

THE FOREST THREATNET



JUNE/JULY 2013



*PINEMAP research site diverts rainfall to simulate future precipitation changes (page 2).
Photo courtesy of Duncan Wilson.*



*Danny C. Lee, PhD
Eastern Threat Center Director*

CLIMATE CHANGE SCIENCE TOOLS SUPPORT FOREST PLANNING PROJECTS

The TACCIMO Effect

From pine forests of the southern United States to mountainous forests of western North Carolina and California's Sierra Nevada region, forest planning efforts rely on the best available climate change science to support decision making. Natural resource specialists and enthusiasts who must consider numerous forest values and threats are benefitting from the Eastern Threat Center's flexible [Template for Assessing Climate Change Impacts and Management Options \(TACCIMO\)](#) tool that streamlines forest sustainability planning projects. Visit the [TACCIMO news page](#) to learn more about exciting collaborations and

new publications as well as ongoing outreach efforts and training opportunities.

Tribal Users Explore TACCIMO

Tribal land managers often face unique challenges, including access to resources and information to support land management decisions. The [TACCIMO](#) development team recently introduced tribal managers to the tool's land management tailoring capabilities during a 3-hour virtual workshop for the United South and Eastern Tribes, Inc., Natural Resources Committee during their [semi-annual meeting](#). Eastern Threat Center researchers provided an overview of climate change issues with a

special focus on tribal connections as well as an interactive TACCIMO demonstration session.

Forest Influences on Climate and Water Resources

Eastern Threat Center research hydrologist **Ge Sun** co-authored a book chapter that describes a web of interactions among forests, climate, and water based on studies in the southeastern United States and northern China. The chapter also identifies research needed to support forest management in a changing climate. *Landscape Ecology for Sustainable Environment and Culture* includes the complete [book chapter](#).

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Eastern Threat Center co-hosts an [All Cultures Luncheon](#) featuring Minority Landowner publisher Victor Harris (left).

EASTERN THREAT CENTER HIGHLIGHTS

Water Management:

A Balancing Act

It may come as little surprise that human activities and climate influence the volume of water in rivers, but Forest Service research is now revealing just how much. Eastern Threat Center scientists are examining the individual and combined effects of changing land cover, human water use, and climate through time. Their efforts are providing a clearer picture of how these factors impact river flows needed to support healthy aquatic life and provide water for domestic use, agriculture, and energy. Read more in the Southern Research Station's online science magazine, [CompassLive](#).

Collaborative PINEMAP Keeps Southern Pines Standing Tall

Planted pine forests comprise 20 million acres of private lands in the southern United States, and their important ecological and economic benefits stretch far beyond the region. Eastern Threat Center scientists are contributing to the [PINEMAP project](#) to help landowners manage pine for resilience and sustainability in a changing environment. A recently published [report](#) summarizes PINEMAP efforts from the project's second year, including Eastern Threat Center water and carbon research as well as tools to support forest planning.

Disappearing Forests

Center research ecologist **Kurt Riitters** led a [study](#) analyzing forest loss and gain throughout the lower 48 United States between 2001 and 2006, and discovered net losses of interior forest land were higher than net losses of all forest land. *Northern Woodlands* spring 2013 issue highlights northeastern US forest landscape patterns revealed through this research and describes why interior forest loss threatens the sustainability of biological communities and ecosystem services. *More information - "[Interiors: Disappearing Fast in a Forest Near You.](#)"*

The Western Wildland Environmental Threat Assessment Center

is the Eastern Threat Center's sister center in Prineville, OR.

(Photo: 2002 Biscuit Fire in southwestern Oregon, courtesy of Tom Iraci (retired), USDA Forest Service)



Nancy E. Grulke, PhD
Western Threat Center Director

WESTERN THREAT CENTER BMW AMONG DECISION SUPPORT TOOLS

BMW Uses Google Maps

Dynamic, yet complex, global vegetation models show annual changes as vegetation responds to environmental change. The [Western Wildland Environmental Threat Assessment Center](#) developed a user-friendly interface to easily demonstrate vegetation models to collaborators and to calibrate and validate these models. Researchers developed BioMAP Web (BMW), a web-based user interface that uses Google Maps. BMW allows users to choose locations, select model parameters, run simulations, and view outputs as graphs, such as carbon production or water balance. BMW is undergoing in-house testing. For a required web account to access BMW, contact vegetation modeler **John Kim** at jbkim@fs.fed.us.

Wildfire Tool Sparks Interest

Increased interest surrounds the Western Threat Center's Landscape Treatment Designer to help with long-term forest restoration. The tool allows users to design and test fuels treatments across the landscape to maximize areas protected against wildfire. The designer can be applied to watersheds, districts,

forests, and regions to assist planning and land management efforts. The initial focus targets goals, constraints, and management thresholds within a given landscape. For additional information, contact developer **Alan Ager** at aager@fs.fed.us and review the [Overview and Example Application of the Landscape Treatment Designer](#).

Invasive Plants a Top Priority

Western Threat Center Director **Nancy Grulke** proposed creating a national Forest Service team to develop a decision support tool to prioritize treatment of invasive plants. The approach identifies goals or desired outcomes – for example, restoring populations of outcompeted native species; identifying forest threats' sources, timing, and impacts; and selecting effective treatment options. Advantages include clearly documented processes and considerations that are transparent and easily communicated. Researchers are collaborating to demonstrate treatment of invasive plants on national forests and grasslands.

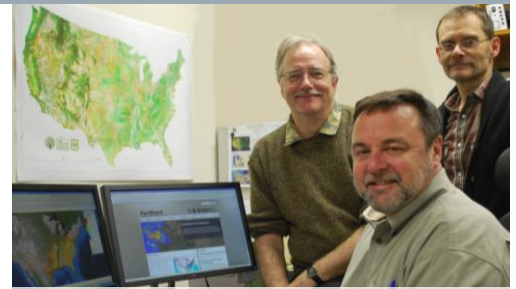
FORWARN OFFERS NEW INSIGHT INTO FOREST MONITORING

As spring leaves emerge and a wave of green moves up through the United States, the 2013 growing season begins—and Eastern and Western Threat Center researchers are watching. They are using the [ForWarn](#) forest monitoring tool to view weekly maps highlighting potential forest disturbances. Several new *ForWarn* features debuting in 2013 provide new ways for researchers and managers to monitor forests, including an updated and mobile device-friendly Forest Change

Assessment Viewer for more flexible map delivery. In addition, new supporting map products allow for more rapid disturbance detection than ever before and improved disturbance detection despite year-to-year variations in seasonal forest development and timing.

Right: ForWarn was featured during the US-IALE special landscape ecology event.

Below: ForWarn's updated Forest Change Assessment Viewer allows flexible map delivery to personal computers and mobile devices.



Eastern Threat Center *ForWarn* researchers (l to r) Bill Hargrove, Bill Christie, and Steve Norman.

EASTERN THREAT CENTER HIGHLIGHTS

Eastern Threat Center Co-Organizes Special Landscape Ecology Event

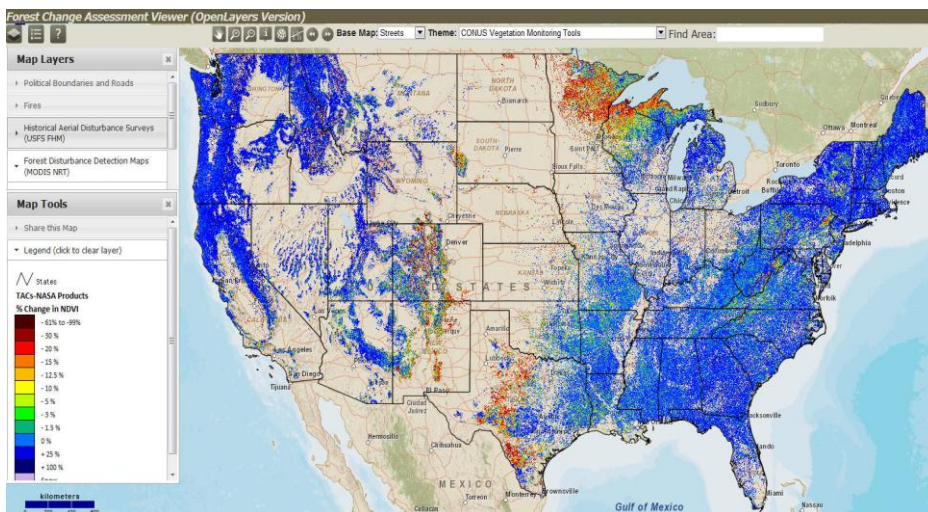
Several Eastern Threat Center scientists study land surface phenology – the status and timing of seasonal forest leaf development. When natural resource managers are in tune with phenological patterns, they can identify unusual conditions indicating potential ecosystem disturbance or recovery. Center scientists and partners organized a special [session](#) during the US International Association for Landscape Ecology (US-IALE) 2013 annual symposium to exchange information and ideas with other researchers, land managers and students.

Tribal Relations Enhanced

Eastern Threat Center biological scientist **Serra Hoagland** serves as a point of contact for the Southern Research Station's Tribal Relations initiatives. Hoagland, who is Laguna Pueblo, recently represented the Station at the United Southern and Eastern Tribes (USET) Impact Week and assisted with TACCIMO training at the annual USET conference in May. The Forest Service Office of Tribal Relations' [newsletter](#) highlights more of her work.

Museum Targets Invasive Species

Center research ecologist **Frank Koch** joined industry and scientific experts at the [NC Museum of Natural Sciences](#) inaugural conference, *Mobile Data Collaboration: Partnering in a Mobile World*. The conference highlighted mobile technologies to create broad awareness of invasive species issues.



Eastern Center Highlighted During Diversity Session

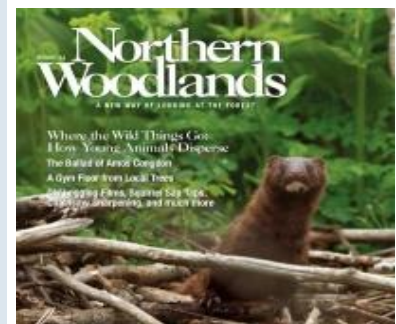
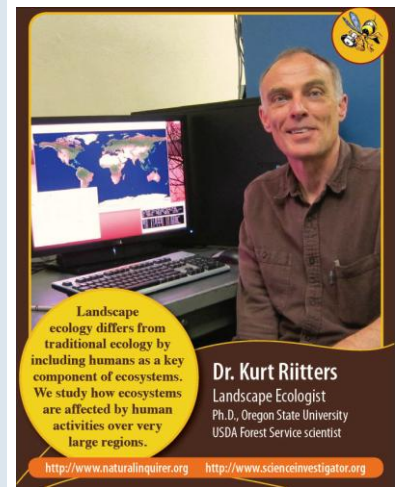
Communications Director **Perdita Spriggs** presented an overview of Center research, projects, and partnerships during the [Conservation Trust for North Carolina](#) (CTNC) 2013 diversity internship program orientation. CTNC works with statewide land trusts, helping communities conserve natural lands and open spaces.

Right: CTNC 2013 summer interns flank Melanie Allen, conservation and diversity coordinator (first row, second from left).



Center News, Publications/Products, and Events

- Eastern Threat Center research ecologist **Steve McNulty** joined the [Southeast Watershed Forum](#) Board of Directors for 2013.
- The Center's Parker Tract is among 11 long-term core sites in the Department of Energy's [AmeriFlux network](#) that monitors ecosystem health and function.
- The August [First Friday All Climate Change Talks](#) will feature Michigan Tech's Linda Nagel, PhD, presenting the *Adaptive Silviculture for Climate Change Project*.
- Center research ecologist **Bill Hargrove** will present a Landscape Science [webinar](#) on June 25 at 1:00 p.m. (ET), sponsored by the national USDA Forest Service Research and Development office.
- *New Publications and Products* (search [Treesearch](#) for all pubs and abstracts):
 - Yemshanov, D., **F.H. Koch**, M. Ducey, and K. Koehler. 2013. Mapping ecological risks with a portfolio-based technique: incorporating uncertainty and decision-making preferences. *Diversity and Distributions* 19:567-579.
 - Huang, L., H. Chen, H. Ren, J. Wang, and **Q. Guo**. 2013. Effect of urbanization on the structure and functional traits of remnant subtropical evergreen broad-leaved forests in South China. *Environmental Monitoring and Assessment* 185:5003-5018.
 - **Boggs, J.L., G. Sun**, D. Jones, and **S.G. McNulty**. 2013. Effect of soils on water quantity and quality in piedmont forested headwater watersheds of North Carolina. *Journal of American Water Resources Association* 49(1):132-150.
 - **Sun, G.** and Y. Liu. 2013. Chapter 15 Forest Influences on Climate and Water Resources at the Landscape to Regional scale. In: Fu, B. and Bruce, K. J. (Eds). *Landscape Ecology for Sustainable Environment and Culture*, Springer, 2013. Pp309-334.
 - The new [staff resource guide](#) is a great reference to connect with Center forest scientists, in-house collaborators, and research support staff.
 - New and updated [fact sheets](#) reflect current Center research and projects, including *ForWarn*, the Comparative Risk Assessment Framework and Tools, climate and severe weather, and invasive species.
 - Research ecologist **Kurt Riitters** is featured among the Forest Service [Natural Inquirer scientists' cards](#) – a great [resource](#) for schools!



CONTACT US

USDA Forest Service Research and Development • Eastern Forest Environmental Threat Assessment Center

The interdisciplinary Eastern Threat Center develops new technology and tools to anticipate and respond to emerging forest threats. The Eastern and Western Threat Centers are a joint effort of the USDA Forest Service Research and Development, National Forest System, and State and Private Forestry. The Eastern Threat Center is headquartered with the Southern Research Station in Asheville and has offices in Raleigh and Research Triangle Park, NC.

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