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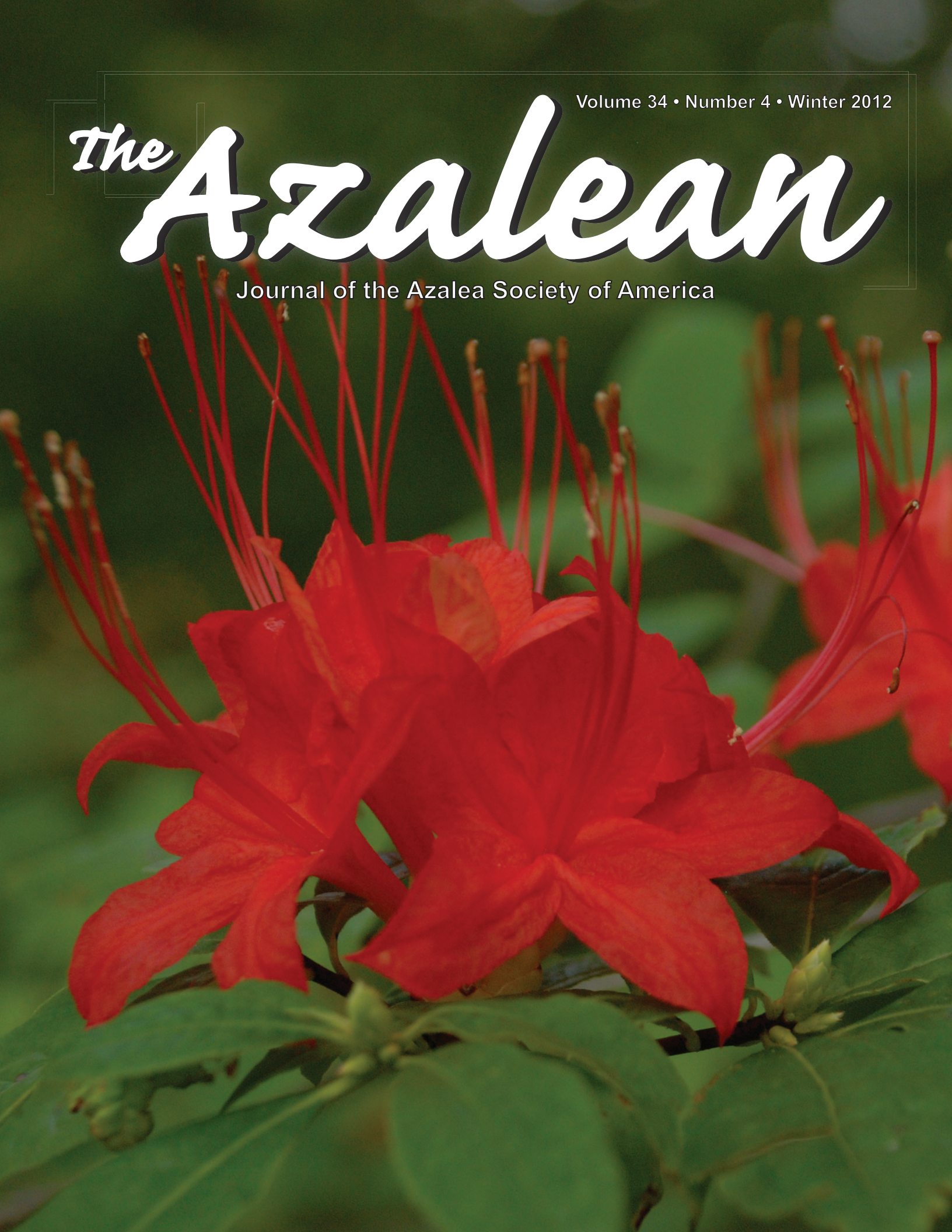

Auburn University's Davis Arboretum

Accomplishing its mission through plant collections and collaboration

Patrick Thompson -

Auburn University's Davis Arboretum is far more than a plant collection. It is an open air classroom, an ecologically rich green space, and a carefully catalogued living museum, among other things. The Arboretum's plant collections provide the setting and often the instrument to accomplish the garden's mission, which is to promote an understanding of and appreciation for the natural world, emphasizing plants native to the Southeastern United States and other associated organisms. The Arboretum has spent the last several years spreading its limbs beyond its physical borders. These metaphorical limbs are the efforts by Arboretum staff to connect with organizations that allow it to accomplish its mission more efficiently. Our most important collections have grown in many ways thanks to a variety of networks with which the Arboretum become associated. The Southeast's diversity of native plant life offers a splendid pallet to display in the garden, but the many people that have collaborated to bring those plants to the public are part of a growing asset for plant lovers everywhere.

photo: Patrick Thompson

▲ ***Rhododendron* x 'War Eagle' with post oak *Quercus stellata***

We will take a closer look at three collections and the organizations that have helped them develop. The carnivorous plant collection elicits the most curiosity. It displays predatory plants previously unknown to some patrons, and includes some species on the brink of extinction. The next collection, the azaleas, are known far and wide as the royalty of the garden, but the woods around Auburn are home to their sovereign blooms from spring to fall. The final collection discussed here will be the oak collection. Although oaks often have a reputation for their size and the strength of their wood, several lesser known dwarf oaks now grow with our canopy of centurion oaks.

Carnivorous Plants and the Alabama Plant Conservation Alliance

The most diminutive of the three core collections is by far the carnivorous plants. They are the smallest in stature, but also have the smallest existing wild populations, and especially Sarracenia, have very limited available habitat in the wild. The pitcher plants of the genus Sarracenia are the tallest of the bunch; their leaves reaching waist high with fixed mouths the size of a baseball under ideal conditions. At the other end of the spectrum are the bladderworts. Our most prevalent species, *Utricularia subulata*, lives below the surface of our bog's wet soils preying on microorganisms, with stems emerging only for a few weeks in early spring when they lift delicate yellow flowers on hundreds two inch stalks. These mostly aquatic plants have the world's fastest traps, able to snatch up zooplankton in a fraction of a second. Opposites within the collection again, bladderworts occur on 6 continents, while almost all species of Sarracenia are restricted to the Southeast's lower coastal plain. Unlike the other two groups we will discuss, this collection is not restricted to a single genus: the Southeastern US is home to five genera of carnivorous plants. That is more than any other region of comparable size in the world! Many visitors are surprised to find out that even a single native plant has such amazing skills.

photo: Patrick Thompson

▲ Alabama Pitcher plant, ***Sarracenia rubra*** **var. *alabamensis***

photo: Patrick Thompson

▲ Venus Fly Traps, ***Dionaea muscipula,*** **in the Arboretum Bog**

This opportunity to educate the public continues to result in an increased understanding and appreciation for these amazing plants. In south Alabama, several types of pitcher plants can be found but, as you move north, they become extremely rare. There are 2 types that occur. Both are federally listed as endangered. The Alabama pitcher plant Sarracenia *rubra* var. alabamensis, and the green pitcher plant, Sarracenia *oreophila*, are represented by a small and shrinking number of populations. It is through our affiliation with an alliance of plant conservationists that we have been able to display these plants and participate in the conservation of these species.

The Carnivorous plant collection has grown to become one of our core collections thanks to the Georgia Plant Conservation Alliance (GPCA). They invited staff from the Arboretum and faculty from AU's Department of Biological Sciences to attend one of their meetings with the purpose of helping us initiate a similar group in Alabama. The Alliance brings together interested parties to network and update each other on projects. They make sure plant conservation efforts are not overlapping each other, and that no species are falling through the cracks into extinction. A meeting of the GPCA typically includes representatives from public gardens, universities, land trusts, state and federal agencies, and even growers, native plant enthusiasts and other volunteers. It is a project-based model that allows for active conservation as well as a roundtable for discussion of plant conservation issues facing members of the group. Five years later, under that same model, the Alabama Plant Conservation Alliance (APCA) is active and growing in participants and conservation projects.

After meeting with GPCA, The Atlanta Botanical Gardens (ABG) asked the Arboretum to host some of the carnivorous plants that seemed to be spilling out of their greenhouses. The result is what may be the largest carnivorous plant exhibit at any school in the country. The exhibit showcases all the genera of southeastern carnivores, and every species in the genus Sarracenia. They are displayed in different bog habitats among many associated grasses, shrubs, and wildflowers. These bug eating plants naturally grow in bogs with low nutrient availability where their ability to catch an extra meal has given them an advantage over the other plants. These bogs have suffered greatly in the face of both habitat loss and habitat alteration. Some estimates state that carnivorous plants have lost 98% of their livable habitat due to human activity. The unique character and tenuous nature of the endangered Alabama pitcher plant made it a top candidate for the APCA's flagship project. It helped that the ABG, home to the world's largest carnivorous plant collection, had already

been conserving genetic material from the handful of existing populations. The APCA has successfully augmented a small population through a collaborative effort that involved The Nature Conservancy, Boy Scouts of America, Auburn University, and the ABG. The Arboretum has also been able to locate a group of plants that were rescued from a construction site that have been safeguarded on private property for more than 30 years. Seeds have been collected and are being grown at AU and ABG. The lessons of conservation and the fascination carnivorous plants instill have made them one of our most educational collections. The display might not even exist were it not for the connections we made through the Alabama Plant Conservation Alliance.

Rhododendron and the Azalea Society of America

In 2007 the Arboretum had about 50 established Rhododendron plants from several native species. They were from mostly unknown sources, but still made up one of the largest groups of woody shrubs under the canopy of the Arboretum's impressive tree collection. The hollies and beautyberries were the only group that outnumbered them, and that was thanks to the relentless distribution efforts by the local birds. Then one day we had a visitor. He said he was Smitty and he wanted to give us azaleas. He offered us hundreds or thousands, whatever we could fit. With a staff of 3 struggling with existing maintenance and development, we were a little nervous about the proposition. We had already learned that our mature oak collection was made less valuable by the fact that there were no records related to the source of the trees, and had begun an effort to take that collection to the next level. The Arboretum is part of the College of Science and Mathematics at Auburn, and our roots are closer to botany than horticulture. The value of records comes into play when the collection needs to be available for research, or useful for conservation, both of which are important to our institution. We told Smitty we would accept native species with documented wild origin. He had been collecting seeds, growing, and hybridizing plants since the seventies, and had plants scattered through gardens near and far that he had shared with people. He began by bringing us several specimens of his favorite species, R. *alabamense*, the Alabama Azalea. It was agreed that this species would be the flagship of the collection. It was also decided that there should be a defined goal for the collection. It was decided that the Arboretum would work with Smitty to acquire specimens of each species that occurs in the Southeast, any naturally occurring hybrids within the region and as diverse as possible of a collection of Alabama Azalea to be made available for research and conservation work.

In order to display the variety of growth habits and flower forms seen in the species, and preserve the widest possible array of genetic material for the species, the collection will consist of one or more specimens of Alabama Azalea from each county in which it occurs.

▼ ***R. cumberlandense* with Blue eyed grass, *Sisyrinchium angustifolium* "Suwannee'**

photo: Patrick Thompson

▼ ***R. prunifolium* prune leaf**

photo: Patrick Thompson

Smitty took to his mission like a duck to water. He called azalea enthusiasts, landowners, former students and anyone else he could think of to get information about the location of these plants. Querying the state's herbarium records resulted in one his most disheartening efforts. Many were roadside populations documented decades ago. As he went on a 500 mile roundtrip to visit donors in northeast Alabama, he stopped at 20 sites with historical occurrences. At 16 sites he found expanded roads, new housing, clear cut timber land, and even plants that had recently fallen victim to herbicide. The urgency of the mission had become painfully apparent.

Smitty had spent decades trying to increase awareness of the dwindling populations of these amazing native plants. The technique he believed could reach the widest audience was the development of improved varieties, the project he initiated spread to many local private gardens where the seedlings of his hybridizations were trialed. He was a charter member of the Chattahoochee Chapter of the Rhododendron Society of America, which eventually folded due to lack of activity. In 2008 he attended the national convention of the Azalea Society of America (ASA). Excited about the potential to revitalize the sleeping Alabamense Chapter, he used his travels throughout the range of the chapter's namesake to drum up interest in restarting it. Conservation and research unfortunately is not enough to get the general public excited. That is where horticulture comes back into the picture, helping to inspire appreciation for the natural world. Fish genetics was a large part of Smitty's professional life, but in retirement he became an artist of azalea genetics, hybridizing hundreds of his favorite plants and making selections from the first and second generations. The third generations of selections are going to start flowering this year.

Unfortunately Smitty will never see them bloom. His health began failing not long after the national convention, which resulted in him working even harder towards his azalean goals. He passed away in the spring of 2011. All the southeastern native species and most conceivable hybrids can be found now in the Arboretum. The first meeting of the new Alabamense Chapter occurred the following winter. The group continues the work that Smitty started, sending seeds and plants from wherever the Alabama azalea can be ethically collected. That same winter, four years after it began, his donation reached its crescendo. A network of networks came together to collect choice plants from Smitty's house. In a dense thicket of stems and buds, Arboretum staff and volunteers, Lee County Master Gardeners, and members of the ASA's Alabamense Chapter mapped 857 labeled azaleas and rhododendrons. From those, 350 choice specimens were dug and relocated to the Arboretum along with several hundred container plants.

The collected plants included Smitty's named hybrids and selections. Two had even been registered with the Royal Horticultural Society; 'Patsy's Pink' (R. *colemanii* x 'Gibraltar') and 'Corley's Cardinal' (

▼ ***R. austrinum* 'Millie Mac'**

photo: Patrick Thompson

▼ ***Rhododendron* x 'War Eagle'**

photo: Patrick Thompson

R. *calendulaceum*). He had a vision for these plants. Smitty saw great future for the Arboretum, but knew it couldn't reach its potential with its current funding. He hoped that his donation would be like an endowment for the garden. He believed the Auburn Azalea Series could earn royalties for the Arboretum while standing in landscapes everywhere as ambassadors for the wild azaleas hopefully inspiring their conservation.

Smitty may have been surprised by how quickly the collection's research value was realized. The ASA's Azalea Research Foundation helped fund a project in collaboration with American Rhododendron Society's Massachusetts Chapter that resulted in genetic testing on the ploidy levels of 60 individually accessioned plants from our azalea collection and more testing is planned. This information will be stored in the Arboretum database, and will be an asset to future researchers interested in unraveling the mysteries of speciation in our native azaleas.

Quercus and The North American Plant Collections Consortium

The most common experience for a student visiting the arboretum is to be guided to a specimen by a teacher and learn the characteristics of the species for next week's quiz and, hopefully, for future reference. Many classes teach plant identification labs in the Arboretum, and most of them will have oaks (members of the genus Quercus) in their curriculum. Some of the trees that students learn from grew for a hundred years before anyone considered they could be part of a teaching collection. Dr. Donald E. Davis recognized that at some point, the scales of nature and development would tip to the point where it would be too inconvenient to go to the woods to learn the trees. Upon his suggestion, a hog farm on the Auburn University campus became an Arboretum. The site already had mature Post, White, Southern Red, and Water oaks. Mr. Bill Reynolds, the Arboretum's first Land Manager, set about building the oak collection. Throughout the 1970's Oak species were brought in from around the state and grew well in the Arboretum. Soon there were more than 20 species in the collection. Then the Arboretum annexed the small cotton field next door in the 1980's and a mesic forest was planted that included several more oak species, almost completing the Arboretum's collection of mighty oaks native to Alabama.

photo: Patrick Thompson

▲ **White oak, *Quercus alba,* showing fall color**

▼ **Post oak, *Quercus stellata***

photo: Patrick Thompson

For more than 20 years the oaks grew, and students learned them. The archetypal specimens were the backbone of the garden's flagship collection. In 2005 the Association of the Public Gardens of America began a conservation project called the North American Plant Collections Consortium. The endeavor is a continent-wide approach to plant preservation that promotes high standards of plant collections management. The goal of the project was to establish which garden offered the best collection of a given genus for the purpose of conservation, research, and advocacy. When the program launched there was no representative for the genus of oaks, Quercus. The Arboretum contacted the program manger and learned that because of the wide range of habitat requirements, no one garden would be chosen, but that Quercus would be the first multi institutional collection for the NAPCC, and a southern garden would be a major asset for their effort.

At that time the Arboretum was a maintained collection of labeled trees in an undocumented forest of native plants being developed to be more appealing through more horticulturally informed installations. The NAPCC sent a mentor to evaluate our oak collection for consideration. The needs we had to meet to be a part of the program included accessioning the individual trees in the collection, writing a collection policy, developing a system to manage those records, recollecting species that did not contain specimens of documented origin, pressing and vouchering specimens for herbariums, and working to collect the southeastern species not yet in our collection. We found that what we were missing were mostly dwarf oaks like the shrubby live oak, Q. *minima*, the stoloniferous runner oak, Q. *pumila*, and the myrtle oak Q. *myrtifolia*, just to name a few. There is even a species endemic to central Alabama rock outcrops, Q. *boyntonii*, that was absent from the collection. It was no small task, but those species were collected, the requirements have been met, and now the AU Davis Arboretum enjoys full status in the NAPCC's Multi Institutional Quercus Collection.

Conclusion

So now the Arboretum sits on the main campus of a major university just down the street from two of the nation's most famously murdered oak trees at Toomer's corner. If they do come down one day, there will be plenty of oaks around to console the Auburn family, and plenty in the Arboretum. The oak tree is often a source of inspiration. Hopefully the oaks and other native plants we display will be able to also be a source of understanding. Each oak that remains standing can host hundreds of animal species and keep tons of carbon out of the atmosphere for hundreds of years. They preserve the soil, the water, and the air that we breathe. We aim to be sure they aren't taken for granted. The diversity represented by these three collections must not be underappreciated. Diversity is nature's way of backing up the ecological processes that allow this planet to sustain life. In a state with the highest extinction rate in the continental US, it is clear that more understanding is imperative, and that is why we take our message of sustainability very seriously. For these reasons and more, we will continue to work with the people who love all the different plants that enrich our lives, and are pleased that the Azalea Society of America is now part of that network.

Call for Articles

The Azalean needs more good articles about azaleas, their care, and their use in the landscape. Ideas include:

- Articles describing new public gardens or special azalea collections being created in your area.
- Descriptions and photographs of Society members' gardens.
- Information about azalea festivals and sales.
- Historic garden restoration stories.
- Articles about noteworthy azalea hybrid groups or new species or cultivar introductions.

Submit articles as Microsoft Word documents. Illustrations are highly encouraged and at least 4 x 6 inches at 300 dpi. Submit to: Preston and Bonnie Cooley, Editors, 6900 Skillman St., Unit 304C, Dallas, TX 75231,

E-mail: theazalean@gmail.com.