

NORTH
CAROLINA

wild flower

PRESERVATION
SOCIETY, INC.



Little Sweet Betsy
Trillium cuneatum

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NORTH CAROLINA WILD FLOWER
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Newsletter
of
North Carolina Wild Flower Preservation Society

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Cover Drawing: *Trillium cuneatum*, By Craig Moretz

President's Message

As we approach the new millennium, it is a natural time to think about past accomplishments and goals, to plan what we would like to accomplish in the future, and to examine how we can most effectively reach those goals. Over the past 48 years, the NCWFPS has supported many worthy causes and has supported the development of a number of institutions and programs that promote conservation and protection of native plants. We have provided education to the public through our outings and programs, and we have supported research through the Shinn Grant, which has helped to cover the expenses of students conducting studies that ultimately help us to better understand our native flora.

The seeds of our most recent activities began to germinate in Spring of 1998 when Cecil Frost of the NC Plant Conservation Program led one of our outings and presented a program about fire ecology. Cecil expressed to our board his concerns about the plight of rare plants in our state, the very plants that his program is charged with protecting. He proposed an alliance of efforts between our society and a group of individuals, both inside and outside his program, for the purpose of educating the public about the endangerment of many NC rare plant sites, and the lack of management staff to accomplish the protection and conservation of these sites. A group of NCWFPS members and non-members began getting together and planning a strategy to provide education about this issue as well as developing a plan to increase the staff available to protect rare plants. After much discussion about the most appropriate way to achieve these goals, the NCWFPS agreed to promote these issues by developing an education committee of the society. The initial project of this committee became the Rare Plant Initiative, which was approved in Spring of 1999 for a period of two years, with an option to renew. If you have been following the events of Alice Zawadzki's program mailings, you are already aware of the extensive activities that have occurred regarding rare native plants and their protection. Those activities and accomplishments have resulted from the hard work of a core group of members and a few non-members who have worked on that committee.

As a result of those efforts, the NCWFPS has been awarded a total of \$35,000 in grant money for education about rare native plants. Of that money, \$10,000 was received from Carolina Power and Light Company for exhibit and brochure costs, and \$25,000 was recently awarded from Z. Smith Reynolds for equipment, supplies, printing, and staff. In addition, the NC Plant Conservation Program has received \$38,000 from US Fish and Wildlife to fund the development of a database and to provide staff to research rare plant sites. They received over \$1.6 million from NC Natural Heritage Trust for the acquisition of rare plant sites. Year 1999 has been a most auspicious year for rare plants in NC. Year 2000 could bring about the fulfillment of Initiative goals!

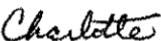
Through the Rare Plant Initiative, the NCWFPS is continuing to advance its mission of promoting the "enjoyment and conservation of native plants

and their habitats through education, protection, and propagation.” In order to further enhance our mission, we must also have a vision of our society’s place in the future. People are discovering the value of native plants for the conservation of natural resources, the sustainability of wildlife habitat, the preservation of ecosystems, the benefit of the economy and the promotion of tourism. As a result, interest in native plants has increased dramatically. As educators and conservationists, we must strive to be responsive to these needs and interests. We have an excellent opportunity to educate and activate an interested public in the cause of native plant preservation, and to combat the spread of the many invasive species that are epidemic in our country. I believe that the following goals are very important in furthering our mission:

- complete our publications, which are valuable sources of information (propagation handbook and brochure revisions), and make them available to the public.
- improve our educational materials about native plant gardening, regionally appropriate species, and the eradication of invasive species.
- develop local chapters through which we can respond to local issues and educate members about being a voice for conservation in their community.
- improve participation and membership through reactivating the publicity and membership committees.
- increase our newsletter staff.
- continue the Rare Plant Initiative and other educational initiatives.

The April 2000 meeting will be an elections meeting. We are well on our way to filling all the officer slots, and there are excellent candidates available for trustee positions. My hope is that we will be able to expand committee participation so that the above goals will be easier to reach. The committee responsibilities include: writing articles, proofing, or stuffing envelopes (newsletter committee); distributing brochure and NCWFPS activity information to designated sites or festivals where potential members are found (membership committee); revising our publications, providing technical assistance – art work, photography, graphics, computer skills, and publicizing events to the media (publications/publicity committee); and working on educational materials, grant writing, working booths at festivals, and making presentations (education committee). If you would like to nominate someone else or yourself to participate in these committees please contact one of the members of the nominating committee: Charlotte Patterson (336) 643-4656, Eric Hawkins (919) 563-1026, or Emily Allen (336) 924-8541. Together we can be a strong force for conserving North Carolina’s natural heritage.

Sincerely,



Charlotte Patterson
President

1999 Fall Meeting at Bluff Mountain and Mount Jefferson State Natural Area

Carla Oldham

Bluff Mountain Nature Preserve

We parked the cars along the road across from a small, family cemetery tucked away in the woods. From there on up, it would be a job for high-off-the-ground, 4-wheel drive vehicles. Alice unlocked the entrance gate that shields out the public and we bumped and bounced up the steep, rutted dirt road almost to the top of the mountain. Then, even the 4-wheel drives were parked and we went on foot the rest of the way. As we hiked up, the woods rising on the slope to our right were composed of tall, stately trees with an open understory. The trees were like majestic columns marking the entryway to a botanical paradise.

The Bluff Mountain Nature Preserve, which is owned and managed by the North Carolina Nature Conservancy, covers 720 acres. To direct our way through the preserve, we relied on the trail guide that was written by Ruby Harbison Pharr, who is a member of the North Carolina Wild Flower Preservation Society. The guide lays out a network of 19 stations and describes the plants and features at each location. We wove our way through various forest communities (sugar maple, sugar maple-red oak, white oak, hemlock, red oak-white oak), rock outcrops, plateau, fen, and transitional areas where one community gave way to another. Several overlooks provided us with magnificent views of the valley below and the surrounding mountains. As the trail guide indicates, Bluff Mountain is a naturalist's dream. Both Asa Gray and Elisha Mitchell visited Bluff Mountain to examine its rich botanical diversity.

The fen was particularly fascinating. It's the only true fen in the Southern Appalachians. The 3-acre naturally-open grassy area has a soil layer that averages only 9 inches deep and is always saturated. It is fed by nutrient-rich waters and in winter likely freezes to the bedrock layer of hornblend gneiss. The fen is not acid like a bog. Over 140 species of vascular plants and mosses have been identified in the fen, including several rare species. Hiking in the fen is not allowed. To permit a closer observation of the fragile ecosystem, at one edge of the fen is a very small circular stepping stone trail. As we gingerly tiptoed out, we observed the

lovely green-veined petals of the grass-of-parnassus (*Parnassia grandifolia*), minute carnivorous sundews (*Drosera rotundifolia*), cotton grass (*Eriophorum virginicum*), nodding ladies' tresses (*Spiranthes cernua*), and false asphodel (*Tofieldia racemosa*).

Because it was September, many of the wild flowers growing on Bluff Mountain were past their blooming time, although some of them were in fruit. Among the many plants we enjoyed along the paths were fringed gentian (*Gentiana crinita*), dwarf iris (*Iris cristata*), Indian cucumber root (*Medeola virginiana*), squaw root (*Conopholis americana*), wild yam (*Dioscorea villosa*), Joe-pye-weed (*Eupatorium maculatum*), angelica (*Angelica triquinata*), and starry campion (*Silene stellata*). Someone in the group pointed out yellow flags in the woods marking sites for pollination studies on Gray's lily (*Lilium grayi*).

At lunchtime, we perched on a rock outcrop that sparkled with biotite. While we sat sunning ourselves, we inspected the plants growing in the crevices of the rocks, including silverling (*Paronychia argyrocoma*), three-toothed cinquefoil (*Potentilla tridentata*), and pink sedum.

As we continued our exploration, we noticed Turk's-cap lily (*Lilium superbum*), the fading leaves of Clinton's lily (*Clintonia borealis*) (named after New York's first Governor not our President), painted trillium (*Trillium undulatum*), witch-hazel with its flower buds for the next year (*Hamamelis virginiana*), alumroot (*Heuchera villosa*), and *Collinsonia*.

On the southeast side of the preserve, we saw ginseng growing (*Panax quinquefolium*). Located nearby was rattlesnake fern (*Botrychium virginianum*) which is used as an indicator plant for finding ginseng. (What we need instead is a decoy plant that would steer poachers the wrong direction!) In the same area, we noted doll's eyes (*Actaea pachypoda*), blue cohosh (*Caulophyllum thalictroides*), fly poison (*Amianthium muscaetoxicum*), and lily-of-the-valley (*Convallaria majalis* var. *montana*).

At a look-out point, we remembered to also look down and were greeted with obedient plant (*Dracocephalum virginianum*), harebell (*Campanula divaricata*), nodding onion (*Allium cernuum*), and trailing arbutus (*Epigaea repens*). In a little opening in the forest we saw lots of bright yellow false foxglove (*Aureolaria flava*), which is partially parasitic on white oak roots, and milkwort (*Polygala curtissii*).

With so much to see on Bluff Mountain, it was hard to leave at the end of the day. How lucky we all are that the previous owners, who were concerned about preservation, wisely turned down offers from developers and chose to sell the property to the North Carolina Nature Conservancy instead.

Mount Jefferson Natural Area

On Sunday morning, we explored Mount Jefferson Natural Area with Ranger Paul Bailey as our host. Because of its steepness, Mount Jefferson has never been cut. Its top elevation is 4,683 feet. As we began our mild hike, I was delighted to see Dutchman's pipe vines (*Aristolochia macrophylla*), adorned with their fruit, hanging from a number of trees. Ranger Paul said the sides of the mountain were jungles of pipe vine. We discovered the caterpillars of the pipevine swallowtail butterfly on the undersides of the leaves. When we blew on them lightly, little defensive orange horns emerged. In many places, we observed young Chestnut trees (*Castanea dentata*) sprouting from bases of past trees stricken down by the chestnut blight (*Endothia parasitica*). Several of the young trees were bearing prickly fruit. How tragic to think these seemingly vigorous trees, too, will be taken by the blight before they reach maturity. We compared two species of maple, mountain maple (*Acer spicatum*) and striped maple (*Acer pensylvanicum*) with its beautiful green lined bark. Along the trails we observed yellow birch (*Betula lutea*), whose bark can be used to easily start a fire, mountain holly (*Ilex ambigua* var. *montana*), false lily-of-the-valley (*Maianthemum canadense*), purple flowering raspberry (*Rubus odoratus*), evening primrose (*Oenothera*), and minnie-bush (*Menziesia pilosa*) with glands at the tip of the leaves and scale-like structures along the midrib.

Also blooming along the pathway was white snakeroot (previously *Eupatorium rugosum*, reclassified to *Ageratina rugosa*). Ranger Paul told us when a common name has "snake" in it, it often means the plant was used to treat snakebites. He noted that on Mount Jefferson there are only 2 poisonous snakes, copperheads and timber rattlers. Many people erroneously think water moccasins also inhabit the area, misidentifying black snakes. Ranger Paul speculated that people mistakenly thinking they had been bitten by a poisonous water moccasin may have used white snakeroot to counteract the "poison". Because they didn't become ill, they became convinced of the power of the snakeroot plant.

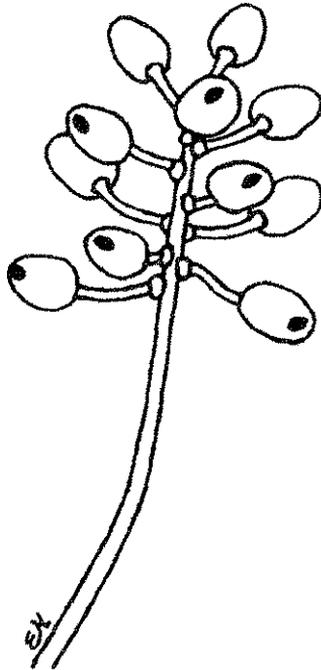
Hiking out to Luther Rock we were rewarded with a wonderful vista of neighboring valleys and peaks. Looking east, we could see the New River meandering through the valley below. The New River is considered the oldest river in North America. (Is a name change in order?) Typically, mountain rivers flow straight. Because the New River twist and turns, it is believed the river predates the Appalachians and was lifted up as the mountains were formed.

Ranger Paul showed us a cave-like area that had eroded out below a large rocky ledge near the trail. According to legend, caves such as that

one were used as hiding places for slaves traveling to freedom on the Underground Railroad. While some of us climbed under the ledge to sense the history, the "fern people" congregated on top to investigate the identity of several fern species. Among the types of ferns we saw on Mount Jefferson were hay-scented fern (*Dennstaedtia punctilobula*) and marginal shield fern (*Dryopteris marginalis*).

At noon as our weekend wrapped up, we ate lunch at the picnic shelter which was the size of ballroom and came complete with a fireplace and a wonderful panoramic view across the valley.

Many thanks to Alice Zawadski for organizing the trip, providing us with maps and trail guides, for scouting out other interesting side trips people might want to take (especially to the famous frescos in two mountain churches), and providing alternative scenic driving tours and less strenuous hikes. And thanks to Ken Bridle for donning his guide cap.



Halt The Homogeocene: A Frightening Future Filled With Too Few Species

Francis E. Putz

Prior to the recent human population explosion, transitions between geological eons, eras, periods, and epochs were heralded by global changes such as onset of widespread glaciation, giant meteorite-induced faunal and floral changes, or breakup of a supercontinent. Only one organism, *Homo sapiens*, has the dubious distinction of having wrought so much change on the earth as to warrant the naming of a new epoch, the *Homogeocene*.

This epithet seems appropriate as the primary change marking the end of the Holocene (current epoch) is the homogenization of the world's flora and fauna. Humans and human-dependent species now occupy the four corners of the earth. While human population numbers and impacts increase exponentially (e.g., Crosby, 1987, Brown et al. 1996), different human cultures and languages disappear at equally alarming rates. The effects of the onset of the Homogeocene have been particularly apparent in Florida, where rates of human population growth, deforestation, lake eutrophication, and other sorts of environmental degradation are among the highest in the world (Derr 1989). If a specific time were to be selected to mark the commencement of the Homogeocene in Florida, I would suggest the 1920s, when, in the aftermath of a world war, highways and railroads catalyzed a series of land booms that continue to this day (Gannon 1993, Mohl and Mormino 1996).

On the basis of pollen deposited and stored annually in the sediment at the bottom of lakes, together with archaeological evidence in Florida, the harbingers of the Homogeocene might be detected about 2000 years ago when signs of maize introduced from Mesoamerica indicate agricultural activity. Abundant charcoal deposited at the same time suggests that fire was one of the tools employed by these Paleolithic farmers (Pyne 1982). Pollen of some European domesticates and weeds appeared 400 to 500 years ago, but the majority of the landscape apparently changed in ways no more drastic than had been evidenced during the previous 10,000 years (Delcourt et al. 1993). In contrast, the rates and magnitudes of environmental change during the current century are unprecedented. Even the transition from oak to pine-dominated landscapes that occurred about 5,000 years ago, in the uplands

of central Florida (Watts 1975), was nothing compared to what the peninsula has witnessed since Florida became famous as a destination for vacationers, entrepreneurs, retirees, and other immigrants.

A wide range of human activities which result in significant impacts to natural systems in Florida. Farmers and ranchers clear land for their crops and cattle. Natural forests are clearcut and replaced by intensively managed monoclonal tree farms. Prairies and flatwoods are ditched, diked, and drained. Muck farms, dairies, and septic tanks discharge nutrients into lakes. Suburban developers create landscapes that appeal to newcomers from Ohio, New Jersey, Cuba, Brazil, and other points both north and south. The Florida that was once nearly completely forested is no more, and the destruction continues. Although many of the human impacts on Florida's ecosystems are intentional, some are inadvertent and could be avoided for the benefit of the environment and the economy. More insidious and harder to detect than outright destruction are ecological homogenization and other forms of deterioration of the remaining fragments of natural communities. As a result of a large number of historical and geographical factors combined with chance events, Florida was blessed with a wide variety of ecosystem types (Myers and Ewel 1990). Depending mostly on fire frequency, many upland sites support either scrub, sandhill, or hardwood hammock vegetation, distinct communities that resemble one another very little in either species composition or dynamics (Myers 1990, Ware et al. 1993). In the lowlands, an increasing duration of seasonal flooding and decreasing frequency of fire generally result in flatwood, cypress, hydric hammock, or bayhead communities with wet prairies or marshes in the really wet areas (Ewel 1990).

A few decades back, it was suggested that all of these community types are successional related (Laessle 1942, Monk 1968, Veno 1976). It was hypothesized that in the absence of fire, Florida's uplands would gradually be transformed into hardwood hammock, our "climatic climax" (Clements 1916). Under fire-free conditions in wetter areas, it was proposed that the pines and cypress would fail to regenerate and broadleaved evergreens and other hardwoods would take over, with the result being hydric hammock or bayhead communities. The climatic-climax concept of Clements fell into disfavor some time ago (e.g., Whittaker 1953), but the successional transitions predicted by Laessle (1942) and others are nevertheless evident in much of Florida.

For pyrogenic communities, including most forest types in Florida, fire prevention is a disturbance to which species respond in somewhat predictable ways. For example, when fire is suppressed, hardwoods replace the more fire-tolerant or even fire-dependent pines and cypress, as

predicted. But communities resulting from fire suppression are in many ways unique — they are not simply geographically new manifestations of communities long established elsewhere in Florida. Novel mixtures of native species are developing in response to the novel disturbance of fire prevention. Where exotic species are part of the picture, as they are most everywhere in Florida, the resulting communities are absolutely new to the planet. If these new ecosystem types simply represented additions to Florida's natural diversity, cogent arguments could be made in their defense. Unfortunately, where these novel communities develop, numerous native species, many of which are endemic, are replaced by common species or cosmopolitan weeds.

Fire prevention and invasion by non-native species are the two major forces that will lead to the essential loss of the few natural communities that avoid the ravages of bulldozers in Florida. As forests dwindle in size and become increasingly hemmed in by housing developments and roads, the likelihood of lightning induced fires decreases. Parking lots, swimming pools, and watered lawns are very effective fire breaks. Animals that venture out of nature preserves stand a good chance of being run over, thus joining the "flattened fauna" (roadkill) for which we now have identification guides (Knutson 1987, Hostetler 1996).

Perhaps the hardest hit natural areas in Florida have been and continue to be those that are pine dominated. During the present inter-glacial, pines and their associates may have been abundant in Florida for only 5000 years or so (Watts and Stuiver 1980), but as recently as 1920, pine forests and pine savannas covered nearly 90% of Florida's uplands (Ware et al. 1993). Pine prominence was due to widespread and frequent fires, both anthropogenic and lightning induced. Without fire, pines, wiregrass, gopher tortoises, and perhaps 400 other species soon disappear (e.g., Noss 1989, Landers et al. 1995). Stop fire and watch grey squirrels replace fox squirrels, laurel oaks replace turkey oaks and bluejack oaks, box turtles replace gopher tortoises, and sapsuckers replace red-cockaded woodpeckers.

Humans bring to Florida many species of plants and animals that have significant, unintended effects on the natural environment (e.g., Simberloff et al. 1997). Hydrilla, water hyacinth, and other escaped aquarium plants clog lakes, cats eat birds, dogs eat gopher tortoises, paper mulberry trees shade out sparkleberries, and cogongrass crowds out just about everything.

Cogongrass is a particularly problematic exotic because it spreads faster, grows taller, burns hotter, and regenerates faster than any of the hundreds of pyrogenic native species that it quickly replaces in the

otherwise beleaguered remnants of pine forest. The problem with invasive exotics is challenging in part because many people either do not believe that their beloved cats, dogs, and flowering plants can menace the environment or they do not want to have their horticultural options constrained and their pets restrained. Too few people recognize the beauty of a sandhill, do not know how easy it is to use controlled burns to maintain hundreds of flowering plants, and do not see the tragedy of letting sandhills die by omission of fire or commission of the rototiller.

Even with continued habitat fragmentation and prevention of fires in the remaining forest fragments that are ineffectively protected from exotic species invasion, Florida's forests will not become completely homogeneous. There will be *Melaleuca* forests where marsh grasses and sedges once provided homes for wading birds. Low-lying coastal forests that are not inundated by rising sea levels will support dense thickets of Brazilian pepper. Australian "pines" (*Casuarina* spp.) will line oceanfronts and invade dunes. Long into the next century in some swamps, cypress trees will continue to tower over the bays and other hardwoods that will eventually succeed them in a most Clementsian way. Many other swamps, especially those connected by streams, are likely to become Chinese tallow forests (Bruce et al. 1995), perhaps draped by Japanese climbing ferns and air potato vines. Other horticultural escapees will vie with fire-intolerant native hardwoods, like laurel and water oaks, for dominance of the uplands. Envision a paper mulberry and mimosa overstory festooned with air potatoes, an understory of introduced ardisias, and an herb layer of asian tradescantia. On drier sites, especially where there are occasional fires, picture a thicket of the spinescent tropical soda apple or a monocultural sward of Southeast Asian cogongrass — no trees, no blazing stars, no deer tongue, no deer, no turkey oaks, no turkeys, no gopher apples, no gopher tortoises, and no fox squirrels. Visit Ocala National Grassland and Fire Ant Preserve! (Yikes! — Ed.)

There are numerous ways to avoid some of this homogeocenic monotony in Florida. First and foremost, we need to foster widespread aesthetic appreciation of Florida's natural ecosystems. If the public does not firmly embrace the ecosystem management efforts of their next-door neighbors and other land stewards, exotic grasses are likely to reign supreme. These grasses and other invasive non-indigenous species should be outlawed, at least in the seedsheds of nature preserves. Invasive exotics should be treated as nuisances or pollutants, providing legal recourse for litigious landscapers.

Incentives should be provided for land stewards who encourage native species and natural ecosystem processes, especially fire. To promote the maintenance and restoration of natural ecosystems, Florida's already

advanced controlled burning laws should be further developed (Brenner and Wade 1992). Even in suburban settings, external combustion on remnant sandhills at two-three year intervals could replace the weekend roar of internal combustion lawn-mowers and weed-wackers. The biodiversity benefits and cost savings of burning would be substantial. Gardeners will be pleased to learn that in a well developed sandhill there can be as many as 100 species of flowering plants in an area the size of a riding lawnmower, and that these beautiful natives require neither fertilization nor irrigation.

Forest managers who renounce the monomaniacal focus on volume yields and adopt more naturalistic silvicultural methods should be rewarded in the marketplace through programs such as certification of forest products from well-managed lands (Landers et al. 1995, Viana et al. 1996). Environmentally sound forest management should be encouraged because substantial environmental benefits derive from keeping forests in production, especially where the alternative is further fragmentation and suburban sprawl.

Although natural areas requires less tending than manicured lawns, gardens, and traditional golf courses, they still require active management. The need for natural areas management increases as landscape fragmentation interrupts the natural processes that maintain the structure and composition of natural communities. As the perimeter-to-core area ratio increases, what happens outside of natural areas becomes increasingly important and management efforts have to extend beyond preserve borders. But we must acknowledge that ecosystems naturally change. Many Paleoindian archeological sites in Florida, for example, are presently under water. Changes in higher elevation areas in Florida, for example, are presently under water. Changes in higher elevation areas in Florida have been no less dramatic (Delcourt et al. 1993).

Perhaps it is unreasonable to try to maintain all native species in even the smallest of natural areas (Kellman 1996), but the negative consequences of not burning and not preventing the encroachment of invasive exotics are quite clear. It may be relatively easier to maintain the ecological integrity of large blocks of natural vegetation, but small preserves in areas densely populated by humans can serve as effective demonstrations of the potential benefits of restoration and maintenance of natural biological communities.

With hundreds of people moving to Florida every day, most arriving without any sense of the beauty of natural scrub or sandhill, thwarting the Homogeocene is going to be a major and continuing battle. The right land

use policies, supported by environmental education and research, could do much to maintain some of natural Florida well into the next century. Once people are aware of the benefits of controlled burns and the advantages of encouraging rather than fighting against natural processes and native species, life in Florida will improve for its human as well as its native non-human occupants.

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Variegated Native Plants

Craig Moretz

In today's horticultural trade, variegated foliage plants have become the rave. Caught in this onslaught are a few of our American natives. *Tiarella* (Foamflower), *Heuchera* (Alumroot), and *Hexastylis* (Wild Ginger) are only three of the genera, among the most sought after for their fabulous foliage. However, many others deserve like recognition and a special place in our gardens. Follow along as we tour through a season of colorful foliage.

The season begins with several of our woodland spring ephemerals, dogtooth violets first take the stage with the earliest hints of spring. Sending forth leaves of palest grey-greens heavily mottled with maroon-browns and purples. These arrive in such numbers and with such haste that entire floodplains especially in the piedmont are transformed virtually overnight into rich tapestries fit for the halls of kings. This alone makes this native worthy of our gardens, yet as if to leave no room for doubt, dogtooth violets achieve one last feat as this rich carpet of variegated leaves is smothered with thousands of dainty yellow "violet" blooms. How such a wonderful plant was bestowed a name like dogtooth violet is unknown to this author. Perhaps the pendant flower buds reminded its name-giver of a dog's tooth. Whatever the reason, this woodland charmer deserves more attention.

Next to arrive, Trilliums unfurl their showy mottled foliage to meet the warm spring sun. There are numerous variegated species of *Trillium*, though perhaps the best two are *T. cuneatum* and *T. decipiens*. Both possess beautiful leaves with varying degrees of variegation. While the former usually has bicolor leaves, the latter is usually tricolored or in rare instances quadricolored. There are trade-offs however, as *T. cuneatum* has sweet, grape-scented flowers and *T. decipiens'* flowers smell like carrion (known locally in Florida as Dead Horse Trillium!). Despite its common name - the foliage of *T. decipiens* is outstanding.

The variegated spring ephemerals show ends with *Podophyllum* (mayapple). In large colonies, the umbrella-like leaves of mayapple pop-up through the dry leaves of autumn past. So short lived is this variegated show that one must watch daily as green islands appear on the forest floor. Each day as the leaves expand the variegation becomes less and less until it is finally lost. Although fleeting, it is wonderful all the same. And once gone, the curious passerby may, on bended knee, peep below the leaves and behold the beautiful hidden flowers of mayapple. Yet, even

then the tale is not finished for in May a return visit might yield a delicious edible fruit; thus, its common name. Yet, Beware! If eaten too early, your overzealous folly may result in your untimely demise, since all parts of the mayapple including unripened fruit are deadly poisonous! Only the delicious RIPE fruit may be eaten without dire consequences!

Spring ephemerals represent only a few of our variegated natives. Many are evergreen. *Tiarella* (foamflower) is a long time favorite among wildflower gardeners. Grown mainly for its "foamy" spires of white flowers, lately horticulturalists have been selecting cultivars with strongly variegated foliage. These include Iron Butterfly and Mint Chocolate among others. Easy to grow and ideal for the woodland or shade garden, foamflower is a must. With leaves somewhat resembling *Tiarella*, *Heuchera's* (alumroot) too, have found a place in the horticultural trade. The leaves of *Heuchera* are distinctly variegated and veined with awesome hues of silvers, greens, and purples. Not much can be said for their flowers, however, which appear on straggly stems (unless you want seed these can be easily removed, thus promoting greater leaf production). Another evergreen species with both variegated leaves and delightful flowers is *Hepatica americana*. None can call themselves a true wildflower enthusiast without being intimately acquainted with this woodland beauty. Its spectacular lavender blue flowers appear with the arrival of spring. These are followed by a new flush of wonderfully mottled leaves of green and burgundy which arise as the previous year's leaves, worn and weathered from a long year of toil, recede into the leaf mold below. Of all the wildflowers that inhabit our woodlands, *Hepatica* I hold most dear. Its rebirth each spring is anticipated with the earnest of a child on Christmas morn. *Hepatica* is a true symbol of hope, purity, and all that is good.

At the far end of the spectrum, more commonly eliciting curse rather than praise, is *Smilax* (Catbrier). Appropriately named, anyone ever entangled in a thicket of Catbrier, which somehow never fails to stand between the adventurous wanderer and their destination, knows that many a saint has lost their religion, at least momentarily, as curses ring out across the land. Yet, even with such a reputation many of our native *Smilax* spp. deserve a second look. Some have leaves with wonderful variegation and all produce berries that feed many a weary bird as they return north from their wintering grounds far to the south.

Pipsissewa, a cousin of the rhododendrons, is another variegated native with evergreen foliage. Widely scattered plants dot the forest floor. Their dark green-black leaves boldly striped with white are beautiful on their own merit. Yet, deliciously scented waxy white flowers make Pipsissewa a real delight. This species has proved difficult to tame, so if

you know of any tried and true methods of culture please let us share in your wisdom. *Hexastylis* (Wild Ginger) has truly taken the horticultural world by storm. It is being hailed by some as the "evergreen hosta." It is difficult to imagine that such a diminutive two or three leaf plant in our forests can become a glorious display - virtual mounds of variegated foliage in our gardens! Yet, several cultivars of our native *Hexastylis* spp. have been selected and are being tissue cultured by the thousands - "they're coming to a store near you" - soon!

Another favorite variegated evergreen native is *Pachysandra procumbens*. This rare plant of southern woods is a glorious plant to grow. It multiplies readily yet somewhat slowly. The wonderful grey-green blotched white leaves stand erect for only a short time after growing before their petioles relax and lie them upon the forest floor where they remain throughout the year. An added treat are the bunches of fragrant white flowers that appear amongst their leaves in spring.

Last, but definitely not least, of our truly evergreen native variegated plants is *Goodyera* spp. (rattlesnake plantain). *Goodyera repens* and *Goodyera pubescens* are our only evergreen species of terrestrial orchid. These little charmers are perhaps our most handsome variegated natives. Pale green leaves with white net-veining makes identification easy. Creamy white blooms arise on a scape in summer - reminiscent while still in bud of a rattlesnake's rattler - perhaps the origin of its common name!? *Goodyera pubescens* is very easy to grow and propagate and at present can be found growing in the too many future sights of Wal-Mart, McDonald's, Home Depot, etc.....(Maybe a plant rescue could provide you with a few for your garden! HINT! HINT!) along with many other rapidly disappearing natives.

Two other native orchids with variegated foliage - though not evergreen - deserve mention. *Tipularia discolor* (cranesfly orchid) and *Aplectrum hyemale* (Adam and Eve orchid/ puttyroot) produce leaves in late autumn that last through the winter months but disappear with the warm days of late spring. Their flowers appear just before the new leaves emerge in autumn. Their single leaves oftentimes appearing in groups or small colonies are wonderful to have in the winter landscape. *Aplectrum* leaves are slightly larger and pale grey-green with white pinstriping along the many parallel veins. *Tipularia* leaves are usually dull olive-green on the upper surface and purple on the underside. However these vary greatly and leaves have been seen with heavy purple flecking, silver tones, deep black-purple, etc. These colorful variegated forms offer much promise for the wildflower gardener with an eye for winter color in the garden.

The last two genera on our tour of variegated natives are *Asclepias* and *Sarracenia*. Maybe "variegated" is not the correct term, perhaps highly colored leaves best describes them; Or, simply Awesome! *Asclepias humistrata* with large pale green leaves boldly veined with pink makes it one of the most colorful of our native plants. It lives out its life among the sandy areas of the southeastern United States. Flowers appear in summer as an added bonus, however the colorful leaves are what set this plant apart from its kindred. Once encountered, you will not soon forget it! *Sarracenia*s (pitcher plants) will end our tour of special natives with unusual and outstanding leaves. It might be said that I am a wee bit biased when it comes to *Sarracenia*s. Yet, several species of *Sarracenia*s make a lasting impression upon those who behold them. Unique tubular leaves of chartreuse greens and brilliant reds in varying hues and boldly marked and veined in a vast array of colors, yields pleasure to the eyes of native plant worshipers. The choice is difficult though perhaps the three most showy species are *S. flava*, *S. purpurea*, and without doubt *S. leucophylla*.

All of the native plants mentioned here are beautiful plants, whether growing wild or tamed within the confines of a container or garden. Enjoy and respect our native flora and fauna and the wild places where they live free, for without them there is nothing, only emptiness.



Local Contractor Helping Restore Mountain Bogs

Effort will give endangered plants a better home

Harrison Metzger

The smell of the rich, dark bog soil, freshly turned, filled the air as Steve McMinn watched an earth mover filling ditches next to his home off Duncan Road.

McMinn's grandfather, Paul Duncan, installed some of the ditches years ago to drain wetlands and clear pasture to grow hay for cattle.

Today the 32-year-old Hendersonville grading contractor is helping restore the mountain bogs so endangered plants will have a better home.

The plants growing in Bat Fork Bog include three federally protected species – Swamp Pink, the Mountain Sweet Pitcher Plant and the Bunched Arrowhead. The latter is the most threatened plant in North Carolina, existing only in Henderson County and on the mountains in Greenville County, S.C.

In an ironic twist, the equipment McMinn's company normally uses to grade land and build roads is being used to restore rare mountain bog habitat.

"This is really a first for us," said Cecil Frost, coordinator of the N.C. Plant Conservation Program. "All this is experimental, restoring the land. This is the reverse of what's happened the last 200 years."

There are no textbooks in the emerging field of restoration ecology, Frost said. Instead botanist and biologist are learning as they go at sites such as this one, located along Bat Fork Creek about a mile from downtown Hendersonville.

The N.C. Plant Conservation Program, funded through sale of personalized license plates, works to restore and protect habitat for rare and endangered species. There are 26 federally listed plant species in North Carolina.

"It's very unusual to have three of them at one site," Frost said as he tromped across the freshly filled ditches Thursday at Bat Fork Bog. Nearby, an opossum scampered into the brush.

Scientists believe Henderson County once contained more wetlands

than any other mountain county. Over the years, much of that land was drained and converted to agriculture. Many fields surrounding this bog, for instance, were already drained when Duncan acquired the property several decades ago, his grandson said.

The N.C. Plant Conservation Program bought 15 acres from Duncan several years ago. The program (essentially Frost, since he is the only permanent employee) worked over the past few years to restore wetlands here and at nearby Ochlawaha Bog.

Last year, Frost and other botanists visited the bogs to clear patches of forest to provide sunny habitat for the pitcher plants.

Bunched Arrowhead and Swamp Pink can tolerate slightly more shade, but all three require damp, waterlogged soil. So the program hired McMinn's company to fill the 2,800 feet of ditches to try to restore natural water flow patterns around Bat Fork Bog.

"We hired Steve, but he is really doing it at a bargain rate as a donation," Frost said. "We are really grateful he's taken on this project. I know he cares about this land having grown up here."

McMinn spent his boyhood exploring the land.

"I know every inch of it," he said as he watched track ho operator Ben Capps fill the ditches Thursday.

The Carolina Mountain Land Conservancy, a Hendersonville-based land trust, owns 2.8 acres at nearby Ochlawaha Bog adjoining three acres owned by the state.

Today, Bob Carter of the U.S. Natural Resources Conservation Service will lead volunteers working to restore bogs there.

"We have started to see problems over there due to a number of different factors," said Kieran Roe, director of the conservancy. "The water table looks like it's lower than it has been historically and even just recently."

To improve habitat, volunteers will use willow posts and brush to build several small dams to back up more water in the bog.

North Carolina is home to 443 rare plant species, according to the N.C. Wildflower Preservation Society. The group recently launched its Rare Plant Initiative, a campaign to raise \$100,000 to educate the public on rare plants. They also plan to introduce a bill next spring in the General Assembly to increase funding for the state plant conservation program.

The program has existed for 20 years, but operates with a budget of

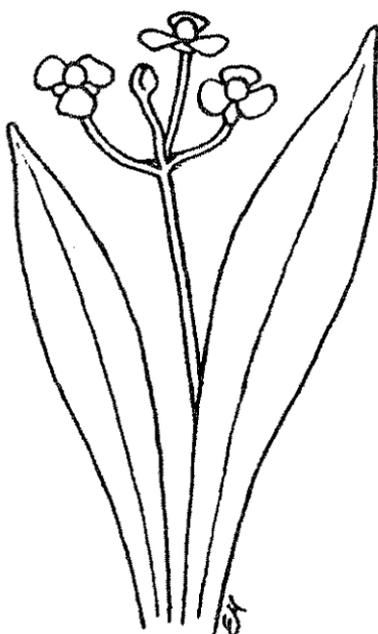
about \$70,000. The initiative will seek \$1.3 million, including \$300,000 for five additional staff and \$1 million to purchase small sites like the ones in Henderson County.

Some landowners worry that having rare and endangered species nearby might restrict their use of their land. But McMinn says he's happy to have the rare plants and bogs next to his home.

"They ain't hurting a soul – best neighbors you can have," he said.

This article appeared in the July 16, 1999 edition of the Hendersonville Times-News and is reprinted with permission from the author.

The N.C. Heritage Trust Fund recently awarded the N.C. Plant Conservation Program a \$117,000 grant to purchase an additional 21 acres adjacent to Bat Fork Bog and Ochlawaha Bog.



Calendar of Events

April 14-16, 2000

NCWFPS Spring Meeting
Piedmont Land Conservancy sites
Hanging Rock State Park
Emily Allen's garden
Elections for New Officers

June 10, 2000

NCWFPS 3rd Annual
Picnic and Plant Auction
Hagan-Stone Park, Greensboro, NC

September 15-17, 2000

NCWFPS Fall Meeting
Ceasar's Head area of SC

January 27, 2001

NCWFPS 50th Anniversary Party
NC State Museum of Natural Science
Raleigh, NC

May 5-7, 2001

NCWFPS Spring Meeting
Northern Piedmont, Roanoke, VA

NCWFPS Board Meeting

April 23, 1999 • Fontana Inn

Attendees:

Charlotte Patterson	Alice Zawadzki
Ken Bridle	Bob & Jay Tuggle
Alvera Henley	Craig Moretz
Marlene Alder	Marlene Kinney
Vonda Frantz	Ginny Bacik
Bruno & Louise Santorum	Truman Adkins
Phil & Edith Walker	Allie Gooding
Emily Allen	
Lynn & Carole Wright	

The meeting was called to order by Charlotte Patterson. The Secretarial Minutes were read and with one correction to a name on the first page. With this change, a motion to approved the minutes was made by Craig and seconded by Alvera. All were in favor. Craig asked Marlene to send the minutes to him both in hard copy and in ASCII Text format on a disk to put in the next newsletter.

The Treasurers report was read by Charlotte which was:

Working Checking Account	\$ 9,669.79
Shinn Account	3,796.59
Money Market Account	12,131.93

Charlotte will call Nancy Julian to check on the amount of the Money Market Account. It is less than it was at the last meeting.

Picnic and Auction

On June 12, there will be a picnic and a plant auction at Hagan-Stone Park, Shelter 3, Greensboro. The Rare Plant excursion begins at 9am from the same shelter. More on the Picnic will be out in the next week or two in the Newsletter.

It was felt that the Spring Outing was a better time and place to hold the Plant Auction since there were more people. Also, there are more plants in bloom and available. Therefore, in lieu of having a guest

speaker, a plant auction will be held at the next Spring Outing.

Native Plant Coalition

Their agreement was handed out to everyone in attendance. There was extensive discussion on who was running the Coalition; how it is connected to CCNC and to Cecil Frost; what its projected plans were; who were members of the coalition and were they members of the NCWFPS; why was it called a coalition - how many representatives were part of it from other groups; whom are we educating - public or legislators?

Alice gave the history of how the coalition came about from the first meeting with Cecil Frost to the present time. Alice is the chair of this coalition.

It was felt that if this group is to educate legislators, then that is considered lobbying. After much discussion, it was stated that someone should contact the IRS to find out the exact definition of lobbying. The Society did not want to lose its tax exempt status should the committee not know all the rules and regulations. Material sent to legislators and possibly even those mailed with our Newsletter mailings containing certain information might be considered lobbying costs.

Is this a temporary committee that expects to be a stand alone organization in a few years? This coalition can't be part of the NCWFPS with its own separate mission statement. If it is part of the Society, it has to conform to our Bylaws and has to be responsible to the Society's Board. It can't be called a coalition as that implies that it is made up of members from other Societies and organizations. Several names were suggested for this group but the Education Committee of the NCWFPS was picked. The Board can charge this Committee with a particular job or goals with a working budget. It was felt that adding this group would help promote the Society and bring in new blood.

Bob Tuggle made the motion to start the Education Committee as an ad hoc committee for the period of two years. At that time, it will be reviewed as to whether it would be a standing committee and whether to add the Education Committee to the Bylaws. This committee will report back to the Board at the next meeting with its Mission and Goals and recommended budget. The motion was seconded by Alvera Henley. All were in favor and the motion passed.

It was stated that the mailings for the Society and the Education Committee should be on separate fliers as the last mailing was very confusing. The Society's information and the Rare Plant group's information were mixed together. The information can be mailed in the same envelope but should be separated as far as outings, functions, etc.

The Bylaws were reviewed and it was stated that there are several committees that are not active. One of these is the Publicity Committee which was set up to get information about the Society to the press, magazines, newspapers, etc. The word needs to be spread that volunteers are needed for the different committees that were not active. Craig made the motion for Vonda Frantz to be the Chair of the Publicity Committee. It was seconded by Bob Tuggle and all were in favor. Everyone welcomed Vonda to the Board. She stated that she would like to have people on this committee from different parts of the state as they are familiar with their area

There were several members from our Society at the Exotic Pest Plant Founding Meeting held at UNC in February - Ken Bridle, Bob Tuggle, Ed and Janice Swab, Cecil Frost, Alice Zawadzki, and Carla Oldham. It was stated that it was a very good meeting.

There is a Web site up and running - <http://www.ncwfps.org>. There is also another web site where our site can be accessed which is <http://www.ncwildflower.org>.

The meeting was adjourned at 10:30pm.

Brief Notes from April 24, 1999

The Saturday evening meeting was called to order with approximately 50 people in attendance.

Charlotte told everyone about our new Web site and gave the address.

She discussed the plant auction and picnic that will be held on June 12. It was stated that at last year's picnic/auction, approximately \$700 was raised and there were only 18 people in attendance. It was voted that the auction will be held every year at the Spring Outing in lieu of having a guest speaker.

At the Fall meeting, the Nominating Committee will be taking names for those interested in being on the Board. The open positions will be the President, Vice President, Corresponding Secretary, Recording Secretary, Treasurer (Nancy Julian is stepping down from this position after many years), three trustees, and a Historian. Elections will be at the 2000 Spring Outing.

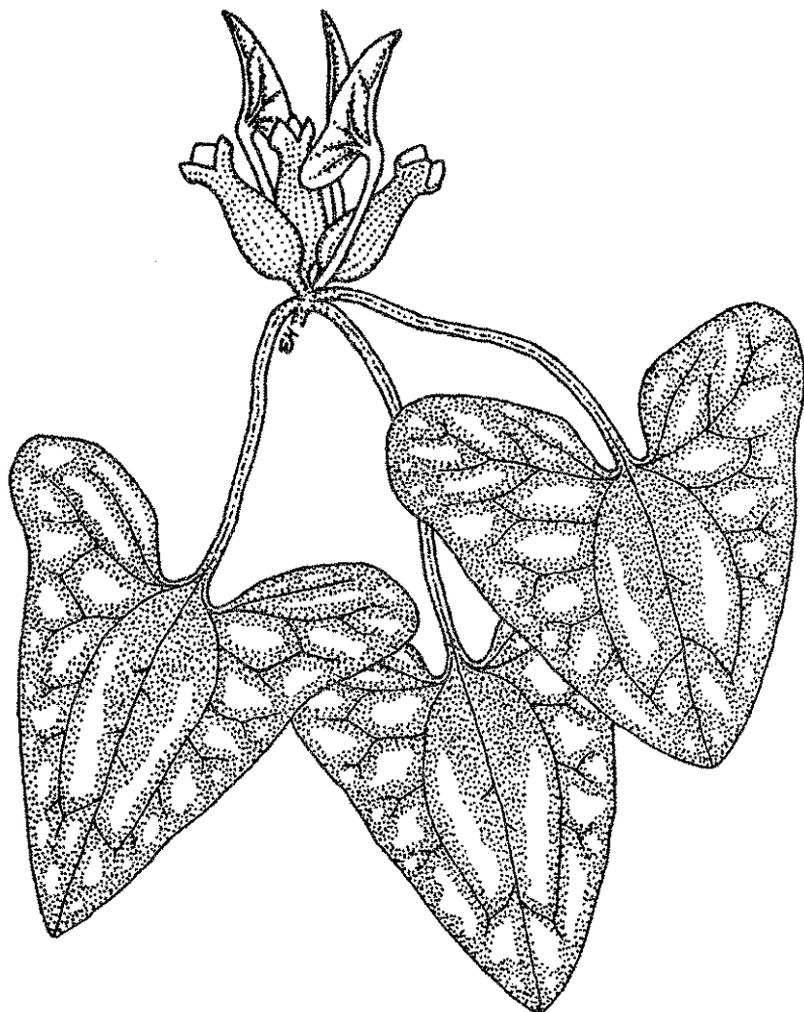
It was announced that Vonda Frantz is now the Chair of the Publicity Committee and she was introduced to the group.

Charlotte discussed the new ad hoc Education Committee of the Society and read the goals from the handout sheet.

Alice introduced two guests that are presently living on the Cherokee

Snow Bird Indian Reservation to learn more about the old ways, their customs, and the use of herbal medicines. One of the guests, Ila Hatter, is part of the Yellow Root Botanical Foundation maintaining the medicinal type herbs and bringing jobs into the mountain areas.

At this point, the meeting was turned over to Alvera Henley as the guest speaker. She had a very good talk on pyrethrum used as an environmental friendly pesticide as an alternative to growing tobacco.



North Carolina Wild Flower Preservation Society, Inc.

Aims & Objectives

The North Carolina Wild Flower Preservation Society was formed in 1951 by a group of individuals appreciative of native plants throughout the state and region. The purpose of the Society is to promote enjoyment and conservation of native plants and their habitats through education, protection, and propagation.

Spring and Fall meetings are held at "natural gardens" across the state. Members exchange seeds and propagated plants at these meetings. Other excursions are organized on a local basis throughout the year.

The Society Newsletter is issued twice a year with articles and illustrations by professional and amateur contributors.

The Shinn Scholarship/Grant Fund sponsors research on native plants by undergraduate and graduate students. The fund is supported by member contributions and by gifts and memorials. Applications are made to the Scholarship/Grant Fund Committee for awards in May of each year.

The Society is a nonprofit organization under North Carolina and Internal Revenue Services regulations. Donations are tax deductible.

Correspondence concerning the Society and its programs should be addressed to: North Carolina Wild Flower Preservation Society, Inc., c/o North Carolina Botanical Garden, Totten Center 3375, UNC-CH, Chapel Hill, NC 27599-3375.

Membership Application

ANNUAL DUES

Individual or Family: \$15.00

Sustaining: \$25.00

Lifetime Membership: \$180.00

Scholarship Fund Donation: _____

Name: _____

Address: _____

City: _____

State: _____ Zip: _____

Please send this and all
address corrections to:

*North Carolina Wild Flower
Preservation Society, Inc.*

*Ms. Nancy C. Julian
1933 Gaston Street*

Winston-Salem, N.C. 27103-3733

Please include your added four digit zip
number for your address in your dues
payment. It will soon be mandatory.

New Renewal

NOTES



NCWFPS PAST PRESIDENTS

Mrs. Herbert Smith	1951-52
Mr. J.A. Warren	1952-54
Mrs. Paul Spencer	1954-56
Mr. Lionel Melvin	1956-58
Mrs. Carl Pegg	1958-60
Mr. Walter Braxton	1960-62
Mr. Gordon Butler	1962-66
Dr. H. Roland Totten	1966-68
Dr. Herbert Hechenbleikner	1968-70
Dr. Marjorie Newell	1970-72
Mr. Thomas Shinn	1972-74
Mrs. Pearson Stewart	1974-76
Mr. Ken Moore	1976-78
Mrs. O.C. Allen	1978-82
Mr. Tom Howard	1982-84
Dr. Ray Noggle	1984-88
Dr. Benson Kirkman	1988-94
Mr. Bob Tuggle	1994-96

The above are permanent advisors and members of the board of directors.

NCWFPS NEWSLETTER

Newsletter Editor	Craig Moretz
Editorial Staff	Eric Hawkins Harry Phillips Tom Howard
Editors Emeritus	Jane Welshmer
Past Newsletter Editor	Linda Lamm

