

### **Guadalupe Mountains Violet (*Viola guadalupensis*)**

Guadalupe Mountains National Park has provided funds for The Arboretum to collect and propagate seed of *Viola guadalupensis*. The ex-situ population at The Arboretum will be used to produce additional propagules for seed banking and for out-planting back into the park. *Viola guadalupensis* was discovered in Guadalupe Mountains National Park and newly described to science in 1990. It grows on vertical limestone faces found on sky islands that are heavily shaded by a relict forest at 2,438 m in elevation. The first discovered population consisted of only 70 plants tightly clustered within a 2.4 m x 3.0 m area. Searches for other violet sites had proven unsuccessful until the use of GIS modeling in 2006 lead to the discovery of an additional smaller population. As of 2009, four populations have been located. This violet is found nowhere else in the world.



*Viola guadalupensis* in the greenhouse Sheila Murray

### **US Forest Service Native Plant Materials Program**

The Arboretum, through a cooperative agreement with the US Forest Service, has been working on developing supplies of native seeds of local genotypes for use in restoration projects. This four year program has focused efforts on the Coconino, Kaibab, and Prescott National Forests. Currently there are no consistent sources for quantities of local genotypes of native seed in northern Arizona, and project managers must purchase most or nearly all native seed out of state. Because local genotypes are adapted to the local environmental conditions, these plants often display increased growth, survival and production when compared to non-local seed. Developing a reliable source of locally collected native seed will allow the Forest Service to use native plants for stabilizing and restoring large areas that have been disturbed by wildfire.



Native plant production beds at The Arboretum. Sheila Murray

### **Examining Suitable Seed Sources for Sentry Milk-vetch Reintroduction**

This project is funded through Section 6 of the Endangered Species Act. The Research Department is examining the quality of *Astragalus cremnophylax* var. *cremnophylax* seeds that are being produced from Maricopa Point and Lollipop Point at The Grand Canyon National Park, where this species is found. Plants from each location are being crossed to determine whether or not the seeds produced are more vigorous than the parent populations. The most vigorous seeds will be selected for reintroduction at Grand Canyon National Park.

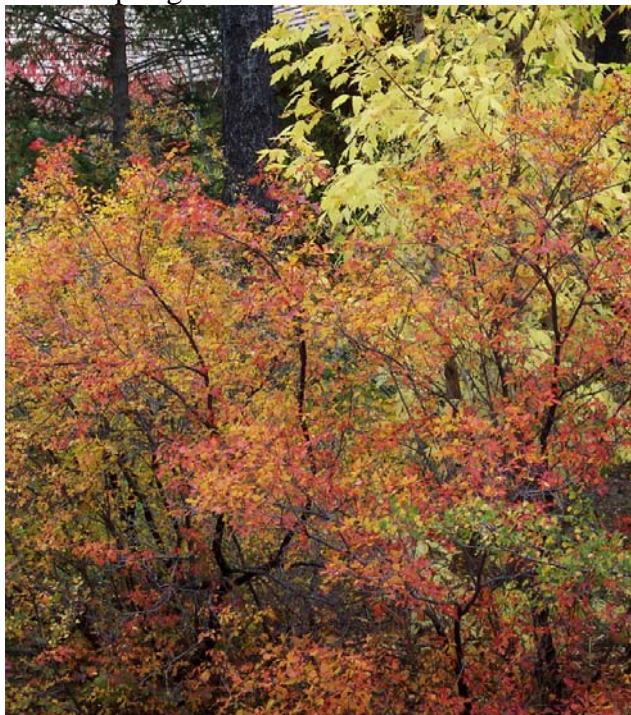


*Astragalus cremnophylax* var. *cremnophylax* in the greenhouse

Sheila Murray

### **Wupatki National Monument Plant Propagation**

The National Park Service has enlisted the help of The Arboretum to restore Heiser Spring which is part of Wupatki National Monument. Restoration at this site will involve removing old structures and revegetating with locally collected native plants. The Arboretum is propagating *Rhus trilobata*, *Populus fremontii*, and *Forestiera pubescens* from branch cuttings taken from similar spring habitats on the monument.



*Rhus trilobata* at The Arboretum

Staff

### Center for Plant Conservation National Collection Plants (ongoing since 1981)

As a charter member of the Center for Plant Conservation (CPC), The Arboretum is responsible for leading conservation efforts for 30 rare plant taxa in the National Collection. You can find the list of species on the CPC website. Conservation activities include research on reintroduction and propagation techniques, seed banking, and long-term monitoring.



*Purshia subintegra* in the field

Sheila Murray

### Autumn Buttercup (*Ranunculus aestivalis*) Project

The Arboretum is working with The Nature Conservancy and the Cincinnati Zoo and Botanical Garden (CZBG) to reintroduce Autumn buttercup, which is a federally listed species growing in the Sevier River Valley near Panguitch, Utah. Currently there are only two small populations known, with a total number of individuals of less than 400. The CZBG uses tissue culture techniques to produce *Ranunculus aestivalis* plantlets. These propagules are then sent to The Arboretum where we will be acclimatized prior to being reintroduced in Utah.



*Ranunculus aestivalis* in the greenhouse

Sheila Murray

## Seeds of Success

In cooperation with the Bureau of Land Management and the Center for Plant Conservation The Arboretum participates in the Seeds of Success (SOS) program. The SOS program goal is to collect seeds for restoration projects. A portion of the collected seeds become part of the Millennium Seed Bank Project with Kew Gardens. Seeds collected will help conserve species and help develop native plant materials for stabilizing, rehabilitating and restoring lands in the United States. Starting in May 2004, The Arboretum has collected 71 species to date. Photos available at <http://seedsofsuccess.smugmug.com/>.



Seed collecting near East Clear Creek, Arizona

Sheila Murray