

# FOREST STEWARDSHIP BRIEFINGS

Timber ◇ Wildlife ◇ Water ◇ Soil ◇ Best Management Practices ◇ Forest Health ◇ Recreation ◇ Aesthetics

## DETECTING FOREST THREATS

by Stephanie Worley  
Firley, Communications  
Assistant, USDA Forest  
Service, Southern Re-  
search Station, Asheville,  
NC

For more information:

- <http://www.forestthreats.org/news-events/newsletter/newsletter-spring-summer-2008/forest-threatnet-1>

When forest health is threatened, early detection is key. Resource managers do not always know the full extent of the threat at hand, however, especially when affected areas are difficult to access on the ground. A remote sensing technique known as hyperspectral imaging is showing promise as a method to collect data used for mapping forest health decline.

Here's how it works—all plants reflect electromagnetic energy from the sun at multiple wavelengths, including visible and non-visible light. The characteristic reflectances of objects across a range of wavelengths are called spectra. Unique spectral signatures associated with different objects allow them to be identified from the air using sophisticated sensors. Researchers are finding that hyperspectral sensors, which create images based on multiple spectral measurements at specific wavelengths, may be able to differentiate forest species or track changes in forest cover over time.

The Eastern Forest Environmental Threat Assessment Center (EFETAC) and its sister center, the Western Wildland Environmental Threat Assessment Center (WWETAC), provided support for projects that tested use of hyperspectral imaging technology for detecting and mapping forest threats.

The Institute for Technology Development (ITD) collected data along roads in the Daniel Boone National Forest in eastern Kentucky, an area plagued by nonnative invasive plants like tree-of-heaven, autumn olive, Chinese silvergrass, bush honeysuckle, and multiflora rose. Re-

searchers found that the spectra of some invasive plants were sufficiently different from surrounding native plants or other invasives to allow them to be readily detected and mapped. Southern Research Station research ecologist James Miller points out seasonal changes and landscape components as factors that influenced the project's success. "Even in these complex forest ecosystems, hyperspectral imagery analysis was capable of identifying particularly troublesome invasive species with an accuracy of greater than 80 to 90 percent," says Miller.

In Humboldt County, CA, and Curry County, OR, data from ITD sensors were used to map the occurrence of sudden oak death (SOD), which has devastated populations of oak and tanoak trees in the region. Hyperspectral images were fairly accurate when locating SOD host species, but detecting diseased trees varied by season and canopy characteristics. "Given the right forest type and a narrowed-down forest area to scrutinize closely, hyperspectral imagery could be conceivably useful in detecting infested stands at a slightly earlier stage of disease progression than normal visual methods that only detect mortality," concludes Chris Lee, a project collaborator from Cooperative Extension at the University of California-Davis.

As the technology develops, hyperspectral imaging may become an important piece of a nationwide early warning system for detecting forest threats. Chris Lee says that, "Because quick response is essential for dealing with forest threats, any treatment program is only as strong as its early detection component."

### INSIDE THIS ISSUE:

*Valuing Timberland*

*The Baptist Oak*

*Exotic Ants Invading  
SE TX*

*Open Space  
Conservation*

*A Landmark in  
Conservation*

## VALUING TIMBERLAND

by Brian Fiacco, at the TimberBuySell.com website

For more information:

- <http://www.timberbuysell.com/Community/DisplayNews.asp?id=3650>
- <http://thetimberlandblog.blogspot.com/>

How much is that tract of timberland worth? Is it worth the asking price? Is fair market value for the tract a good investment?

People have gotten rich buying timberland, but rest assured that every purchase has not been a good investment! How the land is managed during ownership is important, but it pales in comparison to smart purchasing and smart selling.

Here is a list of the key elements that should be considered when valuing timberland.

Disaggregation: The old expression “The whole is worth more than the sum of the parts” does not appear to be true. Valuing timberland typically begins by identifying the non-timberland values.

Inherent productivity of the land: Foresters normally measure this by a quantitative metric referred to as site index.

Forest types and tree species: These are commonly confused but they are not the same thing.

Silviculture and productivity: Planted vs. natural. Fertilization, genetics, etc. What is impact on future yield (value)? Are records of past silvicultural practices available? Are they tied to a GIS?

Timber volumes: What does the cruise

say? What does the inventory say? What is the difference? Are they tied to a GIS?

Timber values: What are the drivers? What are the sources of information? Should current market conditions be used for valuation? Or historical, or future estimates? What roles do harvesting costs and trucking costs play in timber value?

Reproduction values: On well managed land, reproduction values may exceed timber values. How do you estimate these values?

Cash flows: Revenue from timber sales, leases; silvicultural expenses, taxes, management fees.

Location: Important? Can it be quantified?

Final sale price: When you sell the land, how much will you get?

Discount rate: Or how much of a return do I need to be competitive with investments with a similar risk?

You can follow the series that explains each of these elements by going to the websites shown in the sidebar.

Posts on blog so far:

- Valuing Timberland I - Oct. 18, 2008
- Valuing Timberland II - Oct. 29, 2008
- Valuing Timberland III - Jan. 20, 2009

## THE BAPTIST OAK

Under the spreading branches of this giant live oak, 12 early settlers of Goliad met on May 7, 1849, and organized the first Baptist church west of the Guadalupe River.

Two years before, the Reverend John Freeman Hillyer arrived from a pastorate in Galveston. In addition to being a preacher, he was also a physician and an educator. Hillyer's objective in coming to

Goliad was to establish a college for women.

Under this learned man's leadership and with the support of the Baptists in Goliad, the doors of Hillyer Female College opened February 1, 1849. Three months later, Reverend Hillyer met under this live oak with 11 of his followers and organized the first Baptist church.

from the Texas Forest Service website—Famous Trees of Texas

For more information:

- <http://famoustree-softexas.tamu.edu/TreeHistory.aspx?TreeName=Baptist%20Oak>

## EXOTIC ANTS INVADING SE TX

It may sound like science fiction, but it's true. A new exotic insect species, the Raspberry crazy ant, has invaded 11 counties in the Houston area since pest control operator Tom Raspberry discovered the ants in Pasadena in 2002. By 2008 they had spread to Brazoria, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, Walker, and Wharton counties, and they're being found in an ever-widening area.

At this time, the only way to slow the spread of these ants is through expensive professional pest control. Fire ant baits and other home pesticides are not effective.

As they continue to invade, Raspberry crazy ants decrease home and property values and could devastate the nursery industry and agriculture - both livestock and crops. Their activity could also damage critical electrical and computer systems in traffic signals, businesses, schools, airports, and hospitals.

Entomologists and researchers are seeking funding to develop better ways to control these ants, but in the meantime they need your help in identifying colonies and discouraging them from nesting in the landscape.

Raspberry crazy ants are related to the Caribbean crazy ant, a serious pest in parts of Florida. They are about 1/8 inch long, reddish brown, and nest throughout the landscape. Queens, eggs, larvae, and pupae can be found under, or in, almost any object. The entire colony will move to a new site when disturbed. Multiple queens lay hundreds of eggs, so each colony may contain millions of ants.

They spread mainly by ground migration, not by mating flights, and can be spread by almost any ant-infested container or vehicle.

These ants bite, but don't sting. They can displace other ant species and affect wildlife such as honeybees and songbirds.

*from a Texas AgriLife Extension Service public service announcement*

*For more information:*

- [http://urbanentomology.tamu.edu/ants/exotic\\_tx.cfm](http://urbanentomology.tamu.edu/ants/exotic_tx.cfm)

## OPEN SPACE CONSERVATION

Open space is vital to our health, economy and well-being. Public and private lands, including wilderness and working land, provide public benefits and ecosystem services we all need and enjoy, including:

- Clean water
- Natural flood control
- Wildlife habitat and biodiversity
- Recreation and relaxation
- Jobs
- Timber and other forest products.

An estimated 6,000 acres of open space are lost each day, a rate of 4 acres per minute. Looking ahead, the Forests on the Edge project estimates that 44 million acres of *private forest* lands could experience sizeable increases in housing density by 2030. Public forests are also affected -- the new "National Forests on the Edge" publication estimates that 21 million acres of private rural lands near national forests and grasslands will experience substantial

housing density increases by 2030.

The U.S. Forest Service has developed an Open Space Conservation Strategy to identify how the agency can best help conserve open space, with an emphasis on partnerships and collaborative approaches. The agency is interested in addressing the effects of the loss of open space on private forests; on National Forests and Grasslands and the surrounding landscape; and on forests in cities and suburbs.

The Forest Service recognizes that it is not the only contributor to open space conservation; it is only one among many. The Forest Service also acknowledges that the agency's role in open space conservation is not to regulate development or land use, but is to provide expertise, resources, information, and programs.

*from the USDA Forest Service website on Open Space Conservation*

*For more information:*

- <http://www.fs.fed.us/openspace/>
- <http://www.fs.fed.us/openspace/fote/index.html>
- [http://www.fs.fed.us/openspace/national\\_strategy.html](http://www.fs.fed.us/openspace/national_strategy.html)

Distribution of this newsletter is provided free of charge to professional foresters, state and federal agency professionals, county judges and commissioners, state senators and representatives, various forestry-related associations, and others. PLEASE ADVISE US IF YOU WISH YOUR NAME REMOVED FROM OUR MAILING LIST. This newsletter is also available on the web at <http://texasforests.tamu.edu/main/article.aspx?id=1183>. If you would rather receive this newsletter electronically (by e-mail) or if you would like e-mail notification when a new issue is available at our web site, contact us at the address, phone number or e-mail address above.

*The Texas Forest Service is an Affirmative Action/Equal Opportunity Employer committed to Excellence through Diversity.*

#### Editorial Board

- Rusty Wood, TPWD, Nacogdoches, Texas
- Joe Pase, TFS, Lufkin, Texas

## A LANDMARK IN CONSERVATION

In efforts to conserve open space, reduce fragmentation, and keep forests in forests, Texas Forest Service, U.S. Forest Service, and The Conservation Fund recently completed the first Forest Legacy Program project in Texas. The project is the first 2,880-acre phase of two phases that puts into practice a working forest conservation easement. The easements will ultimately protect 10,000 acres of private timberland in Tyler County from being converted to non-forest uses.

The land protected under this conservation easement shares a one-mile border with the Turkey Creek Unit of the Big Thicket National Preserve and sits within the watershed of Turkey Creek, a tributary of the Neches River and contributor to Beaumont's water supply.

"Through partnerships like this we can create buffers to Big Thicket that protect plants and wildlife, but also keep the land under private ownership as a working forest that contributes to the local economy," said Julie Shackelford, Texas programs director for The Conservation Fund.

For more information on this milestone, go to <http://texasforests.tamu.edu/main/popup.aspx?id=6410>.



P. O. Box 310  
Lufkin, TX 75902-0310

Phone: 936-639-8180

Email: [dwork@tfs.tamu.edu](mailto:dwork@tfs.tamu.edu)

TDD Line: 1-866-419-4872