Outcomes

Fernow research has contributed to sustainable forest management on millions of acres in the central Appalachians. The benefits extend beyond land owners and forest managers who use the information; the research helps ensure that these forests will continue to provide biodiversity, clean water, wood products, wildlife, and other essential ecosystem services for everyone. Some examples include:

- **Leading the development of protocols to evaluate implementation and effectiveness of BMPs on National Forest lands.**
- **Contributing to understanding how acid deposition and air pollution affect forested ecosystems.**
- **Documenting long-term forest changes in diversity and productivity related to management history.**

Partners

Scientists at the Fernow Experimental Forest collaborate with other scientists and forest managers from numerous universities, other state and federal agencies, forest industry, non-governmental organizations, and other Northern Research Station facilities. Recent partners include West Virginia University, Virginia Polytechnic Institute, University of Wisconsin, University of Pittsburgh, Southern Illinois University, The Pennsylvania State University, Canaan Valley Institute, Academy of Natural Sciences in Philadelphia, the Pinchot Institute for Conservation, the Department of Energy, and the Monongahela, George Washington-Jefferson, and Allegheny National Forests.

Facilities

A water quality laboratory, greenhouse, office space, and temporary living quarters are located at the Timber and Watershed Laboratory in nearby Parsons, WV. The Fernow has 10 gauged watersheds and two weather stations.

U.S. Forest Service Experimental Forest and Range Network

Forest Service Research and Development (R&D) works at the forefront of science to improve the health and use of our nation's forests and grasslands. Research has been part of the Forest Service mission since the agency's inception. Today, Forest Service researchers work in a range of biological, physical, and social science fields; their research covers all 50 states, U.S. territories, and commonwealths. The Northern Research Station is one of six in R&D, and includes 20 states in the north-central and northeastern U.S., comprising both the most densely populated and most heavily forested portions of the country.

The Experimental Forest and Range (EFR) network contributes importantly to R&D's research infrastructure and is increasingly viewed as one of its most valued assets. There are currently 22 official experimental forests in the Northern Research Station, and 80 EFRs nationwide. Taken together, these sites provide a record of forests and forest change that dates back more than 100 years. Though initially focused on local and regional topics, EFRs are becoming increasingly networked to address issues of national and international concern such as climate change, carbon sequestration, air and water quality, and invasive plants and animals.

For more information about the Fernow Experimental Forest

Websites:

http://www.nrs.fs.fed.us/ef/locations/wv/fernow/

http://nrs.fs.fed.us/fernow

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The USDA is an equal opportunity provider and employer.

On the cover: There are 10 gauged watersheds on the Fernow used to study forest hydrology. Photo by U.S. Forest Service.

USDA United States Department of Agriculture

Forest Service

Fernow Experimental Forest

NORTHERN RESEARCH STATION EXPERIMENTAL FOREST NETWORK

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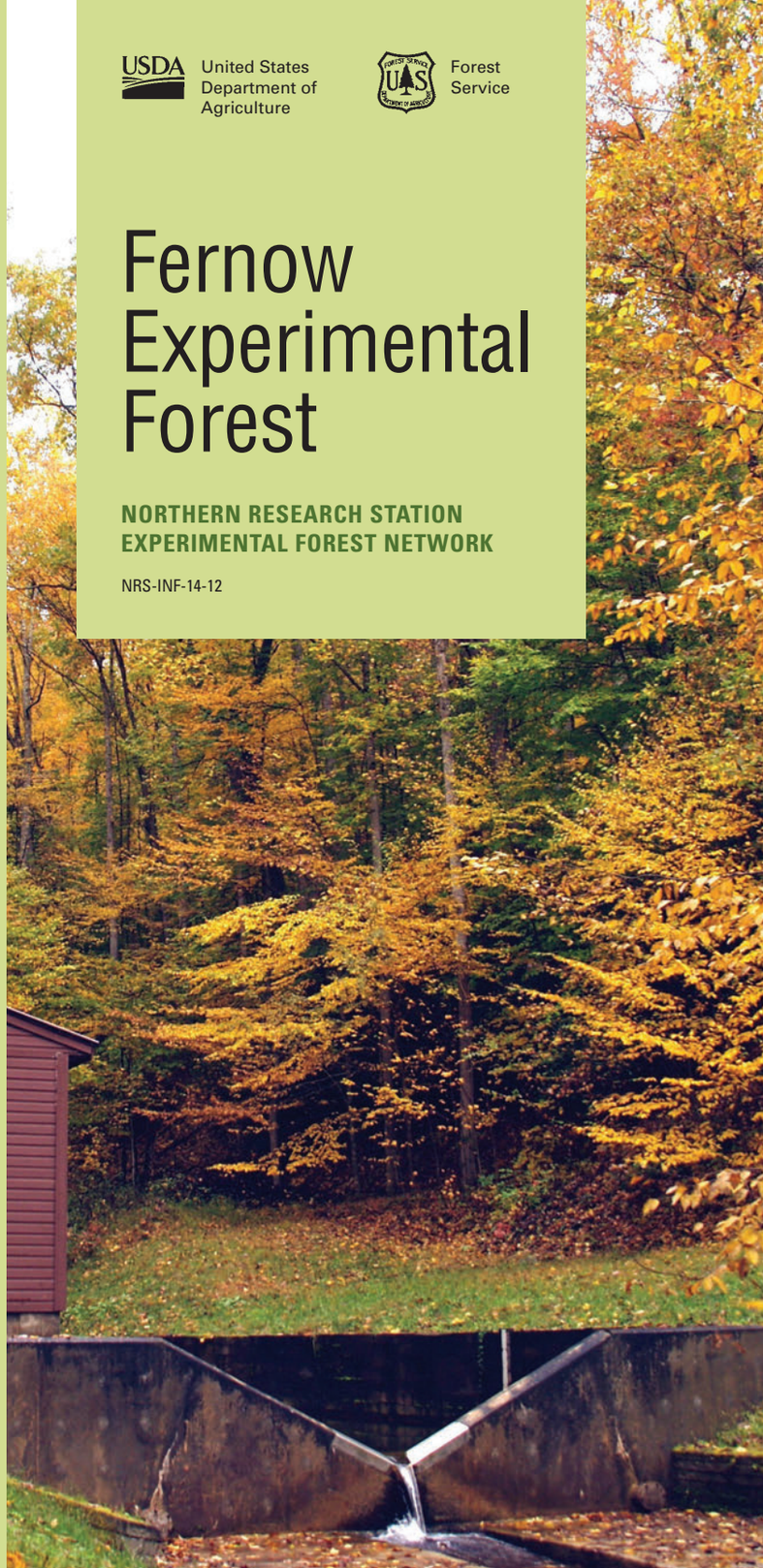
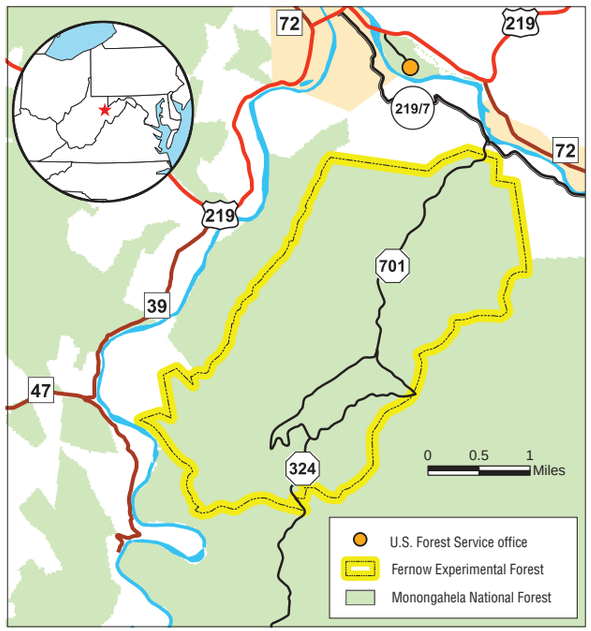


Fernow Experimental Forest

The Fernow Experimental Forest (FEF) is located in the central Appalachians about 3 miles south of Parsons, WV. The Fernow was established in 1934 when the Elklick Run watershed, a portion of the newly created Monongahela National Forest, was designated for research and demonstration of forestry practices. The land was acquired from private ownership when it was purchased in 1915 by the authority of the Weeks Act of 1911, which authorized the establishment of the first eastern National Forests. The Experimental Forest was named after Bernhard E. Fernow, a German-born forester who pioneered scientific forestry in the United States. When established, the Fernow comprised 3,640 acres; it was expanded to about 4,700 acres in 1974.



Guided field trips of the Fernow provide an effective way for groups to learn more about forest research and management. Photo by U.S. Forest Service.

Features

The FEF is part of the central Appalachian broadleaf forest and lies in the Allegheny Mountains of the unglaciated Allegheny Plateau. The region was logged exploitively during the early 1900s. The second-growth forest that followed is classified as mixed mesophytic, having characteristics of both mixed-oak and northern hardwood forest types. Species composition depends upon landscape position, elevation, soil characteristics, and disturbance history. Northern red oak, sugar maple, and yellow-poplar are common trees on productive sites; chestnut oak and red maple are common elsewhere. Floral diversity is high, reflecting a broad array of biotic, abiotic, and anthropogenic influences. However, invasive plant species are increasingly displacing native ones and are impacting the ecological integrity of the region and the Fernow.

- **Elevations range from 1,750 to 3,650 feet. Slopes from 20 to 60 percent predominate.**
- **The climate is rainy and cool. Mean annual precipitation and temperature are 58 inches and 48 °F, respectively.**
- **Soils are shallow, well drained, and medium-textured. They are derived from sandstone, shale, or limestone.**
- **The Fernow has more than 20 commercially important tree species.**

Map by U.S. Forest Service.

Research

Silvicultural and watershed studies, with considerable integration between the two, constitute the core of more than 60 years of research at the Fernow. Silvicultural research has addressed fundamental questions relating to regenerating, tending, and harvesting forest stands in perpetuity. Watershed research has described how forest management and road construction change water quality and streamflow. Fernow scientists have been at the forefront in developing forestry best management practices and acid deposition research. Recently, research about endangered plants and animals has taken on a more prominent role.

Science Delivery

Research results from the Fernow are conveyed in many ways, including more than 1,200 scientific journal articles and government publications, presentations at conferences for land managers and other scientists, field trips, videos, web presentations, workshops, and class room instruction. The original demonstration objective of the Fernow is alive and well, and many guided tours of the Experimental Forest are provided each year to students, resource professionals, policy makers, and landowners. Regularly updated signage along the Fernow roads also shares information about experiments to area visitors.

Scientists are using the Fernow to study the effects of prescribed fire on forest regeneration and wildlife habitat. Photo by U.S. Forest Service.