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Explosives to topple NC's dead hemlocks

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RALEIGH -- A years-long battle to save hemlocks in the Appalachian Mountains from a tree-killing pest has some new weapons: duct tape, a helicopter, explosives, and a fresh arsenal of chemicals.

U.S. Forest Service personnel are working this week in the Joyce Kilmer Memorial Forest to eliminate some of the casualties of the struggle with an invasive insect called the woolly adelgid. About 150 dead hemlocks -- some of them centuries old -- threaten to tumble onto a popular trail frequented by about 35,000 visitors each year.

A dead hemlock in North Carolina's Linville Gorge
(Image courtesy Alliance for Saving Threatened Forests)

Steve Lohr, the district ranger who oversees hundreds of thousands of acres of national forest in the region, said duct-taping explosives to the trees appears to be the safest way to knock them over. It's an uncommon technique but carries the added benefit of leaving a jagged stump as opposed to a clean cut.

"Since it's in wilderness, we want it to look as natural as possible," Lohr said.

Meanwhile, officials are redoubling their efforts to save what's left of the decimated hemlock population. For years, massive numbers of hemlocks have been killed off by the speck-sized adelgid, a bug thought to have come from Asia a century ago that seeks nutrients inside the trees.

The aphid-like insects are thought to have arrived on ornamental plants imported from Japan in the 1920s. They showed up in urban landscaping in Virginia in the 1950s and spread through the wild in ensuing years to parts of the Northeast, the Carolinas and Tennessee.

Wood-boring insects, adelgids inject toxic saliva while sucking sap from a hemlock. Needles on infested branches go from a deep, rich green to a sickly green-gray, then dry up and fall off. Most new branch buds die.

The devastation brings great change to the wilderness. Hemlocks provide crucial shade along stream banks, halt soil erosion, give shelter to songbirds and cover for fish.

Lohr said officials will use a helicopter this year to travel over the forest canopy in search of hemlocks that are alive and haven't yet been identified. It's a search made easier in the colder months when the evergreens stand out among other trees that have lost their foliage for the year.

Crews will treat the surviving trees with chemicals, providing them a temporary lifeline until scientists can find a long-term solution for dealing with the adelgid. The most promising option is identifying and deploying beetles that prey on the bug.

"Is it bleak? Probably," Lohr said. "Do we have hope? Yes, absolutely."

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Wednesday, 24 November 2010 15:03

Trying to preserve a national treasure

Written by **Don Hendershot**

The U.S. Forest Service spent the first two weeks of November felling approximately 150 dead and/or dying eastern hemlocks in the Joyce Kilmer Memorial Forest adjacent to the Joyce Kilmer National Recreation Trail.

The hemlocks, many of them centuries old, had been ravaged by the hemlock woolly adelgid and were considered public safety hazards.

The hemlock woolly adelgid is an invasive exotic aphid-like insect that kills hemlocks by feeding on the sap at the base of the tree's needles causing the needles to turn brown and fall off. With no needles (leaves) to provide nutrients, the tree ultimately starves to death. The hemlock woolly adelgid has nearly extirpated the eastern hemlock from the forested landscape of the Southern Appalachians.

The conundrum

The dead and dying hemlocks adjacent to the trail at Joyce Kilmer presented a danger to public safety and needed to be removed. However, Joyce Kilmer Memorial Forest is within the congressionally designated Joyce Kilmer-Slickrock Wilderness area, where mechanical equipment like chainsaws is prohibited.

But, according to Cheoah District Ranger Steve Lohr, there were other considerations as well.

"One option would have been to close the area for three to five years and let nature take its course," Lohr said. "But due to the popularity of the area, and its positive economic impact for Graham County, that wasn't a practical solution."

Approximately 35,000 people visit the area annually. Lohr said the dilemma was to come up with a plan that would ensure public safety while preserving the wilderness aspect of Joyce Kilmer.

The solution

The Forest Service came up with a novel (at least for eastern forests) solution. They decided to use dynamite to blast the dead hemlocks. Forest Service certified blasters attached explosives to trunks of the hemlock and then detonated them from a safe distance. Certified blaster Jon Hakala from Minnesota was the lead blaster.

Lohr said the trees could be felled with an amazing degree of accuracy and pointed to one stump where a dead hemlock had been taken out within feet of a living tree. The amount of explosive varied according to the size of the tree. Lohr said the hemlocks that were taken out at Joyce Kilmer took from 28 to 35 pounds of explosives. The largest hemlock felled had a diameter of 47 inches.

Aesthetics also played a big part in the decision to use dynamite. "Since this is a wilderness area, we wanted it to look as natural as possible," Lohr said. "Smooth, sawn stumps just wouldn't look right." The dynamite blasts, however, leave a jagged, splintered stump that mimics natural windthrow.

Deputy District Ranger, Lauren Stull said that charges were set at different heights on the trunks to make it look like a wind or ice event had taken the trees out. On a tour of the site, Stull pointed to two nearly identical stumps about 10 feet apart. “The one on the left fell during a wind event on Oct. 25,” she said, “and the one on the right was blasted.”

Many of the felled hemlocks fell across the trail. Forest Service employees with crosscut saws (a primitive tool) cut the massive timbers out of the trail.

Logistics

The plan to take the hemlocks out had been in the works for a year or so. The Forest Service had to go through the NEPA (National Environmental Policy Act) process. Lohr said the service worked with local organizations like Partners of Joyce Kilmer and the Graham Revitalization Economic Action Team as well as national groups like the Wilderness Society. Stull said that the organizations supported the plan, realizing it was necessary for public safety.

The timing put off some bear hunters, but Stull said the service worked as quickly as possible to minimize the time the area was closed and that Forest Service staff were always on hand to ensure that no hunting dogs were in the vicinity during blasting.

Lohr said that because the area was used by the federally endangered Indiana bat, NEPA regulations prohibited blasting from April 1 through Oct. 15.

What the future holds

The stumps, logs and all the debris will be left as long as it’s not in the trail. Once again, the idea is to mimic natural gap creation in an old-growth forest. Lohr said he expected rhododendron, birch and poplar would begin to regenerate in the gaps but noted that there could be a lot of herbaceous understory prevalent in the immediate future. Stull also pointed out that small hemlocks were already present in the understory.

Candace Wyman, public affairs staff officer for the Forest Service was also present on the tour. She noted that the area with its “new” gap dynamics presents an ideal situation for area colleges and/or universities to conduct long term studies.

Stull noted that the service was in contact with Graham County schools about doing some hands-on learning for the local schools. Both Stull and Lohr said that the service was interested in monitoring the area but that no formal studies had been proposed or discussed at this point.

The Forest Service is extremely challenged in these times of rampant development and widespread invasive exotics to fulfill its mission of sustaining the health, diversity and productivity of America’s national forests.

Also see third article on next page.

http://coyotes-wolves-cougars.blogspot.com/2010/11/aspens-dogwood-ash-beech-and-now.html

TUESDAY, NOVEMBER 9, 2010

US Forest Service increases efforts to save hemlocks in Asheville area

By Nanci Bompey

ROBBINSVILLE — Foresters tried chemicals and even turned loose predator beetles in the battle to save swaths of hemlocks that once blanketed sections of the Blue Ridge Mountains.

Now they are getting rid of the aftermath with duct tape and explosives. The U.S. Forest Service this month will bring down 150 dead hemlock trees in Joyce Kilmer Memorial Forest — some of them hundreds of years old — that pose a hazard to the more than 35,000 visitors hiking in the area every year.

The invasive hemlock woolly adelgid has nearly decimated the tree species across the southern Appalachians, forever changing the forest and marring mountain views. For Will Blozan, a local arborist known for trying to save hemlocks around the region, the devastation is a result of a lax attitude by the Forest Service since the adelgid starting appearing eight years ago."It's one of the most heinous ecological crimes they could have committed," Blozan said. "Joyce Kilmer is known for its high-quality forest, and they just let it go."

Dave Casey, a silviculturist heading up the Forest Service's hemlock program in Western North Carolina, said foresters hadn't dealt with such a quick, large-scale die-off of trees since the American chestnut was essentially wiped out by a fungus in the middle of the 20th century.The Forest Service is increasing its efforts this year to try to save what trees are left, using newer techniques and treating hemlocks that haven't yet died."I think we've been pretty open that we didn't do as much as we should have right at first," Casey said. "Obviously, it was related to funding … but part of it might be we haven't seen a chestnut-like extirpation in recent history and some of that might have been lost on us."

The Forest Service tried treating the hemlocks when the adelgid first hit in the early part of the decade, but treatments in Joyce Kilmer didn't work.Joyce Kilmer is one of the largest remaining tracts of virgin hardwood forest in the southern Appalachians and some trees in the area are more than 400 years old.

Treating hemlocks

The Forest Service first started treating hemlock trees in WNC in 2005. The agency identified 159 eastern and Carolina hemlock conservation areas, chosen to represent genetic diversity in the forest.Initial treatments focused primarily release of certain predator beetles and treatment of high-priority areas with imidicloprid, a chemical used to kill the adelgid.

Of the 159 areas, only about 100 proved to be treatable. Some contained no hemlock while the trees were already too far gone in others. The agency treated about 510 acres in 103 conservation areas last fiscal year, a small portion of the roughly 1 million acres that make up the Pisgah and Nantahala national forests.The Forest Service said follow-up monitoring shows that a number of the conservation areas have suffered mortality and can no longer function as genetic conservation areas for the hemlock.

Rusty Rhea, an entomologist with the Forest Service, said the agency did what it could with the resources it had. He said the goal was not to save all the hemlocks and some areas treated with imidicloprid have survived. "The efforts were successful where we could get to the areas," he said.

Increasing efforts

The agency spent $239,000 on hemlock conservation in North Carolina last fiscal year. Rhea said the agency is expecting a 35 percent boost in funds for fighting the hemlock woolly adelgid.

Regardless of any additional funds, the Forest Service plans to hire nine people for two temporary crews dedicated to treating hemlocks.The agency issued a new environmental assessment this summer expanding treatment areas and authorizing the use of new treatments, including a new chemical that works faster than imidicloprid.It also plans to get involved in an experimental technique that will spray fungus on the needles, along with increased use of predatory beetles.

The number of active sites the agency is treating is expanding on a daily basis, Casey said. The agency is focusing on treating more contiguous blocks of hemlocks.

"I don't want to say it's a last ditch effort, but that's what it feels like sometimes," he said. "At this point, we are trying to save basically as much as we can, where it makes sense."

A changing forest

Blozan, the arborist, said he's glad the Forest Service is increasing its efforts, including the use of new chemicals, but said the efforts may be too late."It's just extremely maddening," Blozan said. "They knew how devastating it was; they knew the trees would die; they had the tools to do it and they didn't do it."The loss of hemlocks in areas like Joyce Kilmer will change the forest, said Jim Vose, a researcher with the Forest Service's Southern Research Station. When hemlocks are lost, there won't be another evergreen species to replace it, he said. Hemlocks provide shade to streams where brook trout thrive and habitat for some endangered species. Hardwood trees that fill in when the hemlocks die don't provide as much shade, take up different amounts of water and could change the composition of the soil. In Joyce Kilmer, rhododendrons will likely fill in the areas where hemlocks are lost, changing both the ecology of the area and how it looks."Not only are hemlocks a keystone species for ecology, but they are also key for the visual look of the southern Appalachians," Vose said. "That loss is definitely going to alter the experience people have in the southern Appalachians."While experts said it could be years or even decades before most dead hemlocks start to fall, many have lost their needles and are starting to loose their branches, changing the cover they provide."There are places in the Smokies that were dark, moist areas with an open understory that are now nothing but saplings," Blozan said. "It's like someone has gone into your house and wrecked it."