



# Year 2002



# Progress Report of Activities

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Alderson, WV Plant Materials Center

P. O. Box 390, Alderson, WV 24910 Web site: [Plant-Materials.nrcs.usda.gov](http://Plant-Materials.nrcs.usda.gov)



*Alderson Plant Materials Center Office and Greenhouse*

## Who We Are

The Alderson Plant Materials Center serves 11 states in the Appalachian Region from Pennsylvania to Georgia and Alabama. The Center is operated by the USDA-NRCS in cooperation with the USDA-Agriculture Research Service, U.S. Forest Service and the Agriculture Experiment Stations of West Virginia University, Virginia Polytechnic Institute and State University and the University of Kentucky. Alderson is located in the heart of Appalachia, and the Center is situated on County Route 3/29, also known as Old Prison Farm Road, approximately 20 miles Southeast of Lewisburg, West Virginia. This center is new with regard to land resource and physical plant, but is the product of the transfer of programs and equipment from Quicksand, Kentucky to Alderson, West Virginia. The transfer of center functions began in 1996 and was completed in 2000.

## What We Do

The Plant Materials Center serves Appalachia by evaluating plants for their ability to solve specific conservation problems related to climate, the rugged topography, soil limitations, various land uses, fish and wildlife needs and desires of the landowners. The center provides a place for conducting systematic observations and evaluations of plants needed to protect our natural resources. New techniques are developed for the propagation, establishment, management and use for new or improved species of grasses, legumes, shrubs and trees.

The Center's program emphasizes improving forage production on hillside pastures, address problems associated with concentrated livestock, reclamation of mined lands, streambank stabilization, agro-forestry, wildlife habitat improvement, and utilization of economic and culturally valuable plants. The center assembles plants from the entire service area with similar soils and climate, evaluates the plants, develops management techniques, and provides seed and plants for planting to test performance throughout the area. Most of the plant materials produced at the center are used in West Virginia, Kentucky, Tennessee, Pennsylvania, Ohio, Virginia, and North Carolina.

A brief summary of year 2002 accomplishments follows. For a complete account of all activities, request the 2002 Technical Report at the above address.

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## New Projects Launched in 2002

The Alderson Plant Materials Center initiated three new projects during 2002. These projects involve one or more species of native plants and have diversified our partnerships with native Americans, federal agencies and private conservation groups. A brief description of each project follows.

### **Ramp, *Allium tricoccum*, Propagation & Cultivation Techniques for the Eastern Band of the Cherokee Nation**

The Eastern Band of the Cherokee Nation requested plant materials assistance with development of cultivation techniques for *Allium tricoccum*, or ramps, in 2002. Ramps are one of many native plants that are culturally significant to the Cherokee.

*Allium tricoccum* is a perennial spring ephemeral that is widely distributed in eastern North America. The southern Appalachians represent the southern edge of its range. Colonies of *A. tricoccum* can be found in cove forests and northern hardwood associations throughout Great Smoky Mountains National Park and adjoining Cherokee Reservation lands.

. The Cherokee have traditionally harvested ramps from wild colonies on reservation and parkland by digging and removing the entire plant in early spring. The harvesting of ramps has been allowed in Great Smoky Mountains National Park since the establishment of the park. National Park Service policy states that the Park Superintendent may



*A. tricoccum*

designate certain fruits, berries, nuts, etc. that may be gathered by hand for personal use or consumption provided a written determination indicates that gathering or will not adversely affect the reproductive potential of the plant. However, the National Park Service has become concerned that ramps are being over harvested in the Park. This concern has been heightened with the increasing popularity of ramp festivals, which require large quantities of ramps. Recent Park Service field reports indicate that accessible ramp populations are becoming smaller and less dense than those found in more remote areas of the Park.

In an effort to be proactive, the Cherokee have opted to move from traditional spring ramp gathering from wild populations to establishment and management of "backyard" ramp gardens for their people. The Alderson Plant Materials Center will assist the Cherokee to bring this culturally significant wild plant into cultivation. The goal is to develop a dependable supply of ramps for the Cherokee, while limiting further depletion of the wild population within the Great Smoky Mountains National Park.

### **U. S. Department of the Interior-National Park Service Stones River National Battlefield Native Plant Restoration**

Stones River National Battlefield, located in Middle Tennessee on the northwestern edge of Murfreesboro is the site of one of the significant battles of the War Between the States. The Battle of Stones River, fought between December 31, 1862 and January 2, 1863 marked the beginning of the Union Army's "March to the Sea" which resulted in Union control of agricultural land and supply networks and prevented further attempts by the Confederate Army to push northward. Stones River National Battlefield was established in 1927 to preserve this significant historic site. The original property consisted of 344 of the 4,000 acres over which the battle was fought. The park currently encompasses approximately 700 acres.

Vegetation and terrain played an important role in the outcome of the Battle of Stones River. Because of the incidence of limestone outcroppings, cedar brakes and cedar woods dominated the majority of the original park property at the time of the battle. It

is suspected that these areas were used as hog lots circa 1862. The cedar glades in the area, which were and are characterized by shallow soil and exposed limestone bedrock, lacked sufficient vegetation for forage or cover for livestock and were likely considered wastelands.

During the battle, the rock outcrops and thick cedar woods significantly slowed troop progress and impeded rapid movement of artillery pieces. However, the significance of the battlefield's vegetation lies not only in its historical significance but also in its botanical and ecological value. The site is host to a number of rare and endemic plant species and unique plant communities.

Today, introduced and exotic plant species have encroached onto many areas of the battlefield. Park managers have identified restoration of native plant communities as a high priority for maintenance of the parks circa 1862 authenticity. National Park Service personnel have completed a thorough assessment of the vascular flora inhabiting the battlefield property and have targeted approximately twenty native plant species having high priority for use in restoration of plant communities.

The Alderson Plant Materials Center has agreed to work with the National Park Service at Stones River National Battlefield to collect seed, develop propagation techniques, and produce seedling plants and/or seed of the targeted species for plant community restoration within the park. This project is expected to have at least a five-year duration.

### **White Clover Germplasm Characterization Study**

White Clover, *Trifolium repens*, is a high quality, valuable forage legume for the Appalachian Region. It provides a high-quality feed throughout the growing season and is an efficient fixer of atmospheric nitrogen. Yet, white clover does not seem to readily establish itself or experience longevity in typical Appalachian livestock grazing settings. The primary objective of this study is to develop information necessary for the possible germplasm release of one or more superior populations from the Central Appalachian White Clover Collection.

To obtain white clover germplasm with good adaptation to Central Appalachian pastures, collection were made in 1999 from well-managed pastures in Kentucky, Ohio, West Virginia, and Virginia. These collections provide the base populations for future cultivar germplasm development projects. Five populations were developed from these collections. While these populations are broad-based and do not represent any one ecotype, some collections from different regions within the area of collection are more important than others. Seed of these populations were produced for the first time in 2001. With the retirement of the Agricultural Research Services' only white clover breeder in 2002, the Agricultural Research Service elected to terminate all white clover genetic research. Thus, unless germplasm from the Central Appalachian White Clover Collection is released it will be lost. In recognition of the interest of producers from the Appalachian Region in white clover cultivars that would be adapted to their farms, and to preserve this potentially useful germplasm, the Alderson Plant Materials Center proposed that one or more of these populations be released as germplasm.



*Central Appalachian White  
Clover Collection  
Observation Block*

Twelve white clover experimental populations and cultivars were established in observation blocks at the plant materials center in the spring of 2002. Data collection began in the summer of 2002 and will continue through the fall of 2004. Germplasm releases are anticipated circa 2006.

### **Ongoing Projects for 2002**

#### **US Army Corps. of Engineers – Marmet Native Plant Mitigation**

The Alderson Plant Materials Center continued to assist the US Army Corps. Of Engineers - Huntington District with restoration of native plants at the Marmet Locks and Dam Project. This project

is located on the Kanawha River in West Virginia upstream of Charleston. The project includes building a new lock chamber and approach channels at River Mile 67.7. All vegetation and habitats within the approximately 150-acre site have been destroyed with initiation of construction. The PMC harvested plants from the site prior to start of



Marmet Source Native Plants in Shade Structure

construction. Six native woody species are being maintained in pots at the PMC. These species are *Acer saccharinum*, silver maple; *Lindera benzoin*, spicebush; *Sambucus canadensis*, elderberry; *Asimina triloba*, pawpaw; *Sassafras albidum*, sassafras; and *Aesculus octandra*, yellow buckeye. These plants will then be reintroduced to assist with re-establishment of genetic diversity on the site. During 2002, the Alderson Plant Materials Center maintained approximately 2000 plants in pots for this project. All six species have significant conservation function and value.

While the primary objective of this project is to maintain local ecotype plants for re-introduction to the Marmet site, several of these species are potential tested or selected native conservation plant releases.

### **Saving West Virginia's Balsam Fir**

*Abies balsamea*, balsam fir is native to high elevation areas in West Virginia. However, balsam fir numbers are declining due to a serious infestation of the balsam wooly adelgid. The adelgid is an exotic, sap-sucking insect that causes mortality within 2-3 years of initial contact. Several conservation groups have recognized the rapid decline of the fir in West Virginia and have formed a partnership with the US Department of the Interior and the Plant Materials Center to restore balsam fir to four natural areas in the West Virginia Highlands. Volunteers from the West Virginia



Allegheny Highlands Source *Abies balsamea* seedling

Highlands Conservancy, The Mountain Institute, The Nature Conservancy, and others harvested balsam fir seed in the fall of 2000.

The harvested seed was processed by the volunteers and shipped to Alderson PMC for seed banking. The PMC is also responsible for producing seedlings for reintroduction to the natural areas where the seed was harvested.

In 2002, the Alderson Plant Materials Center produced about 1000 balsam fir seedlings for this conservation effort. This project will continue in 2003.

### **Giant Cane Rapid Propagation Study**

*Arundinaria gigantea*, giant cane or bamboo is our largest native grass. Giant cane covered extensive areas of the southeastern United States at the time of European settlement. These areas were known as canebrakes and they disappeared rapidly following settlement due to a combination of factors. Today, giant cane persists largely as an understory plant in other vegetative cover types.

The shoots or canes arise from underground stems known as rhizomes. Only rarely does *Arundinaria* flower and set seed. Historical accounts of canebrakes clearly indicate that when *Arundinaria* flowers and produces seed, the plant then dies. Thus the principal method of reproduction is vegetative.

The NRCS has developed an interest in rapidly propagating giant cane for use as a streambank erosion control plant and other conservation uses. Collection of plants from Illinois, Indiana and Ohio were initiated in 2001. The Alderson PMC received plants from 9 different locations. These plants will be evaluated with regard to survival, rate of spread, and ability to produce new plants from division of rhizomes.

The Eastern Band of the Cherokee Nation also has an interest in Giant cane. However, their interest is in those cane plants that produce large diameter canes. Cherokee crafters use the large diameter canes to make traditional basketry. Suitable canes

have become very difficult to harvest from wild cane populations, and the Cherokee are interested in propagating plants that are suitable for their basketry. The Alderson PMC will assist the Cherokee with development of propagation and management techniques to ensure their crafters have a dependable supply of large diameter cane plants.

During 2002, the Alderson Plant Materials Center maintained and evaluated survival of the plant accessions obtained from Indiana, Illinois and Ohio. Also in 2002, the Plant Materials Center received an *Arundinaria gigantea* accession from Cherokee Reservation lands in North Carolina. Collections of giant cane from West Virginia, Virginia, Tennessee, and Kentucky will be initiated in 2003 and 2004.