



# FOREST HEALTH TECHNOLOGY ENTERPRISE TEAM UPDATE

USDA FOREST SERVICE, STATE AND PRIVATE FORESTRY, FOREST HEALTH PROTECTION, FOREST HEALTH TECHNOLOGY ENTERPRISE TEAM

SPRING/SUMMER 2000

## Aerial Photography Archives Become More Accessible

The Forest Service has flown aerial photography in support of special projects for more than fifty years, and has been a major innovator and user of remote sensing technology since the 1920s. Some excess historical film dating back to the 1950s is currently being made available to Forest Service units. Other rolls are being moved and will be available by request at the Aerial Photography Field Office (APFO) in Salt Lake City.

### USFS Aerial Photography

Remote sensing and aerial photography serve as basic building blocks upon which resource information is collected, analyzed, and mapped. To help meet stated management directives, the Forest Service uses remote sensing and related technologies, including aerial photography, aerial videography, digital image processing, global positioning systems, and geographic information systems for projects ranging from very broad—national resource inventories—to very specific—observing individual stand/tree conditions.

### FHTET's Current Involvement

FHTET and its predecessor, the Methods Application Group (MAG), has been involved in USFS aerial photography since the 1970s, and much of the resulting film has been stored in the Fort Collins-FHTET office. Due to the January 2000 move of the Fort Collins office, it was necessary to organize and evaluate the film.



BARRY RUSSELL

*This infrared photo of Mount Shasta is an example of the historic photos available from FHTET and the Aerial Photography Field Office.*

Last December, **Jule Caylor** (Remote Sensing Training Program Leader, Remote Sensing Applications Center), **Richard Myhre** (Forest Service, retired: former Remote Sensing Program Manager, FHTET), and **Bill Ciesla** (Forest Service, retired: former Director, MAG) converged in the FHTET-Fort Collins remote sensing laboratory to sort through and archive all the aerial photography/remote sensing film stored there.

They viewed over 200 rolls of film, and saved all film of good quality or with historic value (i.e., flood, fire, disease imagery). Most of this film contains pest management imagery from MAG and FHTET projects, and has been given to the units that had originally requested it. **Jule Caylor** will use some of the cut images for RSAC photo interpretation and aerial photography training purposes. The remaining viewed rolls are being sent

to APFO to be incorporated with the inventory there. **Barry Russell**, INTECS International, continues to review film in Fort Collins.

### Free to Good Home!

Included in this issue is a spreadsheet (page 11) of cut photos and rolled film still being stored at the Fort Collins office. Storage space limitations at FHTET require that this cut film be relocated, hopefully to units that have more immediate interest in it. The film is natural color and color infrared at a variety of

scales, is high-quality photography, and is an important high-resolution historical data record of the imaged sites. The imagery will be increasingly valuable for change detection, resource evaluation, and historical

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**Archives, from page 1**



*Jule Caylor labels boxes full of reviewed film, on their way to APFO in Salt Lake City.*

record. If you would like any of these images, contact **Jim Ellenwood**, Program Manager, Remote Sensing and Image Analysis. Telephone: 970/295-5842, or <mailto:jellenwood@fs.fed.us>

**Aerial Photography Field Office**

The Aerial Photography Field Office houses a library of over 10 million film-based negatives (or film positives) covering the conterminous United States, dating from 1955 to the present, for the Forest Service, Farm Service Agency, National Resource and Conservation Service, and other federal agencies. Efforts are currently

underway to provide a publicly accessible catalog of aerial photography held at the APFO.

**Imagery Options**

Prints are made as requested, as APFO does not keep a stock of finished products on hand. Digital imagery of historical photography is also available as requested. Imagery can be scanned by APFO to provide a digital product on CD. Since a digital format of just one image is, on average, 10Mb scanned at low resolution, and a digital image of sufficient quality for use in Geographical Information Systems (GIS) can exceed 1Gb, the resources needed to provide complete digital imagery of the entire library online is currently prohibitive. (For further information on this process, please contact **Bob Lear**, Photography Services. Telephone : 801/975-3500x223, or <mailto:rlear@apfo.usda.gov>)

**New APFO Projects**

In addition to online research capabilities, other enhanced services being pursued by APFO include online ordering of APFO products and services, and network access to digital imagery. The APFO is also currently



*Richard Myhre and Bill Ciesla view historic FHTET aerial photography.*

building a seamless mosaic called an MDOQ (Mosaic Digital Ortho-photography Quad) on a county-by-county basis for use by USDA Service Centers. This resource is now available in some of the Farm Service Administration (FSA) offices.

The catalog of film holdings will be available by summer 2000, and the address for accessing aerial photography images will be <http://www.apfo.usda.gov>. In the meantime, if you have internal access to the USDA intranet, you can find information about APFO imagery from <http://intranet.fsa.usda.gov/dam/apfo/default.htm>. If you do not have access to the USDA network, you can reach APFO directly at <http://162.79.160.2>. Telephone: 801 / 975 - 3503, or <mailto:sales@apfo.usda.gov>

Information for this article was provided by: **Catherine Morris**, Supervisor of Information Technology Services at APFO. Telephone: 801/975-3500x214, or <mailto:cmorris@apfo.usda.gov> and **Jule Caylor** at RSAC. Telephone: 801/975-3754, or <mailto:jcaylor@fs.fed.us>.



**Who's Who...**

**Jule Caylor** graduated from UC-Berkeley, with a degree in entomology. He became interested in the significance of Sputnik in 1957, which spurred his career in aerial photography. Jule joined the Forest Service, Forest Pest Management Group, in San Francisco as an entomologist, and transferred to the WO Engineering Group in 1985. He has worked for the Forest Service, Remote Sensing Applications Center as the Remote Sensing Training Program Leader since that time.

**Bill Ciesla** is a former director of the Methods Application Group (MAG). After earning his degree in environmental sciences and forestry at Syracuse University, he worked as an entomologist in Region 8 and Region 1; with MAG in Davis, California, and Fort Collins, Colorado; as director of Forest Pest Management in Region 6, and with Foreign Affairs Office in Rome. Bill continues to contract with the USFS and other clients with his current company, Forest Health Management International.

**Richard Myhre** is a former Remote Sensing program manager for FHTET. A graduate in Forestry from Washington State University, he learned aerial photography while working in Beltsville, Maryland at the Forest Insect Lab. Dick worked for the USFS for 36 years in Washington state; Davis, California, and Fort Collins, Colorado, and is now enjoying a career as a photographic artist.



## USFS/Chinese Forestry Cooperation Continues

The USFS and China have had scientific exchanges and have conducted cooperative work on various forest pests and forestry-related technologies since 1991. Areas of past FHTET cooperation include: remote sensing and Airborne Video Toolkit training (see Summer 1999 Update), quarantine training, aerial spray equipment training, and important pest information exchanges including work in China on hemlock woolly adelgid, mile-a-minute weed, Asian longhorn beetle and kudzu, and work in the U.S. on pine mealybug.

### USFS Team Visits China

Continuing to promote cooperative forestry efforts, a U.S. Forest Service (USFS) team made up of **Gary Man** (Forest Service International Programs), **Allan Bullard** (FHTET Director in Morgantown), and **Sheila Andrus** (Forest Service Research and Development, Vegetation Management and Protection Research) recently traveled to Beijing in the People's Republic of China to visit the State Forestry Administration (SFA), Beijing University, Beijing Forestry University, the Chinese Academy of Forestry, and the Sino-American Biological Control Laboratory.

### Purpose of Visit

There were four purposes for the visit: 1) to discuss the new organization and structure of the Chinese State Forestry Administration, 2) to meet the SFA staff that coordinates forest pest detection and control activities in China, 3) to discuss on-going U.S.-China cooperative projects, and 4) to explore opportunities for future cooperation.

### SFA Reorganization

The State Forestry Administration has essentially the same national responsibilities that the USDA Forest Service has in the United States. As a result of recent governmental restructuring and reorganization in China, there are now 10 departments within SFA, including the Department of Afforestation,

est Service team was told that, in general, all letters of invitation to foreign scientists for work on forest pests would now be issued through the SFA. Although the Forest Service has coordinated with SFA in this regard in the past, the restructuring may affect the way USFS sister agencies (such as the Agricultural Research Service and the Animal and Plant Health Inspection Service) coordinate their work on forest pests.

### Ongoing and Potential Work

During the meetings, areas of current USFS interest were discussed, including continued cooperation on identifying potential biological control agents of the hemlock woolly adelgid, mile-a-minute weed, kudzu, and fieldwork in China on all aspects of the biology, detection, and control of the Asian longhorn beetle.



*The Asian Longhorned beetle (*Anaplophera glabripennis*), a serious pest in China and a pest of concern in the United States, is the subject of one cooperative study between the USFS and China.*

tion, within which is the Division of Pest Control. Each Chinese province has a forestry bureau, with forest departments at the county level and forest stations at the township level. While these provincial and local entities have latitude to work on forest pests of local concern, all forest pest work in China is coordinated through the SFA, and emphasis is placed on the priorities established by the current national 5-year plan.

At the SFA, the USFS team met with **Mr. Lu De**, Deputy Director of the Department of International Cooperation, and with **Mr. Wu Jian**, Deputy Director of the Department of Afforestation. During discussions, the For-

The SFA has expressed similar interests in continuing to work with the U.S. on airborne videography and the pine mealybug, as well as in working on the Asian longhorn beetle, which is an inter-provincial quarantine pest in China. The SFA also is interested in working on pine wood nematode, red turpentine beetle, and fall webworm (all significant pests that have been introduced into China), as well as on the gypsy moth fungus *Entomophaga maimaiga* and gypsy moth viral insecticide Gypchek.

Contributed by **Allan Bullard**.  
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## Technology Transfer: Integration of Forest Health Data/Tools

Forest Health Protection (FHP) continues to play a key role in making forest health data easier for resource management professionals to use by promoting the integration of national databases, modeling, and visual simulation tools.

Advancing FHP's role in forest health leadership, **Judy Adams**, FHTET Program Manager for Insect and Pathogen Modeling, **Susan Frankel**, Pathologist with the Pacific Southwest Regional Office (Region 5), and **Ellen Goheen**, Pathologist with the Southwest Oregon Service Center (Region 6), have proposed a new 'vision' for FHP regarding forest health data and analysis tools. Components of this vision for the future include:

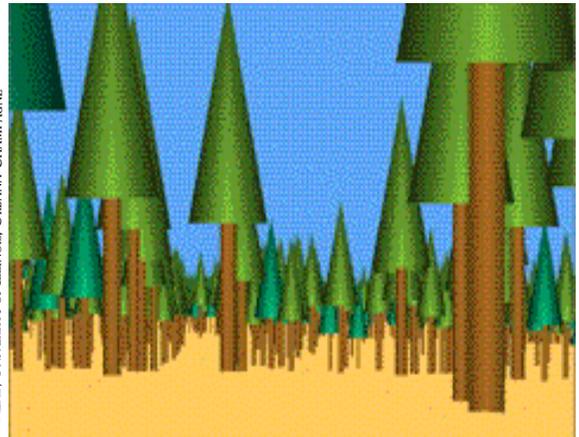
- Insect and disease damage and severity data will be included in all major forest vegetation inventories (e.g., Forest Inventory and Analysis and Common Stand Exam).
- Each FHP unit will collect forest health data utilizing the accepted code, definitions, and format according to national standards, and the local entomologists and pathologists will be actively involved in training field crews in the identification and re-measurement practices for pest impacts within their area to continually improve data quality.
- FHP professionals will understand the available technology (e.g., modeling, decision support).
- Insect and pathogen impacts will be integrated into local, regional, and national decision-making.

With insect and disease data readily available and in the proper format, and FHP field personnel using the latest technology, insect and disease impacts will soon be considered at all levels of decision-making.

### Applied Technology Examples - New Vision in Action

At the March 2000 FHP Directors meeting in Tucson, Arizona, **Susan Frankel** and **Ellen Goheen** presented examples of this data-integration concept and described its application in the field. Susan and Ellen demonstrated how a Field Sampled Vegetation (FSVeg) dataset could be easily brought into the INtegrated Forest Resource Management System (INFORMS) decision-support environment, supporting a variety of analysis tools.

**Susan Frankel** projected the impacts of dwarf mistletoe with a dataset from the Klamath National Forest using the Forest Vegetation Simula-



IM LAB, UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGNE

*In SmartForest, each tree symbol represents biological data about tree type, size, and vigor. The user can interactively experiment by harvesting trees, growing them, and watching the progress of insect outbreaks.*

tor (FVS) and the Dwarf Mistletoe Model. She further illustrated the possible effects of the pathogen on the forest through simulation images provided by SmartForest.

**Ellen Goheen** displayed root disease impact results using an FSVeg dataset that included root disease data for a watershed in the Rogue River National Forest. She then displayed the results using the SmartForest landscape visualization tool and produced a video clip with the Stand Visualization System (SVS) tool. Ellen indicated the vast improvement in ease-of-use brought about by the Sup-pose interface to the FVS and Western Root Disease Impact Model.

See **Technology**, page 5

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Technology, from page 4

These are just two examples of forest health modeling programs that provide decision support for resource managers.

### Technology Transfer

**Eric Twombly**, Washington Office-Natural Resource Information Systems Staff (NRIS), noted the importance of the recent developments with INFORMS: it is now much easier for non-FHP professionals to use the insect and disease models because of the new developments. Silviculturists, for example, are now able to run the models using site-specific datasets, and then include the resulting insect and disease impact information in prescriptions and recommendations to decision-makers. **Eric** also noted the key role that FHP played in the development of the standardized FHP Pest Trend Impact Plot System database, and how this has led to the current FSveg module. **Jonathan Marston**, an FHTET-Fort Collins contract employee with INTECS International, has been instrumental in the technology transfer aspect of the INFORMS development process, providing task support for further software development, installation to field sites, and ongoing technical support.

Contributed by **Andy Mason** and **Judy Adams**.

For more information contact **Judy Adams**.  
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## MAKING SENSE OF ACRONYMS

**NRIS** (Natural Resource Information System) is a corporate resource information system: a set of standards applied to various types of resource databases. The system makes it possible to store and retrieve information needed frequently by a wide range of Forest Service users. The actual data system is made up of various databases, one of which is FSveg. An NRIS website is available internally at: <http://fswb.wo.fs.fed.us/em/>

**FSVEG** (Field Sampled Vegetation) is the module within NRIS that serves as a database, data collection system, and set of reporting tools for information on cover, fuels, trees, and understory layers. For more information through the Forest Service web, go to the FS web at: <http://fswb.ftcol.wo.fs.fed.us/fsveg/>

**FVS** (Forest Vegetation Simulator) is the Forest Service's nationwide model for estimating forest growth and yield. Forest management planning often requires an estimate of how vegetation will change through time; FVS simulates changes in forest vegetation in user-defined increments with or without the effects of management actions (such as harvesting, thinning, and planting) and the effects of natural processes (such as insect outbreaks and pathogen-initiated diseases). For more information through the web, go to: <http://www.fs.fed.us/foresthealth/technology> and click on **Products**.

**INFORMS** (INtegrated FOrest Resource Management System) is a decision-support framework designed to assist District-level Forest Service project management personnel in making resource management decisions. INFORMS integrates the FSveg Forest Service database, data-driven analysis tools, and data display capabilities under one easy-to-use graphical user interface. For example, INFORMS can be used to access and run FVS, and display the resulting conditions through a data visualization tool, such as SmartForest. For more information through the web, go to: <http://www.fs.fed.us/foresthealth/technology/> and click on **Products**.

**SMARTFOREST** is an object-oriented forest visualization tool used to display simulated landscape changes. The three-dimensional forest visualization interface combines three inputs—an elevation data file, a digital stand map, and a tree list file—to draw simulations that allow the user to 'walk' through a forest among three-dimensional tree icons in which each tree reflects biological data about tree type, size, and vigor. SmartForest can be used to view FVS outputs. For more information through the web, go to: <http://imlab9.landarch.uiuc.edu/> and click on **SmartForest**.

**SUPPOSE** is a graphical user interface that helps a user build FVS keyword files to run growth simulations.

**SVS** (Stand Visualization System) is a stand-based graphical interface to FVS. Simulations presented through SVS depict the growth, death, and fall of individual trees in a stand according to parameters in the simulation. For more information through the web, go to: <http://faculty.washington.edu/mcgoy/>



# New England Storm Damage Assessment

The Northeastern Area's Durham, New Hampshire, Forest Health Protection Field Office (<http://www.fs.fed.us/na/durham/>) has been a leader in conducting forest health inventories and in the application of remote sensing technologies. The Northeastern Area was the first to install Forest Health Monitoring (FHM) plots; they have been key participants in the international North American Maple Project (NAMP); and, in conjunction with FHTET and the State of Vermont, they have cooperated in the Vermont Hardwood Health permanent plot surveys since 1986.

## 1998 Ice Storm Assessment

Thanks to this continued leadership in forest health technology, when the January 1998 ice storm damaged 17 million acres of New York and New England forestlands, the Durham FHP group was able to quickly and effectively respond to the situation. The Northeastern Area Director (then **Gerry Hertel**) established a full time Ice Storm Recovery Team in Durham, led by FHP-Field Representative **Jim Linnane**. Working with state agencies and other Forest Service groups, the team was not only able to coordinate and conduct damage assessments and administer federally appropriated grants, but took this opportunity to study and measure the impacts of the storm.

The first task following the ice storm was to assess the damage: where, how much, to what kinds of trees? Led by Ice Storm Damage Assessment Coordinator **Margaret Miller-Weeks**, a program was established that included aerial surveys, temporary inventories, and permanent plot re-measurements. The permanent plot systems of the Forest Service's

Forest Inventory and Analysis (FIA) and FHM programs, and the NAMP and Vermont Hardwood Health plots provided extensive opportunities for "before and after" analyses. Through integrated efforts between the Northeastern Research Station (NERS)/



*Thick ice on birch buds.*

FIA staff and state cooperators, additional temporary ground plots were established and extensive aerial sketch mapping and photography were performed. Satellite imagery was evaluated for its accuracy in mapping ice storm damage using change-detection techniques.

## On-going Studies

Forest Service FHP and Research and Development staffs, several state forest agency staffs, and university researchers are continuing to perform follow-up studies on the ice storm damage. The extensive use of aerial photography, satellite imagery, and digital infrared camera following the ice storm has provided the opportunity to compare these technologies with ground-plot and sketch-mapped information for this type of weather-caused event.

Additional studies to determine the longer-term impacts of tree damage on overall forest health are also in

progress. Some of these studies include: the physiological response of damaged trees; the impacts of insects and diseases on damaged trees; and the ecological impacts to wildlife, aquatic habitats, and other vegetation.

For more information about the 1998 Northeast Ice Storm, visit the Northeastern Area's Ice Storm web site at: <http://www.fs.fed.us/na/durham/ice/index.htm>

Contributed by **Eric Smith** 

## Related Storm Study Results To Be Published

**Bill Frament** (FHP-Durham) and **Bill Ciesla** (Forest Health Management International) conducted a study to assess the accuracy of the ice storm sketch-map data by comparing aerial sketch maps to color infrared aerial photographs over selected 8,000-acre blocks. Results from this New England study, along with results from studies conducted last year following the 1999 blowdown in Minnesota, will be incorporated into a manual titled: *"Remote Sensing Techniques For Rapid Assessment Of Forest Damage Caused By Catastrophic Climatic Events."*

The Minnesota project, which used airborne video to sample and map the blowdown damage following the 1999 storm, has been published as a Northeastern Area Technical Report titled: *"Strip Sampling with Airborne Video for Assessment of Blowdown Caused by Straight Line Winds."* Report Number: NA-TP-01-00. **Barry Russell**, FHTET-FC, INTECS International, acquired the imagery during this mission, and co-authored this report with **Bill Ciesla**, **Bill Frament**, and **Marc Roberts** (FHP- St. Paul).

## Sharing Information...

### Northeast Forest Pest Council Meeting

**Andy Mason** (FHTET Director), **Eric Smith** (FHTET-Fort Collins), and **Dick Reardon** (FHTET-Morgantown) visited the Durham office and attended the Northeast Forest Pest Council meeting in nearby Portsmouth, New Hampshire, where they were informed about the results of recent ice storm-related studies (See New England Storm Damage Assessment, page 6) and other technology development projects.

Also addressed at the Northeast Forest Pest Council meeting: non-native invasive species, including presentations on the Asian longhorned beetle, hemlock woolly adelgid, pine false webworm, European larch canker, and the pine shoot beetle.

Contributed by **Eric Smith**

### St. Paul Forest Health Protection State Cooperators Meeting

FHTET Directors **Andy Mason** and **Allan Bullard**, and **Marla Downing** (FHTET-Fort Collins) attended the St. Paul Field Office State Cooperators meeting and visited the St. Paul field office and the North Central Research Station.

Primary topics discussed during the visit included: potential threats for pest outbreak and fire in the Superior National Forest and Boundary Waters Canoe Area Wilderness (See Fall/Winter 2000 Update), exotic invasive species control and public education, and national risk-mapping efforts. Interest was shown in both the digital sketchmapping and data visualization techniques.

Contributed by **Marla Downing**

### Oak Tatters—New Pest Alert

During the FHP State Cooperators Meeting in St. Paul, **Phil Marshall** (Indiana Department of Natural Resources), **Dave Hall**, and **Ed Hayes** (Minnesota DNR) led a presentation on oak tatters, a relatively new condition observed in the midwestern U.S., primarily affecting oaks of the white oak group (including white, bur, and swamp white oak). In this condition, newly emerged leaves have reduced interveinal tissue, causing them to appear lacy or tattered.

The condition appears to be caused by damage to leaf tissue in the bud prior to leaf expansion. Within 2 to 3 weeks of emergence, heavily affected trees will produce a new flush of leaves that may or may not have tatters. Causes of the damage are unproven, but may include: low temperature injury before leaf expansion, insects feeding or ovipositing in the buds or developing leaves, or effects of herbicides (such as increasing susceptibility to low temperature injury).

Healthy trees can survive the stress caused by tatters, but care should be taken to reduce additional stresses, such as livestock grazing or damage to trees from site changes (i.e., cut/fill/compaction). Mulching, fertilizing, and watering during dry periods can improve tree vigor.

Information for this article was taken from USDA-FS Pest Alert. Northeastern Area Publication number NA-PR-02-00. More information can be found at:

[http://willow.ncfes.umn.edu/pubs/pest\\_al/oaktatters/oaktatters.htm](http://willow.ncfes.umn.edu/pubs/pest_al/oaktatters/oaktatters.htm)



*Symptoms of oak tatters on white oak. Note the absence of tissue between the veins. Photo: Dr. H. S. McNab, Iowa State University.*

## STDP FY 2000 Project Funding Announced

The Special Technology Development Program (STDP) was established in 1989 to facilitate the development and transfer of research findings into practical applications that contribute to fulfilling Forest Health Protection (FHP) goals. Over the years, 157 technology development projects have been funded, some of which might not have been possible without STDP support.

Each year, STDP receives funds from FHP to distribute among the projects. The total funding for all new and continuing projects for fiscal year 2000 is \$1,070,000, with FHP contributing \$870,000. As in the past three years, the USDA Forest Service's Vegetation Management and Protection Research (VMPR) program is contributing \$200,000 to the program, to be matched by FHP, for a total of \$400,000 to be allocated specifically to projects that address technologies and methods for the management of non-native invasive insects, pathogens, and plants.

This year, the STDP budget is \$230,000 less than in FY 1999 due to the decision of FHP directors to fund the Pest Trend Impact Plot System (PTIPS) project outside of the STDP process. PTIPS had been a major continuing STDP project since 1990.

The FY 2000 budget will support 34 projects: 16 new projects and 18 continuing projects. New proposals were evaluated by technical reviewers and screened by an evaluation panel. Emphasis is placed on proposals that address the following high priority objectives:

- Develop or refine biocontrol methods for established native and non-native species and established pest populations.
- Develop guidelines for the integration of silvicultural procedures, prescribed burning, and other tools and techniques to reduce the adverse impacts of insects and diseases.
- Develop techniques to quantify the impact of insects and diseases as

disturbing agents on forest structure and function in forest ecosystems, including their interaction with other disturbances such as fire, wind, and invasive plants.

- Develop or improve detection, analysis, and management of non-native invasive insects, pathogens, and plants, especially technologies or methods that contribute to our ability to prevent introductions or to detect and eradicate new introductions.

For more information about STDP, contact STDP Program Manager **Marla Downing**, 2150 Centre Avenue, Building A-Suite 331, Fort Collins, CO 80526-1891. Telephone: 970/295-5843.

mailto:mdowning@fs.fed.us. To see the FY 2000 project list and learn more about STDP, check out the internet website at <http://www.fs.fed.us/foresthealth/technology/stdp/overview.html>, or on the USFS intranet (available to FS employees) at <http://fsweb.ftcol.wo.fs.fed.us/fhtet/stdp/>



### Conferences...(More conferences on back page)

For extensive conference listings, go to <http://www.agnic.org/mtg/2000.html>

Geoinformatics 2000. The International Conference of Geospatial Science and Technology. June 21-23, 2000. California State University, Monterey, California. <http://www.monterey.edu/geoim2000/>

Watershed Management 2000. June 21-24, 2000. Fort Collins, Colorado. <http://www.asce.org/gsd/sections/colorado/wm2000/>

20<sup>th</sup> Annual ESRI User Conference. June 26-30, 2000. San Diego, California. <http://www.esri.com/events/uc/>

2000 World Conference on Natural Resource Modeling. June 26-30, 2000. Wageningen, The Netherlands. <http://www.slm.wau.nl/natcons/RMAconf/RMAflyer.htm>

California Conference on Biological Control II. July 11-12, 2000. Riverside, California. <http://www.biocontrol.ucr.edu/CCBCII.html>

Geographic Information Sciences (GIS)—Diversity in Opportunities and Partnerships. July 14-16, 2000. Washington, D.C. [http://www.con-ed.howard.edu/00GIS\\_Conf.htm](http://www.con-ed.howard.edu/00GIS_Conf.htm)



## New FHTET Update Feature...The Web Corner

The FHTET Update will feature one web site each issue that focuses on a forest health topic, and list additional related websites. This issue, it's...

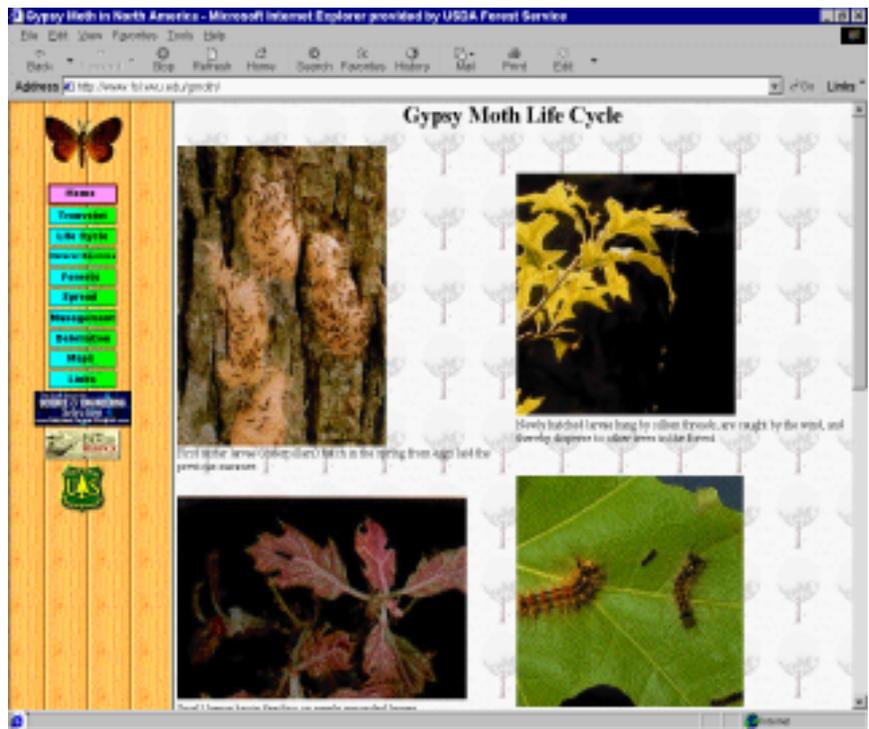
**THE GYPSY MOTH IN NORTH AMERICA** Website by the USFS Northeastern Research Station, Forestry Sciences Laboratory at the University of West Virginia campus in Morgantown, West Virginia. <http://www.fsl.wvu.edu/gmoth/> This website is packed with information and photos, and is easy to navigate.

### WHAT'S UP WITH THIS MOTH?

In 1869, Leopold Trouvelot brought the gypsy moth (*Lymantria dispar*) to Massachusetts from France in an attempt to 'build a better silk moth.' Several gypsy moth caterpillars escaped, and twenty years later, the first outbreak was noted in the neighborhood. State and federal governments then began the attempt to eradicate the moths. One hundred and thirty years later, the moths have spread to 17 states and Canada, defoliating millions of acres of trees annually.

### THE SITE...

The site is divided into 10 main sections including: history, life cycle, natural enemies (vertebrate, invertebrate, viral and fungal pathogens), moth/forest relationships, moth spread history and predictions, and management activities (eradication, Slow the Spread program, suppression, biological control, silviculture). There are many excellent photographs, and lots of maps and links throughout. So, if you're curious about the gypsy moth, just type <http://www.fsl.wvu.edu/gmoth/>, and go!



### ADDITIONAL GYPSY MOTH WEBSITES TO VIEW...

<http://fhpr8.srs.fs.fed.us/wv/gmdigest/gmdigest.html>. USDA Forest Service, Northeastern Area, State and Private Forestry. USDA cooperative suppression, eradication efforts.

[http://www.fs.fed.us/na/morgantown/fhp/gmoth/gm\\_news47/gmnews.html](http://www.fs.fed.us/na/morgantown/fhp/gmoth/gm_news47/gmnews.html). A service of the USDA Forest Service, Northeastern Area, State, and Private Forestry. An online newsletter, published 3 to 4 times per year.

[http://willow.ncfes.umn.edu/pubs/fth\\_pub\\_pages/fidlpage.htm](http://willow.ncfes.umn.edu/pubs/fth_pub_pages/fidlpage.htm). USDA-FS. Forest Insect and Disease Leaflets (FIDLs). Alphabetic and numeric listings of online FIDLs, and links to related forestry websites. (Gypsy Moth is FIDL #162.)

<http://www.fs.fed.us/na/morgantown/fhp/palerts/palerts.htm>. USDA-FS. Common pest alerts in the U.S., master list of common pests, and related links.

<http://www.fs.fed.us/na/morgantown/fhp/gypses/gypmain.htm>. USDA Forest Service, FHTET site on the GypSES decision-support and project management tool.

<http://www.gypsymoth.ento.vt.edu/vagm/>. Virginia Polytechnic Institute-sponsored gypsy moth website.



## News and Notes

### FHP Director Retires

On June 2, 2000, Acting Forest Health Protection Director **Mel Weiss** retired from the Forest Service. Mel served as Acting FHP Director since January, 1999, when Ann Bartuska left the position and became National Director of Forest Management. Prior to the acting assignment, Mel served as Deputy FHP Director. Mel has been a consistent supporter of the advancement of forest health technology and served as Acting Director of FHTET-Fort Collins for several months in 1997. His leadership of FHP will be missed! We wish Mel and his family the very best in the future and hope that we can stay in touch. **Allan Bullard**, Director, FHTET Morgantown and FHTET Team Leader, will serve as Acting FHP Director in June, until the return of Acting Deputy FHP Director **Rob Mangold**. A new Forest Health Protection Director is expected to be named in the near future.

### 1999 Accomplishment Report

FHTET has released the annual Accomplishment Report (FHTET 99-05) for fiscal year 1999. The report is available in PDF version on the Worldwide Web at <http://www.fs.fed.us/foresthealth/technology/> (then click on **FY 1999 Accomplishment Report**), or on the Forest Service Web at <http://fsweb.ftcol.wo.fs.fed.us/fhtet/> (then click on **FY 1999 Accomplishment**).

Hard copies of the report can be ordered by contacting **Georgia Haynes**. FHTET, 2150 Centre Avenue, Building A-Suite 331, Fort Collins, CO 80526-1891. Telephone: 970/295-5839, or <mailto:ghaynes@fs.fed.us>.

### Morgantown Office Move

The FHTET-Morgantown office has moved! Due to space constraints, the office moved to a new building across the street from the old building. Addresses and phone numbers will remain the same: FHTET, Forest Service-USDA, 180 Canfield Street, Morgantown, WV 26505. Telephone: 304/285-1563.



### New Sketchmapping Publication

FHTET has published *A Guide to Conducting Aerial Sketchmapping Surveys* (FHTET 00-01), written by **Timothy J. Mc Connell** (Northern Region), **Erik W. Johnson** (Rocky Mountain Region), and **Barbara Burns** (Vermont Division of Forestry). The purpose of the guide is to provide a description of the procedures that experienced aerial survey specialists use when collecting forest health data via aerial sketchmapping. Main sections include: types of aerial sketchmapping surveys, components of an operational aerial survey program, planning an aerial survey mission, sketchmapping details, and post-flight operations. The publication also includes many photos, maps, and charts.

To order copies of the guide, contact **Ross Pywell**, FHTET-Fort Collins. Telephone: 970/295-5848, or <mailto:rpywell@fs.fed.us>.

# Historic FS Aerial Photographs

(Film is cut into individual frames, 9x9 inch format unless otherwise noted)  
 To obtain photos, contact Jim Ellenwood, 970/295-5842. <mailto:jellenwood@fs.fed.us>

General Location		Year(s)	Film Type	Scale
COLORADO	Front Range Area- Broad coverage, at various seasons/dates	1972, 1973	Color IR	1/100,000 and 1/110,000
		1972, 1973	Natural Color	1/100,000 and 1/110,000
		1973	Color IR	1/50,000 and 1/55,000
	Pike National Forest and adjacent areas	1973	Color IR	1/55,000 and 1/110,000
		1973	Natural Color	1/55,000
	Middle Park (Grand County)	1976, 1977	Color IR	1/24,000
	South Park (Park County)	1978	Color IR	1/20,000
	Cameron Pass south to Breckenridge	1978	Color IR 9x18" LFC (U2) Photos	1/30,000
GEORGIA	Complete or partial coverage of 27 counties including Southern Alabama	1970, 1971	Natural Color	1/32,000; 1/35,000; 1/38,000; 1/60,000; 1/120,000
		1970, 1971	Color IR	1/32,000; 1/35,000; 1/38,000; 1/60,000; 1/120,000
		1972	Color IR	1/60,000 and 1/120,000
		1973	Color IR	1/16,000
		1974	Color IR	1/120,000
		1974	(B&W Prints)	1/120,000
		1974	Color IR (Skylab CIR color composites)	1/250,000
OREGON	Ochoco National Forest	July 1991	Color IR	1/12,000
SOUTH CAROLINA	Chester, Fairfield, Kershaw, and Lancaster Counties	1964, 1969	B&W Pos. film	1/16,000
SOUTH DAKOTA	Black Hills National Forest	1969	Color IR	1/50,000 and 1/110,000
		1969	Natural Color	1/110,000
		1971	Color IR	1/34,000
		1972	Natural Color	1/5,000 and 1/10,000
		1973	Color IR	1/5,000
UTAH	Dixie National Forest	August 1991	Color Negative	Various
WYOMING	Shoshone National Forest	July 1991	Color IR	1/8,000





USDA Forest Service



Forest Health Technology Enterprise Team  
2150 Centre Avenue  
Building A, Suite 331  
Fort Collins, CO 80526-1891

<http://www.fs.fed.us/foresthealth/technology/>

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## Events of Interest

For more conference listings, see page 8...

19<sup>th</sup> International Society for Photogrammetry and Remote Sensing Congress and Exhibition: Geoinformation for All. July 14-26, 2000. Amsterdam, The Netherlands. <http://www.itc.nl/~isprs/>

IGARSS 2000: International Geoscience and Remote Sensing Symposium. July 24-28, 2000. Honolulu, Hawaii. <http://www.igarss.org/>

Southern Forest Insect Work Conference. July 31-August 3, 2000. Memphis, Tennessee. <http://www.bugwood.caes.uga.edu/sfiwc/>

Year 2000 Meeting of the Western International Forest Disease Work Conference. Theme: Introduced and exotic species. August 14-18, 2000. The Big Island, Hawaii. <http://www.fs.fed.us/foresthealth/technology/wif>

Integrating GIS and Environmental Modeling: Problems, Prospects, and Research Needs. September 2-8, 2000. Banff, Alberta, Canada. <http://www.colorado.edu/research/cires/banff/>

2000 Society of American Foresters National Convention. November 16-20, 2000. Washington, D.C. <http://www.safnet.org/calendar/natcon.htm>

