

Stockton University Begins Active Management of Campus Woods to Sustain Healthy Pinelands Forest

Management to Increase Biodiversity, Preserve Old Growth, Generate New Growth, Enhance Habitat for Wildlife, Provide Research Opportunities

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Galloway Township, NJ- Stockton University began active management of its more than 1,500-acre forest today to protect and restore its Pinelands forest ecosystem from threats such as the encroaching Southern pine beetle and to cultivate a future of enhanced education, recreation and healthy habitat for wildlife.

Fire was returned to the forest system during a prescribed burn conducted by the New Jersey Forest Fire Service along Delaware Avenue. Another burn weather-permitting will take place next week along Duerer Street.

Years of fire suppression resulting in dense turf on the forest floor has prevented pine seedlings from sprouting and beginning a new generation of trees, Stockton's Forest Plan explained.

The university's stewardship plan is the state's first comprehensive forest management plan on public land within the Pinelands region and was developed by Robert Williams, of Pine Creek Forestry, a certified forester with 40 years of experience who was hired by the university as a consultant. The Pinelands Commission approved the 10-year plan.

"The forest is a dynamic system. Fire has been suppressed in many areas and we need to try to reintroduce fire (prescribed burns) when we can. When we can't reintroduce fire or it's too dangerous to do so, thinning the forest (selective tree removal) has been shown both in the western and southern United States to be effective in helping the forest on some levels," said Dr. George Zimmermann, a Stockton professor of Environmental Studies who researches forest management with a specialty in the ecology of the Atlantic white-cedar.

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"Stockton's forest gives character to our campus and defines who we are. It's a living laboratory that provides research opportunities that very few students are offered. It's also a forest that needs our assistance now," Zimmermann added.

"We will be implementing management techniques that will affect how the forest grows for decades. It's a never-ending story," Williams said.

Stockton students are working with Zimmermann and experts from the Federal Aviation Administration (FAA) William J. Hughes Technical Center to capture three-dimensional imagery of the forest before and after the prescribed burn using a LiDAR laser scanner. This state-of-the-art laser technology replaces some manual measurements that would take weeks or even months to gather. "We are able to gather data that would have been impossible or too costly to measure a short time ago," said Zimmermann.

Stockton's Environmental Studies program is one of the oldest in the nation and offers an "Introduction to LiDAR" course, taught by adjunct professor Michael Cicali who works at the FAA and is leading the FAA team who will be cooperating with Stockton faculty in a collaborative partnership set up this past year.

The partnership will allow Stockton researchers to work with the FAA Technical Center and to share technology for scientific research. FAA personnel will be coming to Stockton to set up a georeferenced grid to allow efficient and more useful laser scanning of the forest. Stockton in return has been placing plots and collecting data on the Atlantic white-cedar forests on the FAA property thus soon giving the FAA data that they can use in managing some of their forest more efficiently.

The next phase of Stockton's forest management plan will focus on thinning an area between Vera King Farris Drive and the Garden State Parkway south of Moses Mill Stream that is at risk for wildfire and infestation by the Southern pine beetle, which has already infiltrated adjacent land. Thinning will remove the weakest trees to lessen forest competition for nutrients, water and sunlight. A healthier forest is less susceptible to fire and disease.

"After the first thinning project, future tree removal in the thinned area may be limited for more than 50 years. We are getting the forest moving, and then leaving it alone," said Williams.

Advanced Forestry Solutions LLC of southern New Jersey has been contracted to harvest carefully selected trees in areas outside of buffer zones created to protect wildlife. Designated no-activity control plots will not receive management so that long-term experiments can measure the effectiveness of the management plan. As studies present new information, the plan can be adapted and improved.

The harvested trees will be sent to Glatfelter paper mill in Spring Grove, PA, where they will be processed into pulp and converted to high quality paper.

Thinning can help to keep the Southern pine beetle at bay because it opens the closed crown canopy thus dispersing the aggregating pheromone of the beetle. Pheromones are chemicals that the beetles use to attract other beetles to a site, where the beetles can collectively cause severe damage.

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"These forest stands are in the condition that has shown the highest degrees of attack by the insect over the last 10 years throughout southern New Jersey," the plan stated, adding that 14,000 Pinelands acres were decimated by the beetle in 2010.

Within months, the beetles can kill thousands of mature pines, which would leave behind a fire-prone stand of dead and weakened trees.

Of the Southern pine beetle, Paul St. James, owner of Swan Lake Resort on Moss Mill Road in Pomona, said, "I've been living the experience for the past year."

"We have beautiful old growth. People come here to see a beautiful forest," he said.

When he first noticed two small clusters of dead trees on his property, he didn't imagine that in a 14-month period tiny beetles would destroy 3,000 nearby trees.

To protect his property, he began a forest stewardship plan that "thins out the woods to be less competitive for nutrients."

Thinning the forest also releases more resources to the remaining trees and can help them grow faster and become more resilient depending on their age.

Other pests include gouty oak gall and striped oak worm, which need to be controlled as outbreaks could cause loss of the oak species from the forest. Pines would naturally fill in where oaks once stood, resulting in a loss of biodiversity.

"Currently, our campus forest has limited diversity in age and stand structure and thus limits the biodiversity of what can live here. Also there is little to no tree generation occurring for the next forest, and hence no future if we lose what forest we currently have," explained Zimmermann.

Marathon Engineering and Environmental Sciences, Inc. conducted extensive surveys on campus to determine the existence and whereabouts of threatened and endangered plant and animal species.

Areas where species nest or grow will be protected by no-activity buffer zones. All management activity in certain regions is limited to the period of April 15 through November 15 each season to protect the Northern pine snake.

"I'm excited for our students. Soon they can see and study the short and long term effects of various cutting-edge forest management techniques on campus," Zimmermann said.

Management not only saves the forest, but it perpetuates it for future generations explained Williams.

A healthy forest habitat could potentially see the return of the state-threatened Red-headed woodpecker. Dr. Catherine Tredick, assistant professor of Environmental Studies, is one of a number of professors who plan to study the effects that management has on wildlife, soils and hydrology.

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Tredick has installed cameras throughout the woods to monitor the inventory of wildlife on campus. Her focus is on larger, land-dwelling creatures such as deer and squirrels and tracking them to see how management affects movement and densities of those species.

“A forest is seen in different ways by different people, and I hope with our Forest Plan to increase the biodiversity, usefulness and resiliency of the Stockton forest for future generations of students, faculty and the surrounding community,” said Zimmermann.

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