

**Sylvania Wilderness,
Crooked Lake**

**Prevention, Control and Containment of
Non-Native Invasive Species**

September, 2011

Introduction

The Sylvania Wilderness, roughly 18,400 acres, became a congressionally designated Wilderness with passage of the Michigan Wilderness Act in 1987. In 1990 the Ottawa National Forest prepared an Opportunity Area Analysis for the Sylvania Wilderness and Perimeter Area. The Opportunity Area Analysis was to identify practices and potential Forest Plan standards and guides that could be used to implement the Forest Plan. The Forest Plan was subsequently amended to incorporate many of the recommendations contained in the Opportunity Area Analysis. Some of the recommendations from the Opportunity Area Analysis included a reduction of the number of campsites to provide for more privacy and solitude, put all campsites under a permit system, require all day-users to register, reestablishment of wild rice in the southern shallow bays of Crooked Lake, and a combination of on-land regulations, on-surface (water) regulations, and restrictions on parking lot capacity would be used to control motorboat numbers, motor size, and operating speeds with the wilderness.

Background

Forest Plan Direction – Sylvania Wilderness and Perimeter Areas

The desired conditions within the Sylvania Wilderness includes remote, undisturbed areas which offer a secluded setting (Forest Plan pg. 3-45). Standards and guidelines provide for the use of watercraft with electric motors that have a maximum size of 24 volts or 48 pounds of thrust (4 horsepower equivalent) within the Wilderness portion of Big Bateau, Crooked and Devil's Head lakes. There is no public boat landing on either Devil's Head or Big Bateau lakes and thus public access on these lakes is by portaging watercraft and associated equipment across NFS lands, or by gaining access through the owners of the few private parcels on these lakes. For the Sylvania Perimeter Area, Forest Plan (FP) standards state that for the portion of Crooked Lake within the Perimeter Area, allow motorized use as currently permitted (FP pg. 3-84). The Ottawa National Forest maintains a boat ramp facility within the Sylvania Perimeter Area on Crooked Lake.

The Forest Plan also provides guidance for non-native invasive species. The Forest Plan objective is to minimize the impacts of non-native invasive forest pests by monitoring for and responding to new introductions (FP pg. 2-11). Within the Sylvania Wilderness pesticides may be used to control invasive species only when necessary to prevent the loss of significant aspects of the wilderness or to prevent significant losses to resource values on private or public lands bordering the wilderness (FP pg. 3-53).

Motorboat Use in Sylvania Wilderness

The Crooked Lake boat landing was developed prior to Sylvania's designation as a Wilderness area and was designed for use by a broad spectrum of boaters, including motorboat users. Since designation as a Wilderness area, the design of the boat landing has proven to be inconsistent with the primary use – use as a trailhead by canoeists and kayakers gaining access to Sylvania Wilderness. However, in a 1995 lawsuit the federal district court determined that customary and traditional use of gas-powered motorboats at the Crooked Lake resort and at the Foxes Den may continue.

Non-Native Invasive Species

The 1994 environmental assessment (EA) for “The Use of Motorized Watercraft in the Sylvania Wilderness” was prepared for the selection of management direction that implements provision of the 1987 Michigan Wilderness Act as it deals with motorboat use on Crooked, Big Bateau and Devil’s Head Lakes (EA Chapter I pg. 3). The EA addresses the issue of natural ecological process identifying a concern that the presence [and use] of motorized watercraft in Sylvania could affect the ability of natural ecological processes to operate freely (EA Chapter I pg 7). In describing the affected environment of Crooked Lake the EA explains that within a 15 mile radius of Watersmeet, MI, there are about 40 public boat landings with access to over 20,000 acres of water (EA Chapter III page 3). It was recognized that natural ecological process could be influenced by motorboats in a number of ways including the potential introduction of exotic species (Chapter III pg 5). The environmental consequences arising from the use of motorboats on Crooked Lake identified the possibility of introducing Eurasian Watermilfoil (EWM) and zebra mussels. As early as 1994 it was recognized that there is a direct threat of introducing aquatic invasive species into Crooked Lake as a result of motorboat activity. This threat also presents the further possibility of spreading aquatic invasive species to other lakes in the Sylvania Wilderness (EA Chapter IV pp 4 & 5).

Eurasian Watermilfoil, a non-native aquatic invasive species, was first detected in Crooked Lake in 2002. The infestation was confined to a small area around the boat landing. The EWM plants, five in all, were destroyed. Since the initial discovery of EWM, individual and small groups of plants have been discovered each year in Crooked Lake (2003 through 2011); these have either been hand-pulled or treated with herbicide. Although the number of new plants discovered has been small, the infestation appears to be persistent. EWM has the potential to displace native species, and could potentially occupy up to 69% of the surface area of the lake if uncontrolled (Skogerboe et al., 2003). Concern has been expressed that EWM may invade and displace the wild rice bed established in the shallow bays in the southern part of Crooked Lake.

EWM is easily transported on boat trailers and thus can spread quickly from lake to lake. The initial source of EWM in Crooked Lake was likely transported there via boat trailers. Since some boaters with boat trailers continue to use the boat landing at Crooked Lake, the possibility of new introductions of EWM also continues to be present. During the summer of 2011, new infestations of EWM have been found in Thousand Island Lake, a short distance from Crooked Lake. With the persistent infestation of EWM and the finding of new infestation in nearby area lakes, the likelihood of transporting EWM between lakes, and specifically into Crooked Lake, continues to present a significant threat. .

Zebra mussels are native to Russia and were first discovered in North America in 1988 near Detroit, Michigan. Zebra mussels can become very abundant, covering rocks, docks, boats, and anything solid in the water. They have spread from established colonies in the Great Lakes to inland lakes. Zebra mussels filter microscopic algae and animals from the water, taking away a food source for native larval fish and invertebrates.

There is unfortunately no method of eradicating zebra mussels from an infested lake. Zebra mussels can be introduced to a lake when attached to a boat or trailer, attached to a plant dangling from a boat or trailer, or when contained in a boat livewell or bilge. This species, if

introduced, could change Crooked Lake, harming native species and possibly affecting fish growth, production, and abundance. In addition to zebra mussels, there are numerous other non-native aquatic invasive species that can be spread by boats and trailers that threaten to invade Crooked Lake

Optional Approaches – Prevention and Control of Invasive Species

Options presented here are intended to address the threats of non-native invasive species with the initial focus on existing and new introductions of EWM and zebra mussels. Implementing appropriate management tools is important for maintaining the health of Crooked Lake's aquatic environment and for managing the Sylvania Wilderness consistent with the 1964 Wilderness Act, the Michigan Wilderness Act of 1987, and the Ottawa's Forest Plan direction. All options include the continuation of providing information and increasing public awareness of invasive species and the ways in which the public can assist in preventing the transport, introduction and spread of invasive species.

Invasive Species

Several options for controlling invasive species have been developed. Invasive species have the potential to alter the inherent ecological processes in Crooked Lake, adversely affecting the lakes's fishery, established wild rice beds, recreational opportunities and wilderness values of maintaining an untrammelled condition. Options considered for the control of invasive species, the species controlled and the anticipate degree of control include the following:

1. Do Nothing – current management actions remain unchanged. Surveying for invasive species would continue, as would manual and/or chemical control efforts.
Potential Effectiveness: In the short term most EWM would be controlled in the 1st bay but it is unlikely that EWM would be eradicated. There would be continued threats for EWM and other invasive species being introduced into Crooked Lake. There would be a continued threat of invasive species spreading into the wilderness area.
2. Treat EWM weevils (biological control).
Potential Effectiveness: Over the long-term EWM might be controlled in the 1st bay but it is unlikely that EWM would be eradicated. During the first 3 to 5 years after weevils are introduced little control of EWM would be likely. There would be continued threats for EWM and other invasive species being introduced into Crooked Lake and biological controls may not be available for other invasive species. There would be a continued threat of invasive species spreading into the wilderness area.
3. Modify the Crooked Lake boat landing to allow carry down only and prohibit the launching of all motorboats from National Forest System lands on Crooked Lake. Continue monitoring and control efforts for EWM including both hand pulling and chemical treatments as needed.
Potential Effectiveness: Most EWM would be controlled but requires the Forest Service and riparian owners to continue their efforts to survey for invasive species and control them as soon as they are found. The threat of introducing new infestations of EWM and other aquatic invasive species is greatly reduced but not eliminated.

For all 3 options motorboat use in the 1st bay on Crooked Lake would remain consistent with the Ottawa's Forest Plan. For option 3, riparian owners would still be able to use motorboats launched from their private property in the 1st bay of Crooked Lake. Efforts to minimize impacts from invasive species and to prevent their introduction into the Sylvania Wilderness would be greatly improved. Prohibiting motorboat use on the 1st bay in Crooked Lake would not be consistent with the Forest Plan. The court order allowing motor boat use by the owners and guests of the Foxes Den would still be in effect allowing court authorized motorboat use.

From the 3 options described the most effective way to prevent future introductions of EWM and other aquatic invasive species is to convert Crooked Lake boat landing to a "carry-down" landing (no trailers backed into the lake) while continuing current monitoring and control efforts (herbicide and manual hand pulling treatments). The effectiveness of this effort could be further enhanced through the cooperative effort of riparian owners to prevent new introductions of aquatic invasive species and the control of any invasive species that are found.