

Infestation sparks hope for diverse forest

North Shore landowners tap NRCS assistance and Lake SWCD expertise as they reduce the fire hazard brought on by spruce budworm, replace stands of dead balsam with species conducive to controlling erosion, improving water quality



TWO HARBORS — As the ongoing spruce budworm outbreak turns dense, single-species stands of trees into fire hazards in Lake County and beyond, it gives landowners who clear the dead timber an opportunity to nurture a more diverse forest.

More than \$1.3 million in Environmental Quality Incentives Program (EQIP) funds from the USDA's Natural Resources Conservation Service (NRCS) was available for wildfire hazard mitigation-related practices from 2017 through 2019. With that assistance, more than 100 landowners treated about 1,500 acres in Lake and bordering counties.

More than 90% of those EQIP funds related directly to the outbreak.

Above: Penny and Jamie Juenemann's property borders the Little Stewart River, a trout stream where steelhead go to spawn. In July 2017, they spoke about wildfire mitigation on 3 acres, which they'd recently cleared of dead balsam fir with the help of a four-person Conservation Corps Minnesota & Iowa crew. **Below:** The cleared area, at right, contrasts with the untouched forest. The Juenemanns were among 21 landowners who signed up for the pilot project funded by a Clean Water Fund grant from BWSR. **Photo Credits:** Ann Wessel, BWSR



"Where you have dense stands of balsam fir, it kills them all and it's quite the tinderbox," said Jon Sellnow, the Duluth-based NRCS district conservationist who has since taken a job with the Minnesota Board of Water and Soil Resources (BWSR). "The treatment is to reduce the fire hazard, but at the same time

open up that dead canopy for regeneration and, if needed, re-establishment in the understory."

Lake County is at the epicenter of an outbreak that extends to northern St. Louis County, the southern edge of Cook County and the Duluth area. Outbreaks generally occur on a 30-year cycle. This one is expected to



A pilot project funded by a \$114,000 Clean Water Fund grant from BWSR allowed Lake SWCD to hire a four-person CCM crew in 2017 to clear dead trees.



Left: Clearing dead balsam trees left a 3-acre stand that consists mostly of stunted birch, quaking aspen and big-toothed aspen. The Juenemanns saved other shrub species, and aim to include a mix that will feed wildlife. **Middle:** The Juenemanns built 5-foot-tall wire cages to keep the deer from browsing the 800 trees and shrubs they planted. **Right:** Passable for nearly 10 miles, the Little Stewart is where 40 percent of the steelhead in all of Lake Superior spawn. It will benefit from the forestry pilot project.

persist for a few more years. Spruce budworm outbreaks occur naturally. Dense stands of balsam fir do not. They filled in — unmanaged — in the decades after wildfires were suppressed and mature white pines were harvested. Despite its name, spruce budworm does the most damage to balsam fir.

Those dense stands shade out other trees, shrubs and plants that help to curb erosion — and how much sediment is carried into North Shore trout streams. EQIP assistance has allowed landowners such as Jamie and Penny Juenemann to augment their efforts to reset the forest.

By January 2020, the Juenemanns had planted 800 trees and shrubs on their 3-acre property bordering the Little Stewart River. In summer 2017, with NRCS assistance and help from a Conservation Corps Minnesota & Iowa crew, they had cleared the balsams and salvaged everything else on that land.

“Spruce will have some tolerance, but balsam fir, when they get to a certain age, it’s nearly 100% mortality,” Sellnow said. Balsam firs retain their lower branches, which act like a ladder that allows small ground fires to quickly move up into the canopy causing

“ We really like the end result, and are really excited to see it spring up over the next however many years we’re around. ... We tried to do it in a way that people won’t know it’s planted. We didn’t plant trees in rows, and we added a tremendous amount of diversity.

— Jamie Juenemann, Lake County landowner

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much larger, more destructive fires.

The Minnesota Department of Natural Resources (DNR) identified 201,700 acres affected by spruce budworm within the Arrowhead region in 2019.

“The amount of dead balsam is not going to go away on its own. The forest will decline,” said Tim Byrns, a Lake Soil & Water Conservation District (SWCD) forester based in Two Harbors.

“In addition to the fire hazard and reduced forest productivity, there is no value in dead or declining balsam fir, and a very limited market for balsam fir in general,” Byrns explained. “So cutting and treating the woody residue on site is often the only management option.”

When the program launched in 2016, Byrns’ efforts to inform landowners extended

to hand-delivering paperwork. Interest grew as more landowners could see how the practices worked on neighbors’ land.

Depending upon the practice, EQIP assistance ranged from \$660 to \$1,300 an acre.

“On these sites, it’s kind of an easy sell. Even a layperson can look at a forest and determine that it’s dead. This balsam fir comes in so thick, (with) spruce budworm anything over 40 years is basically 100% mortality,” Sellnow said.

With nearly \$690,820 allocated and 55 new contracts, 2019 saw the most sign-ups in a single year. Twenty-one of those originated from landowners working through Lake SWCD. They resulted in 14 management plans affecting 192 acres in Lake County.

Most management plans also protected houses in the Two

Harbors area from wildfires. “The benefits kind of expand from there. You have a healthy forest, and it provides tremendous water quality benefits — both for slowing runoff and for filtering water,” Sellnow said. “Definitely clean air. Carbon sequestration. Wildlife habitat’s a big one.”

Thinning the forest makes way for larger, older, healthier trees.

The Juenemanns have worked 30 to 40 hours a week, spring through fall, to clear remaining balsams, plant trees and build 5-foot-tall wire cages to keep the deer out. After an August 2019 storm, they cut damaged aspen and birch, and repaired wire cages.

“I’d still do it the same way. I like the fact that it’s filtered sunlight hitting those trees. It’s more drought-resistant as a result,” Jamie Juenemann said.

In the spring, a profusion of coltsfoot bloomed on the site; large-leaved asters bloomed in the fall.

NRCS and SWCD employees accept applications year-round. Local work groups identify priority resource concerns and conservation practices. Applications are scored and ranked.

April 19 is the next EQIP application deadline.