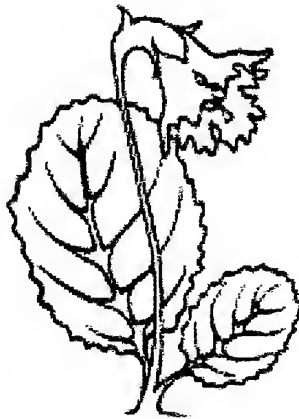


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SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB
SPRING 2003



Shortia galacifolia

Oconee Bells

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WESTERN CAROLINA BOTANICAL CLUB

President: *Jeanne Smith*
Vice President: *Helen Smith*
Secretary: *Patricia Arnett*

Treasurer: *Bonnie Arbuckle*
Recorder: *Betty Jones*
Historians: *Ken & Chris Borgfeldt*

FROM THE PRESIDENT.....Jeanne Smith

Today's February temperature of 60 degrees here in Brevard is defrosting my lethargic winter mind-set. Even though I know Old Man Winter has more freezing temperatures up his sleeve, my thoughts are anticipating spring. And the Club's newly released February - June schedule gives all of us spring events to look forward to.

First and foremost, 2003 is the Western Carolina Botany Club's 30th year of operation. What an achievement that is! Especially with only one official business meeting and two scheduling sessions held each year. How low-key can you get? Shows what bonding can be achieved by botanizing in the woods. Maybe we should invite the United Nations along on some of our walks.

To celebrate our longevity, a special program has been scheduled for March 14. Charlotte Lackey will present "The Fragmented Habitat of Michaux's Beautiful Discovery: *Shortia galacifolia*". Charlotte spent two years compiling an inventory of *Shortia* from a canoe along the shores of Lake Jocassee. Club members of long-standing will remember walks led by Nan Morrow and Peg Camenzind to see this special flower in its native habitat at Lake Jocassee. We hope our "vintage" members will make a special effort to come mingle on this singular occasion with our "fledgling" members to enjoy each other and the punch and cookies.

In April we can look forward to a Monday/Tuesday overnight in the Smokies as described elsewhere in this issue. For reasons unknown, we have not been taking advantage of the proximity of this wonderful wildflower resource. Here's your chance! Sign up early -- space is limited.

I am looking forward to spring and the earliest local wildflower we can expect to find -- *Epigaea repens* (trailing arbutus) which Dick Smith noted in his field notes as blooming on the Andy Cove Nature Trail in Pisgah Forest on March 1, 1993.

And time remembered is grief forgotten
And frosts are slain and flowers begotten
And in green underwood and cover
Blossom by blossom the spring begins.
-A.G. Swinburne 1865

Cover: The flower on the cover is *Shortia galacifolia*, Oconee Bells. Our newsletter is named for this southern endemic which is now rare in the wild.

New Members

George Beatty, Lemont, Pa.
Persis Coleman, Etowah, N.C.

Suzanne Huie, Brevard, N.C.
Kim Rogers, Hendersonville, N.C.

Member News

Peggy and Craig Ellis leave May 1st for a two year stay in India. Their base will be in north India, in the Himalayan Mountains at an elevation of about 7000 feet. Peggy has served as club secretary and was a member of the team which inventoried plants at the Cradle of Forestry a few years ago. She has shared her extensive knowledge of herbs with us at indoor programs and welcomed members to her herb garden on a mountain top in Fletcher.

Elisabeth Feil is preparing interpretive panels for the education program at the Botanical Gardens at Asheville. The panels consist of photographs of native plants arranged by plant family. Elisabeth serves on the board at the Gardens.

Dean Crawford has published a small book entitled HIKES field guide for 55 easy to moderate hikes in and near the south section of Pisgah National Forest. In the mid-1980's Dean was one of a group who formed "The Easy Striders", a hiking group for those who were looking for moderate hikes not requiring a driving distance of more than 50 miles. "The Easy Striders" are still active, meeting each Monday at the Laurel Park Shopping Center in Hendersonville.

In his book Dean gives driving directions to each site, trail directions, miles to be walked, a brief description of the terrain and even a suggested lunch stop. The described hikes begin with FENCE in the Tryon area, to Pearson Falls in Saluda, the Carl Sandburg National Historic Site in Flat Rock, Jackson Park and Patton Park and Wetlands in Hendersonville and then north to a few hikes in the Mills River Area. The remaining hikes are mostly in Pisgah National Forest. Botany club members will recognize some familiar trails such as Horse Cove, Pilot Mountain, Bear Pen Gap, the Shut-In Trail, and the Buck Springs Nature Trail. Farther afield Dean describes Whiteside Mountain southwest of Brevard on Highway 64 and Laurel River Gorge north of Weaverville. When opened, the pages lie flat because of the spiral binding. A blank page opposite each page of text gives ample room for field notes. The book is lightweight and of a size to fit into a pocket or back pack.

Take special notice of the book cover. It was designed by Botany club member, Pat Arnett and her son John.

Dean's book fills a gap with this listing of hikes available to the average walker. Those who have visiting family and/or guests, will find many suggestions for a day of outdoor activity in our beautiful mountains. You can find the book at Mountain Lore Bookstore in Hendersonville, The Compleat Naturalist, Malaprops and Accent on Books in Asheville, Black Mountain Books in Black Mountain and Highland Books in Brevard, as well as at the N.C. Arboretum. Call ahead to make sure a copy is available. The books have been selling out at some of these locations. The price is \$13.95.

The Smokies Trip

April 21-23, 2003

After a six year hiatus, we will return to the botanically rich north side of the Great Smoky Mountains National Park. There will be "stop and go" trips as well as easy trails from one-half to three miles round trip in the Cosby, Little River, Cades Cove and Newfound Gap Road (U.S. 441) areas.

Reservations are required. Call Jeanne Smith before March 15 at 885-2530 to reserve a space for this trip which is limited to 24 participants. The overnight will be at the Tally-ho Inn in Townsend, TN. (1-800-448-2465). Participants are responsible for their own reservations which we suggest be made as soon as possible. The rooms have two beds and a refrigerator. You will need to bring lunches for Monday, Tuesday and Wednesday. Our discounted rate for two nights is \$99.88 including tax. When making your reservation, be sure to mention you are from the Western Carolina Botanical Club. There is a restaurant on the premises which is available for breakfast and the evening meal.



Actaea pachypoda
Doll's eyes

The meeting places for the trip will be Southgate Mall, Hendersonville on Monday, April 21 at 8:30 a.m., Mills River Restaurant at 8:45 or at the first Tennessee rest stop and information area on I-40 at 9:45 a.m. Please let Jeanne know where you will be meeting the group. The driving distance for three days is 400 miles and if you are a passenger, plan to reimburse your driver \$10. Car pooling is encouraged especially from the Inn on Tuesday since parking is limited at some of the stops that day.

Come see the glory of spring flowers in the Smokies!

Leader: Erika Parmi 883-8021

Co-leader: Jeanne Smith 885-2530

Western Carolina Botanical Club
Treasurer's Report -2002
(Consolidated)

<u>Income</u>		
Dues	\$1293	
Donations	174	
Total Income		\$1467
<u>Expenses</u>		
Printing	\$580	
Postage	283	
Annual Meeting & Supplies	168	
Contributions & Honorarium	75	
Total Expenses		\$1106
<u>Income Over Expenses</u>		<u>\$ 361</u>

Once again, it is that time when we look back and reflect on the year just ended. As Recorder, I focus on the trip reports and analyze the data that are submitted for each walk. As a walk participant, I receive non-measurable feedback – questions, comments and attitude.

Both the measurable and non-measurable data are telling me that interest in the club remains high. I sense a revitalization that is reflected in a number of factors. First, though we had a dip in attendance in 2001, the numbers were trending upward in 2002. Attendance at the indoor meetings and picnics remained high throughout.

Second, we have gained new members who are bringing new life to the club with their expertise, experience and enthusiasm. Best of all, they bring a desire to learn and to teach and this enriches us all. Nothing brings greater pleasure to our longer-term members than sharing knowledge with someone eager to learn.

Third, we continue to broaden our botanizing experience by adding new sites to our schedule. This year there were five such sites:

- **Wilder Forest**, a part of Warrior Mountain recently acquired by the Pacolet Land Conservancy. This rich cove forest has well-marked trails and sturdy bridges crossing the creek. This late-March walk featured "millions of trilliums" – *Trillium cuneatum*.

- **Fern Haven**, the home of Larason and Juanita Lambert. What fun we had meandering the many paths to identify the 37 marked ferns – guided by the resident expert.

- **Ashmore Preserve**. A wooded walk took us down to a pond where we found a number of wetland species: Grass Pink, Round-leaved Sundew, Flatrock Pimpernel, Sweet Pitcher Plant and Horned Bladderwort.

- **Crow Dog Native Plants**, the fern-growing operation of Tom Goforth. Here we observed fern production from spore collection to ready-for-sale potted plants. And who can forget the delightful romp through a nearby sunny meadow and the profusion of Meadow Beauties?

- **Cataloochee**. Hopes were high that we would see elk on this late-October walk. No such luck, however.

We revisited sites that have not been on our schedule for several years: **Bat Cave** which elicited rave reviews; **Wayah Bald** where the scent of the Sweet White Azalea perfumed the air at the summit; **Travis Tract** where rain sent us scurrying for cover in the Glass Feather Studio and **Whiteside Mountain** where readings from Dr. Bob Zahner's book [The Mountain at the End of the Trail](#) directed the walk.

For those of you who, like me, find numbers and trends interesting, I have calculated two averages: number of plants identified and number of plants in bloom per walk. For the past three years, these numbers have remained remarkably constant ranging from 64.5 to 68.0 for average number of plants identified and from 35.5 to 37.9 for plants in bloom. These averages were only 48.8 and 30.3, respectively, in 1999, reflecting the fact that we are now including ferns and more non-blooming plants in our lists.

As we approach the 30th anniversary of the club, we tip our hats to the founding members who built an organization that continues, to this day, to bring pleasure and enlightenment.

News from The Botanical Gardens at Asheville.

- Last year 925 new plants were introduced into the Gardens.
- Using funds made available from the N.C. Clean Water Management Trust Fund, the stream stabilization project along Reed Creek was completed.
- This year work will continue on the granite outcrop. Already mosses, lichens and some grasses have appeared on and around the rocks. More rock outcrop plants will be added as the weather warms.
- The bog garden has been completed and the seep is being planted.
- Jay Kranyik is working on the identification of all the grass species in the Gardens.
- Work on the Wilson Bird and Butterfly Garden will be completed this year.
- The grass will be removed from an area which has always been mowed and the site will become in Jay Kranyik's words, "a chaotic meadow". Native meadow species will be planted and the site burned every few years to discourage growth of woody plants.

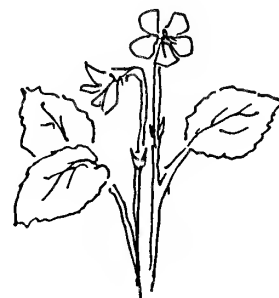
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I know a place where sweet yellow violets grow.
In the last days of winter, through traces of snow.
Drops of pure sunshine on translucent stem--
A paeon to spring
A whispery hymn.

No!
Someone has come and gouged out the rich earth
That had nurtured and given such innocence birth.

This spring I shall not return to the glen,
There's a road where only beauty had been.
Some call it progress:
I call it sin.

I knew a place where sweet yellow violets grew.
Some may still grow there,
But only
A few.



-Odessa P. Galda
2001

(Thanks to Club member, Odessa, for sending this poem)

In 1955 Tom and Bruce* Shinn bought 55 acres of land northwest of Asheville on the north side of Spivey Mountain. The land was a cow pasture when it was purchased but in time became a haven for native plants and a garden enjoyed by many. In 1973 Shinn Gardens was one of the principal attractions of the first Spring Wildflower Pilgrimage sponsored by the University of North Carolina at Asheville.

In a search for information for this article about these two amateur naturalists who did so much for native plants in North Carolina, Tommy Shinn, Jr. sent some family papers which included the following:

“Thomas Sadler Shinn (1904-1989) was born at Norwood, North Carolina. He earned BS degrees in Electrical Engineering and Mechanical Engineering from Duke University. He worked for more than forty years as a power system protection engineer for Carolina Power & Light Company.

Mary Bruce Speight (1908-1983) was born on a large farm near Wilson, North Carolina. She earned an AB degree in education and French literature at Peace Institute, and did postgraduate work at what is now the University of North Carolina at Greensboro, and at the University of Paris.

Both Tom and Bruce had encountered the bitterness of widowhood before they were married in Asheville in 1947. Early the next year they moved into a house in the Montford Hills section of Asheville. It was a nice house on a nice lot, but with the exception of a few mature oak trees, the lot was devoid of vegetation.”



Tom and Bruce Shinn
1982

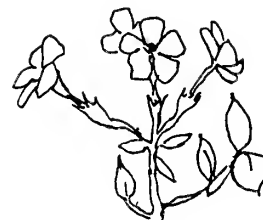
While living in Montford Hills, life took a change for the Shinns. In 1947 Bruce attended a lecture on wildflowers at the Asheville Garden Club. Tommy Shinn remembers that Bruce Shinn's life was never the same again. “Mama found her real mission in life and became a changed woman. On that very day Daddy brought home his first clump of plants that a bulldozer had torn away making a road to a power plant. He too became a changed person. All of a sudden from what had been an interest in wildflowers came close to being an obsession.”

Tom and Bruce Shinn found out where and when new roads were to be cut, new power lines built and dams constructed. Soon the Montford Hills lot and two adjacent purchased lots were filled with plants rescued from these sites. The Shinns began to look for more land and this is when they acquired land on Spivey Mountain --the future home of the Shinn Gardens. They moved to the new property in 1964.

Although Tom never studied botany formally, he became expert in the propagation of native plants from seeds, cuttings and by grafting. Fearing that the rare Gray's lily (*Lilium grayi*) might become extinct, he grew 36 of these beautiful nodding plants by taking scales from two bulbs. Successfully propagated, they grew to a height of over six feet.

*Mary Bruce Shinn was called Bruce by her family and friends.

Bruce Shinn often accompanied her husband as he traveled around western Carolina in his work as engineer with Carolina Power and Light. While he worked, she would hike through neighboring woods and fields looking for new plants. Women she met during these trips would share their knowledge of plants and herbs and where they could be found. It was on a trip to Haywood County that Bruce discovered a large meadow of Creeping Phlox (*Phlox stolonifera*), every plant pure white. Several of the plants were moved to the Spivey Mountain garden and successfully propagated. Gifts of this white variety were sent to Dr. Wherry, a leading botanist, to the Arnold Arboretum and to Dr. Skinner at the National Arboretum. This plant is now marketed in the horticultural trade as "Bruce's White".



Phlox stolonifera

Peter Loewer in his article "The Botanical Gardens of Asheville" (Carolina Gardener, August 1996) traces the beginning of the Botanical Gardens at Asheville to the year 1955 when Bruce Shinn became the chairman of a new wildflower study group sponsored by the Asheville Garden Club. She and Tom had often dreamed of a botanical garden in Asheville and began to share their dream with others interested in finding a refuge for native plants of the Southern Appalachian Mountains.

In 1959 Bruce learned that the Asheville-Biltmore College would be acquiring land for the development of a new college that would eventually become the University of North Carolina at Asheville. She arranged a meeting of civic leaders and nature lovers and the Asheville-Biltmore-Botanical Association was formed. They were successful in winning the approval of the college to put aside ten acres for a botanical garden. The property had a long stretch along Reed Creek which bordered a flat meadow and a hillside which climbed to over 2000 feet. The mission of the Garden was to educate the public about North Carolina's native flora, give a home to endangered plants and provide a place where visitors could see native plants in an environment like that in nature.

In the early days of the project, the renowned landscape architect and naturalist, Doan Ogden, accepted a modest fee to develop an overall plan for the Gardens.* Planting was begun in the spring of 1964 and the Shinn's dream of a refuge for native plants continues to this day as new habitats are developed and more native plants introduced for the education and delight of the public.

The Shinn's continued their interest in native plants throughout the rest of their lives. Tom became a president of the North Carolina Wildlife Preservation Society. Bruce played an important role in the establishment of the Botanical Gardens at Chapel Hill as well as serving as a director.

(continued next page)

During this time the members of the Western Carolina Botanical Club had the privilege of knowing both Tom and Bruce. The Club volunteered as guides at the Shinn Gardens during the Annual Wildflower Pilgrimage. In later years club members weeded the beds and cleared the trails as the Shinns asked for assistance in preparing for the Pilgrimage visitors.

Bruce Shinn died in 1983 and Tom in 1989. Now retired, son Tommy and his wife, Nancy, live in the house at Spivey Mountain and continue to maintain the Gardens.

* See the article on Doan Ogden in Shortia, Autumn 2001

Material for this article was drawn from a number of sources supplied by Tommy Shinn, Jr. This includes the Peter Loewer article, an article from the Greensboro News & Record, February 16, 1989, entitled "Tom Shinn Remembered by Wildflower Society" and an article by Kenneth Israel in The Enterprise, of April 29, 1992, entitled "Festival to Feature Rare Haywood Flower".

The Botanical Club has scheduled a visit to the Shinn Gardens on Monday, April 28 with Elisabeth Feil and Wilma Dupro as leaders.

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Trout Lilies

Hiding beneath the forest floor,
trout lilies wait
for March and sunshine sprinkles.
Speckled leaves rise
from that rich decay
along with yellow flowers, bell-like, thin stalks.
Soon over, bloom and leaf disappear
taking this wonder with them
to secret caves beneath our feet.
It takes time to store the strength
For such shy magic.

-Beverly Bryan Russell

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(Beverly Russell was our speaker at the Botanical Club Annual meeting, January 2003)



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c/o Anne Ulinski
1212 Chanteloupe Drive
Hendersonville, N.C. 28739



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SHORTIA

Vol. XXV. No. 1

SPRING 2003

A quarterly publication of the Western Carolina Botanical Club

Editor: Anne Ulinski
Editorial Assistants: Pat Arnett and Jean Lenhart
Art Work: Pat Arnett

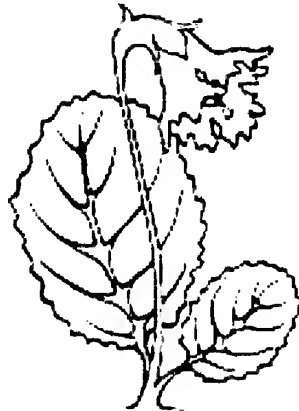
Please submit contributions for the next issue by June 15, 2003 to: Anne Ulinski
1212 Chanteloupe Drive, Hendersonville, N.C. 28739

The purpose of the Club is to study the plants of the Southern Appalachian Mountains and the Southeast through field trips and indoor meetings. Membership is open to all. Individual/family memberships are \$15. New members joining from the period July 1-December 31, pay \$8. All memberships are renewable on January first of each year. Please send dues to: Bonnie Arbuckle, P.O. Box 1049, Flat Rock, N.C. 28731

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SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB
SUMMER 2003



Shortia galacifolia

Oconee Bells

WESTERN CAROLINA BOTANICAL CLUB

President: Jeanne Smith
Vice President: Helen Smith
Secretary: Patricia Arnett

Treasurer: Bonnie Arbuckle
Recorder: Betty Jones
Historians: Ken & Chris Borgfeldt

FROM THE PRESIDENT.....Jeanne Smith

This spring has been magnificent botanywise. The wet winter set up the spring season for one of the loveliest displays in recent years. This made for spectacular discoveries during the Botany Club's April trip to the Smokies (as written up by Elisabeth Feil in subsequent pages). Surely there is no place in the USA where greater varieties of wildflowers appear in such abundance than in the Great Smoky Mountains National Park. Even a tiny flower such as Spring Beauty makes a dazzling display when it covers a couple of acres of an old homesite as we discovered during our scouting trip deep into the Schoolhouse Trail.

Our schedule should show this as the SHOWY ORCHIS TRIP because of "at least" one hundred blooms along both sides of the Little River Walk at Elkmont Campground. In fact, this trail was so wondrous with the rushing scenic river on one side and the abundant displays of first one species and then another that I had the feeling if I just kept walking this trail would lead right up to the Pearly Gates. It was that beautiful!

And all this floral beauty made me ask myself: Of the many spring flowers in bloom which would I pick as my favorite? The orchis is aptly named as showy and it certainly was abundant. Among the numerous Viola family displayed streamside along the Schoolhouse Trail, the Dog Violet (*V. conspersa*) was a new species for me. The Dwarf Ginseng is appealing and not often seen. The lemon yellow blossom and the variegated leaves of the *Trillium luteum* are an attractive combination. And there is something intriguing about the Mountain Stonecrop blooming so profusely among the dark rock crevices. The beauty of the Foam Flower with its apricot-colored anthers makes it hard to relegate it to second place. However, a tiny snowflake-like flower on a thin spike resembling a church spire rising above a green roof of horizontal leaves takes the first place in my heart.



I think that I shall never see
A poem as lovely as *Mitella diphylla*.

I dare you all to try to pick a "first" spring wildflower for yourself!

Cover: The flower on the cover is *Shortia galacifolia*, Oconee Bells. Our newsletter is named for this southern endemic which is now rare in the wild.

New Members

Sally Berger, Hendersonville, is interested in learning the names of the plants on her property in Flat Rock.

Marilyn Kolton and Louis Dwarshuiz, Asheville, have led wildflower walks for Audubon and for the Symphony Guild in Asheville. Marilyn has written articles for the Audubon magazine.

Sylvia Nissley, Sarasota, Fla. Sylvia has bought property in Sherwood Forest and hopes to spend more time in N.C.

Carolyn Wells, Hendersonville, is a botanist with the US Fish and Wildlife Service. She received her degree from the University of Tenn. and has led walks for the Great Smokies Wildflower Pilgrimage. She is interested in native grasses and wildflowers of the mountain wetlands.

Member News

e-mail Addresses. Larry Avery keeps the e-mail addresses for the Club and sends out a notice of field trips or meetings cancelled and for notices of special events that do not appear in the schedule. If you change your e-mail address, send the new address to Larry at <laavery@brinet.com>.

Barbara Allen will be leading two garden tours this year. July 5-15 to the Pacific Northwest, Seattle, Portland and Victoria B.C. Great gardens both public and private, will be visited including Herronswood, Joy Creek and Wells Medina Nurseries. From September 30-October 10 there will be a tour to Portugal. Private and public gardens will be visited as well as pottery and linen shops. For more information contact Barbara at her e-mail address <jandballen@mindspring.com>, or 770-393-3451 or 770-722-5583.

Community Project. Two members of the Botanical Club, Bonnie Arbuckle and Helen Smith, in cooperation with the Bullington Horticultural Learning Center presented a Native Plant Identification Workshop at the Center on Saturday May 10. Helen Smith gave a presentation on botanical terms. Participants learned to observe a plant critically. This enabled them to follow the keys in Newcomb's Wildflower Guide. After practicing on cut specimens of native plants, the group walked some of the Bullington trails and identified flowering specimens. The response was enthusiastic. Another workshop will be scheduled in 2004.

Book Donations. Do you have botanical books that you would be willing to donate to the Bullington Center? The books would be used in the program to educate the public about our native plants. Larason Lambert, a club member and a volunteer at Bullington's, has agreed to act as liaison. Let Larason know what books you want to donate. He can be reached at: 2 Fern Place, Hendersonville, 28792. Tel: 828-685-0180 or e-mail: lamberts@brinet.com. The Center operates under the Henderson County Education Foundation which has a tax-exempt status if you are interested in a tax deduction for your gift.

Western Carolina Botanical Club Membership 2003

Asheville, N.C.

Conway, Rachel M.
Crawford, Dean & JoAnn
Dupree, Al & Agnita
Durpo, Wilma
Dwarshuis, Louis
Feil, Elisabeth
Hansens, Elton & Aline
Kolton, Marilyn
Lackey, Charlotte
Lindley, Mary Ellen
Middleton, Dave & Milly
Robbins, Paula
Takaro, Tim & Marilyn
Balsam, N.C.
Chattaway, J.R. & Patricia
Bon Air, VA.
Verduin, Bill & Evelyn
Brevard, N.C.
Blaha, Millie
Craig, Elizabeth R.
Farrar, W. Edmund & Carver
Gunn, Bob & Betty
Hudson, Jack & Dorothy
Jones, Betty
Moore, Eric & Peggy
Nissley, Sylvia
Peelle, Miles
Peeler, Liz
Perry, Pat & Lois
Schifeling, Daniel & Annalee
Smith, Jeanne
Strayer, Lucie A., Colmont, R.
Updike, Connie
Wickham, Alice
Candler, N.C.
Carlson, Betty
Canton, N.C.
Fishback, Happy and Jan
Charlotte, N.C.
Ward, Courtney
Clemson, S.C.
Hall, Karen
Columbus, N.C.
Smoke, Henry & Therese
Tener, Albert & Virginia

Dillard, Ga.

Center, Dan & Barbara
Etowah, N.C.
Coleman, Persis
Flat Rock, N.C.
Arbuckle, Bonnie
Avery, Larry & Anita
Berger, Sally
Blackwell, Rusty/Cottier, Ray
Gibson, Ruth Anne & John
Gerton, N.C.
Florence, Thomas & Glenna
Greenville, S.C.
Burton, Mr. & Mrs. Henry B.
Hendersonville, N.C.
Anderson, Kenneth & Jane
Arnett, Patricia
Ballard, Larry & Anna
Bockoven, Paul & Elizabeth
Borgfeldt, Ken & Chris
Davis, Thomas and Jane
Dratz, Beverly
Foresman, Louise
Gadd, Charles & Frances
Herriman, Don & Dana
Kotch, Joel & Sharon
Lambert, Larason & Juanita
Lenhart, Jean
MacCallum, Betsy
McDaniel, Lois
Matthes, Herbert & Anne
Meister, Charles & Nancy
Merkle, Mary L.
Montgomery, Bob and Elaine
Pearson, Bud & Laverne
Petteway, Jo
Polchow, Peggy
Rogers, Kim
Russell, Beverly
Sauborn, Barbara
Sidoti, Marjorie
Sinish, Ken & Bessie
Styles, Cora
Tregay, Rosemary
Ulinski, Anne
Wells, Carolyn
Yeager, Tim & Lana

Highlands, N.C.

Davis, Charlton & Patricia
Poole, Kay & Edwin
Shoemaker, Paul & Simone
Kennett Square, Pa.
Hallowell, Tom & Barbara
Lake Toxaway, N.C.
Allen, Barbara D.
Dziedzic, Betty
McGuirt, Lucy
Lemont, Pa.
George Beatty
Lexington, N.C.
Fisher, Don
Marion, N.C.
Goldsmith, James W.
Norcross, Ga.
Arrington, Daisy
Pisgah Forest, N.C.
Kurinsky, Allen & Naomi
Parmi, Erika
Schmidt, Christine
Smith, Helen M.
Roanoke Rapids, N.C.
Houghton, Anri
Saluda, N.C.
Pearson, Millie
Wilkes, Holly
Seneca, S.C.
Lennox, Susan & David
Sylva, N.C.
Harris, Mary Helen
Horne, Ann and Lynn
Miller, Earl & Bettye
Stenger, Raymond & Gloria
Tryon, N.C.
Flower, Bill and Sonia
Galda, Odessa
Kuster, Ivan & Harriet
Waynesville, N.C.
Brinson, Beth
Couric, Elrose/Hollinger, Sue
Evans, Maxilla
Thomas, Jane and George

Ever since its inception thirty years ago, the WCBC has recognized the need to use standardized names on its plant lists. Early on, common names were rejected as unsuitable because of a total lack of standardization. We chose to use scientific names, difficult as it was, at first, to memorize and twist our tongues around those Latin syllables. But, at least, these were standard – or were they? As time went on, we found that different sources were using different scientific names for the same plant. There appeared to be no single authority for the names of plants.

That has now changed. Several federal agencies along with organizations worldwide have formed a partnership to create the **Integrated Taxonomic Information System (ITIS)**. By accessing their web site (www.itis.usda.gov) it is possible to get the latest taxonomic information on plants, animals, fungi and microbes. Many sources and experts are cited.

At the last WCBC board meeting, it was decided that we would adopt the ITIS nomenclature. As our checklists are updated, we will attempt to bring them up to the new standard. If possible, we will put the "old" name in the "notes" field of the checklists. Be prepared for the change.

Wilder Forest, site of our first walk of the 2003 season, lived up to its reputation as the place to go for early spring flowers – trillium and bloodroot in particular. The trail is steep in places and definitely calls for a walking stick.

The new walk on the **Palmetto Trail at Blue Wall Preserve** took us through a pine woods and past two ponds. The habitat is not a rich one and blooming plants were not particularly abundant.

The opposite was the case at another new site - **Peach Orchard Branch** - which is located in an area that supports a wide variety of plants due to varying soil types and acidity. Per Tom Goforth, this is the richest fern site in South Carolina. Especially noteworthy was the abundance of Allegheny Spurge (*Pachysandra procumbens*).

Rain put a "damper" on the walk at **Pearson Falls**. The dozen walkers who braved the rain were rewarded at trail's end with a view of Pearson Falls at its most abundant. Most of the usual favorites were in bloom, including *Trillium grandiflorum*.

Our first visit to **Balsam Mountain Preserve** had to be cancelled due to snow and generally nasty weather. It will probably be put on next year's schedule.

Jamie Oxley, the new owner of **Meadowbrook Nursery / We-Du Natives**, was an enthusiastic and informative host on our visit to his nursery near Marion, NC. Scattered over several acres, in pots and in the ground, are thousands of plants – mostly natives. Plants are propagated here by seed, cuttings and tissue culture. After the walk and lunch, the nursery did a brisk business satisfying the native plant needs of our members.

Our annual spring walk to the **Davidson River / Sycamore Flats** area was cancelled due to rain and the threat of severe thunderstorms. An abundance of Foamflower, Star Chickweed, Trilliums and Cream Violets were seen on the scouting walk earlier in the week.

The Smokies Trip.....April 21-23,2003.....ElisabethFeil
Leaders: Erika Parmi and Jeanne Smith

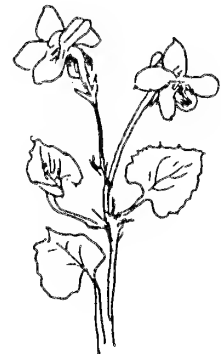
The weatherman was right this time. It rained on the way to Cosby, our first destination, but it quit raining when we arrived and became progressively nicer throughout our stay.

There were 25 participants, a good, congenial group. Our leaders had done excellent work organizing the outing. Enough leeway was built into the time plan to allow for unavoidable delays without letting us feel hurried. The Tally-ho Inn in Townsend, TN. was well chosen, a clean facility where each room has a pretty view of the surroundings that are not yet too spoiled by the trappings of a tourist town.

On our first walk from Cosby campground people could choose either the Nature Trail or the longer Sutton Ridge Trail. The outstanding feature on both trails (and on all the other walks we took) was the surprising abundance of Showy Orchis everywhere. Even the smallest plants sported a few blossoms. This must be this specie's special year.

The Ash Hopper Branch trail at the Sugarlands Visitor Center had the only Yellow Lady's-slipper we found during the entire trip. But Doll's-eyes and Bishop's Cap were quite common on this trail, which seemed to me to be rather disturbed.

After a good night's sleep, we started out on the School House Trail. Doghobble was in bloom across the creek. We found six species of violets, including the Dog Violet, *Viola conspersa*, which was new to me). Corn salad, *Valerianella locusta*, was one of the species several of us had not seen before. The rosettes make a tasty salad in early spring. (Look for "Maché" in the Martha Stewart seed display at K-Mart early next spring and give it a try).



On the Little River Road, there was Bleeding Heart on the wet rocks. Abundant were Fire Pink, Purple Phacelia and a big white Trillium, which was listed as Wake Robin, *Trillium erectum*. But by the end of the trip, after lengthy discussions, we decided that it is *T. simile*, the Sweet White (or Confusing) Trillium.

Viola conspersa
Dog Violet

We stopped at the Townsend "Y" and admired the lush vegetation on the big, dripping rocks at the beginning of the Chestnut Top Trail. Mountain Stonecrop and Early Saxifrage covered the rocks. Farther up there was Fringed Phacelia, Yellow Trillium, Dutchman's Pipe, and two ferns, Maidenhair Fern and Ebony Spleenwort, among others.

The afternoon found us walking up the Little River Trail from Elkmont Campground. There was Brook Lettuce, Marsh Blue Violet, Nodding Mandarin, Bishop's Cap, Yellow Trillium, and, as a bonus, Fraser Sedge a bit off the trail. Around one of the older houses we found Celandine Poppy in bloom, and Forsythia and Appalachian Mock-orange, *Philadelphus inodorus*, the one beyond flowering, the other coming.

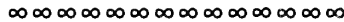
The Smokies Trip (continued)

Our first stop on the last day was the Nature Trail at the Chimneys Picnic Area. We were not disappointed. Squirrel Corn was still in bloom as was Dwarf Ginseng. We found the maroon form of Meadow Parsnip (*Thaspium trifoliatum*), lots of Brook Lettuce, and for good measure, Walking Fern on a rock. We were, however, a bit late for the Large-flowered White Trillium, and Mayapple was not quite in flower yet.

And to send us off gently, there was Kanati Fork, on the Cherokee-side of the Smokies. It always looks different to me from the trails on the north side of the mountains, a little less lush, but almost as diverse. Speckled Wood Lily and Showy Orchis were coming, as well as Canada Mayflower. We found a good number of Sweet White Trillium as well as Brook Lettuce and Umbrella Leaf near and in creeks. The Large-flowered White Trillium had lost its luster below, but was still in good shape higher up on the trail.

Just about everywhere we went, there were Dogwood and Silverbell, Foam Flower, Blue Cohosh, Sweet Cicely, Giant Chickweed, Creeping Phlox, Sweet White Violet, Foam Flower, Slender Toothwort, Heart's-a-busting, leaves of Squirrel Corn and Dutchman's Breeches, and many others. Turk's Cap Lily was coming in many places, and here and there we found Smooth Rock Cress and Long-spur Violets, the latter one of my all-time favorites.

It was a very satisfying outing. Many thanks to the persons who spent much time and effort to make it happen.



An excerpt from the N.Y. Times, SCIENCE, November 19, 2002.....Anne Ulinski

On the Taxonomy of the Naturalist

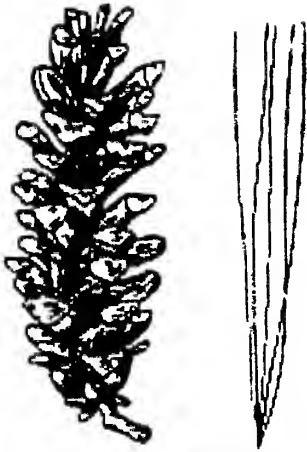
With the decline of nature comes the rise of naturalists. There may be fewer songbirds and swamps, fewer forests and meadows. But naturalists are everywhere, at parks, at nature centers, leading bird walks and teaching children about the habits of squirrels and frogs.

The most interesting thing about naturalists may be that their evolution continues...a completely new variety has emerged recently, which given the chance, may one day amount to a full-blown species. This is the certified naturalist.

Certification programs offer naturalist or master naturalist certificates. The Morton Arboretum in Chicago offers a rigorous program involving courses and field trips over a period of two years. Florida and Texas offer state programs with a total of 40 hours of classes and field trips. Other environmental institutes have their own programs.

Today's naturalists are concerned with action. Where earlier naturalists may have been able to enjoy an evening contemplating a butterfly collection, their modern descendants are more likely to be out making sure that there is enough milkweed for the monarch migration. Loss of habitat is one of the primary threats to many species and because naturalists themselves depend on nature, all habitat loss is a personal threat. Where would naturalists be without nature? Facing extinction, with or without certification.

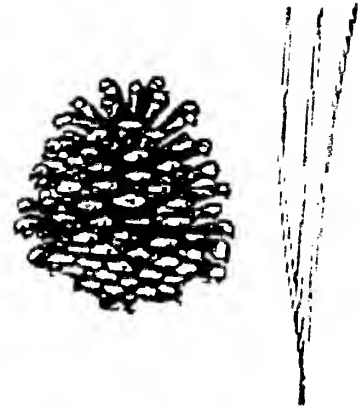
COMMON PINES OF THE SOUTHERN MOUNTAINS



Pinus strobus
Eastern White Pine
Large tree. Dry or moist woods
Needles 5 in a bundle. Cones
without prickles.



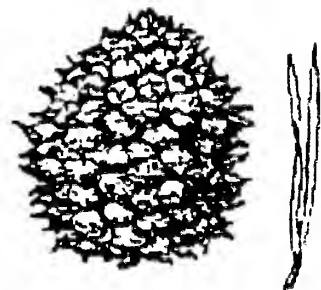
Pinus virginiana
Virginia Pine
Small tree, drooping branches
persisting for a long time. Needles 2
in a bundle, stout rather stiff, often
twisted. Cones squatty with sharp
persistent prickles.



Pinus rigida
Pitch Pine
Medium size tree. Dry slopes
and ridges at lower elevations.
Needles 3 to a bundle, stiff,
somewhat twisted. Needles
sometimes grow out of trunks.
Cones with stout rigid prickles,
persistent for many years.



Pinus echinata
Shortleaf Pine
Large tree. Dry, rocky or sandy woods.
Needles mostly 2, sometimes 3, in a
bundle. Cones, with weak prickles.
Smallest cones of the above 5 pines



Pinus pungens
Table Mountain Pine
Dry or rocky woods, high mountain
ridges, short lived. Needles 2 to a bundle.
stout, rigid, crowded, pointed, often twisted.
Cones large, heavy, each with a stout curved
prickle, remaining long on the tree.

There was a time when I set out to learn to identify Trilliums. So I made a graph, listing features vertically on the left, the species across the top. Then I took Dr. Radford's *Manual* and filled in the blank spaces. After a good bit of honest effort, I threw up my hands and decided they were not learnable - by me, that is. (Reminded me of organic chemistry).

So, here I found this book, *Trilliums*, by Frederick W. Case, Jr. and Roberta B. Case, published in 1997 by Timber Press, Portland, Oregon. Honestly, I'm not trying to write a critical review. The book is great, well researched, well written, and with outstanding illustrations. But it did not solve my dilemma.

Just read what the the book says about *Trillium erectum* (Wake Robin):
".....Throughout its wide range, the species varies considerably. Many locally distinct variations exist, considerable individual variation within populations occurs, and consequently, taxonomic confusion reigns.... The specific epithet *erectum* refers to the stiffly erect pedicel in some forms of this species. In many populations, however, the pedicel leans or almost declines...." And later under Varieties, Forms, Hybrids: "var. *album*" (the white form of Wake Robin): "*Trillium erectum* hybridizes with *T. cernuum*, *T. flexipes*, *T. rugelii*, and possible other species" "Because it intergrades with almost all related species, many specimens are impossible to key or place with confidence." Do you see what I mean?

On our outing to the Smoky Mountains National Park this spring, we saw many stately white trilliums with dark ovaries and wide petals that somehow did not quite look like the *Trillium erectum* var. *album*, the white form of Wake Robin we had in mind. I had seen similar plants before and thought they were *T. simile*, Sweet White Trillium (or Confusing Trillium). We debated.

I consulted the book, and here is some of what I found on *Trillium simile*: "This much confused species is the least known and understood of any of the *Trillium erectum* alliance. Intermediate in some respects between *T. erectum* var. *album* and *T. vaseyi*, it also resembles many hybrid forms between those two species...." (The species epithet *simile* was originally meant to convey a similarity to *T. vaseyi*, Vasey's Trillium).

But how do you tell them apart? "According to Patrick (1984), *T. simile* can be distinguished from similar species by viewing the flower from the side. In *T. vaseyi*, stamens and pistil will be visible, in *T. simile*, because the flower petals ascend, not reflex ("widely agape," Patrick 1984), those organs cannot be seen." The same applies to *T. erectum* vs. *T. simile*.

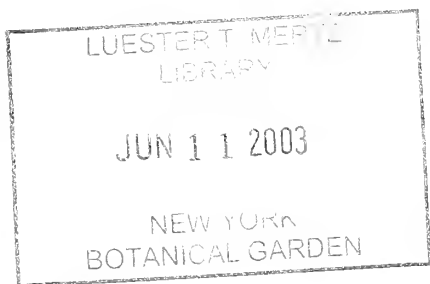
The final confirmation of our species determination came from one sentence: "Along the Little River in Great Smoky Mountains National Park it can be found on roadside outcrops and in rich coves in large numbers." That's exactly where we were.

Trilliums may be learnable, I found. But one has to spend years and years studying them and even then one cannot always be sure.

SHORTIA
c/o Anne Ulinski
1212 Chanteloupe Drive
Hendersonville, N.C. 28739



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Vol. XXV. No. 2

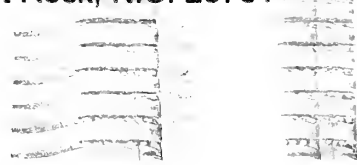
SUMMER 2003

A quarterly publication of the Western Carolina Botanical Club

Editor: Anne Ulinski
Editorial Assistants: Pat Arnett and Jean Lenhart
Art Work: Pat Arnett

Please submit contributions for the next issue by August 15, 2003 to: Anne Ulinski
1212 Chanteloupe Drive, Hendersonville, N.C. 28739

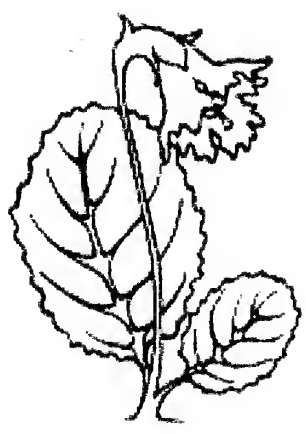
The purpose of the Club is to study the plants of the Southern Appalachian Mountains and the Southeast through field trips and indoor meetings. Membership is open to all. Individual/family memberships are \$15. New members joining from the period July 1-December 31, pay \$8. All memberships are renewable on January first of each year. Please send dues to: Bonnie Arbuckle, P.O. Box 1049, Flat Rock, N.C. 28731



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SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB
AUTUMN 2003



Shortia galacifolia

Oconee Bells



21

WESTERN CAROLINA BOTANICAL CLUB

President: Jeanne Smith
Vice President: Helen Smith
Secretary: Patricia Arnett

Treasurer: Bonnie Arbuckle
Recorder: Betty Jones
Historians: Ken & Chris Borgfeldt

FROM THE PRESIDENT.....Jeanne Smith

Twenty Botany Club members thoroughly enjoyed our August 22nd visit to the Botanical Gardens at Asheville. All our members will be pleased to know the gardens looked wonderful with many works in progress and favorite sites well tended. The Gardens has recently reaffirmed their mission statement as being “dedicated to the study and promotion of native plants and habitats of the Southern Appalachians”. Consequently, we can breathe a collective sign of relief that cultivars are not an option.

Elisabeth Feil was our leader for the day. She arranged for Jay Kranyik, the Chair of the Horticultural Committee at the Gardens, to give us a special talk on site at one of his favorite spots. - the Peyton Outcrop. He identified the many special plants that have been put in to colonize this thin soil rock outcrop. And all the rainy weather has meant a critical boost for the first bloom year of this newly established display. This interesting young man devotes many hours as a volunteer at the Gardens. Jay is a self-taught botanist (his profession is photography) whose infectious enthusiasm and extensive efforts have made him a guiding light on the Board of Directors.

Elisabeth is also on the Board and is volunteering extensively. The summer newsletter, New Leaf, features “Meet Volunteer Elisabeth Feil”. We all trooped into the nicely stocked gift shop to see the educational display that Elisabeth has originated using her photographic and botanical expertise.

Seeing the results of the volunteer efforts of these two botanically enthused individuals reminds me of all the thanks due to the volunteers within our Botanical Club. Every field trip needs three volunteers -- two co-leaders and a recorder. The bi-yearly schedule is drawn up by a committee composed of officers, leaders and interested parties. The plant lists handed out at each walk involve intense behind-the-scenes computer effort. SHORTIA appears promptly each quarter because we have a devoted editor and staff. Thank you one and all.

These necessary jobs always get filled. Members volunteer--except for the presidency! Heroically, Don Herrman stayed as president for four years because no one would step forth. I volunteered for one year which ends in January. WHO IS NEXT?

Cover: The flower on the cover is *Shortia galacifolia*, Oconee Bells. Our newsletter is named for this southern endemic which is now rare in the wild.

NEW MEMBERS

Evelyn Amato, Hendersonville, is a painter in acrylic and pastels. She is interested in observing wildflowers in their natural setting.

Barbara Landwehr, Highlands, and her husband moved here from Pennsylvania. She was a biology major and is interested in gardening, wildflowers and hiking.

Cynthia and Mike McCurdy, Horse Shoe, moved here in May from Illinois. Cynthia has been interested in botany since college. Mike comes from a large family interested in gardening, birding and the great out-of-doors. For the last two years, he has worked for the conservation organization, the Trust for Public Land..

Alan Mizeras, Horse Shoe, is a biologist and mycologist. He and his wife live on four acres of land on the French Broad river in Horseshoe. He has identified about 60 native plants on his acreage. Alan is also a photographer and is preparing slides of the native plants.

Edwina Pearce spends her summers in the Canton area . As she walks in the mountains she is interested in identifying the wildflowers she sees.

Reminder

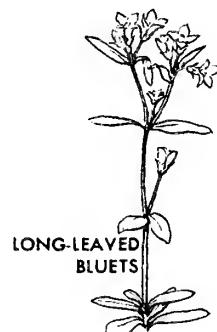
Send address changes to the Club Treasurer, Bonnie Arbuckle
Send e-mail address changes to Larry Avery, alavery@cytechusa.com
Note: This is a new e-mail address for Larry

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Flowering plants have existed for about 120 million years. They evolved when dinosaurs roamed the earth. They are unique because each of their seeds has a protective, nourishing shell that helps the seed survive. And survival is the primary goal of every living thing.

Wildflower, when I look on thee
All's that's wild and sweet in me
Soars free.

-Sanna Porte Kiesling



Rain has been both bane and boon. Two more spring walks had to be cancelled due to weather but, on the plus side, rain produced a bumper crop of flowers. This was certainly the case at **Shinn Garden** in late April where over 140 plants were identified – 88 of them in bloom. Ten trillium species and 15 different ferns were found on this easy walk.

The weather was perfect for a walk through the bog and meadow and up to the waterfalls at the **Jones Farm**. The tiny Appalachian Twayblade (*Listera smallii*) was just beginning to bloom and the two Pitcher Plants (*Sarracenia purpurea* and *S. rubra* ssp. *jonesii*) were in bud. We compared four species of *Veronica* and examined Arrowwood (*Viburnum dentatum*).

Coleman Boundary lived up to its well deserved reputation for variety and abundance of wild flowers. Umbrella Leaf (*Diphylleia cymosa*) made spectacular displays. Wild Comfrey (*Cynoglossum virginianum*) was in bloom and Trailing Strawberry Bush (*Euonymus obovatus*) – a new species for this site – was discovered.

Speckled Wood Lily (*Clintonia umbellulata*) and Wild Geranium (*Geranium maculatum*) were abundant on the **Tanbark Tunnel – Rattlesnake Lodge** walk. We were too early for the Whorled Pogonia (*Isotria verticillata*) but Mock Orange (*Philadelphus inodorus*) and Flame Azalea (*Rhododendron calendulaceum*) made colorful displays on the hillsides.

A leisurely walk along Wolf Branch Road at the **North Carolina Arboretum** terminated at a picnic area in the azalea repository. For the most part, we encountered common roadside plants, but we did spot several patches of Fire Pink (*Silene virginica*) higher on the slope beside the road.

Everyone had such a good time at **Cabin Cove** – home of members Elrose Couric and Sue Hollinger – that no one wanted to leave. Several special orchids were identified: Lesser Rattlesnake Plantain (*Goodyera repens* var. *ophioides*), Smaller Yellow Lady's Slipper (*Cypripedium parviflorum*), Whorled Pogonia (*Isotria verticillata*), Appalachian Twayblade (*Listera smallii*) and Tubercled Rein Orchid (*Platanthera flava* var. *herbiola*) in seed, plus the uncommon fern Adder's-Tongue (*Ophioglossum sp.*). This is, indeed, a special place.

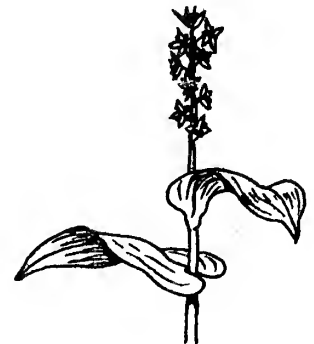
The walk to **Pickelseimer Rock House** and the nearby falls was a pleasant one, but the botanizing was disappointing. Only 19 blooming species were identified. In contrast, at **Ashmore Heritage Preserve**, 36 blooming species were found, several of which are seldom seen on our walks. The lake area gave us the Grass Pink (*Calopogon tuberosus*), Piedmont False Pimpernel (*Lindernia monticola*), Horned Bladderwort (*Utricularia cornuta*) and Rose Pogonia (*Pogonia ophioglossoides*). On the dam we found Racemed Milkwort (*Polygala polygama*) and at trail-side were the beautiful White Milkweed (*Asclepias variegata*) and Narrow-leaf White-topped Aster (*Sericocarpus linifolius*). Excess foot traffic is threatening the rare lake-side flowers and an attempt is being made to reduce the traffic with fences and brush piles.

We continued our survey of **Whiteside Mountain** in June. Highlights of the walk were Wretched Sedge (*Carex misera*) – what a name! – and Sand Myrtle (*Leiophyllum buxifolium*), plus the rare Hartwig Locust (*Robinia hartwigii*) and Fall Goldenrod (*Solidago simulans*) – both endemic to these granite domes.

Flowering plants are divided into two subclasses according to the way the seed embryo produces the first cotyledon or seed leaf. Think of a bean. When it starts to grow it sends down a root and the seed splits into two parts called the seed leaves or cotyledons. These seed leaves are produced before the first true leaves of the plant. Corn, as it sprouts, is a classic example of a Monocotyledon. The seed does not divide and just one seed leaf is produced. Monocots and dicots, as the names have been shortened, also have differences in leaf and flower structure that aid with plant identification.

	MONOCOT	DICOT
LEAVES	Linear Undivided	Non-linear May be compound
LEAF VEINS	Parallel	Branched
LEAF EDGES	Entire	Serrate or dissected
FLOWER PARTS	In groups of 3	In groups of 4 or 5
SEPALS & PETALS	Usually look alike	Usually different
STEMS	Seldom branched	Usually branched

Plants of the Liliaceae, lily family, show typical monocot characteristics; flower parts in 3's, little distinction between sepals and petals, entire linear leaves with parallel veins. Their stalks are seldom branched. Try to visualize *Erythronium umbilicatum*, Trout Lily, and *Lilium superbum*, Turk's Cap Lily.



Wild lily-of-the valley

Other monocot families we often see on botanical walks are Commelinaceae, Dayflower family; Trilliaceae, Trillium family; Iridaceae, Iris family and Hypoxidaceae, Yellow Star Grass family. The Orchidaceae, Orchid family, has flower parts in 3's even though the flower formation is irregular. Leaf and stem structure fit the monocot pattern.

The largest number of monocots are found in the Poaceae and Cyperaceae, grass and sedge families. These flowers are small and specialized making identification difficult.

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Look for articles by Bonnie on plant families in future issues of Shortia.

Botanical Magazines

Wildflower, North America's Magazine of Wild Flora, was founded in 1984 by the North American Native Plant Society. It is dedicated to the study, conservation, cultivation and restoration of North America's native flora from the Panama Canal to the North Pole. Twenty-seven field editors assist editor James Lodgins. Among them are Hugh and Carol Nourse of the Georgia Botanical Society and Peter Loewer of Asheville.

Recent articles are:

"Wildflowering Mount Ranier"

"Bald Cypress, Tree Totem of the Southern Swamp"

"The Herb called Hart's Tongue"

"Spicebush, how I love Thee"

"The Granite Barrens in the Spring"

This article by Carol and Hugh Nourse is subtitled, "Moonscape-like granite depressions are home to Pool Sprites and Elf Orphines" and will remind some club members of a field trip to Forty Acre Rock.

The color photography, layout and articles make every issue a treasure to botanists and lovers of native plants. Wildflower is published four times a year for a subscription price of \$35. Address: Wildflower, Box 335, Postal Station F, Toronto, On., Canada M4Y 21.7. Website is: www.wildflowermag.com.

Plant Talk is published by the National Tropical Botanical Garden, Hawaii. While Wildflower concentrates on North America, Plant Talk supports conservation worldwide.

Recent articles:

"The Montane Forests Islands of Eastern Nigeria"

"Unlocking the Secrets of the Burren" [Ireland]

"Underground Orchids on the Edge" [New South Wales]

Each issue has a section on conservation news covering topics such as: "African Botanic Gardens Network launched", "Gift for Missouri Botanical Garden", "Lost plant of the Welsh mountains reappears", "Oldest Living Tree to be cloned". Color illustrations, book reviews, maps, notice of international botanical and conservation meetings, and a few cartoons add to the appeal of this publication.

Plant Talk is published quarterly for \$28. Subscribe by writing P.O. Box 354841, Palm Coast, Fl. 32135 or going to www.plant-talk.org.

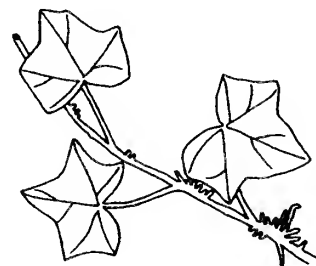
The Forest Service and the Champion Tree Project will attempt to clone the 4767 year old Bristlecone pine, *Pinus longaeva*.



“A green invader creeps through Oregon’s forests, swallowing entire groves of trees and covering forest floors. Its tentacles smother ground plants and eventually kill even the tallest trees...” The invader is English Ivy, *Hedera helix*.

The above excerpt is from a web page sponsored by Portland General Electric (PGE), an Oregon utility company. “In the last five years,” says Dave Kruse, PGE employee and an active member of the nonprofit Friends of Tryon Creek State Park, “we’ve gone from 17 to 130 acres in which ivy has been removed from the Park.” He and other PGE employees are spearheading an effort to restore the 645-acre recreational area. Clearing is done by hand with PGE supplying tools and gloves. In spite of the great progress made, the battle against ivy continues. The volunteers have more than 500 acres of parkland yet to be cleared.

English Ivy is a particularly noxious nonnative plant which thrives in temperate climates, including the Pacific northwest. It is an evergreen climbing vine in the ginseng family, Araliaceae, and it has no natural enemies. Vines crawl along the ground and attach to the bark of trees, brickwork, and other surfaces by way of numerous small rootlike structures. As an aggressive invader it threatens all vegetation levels of forested and open areas. In its adult stage it takes over everything in its path even the Douglas fir trees. The dense growth and abundant leaves prevent sunlight from reaching other plants and the weight of the vines make infested trees susceptible to blow-over during storms.



The native range for English Ivy is Europe, western Asia and northern Africa. It occurs in at least 26 states and the District of Columbia. It was probably brought into the United States by immigrants.

Control and Eradication Several effective methods of control are available including chemical and non-chemical depending on the extent of infestation, the amount of native vegetation on-site and the available time and labor. Vines growing on the ground can be pulled by hand, with some difficulty, and those climbing up trees can be cut at the base of the tree. Herbicides can also be used. For more information on eradication, come to the January 23, 2004 botany club meeting on “Invasive Exotic Plants”. The Carl Sandburg Home National Historic Site in Flat Rock is in the processing of eradicating English Ivy where it has escaped into natural areas. Irene VanHoff, a Forestry Technician, is in charge of the project and will be our speaker that day.

Cultural eradication is the best solution. Already the states of Oregon and Washington have ruled that English Ivy is a noxious weed and its sale by nurseries in those states is now illegal.

Pachysandra recumbens, the native pachysandra, is a non-invasive ground cover that can replace English Ivy. It does well in our area and is available at local nurseries. More and more gardeners are removing ivy from their gardens including Botany Club members Barbara Allen, Pat Arnett, Bonnie Arbuckle and Anne Ulinski. Join them in eradicating the “green invader” from your property.

BOOK REVIEW

Wildflowers Across America has two authors, Lady Bird Johnson, founder of the National Wildflower Research Center in Austin, Texas, and Carlton B. Lees, former senior vice president of the New York Botanical Garden and editor-in-chief of Horticulture magazine.

The book will appeal to gardeners, botanists and wildflower enthusiasts. It covers such topics as native and immigrant plants, the beautification movement and highway legislation, plant explorers of the past and wildflowers of different regions. The many pages of color illustrations are exceptional and the text is well organized for readers with different interests.

Lady Bird Johnson writes of her early life growing up in the country and exploring the woods searching each spring for the first wild violets. As the seasons progressed she delighted in the carpets of Bluebonnets, Indian-blanket, Paintbrush, and Coreopsis. Later in life, in her extensive travels with her president husband, Lyndon Johnson, she became acquainted with wildflowers across America. When she saw blighted areas she thought not only of America the free but of America the beautiful. As first lady she initiated the establishment of the Committee for a More Beautiful National Capital. When she and her husband returned to Texas, she began to work with the Texas Highway Department on a Texas beautification project. From this experience she envisioned a nationwide wildflower beautification project and in 1992 at the age of 70 she founded and helped fund the National Wildflower Research Center in Austin. Carlton Lees, the book's co-author, was one of her earliest partners.

Carlton Lees defines a wildflower simply as the flower of a plant not in cultivation. Although Queen-Anne's lace, chicory, and goldenrods are beautiful along the road and in the fields they may not meet a strict definition of wildflower and may not be acceptable in some gardens. But says Lees "...all flowering plants are or have been wildflowers somewhere." Tulips which are native to Turkey and roses which are native in many parts of the world are among those which have been hybridized to give us a large array of "horticultural" plants. On the other hand, our native wildflowers such as cardinal flower and phlox are horticultural plants in Europe and other parts of the world.

When and how our native wildflowers originated, Lees says, is a question still unanswered. "Some are very old, some surprisingly new. Through mutation and natural hybridization over long periods of time, new species arise." Dr. Edgar Anderson's studies of the evolution of the spiderwort, genus *Tradescantia*, revealed the complexity of the development of new species. The movement of plants is also discussed. "Strong natural forces, such as floods, tornadoes, hurricanes, avalanches and typhoons, can cause dramatic movement of plants, particularly seeds, to new sites where they may come into associations where new opportunities for hybridization and gradual evolution into new species can occur." And plants are affected by their particular environment (ecological niche) and elevation, annual precipitation, soil type, sun intensity, and population.

The book discusses the new role of the scanning electron microscope and ever more advanced techniques which make it possible to study plant chromosomes and tissues to a finer degree than ever before. This knowledge makes it more difficult to draw the line of distinction between one species and another. Plant taxonomists (classifiers) are "lumpers" or "splitters", but plants, such as asters and goldenrods, often reveal biological gradations which can defy identification by even the most experienced.

Wildflowers Across America has a section entitled, "Plant Explorers of the Past". It begins with the early Spanish explorers who came to Florida, to the mouth of the Mississippi River and to Mexico and California. Nicholas Monardes (1493-1588) wrote about sunflowers and tobacco. Philip II of Spain had information on many herbs under their Mexican names. And who knows what the Vikings took home from America.

After the Spainards, we come to the more familiar northern European explorers beginning with John White (1540-1590) who was considered the first illustrator of American plants. He was a member of the Lost Colony in Roanoke, and was one who returned to England to get help for the small settlement so, although the Colony was lost, his work was saved.

Then came the Tradescants, father and son, John Banister, Mark Catesby, John Bartram, Peter Colinson and William Bartram. Also covered in this section are Peter Kalmia, Andre Michaux, Lewis and Clark and Thomas Nuttall. David Douglas (1799-1834) was more horticulturally oriented than the strictly botanist collectors. Extensive sections of his journal are included in the book. Douglas traveled in the east as far as Lake Erie and later to the Pacific northwest. The section ends with Thomas Drummond: the Pacific Northwest and Texas, and John Jeffrey who collected for the Edinburgh Botanic Garden. The color plates of plants collected by some of the early explorers are enough to qualify this book for any botanist's library.

The middle part of the book discusses wildflowers of different regions. One chapter is entitled "To Each a Season: North, East, South, West". Maps illustrate Gleason and Cronquist's ten floristic provinces of North America and the U.S. Dept. of Agriculture's climatic regions such as the Humid East, the Subhumid Lands, the Great Plains, the Arid Region and the Summer-Dry Climates. Excellent color photographs accompany the texts.

The final part of the book takes us back to Lady Bird's vision of wildflowers as a part of a more beautiful America. We are reminded that since the beginning of time man has built gardens, that we are biological creatures more related to living plants than the world of steel, masonry and technology. Lady Bird writes that "Despite the growth of the population, the housing developments, shopping malls, industrial parks and ribbons of highways..we can plan to keep some of nature's bounty in suitable places if we have the knowledge and foresight. Public areas are natural locations for planting wildflowers and native plants. The rights-of-way along roadsides, public parks and parklands, historic restorations, campuses and school grounds are excellent candidates for wildflower plantings as are private lands, such as residential developments, corporate parks, churchyards and our own homes ... "

There is far more botanical information in this 9" by 9" book than can be covered in a two page review. The many full page color illustrations make it a visual delight. Look for this book in your public library or put it on your Christmas list.

Wildflowers Across America was published in 1993 by the Abbeville Press.

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We thank Juanita Lambert for her contribution to this article.

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SHORTIA

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AUTUMN 2003

A quarterly publication of the Western Carolina Botanical Club

Editor: Anne Ulinski
Editorial Assistants: Pat Arnett and Jean Lenhart
Art Work: Pat Arnett

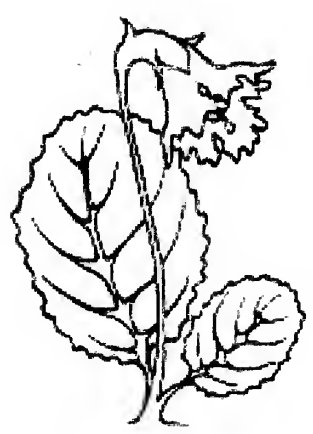
Please submit contributions for the next issue by November 15, 2003 to: Anne Ulinski
1212 Chanteloupe Drive, Hendersonville, N.C. 28739

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SHORTIA

NEWSLETTER OF THE
WESTERN CAROLINA BOTANICAL CLUB
WINTER 2003



Shortia galacifolia
Oconee Bells

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WESTERN CAROLINA BOTANICAL CLUB

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Vice President: Helen Smith
Secretary: Patricia Arnett

Treasurer: Bonnie Arbuckle
Recorder: Betty Jones
Historians: Ken & Chris Borgfeldt

FROM THE PRESIDENT.....Jeanne Smith

On November 8th I attended the 12th annual Open House held by the Van Wingerden nurseries in Mills River. Years ago these greenhouses offered the Botany Club a guided tour every autumn. Thirty or forty members always took advantage of this wonderful opportunity. So many requests for tours led to the yearly Saturday Open House. I urge all members to be sure to mark their calendars for the first Saturday in November, 2004, for a thrilling experience. Literally acres of poinsettia of different varieties and color combinations are under cultivation. There are other flowers and other colors but the poinsettias are the stars. It is breathtaking to experience the impact of the color RED by the acre!

This flamboyant decorative plant has been cultivated from a Mexican wildflower introduced into the United States by our first ambassador to Mexico, Dr. Joe Robert Poinsettia, for whom it was named. In 1830 he brought cuttings home to his plantation in Greenville, S.C. and potted them as gifts for his friends. Today poinsettias are the largest flowering crop in the United States with annual sales of over 63 million pots.

I first saw wild Poinsettia, *Poinsettia pinetorum*,* on the nature trail on Long Key, Florida. I could not believe this insignificant plant with just a bit of red or pink in its tiny bracts could be the basis of what has become our Christmas plant. In Mexico, where the flower is known as "Flor de Navidad " (Christmas flower), there is a legend of the poinsettia about a little girl who offers weeds to the Christ Child as her gift for Christmas.

The beautiful red and green poinsettia has found its way into our own Christmas traditions -- a wildflower that has become a colorful symbol for the Christmas season.

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*The poinsettia plant Jeanne saw at Long Key, *Poinsettia pinetorum*, is a narrow leaf poinsettia which is endemic to the Florida Keys. Another Florida species is Painted Leaf, *P. heterophylla*. The horticultural poinsettia grown only in greenhouses and used as an ornamental in Florida is named *Euphorbia pulcherrima*. -Ed.

Cover: The flower on the cover is *Shortia galacifolia*, Oconee Bells. Our newsletter is named for this southern endemic which is now rare in the wild.

New Members

Mary Flynn, Hot Springs. Mary came here from Florida last February. She is building a log cabin on 29 acres of land and wants to know about the native plants which she can plant on her acreage.

Helen Stewart, Hendersonville. Helen comes from the Washington, D.C. area where she taught interior design and had her own business. She enjoys walking and hiking in the mountains and wants to learn the names of flowers.

Anna Wong, Flat Rock. Gardening is Anna's passion. She is a volunteer at the Bullington Center and will begin the Master Gardening Program this winter.

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Award

Botany Club member, Larason Lambert, has received one of the North Carolina Awards for Outstanding Volunteer Service. Governor Michael Easley wrote: "As a special North Carolinian who makes a difference in your local community through selfless acts of service, you represent the true spirit of volunteerism." Larason received the award for his volunteer work at the Bullington Horticultural Education Center.

It's Official

Through the years our visits to identify plants throughout our mountain region have been called "hikes", "walks" and "field trips". The Executive Committee has selected "field trips" as the most descriptive.

Winter Program Cancellations.

The Botany Club indoor program at the Sammy Williams Center will be cancelled automatically if the Henderson County Schools are closed. Check your weather reports or, in doubt, call the member responsible for that program.

Annual Meeting

Our annual meeting will be held Friday, January 9 at 11:00 a.m. at St. John's Church in the Wilderness, Flat Rock. This is our business meeting for the year. There will be an election of officers, a raffle of nature books and a shared covered dish lunch.

Annual Dues

January 1, 2004 is the date for all membership renewals. We do not have the resources to send out individual reminders so please mail your dues to our treasurer: Bonnie Arbuckle, P. O. Box 1049, Flat Rock, N.C. 28731.

Newsletter Exchange

We will be exchanging newsletters with the New England Wildflower Society. This Society, the oldest organization in the United States dedicated to plant conservation, has been protecting plants for over 100 years.

The weather was perfect for our July walk through the bog and around the lake at the **Kanuga Conference Center**. Several special plants made our checklist: Four-angled Spikerush (*Eleocharis quadrangulata*), Sweet Pitcher Plant (*Sarracenia rubra* ssp. *jonesii*), Hardhack (*Spiraea tomentosa*) and Carolina or Sheep Laurel (*Kalmia carolina*).

As usual, **Bee Tree Gap** was ablaze with color. We split into two groups, one taking the narrow trail through the hawthorn trees and rock outcrop while the other meandered along the roadside. We were pleased to see, once again, the Nodding Wild Onion (*Allium cernuum*) just beginning to bloom, striking Tall Bellflowers (*Campanula americana*), three species of *Monarda* and the brilliant Fire Pink (*Silene virginica*).

It is always a surprise that the dry dusty conditions of **Sky Valley Road** produce such a unique variety of plants. Consider these: Colic-root (*Aletris faninosa*), Fern-leaved False Foxglove (*Aureolaria pedicularia*), Purple-headed Sneezeweed (*Helenium flexuosum*), Coppery St. John's-wort (*Hypericum denticulatum*), Orange Grass (*Hypericum hypericoides*), Wild Potato Vine (*Ipomoea pandurata*), Wild Flax (*Linum striatum*), Pinweed (*Lechea racemulosa*), Nuttall's Lobelia (*Lobelia nuttallii*), Yellow Fringed Orchid (*Platanthera ciliaris*) and Fameflower (*Talinum teretifolium*) – not our typical list of plants.

One hundred species of plants were identified on the **Heintooga Area** walk. Of special note were Monkshood (*Aconitum uncinatum*) with its enlarged helmet-shaped upper sepal (giving it its common name), Tall Larkspur (*Delphinium exaltatum*) living up to its species name and an American Chestnut (*Castanea dentata*) in flower.

Blueberry picking was cut short when thunder rumbled at **Bear Pen Gap**. The meadow at Wet Camp Gap was a pleasing mix of the colors of Phlox, early Goldenrods, Yarrow and yellow grasses. Large patches of White Wood Aster (*Symphotrichum divaricatum*), Whorled Wood Aster (*Oclemena acuminata*) and Bee Balm (*Monarda didyma*) decorated the sides of the trail. Indian Pipes (*Monotropa uniflora*) were unusually abundant.

Members who took the August field trip to **Whiteside Mountain** had the opportunity to see, in full bloom, the plants that were "coming" on the June trip. The October field trip to Whiteside concluded our 2003 survey of this botanically-rich site.

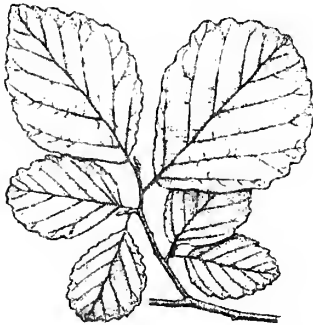
Our visit to the **Botanical Gardens at Asheville** was especially exciting this year. Jay Kranyik, Chair of the Horticulture Committee, introduced us to the new Peyton Outcrop, an area featuring plants that thrive on rock outcrops and thin soils. He outlined their activities related to cleaning up the creeks flowing through the garden and their efforts to eliminate non-native plants. This garden gets better with each visit.

The **Blue Ridge Parkway South** field trip was the most popular of the year with 29 attendees. Highlight of the trip for many was watching a bee entering the Closed Gentians (*Gentiana clausa*) and thrashing about inside. Both Round-leaved Sundew (*Drosera rotundifolia*) and Grass-of-Parnassus (*Parnassia asarifolia*) were in bloom.

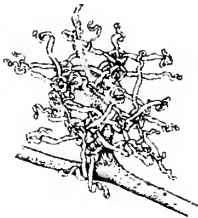
Although extensive mowing at **Jackson Park** had wiped out the riot of asters of previous years, there were plenty of late summer flowers to please the eye. We identified six species of *Polygonum*. Ironweed (*Vernonia noveboracensis*) was particularly colorful.

Witch-Hazel - *Hamamelis virginiana*

Family: *Hamamelidaceae*. Colour: Yellow. Odour: Slightly fragrant. Range: New England to Florida. Time of Bloom: September-November. Flowers: Few, growing in an axillary cluster on short peduncles, sessile. Fruit: An edible nut that matures the next season. Leaves: Alternate, oval, wavy on the edges, slightly downy. Appearance: A shrub with several branching, crooked trunks from the root.



“Whether the witch-hazel has simply forgotten to provide itself with a calendar, or whether it has the revolutionary spirit which would turn the world topsy-turvy, is still an open question. But to those that are bent of investigation a gentle hint may be given that the evidence is all in the latter direction. Otherwise why should it allow the spring and lovely summer to glide by without making them any greeting and wait until the late autumn, when the leaves are falling, to put out its pale yellow bloom. The seeds mature the next summer, which is nothing more than an audacious reversal of the orthodox order of things.



“The witch-hazel makes a plaything of the seasons. It is well charged with ammunition, too, and once fired it at Mr. Hamilton Gibson, who has told most amusingly of his recontre with the shrub. When standing lost in admiration of it, he found himself wounded first on the cheek and then in the eye. In alarm he looked about for a hidden adversary and discovered it was the seeds of the witch-hazel which were bursting out from their coverings and shooting in all directions, he noticed, to a distance of forty feet.

“Again there is supposed to be some latent mysterious power about the twigs, which in remote parts of the country are still used as divining rods and to locate the presence of water underground. We feel a little more comfortable about the shrub when we remember that the extract from it is very domestic. In fact, we are occasionally informed that no household without it can possibly exist.”

Article submitted by club member, Millie Pearson

Taken from A Guide to the Wild Flowers by Alice Lounsberry. Published in 1899 by Stokes Company, New York

The reintroduction of elk into the Smokies began in February 2001 when 25 elk captured from Land Between the Lakes National Recreation Area in Western Kentucky-Eastern Tennessee were released in Cataloochee Valley. In early 2002, 27 more elk were released at Cataloochee. These animals came from Elk Island National Park near Edmonton, Canada.

Today the park boasts a population of about 70 elk. The majority stay near the meadows of Cataloochee and may be seen grazing in the early mornings and late afternoons. The park has the option of releasing more elk but, according to Smokies biologist, Kim Delozier, the combination of good survival, low dispersal and good reproduction has made that option unnecessary to date. All elk are radio-collared and will be monitored during the five year experimental phase of the project.

The Cherokee word for elk was "aigwelia" and the eastern elk that roamed the Appalachians are now extinct. The elk released in Cataloochee are Manitoba, thought to be the closest subspecies to the extinct elk. Elk had been absent from the park for almost 200 years.

The American elk is the second-largest member of the deer family. Adult bulls may weigh as much as 1,000 pounds and 600-800 pounds is common. The antlers of an adult bull may be over 4 feet high and weigh between 20 and 40 lbs. Antlers are shed every year. Adult cows are 25% smaller than adult bulls.

Spring: Most elk shed their antlers in March. The antlers, which are rich in calcium, are eaten by rodents and other animals. After they shed their antlers they begin growing new ones. In late spring elk shed their winter coats and start growing sleek, copper-colored, one layer summer coats.

Summer: Most calves are born in early June. Calves have lost their spots by summer's end. Male elk roll in mud wallows to keep cool and avoid insect pests. Calves have lost their spots by summer's end.

Fall: Male elks make their legendary bugling calls to challenge other bulls and attract cows. Their calls may be heard a mile away. Large bulls use their antlers to intimidate and spar with other bulls. Most involve little conflict but sometimes one will inflict injury. During the rut in September and early October, dominant bulls gather and breed with harems of up to 20 cows.

Winter: Elk wear a two-layer coat during the colder months. Long guard hairs on the top repel water, and a soft, woolly under fur keeps them warm. They remain active all winter.

In the park, black bears would be the only predators that might take a yearling or adult cow. Bears, coyotes, and bobcats might try for a newborn.

Elk eat a variety of foods. During spring and summer they are predominantly grazers feeding on a variety of grasses. From late summer through fall, elk add browse (broad leafed plants, tree leaves and shrubs) to their diet.

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Twenty-three club members went on the Cataloochee field trip on September 26. Our leader, Betty Carlson, took us to different areas in the valley to see the fall plants of the Smokies, but it was our last stop which was most memorable. It was late afternoon when we walked to a wooded area bordering a large pasture. First we heard the bugling of a male elk and then, one by one, female and young elk emerged from the woods to graze. Finally, the large antlered male appeared. Later, on our way out of the Park, we saw three young male elk at play.

-Ed.

As names become a part of us

I am learning the trees of the mountainside.
As I walk, I repeat to myself-
Cucumber, Magnolia, American Witch Hazel
Yellow Poplar, Carolina Hemlock-
and each sound,
each round deep vowel like a thick trunk,
each clicking consonant
like winter branches clapping,
makes me love
all the more.

Each named thing becomes a part of me,
the way the name of a friend is beloved by the ear,
is connected to a face, hands, memory.
And a stranger's name is just a word at first.
This naming is a prayer of acknowledgement,
A bow honoring each.

Trees, help me learn your names
so I can greet you properly when we meet
so I can call out to you in sadness,
mourn you if you go missing,
lean against you in joy, like an old friend.
Let me know your secret offerings,
your silent gifts of winged fruit and green candles.
Let my body, finally, be an offering to you-
of gratitude for your standing,
of gratitude for your names.
Let me pray you will be there to welcome me in the end.
There, finally, let your name be also mine.



-Leigh Wilkerson

The Flowering of the Earth

It has been more than one hundred years since Charles Darwin called the sudden appearance of the flowering plants (angiosperms) both a “perplexing phenomenon” and an “abominable mystery”. This mystery remains unsolved with scientists still asking what was the form of the earliest angiosperms. Were they trees or shrubs, or small herbs? And which was the first angiosperm species to appear on the earth? For many years it was thought to be a plant similar to the Magnoliales and Laurales although this now is in doubt. The work continues with the collection and analyses of fossils and new knowledge gained through molecular analysis. But whatever the answers to these questions, angiosperms not only appeared but evolved and diversified very rapidly.

Michael Pollan in his recent book, The Botany of Desire, writes eloquently about this change. The following is a paraphrase and some direct quotes from his book.

Once upon a time --two hundred million years ago -- there were no flowers. There were ferns, mosses and conifers (gymnosperms). Cycads which produce naked seeds from male and female cones also appeared during these ancient times. None of these plants formed true flowers and reproduction was mostly asexual usually accomplished by pollen being released on wind or water. By chance some of the spores would reach other members of the same species. This was a quieter and sleepier world than ours because with no fruit it could not support many warm-blooded creatures. It was a green leafy world, plainer than ours without the colors, patterns and scents that flowers would bring. Reptiles ruled and life crawled to a stop when it got cold. Little happened at night. Pollan writes:



Hyperzia lucidula
Shining club moss
A primitive plant
little changed from
ancient times.

“Flowers changed everything. The angiosperms, as botanists call the plants that form flowers and encased seeds, appeared during the Cretaceous period and they spread over the earth with stunning rapidity ... Now instead of relying on wind or water to move genes around, a plant could enlist the help of an animal by striking up a grand coevolutionary compact-- nutrition in exchange for transportation. With the advent of the flower, whole new levels of complexity came into the world; more interdependence, more information, more communication, more experimentation. The new rules speeded the rate of evolutionary change. Bigger, brighter, sweeter, more fragrant: all these qualities rewarded the new regime.

“...With flowers came fruit and seeds, and these, too, remade life on Earth. By producing sugars and proteins to entice animals to disperse their seed, the angiosperms multiplied the world’s supply of food energy, making possible the rise of large warm-blooded mammals. Without flowers, the reptiles, which had gotten along fine in a leafy, fruitless world, would probably still rule. Without flowers, we would not be.”

-Anne Ulinski

GYMNOSPERMS Naked Seed Plants

Robert Burns (1773-1858), a Scottish Botanist, was the first person to distinguish between gymnosperms and angiosperms. He began his career as a military surgeon and after becoming a botanist participated in one of the pioneering voyages to Australia. He is also remembered for his discovery of the cell nucleus.

In the early years of botany, seed plants were divided into two groups; the gymnosperms with naked seeds, those not enclosed in a ripened ovary, and the angiosperms or flowering plants whose seeds are enclosed in a fruit. Today taxonomists recognize four divisions of gymnospermous plants---Coniferophyta, Cycadophyta, Ginkgophyta and Gnetophyta. Conifers and Cycads are the two main surviving groups of gymnosperms.

Cycads were at their peak in the Jurassic era when dinosaurs roamed the earth. They somewhat resemble palm trees with stout trunks and stiff palm-like leaves: *Cycas revoluta* is commonly called Sago Palm. Today they are found in areas with warm climates and are primarily used as landscape plants. *Zamia integrifolia*, known in South Florida as Coontie, is the only cycad native to the United States. Today it is used as a drought resistant ornamental plant. When South Florida was first settled coontie was collected from hammocks and pinelands. A large business near Miami processed the large starchy roots into "arrowroot flour".

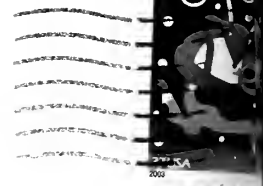
Conifers, meaning cone bearers, form the largest group of gymnosperms. They are typically large evergreen trees with needle like leaves forming the dominant vegetation in temperate mountainous regions---pine, spruce, fir, hemlock, redwood, cypress, cedar, and larch. From the time of earliest man to the present conifers have been used to provide products for mankind. They have been harvested for lumber, pulpwood, resins and textiles.

The oldest living organism is a conifer; Methuselah, an ancient bristlecone pine growing in the Dixie National Forest, Utah, is more that 4,600 years of age. Professor E. C. Jeffrey of Harvard said "I have a lot of respect for the pine tree. It is older than the rocks it grows on and the birds that sit in its branches."
-Bonnie Arbuckle

A hornbill eating the seeds
of the cycad
Encephalartos altonsteinii



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