, the Refuge System, and the Service and to influence visitor behavior when visiting units of the Refuge System.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

Mandatory 10- or 15-year Re-Evaluation Date: 2026

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 organism. 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

Heavy Equipment Use Days Per Site for No-till and Conventional Farming

Activity	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

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.

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, it 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 two week period and was displayed during the monthly Refuge First Friday program which 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

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Cooperative Farming Agreements will be issued on a three 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 a 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.

1. 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.

2. Special conditions of Cooperative Farming Agreements will address unique local conditions as applicable.
3. Farming must meet specific habitat and related wildlife objectives and contribute to the purposes of the Refuge.
4. 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 Refuges purposes and the National Wildlife Refuge System mission because it provides food resources for migratory waterfowl.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

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

References:

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- 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://ners.fs.fed.us/pubs/gtr/gtr_nc244/gtr_nc244_ch3.pdf

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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>

Compatibility Determination

Use: Fishing

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?

Fishing is a priority public use of the National Wildlife Refuge System.

Where would the use be conducted?

All Refuge waters are open to fishing consistent with State and Refuge regulations. Most fishing occurs on Silver Lake, but some fishing also occurs on Refuge streams.

When would the use be conducted?

Refuge regulations (2008) permit fishing during daylight hours from early March through late October. The area known as Taylor Point is open to fishing year-round during daylight hours. The area can be accessed by a Refuge gravel road that comes off State Highway E. Bank fishing is all that is allowed along the shore of Silver Lake that is adjacent to the

Refuge Road and 200 yards up or down Elk Creek from the parking area at the end of the Refuge Road.

How would the use be conducted?

Three fishing piers and a boat launch provide fishing access to Silver Lake. Refuge regulations call for no wake on Silver Lake and non-motorized boats on all other Refuge waters. Bank fishing is permitted along all Refuge waters. The Refuge recorded 1,000 fishing visits in 2007.

Why is this use being proposed?

Fishing is a priority general public use of the Refuge System. The Service recognizes fishing as a traditional outdoor pastime, deeply rooted in the American heritage (USFWS 2006b). Fishing programs promote understanding and appreciation of natural resources and their management on all lands and waters in the Refuge System. Public fishing opportunities are also available nearby on the 7,100-acre Fountain Grove Conservation Area administered by the Missouri Department of Conservation and at the 3,500-acre Pershing State Park administered by the Missouri Department of Natural Resources.

Availability of Resources

What resources are needed to properly (considering quality and compatibility) and safely administer use?

The present Refuge fishing program is designed to be administered with minimal Refuge resources. Refuge regulations mirror State regulations in large part, which allows Missouri Department of Conservation Officers to assist in law enforcement. There is a small amount of maintenance, mowing, and other upkeep at boat launching facilities that is funded as part of regular Refuge management activities. Approximately \$300 annually is required for labor and materials to update and print maps, and maintain signs.

Are existing Refuge resources adequate to properly and safely administer the use?

At the present level of fishing use there are adequate Refuge resources to implement the fishing program. Law enforcement is the primary tool necessary to ensure proper and safe administration of this use, and although there is no Law Enforcement Officer stationed at the Refuge, law enforcement

services are available through the Regional Law Enforcement Program. State Conservation Officers also patrol the Refuge and provide additional law enforcement support.

Anticipated Impacts of the Use:

How does fishing affect Refuge purposes and the NWR mission?

The fishing program on the Refuge helps fulfill the NWR mission and does not detract from the ability to fulfill Refuge purposes. The Refuge was established to provide habitat for migratory birds and other wildlife. Fishing conducted in accordance with State and Refuge regulations does not adversely affect the ability of the Refuge to fulfill this purpose. Fishing is a priority public use of the Refuge System and allowing fishing on the Refuge helps fulfill the Refuge System mission.

How does fishing affect fish, wildlife, plants, and their habitats; and the biological integrity, diversity, and environmental health of the Refuge/NWR?

Fish and Fish Habitat

Fishing is not expected to adversely affect fish populations and fish habitat within the Refuge. Conserving a diversity of fish and their habitat is included in one of the goals of the NWR (USFWS 2006a). But the focus is on maintaining populations not individuals (USFWS 1992). Fishing does cause mortality and wounding of individuals within a fish population, but fishing is regulated so it does not threaten the perpetuation of fish populations. The effects of fishing on fish populations are monitored by the Missouri Department of Conservation and are considered in setting annual limits.

Wildlife and Wildlife Habitat

In *Managing Visitor Use and Disturbance of Waterbirds: A Literature Review of Impacts and Mitigations* DeLong (2002) includes a summary of effects on wildlife from disturbance from fishing and other forms of recreation. The author documents that disturbance can alter behavior (e.g. foraging time), population structure, and distribution patterns of wildlife. It is probable that fishing would cause some or all of these effects to some degree on Refuge wildlife. A number of Refuge regulations mitigate these effects. Much of the Refuge is not affected because fishing is limited to lakes and streams. Fishing activity is estimated at 1,000 visits annually on the Refuge and is expected to increase over time.

The cumulative disturbance caused by fishing activity and all other public uses occurring on the Refuge is not expected to adversely affect fish and

wildlife populations or their habitats. A number of factors including suitable site conditions, presence of facilities, access limitations, and seasonal restrictions or other regulations tend to concentrate uses. At any one time, much of the Refuge is unaffected by these uses and is free of disturbance.

Biological Integrity, Diversity, and Environmental Health

Fishing conducted in accordance with State and Refuge regulations is not expected to adversely affect fish and wildlife populations or the biological integrity, diversity, and environmental health of the Refuge as it is defined in Service policy (USFWS 2001).

Other Uses and Public Safety

Fishing is not expected to adversely affect other Refuge uses or public safety.

As public use levels on Swan Lake NWR expand over time, unanticipated conflicts between user groups may occur. The Refuge's Visitor Services programs would be adjusted as needed to eliminate or minimize each problem and provide quality wildlife-dependent recreational opportunities that include promoting public safety. Experience on many National Wildlife Refuges has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. Overall, the cumulative impact of fishing on other wildlife-dependent recreation or public safety at Swan Lake NWR is expected to be minor.

Public Review and Comment:

This compatibility determination was part of the Swan Lake NWR Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments received and agency responses are included in the final version of the Swan Lake NWR Comprehensive Conservation Plan.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Fishing must be conducted in accordance with State and Federal regulations and special Refuge regulations.

2. Fishing may be more restrictive than State seasons and regulations to ensure compliance with visitor safety and to reduce wildlife disturbance.
3. Use of air boats is prohibited.
4. Fishing is prohibited within identified areas.

Justification: In view of the above and with the stipulations previously described, fishing will not materially interfere with or detract from the NWRs mission or purposes of the Refuge. Fishing is a priority public use of the Refuge System and providing a fishing program contributes to achieving one of the Refuge goals. Fishing seasons and limits are established by the Missouri Department of Conservation and adopted by the Refuge. These restrictions help ensure the continued well-being of fish populations. Fishing is not expected to adversely affect the biological integrity, diversity, and environmental health of the Refuge or the Refuge System.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

Mandatory 10- or 15-year Re-Evaluation Date: 2026

References:

- DeLong, A. K. 2002. Managing visitor use and disturbance of waterbirds — a literature review of impacts and mitigation measures — prepared for Stillwater National Wildlife Refuge. Appendix L (114 pp.) *in* Stillwater National Wildlife Refuge Complex final environmental impact statement for the comprehensive conservation plan and boundary revision (Vol. II). Dept. of the Interior, U.S. Fish and Wildlife Service, Region 1, Portland, OR. Available URL: <http://www.fws.gov/stillwater/lit-review.pdf>
- U. S. Fish and Wildlife Service. 1992. Population Management at Field Stations: General. 701 FW 1. Department of Interior. Available URL: <http://www.fws.gov/policy/701fw1.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>
- U. S. Fish and Wildlife Service. 2006a. National Wildlife Refuge System Mission and Goals and Refuge Purposes. 601 FW 1. National Wildlife Refuge System, Department of Interior. Available URL: <http://www.fws.gov/policy/601fw1.html>
- U. S. Fish and Wildlife Service. 2006b. Wildlife-Dependent Recreation: Fishing. 605 FW 3. National Wildlife Refuge System, Department of Interior. Available URL: <http://www.fws.gov/policy/605fw3.html>

COMPATIBILITY DETERMINATION

Use: Haying

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?

No. Haying is not a priority public use of the National Wildlife Refuge System.

Where would the use be conducted?

Presently, haying occurs on up to 100 acres or about 1 percent of presently owned (11,473 acres as of 2008) Refuge lands annually.

When would the use be conducted?

Haying begins in July and takes approximately 7-10 days to complete.

How would the use be conducted?

The Refuge will allow haying by private individuals for the purpose of habitat management. 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 grassy openings owned by or managed as part of the Refuge by jurisdictional agreement. Administration of haying programs will be conducted in accordance with a Habitat Management Plan. Haying activities will be subject to 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 compatibility through implementation of Service policy and Refuge specific stipulations.

The haying process typically requires 3-4 visits to each site with heavy equipment over a period of 7-10 days. Haying begins in July when standing grasses and forbs are cut and gathered into windrows using a tractor, mower, and rake; or a swather—a self-propelled mowing machine. The hay cures for 3-7 days to reduce moisture content, and is usually turned once with a tractor-drawn rake to speed and even drying. Once cured a tractor-drawn baler is used to package the windrows into bales of hay. A tractor-drawn wagon is used to collect the bales and remove them from the site.

Why is this use being proposed?

At Swan Lake NWR haying is used as a low-cost means to prevent encroachment of woody vegetation within grasslands and to provide stubble as a fall and winter food source for migrating waterfowl. Historically, grazing by native wildlife along with periodic fires were the primary disturbance agents that helped retard growth of woody vegetation and maintain plant vigor and diversity within grasslands. Although prescribed fire is in many cases the preferred method of disturbance, its use is not always practical or possible, and it does not produce the same response as disturbance from grazing. Today, native grazers are largely absent from grassland habitats. Haying is used to partially mimic the disturbance once created by grazing.

Availability of Resources:

What resources are needed to properly (considering quality and compatibility) and safely administer use?

A Refuge staff person is required to administer a special use permit and ensure that the haying is done to specifications identified within the permit with regard to safety and timing of haying operations.

Are existing Refuge resources adequate to properly and safely administer the use?

The needed staff time for development and administration of a cooperative haying 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 haying as a management tool will occur as part of strategies developed under specific unit or program habitat management planning. The additional time needed to administer and monitor the needed Special Use Permit or Agreements is relatively minor and within existing Refuge resources.

Anticipated Impacts of the Use:

Haying can temporarily remove cover for birds but the long-term benefits of preserving habitats in a grassland state outweigh any short-term impacts. By haying after July 15 any negative impacts to nesting birds are significantly reduced.

How does haying 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. Haying is one tool used to accomplish this. It does this in two ways: 1) by preventing the encroachment of woody vegetation in grassland habitats attractive to migrating and wintering waterfowl, and by 2) providing green stubble used as a food source by waterfowl and other wildlife during spring and fall migration.

Fish, Wildlife, Plants, and their Habitats

On sites where haying 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. The sites may also be used by nesting birds because in most years haying would be prohibited until July 15, a time when most birds have fledged young. Despite this it is likely that some nests and pre-fledglings would be destroyed during haying. National Wildlife Refuges are managed first and foremost for wildlife (USFWS 2001). But the focus is on wildlife populations not individuals (USFWS 1992). Haying is likely to cause mortality of some individual animals, but is not expected to affect the perpetuation of wildlife populations.

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). The Refuge is located in a transitional area between forest and prairie. Historically, the area was likely a shifting mosaic of prairie and forest driven by disturbance agents like fire and wind. Most native habitats in areas surrounding the Refuge have been converted to agriculture and do not contribute to this large mosaic that existed as part of historic conditions. In lieu of these large scale processes, the Refuge retains some areas in a permanently non-forested condition to maintain this habitat on the landscape. Restoring historic habitats contributes to biological integrity, diversity, and environmental health of the Refuge. Haying is one tool used to maintain these open habitats.

Public Review and Comment:

This compatibility determination was part of the Swan Lake Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments received and agency responses are included in the final version of the Swan Lake Comprehensive Conservation Plan.

Determination:

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Begin haying after July 15 to minimize disturbance to nesting migratory birds. In some years it may be necessary for haying to occur before July 15 to prevent seed dispersal of undesirable plant species.
2. Bales must be removed from the Refuge within 7 days of baling.
3. Windrowed grass left lying to dry should remain on the ground no more than 7 days prior to baling.
4. Haying must meet specific habitat and related wildlife objectives and contribute to the purposes of the Refuge.

5. Prohibit haying within known or potential habitat for the eastern massasauga rattlesnake.

Justification: Maintaining open habitats through cooperative farming contributes to the achievement of Refuge purposes and the National Wildlife Refuge System mission because it partially restores historic habitat conditions and provides habitat for migratory waterfowl and other wildlife. Haying is one low-cost method used to disturb these sites and temporarily diminish the amount of woody vegetation.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

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

References:

- U. S. Fish and Wildlife Service. 1992. Population Management at Field Stations: General. 701 FW 1. Department of Interior. Available URL: <http://www.fws.gov/policy/701fw1.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>

Compatibility Determination

Use: Hunting

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?

Hunting is a priority public use of the National Wildlife Refuge System.

Where would the use be conducted?

Goose hunting is permitted at 11 designated blinds and 10 field sites. The preferred alternative in the Environmental Assessment of the Draft Comprehensive Conservation Plan calls for allowing duck hunting and small game hunting, which will be designated in a step down hunting plan. All waterfowl hunting will be restricted to within 300 yards of the perimeter of the Refuge, leaving the vast majority of the interior of the Refuge as a waterfowl sanctuary. Waterfowl hunting will be restricted to 3-5 days a week with rest days being designated on an annual basis by the Refuge Manager. During the Conservation Order season for Snow Geese, designated areas will be open to hunting 7 days a week. If

implemented, duck hunting would likely occur on some or all of the sites where goose hunting is permitted. In past years, two muzzle-loader hunts for white-tailed deer were conducted on separate weekends on the eastern and western halves of the Refuge, respectively. White-tailed deer muzzle-loader hunting also occurs at one blind constructed to accommodate physically disabled hunters. In cooperation with the Missouri Department of Conservation (MDC), beginning in 2008 there will be a disabled deer hunt on one weekend, a youth conventional firearm deer hunt on one weekend and a public muzzle-loader hunt on another weekend. Bag limits will be coordinated with the MDC on an annual basis. The Refuge will also allow small game hunting as identified in a Refuge Hunting Plan in areas that do not impact other Refuge uses or cause undue disturbance to wildlife.

When would the use be conducted?

Goose hunting typically starts on the Refuge on November 1 and ends on January 31. As part of a Conservation Order issued to reduce Snow Goose numbers, there is also an additional season with no bag limit for light geese (Snow Geese and Ross's Geese) that starts on February 1 and ends when the Refuge opens to the public on March 1. The preferred alternative in the Environmental Assessment of the Draft Comprehensive Conservation Plan calls for allowing duck hunting. The specific dates and duration of duck hunting season vary annually, but typically occurs between late October and late December.

Two of the white-tailed deer hunts are considered managed hunts and are listed as such in the Missouri Department of Conservation (MDC) hunting season regulations and usually occur on successive weekends in December or January. One of the managed hunts is a youth deer hunt and the second a public deer hunt. The Refuge also offers a hunt for the physically disabled that is not part of the MDC managed deer hunt program. Beginning in 2008 it is scheduled to occur on a weekend prior to the first managed hunt.

How would the use be conducted?

Hunters use harvest methods and firearms consistent with the Wildlife Code of Missouri and Refuge regulations. Waterfowl hunters are required to check in at hunting headquarters located on the northern border of the Refuge. A daily drawing is used to assign no more than four waterfowl hunters

to each available blind or hunting site and an associated parking site. Dogs are allowed for retrieving waterfowl. The number of participants in the two muzzleloader deer hunts is regulated by MDC through their managed hunt program, but is typically around 50 for each of the two hunts. Deer hunters enter the Refuge at times specified in MDC regulations for hunting hours and park on public access roads. The hunt occurs from one-half hour before official sunrise and one-half hour after official sunset each day and hunters must abide by all MDC hunting regulations and Refuge-specific regulations. Hunters must check in all harvested deer at the hunting headquarters building. Hunters are required to attend a pre-hunt meeting on Friday afternoon before the hunt and are allowed to scout the hunt areas after the meeting on Friday afternoon up until official sunset. Arrangements for physically disabled deer hunters are coordinated by Refuge staff. Typically from 5-10 hunters participate during this two-day hunt, and are provided drive-in access to an accessible blind with parking.

The Comprehensive Conservation Plan calls for the addition of squirrel hunting. It would be allowed, with the completion of a hunting plan, in a designated portion along Yellow Creek and would be open August 1- October 15. Squirrel hunting would be conducted in accordance with MDC squirrel hunting regulations and bag limits as well as any additional Refuge specific regulations.

Why is This Use Being Proposed?

Hunting is a priority general public use of the Refuge System that is also an important wildlife management tool. The Service recognizes hunting as a healthy, traditional outdoor pastime, deeply rooted in the American heritage (USFWS 2006). Hunting can instill a unique understanding and appreciation of wildlife, their behavior, and their habitat needs. Hunting programs can promote understanding and appreciation of natural resources and their management on lands and waters in the Refuge System. Public hunting opportunities are also available nearby on the 7,100-acre Fountain Grove Conservation Area administered by the Missouri Department of Conservation.

Availability of Resources:

What resources are needed to properly (considering quality and compatibility) and safely administer use?

Refuge staff will be required to conduct pre-hunt meetings and either staff, volunteers, or contractors will be required to staff the hunter check station. Refuge regulations mirror State regulations in large part, which allows Missouri Department of Conservation Officers to assist in law enforcement. There is

a small amount of road maintenance, mowing, and other upkeep performed that is funded as part of regular Refuge management activities. Approximately \$1,000 annually is required for labor and materials to update and print maps, and maintain signs.

Are existing Refuge resources adequate to properly and safely administer the use?

At the present level of hunting use there are adequate Refuge resources to implement the hunting program. Law enforcement is the primary tool necessary to ensure proper and safe administration of this use, and although there is no Law Enforcement Officer stationed at the Refuge, law enforcement services are available through the Regional Law Enforcement Program. Missouri Department of Conservation Officers provide additional law enforcement support.

Anticipated Impacts of the Use:

The Environmental Assessment for the Draft CCP for Swan Lake NWR contains a thorough discussion of the anticipated impacts of hunting. Parts of this analysis are summarized below.

How does hunting affect Refuge purposes and the NWRS mission?

The Refuge was established to provide for the needs of migratory birds and other wildlife. Hunting does not adversely affect the ability of the Refuge to fulfill this purpose. National Wildlife Refuges are managed first and foremost for wildlife (USFWS 2001). But the focus is on wildlife populations not individuals (USFWS 1992). Hunting causes mortality and wounding of individual animals, but is regulated so it does not threaten the perpetuation of wildlife populations. The effects of hunting on wildlife populations are monitored within the State and across the nation and are considered in setting annual hunting bag limits. Hunting is a priority public use of the Refuge System and allowing hunting on the Refuge helps fulfill the Refuge System mission.

How does hunting affect fish, wildlife, plants, and their habitats; and the biological integrity, diversity, and environmental health of the Refuge/ NWRS?

Migratory Birds

Hunting is not expected to adversely affect migratory game bird populations that occur on the Refuge. The U.S. Fish and Wildlife Service works closely with state and provincial governments, as well as with the public, in a joint effort to establish annual hunting regulations for migratory birds. The Service's Division of Migratory Birds establishes

framework regulations to manage all migratory bird hunting in the United States. These regulations establish limitations by which states can then create season lengths, bag limits and areas of migratory bird hunting.

Regulations on migratory bird hunting are determined through the assessment of annual data (USFWS 1995). Data is obtained through aerial surveys of the North American Flyway, which count birds, ponds and nests, and provide information for analyzing population and habitat conditions. Hunter surveys and questionnaires determine the number of hunters participating yearly. Recommendations from the Flyway Council are considered when original rules are created. Rules are presented to the public through the Federal Register and followed by a series of public meetings for any recommendations. The final regulations are assessed based on a collective analysis of all factual information as well as council and public recommendations.

White-tailed Deer

The Missouri Department of Conservation annually reviews hunting seasons and bag limits and modifies them to avoid any long-term population declines. Hunting is not expected to adversely impact deer populations.

Disturbance

In *Managing Visitor Use and Disturbance of Waterbirds: A Literature Review of Impacts and Mitigations* DeLong (2002) includes a summary of effects on wildlife from disturbance from hunting and other forms of recreation. The author documents that disturbance can alter behavior (e.g. foraging time), population structure, and distribution patterns of wildlife. It is probable that hunting would cause some or all of these effects to some degree on Refuge wildlife. A number of measures mitigate these effects. Hunting seasons largely occur outside the times when most wildlife species are raising offspring and are most sensitive to disturbance. Also, waterfowl hunting is limited to designated sites, leaving much of the Refuge free of hunting disturbance. The number of deer hunters permitted daily is presently limited to 50, and hunting occurs on four days throughout the entire year and is limited to half the Refuge on any of the four days. Hunting activity is estimated at about 500 visits annually on the Refuge and is expected to increase over time especially if waterfowl and small game hunting are offered.

Habitat

Hunting is not expected to adversely affect Refuge habitat.

Biological Integrity, Diversity, and Environmental Health

Hunting conducted in accordance with State and Federal regulations is not expected to adversely affect wildlife populations that occur on the Refuge and likely assists in maintaining the biological integrity, diversity, and environmental health of the Refuge. Some species, such as white-tailed deer, today occur at levels well above those thought to occur under historic conditions. Left unchecked high numbers of such species could adversely affect biological integrity, diversity, and environmental health. Hunting is a closely monitored tool that helps regulate wildlife populations.

Other Uses and Public Safety

Hunting is not expected to adversely affect other Refuge uses or public safety. Dogs are permitted for hunting for retrieving. At present levels of use, dogs used for this purpose are not expected to adversely impact non-target species or conflict with other uses. As public use levels on the Refuge expand across time, unanticipated conflicts between user groups may occur. The Refuge's Visitor Services programs would be adjusted as needed to eliminate or minimize each problem and provide quality wildlife-dependent recreational opportunities that include promoting public safety. Experience on many National Wildlife Refuges has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. Overall, the cumulative impact of hunting on other wildlife-dependent recreation or public safety at Swan Lake NWR is expected to be minor.

Public Review and Comment

This compatibility determination was part of the Swan Lake NWR Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments received and agency responses are included in the final version of the Swan Lake NWR Comprehensive Conservation Plan.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility

1. Hunting must be conducted in accordance with State and Federal regulations and special Refuge regulations.
2. Hunting may be more restrictive than State seasons and regulations to ensure compliance with visitor safety and to reduce wildlife disturbance.
3. Vehicles must remain on designated roadways or parking areas.
4. Hunting is allowed only in designated areas.

Justification: In view of the above and with the stipulations previously described, hunting will not materially interfere with or detract from the NWRS mission or purposes of the Refuge. Hunting is a priority public use of the Refuge System and providing a hunting program contributes to achieving one of the Refuge goals. Hunting seasons and bag limits are established by the Missouri Department of Conservation and adopted by the Refuge. These restrictions help ensure the continued well-being of game populations. Disturbance of wildlife will occur, but limitations on hunting mean much of the Refuge would be free of disturbance. Hunting is not expected to adversely affect the biological integrity, diversity, and environmental health of the Refuge or the Refuge System.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

Mandatory 10- or 15-year Re-Evaluation Date: 2026

References:

- DeLong, A. K. 2002. Managing visitor use and disturbance of waterbirds — a literature review of impacts and mitigation measures — prepared for Stillwater National Wildlife Refuge. Appendix L (114 pp.) *in* Stillwater National Wildlife Refuge Complex final environmental impact statement for the comprehensive conservation plan and boundary revision (Vol. II). Dept. of the Interior, U.S. Fish and Wildlife Service, Region 1, Portland, OR. Available URL: <http://www.fws.gov/stillwater/lit-review.pdf>
- U. S. Fish and Wildlife Service. 1995. Migratory Game Bird Hunting: Regulations Development Process. 723 FW 3. Department of Interior. Available URL: <http://www.fws.gov/policy/723fw3.html>
- U. S. Fish and Wildlife Service. 1992. Population Management at Field Stations: General. 701 FW 1. Department of Interior. Available URL: <http://www.fws.gov/policy/701fw1.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>
- U. S. Fish and Wildlife Service. 2006. Wildlife-Dependent Recreation: Hunting. 605 FW 2. National Wildlife Refuge System, Department of Interior. Available URL: <http://www.fws.gov/policy/605fw2.html>

Compatibility Determination

Use: Research projects by third parties

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:

What is the use? Is the use a wildlife-dependent use?

The Refuge allows research investigations on a variety of biological, physical, archeological, and social components to address Refuge management information needs or other issues not related to Refuge management. Studies are or may be conducted by federal, state, and private entities, including the U.S. Geological Survey, state departments of natural resources, state and private universities, and independent researchers and contractors. This is not a wildlife-dependent use.

Where would the use be conducted?

Sites for this use would depend on the particular study being conducted and could occur in a variety of habitat types. Access would be restricted by Special Use Permit to only the study sites needed to meet the objectives of the research.

When would the use be conducted?

The timing of research activities would depend on the individual project. The entire Refuge is open for allowed research activities throughout the year in conjunction with the issuance of a Special Use Permit. The timing and number of visits by researchers may be restricted by Special Use Permit.

How would the use be conducted?

Any research study sites, sampling locations, and transects can be temporarily marked by highly visible wooden or metal posts and must be removed when research ceases. Access to study sites is by foot, truck, all-terrain vehicle, boat, airboat, canoe, and other watercraft. Vehicle use is allowed on Refuge roads, trails, and parking lots normally open to the public.

Why is this use being proposed?

Most research by third parties is done to address Refuge management information needs or to contribute to a larger knowledge base about resources of concern to the Refuge and/or the U.S. Fish and Wildlife Service.

Availability of Resources:

Facilities and staff are currently available to provide access, maintain roads, parking lots, secondary access roads, as well as to issue Special Use Permits for research projects. Staff resources are deemed adequate to manage this use at anticipated use levels. Access points, boats, vehicles, miscellaneous equipment, and limited logistical support are available on the Refuge. Housing is available for researchers who are signed up as Refuge volunteers.

Anticipated Impacts of the Use:

Short-term Impacts:

Research activities may disturb fish and wildlife and their habitats. For example, the presence of researchers can cause waterfowl to flush from resting and feeding areas, cause disruption of birds and turtles on nests or breeding territories, or increase predation on nests and individual animals as predators follow human scent or trails. Efforts to capture animals can cause disturbance, injury, or death to groups of wildlife or to individuals. To wildlife, the energy cost of disturbance may be appreciable in terms of disruption of feeding, displacement from preferred habitat, and the added energy expended to avoid disturbance.

Sampling activities can cause compaction of soils and the trampling of vegetation, the establishment of temporary foot trails and boat trails through vegetation beds, disruption of bottom sediments, and minor tree damage when temporary observation platforms are built or when tree climbers access bird nests.

The removal of vegetation or sediments by core sampling methods can cause increased localized turbidity and disrupt non-target plants and animals. Installation of posts, equipment platforms, collection devices and other research equipment in open water may present a hazard if said items are not adequately marked and/or removed at appropriate times or upon completion of the project.

Long-term Impacts:

Long-term effects should generally be beneficial by gaining information valuable to Refuge management. No long-term negative impacts are expected and the Refuge Manager can control the potential for long-term impacts through Special Use Permits.

Cumulative Impacts:

Cumulative impacts would occur if multiple research projects were occurring on the same resources at the same time or the duration of the research was excessive. No cumulative impacts are expected and the Refuge Manager can control the potential for cumulative impacts through Special Use Permits. Managers retain the option to prohibit research on the Refuge that does not contribute to the purposes of the Refuge or the mission of the Refuge System, or causes undo resource disturbance or harm.

Public Review and Comment:

This compatibility determination was part of the Swan Lake NWR Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments received and agency responses are included in the final version of the Swan Lake NWR Comprehensive Conservation Plan.

Determination:

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Prior to conducting investigations, researchers will obtain Special Use Permits from the Refuge that make specific stipulations related

to when, where, and how the research will be conducted. Managers retain the option to prohibit research on the Refuge that does not contribute to the purposes of the Refuge or the mission of the Refuge System, or causes undo resource disturbance or harm.

2. Researchers must possess all applicable state and federal permits for the capture and possession of protected species, for conducting regulated activities in wetlands, and for other regulated activities. Researchers must demonstrate that they have approval from the Animal Care and Use Committee if required by the research institution.
3. Archeological researchers must obtain an Archeological Resource Protection Act permit from the Regional Director prior to obtaining a special use permit from the Refuge Manager.
4. Researchers will submit annual status reports and a final report concerning Refuge research to the Refuge Manager.
5. Researchers will submit an electronic copy of all raw data collected to the Refuge Manager with the understanding that the researcher will have the opportunity to produce publications based on the data.

Justification:

Research by third parties may play an integral role in Refuge management by providing information needed to manage the Refuge on a sound scientific basis. Investigations into the biological, physical, archeological, and social components of the Refuge provide a means to analyze management actions, impacts from internal and outside forces, and ongoing natural processes on the Refuge environment.

Adverse impacts of research that cause localized vegetation trampling or disruption of wetland bottom sediments are often short-term and would be minimized through stipulations above. Any research equipment that remains in the field for the duration of the project would be clearly marked to avoid potential hazards presented to other Refuge users and/or Refuge staff.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

Mandatory 10-Year Re-evaluation Date: 2021

Compatibility Determination

Use: Trapping of nuisance wildlife

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 wildlife-dependent public use?

No. Trapping is not a priority wildlife-dependent public use of the National Wildlife Refuge System as defined by the Refuge Improvement Act of 1997.

Where would the use be conducted?

Trapping would occur in and around locations where wildlife (such as beaver or muskrats) are hampering efforts to achieve Refuge land and water management objectives. Typically, along roads, levees, and water control structures. Trapping may occur around Refuge buildings where wildlife become a nuisance.

When would the use be conducted?

Trapping would be used, at the Refuge Manager's discretion, whenever necessary to eliminate nuisance wildlife that is hampering efforts to achieve Refuge land and water management objectives.

Trapping could occur whenever a problem arises. Live trapping and relocation is the first preference when dealing with nuisance animals. If lethal trapping is necessary it would occur during Missouri furbearer season if possible, but may occur at other times if necessary to meet Refuge management objectives.

How would the use be conducted?

The use would occur whenever necessary and at the discretion of the Refuge Manager through issuance of a Special Use Permit to a qualified trapper. Trapping would be used only in specific locations to remove or eliminate wildlife hampering Refuge management objectives. Live trapping and relocation is the first preference when dealing with nuisance animals. This work would be done by Service employees or through contract with qualified individuals. Animals would be relocated to other outlying fee title properties or to other sites with willing landowners and suitable habitat. If live trapping efforts are not successful in removing the nuisance animal, lethal methods will be employed. In most circumstances this would occur during Missouri furbearer season, and would be done by qualified trappers. If lethal trapping is necessary outside of furbearer season the work would be done through a paid contract. The use of snares on the Refuge is prohibited. The approved trapping methods are qualified under State regulation as to trap size and types of allowable sets in order to protect non-target species, and provide for the safe use of the area by others.

Why is this use being proposed?

Some furbearers cause damage to dikes and water control structures through burrowing and, in the case of beavers, through dam building or associated flooding. Trapping is used as a management tool to remove or eliminate wildlife hampering Refuge management activities.

Availability of Resources:

Sufficient staff exists to issue the required permits, and oversee this periodic use. Facilities and staff are currently available to provide access, maintain roads, parking lots, and secondary access roads.

Anticipated Impacts of the Use:

How does trapping affect Refuge purposes and the NWRS mission?

The Refuge was established to provide for the needs of migratory birds and other wildlife. Trapping does not adversely affect the ability of the Refuge to fulfill this purpose, and is employed as a tool to help accomplish Refuge management objectives. National Wildlife Refuges are managed first and foremost for wildlife (USFWS 2001). But the focus is on wildlife populations not individuals (USFWS 1992). Trapping causes mortality of individual animals, but at Swan Lake NWR its use is limited to instances where wildlife are hampering Refuge management objectives, and it does not threaten the perpetuation of wildlife populations.

How does trapping affect fish, wildlife, plants, and their habitats; and the biological integrity, diversity, and environmental health of the Refuge/NWRS?

Wildlife, plants, and habitat

Trapping would be done in support of Refuge management objectives and is expected to improve or help maintain habitats of many wildlife species. Any lethal trapping would cause mortality of targeted species and in some cases is likely to cause mortality of non-targeted species. In either case, mortality of individuals is not expected to adversely affect wildlife populations on the Refuge. Trapping is expected to benefit Refuge habitats in those areas where wildlife (such as beaver) are hampering Refuge management objectives.

Disturbance

In *Managing Visitor Use and Disturbance of Waterbirds: A Literature Review of Impacts and Mitigations* DeLong (2002) includes a summary of effects on wildlife from disturbance from various forms of recreation. The author documents that disturbance can alter behavior (e.g. foraging time), population structure, and distribution patterns of wildlife. It is probable that trapping along with all other public uses of the Refuge would cause some or all of these effects to some degree on Refuge wildlife. A number of measures mitigate these effects. The use occurs at the discretion of the Refuge Manager and is limited to specific locations and times when problems occur.

Biological Integrity, Diversity, and Environmental Health

Periodic trapping to remove or eliminate nuisance wildlife is not expected to adversely affect wildlife populations that occur on the Refuge and

likely assists in maintaining the biological integrity, diversity, and environmental health of the Refuge.

Other Uses and Public Safety

Trapping is not expected to adversely affect other Refuge uses or public safety.

Cumulative Impacts:

There are no anticipated cumulative impacts.

Public Review and Comment:

This compatibility determination was part of the Swan Lake NWR Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments received and agency responses are included in the final version of the Swan Lake NWR Comprehensive Conservation Plan.

Determination:

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Trapping will be conducted in accordance with an approved Trapping Plan.
2. Trapping will be conducted under permit by experienced trappers.

Justification:

In view of the above and with the stipulations previously described, trapping will not materially interfere with or detract from the NWRS mission or purposes of the Refuge. Trapping is a tool used to control nuisance wildlife and help fulfill Refuge management objectives. Its use is regulated and at the discretion of the Refuge Manager. It is not expected to adversely affect wildlife populations or their habitats, or conflict with other Refuge uses.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

Mandatory 10-Year Re-Evaluation Date: 2021

References:

- DeLong, A. K. 2002. Managing visitor use and disturbance of waterbirds — a literature review of impacts and mitigation measures — prepared for Stillwater National Wildlife Refuge. Appendix L (114 pp.) *in* Stillwater National Wildlife Refuge Complex final environmental impact statement for the comprehensive conservation plan and boundary revision (Vol. II). Dept. of the Interior, U.S. Fish and Wildlife Service, Region 1, Portland, OR. Available URL: <http://www.fws.gov/stillwater/lit-review.pdf>
- U. S. Fish and Wildlife Service. 1992. Population Management at Field Stations: General. 701 FW 1. Department of Interior. Available URL: <http://www.fws.gov/policy/701fw1.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>

Compatibility Determination

Use: Tree harvest by third parties for personal use, habitat management, or maintenance purposes

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 wildlife-dependent use?

No. Tree harvest for habitat management or maintenance purposes is not wildlife-dependent.

Where would the use be conducted?

The use would be conducted in forested areas and in areas where trees are invading otherwise open habitats such as grasslands and moist soil units. Today there are approximately 3,100 acres of bottomland forest on the Refuge.

When would the use be conducted?

Tree harvest could occur any time of year at the discretion of the Refuge Manager.

How would the use be conducted?

Tree harvesting may be done by individuals for personal use at the discretion of the Refuge Manager and under a Special Use Permit. Harvest may include standing and fallen trees for personal-use firewood. Removal of trees that are a hazard to property and human safety would be permitted in specific circumstances. Tree harvest would be considered and may be permitted within most forested areas of the Refuge as a method of habitat management. Tree harvesting within these areas may also be conducted by individuals through a Special Use Permit, or through commercial timber sales carried out by professional loggers. The areas open to tree harvest and management strategies would be specified in a Habitat Management Plan.

Why is this use being proposed?

The Refuge would allow cutting and removal of trees from the Refuge for the purpose of improving forest diversity and health through thinning, creating openings, or removal of invasive tree species. Personal use tree cutting would also be allowed as a means of maintaining public use trails or roads, i.e., remove blow down, hazard trees, road shoulder maintenance, or for trail modification. Tree removal is also sometimes necessary to restore grassland sites and maintain moist soil units that become invaded by trees.

Availability of Resources:

Periodic and small-scale personal use tree harvest operations can be adequately administered with existing staff resources. Any permit fees or timber sale receipts would not off-set costs since these funds are deposited in general accounts and not returned to the Refuge.

Anticipated Impacts of the Use:

How does tree harvesting for personal use 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. Tree harvest would be done to meet Refuge habitat management objectives or to assist with

maintenance of Refuge roads, trails, or other facilities. This would help fulfill Refuge purposes and is consistent with the NWRs mission.

Fish, Wildlife, Plants, and their Habitats

National Wildlife Refuges are managed first and foremost for wildlife (USFWS 2001). But the focus is on wildlife populations not individuals (USFWS 1992). Harvesting trees would alter habitat and associated wildlife, but would be done in compliance with a Habitat Management Plan to meet Refuge objectives. On sites where tree harvesting 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. Harvest occurring within forested stands would increase the amount of light available within the understory. This is expected to stimulate new growth and change the structure within these stands. This would in turn affect the types of wildlife attracted to these sites.

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). Removal of individual trees for personal use as described above is not expected to adversely affect the biological integrity, diversity or environmental health of the Refuge. Harvesting trees across a larger area would act as a disturbance agent to promote forest renewal. This would alter the composition, diversity, and abundance of plant and wildlife species in the areas it is practiced. Maintaining a mosaic of structure and age class diversity within forested areas of the Refuge is consistent with alternatives discussed in the draft Comprehensive Conservation Plan (CCP) and with what is known about historic conditions of the area. Harvesting trees does remove woody material and associated nutrients and habitats from the site, but this is mitigated by requiring that some material be left on site. The location, timing, frequency, and duration of any harvesting activity would be guided by a Habitat Management Plan in support of direction included in the CCP.

Public Review and Comment:

This compatibility determination was part of the Swan Lake NWR Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments

received and agency responses are included in the final version of the Swan Lake NWR Comprehensive Conservation Plan.

Determination:

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Any tree cutting must meet specific habitat and related wildlife/maintenance/safety objectives and contribute to the purposes of the Refuge.
2. Special use permits will be issued by the Refuge Manager and list special conditions that must be met to avoid or minimize adverse impacts to habitat, fish and wildlife resources, cultural resources, and the visiting public.
3. Due to the prevalence of hydric soils, tree harvest will be required to take place when conditions minimize soil compaction, erosion, and impacts to cultural resources.

Justification:

Tree harvest has been determined to be compatible because impacts would be minimal and can be controlled by permits, and the activity would ultimately benefit forest, grassland, and wetland habitats, or public use trails on the Refuge. Adverse impacts from harvest would be short-term in nature and more than off set by the long-term gains in wildlife and plant benefits and/or maintained/improved visitor use facilities. Taken in this long-term context, harvest of trees would contribute to the purposes of the Refuge and the mission of the Refuge System.

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

Mandatory 10-Year Re-Evaluation Date: 2021

References:

- U. S. Fish and Wildlife Service. 1992. Population Management at Field Stations: General. 701 FW 1. Department of Interior. Available URL: <http://www.fws.gov/policy/701fw1.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>

Compatibility Determination

Use: Wildlife Observation and Photography (including the means of access such as automobile driving, hiking, biking, canoeing, kayaking and boating and picnicking incidental to these uses)

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?

Wildlife observation and photography are priority public uses of the National Wildlife Refuge System.

Where would the use be conducted?

Wildlife observation and photography occur along roads, trails, and waters throughout the Refuge. The Refuge nature trail is currently located near the office and is roughly three-quarters of mile long. This compatibility determination will include the use of this trail and extending the trail around the Swan Lake wetland to provide more wildlife viewing opportunities and access to photography blinds with minimal wildlife disturbance.

When would the use be conducted?

Wildlife observation and photography would occur year-round along the entrance road and the nature trail near the Visitor Center. The remainder of the Refuge is open for wildlife observation and photography from early March through late October. Permanent photography/observation blinds will be available by reservation only. The blinds will be locked and a key will be issued when reservations are made. The blinds will be accessible for 1 hour before official sunrise and 30 minutes after official sunset by reservation and available on a year-round basis with the exception of times during the special deer hunts. Refuge tours can be conducted anytime of the year with the approval of the Refuge Manager to ensure they do not conflict with other Refuge uses or make negative impacts on wildlife.

How would the use be conducted?

Visitors observe and photograph wildlife from vehicles along roads and on foot throughout the Refuge. There is an observation platform and scope along the entrance road that provides wildlife observation opportunities. The Refuge will place 2- 4 photography/observation blinds at high quality wildlife viewing locations that will be available by a reservation system. The blinds will be locked and when reservations are made a key will be issued. Wildlife observation can also be conducted by Refuge tours either staff-led or self-led by various groups approved by the Refuge Manager at opportune times for wildlife viewing.

Why is this use being proposed?

Wildlife observation and photography are priority general public uses of the Refuge System. Wildlife observation and photography programs can promote understanding and appreciation of natural resources and their management on lands and waters in the Refuge System. There are also opportunities to observe and photograph wildlife near the Refuge on the 7,100-acre Fountain Grove Conservation Area administered by the Missouri Department of Conservation and at the 3,500-acre Pershing State Park administered by the Missouri Department of Natural Resources.

Availability of Resources:

Facilities and staff are currently available to provide access, maintain roads, parking lots, secondary access roads, and signage. Maintaining the public use facilities is part of routine management duties

and staff and funding is available. Kiosks and interpretive trail signs may be added to improve visitor information, but are not necessary to support the use.

Anticipated Impacts of the Use:

How does wildlife observation and photography affect Refuge purposes and the NWRS mission?

Wildlife observation and photography do not adversely affect Refuge purposes and they help fulfill the mission of the NWRS.

How does wildlife observation and photography affect fish, wildlife, plants, and their habitats; and the biological integrity, diversity, and environmental health of the Refuge/NWRS?

Wildlife and Wildlife Habitat

In *Managing Visitor Use and Disturbance of Waterbirds: A Literature Review of Impacts and Mitigations* DeLong (2002) includes a summary of effects on wildlife from disturbance from various forms of recreation. The author documents that disturbance can alter behavior (e.g. foraging time), population structure, and distribution patterns of wildlife. It is probable that wildlife observation and photography would cause some or all of these effects to some degree on Refuge wildlife. Much of the Refuge is not affected because wildlife observation and photography tend to be concentrated along roads and trails and at observation facilities. Damage to habitat by walking is minimal and temporary. Large groups typically use established foot trails or roads with little to no impact on vegetation. There is some temporary disturbance to wildlife due to boating and human activities on trails, however the disturbance is generally localized and would not adversely impact overall populations. Wildlife observation and photography are expected to increase over time. In the future measures may be necessary to ensure wildlife disturbance from these wildlife observations and photography as well as other uses is kept to acceptable levels.

The cumulative disturbance caused by wildlife observation and photography and all other public uses occurring on the Refuge is not expected to adversely affect fish and wildlife populations or their habitats. A number of factors including suitable site conditions, presence of facilities, access limitations, and seasonal restrictions or other regulations tend to concentrate uses. At any one time, much of the Refuge is unaffected by these uses and is free of disturbance.

Biological Integrity, Diversity, and Environmental Health

Wildlife observation and photography conducted in accordance with Refuge regulations is not expected to adversely affect fish and wildlife populations or the biological integrity, diversity, and environmental health of the Refuge as it is defined in Service policy (USFWS 2001).

Other Uses and Public Safety

Wildlife observation and photography are not expected to adversely affect other Refuge uses or public safety. As public use levels on Swan Lake NWR expand across time, unanticipated conflicts between user groups may occur. The Refuge's Visitor Services programs would be adjusted as needed to eliminate or minimize each problem and provide quality wildlife-dependent recreational opportunities which includes promoting public safety. Experience on many National Wildlife Refuges has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. Overall, the cumulative impact of wildlife observation and photography on other wildlife-dependent recreation or public safety at Swan Lake NWR is expected to be minor.

Public Review and Comment:

This compatibility determination was part of the Swan Lake NWR Draft Comprehensive Conservation Plan and Environmental Assessment. Public notification and review included a notice of availability published in the Federal Register, a 30-day comment period, local media announcements, and a public meeting near the Refuge. Comments received and agency responses are included in the final version of the Swan Lake NWR Comprehensive Conservation Plan.

Determination:

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. The Refuge Manager will monitor use patterns and densities and make adjustments in timing, location, and duration as needed to limit disturbance.
2. Use will be directed to public use facilities (both existing and in the future), which are not in or near sensitive areas.

3. Personal portable photo or viewing blinds must be removed by sunset each day.
4. Trail layout and design will continue to ensure adequate adjacent cover for wildlife and avoid sensitive wildlife areas or habitat.
5. Interpretive signs will include messages on minimizing disturbance to wildlife.
6. Certain modes of access such as motorized vehicles will be limited to designated roads and parking lots.

Justification:

This use has been determined compatible because the level of use for wildlife observation and photography is moderate and generally consolidated to the developed public-use areas (trails, roads, parking lots). The associated disturbance to wildlife is temporary and minor. Wildlife observation and photography are priority public uses and provide visitors with opportunities to enjoy and learn about our lands and wildlife. These uses also help fulfill the mission of the National Wildlife Refuge System. Wildlife viewing and photography would not materially interfere with or detract from Refuge purposes

Signed:

Refuge Manager: s/Steve Whitson, Feb. 3, 2011

Concurrence:

Regional Chief: s/Rick Schultz, Feb. 15, 2011

Mandatory 10- or 15-year Re-Evaluation Date: 2026

References:

- DeLong, A. K. 2002. Managing visitor use and disturbance of waterbirds — a literature review of impacts and mitigation measures — prepared for Stillwater National Wildlife Refuge. Appendix L (114 pp.) *in* Stillwater National Wildlife Refuge Complex final environmental impact statement for the comprehensive conservation plan and boundary revision (Vol. II). Dept. of the Interior, U.S. Fish and Wildlife Service, Region 1, Portland, OR. Available URL: <http://www.fws.gov/stillwater/lit-review.pdf>
- 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>