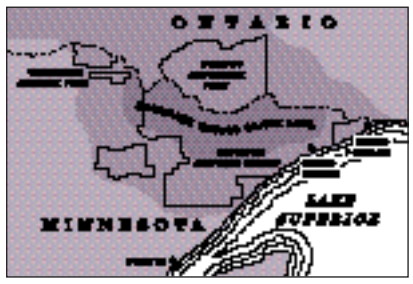
Wilderness News

FROM THE QUETICO SUPERIOR FOUNDATION SUMMER 2003



QUETICO SUPERIOR COUNTRY

The Quetico Superior Foundation, established in 1946, encourages and supports the protection of the ecological, cultural and historical resources of the Quetico Superior region.

"No one can lose what he never had, Izaak Walton said, Nor can he find what he never had. That is the paradox of the wilderness: It was only when we had already lost it that we westerners could begin to see the value of it."

–(excerpt from The Necessity of Empty Places, by Paul Gruchow)

Wilderness News

Published by the Quetico Superior Foundation
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Q&A with the Forest Service

Results of the prescribed burn that took place on Three Mile Island last September.

With the completion last September of the Magnetic Lake and Three Mile Island prescribed burns, the Forest Service has now completed 3,700 acres of the planned 75,000 acres within the BWCA. As a follow up to our story "Fall Burning Increases in the BWCA, Remains Short of Goal" (Winter 2003) *Wilderness News* asked the Forest Service to respond to a list of questions pertaining to the Three Mile Island prescribed burn on Seagull Lake. Patricia Johnson, the East Zone Fuels Planner for the Superior National Forest, and Dennis Neitzke, the District Ranger, responded to our questions. Their answers may help us understand the business of prescribed burning, and the regeneration process that follows each BWCA burn.

Three Mile Island, Seagull Lake, June 20, 2003. All *Photos courtesy of Dyke Van Etten Williams.*

Did the fire go as planned, burning only the blown down trees, and not the standing trees?

The fire did go as planned as far as burning the blowdown areas. In wet drainages and in the standing timber, the fire did not spread much and there is still a standing live component of tamarack, spruce, cedar and hardwoods in those areas. There was some mortality (30-50%) of the standing live timber. There is now a mosaic of patches that burned and patches that did not burn. When looking at the island both on the ground and from the air, the fire looks as close to a natural fire as we could have hoped for. That is our goal for the Boundary Waters burns that we are conducting.

Were the standing old growth cedar and red pine trees saved?

In the old growth cedar areas of the island, there was between 15 and 35% mortality. From post-burn evaluations there last fall, 14% perished, 68% survived, and 18% were undeterminable at that time. The very old cedar and pine of concern appear to have not been affected as of yet. Sometimes the effects of burns in terms of mortality may not show for a couple years, but as of now, it looks very good.

Were the standing trees along the shoreline saved?

About 50% of the shoreline was burned, and as already mentioned, there was between 30-50% mortality in the standing live timber. The areas where the most mortality can be found are where the blowdown was heavy nearby and the heat from the fire was very intense, thus causing mortality.

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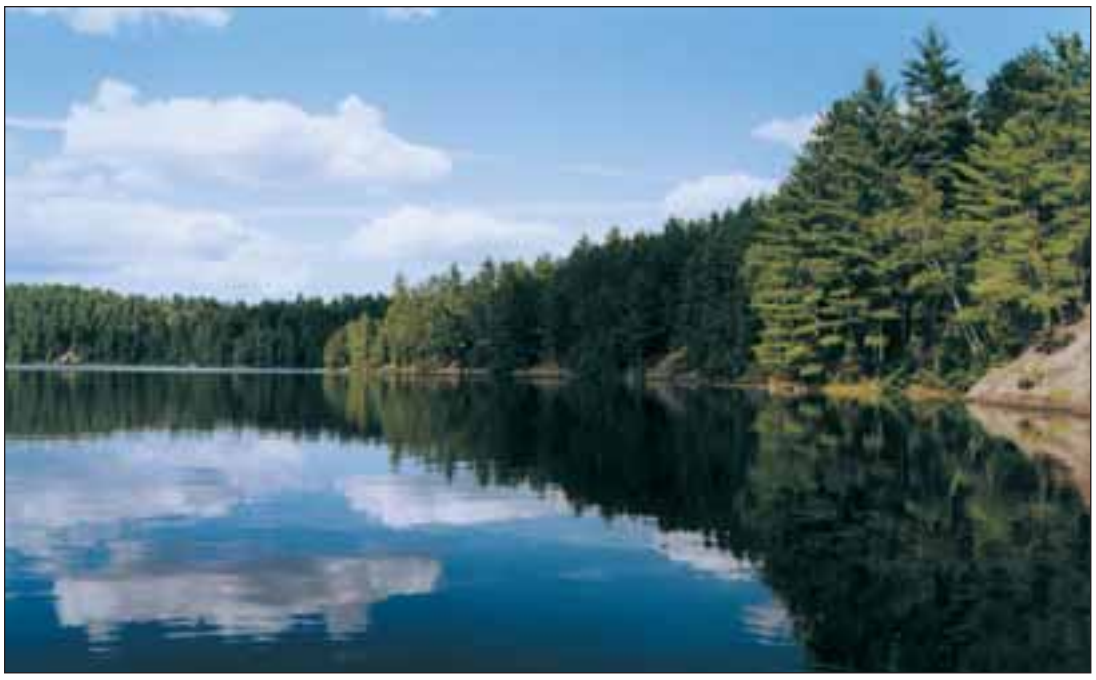
East shore of Three Mile Island.



Burntside Lake easement viewed from East Twin Lakes. *Photo by Tim Eaton.*

Protecting Gateways to Wilderness Areas

The Minnesota Land Trust uses conservation easements to protect tracts in three high-visibility lakes of canoe country.

The Minnesota Land Trust, with funding from the Quetico Superior Foundation, has completed three land protection projects on private lands along the high-profile wilderness gateways of Lake Vermilion, Burntside Lake, and White Iron Lake in the western end of Minnesota canoe country.

The projects include a 14-acre peninsula on Twin Lakes, bordered on the east by the Dead River, which is connected to Burntside Lake. This peninsula was a prime development site and is directly across from the portage connecting the North Arm of Burntside Lake. This easement will benefit the general public, local residents, and hundreds of campers each year attending Camp du Nord and Camp Widjiwagin who use this portage as part of their wilderness experience.

The 170-acre easement on Pine Island ensures the wilderness beauty of 1½ miles of shoreline on Lake Vermilion. This property is one of the most visible and important remaining undeveloped private lands on Lake Vermilion. The property's high rocky outcrops are part of the northern view across Big Bay, and development of the thin soils on this property would have a detrimental effect on the water quality of the lake.

On White Iron Lake, the last undeveloped bay will remain wild as a result of the completed 47-acre easement. This protects 1,500 feet of shoreline and helps retain the wild character of White Iron Lake.

How the conservation easement works

A conservation easement is a voluntary set of restrictions that a landowner accepts, which limits certain uses of a property such as development, construction of roadways and trails, subdivision and forest clear-cutting. And though the land remains privately owned, its conservation value is preserved forever. Minnesota law recognizes conservation easements as permanent, regardless of who may own the land in the future. The Minnesota Land Trust has been active in the northern Minnesota forest wilderness for nearly a decade and considers the region to be one of the cornerstones in its statewide protection efforts.

A conservation success

The Quetico Superior Foundation grant leveraged hundreds of thousands of dollars of conservation in lieu of outright purchases. Landowner and local governments benefit by keeping the land in private ownership. And the public has benefited by maintaining the conservation features and water quality that make the area so unique.

The Minnesota Land Trust currently holds nine conservation easements in the border lakes region, protecting hundreds of acres of rugged, pristine shoreline and dense forests in this area where the local economy and ecology are fragile, yet intricately connected. □

The Minnesota Land Trust

The Minnesota Land Trust focuses its work on the critical landscapes that define the state's natural and scenic heritage. A typical project involves land that has significant value as wildlife habitat, shoreline, or outstanding scenic quality along with a landowner who embraces the ethic of conservation. The Land Trust then monitors easements to ensure their long term viability.

More information on conservation easements can be obtained by calling the Minnesota Land Trust at (651) 647-9590. www.mnland.org

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We were told that the prescribed burn spotted to an adjoining island which also burned. Is this true? And if so, was this island part of the prescribed burn plan? *Spotting refers to embers from the main fire landing outside the fire perimeter causing a fire to ignite.*

Yes, the fire spotted to three small islands nearby. About 80% of a 1 acre island burned and the fires on the other two islands were extinguished by fire crews.

Originally, the Environmental Impact Study (EIS), included these islands in the Three Mile Island prescribed burn plan because of the high fuel loads and their proximity to Fish Hook island and the island occupied by the Wilderness Canoe Base (*both islands were excluded in the EIS plan).* The EIS study calculated that if a wildfire were to occur on one of these islands it would be nearly impossible to stop fire from jumping to the larger islands. However, due to public opposition these three islands were removed from the burn plan. As a result, when the fire spotted from Three Mile Island, we had to extinguished the fires.

Incidentally, just this spring we had another fire on one of these islands and the entire island burned.

Barren rock outcropping on Three Mile Island.

What follow-up information does the Forest Service have about the condition of the soil after the burn?

Soil survey monitoring of conditions after a burn is part of every prescribed burn plan for the BWCA. There were a variety of effects to the soils on Three Mile Island because the prescribed fire was a mosaic pattern. Where there were heavy fuel loads down on rock outcroppings the fire burned intensely, resulting in areas where the duff was completely consumed. In other areas where the fire was less intense, the duff remains intact. *Duff is the partly decayed organic matter on the forest floor.*

Post-burn surveys show about 50% of the duff was consumed. The soil itself was not affected much. As of yet, no soil sterilization has been identified by monitors and soil scientists at the site. With 50% of the duff layer still present, the soil will be well protected from erosion and other negative effects. From a regeneration perspective, the duff layer needs to be reduced somewhat for seedlings to be able to regenerate, especially pine species. The reduction that was seen on Three Mile will provide a good seed bed for tree species to seed in. Once again, I want to emphasize that the effects on the soil were very similar to what one would see in a wildfire, there were no unusual effects.

Some speculate that the use of liquid fire accelerants create fires which can burn too hot resulting in soil sterilization. What can you tell us about this? Does the use of liquid fire propellant increase the risk of soil sterilization?

The soil was not sterilized on Three Mile Island. One indication of this is the amount of herbaceous material that is coming up this year. If the soil had been sterilized, there would be no vegetation sprouting up.

In fact, we did not use a liquid fire propellant on Three Mile. Instead, we choose to use a "plastic sphere dispenser" (PSD) which dispenses little plastic balls containing a chemical that when injected with another chemical causes fire ignition. We use the PSD on burns that are prescribed for lower intensity fire as was the case for the Three Mile Island. We knew we did not want to risk burning the standing live trees with an intense fire.

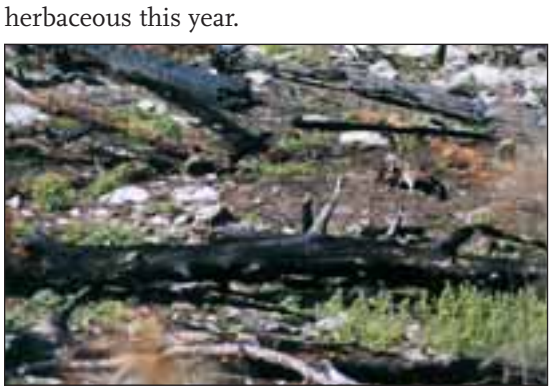
You may recall that we used the helitorch on the Magnetic Lake prescribed burn. The helitorch dispenses a liquid fire propellant and because you can add more fire quickly to a larger area the result is often a hotter fire. However, the severity of a burn has to do more with the specific conditions of each burn rather than which ignition method is used. Factors to consider include: the weather conditions, humidity in the air, moisture content of the fuels (blowdown), the fuel loads (volume of blowdown and debris on the ground), and how fast the area is ignited. The risk of an intense fire increases with dry weather conditions and heavy fuel loads.

Would a sterilized soil result in soil erosion before the regeneration takes place?

Soil sterilization does not always correlate to soil erosion. What plays a larger part in soil erosion is the steepness of a slope that the soil sits on and the amount of duff left on the site. Three Mile Island as a whole does not have a lot of steep slopes. Also, as mentioned before, with 50% of the duff still intact the soil should be protected from erosion and washouts.

Is there evidence of new growth this spring?

A group of researchers and Forest Service personnel looked at the burn in mid-May. Already there was quite a bit of vegetation coming up. The fire released a lot of nutrients back into the soil, which results in quite a bit of new vegetation out there. Most of the vegetation is herbaceous this year.



New growth on Three Mile Island is beginning to pop up.

What can we expect the regeneration cycle to look like?

This first year I would expect to see some herbs and brush regenerating and maybe seedlings. If aspen and birch regenerate this first year they could reach up to 2' tall, whereas jack pine and red pine may only reach 2-3" in the first year.

In the second year, we should start to see more seedlings and the brush will grow 2-4' in height. The jack pine seedling from the year before may reach 8" in height, and the aspen 3' in height. The red pine seedlings will be less than 6".

By the fifth year, the aspen will be 4-6' tall, the jack pine and red pine around 1', and the grass, herbs and woody shrubs will disappear in the shade of the young seedling trees.

South shore of Three Mile Island.

Will the indigenous tree species reappear or will they be replaced with aspen and birch?

How many seedlings and of what kind is hard to determine just yet. We are hoping that near the pine stands (along the shorelines) where there was good survival, that we will see the red pines returning. There is a very good chance for this considering the seed source left in the living pine that burned. Where there was jack pine and spruce (in the upland areas and on ridges), we are hoping these species will grow back. Birch started to come in on the island over the last 30 years, so there will probably be some component of birch as well. There was also a small component of aspen present on the islands so we will probably see some of that too. How many of which species is still hard to tell. Much of it depends on environmental conditions (i.e. weather) and how much of a seed crop develops in the remaining standing timber.

Is there a plan to replant the island with native red and white pines and cedar if the island does not reseed itself? Or do we let nature take its course?

The plan is for natural regeneration on the island. According to the Wilderness Act of 1964, the Forest Service is not allowed to manipulate the vegetation of the wilderness with artificial processes and replanting is considered an artificial process.

What happened to the animal inhabitants of the island before and after the fire?

There are a variety of immediate effects and long term effects on the wildlife, some positive, some negative. Remember that the wildlife found in the forest types of Northern Minnesota have adapted with fire over time and have developed traits that help them survive during fire. During the burning process, some larger animals were flushed out and proceeded to swim or fly to adjacent islands.

When we burned the island we actually flushed out a few moose that swam to adjacent islands. Many animal inhabitants probably found refuge in the unburned areas. Some animals (i.e. the smaller ground dwelling animals) went underground for safety. The fire was slow enough in its spread rate that most animals were able to move around and find refuge as the fire burned. Because prescribed burning moves at slower rates than a natural wildfire would, animals have a better chance to survive. But, unfortunately, some animals probably did perish.

Long term, fire has some very positive effects for wildlife. Because fire provides a flush of nutrients to the soil, there is an abundance of herbaceous material that grows afterwards. Many browsing animals, such as moose, benefit from the increase browsing food source available. Many bugs that pollinate those plants such as bees and butterflies, can also be prolific after fire. Berries can be more abundant after fire and for upwards of 3-10 years will provide a great food source for bears and rodents.

With an increase in the rodent population on the island we will see an increase in Red Tailed Hawks and Northern Hawk Owls in the area. Fires also provide a host of burned dead material which attracts all kinds of bugs that feed off the decomposed and charred material. Black-Backed Woodpeckers prosper from fires and were observed this past May on the island.

What was learned (pro or con) from this fire that the Forest Service can apply to future prescribed burns?

One very good thing we learned from this burn that will help us in the future is that we can burn under more humid conditions than we anticipated. We burned Three Mile Island on a day that was overcast, towards the end of the day, and we had a very light rain shower. The blowdown burned despite these conditions.

We also learned that the PSD machine can be a very effective method and will help minimize fire effects by creating less intense fires. And, from a logistics standpoint, the PSD is much easier to operate and much less hazardous compared to the helitorch, which involves hauling a lot of fuel mixtures into the wilderness.

We also learned that we can mimic natural fires with prescribed burning, creating mosaic burn patterns. This means our effects would not be outside of what would naturally occur.

East shore of Three Mile Island.

In conclusion, what would you like to tell our *Wilderness News* audience?

Fire has immediate effects that occur while burning (what we call primary) and effects that occur some time after the burn (secondary). Sometimes the primary and secondary effects are not always positive, but overall there are some very positive effects of fire. Fire is a natural part of our ecosystem and many plants and animals have adapted to that over time. All these effects, whether negative or positive, are part of the natural cycle of the forest. □

Conclusions to the questions were drawn from the Forest Service's results, obtained by monitoring crews and from statements made by researchers, who have been using this island as a laboratory for years. The Forest Service visited the island this spring with Lee Frelich (University of Minnesota), Steve Apfelbaum and Allen Haney (Applied Ecological Services, Inc.).

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Wilderness News

Summer 2003

Hegman Lake Pictographs

These historic native illustrations are thought to be some of the clearest examples of pictographs in the BWCA/Quetico wilderness.

Hegman Lake Pictographs, located 15 miles northeast of Ely, MN on the Echo Trail. *Photo by Tim Eaton.*

The figures include a bull moose, another four legged animal, several canoes and a maymayguayshi spirit-man; a series of horizontal lines joined with a painted cross to tower above the other figures.

Natives have occupied this area for nearly 9,000 years. These particular pictographs are believed to be 500-1,000 years old. Their symbols give us clues to the traditions, legends, and values of the Ojibway people; their paintings confirm their close tie to their natural surroundings and their animal "brothers".

The early Indians created the red ochre paint by mixing iron hematite with boiled sturgeon spine and bear grease to depict their stories on the stone canvas. Some of these images are thought to be influenced by vision quests which show important spiritual insights. Perhaps they were painted by Midewewin priests of shamans, those connected to Ojibway religious beliefs. On the other hand, they might tell stories about historical events or point directions like symbols on a map.

Several researchers have offered theories behind the Native American artwork. Michael Furtman in his book *Magic on the Rocks* compares the moose on Hegman to the paintings on Darky Lake in Quetico and suggests that they might have been painted by the same artist. The author also sees the panel as relating to the Ojibway story-legend of Nanabush, the four legged animal representing a wolf which is hunting the moose.

Carl Gawboy, professor at the College of St. Scholastica in Duluth, offers another suggestion about the Hegman pictographs. The professor of Indian studies links them to the constellations and compares the image of the 'spirit man' to the star grouping in Orion. The Ojibway might see him as "Wintermaker" as he appears in the eastern sky during the coming of cold weather. The seven short horizontal lines just above the larger figure might represent Pleiades while the moose could be Pegasus and the four legged animal may well denote Leo the lion. He completes the correlation by comparing the canoes to the Milky Way of the "River of Souls" in the Indian tradition. Gawboy surmises that the cross could represent the star Capella.

All of these constellations are normally observed in the winter sky, a time when the rock wall would have been more accessible to the artist from the ice-covered lake surface. Native American people celebrated the winter season as a time for hunting and storytelling. □

WILDERNESS VOICES

Book Review

The Art of the Canoe with Joe Seliga

Jerry Stelmok guides us through the life of Joe Seliga, who at 92, is a living legend and part of Ely, Minnesota history. Ely has evolved from a small mining town during the late 1920's into a tourist hub for wilderness travelers. Throughout all these years Joe Seliga has remained a fixture in the town of Ely; from his time as a young boy traveling into the wilderness with his father, until today, as a self-taught canoe builder with a career spanning 65 years. Seliga's dedication to both his family and his craft as well as his connection with the surrounding wilderness and area YMCA camps make his life fascinating. This book illustrates the time and care put into each boat and shows the true beauty of Seliga canoes. It is clear why Seliga Canoe owners have a hard time paddling anything else.

This 168 page full color book, is filled with brilliant images by photographer Deborah Sussex, including a section documenting Joe's self-taught processes and techniques used to create his wood and canvas works of art. □