Oregon State UNIVERSITY

Barking up the Right Trees

Using an Electronic "Wood Hound" to Track Scented Logs from Forest to Furniture

Notable notes in forest research at Oregon State University College of Forestry

Each year, between 5 billion and 15 billion logs are harvested around the world to fill the high demand for timber and wood products. Governments and manufacturers need to be able to keep close tabs on this valuable commodity. In the United States, for example, a truckload of about 50 logs can cost $2,000 or more, says College of Forestry Professor Glen Murphy (Forest Engineering). Being able to track individual logs would increase efficiency and cut costs by helping ensure that the right wood goes to the right customer. It would also help prevent wood theft and illegal logging

Consumers worldwide are also increasingly interested in the origins of the wood used in the products they buy, such as furniture or paper. They may want to know whether the wood came from sustainably managed forests. Companies are interested in being able to market their products as having come from "certified" forests that have been managed in an environmentally friendly way.

To be able to provide this information for consumers and companies, foresters need to be able to tag, identify, and track individual logs from harvest through to the mill and beyond, even to finished wood products. "Ideally, we want to be able to track from standing tree to piece of wood on a desk," Murphy says.

But with billions of logs, how can anyone possibly keep track? "At the moment, we have ways of tracking logs that are only partially effective," Murphy says. "Bar coding is awkward and leaves plastic tags or metal staples that can cause problems in mills. Radio frequency identification tags are very expensive; with some pulp logs they might cost more than the product you are selling. So we need improved technologies."

Murphy came up with the idea of spraying logs with scent combinations, an identification system he calls aroma tagging. "A smell is like a fingerprint," he says. "We're trying to create a 'wood hound' or 'electronic nose' that can track a tree by its smell."

The aroma tagging system must be efficient, accurate, and inexpensive to use. It also must be able to withstand harsh environmental conditions as well as processing treatments such as sawing, drying, wood preservation, and finishing. Much more research still needs to be done. Murphy is now working with chemists to find waterproof scents. "I think the right chemicals could deal with the issues of time, weather, and other wood treatments," he says. "And with just 25 scents, we should eventually be able to uniquely tag 33 million logs!"