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1988

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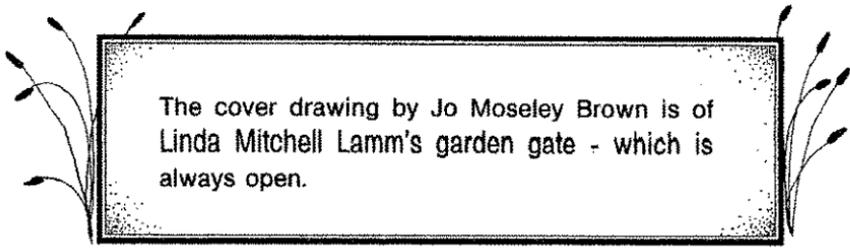
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The cover drawing by Jo Moseley Brown is of
Linda Mitchell Lamm's garden gate - which is
always open.

PRESIDENT'S MESSAGE

The spring meeting will be held May 20-22, 1988, in Ashe County. This is a spectacular part of North Carolina and has many botanical features of interest to our members. Field trips are planned for Saturday, May 21, and Sunday, May 22. The dinner meeting will be held Saturday evening in West Jefferson. At that time a new slate of officers will be presented and voted on.

It is with regret that I tell you that Linda Lamm, Editor of the NCWFPS Newsletter, is relinquishing her duties after the publication of the current--Spring 1988--number. Linda has served as Editor for ten years. During that time she has produced outstanding issues with a wide variety of wildflower news and miscellaneous plant lore. We will miss her editorial skills but look forward to her continuing interest in the North Carolina Wild Flower Preservation Society.

Ray Noggle
President, NCWFPS

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The Succession of the Four Sweet Months

First, April, she with mellow showers
Opens the way for early flowers;
Then after her comes smiling May
In a more rich and sweet array;
Next enters June and bring us more
Gems than those two that went before;
Then (lastly,) July comes and she
more wealth brings than all those three;
April! May! June! July!

Robert Herrick
(1591-1674)

THE ENO'S TWO YELLOW TROUT-LILIES:
HISTORY AND CURRENT RESEARCH

This spring, as in all past years, we have witnessed the reproductive cycle of the yellow trout lily, or *Erythronium*. This common spring wild flower is much appreciated by all observers of nature on the Eno River, and throughout the Eastern United States. What is not generally appreciated, however, is the fact that we have not one, but two, species of yellow *Erythronium* in the woods along the Eno.

Despite the fact that these two species are fairly easily distinguished in the field, and have been nomenclaturally recognized for twenty-five years, even most well-informed wildflower enthusiasts are unaware of the existence of any species except the "common" trout-lily, *Erythronium americanum*. This is primarily because this is the only species recognized in the Manual of the Vascular Flora of the Carolinas, published in 1968.

In 1963, Dr. James Hardin of North Carolina State University, and Dr. Clifford Parks of UNC-Chapel Hill, then a graduate student at NCSU, applied the name *Erythronium umbilicatum* to the earlier-flowering trout-lilies of the Southeastern United States. This species has an indentation at the apical tip of the ovary where the style is attached, and the developing fruit is positioned on the ground surface by the bending of the peduncle. This is in contrast to the rounded ovary tip and horizontally-held fruit of the more widespread *E. americanum*. The two species also have slightly different petal shapes and different chromosome numbers.

Even though *E. umbilicatum* is our more common species in the Piedmont of North Carolina,

it went without a name until 1963, and passed as an un-named form of *E. americanum* prior to that date. It had been observed and noted, but not named, by Dr. Roland Harper in Alabama in the 1940's and 1950's.

This "umbilicate," or naveled, species is found from West Virginia south through Virginia, North Carolina and eastern Tennessee, into South Carolina, Georgia, and Alabama, and is called the Southern Trout-lily. The differences between it and the more widespread and predominantly northern species are easier to see in the field, with live material, than with dried material in the herbarium. In addition, the diploid (2n) *E. umbilicatum* is one of the putative parents of a hybrid which has become the tetraploid (4n) *E. americanum*. The article describing the species, in the botanical journal Brittonia (Vol. 15, pp. 245-259, July 1963) more fully explains the life history and morphology of *E. umbilicatum*, as well as its participation in the hybrid origin of *E. americanum*.

In certain areas of the Eno, most notably the lower portion near Willie Duke's Bluff, the two species grow in close proximity to each other, apparently without any competition or hybridization. Current research by Dr. Alec Motten, a research scientist in the Duke University Botany Department, hopes to understand how two so closely related species are able to coexist so well with such similar ecological requirements, while remaining distinct with no apparent hybrid zones or introgression. Any hybrids between a diploid and a tetraploid would be sterile triploids (3n), so one would expect there to be factors to prevent this hybridization from occurring.

The research to date has ruled out incompatibility, difference in pollinators, or separation

of habitats as factors, and is focusing on the time of bloom (flowering phenology) as a primary factor. Transects have been set up to study the flowering phenology as it relates to the overall life history, to make inferences about selection pressures on the populations. Along several transects, the number of flowering plants of each species is recorded as a function of the date, and since the transects follow a gradient perpendicular to the river, the date will give an idea of the occurrence of flowering for the two species in both space and time.

It has also been noted that while *E. umbilicatum* has a higher flowering density than *E. americanum*, *E. umbilicatum* can only reproduce sexually, and *E. americanum* is able to reproduce both clonally and sexually.

Some plants have been found which are intermediate in flower size and other characters, and these will be grown in the greenhouse and subsequent chromosome counts will determine if they are triploid hybrids. If so, crosses will be attempted to see if they are sterile.

Milo Pyne

* * *

Milo Pyne is a student in the Department of Botany, North Carolina State University, Raleigh, NC. He has been awarded a NCWFPS Scholarship for a study of *Liatrix* species. His advisor in the Department of Botany is Dr. Jon Stuckey.

INSECT-EATING MOUNTAIN PITCHER PLANT'S SURVIVAL THREATENED

Scientists say the insect-eating sweet mountain pitcher plant, found only in certain mountainous areas of North Carolina and South Carolina, is in danger of disappearing in the wild.

Probably fewer than 1,000 of the plants, formally known as *Sarracenia rubra jonesii*, grow in 10 sites scattered in bogs and along streams in the two states.

Insects are attracted by the plant's sweet nectar. The bug flies or crawls inside of one of the plant's hollow, tube-shaped leaves and slides down its polished walls.

It falls into a thicket of stiff, downward-growing hairs that block escape. The bug struggles to get free, but eventually falls to the bottom of the tube, where it drowns in a tiny pool of liquid and is digested by plant enzymes.

The surviving plants are threatened by collectors, who have traded them as novelties for more than a century. They're also threatened by people who are converting mountain bogs into land for livestock grazing, farming, and tourism-related development.

The U.S. Fish and Wildlife Service has proposed that the plant be designated an endangered species.

Such a designation is not granted casually. Only six species in South Carolina and nine in North Carolina have been termed "threatened" or "endangered" since the Endangered Species Act was passed in 1973, according to Nora Murdock, a federal wildlife biologist who is spearheading the effort to protect the plant.

A federal listing would not guarantee preservation of all the pitcher plant's habitat, but it would impose limits on selling the plant or using federal money on lands that harbor the plant, Ms. Murdock said.

Wildlife officials are also talking to private property owners, who hold eight of the 10 sites where the plant grows. The two other sites are owned by the state of South Carolina, including one in a state park.

Private landholders may do pretty much as they please with the plant, endangered or not, so negotiation and persuasion are the only tools that wildlife officials have.

"If we can move fairly quickly, we can probably save what is left," said Ms. Murdock, who is based at the Wildlife Service's Asheville, NC, office. "It seems that as fast as we find a new [plant site], someone puts a ditch in it [and destroys it]. But usually when property owners learn of their rarity, their attitude changes."

No land will be set aside for the plant, since doing so would only alert collectors to the plants' location. Officials will say only that the sites are in Greenville County in South Carolina and in Transylvania and Henderson counties in North Carolina.

Wildlife officials hope to preserve both a fascinating plant and its unique habitat.

Scientists believe the plant's eating habits are an ingenious adaptation to a harsh habitat--waterlogged bogs where the soil is acidic and low in plant nutrients such as nitrate and phosphorus.

A diet of insects appears to provide the missing nutrients. The plant also manufactures food in the way of most plants, through photosynthesis.

The mountain pitcher plant is just one of a wide and apparently unrelated variety of carnivorous plants. There are Venus flytraps, whose clam-like leaves snap shut on insects; sundews, which mire insects in goo; and butterworts, which catch insects on leaves that function like flypaper.

Reprinted from the
Durham Morning Herald,
March 27, 1988.



Drawing by Jenny Nygard

MERTENSIA VIRGINICA DISCOVERED
IN ALAMANCE COUNTY

On April 8, 1988, Eric Hawkins and I went hiking in an area along Back Creek in Alamance County, NC. Only minutes after entering the woods we encountered a very beautiful stretch of Back Creek bordered on either side by a floodplain. The floodplain was vibrant with varying shades of green in the late afternoon sun. The air echoed with singing birds heralding Spring's arrival. Among the grasses and forbes which carpeted the floodplain, we found a white violet in flower. Also in bloom were Windflower, Yellow Corydalis, Saxifrage, and Columbine. Many others too numerous to mention were also found blooming on the floodplain. Then, as we rounded a bend in the creek, a most unexpected sight came into view--*Mertensia virginica*, more commonly known as Virginia Bluebells! We came across several patches with 3 or 4 plants in each. We also found many scattered individuals. In all there were about two dozen flowering plants and many more juveniles. As the light of day began to fade, Eric and I retreated back to our vehicle with thoughts of what we might find on our next visit further upstream.

Two days later we returned. As we made our way further upstream we came to an area where the floodplain widened out and became entangled with undergrowth. We decided to follow the creek close to its bank. As we made our way through a thicket a scene unfolded on the creek's opposite side that I will never forget. The opposing floodplain covered an area approximately the size of a football field and covering its entire area was a sea of blue flowers. We crossed a log to the far bank and proceeded to wade through an ocean of blue. The Bluebells were so thick that we found it hard to walk without stepping on plants. The best was

yet to come when we discovered a pure white flowered *Mertensia* growing among the rest. There were also several plants nearby exhibiting intermediate shades of pale blue flowers. A grand site to say the least. This population of *Mertensia virginica* represents the first time that it has been found in Alamance County. We hope with the help of a much needed County Natural Area Survey this area along with others equally as nice can be preserved for our grandchildren and theirs to enjoy.

Craig Moretz

Craig Moretz is an avid carnivorous plant and orchid grower from Mebane who is also successful in locating new populations of some of North Carolina's rarest plants. Mountain Bogs and savannas are his favorite haunts.

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The Evening Primrose

When once the sun sinks in the West,
And dew drops pearl the evening's breast;
Almost as pale as moonbeams are,
Or its companionable star,
The evening primrose opes anew
Its delicate blossoms to the dew
And, hermitlike, shuning the light,
Wastes its fair bloom upon the night;
Who blindfold to its fond caresses,
Knows not the beauty he possesses.
Thus it blooms on while night is by;
When day looks out with open eye,
Bashed at the gaze it cannot shun,
It faints and withers and is gone.

John Clare
(1793-1864)

FROM POISON IVY TO ORCHIDS

In 1961 my wife Flora and I, professors at Louisburg College, purchased six acres of land on which to build a country home. The land adjoined U.S. Highway 401, five miles south of Louisburg.

Half of the lot was a former cow pasture, full of rocks, kudzu, briars, and poison ivy. The kudzu had smothered the Loblolly pines and persimmon. The other half was new growth, pines, honeysuckle, and an acre of poison ivy.

We named the place "Greencroft," from a former home in Virginia, but the name was the only factor in common. It was our hope that we could change the kudzu/poison ivy thickets into a place of lawn grass with landscaped areas of flowers, similar to our Virginia gardens.

After the house was built in 1963 and the highway frontage landscape completed, we turned our attention to clearing the property behind our house. It was a slope, down to a small unnamed stream, an area covered with slash from timbering. Grapevines and poison ivy were thriving in the sunlight.

Doing the clearing, each day was a surprise with rock formations, ferns, flowering shrubs, and a clear spring-fed stream. The greatest surprises came the spring after the clearing. Thousands of wildpink (*Silene caroliniana*) were appearing like little patches of snow around the rocks. We built a trail to the rock garden and in the process found green and gold, hearts-a-bursting, prickly pear, squirrel cup, lady slippers, wild ginger and trout lilies. Each spring was a new treasury of wildflowers. In 1969, we purchased another five acres to build a small lake.

Meanwhile we began to bring in other flowers-- first from Franklin County, and then from across the state. By 1973 we had more than 350 species of wildflowers, ferns, and trees with identifications. The following year the Gardens became open to the public every day, with emphasis on an annual spring garden concert.

Concerned about the watershed (in an adjoining forest) that fed the stream and lake, the Gardens were incorporated in 1984. The purpose was to protect the Gardens as a nature preserve and to add additional property for that protection. We were not too soon because the nearest property changed ownership that year. In 1986 the De Hart Botanical Gardens, Inc., purchased 12 acres on a bank loan and had the property deeded to be a nature preserve forever.

At the southeast corner of the new property was an enormous rock formation, covered with poison ivy. Another surprise; once the rocks and the bottomland were cleared, we discovered thousands of crane fly orchids (*Tipularia discolor*) in single plants, clusters, and colonies.

This spring, an Adopt-An-Orchid campaign was begun to pay the indebtedness of this place of natural beauty. Tours to it will be given on May 1, 1988, from 2-5 p.m., during the annual garden concert, for contributors to see the locations of the orchids they have adopted. During the summer when the orchids bloom (late July) the adopters can return and see their plants identified by a numbered blue flag.

Allen de Hart

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For more information on Adopt-An-Orchid Project, contact the Franklin County Nature Conservancy, Route 1, Box 36, Louisburg, NC 27549; Tel. 919-496-4771.)

A VISIT TO THE DESERT

I always thought deserts were useless barren places to be avoided if at all possible. A recent trip through parts of the Mohave and Colorado deserts in Southern California changed all of that. The desert has a striking personality of its own. It is a harsh land but one with a surprising variety of plant and animal life.

The area which we explored lies about 150 miles east of Los Angeles and includes Joshua Tree National Monument, a half million acre area which is part of our National Parks system. Two deserts with two large ecosystems, primarily determined by elevation, come together at Joshua Tree National Monument.

Below 3,000 feet, the Colorado Desert occupies the eastern half of the Monument and is dominated by the abundant creosote bush. Adding to this arid land are small stands of spidery ocotillo and jumping cholla cactus.

The ocotillo *Fouquieria splendens* is a strange but spectacular desert plant. After sufficient rains, the tips of its long thorny branches seem afire with dense clusters of brilliant red blossoms. We saw one in bloom on the second day of February.

We were warned by the Park Ranger to be on guard when around the chollas (pronounced choy ya) which are also called jumping teddy bears *Opuntia bigelovii*. From a distance the top round joints of this plant appear to be covered with soft, silvery bristles, but each of the spines are tipped with microscopic barbs and at the slightest touch the spines penetrate the flesh and are extracted only with difficulty and extreme pain--usually with a pair of pliers.

The teddy bear cholla has a yellow-green to white flower, but we saw no blooms in February.

Adding fascination to the landscape was the smoke tree, *Dalia spinosa*, a thorny, almost leafless silvery gray-green shrub which at a distance does remind one of great puffs of smoke. The smoke tree has a blue/purple flower that appears in June and July.

The ocotillo, the cholla, and the smoke tree also occur in the higher, slightly cooler and wetter Mohave Desert, which is the special habitat of the Joshua tree, an unusual, undisciplined tree, which looks as if it has yucca plants growing from each of its branches.

In the Mohave Desert, we saw the desert alyssum *Lepidium fremontii* in bloom. Its white fragrant flowers, similar to our sweet alyssum, covered a bushy rounded plant about a foot high.

The small white popcorn flower *Cryptantha* and the white sulphur throated forget-me-not *Cryptantha flavoculata* were also blooming in the Mohave Desert in these early days of February.

Blooming in both deserts were the chia *Salvia columbariae*, a blue/purple flower with fragrant leaves, lovely white dune primrose *Oenothera deltoides*, and the pale yellow desert dandelion *Malacothrix glabrata*, which has a small bright red button in the center of its bloom.

Another member of the sunflower family blooming on the rocky slopes was the encelia or brittle bush *Encelia farinosa*.

At one area along our desert drive, the sandy hills and roadside banks were a mass of rosy

purple from the fragrant and colorful hairy sand verbena *Abronia villosa*. Its trailing masses of color were a spectacular sight, one of those to photograph in memory.

We stopped the car often and when we took a close look, we were amazed at what we saw--tiny flowers, some an eighth of an inch in diameter and many flowers that we could not identify. The naturalist at Joshua Tree told us that more than 1,500 species of wild flowers grow in the California deserts.

These are set among fascinating geologic displays, rugged mountains of twisted rock and exposed granite monoliths, testifying to the tremendous earth forces that shaped and formed this land.

Although the landscape was often rugged and harsh, there was a tranquility and beauty about it which I liked. We hardly got more than a glimpse but it was enough to make me realize the desert is very much a living place.

Patricia Ross

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Pat Ross has served on the editorial staff of the Newsletter for the past ten years. She and her husband are building a home at Little Switzerland, surrounded by the flora and fauna of the mountains.

HELLER'S BLAZING STAR LISTED AS THREATENED

Heller's blazing star (*Liatris helleri*) has been designated a nationally threatened plant species by the U.S. Fish and Wildlife Service. There are only seven extant populations of this species, all in North Carolina. It is endemic to a few scattered summits in the northern Blue Ridge Mountains and grows on high elevation ledges of rock outcrops in shallow, acidic soils. Several populations known from historic observations have been destroyed. Even the largest population is composed of only a few hundred individual plants, and most of the other populations have just 20 to 50 plants. Part of the largest population of the blazing star is protected by informal agreement with the owner of Grandfather Mountain. Part of the Hanging Rock Mountain population is protected by a private owner through a registry agreement and conservation easement. Three other small populations are protected in registered natural areas along the Blue Ridge Parkway, in the Linville Gorge Wilderness, and on the N.C. Nature Conservancy's Bluff Mountain preserve. An historic population on Roan Mountain has not been seen since 1894.



Heller's Blazing Star

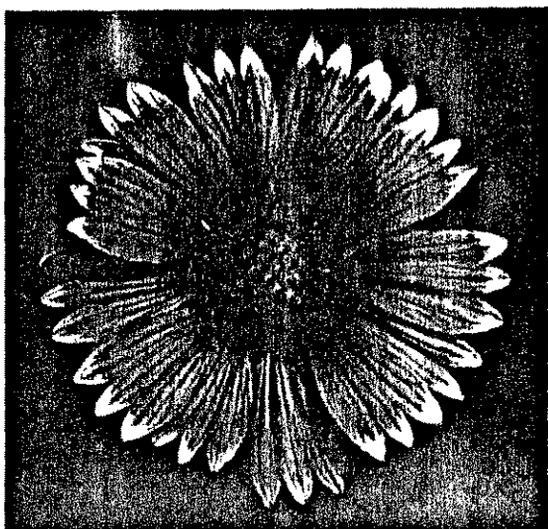
A
GUIDE
TO

OCEAN

EDITED
BY
SARAH FRIDAY

DUNE PLANTS

COMMON TO NORTH CAROLINA



BY E. JEAN WILSON KRAUS

**A GUIDE TO OCEAN DUNE PLANTS
COMMON TO NORTH CAROLINA
Julie Moore**

Wildflower Preservation Society member Jeannie Wilson Kraus has written an illustrated guide to the ocean dune plants that we commonly find along the North Carolina coast. This handy slim volume can easily fit into your backpack, beach bag or car glove compartment. The simple, easy to use keys allow you to identify over 70 species of vines, shrubs, trees and grasses that grow in the uniquely stressful oceanfront habitat that is battered by both wind and killing salt spray. Introductory sections describe the types of adaptations that allow plants to grow on the dunes and also the distinctive zonation of vegetation along the ocean front. Botanical terms used in the keys are illustrated, as is each species included, by line drawings by the author.

Jeannie is well qualified to write this guide. She is well known to the many visitors at the N.C. Maritime Museum in Beaufort where she is natural science and education curator.

A Guide to Ocean Dune Plants Common to North Carolina was published for the University of North Carolina Sea Grant College Program by the University of North Carolina Press. This easy to use paperback is available from the UNC Press (P. O. Box 2288, Chapel Hill, NC 27515-2288), at the N.C. Maritime Museum in Beaufort, and at the N.C. Museum of Natural History in Raleigh for \$4.50. Add it to your collection of books on the diverse flora of North Carolina!

NATIVE WILDFLOWERS GO TO FINISHING SCHOOL

Monarda Purple Crown. Achillea Apple Blossom. Eupatorium Gateway. The names are English, but the cultivars are not. They're German.

According to some people, these cultivated varieties are among the most exciting new perennials in this year's nursery catalogues.

Traditionally, of course, American gardeners have turned to England in search of new perennials. But according to Pierre Bennerup, a Connecticut nurseryman and a former president of the Perennial Plant Association, "We've basically tapped out the English sources." English gardens may be just as glorious as ever, but they have been thoroughly picked over.

"What they have," Mr. Bennerup said, "most of us are already growing. What we *don't* have is the 50 or 60 years of plant development that has occurred in Germany. That we have totally overlooked."

The origin of this neglect was political. Hitler's Third Reich disrupted what had been an active horticultural tradition. American nurserymen took their business elsewhere. The rift took two generations to heal, but now American plantsmen are returning to Germany and discovering a wealth of plants ideally suited to the climate here.

When Mr. Bennerup took an eight-day tour of nurseries in East and West Germany last fall, he found that the species on which the hybridizers had concentrated their efforts were almost all native American plants. In the sales yards and display gardens, he found not only bee balms

(Monarda) and joe-pye weeds (Eupatorium), but also sunflowers (Helianthus), asters and goldenrods (Solidago). Because they are common roadside weeds in this country, American hybridizers have scorned these native plants. It took the fresh eyes of German hybridizers to realize the plants' potential.

Goldenrods, Mr. Bennerup found, provide the most dramatic illustration. Few American nurseries offer even a single variety of this genus. During his travels, Mr. Bennerup found about 50 varieties for sale. What was the quality of these flowers? "They're gorgeous," he said. The Germans have succeeded not only in enhancing the beauty of this flower, but also in taming its weedy nature, since most of their cultivars are sterile and won't self-seed.

Mr. Bennerup credits much of the new interest in perennials from East and West Germany to the organizer and leader of his tour, Kurt Bluemel. A nurseryman and landscape designer from Baldwin, MD, Mr. Bluemel's nationality is as mixed as the plants he sells. An American since 1960, he is Czechoslovakian by birth, but grew up in the Sudetenland, which was dominated by Germans then.

Mr. Bluemel made his reputation with the ornamental grasses he imported from Germany, which helped fuel a nationwide fashion for these plants. Last November he took nine American perennial growers with him to nurseries in West and East Germany. It was natural that he should return to the same sources for perennials to plant with the grasses.

Mr. Bluemel joined Mr. Bennerup in praising the German refinement of American wildflowers. "We send our American native plants to Europe for

finishing school," he said. Mr. Bluemel also praised the work of several horticulturists who are famous in Germany although unknown here.

To the average American, for example, the name Count von Zeppelin is usually associated with a dirigible. But a German gardener would associate the name with irises and day lilies, which were introduced by his niece Countess von Zeppelin.

Karl Forster, another horticulturist, is likewise unknown in the United States. Mr. Bluemel said, "What Gertrude Jekyll is for England, Karl Forster is for Germany." Mr. Forster, who died in 1970, spent more than 70 years developing phloxes, delphiniums, erigerons and other perennials especially suited to the landscape trade.

Recent acquisitions that Mr. Bluemel found most promising were two joe-pye weeds. This purple-flowered plant stretches to 12 feet, disqualifying itself for all but the largest gardens. Gateway, one of Mr. Bluemel's finds, limits itself to a height of 4 1/2 feet, yet still bears a dark pink inflorescence 12 to 18 inches across. Future Music, another German cultivar of this American wildflower, is six feet tall; it offers flowers of pure white, a rare shade.

Mr. Bluemel was most excited about a group of bee balms (Monarda), especially Purple Crown. This cultivar is remarkable not only for the size of its rich purple flowers (three and a half inches), but also for the fact that its seed heads are the same hue and perpetuate the show long after petals drop.

As yet few of the German perennials have found their way into the mass market, although Wayside

Gardens, in Hodges, SC, will be featuring a selection of German achilleas, called the galaxy series, this spring. These are work of the German hybridizer Wilhelm Kihrillus.

John Elsley, horticultural director at Wayside Gardens, insists that his company finds most of its new hybrids in the United States. Although he shops all over the world, he usually imports his plants from England.

Thomas Christopher

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The above article from The New York Times, February 28, 1988, was illustrated with five drawings by Dorothy Wilbur taken from Harry R. Phillips' Growing and Propagating Wild Flowers.



MEI--A FLOWER OF SPRING

It is curious that China's most famous traditional flower, the Mei, is virtually unknown in Western countries. Westerners who do know the flower call it the "Japanese apricot" or the "Chinese plum blossom," and both are misnomers.

In April, 1986, a well-known Chinese journal, Landscape Gardening, carried out a survey to find out which were the 10 most famous Chinese traditional flowers. Mei ranked first in the vote, a result quite in accordance with traditional custom, because it has been always considered the epitome of springtime.

The Mei tree is most widely planted along the banks of the Yangtze River, although it is also grown on open ground from Hainan Island to Beijing, and from Tibet to Taiwan, covering more than 20 provinces, regions, and municipalities. Its resistance to cold, wind and snow (especially during the blooming season), makes it one of the wonders of the botanical world.

"Seeking the Mei flower among snowdrifts" has been a favourite subject for poets, painters, and writers since ancient times. The search for Mei flowers is centered around the central and lower parts of the Yangtze River area, such as Nanjing, Wuxi, Suzhou, Shanghai, and Hangzhou.

As the flower is exceptionally sensitive to temperature changes, the blooming season may alter according to the climate.

The Mei tree has been cultivated in China for at least 3,000 years, being a species of the genus *Prunus* called *P. Mume*, native to China. Its culture is common in only a few neighbouring countries such as Japan and Korea, where Mei trees arrived in the 8th century.

Blooming season

The Mei is much admired by the Chinese for its grace, beauty and fragrance, and especially for its early and relatively long blooming season.

It is often used to symbolize hardiness and staunchness in the face of adversity and evil because it is one of the few flowers which begins to bloom while winter snow and wind are still around.

Many famous Chinese writers and artists have achieved distinction with their tributes to the Mei. One of the most famous poets is Lin Fu (967-1082), the Song Dynasty hermit who lived by Hangzhou's West Lake and wrote such famous poetic sentences as:

"Delicate reflections trace the limpid waters,
Waft through the moonlight dusk,
Are Mei's subtle fragrances..."

The Yuan Dynasty painter Wang Mian (1287-1359) is famous for his Mei paintings and poems. In the 20th century, the late Chairman Mao Zedong (1893-1976) and other Chinese revolutionary pioneers wrote a good many poems and odes to this famous flower.

Mei is a deciduous tree that opens up a profusion of variously coloured flowers before putting out its green leaves. The graceful form, exquisite colouring, and fragrance of its blossoms combine to make it highly charming and attractive, especially as they appear at the juncture of winter and spring when all other flowering trees and shrubs are still barren.

Scenic centre

Mei trees are often planted on mountains or hills as landscape forests with marvelous effect. Mei is generally arranged in groups of two to seven plants in gardens, parks, and other scenic areas. The tree may also be grown singularly in a good position and with a dark background, thus becoming a scenic centre in itself. It is also a flower that bears close appreciation, as witnessed by such traditional sayings as "grow Mei flowers around the house" and "admire Mei flowers from the balcony," which implies that the flowers are best viewed at close range.

The Mei flower, pine, and bamboo when grown together are customarily called "the three cold weather friends." They often form a typical tree combination or plant association in traditional Chinese gardens. A plant group consisting of Mei flowers as the main scenic subject against a background of dark-leaved evergreen pines and flanked by bamboo is considered a well-balanced artificial plant association, ecologically suited when arranged in the winter-spring transition.

The trunk and branches of the Mei tree can be readily bent and trained artistically, so it is eminently suited for potting and penjing (bonsai) making. With its relatively long flowering season and its amenity to treatment for forcing or postponing its blooming period, the Mei is an invaluable asset as a potplant or cut flower, particularly during cold seasons.

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Steve Leonard, eminent North Carolina botanist and frequent contributor to this Newsletter, sent the above article from Taiyuan, China, where he is teaching English at Taiyuan University of

Technology. Steve has been in Taiyuan, which is located in Shanxi Province, northwestern China, since September, 1987. He has enjoyed his stay and extended his contract for an additional 10 months. His descriptive correspondence reveals that he has been sampling the many unusual foods more intensively than sampling the vegetation. As yet he has had only limited opportunity to investigate the flora of China other than weeds he recognizes along the roadsides and sidewalks of Taiyuan.

The following paragraph recounts a return train trip from Hong Kong in January.

"The long journey back allowed me ample time to stare out the window and observe China topography and natural areas which were nil. There are miles and miles of Cunninghamia (china fir) plantations with trees no more than about 15 feet high. Often there are pines mixed in which look a little like white pines, but with a longer needle. Occasionally bamboo is mixed in. The understory is usually nibbled close by goats or composed of coarse grasses that look like Sorghastrum or Symplocos, but I have no idea what they were. A few areas also had tea plantations. The topography was rolling hills and reminded me of the sandhills except that the soil was a red clay. The "valleys" have been cleared and are now comprised of terraced fields of rice or wheat. Along the RR have been planted Paulownia, Taxodium, or Salix. Sometimes you see a Rhus typhina-like bush. I saw a large black bird with white wing patches that flew like a crow; larger than American crows. Magpies are most abundant and they build large stick nests in the scattered trees. There is a starling that has a protuberance on its bill or front part of its head. Saw doves, gulls, and a striped winged tern. Also a long-billed shore bird that bobbed its tail a lot, and a long-billed and long-tailed wren sitting on a bush in a carp pond. Also a black-headed mockingbird.

The train personnel tell the passengers to throw the trash out the window, so the tracks are lined with millions of styrofoam containers that the train food is served in. In the far south, many of the fields now contain mustards of various sorts. Sometimes you see farmers in drained ponds digging lotus roots. In others, they are seining for fish. Housing seems to be less clustered in the south than in this area. Water quality is generally poor to atrocious. The Yangtze River at Wuhan (Wuchang) was wider than the Mississippi at New Orleans and set within a terraced channel. The high railroad bridge afforded a good view of the river and the surrounding city. The Yellow River at Zhengzhou was much different and looked more like Oregon Inlet. Also no river banks and a vast flatland on each side. I am not surprised at the long history of river floods in China because the streams are, for the most part, braided water courses with little or no embankments. I suppose this is the natural consequence of 3000 years of agriculture and erosion."

Submitted by Julie Moore

EVEN MORE INFORMATION ON CREEPING BLUEBERRIES (CONTINUED)

Five out-of-state nurseries which acquired 'Wells Delight' and 'Bloodstone' when they were released were inadvertently left off the list in the last Newsletter. In addition, other nurseries and individuals have acquired these cultivars since their initial release and may be offering them for sale. Ask your local nursery; demand creates supply.

Our "Cultural suggestions for creeping blueberries" was also omitted and is provided below with the list of nurseries.

Potential Sources of 'Wells Delight' & 'Bloodstone' Creeping Blueberries

1. Fincastle Berries - Route 2, Box 169, LaRue, TX 75770
2. Jennie's Nurseries - Route 10, Box 74, Kingsport, TN 37664
3. Mother Nature Groundcover Nursery - Box 134, Concord Rd., Brentwood, TN 37027
4. Wheeler's Central Georgia Nurseries - Route 5, Gray Highway, Macon, GA 31211
5. Woodlanders, 1128 Colleton Ave., Aiken, SC 29801

Cultural Suggestions for Creeping Blueberries

We suggest transplanting rooted cuttings into 1 gal containers using a well-drained medium of pine bark humus amended with 2.0 to 2.5 lbs of 0-44-0 and 4 lbs of dolomitic limestone per cubic yard. Micronutrients should be applied or incorporated at the minimum rate recommended by the manufacturer. Fertilize in early spring with

complete (N-P-K) fertilizer having a 1-1-1 or 1-2-2 ratio at no higher than one-half the minimum rate recommended by the manufacturer; avoid high nitrogen fertilizers and urea fertilizers. Excess fertilization will result in unbalanced top/root growth, increased susceptibility to disease, and/or soluble salts injury and possible death. Plants in containers should be overwintered in coldframes or unheated greenhouses.

Alternative regime for home gardeners: Use potting medium of 3 parts pine bark humus and 1 part loamy soil amended with 0-44-0 and dolomitic limestone as above; omit micronutrients; fertilize once with soluble 20-20-20, 1 rounded tsp/gal water = 1 lb/100 gal water, applying 1/2 cup per plant. This regime has produced optimum growth in trials.

For field or landscape planting, incorporate 0-44-0 according to soil test reports. Minimal fertilization is recommended as above; especially avoid high nitrogen. We have achieved excellent growth with 'Wells Delight' and 'Bloodstone' in moderately well-drained clay and loamy soils with a high phosphorus index and soil acidity ranging from 5.0 to 5.6 without any additional fertilization.

We recommend planting through a pine bark or pine straw mulch for weed and moisture control. Treflan and Ronstar have damaged plants in trials, Poast and Fusilade appear acceptable (consult weed scientist).

'Wells Delight' and 'Bloodstone' perform best in full sun to partial shade. Heavy shade results in poor growth, powdery mildew, and increased susceptibility to other diseases. Adequate soil and air drainage are important for control of

Phytophthora root rot, stem and leaf anthracnose, stem blight, and twig blight. Stock plants used for cuttings may show increased susceptibility to twig blight and stem and leaf anthracnose. If these diseases develop, spray with Benlate (2 tsp/gal) and Difolatan (1 1/2 tbsp/gal) at 10- to 14-day intervals during the first half of the growing season (consult plant pathologist).

W. Benson Kirkman

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WHERE THE RARE PLANTS ARE

The Center for Plant Conservation's analysis of the 2,867 plant taxa already protected by the U.S. Endangered Species Act or candidates for listing as nationally endangered or threatened has revealed that about two-thirds of the rare plants of the United States occur in just five states: Hawaii (780), California (694), Florida (199), Oregon (147), and Texas (144). North Carolina is tied for 11th place among the states with 87 plant species (3 percent). Eight Southeastern states are among the 20 states with the greatest number of nationally endangered, threatened, or candidate plant species.

The Natural Heritage Program has produced a count of the greatest concentrations of rare or endangered plant species for the counties of North Carolina. The "One Hundred Club" of counties with 100 or more known occurrences of rare or endangered plant species, in rank order, are Brunswick (192), Buncombe (143), Transylvania (141), Jackson (136), Avery (131), Macon (116), Watauga (111) and Ashe (102). The "highest" Piedmont county is Granville with 84 occurrences of rare plant species.

TRICK AND TREAT ON THE BLACK RIVER
Report of the Fall Field Trip

On a gorgeous Halloween morning five intrepid canoeists paddled the scenic Black River past the oldest living trees east of the bristlecone pines of California. These ancient bald cypress trees (*Taxodium distichum*), many of them over 1000 years old, were the unforgettable highlight of the trip. While many larger cypress can be found elsewhere, these slower-growing and much older specimens exude a majestic character that inspires visions of long-forgotten moments in history.

The drought of 1987 had lowered the water level dramatically, but the water still had its characteristic rich, dark color that revealed the river bottom in only the shallowest areas. Navigation was challenging at times, with blind channels, fallen trees and limbs, and abundant sandbars; several times the canoeists had to disembark to dislodge grounded canoes. One of these incidents on a particularly swift stretch of river etched another memory in the mind of one of the party. Although he freed the canoe, he ended up wet to the waist and minus his wallet that he had forgotten to secure.

Our small but enthusiastic quintet landed at Paul Turlington's house and met the main body for lunch at Haw Bluff Baptist Church. Upon landing, our ill-fated canoeist realized his loss and reconstructed the scenario. Although volunteers were ready to attempt a search, the owner quickly realized the futility of searching for a black wallet in the deep holes below the sandbar.

After lunch over the already expanding tales of the morning's adventures on the river, Larry Earley from Wildlife Resources presented an entertaining talk on the lore of the Black River.

We were joined by several local residents interested in the work of the N.C. Natural Heritage Program and The Nature Conservancy to preserve the unique features of the Black River. The group then embarked in shifts for a leisurely paddle through a nearby scenic cove surrounded by ancient cypress trees, and specially selected by Julie Moore, Larry Earley, and Fred Annand of The Nature Conservancy.

All of the shifts overstayed their time allotment as they relished the sights and sounds of their sojourn. Larry Earley, supplemented by members such as Tom Howard, provided a running description of the biology, ecology, and hydrology as each shift speculated on which tree in the cove was the oldest, and marveled at the extraordinary low-water views of the buttressed cypress trunks as well as the knees. Abundant white flowers on the climbing hempweed (*Mikania scandens*), the red-fruited winterberry (*Ilex verticillata*), and the dominant patches of water ash (*Fraxinus caroliniana*) understory added to the "splendor in the cypress trees." No one seemed disappointed when the downstream trip was cancelled due to impending darkness resulting from overstay in the cove.

Epilogue: The lost wallet containing a new (and unused) lifetime fishing license has not been found, but the owner was graciously aided by a loan from a participant and relaxed over dinner with Tom and Elvira Howard. Paul Turlington, who spent the day on his customary fishing trip, laughed when told of the loss and proceeded to enumerate the stories of items (including boats) swallowed by the Black River. Paul even suggested (with another chuckle) that if he were to find the lost wallet, he would return all the contents but keep the wallet as proof that he had actually

recovered something from the river. Of such events are the legends of the Black River and the North Carolina Wildflower Preservation Society born.

The wallet's owner still vows that the treat was worth the trick and desires a return trip, possibly with his fishing rod. In the excitement of the day he forgot his canoeing partner's name, but hopes he'll get to share her photos.

Benson Kirkman

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Wildlife in North Carolina is not all about hunting and fishing. This magazine carries fine articles on wildflowers, trees, and shrubs with exceptionally beautiful photography. For example, see the March issue on "Harbingers of Spring" or "Corridors of Green" in the May issue. Below is a subscription form if you are not already getting it and would like to subscribe.

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MINUTES
Spring Board Meeting 1988

The Board Meeting of the North Carolina Wild Flower Preservation Society was held at the home of Jane and Bob Welshmer in Chapel Hill on February 7, 1988, with President Ray Noggle presiding.

Gretchen Cozart, treasurer, reported a balance of \$7,571.08 in the Scholarship Fund, a balance of \$2,512.15 in the Society's checking account, and \$2,605.78 in the Plant Propagation Handbook account.

Harry Phillips, Ray Noggle, and Benson Kirkman are canvassing local colleges and universities as well as institutions across the country in an effort to find interested students involved in worthwhile projects which might be funded by the North Carolina Wild Flower Preservation Society's Scholarship Fund.

Harry Phillips announced that the spring membership meeting will be held in Ashe County. Plans include tours of Bluff Mountain and Lee Morrison's Nursery, and dinner at Greenfield Inn. May 21 and 22 are tentative dates.

Tom Howard will present the nominations for officers at the spring meeting.

Jane Welshmer moved that the North Carolina Wild Flower Preservation Society donate \$500 to the North Carolina Botanical Garden to help fund a master plan which is being developed for the garden. Linda Lamm seconded and the motion passed unanimously.

Jean Stewart asked that any Society members who wish to receive the Botanical Garden's wild-flower seed list, send a self-addressed stamped envelope to her with a request for the list. The garden does not plan to mail lists to Society members.

Dr. Noggle, Tom Howard and others discussed the sad state of our State Parks.

The Board expressed appreciation to the Welshmers for the pleasure of meeting in their beautiful hillside home and for the enjoyment of Bob's homemade scuppernong wine.

Respectfully submitted,

Elvira Howard

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In memory of Carl von Linnaeus (1709-1778), it is customary to celebrate in some way this noted botanist on his birthday, May 23. von Linne, Swedish botanist, systematized the three kingdoms of nature in Latin, and even drew up a treatise on the genera morborum. Do sing vivat scientia! vivat Linnaeus!

(Too late to celebrate this year but remember to do so in 1989. May wine is most appropriate to serve at this occasion.)--Editor

WE WELCOME THE FOLLOWING NEW MEMBERS

N. C. WILDFLOWER SOCIETY

Ballington, Dr. & Mrs. James R.
501 S. Harrison Avenue
Cary, N. C. 27511

Santorum, Mr. & Mrs. Bruno
Route 11, Box 200
Statesville, N. C. 28677

Bates, Ms. Moni
516 Woodlawn Avenue
Greensboro, N. C. 27401

Schock, Mr. Richard
Route 2, Box 316A
Booneville, N. C. 27011

Burleson, Susan O.
203 Highland Circle
Boone, N. C. 28607

Schorger, Ms. Ann B.
P. O. Box 3533
Chapel Hill, N. C. 27515

Dee, Mrs. A. Lawrence
P. O. Box 560535
Charlotte, N. C. 28256

Smith, Ms. Peggy Sue
P. O. Box 1344
Pisgah Forest, N. C. 28768

deHart, Mr. Allen
College Box 845
Louisburg, N. C. 27549

Tyler, Ms. Helen
Route 1, Box 146-A
Clarksville, Va. 23927

Henley, Mrs. A. S.
Route 2, Box 565
Newland, N. C. 28657

Peacock, Mrs. Erle E., Jr.
645 Rock Creek Road
Chapel Hill, N. C. 27514

Moore, Larry E.
The Nature Conservancy
1800 N. Kent Street
Arlington, Va. 22209

Niemitz, Mr. & Mrs. Ben
Route 7, Box 251L
Chapel Hill, N. C. 27514

Patterson, Mrs. O. F., Jr.
20007 Boone Trail
Sanford, N. C. 27330

Payne, Mr. Robert B.
7100 Alexander Road
Mathews, N. C. 28105

Robinson, Mrs. Harold
3203 Country Club Road
Morehead City, N. C. 28557

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