Chinquapin

THE NEWSLETTER OF THE
SOUTHERN APPALACHIAN BOTANICAL SOCIETY

VOL. 7, NO.2

SUMMER 1999

From The Editor's Desk:

After the drought there follows a great bloom! If you were in the droughty areas of the East last year, have not had any late freezes, and have received a normal rainfall so far this year, you probably are experiencing the greatest floral display in years. Certainly here in the center of the southern Appalachians this is the case. Dogwoods did better than in many years past; black locust is hanging heavy, dense with white blossoms on the lower slopes that have been cleared in the past. Even the yellowwood is putting on quite a display this year (local folks have realized how dramatic these large-panicled, fragrant and medium-sized trees can be and they are being spotted in towns and along highways throughout the region). And not to leave out the spring ephemerals, the forest floors of our rich coves have been lakes of white (fringed phacelia, large flowered trillium) or quilted patterns of reds, purples and yellows (sessile and erect trilliums, dwarf larkspur, fern-leaved phacelia, celandine poppy). On the open slopes and meadows there appeared pools of blue ("spilt-milk" or bluets they usually are called), or splashes of yellow (buttercups, ragworts). The balds and rock outcrops are likewise ripples of pink and purple (pink shell or pinxter azaleas and catawba rhododendron). With such a good start, can we not imagine splashy meadows to follow in July? And with a mellow summer, there will follow the greatest of fruit abundance we have seen. Let's hope you have a few moments away from your increasingly busy lives to enjoy some of this "goodliest land."

Looking forward to the potential for another drought this year, my good mentor and former professor turned climatologist, Gayther Plummer, suggests that there is a "40% chance of drought in late September and November" on the assumption that there is not a major development of Caribbean storms that often develop this time of year.

You may have noted a couple of items were missing in this year's first issue: "Botanical Excursions" and the membership form. This is the seventh year that naturalists George and Elizabeth Ellison have contributed to the newsletter, all without compensation from the Society. Let us know if you find their columns informative and useful in your excursions into the botanical world.

Digging through some of my backlogs of papers on my desk (the comic strip, "Shoe" is appropriate for me), I came across a gem by Arthur V. Gillman. I do not know if you have seen the quillworts in recent literature, but there has been a small flurry of activity on this small group throughout the world. His comment that "...although to me the speculation seems sensible, not wild" certainly has merit. He further comments that "...I think it would be hard to 'prove' in that to do so would require capturing ducks or other birds during migration and examining them for *Isoetes* propagules!" I wonder if anyone has seen such spores in their lab examinations of birds.

In the last issue I posed a question on the identity of Robert FitzRoy and one devoted member, Bill Martin, correctly identified him as the captain of the H.M.S. Beagle during Darwin's famous voyage. Shall I find another trivial question for you? Just let me know by phone, e-mail, fax, or snail mail (maybe even send one to try out on your fellow botanists).

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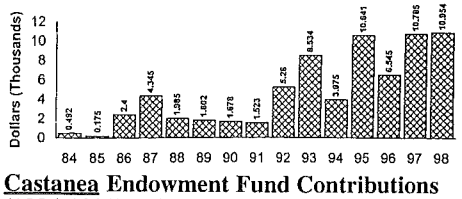
1999 Castanea Endowment Annual Report

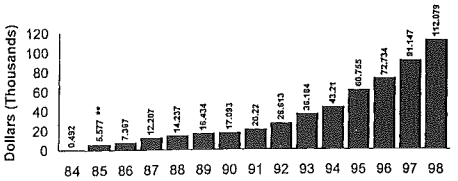
The function of the Castanea Endowment is to provide long term financial security for the Southern Appalachian Botanical Society. The Endowment was established in 1984 and an attempt was made to solicit funds from the membership. In 1985, the Society contributed $5,000 from its treasury to form an investment base for the Endowment. In 1986, the Society set $200,000 as the amount required to reach the desired level of security. It was envisioned that the goal would be reached in a few years. By the end of 1990, after seven years of donations, the Society had only accumulated 8.5% of the $200,000.

- In 1993, 1995, 1996, and 1997, the Society membership responded to challenges by contributing an average of $9,126 to the endowment in each of those years.

Castanea cont. on page 16



Castanea Endowment Fund Contributions (1984-1998) 12/31 Report of each year 1984 through 1998



Castanea Endowment Fund Holdings by Year Including Earnings - 1984-1998 (includes $5,000 from SABS Treasury in 1985

In Memorium:

This issue is dedicated to the memory of Richard M. Smith, whom we knew affectionately as "Dick Smith" of our reprinted "Look Again!" columns which he gave us permission to reprint. These are little identification gems that help separate the often confusing characters of related plant species. Dick spent his professional life working with Texaco, but lived his later years in Brevard with his wife Jeanne, exploring his "beloved Blue Ridge Parkway" and working with the Western Carolina Botanical Club. Dick was an avid photographer and before his death was able to pull together Wildflowers of the Southern Mountains (University of Tennessee Press, 260 pp.) in 1998 that features perhaps half, 600, of the 1200 or so species one might

Memorium cont. on page 10

Letters To The Editor:

Mike Homoya of the Division of Indiana Nature Preserves writes:

In the Spring 1999 issue of Chinquapin was a disturbing article about the great number of *Echinacea* plants harvested by root diggers in Montana. Per your question, I don't know about the magnitude of collecting coneflowers east of the Mississippi River, but I am aware that theft of this genus is a serious problem in areas of Missouri and adjacent states, including the taking of plants from protected natural areas.

I am very concerned about the increasing interest in botanical herbs and the corresponding increase in wild plant collection, as demonstrated by recent reports of mass collection of goldenseal and other woodland herbs in our state. I periodically get calls from people wanting to know how to identify not only the "high dollar" species, such as ginseng and goldenseal, but currently less profitable ones, e.g., bloodroot and snakeroot, so that they can collect them and sell on the herbal market. I can only imagine the impact wild herb collecting is having, but I believe it is considerable. Certainly habitat destruction and assorted environmental assaults are more devastating to our natural communities, but this selective removal of species clearly threatens community diversity and integrity.

I have no problem with using herbal products, but I do disapprove of the wholesale collection of plants from natural areas. I suspect that consumers share my sentiment, but they aren't aware of the problem. I would like to see greater visibility of the problem, educating the public and putting pressure on the producers to utilize cultivated plants only. With a sensitized public demanding herbs from cultivated sources, perhaps the theft of wild plants would decrease. Maybe even labeling of the product as "nursery grown" or "forest safe," something like the "dolphin safe" labels on cans of tuna, would help consumers make informed choices about the product they purchase.—Ed. note: There is a definite folk movement toward herbal alternative medicines as the cost of standard medical practice has increased many times during past decades. In the Brevard, NC region a major producer has set up a herbal farm and I suspect there may be others elsewhere. Do any of you know of similar operations or pressures put on wild populations of medicinal herbs?

Memorium, continued from page 9

found in the Appalachians south of Pennsylvania. His colored photos were generally artificially lighted so that structural floral details are much more apparent than would be otherwise visible in shade where most of these grow. Dick also spent a good deal of his time at the University of Asheville Botanical Gardens to which memorials may be sent.

We will continue to feature the "Look Again!" columns and hope many of you will find them useful with identification of some of those smaller but more difficult groups of native plants.

"So long as I saw in my walks one or two kinds of berries whose names I did not know, the proportion of the unknown seemed indefinitely, if not infinitely, great." —Henry D. Thoreau. 1993. Faith in a Seed. Island Press, Washington, DC. 283 pp. (p. 179).

RESULTS OF THE MAIL IN BALLOT

Charles Horn, Secretary-Treasurer

As a result of a ballot mailed to all members last fall, the following were elected to SABS offices, as announced at the spring business meeting. Congratulations to the winners!

President-elect: Joe Winstead. Joe, a member of SABS since 1970, is currently Chair of the Department of Biological and Environmental Sciences at Morehead State University in Morehead, Kentucky.

Member, Editorial Board for Castanea: Patricia Cox. Pat is the Core Biology Coordinator for the Division of Biology and Adjunct Assistant Professor of Botany at the University of Tennessee, Knoxville.

Member-at-large to Council: Richard Wunderlin. Dick is currently Professor of Biology, Director of the Institute for Systematic Botany, and Director of the Herbarium at the University of South Florida where he has been since 1973.

In addition, all five proposals for amendments to the SABS Constitution and By-Laws were approved. For those who do not remember the details (including myself), here is a short summary of the changes. Included with this issue is a complete copy of the Constitution and By-Laws, or you may request one from me, either by e-mail or regular mail.

Results cont. on page 11

WILD Ideas

Ideas are born from inquisitive minds. Perhaps some of us have had speculative thoughts that turned out to be basically correct when the facts were properly evaluated. Researchers often are driven by hunches and due to discipline must work for years to come to publishable conclusions. Many of us do not feel that these wild ideas should be left unexplored but personally will not have an opportunity to probe them further. This is the basis of this column. The wild idea needs to have some factual basis, though it does not necessarily need to be fully supported as in a reviewed publication.

Disjunct Heterosporous *Isoetes*

The heterosporous *Isoetes* spp. include several remarkably disjunct species, perhaps the most striking of which is *I. hawaiiensis* from Maui (Taylor et al, 1993). In this respect, distribution patterns are similar to those of homosporous ferns with wide disjunctions, e.g. *Asplenium septentrionale*, *Polystichum scopulinum*, etc. But it is contrary to common sense to believe that the dispersal unit of *Isoetes* is the unfertilized spore. Unlike ferns, which can generate new populations from a single spore, *Isoetes* spp. require both megaspore (female) and microspore (male). It is therefore sensible to postulate that long-distance dispersal of *Isoetes* is accomplished by already-fertilized megagametophytes. In *Isoetes* spp., the megaspore splits along the commissures to receive the flagellate sperm produced by the microgametophyte, and the megagametophyte develops within the otherwise intact megaspore case. The spore case is a structurally strong and protective structure which may also function against water loss from the developing megagametophyte. Thus, a fertilized megaspore would be an ideal unit for dispersal by waterfowl, as well as for dispersal by flowing water in riverine systems.—Arthur V. Gilman, PO Box 82, Marshfield, VT 05658

Literature cited.

Taylor, W.C., W.H. Wagner Jr., R.W. Hodby and F.R. Warshauer. 1993. *Isoetes hawaiiensis*: a previously undescribed quillowort from Hawaii.

Ed. note: Has there been any evidence of quillworts that are being dispersed by birds? If so, is the mode of distribution external or inter-

SABS Election

Ed. note: The following addresses are provided for your convenient contact of these winners.

PRESIDENT-ELECT:
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As a result, we have the following officers and Council members.

President: Nancy Coile
President-elect: Joe Winstead
Past-president: Don Windler
Secretary-treasurer: Charles Horn
Recording Secretary: Ruth Douglas
Editor, Chinquapin: Dan Pittillo
Managing Editor, Castanea: Audrey Mellichamp
Chair, Editorial Board: Mike Baranski
Member, Editorial Board: Ross Clark
Member, editorial Board: Pat Cox
Member at large, Council: Dale Suiter
Member at large, Council: Richard Wunderlin

Committee composition subject to change by our president. The standing committees include these below. The committee member names listed are as required in the By-laws. Names in brackets [] are most recent persons, possibly continuing terms.

ELIZABETH ANN BARTHOLOMEW AWARD
(Don Drapalik + Donna Ware + 1 member)

ENDOWMENT
(5 members [Don Windler])

FINANCE
(Joe Winstead + Charles Horn + 4 members)

PLANNING
(Robert Haynes + Joe Winstead + Don Windler + Larry Mellichamp + Gary Dillard)

MEMBERSHIP (chair [John Herr] + state representatives)

NOMINATING (Don Windler + Robert Haynes + 1 member)

OUTREACH (chair + 3 members)

RICHARD & MINNIE WINDLER AWARD
(Robert Haynes + John Nelson + Loran Anderson)

As a result of the balloting, the North Carolina Botanical Garden Award Committee was removed from the list of standing committees.— Charles Horn, Secretary-Treasurer

Results, continued from page 10

Constitution

Article II - Membership and Dues: Changed definition of eligibility for Emeritus status, which will now be awarded to members who meet either of the following criteria: 1) retired, age 65 or older, dues paid for the preceding 10-year period, or 2) retired, dues paid for the proceeding 20-year period. Emeritus status carries the privileges of voting in SABS elections, attending annual meetings and field trips, receiving a free subscription to Chinquapin, and receiving Castanea at one-half the current dues rate.
Article V - Council: The editor of Chinquapin now becomes an official member of Council.

By-Laws

Article I - Membership and Dues: Reduces membership in good standing time once dues are in arrears to three months, hence only one issue of *Castanea* and *Chinquapin* will be mailed out after membership falls into arrears. This new drop date will be posted on the dues notice, starting with dues for 2000.
Article VI - Standing Committees: Delete the North Carolina Botanical Garden Award Committee as one of the standing committees of SABS. This change does not mean the award will not be given out in the future; it just means that SABS is not required to be active in the selection process.
Article VI - Standing Committees: Add the Symposium Committee to the list of standing committees within SABS. This committee shall consist of a chair and two additional members. The committee shall select and present to Council potential symposium topics and speakers for approval. The current chair is Zack Murrell, who is at Appalachian State University. If you have any symposium suggestions, Zack would love to hear from you.

Common Names of Plants

It is to be regretted that gardeners and botanists devote such little effort toward the simplification, clarification and standardization of common names of native and cultivated vegetation. We who are deeply immersed in the botanical cult forget that being able to speak exclusively in the technical nomenclature does not mean that a tree or plant has been adequately named. Until every familiar bit of vegetable life has been given a designation the "common man" can use, it is plainly not satisfactorily named.

The publication in 1942 of that gigantic work, Standardized Plant Names (SPN), on which the writer did considerable collaborating, brought some relief to the unbelievable name-jumble in horticulture. Unfortunately, the authors had such little co-operation from gardeners and scientific men (the later of whom usually scorn worrying about common names) that the work is by no means a last bar of appeal. In fact, some of the entries are to be deplored, and a new work is definitely a need for the future.

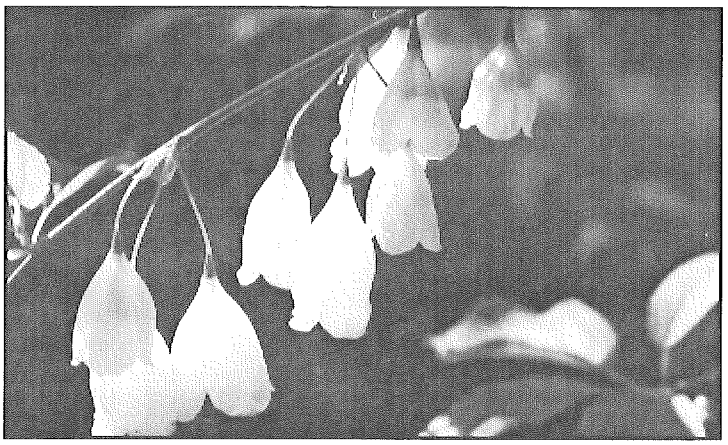
One cardinal tenet of SPN was to corral every species and variety of a genus into one camp with a common designation for all. The idea was good, but SPN erred when it tried to make the policy a hard-and-fast rule. Not everything in *Veronica* can be a speedwell; not everything in *Ranunculus* is a buttercup; or everything in *Delphinium* a larkspur. Conversely, we should be careful not to take a familiar common name like bellflower or laurel and carelessly assign it to any member of any genus which suits our convenience or fancy.—M.E. Armbruster (1951. Trillia 11:170.)

Ed. note: Even now "scientific men" are not "coralled into one camp."

"Two or three years after a wood has been cut, you will commonly find an abundant crop of huckleberries and blueberries there, not to mention chokeberries, serviceberries, and so on....Nature keeps a supply of these important plants in her nursery under the larger woods, always ready for causalities, as fires, windfalls, or clearings by man." —Henry D. Thoreau. 1993. Faith in a Seed. Island Press, Washington, DC 283 pp. (p. 77).

In the Garden

The Randolph-Macon Woman's College Botanic Garden was established in 1994 through the efforts of Dorothy C. Bliss, Professor Emeritas whose long-held dream was to provide a place of research and beauty for students, faculty, staff and visitors. The garden encompasses a hillside that rises above two rock-walled pools and its many paths make the flower beds easily accessible for study or just viewing. The more than 200 species of plants native to southeastern United States are identified with permanent labels. The members of the Virginia Native Plant Society donated many of these plants and a bench and an additional bench was a gift from the R-MWC class of 1941.



Among the rare and endangered species in the garden are the Kankakee mallow, *Iliamna remota*, the Tennessee coneflower, *Echinacea tennesseensis* and the fringed campion, *Silene polypetala*. A magnificent specimen of the historically interesting Ben Franklin tree, *Franklinia alatamaha (at left)* displays hundreds of showy white flowers in August.

From April to November there is an ever changing panorama of flowers. The spring is ushered in with blood root, rue anemone, hepatica and bright masses of golden ragwort followed by redbuds, dogwoods and silver bell (above). Soon the hillside is colorful with the azaleas and rhododendrons. Throughout the summer months the yellow of several species of *Coreopsis* and *Rudbeckia* and the pink and mauve of the coneflowers along with the brilliant red of beebalm predominate. In autumn asters and goldenrods share the limelight and hummingbirds can be seen visiting the cardinal flowers planted in the damp soil along the margins of the larger pool. The last to flower is witch hazel but the red berries of the deciduous hollies, chokeberry and the spectacular showy clusters of magenta beauty berries provide vivid color into late fall.

The garden serves as an educational tool for students and visitors stimulating their interest in nature, conservation, gardening with native plants and botanical research. The garden also is a tranquil spot for all to stroll the pathways or rest on the benches and enjoy the natural surroundings.

The Botanic Garden is maintained by Dr. Bliss with the aid of volunteers and is supported by gifts or donations to the Randolph-Macon Woman's College Botanic Endowment Fund. It is located on the R-MWC campus in Lynchburg, Virginia and is easily accessible from the entrance on Norfolk Avenue next to the college greenhouse.—Randolph-Macon Woman's College, Office of Development.

Look Again

by Dick Smith

Every so often we find the job of "keying out" a plant species suddenly made easier by the fact that the specimen at hand possesses a character which it shares with very few—or sometimes none—of the other members of its genus. It may be a yellow *Rhexia*, for example, or a large-flowered Geranium, a *Corallorhiza* blooming in the spring, or a Maple with compound leaves.

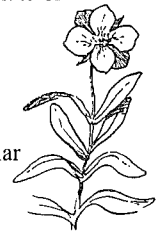
Similarly accommodating are those few shrubby species of *Hypericum* which have four petals rather than five as do the ones we commonly call St. John's-worts, and which because of this distinction are sometimes placed in the genus *Ascyrum*.

Hypericum hyericoides, an erect shrub with pale yellow flowers, has been aptly named St. Andrew's Cross because its petals are arranged in a flattened "X". They are narrow, revealing a pair of large, ovate outer sepals; the inner two are minute or absent.

Hypericum stragulatum P. Adams & Robson

More prevalent in the southern mountains is *H. stragalum*, a decumbent plant forming low mats. Otherwise it is very similar to the above, with which it shares the name St. Andrew's Cross.

St. Peter's-wort, *H. stans*, has a growth habit similar to that of *H. hypericoides*, but there are many other differences. Its flowers are larger, with obliquely ovate petals set at right angles to each other. Again the outer sepals are large, but the inner pair, while shorter and narrowly lanceolate, are clearly visible. There are three or four styles instead of two, and the leaves are semi-cordate and somewhat clasping, rather than tapered, at the base.



Hypericum stans (Michx. ex Willd.) P. Adams & Robson

Ed. note: Revisions of the family has resulted in a split, with the Hypericaceae now called Clusiaceae, which is further divided into the Hypericoideae and Clusioideae. Our species are all included in the Hypericoideae. Also note that synonyms now accepted are: *H. stragulatum* P. Adams & Robson is now *H. hypricoides* (L.) Cranz var. *multicaule* (Michx. ex Willd.) Robson and *H. stans* (Michx. ex Willd.) P. Adams and Robson is now *H. crux-andreae* (L.) Crantz.

"The red maple forms dense woods by itself in low ground almost anywhere, called maple swamps, and it is also found throughout other woods, both on low and high ground, though it does not attain to perfection on high ground." – Henry D. Thoreau. 1993. Faith in a Seed. Island Press, Washington, DC. 283 pp. (p. 51).

BOTANICAL EXCURSIONS

By GEORGE ELLISON

MONARDAS

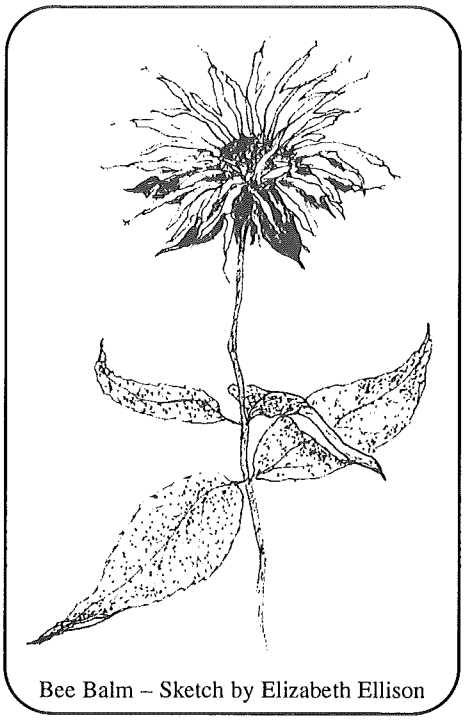
Each July since 1991 I've led field trips along the Blue Ridge Parkway offered as part of the Native Plants Conference sponsored by Western Carolina University. This year's outings—which I'll co-lead with Chapel Hill nurserywoman Kim Hawks, who operates Niche Gardens in Chapel Hill, N.C.—will take place July 21. Elizabeth Ellison will lead a field sketching and journaling trip that day.

Between Waterrock Knob and Mt. Pisgah, we'll help participants identify and discuss propagation tactics for more than 100 wildflower species, including wild quinine, large-flowered leafcup, spreading dogbane, bush honeysuckle, green wood orchis, starry campion, Indian paintbrush, enchanter's nightshade, Small's beardtongue, downy skullcap, tall delphenium, pale Indian plantain, tall bellflower, southern harebell, horsebalm, round-leaved sundew, Blue Ridge St. Johnswort, and false asphodel.

No group of flowering plants along the parkway, however, will be of more interest to participants than the "Monardas," a genus in the mint family that includes the ever-popular bee balm. There are two other distinct "Monarda" species—wild bergamot and basil balm—that appear in this section of the Southern Blue Ridge Province, plus a hybrid between bee balm and the other two known as purple bergamont.

"*Monardas*" are sometimes called horsemints because "horse" signifies "large" or "coarse," and the members of this genus are generally larger, coarser plants than many other members of mint family. In this instance "Coarse is beautiful!" Most of the horsemints have quite appropriately been introduced into cultivation.

Here's a checklist of those three horsemint species and the hybrid found in the western North Carolina mountains. All flower from mid-June into September and can be readily located along the parkway, especially in the areas of the Grassy Ridge Mine (mile 436.8) and Standing Rock Overlook (mile 441.4).



Bee Balm – Sketch by Elizabeth Ellison

* BEE BALM, also called CRIMSON BEE BALM or OSWEGO TEA (*Monarda didyma*): occasional in moist, shaded situations; adapted by scarlet color long tubular shape of flowers for pollination by hummingbirds, but often "robbed" by bees and other insects that bore "bungholes" at the base of the corolla tube; note the reddish leaf-like bracts just below the flowers; called "bee balm" because leaves made a poultice that soothed stings; sometimes called Oswego tea because of its use as a steeped medicinal by the Oswego Indians of New York; generic name honors an European botanist, Nicholas Monarda, who had an interest in medically useful plants from the New World. No red flower—save, of course, cardinal flower—is more resplendent. And like cardinal flower, this member of the mint family often haunts a lush and dark setting so that when it catches slanting light the flaming crimson gleams like a beacon.

*WILD BERGAMOT (*M. fistulosa*): common but variable species flowering in open fields, meadows, and on dry wooded slopes; petals are usually lilac or pinkish-purple (rarely white) with the upper lip bearded at the apex; bracts often pink-tinged; frequently visited by butterflies; oil with an odor resembling essence of bergamot was once extracted from the plant to treat respiratory ailments; brewed as tea by the Cherokee for many ailments, including flatulence and hysterics.

*BASIL BALM (*M. clinopodia*): occasional in both moist and dry woods and thickets; similar to wild bergamont but with paler pink or white flowers that have purple spots on lower lip and whitish bracts; common name indicates that it was used like bee balm as a poultice.

*PURPLE BERGAMOT (*M. media*): an infrequently encountered natural hybrid backcross of the above species displaying deep reddish-purple flowers and dark purple bracts; habitat about the same as bee balm, so look for color differences between scarlet of that species and deep purple for the hybrid; despite the hybrid status, it's reliably distinctive and exciting to encounter.

Note: Excellent colored illustrations of each of these horsemints appear opposite p. 92 of "Newcomb's Wildflower Guide" (Boston: Little, Brown and Co., 1977). Dotted horsemint (*M. punctata*), which has purple-spotted yellow flowers, is primarily a species of the piedmont and coastal plain that does not—to my knowledge—appear in the Southern Blue Ridge Province.

Ed. Note: The Ellisons may be contacted at P.O. Box 1265, Bryson City, NC 28713.

Herbarium Case Needed

Deborah Johnson of the W. Gordon Belser Arboretum, University of South Carolina conducted a flora survey on the ancestral lands of the Monacan Indian Tribe in Southwest Virginia. One of their projects is a Monacan Tribal Museum, which opened last October and houses artifacts and historical papers. They now are in need of a herbarium case to be located in the museum to house the collection and are hoping to be able to locate a used one which could be donated for this cause. She notes she would be able to pick up the case from locations adjacent to Virginia or South Carolina. She may be contacted at (803) 777-9499.

The University of North Carolina Herbarium

The Arts and Sciences Foundation of the University has just released the news that the UNC Herbarium has received a bequest from the estate of Kay Mouzon, long time volunteer (1971-1997) and friend of the Herbarium. Mrs. Mouzon left an endowment of $25,000 to the Foundation to establish the Olin T. and Katherine B. Mouzon Memorial Herbarium Endowment Fund to be used at the discretion of the Curator of the Herbarium to support publications and research. Earlier, Mrs. Mouzon made the first donation to the Herbarium to help establish the Friends of the Herbarium Fund. — Jim Massey, Curator.

The Pipevines

Undoubtedly you have observed wild ginger (*Asarum canadense*), little brown jugs (*Hexastylis arifolia*), pigs in a poke (*H. shuttleworthii*), or whatever you might call our "wild gingers," so called because of their presence of the ginger odor and flavoring. These plants belong to the birthwort family (Aristolochiaceae) and have a reputed herbal history in helping with births (Foster & Duke: *Aristolochia serpentaria* is used for suppressed menses) among other things (like on snake bites). *Aristolochia* is fairly widely distributed with some 300 species that are chiefly neotropical. One is found in California and a dozen in the East. They have been sought by plant collectors for gardens and our pipevine or dutchman's pipe (*A. macrophylla* or *A. durior*) is often grown as European porchvines (Britannica).

Have you ever looked closely at the dutchman's pipe? It's a sprawling, writhing gray vine sometimes over 4 inches through and may be twined into a massive structure a foot or more across. It is unusually flexible, due to the alternate, pie-wedges of softer tissue between plates of fibrous tissues (these are often found decaying in cove forests, coming apart like a set of released straps). The flowers are quite unusual. They are pipe-shaped with a flared orifice, usually brownish or yellowish but with a dark sanguine center. Slice one open and there is a chamber below the opening that widens toward the attachment end where the stigmas and stamens are located. This chamber is lighter toward the top and the plant often emits a carrion-like odor that is attractive to its duped fly pollinators. Once inside, the flies attempt to escape near the lighted business end of the flower, wallowing in the pollen extensively before discovering they must exit the way they entered. If they make the same mistake at another plant with a mature pistil, they effectively can cross pollinate the flower. Soon a six-ribbed, green, small banana-like fruit begins to form which at maturity will be perhaps 4 inches long and will fall apart into flat, plate-like seeds by autumn.

It seems to be one of the more characteristic tropical vines in these respects. And while on a recent visit to Wilson Botanical Garden in Costa Rica, our group of students and accompanying faculty and wives were treated to one of the most bizarre aristolochias in existence which Dr. Luis Gomez identified as *Aristolochia jamaicaensis*. It had flowers that would fill two cupped hands. The flared flower is as broad as a man's hand, deep blood colored, replete with veiny ridges on the outside. There was an odor I did not detect, but wife Jean Pittillo described as putrid. A string hung down at least a foot and sometimes more, apparently a good landing string for the pollinating flies. When I dissected one of the flowers that had been aborted, inside I found several fly species, some as large as house flies.

So, indeed, it appears we have species with direct connections to the tropical flora. While aristolochias in the mild Caribbean climate have expressed themselves in exotic and intriguing ways, ours that have moved northward have put more energy into building stronger vines to take the winter winds and expanding their deciduous leaves to intercept the more shaded light in the deep cove forests where they have found their niche. Don't miss those large kidney-shaped leaves attached to those twisting vines this summer as you wander about in the rich woods of the Appalachians. You might even see some of these in the craft shops as rustic baskets or lawn chairs when you travel about the hills of the "green meadows," as William Bartram described them.

—J. Dan Pittillo (slightly modified from the NC Bartram Trail Society Newsletter, Spring, 1999).

Sea Beach Amaranth Germplasm

Baskin and Baskins' recent publication in Castanea (volume 63, pp. 493-494) of the results of seed germination experiments on the Federally-threatened Sea Beach Amaranth, *Amaranthus pumilus* Raf., suggested to me that others might be interested in our work with this unusual species. Samples of *A. pumilus* are being conserved as part of a comprehensive germplasm collection of grain, vegetable, ornamental and wild amaranth germplasm held at the North Central Regional Plant Introduction Station (NCRPIS) in Ames, Iowa. Since 1989, I have curated the amaranth germplasm collections at the NCRPIS, which is one of the primary active sites in the USDA/ARS National Plant Germplasm System. Our amaranth collections include about 3,300 separate populations representing 33 different species. Seeds are distributed free of charge, world-wide, for research purposes.

Six distinct *A. pumilus* collections, from large population samples that I collected on the ocean beaches of North and South Carolina in 1989, have now been regenerated and are available for research purposes. The North Carolina Botanical Garden, Totten Center, at the University of North Carolina - Chapel Hill maintains additional seed collections of this species.

As noted above, this amaranth has Federal threatened species status. Its habitat is threatened because it grows only on ocean beaches which are narrow strands, constantly changing and under serious pressure from human development. *Amaranthus pumilus is* of special interest because it may be a source of crop-improving genes for cultivated amaranths, as it displays unusual salt tolerance and has atypically large seeds for the genus.

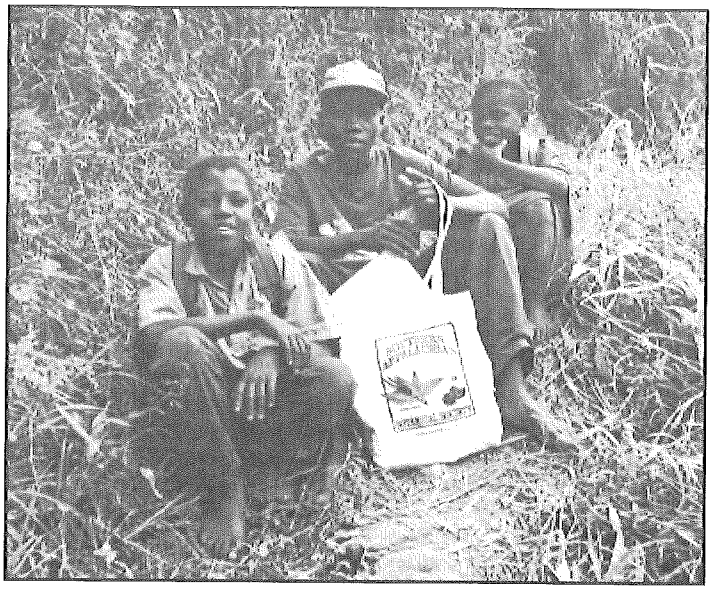
Some trial and error was needed to develop methods to regenerate this threatened species. Approximately 90% of the seeds show synchronized germination after three months of cool (4°C), moist stratification. We germinate the samples on moist blotters in plastic boxes held in 20/30°C growth chambers under a 12-hour photoperiod. This germination method is consistent with the results reported recently by Baskin and Baskin. Without cool, moist stratification, the seeds do not germinate in the growth chamber or when sowed directly in the greenhouse.

At the germination stage, we generally transplant one to three seedlings of *A. pumilus* into 3-liter plastic pots which are then maintained in the greenhouse. They did not thrive in smaller 150-ml pots that are well suited for other amaranths. Surprisingly, however, the plants have grown well in heavy potting mixtures with more than 50% loam soil. Although the species is native to sandy beaches where they are inundated with salt spray; they grew well without supplemental salt or sand.

If germinated in July, the plants mature seed in mid-November in our greenhouse in Ames, Iowa (42° North latitude) without any photoperiod modification. No insects are needed to effect pollination. The seeds fall readily at maturity and are therefore captured on a cloth spread under the pots. We generally harvest more than 2,000 seeds per plant. To reduce genetic drift, the population size for regeneration is 100 plants. Once the seed samples are harvested, cleaned and tested, they are held in cold storage (4°C, 25-40% RH) where they should retain viability for many years. Sub-samples are kept at the National Seed Storage Laboratory in Fort Collins, Colorado. Seeds samples for research or educational purposes can be obtained from the NCRPIS upon request.—David M. Brenner, Iowa State University, Ames, Iowa 50011-1170.

"'Hence,' Darwin advised, 'a traveler should be a botanist, for in all views plants form the chief embellishment. Group masses of naked rock, even in the wildest forms, for a time they may afford a sublime spectacle, but they will soon grow monotonous; paint them with bright & varied colours, they will become fantastic; clothe them with vegetation, they must form at least a decent, if not beautiful picture.'"—Allan, Mea. Darwin and his Flowers. New York, Taplinger Publ. Co., p. 116.

SABS Totes Appear in Tanzania



Last year, I spent a couple of weeks in Tanzania, East Africa, traveling with Dr. Ted Shear from the NC State University Department of Forestry and a doctoral candidate Mr. Pantaleo K.T. Munishi, also from the NCSU Department of Forestry. We were visiting Mr. Munishi's research sites in Tanzania, basing our work out of Sokoine University of Agriculture in Morogoro. On May 20, we drove, then hiked, up to remnant montane forest in the Uluguru Mountains just outside Morogoro. Our hike began at around 1100 m elevation, with the forest preserve beginning at about 1700 m. All of the land below this elevation had been logged and much of it was under cultivation by subsistence farmers growing maize, bananas, manioc, etc. We passed some tiny villages along the way, and at one point we were joined by three friendly boys, perhaps ages 7, 12, and 14. They were barefoot and variously dressed; the eldest boy sported a disintegrating Charlotte Hornets t-shirt. They offered to carry our backpacks and guide us through the maze of "shortcuts," little trails leading through the small, steeply-sloping fields and eventually up to the forest. There we had an opportunity to see Mr. Munishi's rain gauges and other equipment for monitoring hydrologic inputs to this forest. We learned the names of some of the common tree species, and the boys were eager to point out some of the plants, such as East African camphor, which they knew. We spent the afternoon in the forest, sharing with the boys some white bread and bananas that we had brought along. We were a bit short on water, but the boys seemed content to drink from the streams. We hiked back to the vehicle in the late afternoon and Mr. Munishi began prolonged negotiations with the eldest boy regarding appropriate payment for their services as guides and porters. The eldest boy was no stranger to such negotiations and drove a hard bargain. We eventually settled on 700 Tanzanian shillings (about a dollar) apiece and headed home. During one of our rest stops that afternoon, I took a photograph of our three friends. By chance, my SABS tote bag was front and center, which prompted me to submit this photo to the Chinquapin. — Tom R. Wentworth, Botany, NC State University.

"Many public speakers are accustomed, as I think foolishly, to talk about what they call little things in a patronizing way sometimes, advising, perhaps, that they be not wholly neglected; but in making this distinction they really use no juster measure than a ten-foot pole in their own ignorance....But Pliny said, 'In minimus Natura praestat'— Nature excels in the least things." *—Henry D. Thoreau. 1993. Faith in a Seed. Island Press, Washington, DC. 283 pp. (p. 178)..*

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Castanea, continued from page 9

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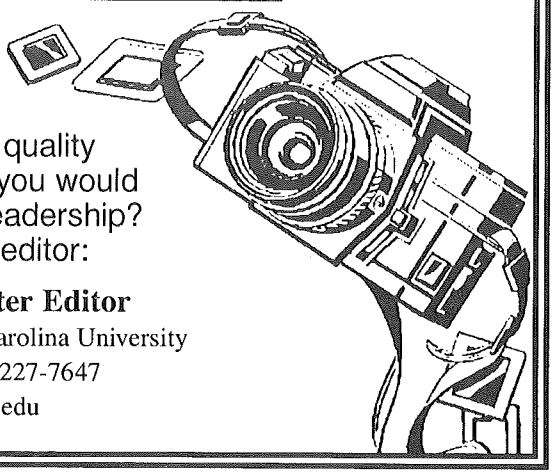

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