

Forest Health Monitoring Program Monthly Update March 2017

WHAT'S NEW

California's Ongoing Tree Mortality Event – Five consecutive years of drought have taken a toll on California's forests. Based on aerial detection surveys conducted throughout 2016, the USDA Forest Service (FS) estimates 102 million trees (cumulative total) have died over 7.7 million acres since 2010 (see the [Forest Health Protection map of the progression of tree mortality 2014-2015](#)). From 2010 to 2014, about eleven million dead trees were recorded. In calendar year 2015 an estimated 29 million more trees died, producing a cumulative total of 40 million dead trees since 2010. Then, in 2016 alone, more than double those amounts (62 million more dead trees) were recorded, with about half of them (26 million dead trees) recorded in the early season (May) on just a portion of the southern Sierra Nevada range. Although recent precipitation has relieved water shortages in many areas, more trees that were severely injured and died in 2016 may continue to dry out and be recorded by surveyors in 2017. Ongoing hazard tree and fuel loading mitigation work will continue at recreation and communication sites, along roads and energy corridors, and near communities in 2017. For more information, contact Kayanna Warren, Ecologist/Forest Health Protection Monitoring, klwarren@fs.fed.us.

UPCOMING EVENTS

(Items beginning with * indicate a new listing or new information)

June 5-9, 2017. Bangor, Maine. 18th International Boreal Forest Research Association Conference. The theme of the conference is "Our Boreal, Our Future: The Science, Policy and Practice of addressing change. The 18th international conference of the International Boreal Forest Research Association (IBFRA) is being hosted by the USDA Forest Service and the University of Maine in Bangor, Maine. Invited keynote speakers, scientific sessions (oral and poster) and panel discussions will explore new scientific findings and their linkages with policy relating to the addressing change in boreal forests. Designed to engage and inform scientists, resource managers and policy makers, the conference themes will address the current and emerging challenges for the boreal, the role of science in addressing those challenges and the links between science, policy and practice. The first call for abstracts has been issued; the deadline for submission is **January 22, 2017**. Registration will open in early January 2017. For more information about the conference and submitting an abstract, visit the [conference web site](#).

***June 19-22, 2017.** Edmonton, Alberta, Canada. The 11th North America Forest Ecology Workshop (NAFEW). Hosted by the University of Alberta, the theme will be: *Sustaining Forests from Restoration to Conservation*. There will be a special session on the great North American aspen transect, as well as sessions

on resilience, thresholds, forest understory, climate change/disturbance, and modeling complexity, and more! The conference will include one-day in-conference field trips to see both natural and industrial landscapes. Further details and regular updates can be found at the [conference web site](#)

November 15-19, 2017. Albuquerque, New Mexico. The 2017 Society of American Foresters National Convention. The call for presentations is now available. Submit your proposal **before March 31**. For complete information about the convention as it becomes available, visit the [convention web site](#).

UPCOMING WEBINARS

(Items beginning with * indicate a new listing or new information)

***Determining Seed Zones for the Southern Pines: Past and Future.**

(Introducing the Eastern Seed Zone Forum) Speaker: Dr. Ron Schmidting (USDA Forest Service, Scientist Emeritus). The first of the Eastern Seed Zone Forum's online lecture and discussion hours is aimed at providing both information about the creation of seed zones in general and a forum in which professionals, experts, and interested parties discuss the possibility of drafting seed zone guidelines for the eastern United States. No pre-registration is required! This webinar will be conducted at **11:00 p.m. (EST)** on **March 22, 2017**. To access this free webinar, visit [the webinar information site](#) for more details. Plan to join the webinar 15 minutes early

***Silvicultural Aspects of Longleaf Pine.** (Sponsored by the Department of Forestry and Environmental Resources, North Carolina State University) Speakers: Bill Pickens (Conifer Silviculture, North Carolina Forest Service); Colby Lambert (Area Specialized Agent Forestry, North Carolina State University Cooperative Extension); and Sarah Crate (Longleaf Program Coordinator, North Carolina Forest Service). This webinar will touch on the major aspects of longleaf silviculture framed within the southern pine goals of private landowners located in the ecological range of the species. No pre-registration is required! CEU are applied for as follows: Georgia Master Timber Harvester - 1 hour CLE – Continuing Logger Ed Credit; Society of American Foresters – 1 hour Category 1 Credit. This webinar will be conducted at **1:00 p.m. (EST)** on **March 22, 2017**. To access this free webinar, visit [the webinar information site](#) for more details. Plan to join the webinar 15 minutes early.

***Hemlock Woolly Adelgid Biology and Management in the Southeastern**

U.S. (Presented by USDA Natural Resources Conservation Service – Science and Technology, National Technology Support Centers) Speaker: Dr. Elizabeth Benton (University of Georgia, D.B. Warnell School of Forestry and Natural Resources). This webinar will review hemlock woolly adelgid biology and management options, with a focus on lands in the southeastern U.S. No pre-registration is required! CEU are available as follows: Georgia Master Timber Harvester - 1 hour CLE - Environment Credit; Society of American Foresters - 1 hour Category 1 Credit; Mississippi Professional Logging Manager - 1 hour Other Credit. This webinar will be conducted at **1:00 p.m.**

(EST) on **March 29, 2017**. To access this free webinar, visit [the webinar information site](#) for more details. Plan to join the webinar 15 minutes early.

***Drought and Forest Ecosystems** (Presented by USDA Forest Service, Office of Sustainability & Climate) Speakers: Dr. Cynthia West (Director, Office of Sustainability and Climate); Allen Rowley (Director of Forest and Rangeland Management, USDA Forest Service); Tim Martin (Professor, University of Florida); Steve Ostoja (Director, USDA California Climate Hub); Jeff Hicke (Associate Professor, University of Idaho); and Richy Harrod (Deputy Fire Management Officer for Fuels and Fire Ecology (retired) Okanogan-Wenatchee National Forest). Because the frequency and magnitude of droughts will increase in a warmer climate, scientific information on drought effects is needed to inform management and planning to ensure long-term sustainability of forest ecosystems. Please join the Office of Sustainability and Climate for a webinar that will explore current issues related to drought in forests, examples of drought and climate-related impacts, and management options for increasing resilience. No pre-registration is required! CEU applied for are: Georgia Master Timber Harvester – 1.5 hour CLE – Continuing Logger Ed Credit; Society of American Foresters – 1.5 hour Category 1 Credit. This webinar will be conducted at **2:00 p.m. (EST) on April 4, 2017**. To access this free webinar, visit [the webinar information site](#) for more details. Plan to join the webinar 15 minutes early.

The Sustainable Forest Roundtable offers periodic webinars. For information about accessing past and future webinars, please visit [the Webinar Portal for Sustainable Forests](#).

***Webinars offered by the U.S Forest Service Geospatial Technology and Applications Center (GTAC)** include three varieties. The lightning talks (**Lightning Talk**) are very short presentations that will last approximately 15-30 minutes; they will focus on specific geoprocessing tasks and are designed to provide concise and useful information in a very efficient manner. The Awareness Sessions (**Awareness**) are designed to build your knowledge base on the particular topic and enable you to further explore the technology with realistic expectations. The Technical Training Webcasts (**Technical**) are designed to provide you with the technical skills and tools to complete geospatial tasks. **GIS** listed after presentation type indicates GIS training. **RM** listed after the presentation type indicates remote sensing training. **Note: If you don't have access to the Forest Service Intranet, the registration links will not work. Please email Brenna Schwert (bmschwert@fs.fed.us) directly to make accommodations.**

- [Introduction to Geospatial Sample Design and Accuracy Assessment](#) (**Technical - RM**) In this one day technical webinar, you will learn the basics of constructing a geospatial sample design, including important points to consider in order to best customize the sample design to your work or project. You will also learn how to conduct a basic accuracy assessment on your categorical map products using error matrices. **10:00 am – 4:00 pm (Mountain Time) on March 15, 2017.**
- [ArcGIS 10.3 Editing in SDE](#) (**Technical - GIS**) In a multiuser editing environment, SDE is used to centrally store data and user edits without

duplicating data. Versioning allows you to avoid the creation of redundant data while maintaining data snapshots and alternate views. In this webinar, you learn basic concepts and Forest Service workflows of versioning and techniques used to maintain database performance. This course will provide an overview of ArcGIS SDE geodatabases and discuss different methods of editing in a multi-user / SDE environment. **10:00 am – 4:00 pm (Mountain Time) on March 16, 2017.**

- [**ArcGIS 10.3 – Spatial Statistics**](#) (**Technical - GIS**) Participants will learn the basics of Spatial Statistics and ways in which you can explore spatial data using the Spatial Statistics toolset. This course covers measuring the distribution and relationship of spatial features and any significant patterns that may exist. Participants will also learn how to analyze patterns in spatial data and identify locations of statistically significant spatial clusters and/or dispersion. **10:00 am – 4:00 pm (Mountain Time) on March 21, 2017.**
- [**ArcGIS 10.3 – Spatial Analyst**](#) (**Technical - GIS**) ArcGIS Spatial Analyst provides a broad range of powerful spatial modeling and analysis capabilities. You can create, query, map, and analyze cell-based raster data; perform integrated raster/vector analysis; derive new information from existing data; query information across multiple data layers; and fully integrate cell-based raster data with traditional vector data sources. **10:00 am – 4:00 pm (Mountain Time) on March 22, 2017.**
- [**Integrating Digital 3D Imagery into your Geospatial Workflows**](#) (**Technical - RM**) This course will introduce the basic characteristics of photos that allow for stereo viewing, and demonstrate how to use digital 3D imagery in USFS corporate software (Summit Evolution and ArcMap 10.2 or later) for estimating tree heights and digitizing features with elevation information. Note that no special equipment is required, as you will be able to view imagery in stereo on any computer monitor. **10:00 am – 4:00 pm (Mountain Time) on March 22, 2017.**
- [**ArcGIS 10.3 Working with Tables**](#) (**Technical - GIS**) Participants will learn how to work with tabular information in ArcGIS. The course covers how to use different commands and functions within tables, query attribute data, and join and relate tables. Suggested Background: The prerequisites for this class are the Quick Start course or basic GIS skills (Participants must be open projects, load data, understand Data Frame and Layer properties, and be able to manage GIS data in ArcCatalog). **10:00 am – 4:00 pm (Mountain Time) on March 23, 2017.**
- [**ArcGIS 10.3 Editing**](#) (**Technical - GIS**) This class demonstrates editing environment in ArcGIS Desktop 10.3. You will be exposed to the new editing environment. The course covers editing attribute data, performing spatial edits, and creating new data (digitizing). The hands on exercises teach basic editing functionality. **10:00 am – 4:00 pm (Mountain Time) on March 28, 2017.**
- [**Introduction to Forest Service Geospatial Resources**](#) (**Awareness - GIS**) **NEW!** This course is for people who are new to the Forest Service or new to GIS and need to learn about the geospatial data, protocols, and platforms available in the Forest Service. PLEASE NOTE: This course will not teach you how to use specific GIS software. If you are new to GIS, we recommend you take the GSTC ArcGIS 10.3 Quick Start class, or the Introduction to ArcGIS Online course. **10:00 am – 12:00 pm (Mountain Time) on March 29, 2017.**

- [Obtaining Remotely Sensed Imagery](#) (**Awareness - RM**) This half-day course will showcase useful websites for obtaining remotely sensed imagery and other data, and demonstrate efficient methods and useful tips for effectively downloading your desired datasets. **10:00 – 12:00 pm (Mountain Time) on March 30, 2017.**
- [ArcGIS 10.3 - Geoprocessing](#) (**Technical - GIS**) Do MORE with your data! The Analysis toolbox puts POWERFUL tools right at your fingertips. This course covers 19 of the 21 tools in the Analysis toolbox found right in ArcMap. Whenever you need to solve a spatial or statistical problem, look to the Analysis toolbox. Here are some of the topics that are covered. The Analysis toolbox has four toolsets. Extract. Overlay. Proximity. Statistics. Because GIS datasets often contain more data than you need, the Extract tools allow you to select features and attributes in a feature class or table based on a query to create new datasets. New information is discovered when overlaying one set of features with another, identifying spatial relationships between those features. With the Overlay toolset you can overlay multiple feature classes to combine, erase, modify, or update spatial features, resulting in a new feature class. The Proximity toolset contains tools that are used to determine the proximity of features within one or more feature classes or between two feature classes, identifying features that are closest to one another or calculating distances between or around them. And the Statistics toolset performs standard statistical analysis (such as mean, minimum, maximum, and standard deviation) on attribute data as well as tools that calculate area, length, and count statistics for overlapping and neighboring features. **10:00 am – 4:00 pm (Mountain Time) on March 30, 2017.**
- [Existing Vegetation Technical Guide Tutorial Highlights](#) (**Lightning Talk - RM**) This Lightning Talk will touch on the new “Existing Vegetation Classification, Mapping and Inventory Technical Guide (EVTG)” Training Modules for Sections 3.1 and 3.2 (Chapter 3 is the Mapping portion of the EVTG). Mapping activities are key to helping to fulfill the Forest Service’s Mission. To provide national standards and guidelines to the agency for conducting such activities, Ecosystem Management Coordination managed the development of a new version of the Existing Vegetation Classification, Mapping and Inventory Technical Guide (EVTG) and requested and funded the development of the supporting tutorials that will be highlighted in this Lightning Talk. **10:00 am – 10:30 am (Mountain Time) on April 4, 2017.**
- [ArcGIS 10.3 Quick Start](#) (**Technical - GIS**) Participants will learn how to get started using ArcGIS Desktop’s primary applications, ArcMap and ArcCatalog. The course covers fundamental GIS concepts and basic functionality to view and manipulate display properties. The hands on exercises teach basic viewing functionality and GIS data types and their properties. **10:00 am – 4:00 pm (Mountain Time) on April 4-5, 2017.**
- [ArcGIS 10.3 – Data Assessment, Analysis, and Suitability](#) (**Technical - GIS**) This collection of exercises and instruction will take the student through a mock situation, where a forest recreational supervisor has asked them, a GIS Analyst, to help locate and find area/s suitable for construction of a yurt for XC skiing enthusiasts. The instruction focuses attention to finding appropriate data, assessing its suitability, running an analysis and then incorporating into a final product. The goal of the course is to help gis users to better understand and practice concepts of properly gathering and

assessing data, as well as integrating the data created from an analysis into proper data stores. **10:00 am – 4:00 pm (Mountain Time) on April 6, 2017.**

- [ArcGIS 10.3 Geodatabases](#) (**Technical - GIS**) Participants will learn how to create a File Geodatabase, and import existing data, how to create attribute domains, and edit table-attribute values that are linked to those domains; and how to create Topologies. These topologies will be used to verify the vertical integration of spatially coincident feature classes. **10:00 am – 4:00 pm (Mountain Time) on April 11, 2017.**
- [The Terrestrial Ecological Unit Inventory \(TEUI\)](#) (**Technical - RM**) The Geospatial Toolkit v5.3 is an ArcGIS 10.0 and above extension used to stratify landscapes and analyze environmental characteristics with geospatial data. In this course you will learn the basics of using TEUI to access geospatial data, generate statistics and visualize them with graphs and tables, design a sampling scheme, and characterize map units. **10:00 am – 4:00 pm (Mountain Time) on April 12, 2017.**
- [ArcGIS 10.3 Editing in SDE](#) (**Technical - GIS**) In a multiuser editing environment, SDE is used to centrally store data and user edits without duplicating data. Versioning allows you to avoid the creation of redundant data while maintaining data snapshots and alternate views. In this webinar, you learn basic concepts and Forest Service workflows of versioning and techniques used to maintain database performance. This course will provide an overview of ArcGIS SDE geodatabases and discuss different methods of editing in a multi-user / SDE environment. **10:00 am – 4:00 pm (Mountain Time) on April 13, 2017.**
- [ArcGIS 10.3 Cartographic Tools](#) (**Technical - GIS**) Participants will learn how to work with various cartographic related properties in ArcGIS. The course covers how to set Layer and Data Frame properties, work with Layer files, assign classification symbology, work with labeling and annotation, and create a final map product. **10:00 am – 4:00 pm (Mountain Time) on April 18, 2017.**
- [Google Earth Engine Awareness](#) (**Awareness - RM**) Google Earth Engine is a cloud-based geospatial processing platform for executing large-scale environmental data analysis, including detecting deforestation, classifying land cover, viewing elevation data, or downloading imagery. This session includes a brief presentation on Google Earth Engine's structure (the public data catalog, cloud-based computation engine, and two interactive development platforms) and examples of USFS applications of the software. This will be followed by a demonstration in each of the available platforms to access Earth Engine – Explorer and Code Editor. You'll get a brief introduction on how to access data, the kinds of spatial analyses you can execute, and how to export results. **10:00 am – 11:00 am (Mountain Time) on April 19, 2017.**
- [Introduction to ArcGIS Online](#) (**Technical - GIS**) **Note: This is not an introductory course for ArcGIS Desktop. If you are interested in an introductory training in ArcGIS, please see our ArcGIS 10.3 Quick Start course. Participants will learn how to create simple web maps, create and manage groups, create a Story Map Journal web app, and learn how to work with ArcGIS Collector. This course also covers how to administer ArcGIS Online and how roles and privileges relate. Included in the course is an optional lesson on further exploring Story Maps by creating a Tour App. **10:00 am – 4:00 pm (Mountain Time) on April 19, 2017.**

- [ArcGIS 10.3 Editing](#) (**Technical - GIS**) This class demonstrates editing environment in ArcGIS Desktop 10.3. You will be exposed to the new editing environment. The course covers editing attribute data, performing spatial edits, and creating new data (digitizing). The hands on exercises teach basic editing functionality. **10:00 am – 4:00 pm (Mountain Time) on April 20, 2017.**
- [ArcGIS 10.3 - Geoprocessing](#) (**Technical - GIS**) Do MORE with your data! The Analysis toolbox puts POWERFUL tools right at your fingertips. This course covers 19 of the 21 tools in the Analysis toolbox found right in ArcMap. Whenever you need to solve a spatial or statistical problem, look to the Analysis toolbox. Here are some of the topics that are covered. The Analysis toolbox has four toolsets. Extract. Overlay. Proximity. Statistics. Because GIS datasets often contain more data than you need, the Extract tools allow you to select features and attributes in a feature class or table based on a query to create new datasets. New information is discovered when overlaying one set of features with another, identifying spatial relationships between those features. With the Overlay toolset you can overlay multiple feature classes to combine, erase, modify, or update spatial features, resulting in a new feature class. The Proximity toolset contains tools that are used to determine the proximity of features within one or more feature classes or between two feature classes, identifying features that are closest to one another or calculating distances between or around them. And the Statistics toolset performs standard statistical analysis (such as mean, minimum, maximum, and standard deviation) on attribute data as well as tools that calculate area, length, and count statistics for overlapping and neighboring features. **10:00 am – 4:00 pm (Mountain Time) on April 26, 2017.**
- [Compressing Raw Lidar Files Using LASZip](#) (**Lightning Talk - RM**) This 15 minute “Lightning Talk” will walk participants through the process of installing LAStools and using the LASzip tool to perform lossless compression of raw lidar data files (las), which will reduce their size by approximately 75%. This lightning talk assumes that participants have a basic understanding of lidar data. There will be an optional question and answer session immediately after the presentation. Lightning Talks are short demonstration webinars, meant to last 15 minutes. It will begin exactly on top of the hour, so please make sure you have joined the webinar and teleconference a few minutes early to ensure complete participation. **10:00 – 10:30 (Mountain Time) on April 26, 2017.**
- [ArcGIS 10.3 – Data Driven Pages](#) (**Technical - GIS**) Participants will learn how to create and manage multiple map pages using Data Driven Pages within ArcMap. This course covers how to arrange the base map layout needed for Data Driven Pages, how to setup and manage Data Driven Pages, how to use tools within the Data Driven Pages Toolset within ArcToolbox, and how to export map pages in various formats. Included in the course is an optional lesson on how to create a map book product using a Python script. **10:00 am – 4:00 pm (Mountain Time) on April 27, 2017.**
- [Overview of Lidar Technology and FUSION Software](#) (**Awareness - RM**) The objective of this introductory workshop is to provide participants with an overview of lidar technology and FUSION software. **10:00 am – 12:00 pm (Mountain Time) on May 3, 2017.**

Job Opportunities

The California Department of Forestry and Fire Protection (CAL FIRE) is currently advertising for a Senior Environmental Scientist (Specialist) position to be located in Redding, CA. This is a permanent, full-time position. The Forest Pest Management Specialist plans, organizes, and provides functional and technical supervision to activities in forest entomology and general forest pest management for northern California. A full list of the job duties can be found in the duty statement linked to the [vacancy announcement](#). Applications must be received by **4/12/17**. Interested applicants are encouraged to contact Tom Smith with Cal Fire at 916-599-6882 or at tom.smith@fire.ca.gov for more information. *The State of California is an equal opportunity employer.*

PUBLICATIONS OF INTEREST

1. Costanza, K.L.; Livingston, W.H.; Kashian, D.M.; Slesak, R.A.; Tardif, J.C.; Dech, J.P.; Diamond, A.K.; Daigle, J.J.; Ranco, D.J.; Neptune, J.S.; Benedict, L.; Fraver, S.R.; Reinikainen, M.; Siegert., N.W. 2017. [The precarious state of a cultural keystone species: tribal and biological assessments of the role and future of black ash](#). Journal of Forestry. February 2017.
2. **Eastern Forest Environmental Threat Assessment Center**. 2017. Forest ThreatNet, the January/February 2017 edition of the Eastern Forest Environmental Threat Assessment Center's newsletter. Available online at [The Forest ThreatNet](#).

FOR MORE FHM INFORMATION

Visit the [FHM homepage](#) and the [Forest Health Portal](#) or access both via the [USDA Forest Service homepage](#)