Probing Question: Can logging be done sustainably?

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In an era of ever-increasing environmental awareness, few industries receive more scrutiny than logging. For decades, environmental groups have claimed that commercial logging practices result in devastating consequences, including deforestation, soil erosion, a loss of biodiversity and increased global climate change. Advocates of the logging industry counter that without their "proactive forest management," North American forests would become overcrowded, unhealthy and fire-prone. In addition, they argue that many rural communities depend on the logging industry for their livelihood.

Can logging be done in an environmentally friendly and sustainable way? Jim Finley answers with an emphatic "yes." "We have the necessary knowledge about forest systems to log sustainably," said the Penn State professor of forest resources.

Since 1995, Finley and his students have studied how timber harvesting affects sustainability, a concept they define as forest functions by considering watershed resources, the soil or the potential for future growth and renewal. The researchers narrowed the process to eight variables relating to the "residual forest" -- trees left in a stand to grow until the next harvest and providing for forest regeneration. "The residual forest often tells us what our potential is, particularly and our ability to regenerate," Finley explained. "Have we done what we need to do to put the next forest in place?"

Variables Finley looked at included the diameter trees in the forest, the

species composition, residual quality ("In other words, did we leave good trees?"), seed sources, the amount of regeneration, presence of competing plants and whitetail deer, and how much soil damage was done to the site. "Looking at those eight things, we can see if the site was logged sustainably," Finley said.

To enable sustainable logging, those within the industry need to understand the makeup of each forest from which they intend to harvest trees, he noted. For example, if the average diameter within a stand has decreased over the years, it means harvesters are cutting the big trees while leaving the little trees.

"People often have the idea that big trees are old trees and little trees are young trees," Finley explained. "In actuality, when we look at the stand structure in Pennsylvania's forests, much of the time, the forests are even-aged. The big trees are the same age as the little trees." By taking too many of those big trees, he said, harvesters are actually taking the best trees,and leaving the weaker ones. "And that's not a sustainable outcome," he says. “Timber harvesters need to pay attention to how the specific trees they are leaving represent the composition of trees within the forest."

Another important issue is market value. "When you walk through a forest and see trees that are gnarly, those might be great for squirrels and birds, and we want to keep those," said Finley. "But we don't want every tree to have a hole." Unsustainable practices tend to take only perfect trees, leaving trees of lesser quality, which weakens the forest as a whole.

Said Finley, perhaps the most important aspect of sustainable logging is getting people who own or manage forests to look at and learn to understand the forest floor. "In my state, Pennsylvania, we're seeing an increase of ferns, invasive grasses and plants that deer don't generally

eat," Finley noted. This creates more shade close to the ground that competes for light. "It's difficult for tree seedlings to grow in that kind of competition."

Logging sustainably, he said, requires forethought. "It's not an activity. It's a process. You have to plan ahead to consider what the impact will be and how you will get the right outcome."

Source: By Sue Marquette Poremba, Penn State