

COMPATIBILITY DETERMINATION

Use: TIMBER HARVESTING (COMMERCIAL AND NON-COMMERCIAL)

Refuge Name: Seney National Wildlife Refuge (Seney NWR)

Establishing and Acquisition Authorities: *Migratory Bird Conservation Act 16 U.S.C & 715d*

Refuge Purpose(s): Seney NWR was established in 1935...

"... as a refuge and breeding ground for migratory birds and other wildlife: ..." Executive Order 7246, dated Dec. 10, 1935

"... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. § 715d (Migratory Bird Conservation Act)

"... conservation, management, and restoration of the fish, wildlife, and plant resources and their habitats for the benefit of present and future generations of Americans..." 16 U.S.C. § 668dd(a)(2) (National Wildlife Refuge System Administration Act)

National Wildlife System Mission: *"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."*

Description of Use:

What is the use?: Commercial and non-commercial timber harvesting by mechanical means via Special Use Permit is needed to conserve, restore, and rehabilitate forest ecosystem types and their associated composition and structure for wildlife benefit and to meet objectives of the 1997 *Refuge Improvement Act* and the subsequent 2001 *Biological Integrity Policy*. As stated in the 2009 Seney NWR *Comprehensive Conservation Plan* and 2013 *Habitat Management Plan*, the goal of habitat management is to: *"Conserve the range of habitat conditions now found within the Refuge and (where and when possible) restore pre-European conditions once characteristic of the eastern Upper Peninsula of Michigan."*

In this vein, forest management by mechanical means is required as one of a number of *potential* tools to conserve, restore, or rehabilitate forest stands that together currently comprise 43,186 acres, or approximately 45% of the Refuge. For most forest types, objectives as described in the above plans include restoring composition and structural patterns based on benchmark conditions. Past Refuge research has provided these benchmark conditions for the mixed-pine forest type (upland coniferous forest type) that dominates the upland portions of the Refuge (see Drobyshev et al. 2008. *Forest Ecology and Management* 256:1723-1733.). Near benchmark conditions for northern hardwood and hemlock forest types are provided for in the Society of American Foresters Research Natural Areas.

Where is the use conducted?: Timber harvesting could potentially be conducted on any portion of Seney National Wildlife Refuge, including Farmers Home Administration (FmHA) easements, other than the 25,150-acre Seney Wilderness Area and the scattered Research and Public Use Natural Areas.

When is the use conducted?: Depending on the goals and objectives of the timber harvest, activities could occur during any season. For instance, if the objective is to promote red pine (*Pinus resinosa*) and white pine (*P. strobus*) regeneration, scarification of the soil is required and this is best done during the growing season. On the other hand, lowland conifer sites have soils that are prone to rutting. Management activities in this forest type should only occur during the winter when the ground is frozen. In the end, management activities should occur when they meet silvicultural objectives and when they would not adversely impact other ecosystem patterns and processes (e.g., water and soil quality, etc.).

How is the use conducted? The use is conducted under Special Use Permit and overseen by the Refuge Manager and his/her designee (usually the Refuge Forester or Biologist). Operations may involve numerous individuals and heavy equipment (i.e., feller-bunchers, skidders, bulldozers, log trucks, etc.) and hand tools (i.e., chainsaws, etc.).

Why is the use being proposed?: Commercial and non-commercial timber harvesting is a strategy identified in the 2009 *Comprehensive Conservation Plan* (CCP) and the 2013 *Habitat Management Plan* (HMP) to meet habitat goals and objectives. The CCP and HMP explain in great detail that timber harvesting was one of the first habitat management activities to occur at Seney NWR. In the 1930s-1950s, lowland coniferous trees were cut in areas which later became Refuge pools through the creation of dikes and water control structures. At the same time, upland coniferous trees were being harvested to make building supplies used to craft Refuge infrastructure, some of it still in existence today (e.g., Log Cabin). Throughout the history of Seney NWR, timber harvesting has also been done to produce early successional forest conditions suitable for many wildlife species, such as Sharp-tailed Grouse, Sandhill Crane, and American Woodcock. Currently, timber harvesting is done to restore/rehabilitate native ecosystem types for the benefit of associated native wildlife species, especially those of late successional forest ecosystem types. In this vein, timber harvesting may be done to prepare forest stands for subsequent treatments, such as prescribed fire. Thus, the management of Refuge forests using commercial and non-commercial mechanical timber harvesting and other methods is administered in accordance with wildlife and ecosystem management principles and ongoing research and land management demonstrations. This use, planned and regulated, is beneficial to wildlife habitat.

Availability of Resources: Administration of the timber harvesting program will cost approximately \$1,000.00 in staff salary. Periodic and small-scale harvest operations can be adequately administered with existing staff resources. Any permit fees or timber sale receipts will not off-set costs since these funds are deposited in general accounts and not returned to the Refuge.

Anticipated Impacts of the Use: Both positive and negative impacts are possible. Positive impacts may include meeting the ideals of the 1997 *Refuge Improvement Act* and the *Biological Integrity Policy* (see above). For example, most upland forests at Seney NWR were dominated historically (pre-European times) by long-lived red pine. Turn-of-the-century logging and fires

outside the natural range of variation prior to Refuge establishment altered these forests so that their composition became (and is currently) dominated by shorter-lived jack pine. Because jack pine self-prunes poorly, it usually burns via high severity, crown fires. The red pine (or mixed-pine) ecosystems displaced by jack pine historically burned via low severity, surface fires (see numerous research papers in *ServCat*). Timber harvesting of jack pine removes these “explosive” fuels and prepares sites for low severity, surface prescribed fires while part of an overall treatment to restore historic conditions. Without timber harvesting as part of the treatment regime, prescribed fires would burn more severely, less safely, and produce conditions dominated by the serotinous jack pine; in other words, produce more of the existing altered conditions. Published studies (e.g., Corace et al. 2014. *Forest Ecology and Management* 318:183-193) have also shown how such restoration impacts forest bird communities and how natural red pine-dominated stands are comprised of a more species rich forest bird community comprised primarily of Neotropical migrants.

Adverse impacts may include:

1. Short-term loss of forest canopy habitats;
2. Loss of snags, if not specifically managed for;
3. Unwanted disturbance to the soil;
4. Invasive plant species establishment;
5. Increased short-term fire fuel load increase due to slash (in some forest types);
6. Damage to roads;
7. Rutting of soils;
8. Erosion;
9. Altered visual aesthetics;
10. Short-term disturbance to wildlife.

Public Review and Comment: Timber harvest activities were previously approved and the discussion of timber harvesting was a significant portion of the Seney NWR 2009 *Comprehensive Conservation Plan* (CCP) and the 2013 *Habitat Management Plan*. The CCP contains an Environmental Assessment which was announced in the Federal Register and available for public comment for 30 days in Fall 2008. A similar version of this Compatibility Determination was available for public review and comment during September 2014 at the Seney NWR office, Visitor Center, and Refuge website.

Determination:

_____ Use is not compatible.

 X Use is compatible with the following stipulations.

Stipulations Necessary to Ensure Compatibility: To ensure compatibility with National Wildlife Refuge System and Seney NWR goals and objectives and to minimize or exclude adverse impacts as described above, the activity can only occur under a number of stipulations:

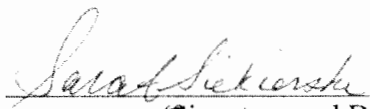
First, strategies to be employed in a timber harvest must involve:

1. Understanding the natural disturbance regime inherent to the forest types and work within the confines of seral pathways dictated by soil, climate, and hydrology;
2. Promoting increased compositional and structural heterogeneity, including large-diameter coarse woody debris and snags;
3. Promoting early seral stages at the Refuge perimeter to produce larger overall patches of similar cover types on nearby or adjacent lands managed by the State of Michigan (see CCP & HMP);
4. Conserving stands with late seral characteristics wherever they exist, and restoring such characteristics in the interior of the Refuge. This will create a gradient of seral stages and allow succession to move forward in areas that increase patch size of late successional forests (see CCP & HMP);
5. Enhancing representation of more uncommon trees species found in each forest type;
6. Using management techniques that emulate the natural disturbance regime (e.g., single tree mortality in northern hardwood stands, group selection or other in conifer-dominated forest types);
7. Promoting forest management that promotes ecological integrity ;
8. Using commercial and non-commercial mechanical treatments, where and when appropriate;
9. Managing invasive species aggressively.

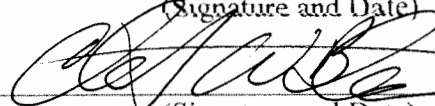
Second, each timber sale must have a detailed plan that outlines the specific goals and objectives of the management, existing stand conditions (forest, soils, etc.), silvicultural treatment to be employed, logger guidelines that take into account equipment limitations, work to be done, etc., and any specific concerns. At the minimum, the State of Michigan *Best Management Practices* (as outlined by the Michigan Department of Natural Resources) should be applied to the soil and water resources. For instance, in the vast majority of instances, no harvesting of trees with 100 feet of a stream or other natural water body should occur. Specific site rehabilitation direction will be provided to contractors following harvest.

Justification: In accordance with the missions of the National Wildlife Refuge System and Seney NWR per the 2009 *Comprehensive Conservation Plan* and 2013 *Habitat Management Plan*, and the guidance of the 1997 *Refuge Improvement Act* and the 2001 *Biological Integrity Policy*, this use has been determined compatible provided the above stipulations are implemented. This use will allow for the conservation, management, and restoration of the wildlife and plant resources and their habitats for the benefit of present and future generations of Americans by promoting ecological integrity and historic forest conditions that are now poorly represented in the landscape.

Signature: Refuge Manager

 2/13/15
(Signature and Date)

Concurrence: Regional Chief:

 2-17-15
(Signature and Date)

Mandatory 10 or 15 year Re-evaluation Date: 2025