

**SPRING  
NEWSLETTER**

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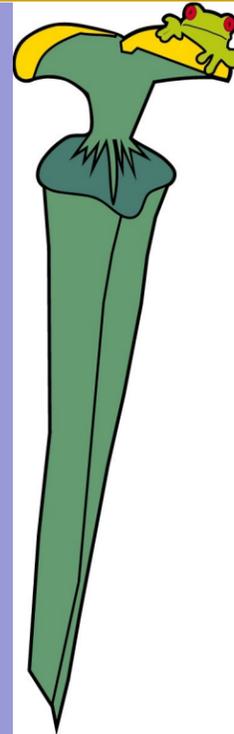
*New Meadowview Cultivars*



'Snowflake' above and 'Plum' on right.



Vol. 5, Issue 1  
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SPRING NEWSLETTER

**MEADOWVIEW  
BIOLOGICAL  
RESEARCH STATION**

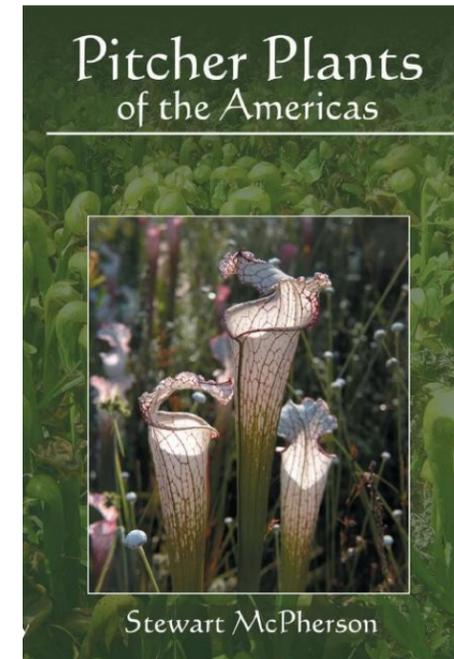
**Meadowview To Host 2007 Longleaf Pine Conference!**

*“Northern Limits, Restoration of the Longleaf Pine Ecosystem in Virginia”*

Meadowview, in partnership with the Longleaf Alliance, will be hosting a longleaf pine restoration conference in October 2007. The event will be held at the Southeast 4-H Conference Center in Wakefield, VA at Airfield Millpond from Oct. 23-24. The conference will feature talks by noted longleaf experts on topics such as historical aspects of the ecosystem, restoration practices including propagation, planting, competition control and pine release, fire management, rare species, and wildlife biology. Field trips to the few remaining natural longleaf pine sites in Virginia and to restoration projects are also included.

Conference planning is well underway. We are investigating the possibility of a post-conference field trip to Jamestown with a tie-in to the historical uses of longleaf pine by the first colonists in Virginia. We will keep you apprised of updates in conference planning on our web site and by mail.

*Profits from new series of books donated to Joseph Pines*



Stewart McPherson is donating a significant portion of the profits from his series of books to the Joseph Pines Preserve. We have already received \$2000 for the preserve and Stewart has donated signed copies of his books for us to sell with all funds going to Joseph Pines. We will be selling both soft and hardcover versions for \$30 and \$40 respectively at our March 31 speaking event at the Caroline County Community Service Center Auditorium (see Events section of newsletter).

## DISCOVERY

### *Pitcher Plants Discovered at USDA in Beltsville, Maryland*

Researchers at the USDA lab in Beltsville, MD have succeeded in locating a colony of purple pitcher plant, *Sarracenia purpurea* L. The plants are located in a sphagnum seep surrounded by mature pitch pine forest. Purple pitcher plant was historic for the Beltsville area and this discovery of a new population will help conservation and restoration efforts at the USDA.



Meadowview director and USDA geneticist Dr. Rob Griesbach has started tissue culture propagation of this rare pitcher plant population from seed (photos at left by Dr. Griesbach).

### *Spear Point Unearthed at Meadowview*

A spear point of unknown age and origin was found by volunteer Casey Howard during plant bed construction. The artifact was discovered in the first few inches of sandy soil along the old stage coach road.



### *New Plants Found at Joseph Pines Preserve*

Two new plant species have been found on Joseph Pines Preserve during the 2006 field season. A small colony of orange-fringed orchid, *Platanthera ciliaris*, appeared after mechanical clearing on the edge of a sphagnum seepage bog. Orange-fringed orchid is typically seen in good seepage bogs in southeastern Virginia and we were pleased to see this species appear so rapidly in early restoration efforts.



Orange-fringed orchid

We found a lily in bloom at Joseph Pines during late July 2006. We thought the plant was *Lilium superbum* but after examining the plant in greater detail, reviewing botanical papers, and consultation with state heritage botanists



*Lilium sp?*  
Photo by Margie Sheridan

we think we may have the very rare sandhills lily, *L. pyrophilum*. *Lilium pyrophilum* is extremely rare and has only been found in a few sites in Virginia and North Carolina. One of the few Virginia sites for the sandhills lily is very close to Joseph Pines at the Cherry Orchard Preserve. Cherry Orchard Bog was originally identified by Meadowview biologists and subsequently purchased by the Virginia Dept. of Conservation and Recreation because of its high biological diversity, including seepage wetland plant taxa. Final determination of the taxonomic identity of the lily at Joseph Pines will be made in the 2007 field season.



The first book to be released is *Pitcher Plants of the Americas* - - a uniquely detailed study of the natural diversity and wild ecology of the American pitcher plants (*Brocchinia*, *Catopsis*, *Darlingtonia*, *Heliamphora*, and *Sarracenia*). This work is intended to be the most substantive and up to date overview of the worlds largest and most spectacular group of carnivorous plants which occur across the most barren and least explored areas of the American continents. Enhanced through the use of over 230 spectacular colour images, *Pitcher Plants of the Americas* represents the first complete overview of the systematics, biology, ecology, biogeography, conservation, and horticulture of the five genera of American pitcher plants as well as the most extensive photographic record of this remarkable and very beautiful group of plants. All currently known forms and varieties of each species is described and examined in detail, in many cases for the very first time.

The introductory chapters of this work outline the taxonomic content and groupings (by trapping methods) of carnivorous plants and briefly review the taxonomy, biology, evolutionary history, and biogeography of the American pitcher plants. The following five chapters are devoted to individual genera of the American pitcher plants and examine in detail the anatomy, habitat, ecology, trapping process, and distribution of each genus and each member species as well as many naturally occurring hybrids and selected cultivars. The concluding chapters summarize the current conservational status of each family of American pitcher plants in terms of the nature and extent of habitat loss and the resulting threat of extinction and the study closes by considering the various successful conservation approaches and initiatives which are helping to secure a bright future for these rare plants. A more detailed overview and over 40 sample images featured in this work is provided at [www.redfermnaturalhistory.com](http://www.redfermnaturalhistory.com).



If you would like to obtain a copy of this book and would like to actively support the conservation of carnivorous plants and their habitats, I warmly invite you to visit [www.redfermnaturalhistory.com](http://www.redfermnaturalhistory.com), email me personally at [stewart.mcpherson@redfermnaturalhistory.com](mailto:stewart.mcpherson@redfermnaturalhistory.com), or purchase a book directly from Meadowview.



Thank you for your enthusiastic support and help.

Stewart McPherson

## NEW CARNIVOROUS PLANT PUBLICATION & CONSERVATION PROJECT



Dear Friends of Meadowview,

We are all aware of the imminent threats facing the majority of carnivorous plants distributed across our world. Several genera are listed in *CITES Appendix II* and thereby considered potentially threatened with extinction. More worryingly at least a dozen species are individually included under *CITES Appendix I* and therefore imminently imperiled. Perhaps the most disturbing example is that of *Sarracenia*, in the Southeastern United States, where at least 98% of the original wetland habitat has already been destroyed and alarmingly even the last, remnant patches continue to be under siege.



It is clear that the current rate of environmental destruction and loss of biodiversity is unsustainable. The risk of extinction of dozens of carnivorous plant species in the wild will loom ever greater in the coming decades. The disappearance of these extraordinary and spectacular plants from natural areas around the world is a tragedy that we cannot allow to take place.



Over the course of the past six years, I have undertaken the task of observing and documenting the diversity and ecology of all known carnivorous plant genera in their wild habitats. During 2006 and 2007, five new books will be released that document the remarkable multiplicity and beauty of carnivorous plants focusing in particular on lesser known and more imperiled species. Each book is designed to provide a useful account of ecology and diversity as a conservation resource and also to serve as a uniquely detailed and visually spectacular overview that will interest horticulturalists and enthusiasts of all backgrounds.



I will sell copies of each title personally through my online company **Redfern Natural History Productions** and use profits to help Meadowview pay off the principal on the loan for the Joseph Pines Preserve. Joseph Pines is a carnivorous plant habitat that receives sustainable management and protects the last remnants of Virginia's imperiled longleaf pine/pitcher plant ecosystem.

Absolutely no carnivorous plants at all or any other wildlife were deliberately harmed during the production of these books.

## PROPAGATION

### *Hoop-House Constructed with Geothermal Heater, Improved Winter Plant Protection Saves Labor and Improves Efficiency*



We designed and built our own hoop house in 2006 to give the plant collection better frost protection and increase access to the plants over the winter. We also utilized a commercial horticultural fabric (on ground in photo at left) to shelter the remaining plants. Both methods provided excellent protection and took very little time to install. We had previously collected pine straw and laid the needles on the plants for winter frost protection. The pine straw method was not only time consuming and labor intensive but created quite a mess for spring clean-up. We also experimented with pumping pond water through the hoop house and beds to provide geothermal heating during the winter. Initial experiments demonstrated

we could provide significant frost protection for the plant collection with our pond water geothermal heating system.

### *New Cultivars*

We are introducing several new cultivars for 2007. In honor of the 400th anniversary of the founding of Jamestown in 1607 we have a series of cultivars in the "New World" section of our on-line catalog. Selections include our first offering of a native Virginia pitcher plant called 'Pocahontas' (seed propagated of course), the hybrid of our two native pitcher plants 'John Smith' as well as additional beauties 'Powhatan' and 'Matoaca'. Two other stunning cultivars making their appearance are 'Plum' and 'Snowflake' (see last page for photos).



'Powhatan'  
photograph by  
Jeremiah Harris



'Pocahontas'  
photograph by  
Margie Sheridan

## RESEARCH

### Old Resinous Turpentine Stumps as an Indicator of the Range of Longleaf Pine in Southeastern Virginia, Thomas L. Eberhardt<sup>1</sup>, Philip M. Sheridan<sup>2</sup>, Jolie Mahfouz<sup>1</sup>, and Chi-Leung So<sup>1,3</sup>

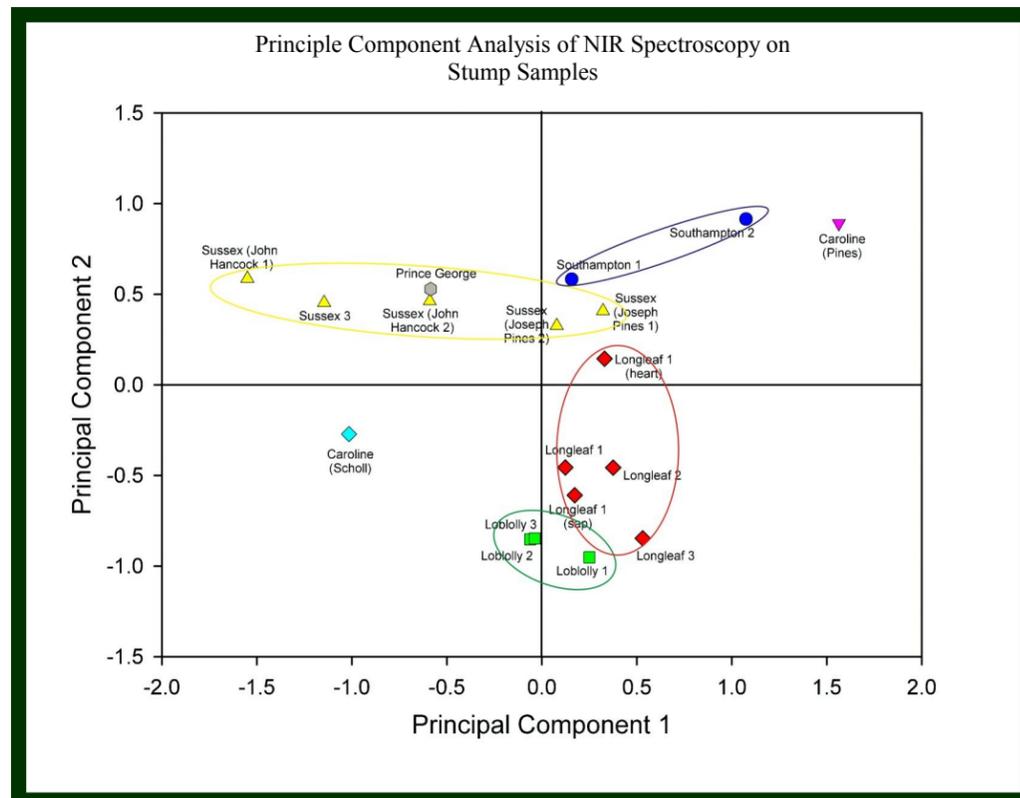
<sup>1</sup>Southern Research Station, USDA Forest Service, Pineville, LA; <sup>2</sup>Meadowview Biological Research Station, Woodford, VA; <sup>3</sup>School of Renewable Resources, LSU Ag-Center, Baton Rouge, LA

Proceedings of the 6th Longleaf Alliance Regional Conference "Seeing the Forest Through the Trees, Nov. 13-16, 2006 Tifton, Georgia

Wood anatomy cannot be used to differentiate between the southern yellow pine species. Wood samples collected from old resinous turpentine stumps in coastal Virginia were subjected to chemical and spectroscopic analyses in an effort to determine if they could be identified as longleaf pine. The age and resinous nature of the samples were manifested in high specific gravities, the presence of oxidized monoterpenes, and the ability to be grouped separately from wood from live trees by NIR spectroscopy. Since there are no standards for old resinous pine stumps, studies are continuing to determine changes that occur in longleaf pine stumps aged under field conditions.

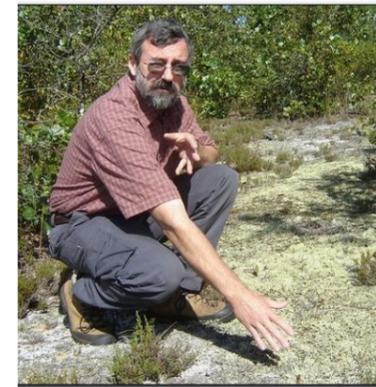


Turpentine stump at Joseph Pines Preserve



## Meadowview EVENTS for 2007

- **Pine Barrens Wetlands: Geographical Reflections of South Jersey's Periglacial Past.** March 31, 2:00-4:00 P.M. A lecture by Mark Demitroff at the Caroline County Community Service Center (no charge) **AND** Joseph Pines Fundraising Book Sale, Signed Copies of Stewart McPhersons "Pitcher Plants of the Americas". March 31, 1:30-4:00 P.M., Caroline County Community Service Center, 17202 Richmond Turnpike, Milford, VA 22514



Mark Demitroff is a certified tree expert and native of the million-acre Pinelands National Reserve in southern New Jersey. Searching local wetlands for clues to the East Coast's cold, dry, and windy past, Mark joined forces with eminent cold-climate specialists in pursuit of old frozen dirt. Their work progressed for years with minimal financial backing, driven simply by personal curiosity. Now a Ph.D. student and fellow at the University of Delaware, Mr. Demitroff publishes papers that seriously question older interpretations of Pleistocene conditions in the Pine Barrens and across the Delmarva Peninsula. He suggests there is an antithesis to global warming!

Mark's presentation, *Pine Barrens Wetlands: Geographical Reflections of South Jersey's Periglacial Past*, chronicles 200,000 years of global climate change, and how regional environmental dynamics relate to human ecology. Studying man's relationship to unusual landforms called *spungs*, *cripples*, *blue holes*, and *savannahs* provides important insight into our recent past. Water is a central theme. Of particular concern is an apparent fading of local wetlands. This phenomenon is attributed to a regional lowering of the near-surface water table. Critical habitat for specialized plants and animals disappears as the groundwater drops. Better recognition, understanding, and appreciation of the many exceptional Mid Atlantic wetlands can become an effective tool in attempts to preserve our collective heritage from exurban sprawl.

Come hear Mark Demitroff's exciting lecture and pick up a copy of Stewart McPherson's new book!

- **Environment Virginia 2007, April 10-12, VMI, Lexington, VA**

<http://environmentva.org/>

Meadowview will have a booth at this conference. Top environmentalists, scientists, government officials, and citizens gather to discuss our Commonwealth's environmental challenges and solutions. There are a number of interesting talks in the plenary and breakout sessions.

- **Northern Limits, Restoring the longleaf pine ecosystem in Virginia.** October 23-24, Wakefield 4-H Center, Wakefield, VA

<http://www.ext.vt.edu/resources/4h/airfield/>

## Joseph Pines Updates

### ***U.S. Fish and Wildlife Service Awards \$26,000 Grant To Meadowview***

Our Private Stewardship Grant application to the USFWS for restoring Joseph Pines was approved in June 2006. The grant covers the costs to restore 78 acres on the preserve and reintroduce 18 rare plant taxa native to Virginia. Habitat for 3 endangered or threatened animal species will also be improved on Joseph Pines. Planned activities include continued removal and control of hardwood competition through mechanical, chemical, and fire management.

### ***Fund Raising Passes \$85,000***

Total monies raised to date for Joseph Pines have topped \$85,000 as of March 1, 2007. The initial purchase price of the preserve was \$100,000 and the balance left on our real estate loan is \$35,000. Some donations were authorized by donors to be used for restoration and improvements on the preserve and we have a current balance in savings of \$5000 to meet monthly payments. We need your continued support and donations to the Joseph Pines Preserve to pay off the principal balance on our loan and preserve the pitcher plants and their habitat.

### ***Native Virginia Longleaf Pine Planting***

We now have over 21 acres of native Virginia longleaf pine planted on the Joseph Pines Preserve. A significant portion of the funding for clearing and burning the longleaf pine planting areas was provided by a grant from the EQIP program under the Natural Resource Conservation Service. Over 1000 longleaf pine seedlings were planted in 2006 at Joseph Pines. All of these seedlings were raised at Meadowview by our volunteers and staff from seed we collected and processed from native longleaf pine sites in Virginia.

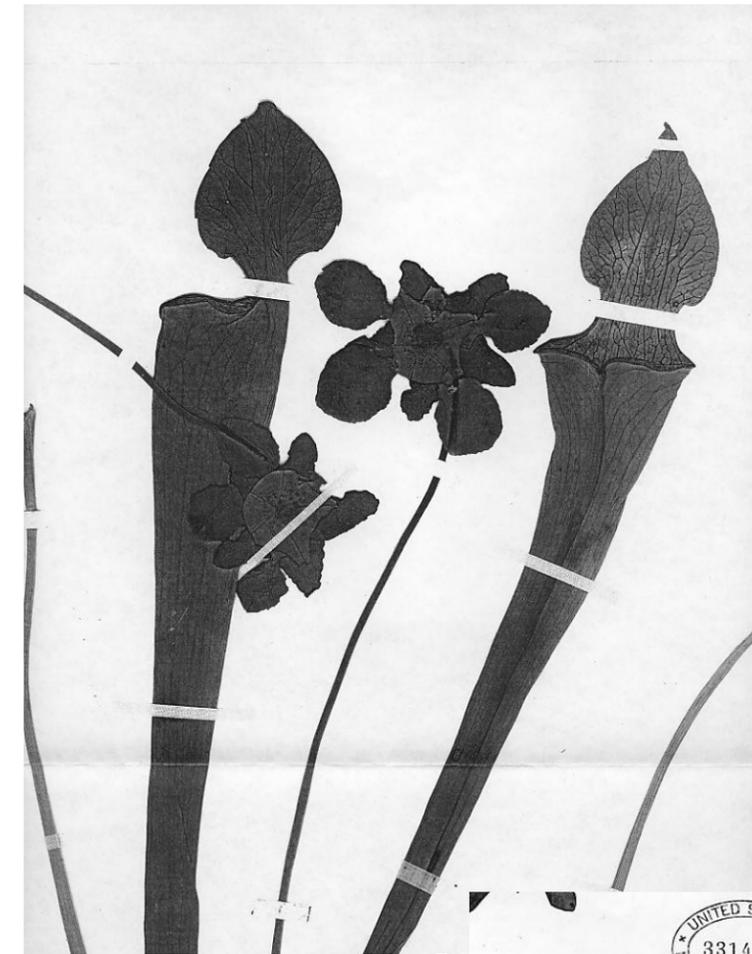


***"...you can't be a true carnivorous plant lover without supporting conservation"***  
Mark Kindig comment from 2006 preserve tour

## REINTRODUCTION

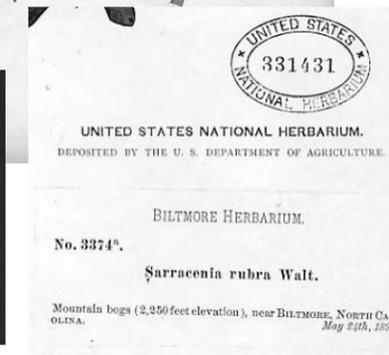
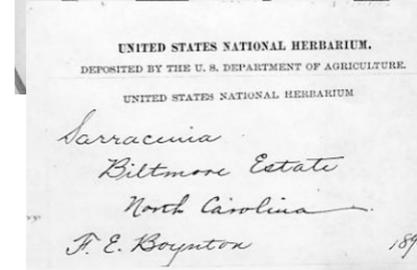
### ***Endangered Pitcher Plant Reintroduced to North Carolina***

On June 15, 2007 Meadowview biologists, in conjunction with Biltmore staff and campers from Falling Creek Camp for Boys, reintroduced 300 federally endangered mountain sweet pitcher plant (*Sarracenia jonesii* Wherry) to a sphagnum seepage area on the Biltmore Estate. The project was funded by a grant from the National Fish and Wildlife Foundation and resulted in a 20% increase in number of sites for this endangered species. The project also included 50 controlled pollinations of mountain sweet pitcher plant by Meadowview for Green River Preserve in Cedar Mountain, NC. Green River Preserve constructed grow out beds and will raise mountain sweet pitcher plant on-site for planting in sphagnum bogs on their property.



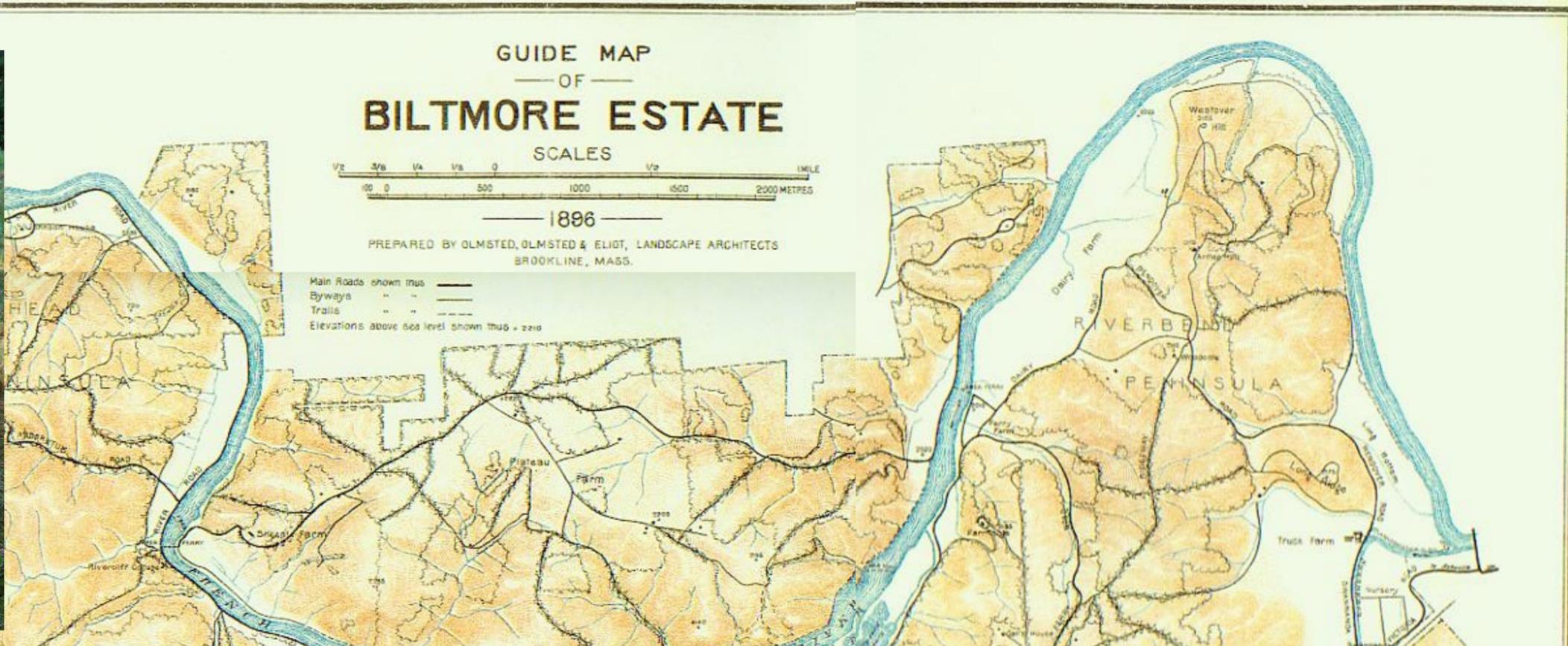
Mountain sweet pitcher plant historically occurred in Buncombe County, NC on the Biltmore Estate (see herbarium specimens this page) but was apparently extirpated by dairy operations. The Biltmore Estate is still approximately the same size as when the herbarium specimens were collected between 1895-1897 (see centerfold). Because the herbarium specimens clearly state the plants were collected at the Biltmore Estate, and we know the dimensions of the estate at the time of collection, we are confident that the plants are being introduced to their historic home. The description on one herbarium specimen of "near Biltmore" means near the Biltmore House proper. Meadowview biologists and Biltmore staff examined wet depressions at the correct altitude specified by the herbarium specimen (2250 ft.) but virtually all of these sites were drained or ditched long ago to improve pasture for the Biltmore Dairy.

The historic loss of this endangered pitcher plant is a dramatic example of the need for the mission and reintroduction methods of Meadowview. If George Vanderbilt had not authorized his staff to document the flora on his property, we would never have known that this plant occurred in Buncombe County at the Biltmore Estate.





Suzanne Woodell



**TABLE OF DISTANCES**

From Biltmore House to  
 Biltmore Village by Approach Rd. 2 1/2 M  
 " " " " by Service " 2 1/4 "  
 Ferry Farm by Service Rd. and Ferry Rd. 2 1/4 "  
 Beginning of Arboretum at Overlook Rd. 1 1/4 "  
 Brick House 1 1/4 "

From Biltmore Village to  
 The Dairy by Swannanoa and Westover Rds. 2 1/4 "  
 From Dairy to Ferry Farm 1/4 "  
 From Ferry Farm to Brick House 1 1/2 "

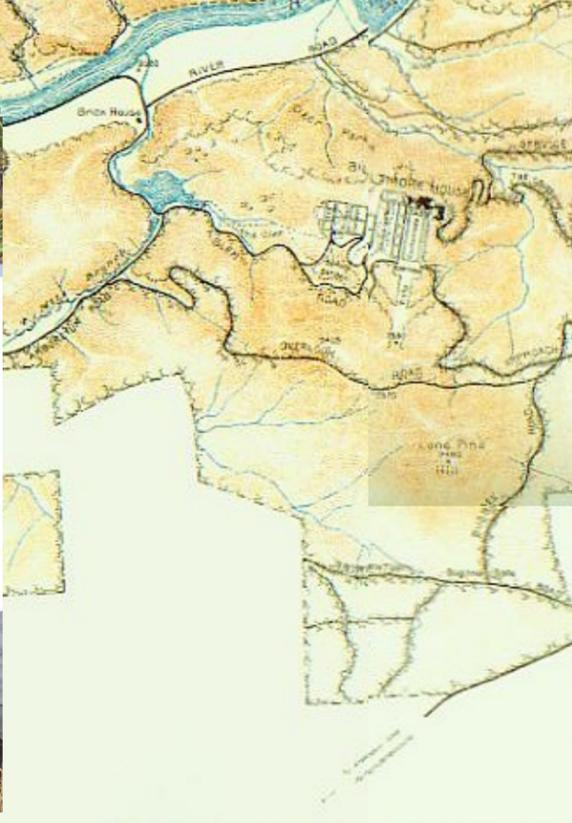
From Brick House to  
 Dingle Road by River Rd. 1 1/4 "  
 Johnson House by River Rd. 3 1/4 "  
 " " " " and Arboretum 3 1/2 "

From the beginning of the Arboretum to  
 Dingle Rd. by Arboretum 4 "  
 From Arboretum to River Rd. by Dingle Rd. 1/4 "  
 From Dingle Rd. to Rice House by Arboretum 1 1/2 "  
 From Rice House to Johnson House by Arboretum 2 1/4 "

Area of Estate excluding bed of French Broad River 3644 Acres.



Suzanne Woodell



Nov. 2007