



# Watching the Seney Burn

The Relationship of Fire and the Management of Wildlife  
in the Seney National Wildlife Refuge

*Photo Courtesy of the United States Fish and Wildlife Service*

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*Seney National Wildlife Refuge, Schoolcraft County - Michigan* In 1976, a stray bolt of lightning sparked a fire that would consume approximately 78,000 acres of wilderness in the Seney National Wildlife Refuge. To date, this is the largest forest fire in Michigan history, and, by some accounts, the most expensive federal fire up until that point. However, by the next growing season, effects of the fire were barely noticeable in many areas. By 1980, the area affected by the fire saw an increase in the population of small mammals, ground-dwelling birds, and turtles, as well as the emergence of several species of reptiles and amphibians that hadn't been recorded in the area prior to the fire.

Randy Swaty, an ecologist with The Nature Conservancy's LANDFIRE team, specializes in natural and regional assessments. Fire is a natural process that has taken place in Michigan for generations, Swaty said. "Fire plays an important role in many ecosystems of the United States, including in Michigan. In fact, scientists have estimated that Michigan would have had more than 1 million acres of fire historically due to the prairies, oak and pine forests-all of which depend on fire naturally," said Swaty.

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The Seney National Wildlife Refuge spans 95,238 acres in the east-central portion of Michigan's Upper Peninsula. It is a particular haven for bird enthusiasts, who come to see migratory birds gather to refuel before (or after) making the long trip across Lake Superior. Wildfires like the Walsh Ditch Fire in 1976 can have a dramatic effect on the bird populations of an ecosystem. A study in 2010 found that mixed-pine forests that have been altered by fire have different bird communities than unaltered mixed-pine sites. Overall, a greater variety of bird species were found in areas not affected by fire.

According to the study, “Although bird species responses to vegetation and fire history variables were complicated, it was clear that time since last fire, number of fires in the last 50 years, and other fire variables had affected bird abundances as much as structure and composition (of the forest)” (Marsh, 2014).

Fire also has an immense effect on plant life in the Seney, as well as in the rest of Michigan. In fact, some tree species rely on wildfires to thrive. Jack pine and black spruce have cones that open in the extreme temperatures, littering seeds over a replenished, mineral-rich soil that is required for their germination. This in turn affects the populations of bird species like the endangered Kirtland’s warbler, which uses jack pine for its habitat.

Even trees that are destroyed by wildfire have an important role to play in the ecosystem. Dead standing trees, known as snags, provide habitats for flora and fauna and play an important role in the recycling of nutrients. A study done in 2012 compared the natural process of snags created through wildfire with the process of creating snags through a process called ‘girdling.’ By emulating natural disturbance patterns in this way, forest managers can help create a larger variety of habitats for flora and fauna.



The rare Yellow Rail is one of the many species that benefits from Seney fire management.

*Photo Courtesy Michigan Natural Features Inventory*

After the Walsh Ditch fire in 1976, the Seney Fire Evaluation Team was formed to evaluate how wildfires affected wildlife in Seney and provide recommendations for monitoring in the future.

Though the effects of wildfires are complicated, their comprehensive study posited that the wildlife in Seney benefitted overall from the blaze in '76.

Outside of the Seney Fire Evaluation Team’s initial findings, our understanding of the effects of fire on ecosystems in the northern lake states is largely incomplete. While controlled fire is routinely used as a management technique in southern and western regions of the United States, the public perception of fire as a destructive force has limited its use in other regions.

Organizations like the Lake States Fire Science Consortium (LSFSC) have joined together to help facilitate the transfer of knowledge on fire’s role in wildlife management. However, according to the LSFSC, there is still much to be learned. “Knowledge gaps and differences in perceptions are plentiful, and a need exists for a broader, nationwide dialogue on fire as an ecological process that vegetation and wildlife have adapted to” (Corace, Weiss, and Chartel 2015).

## **More Information**

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