



OHIO

FOREST SERVICE RESEARCH AND DEVELOPMENT

| STATE FUNDING HISTORY | Enacted FY 2003 (\$) | Enacted FY 2004 (\$) | Pres. Budg. FY 2005 (\$) |
|--|-------------------------|-------------------------|-----------------------------|
| DELAWARE | | | |
| NE-4153 Model Forest Resilient to Stress | 854,113 | 906,590 | 935,836 |
| NE-4509 Bio-Control of Forest Pests | 1,242,888 | 1,227,576 | 1,234,680 |
| NE-4558 Multi Stresses/Forest Health | 802,408 | 792,522 | 797,108 |
| | | | |
| OHIO TOTAL | 2,899,409 | 2,926,688 | 2,967,624 |

RESEARCH & DEVELOPMENT, a division of the USDA Forest Service (FS R&D), strives to be the "go to" organization for information and solutions to sustain forests and rangelands and the values they provide people. FS R&D has the flexibility to address today's issues effectively and to respond to tomorrow's needs. Among the world's leaders in forest conservation research, scientists contribute to the stewardship of land, real property and society by providing research results that help create jobs and affordable homes, and improve the health of trees, forests and forest ecosystems. Innovative research products permit the Forest Service and other public and private land managers to monitor and manage forest responses to environmental change, contributing significantly to the sustainability of the nation's forests and rangelands and improving human health.

FS R&D operates six research stations, the Forest Products Laboratory, and the International Institute of Tropical Forestry located in Puerto Rico. It employs over 500 scientists and hundreds of

technical and support personnel at 67 field sites throughout the nation. The FY 2005 President's Budget includes \$280,654,000 for Forest and Rangeland Research.

The **Northeastern Research Station**, headquartered at Newtown Square, Pennsylvania, maintains forest and rangeland research and development programs across 13 northeastern states (i.e. CT, DE, MD, MA, NJ, NY, NH, ME, OH, PA, RI, WV, and VT). The FY 2005 President's Budget for the Northeastern Research Station is \$34,697,000. The Northeastern Research Station maintains three research work units in Ohio, all located at Delaware.

DELAWARE

NE-4153, Quantitative Methods for Modeling and Monitoring Response of Northeastern Forest Ecosystems to Management and Environmental Stresses. This unit develops modeling and monitoring methods for physical and biological systems and linkages, and tests these

methods at multiple spatial scales. Current research is focused on: (1) improving methods for predicting natural community assemblages and their responses to ecosystem management practices and other disturbances; (2) developing ecosystem management practices for mixed-oak forests in order to meet public demands for sustainability, biodiversity, animal habitat, and timber; and (3) developing methods for monitoring ecosystems in order to promote sustainability and improve scientific understanding.

NE-4558, Sustaining Forest Health and Regeneration in Central and Northern Hardwood Forests on the Allegheny Plateau.

This unit conducts research to increase our understanding of how biotic and abiotic stressors affect forest health, productivity, and regeneration and to assist in developing management practices that sustain multiple values derived from eastern forests. Current research is designed to: (1) determine ecophysiological and pathological factors limiting to forest regeneration; (2) determine site and nutrient factors affecting forest health and sustainability; (3) continue long-term studies of multiple stressors, air pollution and global change.

NE-4509, Genetics and Management of Invasive Forest Insect Pests, Diseases, and Beneficial Fungi.

This unit conducts research to develop biologically based controls and management strategies for invasive forest insect pests and diseases and to improve the use of beneficial fungi. Current research is designed to: (1) develop economical production methods for insect viruses and develop new viruses as insect biological control agents; (2) develop and use more

economical screens to identify *Bacillus thuringiensis* (*Bt.*) isolates for use as forest insect pest control agents; (3) develop pathogen resistant strains of the American elm and beech and an economical means of their propagation; (4) develop ectomycorrhizal fungal inoculum specific for reclaimed sites; (5) develop DNA based methods for identification and management of invasive species.

FIRE RESEARCH IN OHIO SUPPORTS THE NATIONAL FIRE PLAN

- The Station expects to receive \$563,000 to support the National Fire Plan in FY 2005. These funds will be allocated to NE-4153 in Delaware. This project will develop models to provide managers with a web-based system that provides spatially-explicit fire behavior and effects information to help them plan their management fires.

FY 2005 PROGRAM CHANGES

- The President's Budget for FY 2005 includes an increase of \$40,936 to improve carbon monitoring in fire prone ecosystems by NE-4153.
- Forest Service Research and Development will lead an Agency-wide effort to optimize the delivery and practical use of research findings. This is essential to successful implementation of Forest Service priorities, including the President's Healthy Forest Initiative. Opportunities have been identified that leverage current science and technology applications efforts in healthy forests applied science, watershed management, invasive species, hazardous fuels utilization and management, and community preparedness. New funds in FY

2005 will be targeted to leading-edge technical assistance on a competitive basis.

SIGNIFICANT RESEARCH PRODUCTS

- Research continues to refine models and techniques to predict tree species migration in response to global climate change and land-use practices. This work has expanded into predictions of the effects of the tree species changes on bird populations.
- Results of fire research are being published that describe the relationship of fire events and species origination dates and the past and present composition and structure of central hardwood forests.
- Results from a long-term field study showed that elevated ozone had no effect on growth or biomass production of yellow poplar, while elevated levels of carbon dioxide stimulated growth.
- Research continues to describe the relationship of sugar maple health and productivity to soil characteristics and evaluated how environmental changes such as acid deposition influence sugar maple health and productivity. This information will help managers sustain and regenerate sugar maple under a variety of conditions.
- The field planting stage of the American elm restoration project was initiated this year. A total of 21 American elms trees of 5 different genotypes were planted at three sites in Ohio. The trees at these sites will be allowed to regenerate, and as a consequence will be able to co-evolve with the Dutch elm disease pathogen.
- Studies of the gypsy moth virus revealed new basic information on genetic basis of the virus pathogenicity. This information will be used to

isolate and develop viral strains with better properties for use in controlling the gypsy moth and with better cell culture production characteristics.

SOME CLIENTS/COOPERATORS



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Ohio State University
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