SHORTIA

NEWSLETTER OF THE

WESTERN CAROLINA BOTANICAL CLUB

SPRING 2017

Shortia galacifolia

Oconee Bells
MEMBER NEWS

Field Trip Cancellations: Occasionally, field trips must be cancelled or changed either for weather conditions or other reasons such as road closings. Such changes are sent out by email to all members by 7 AM the day of the field trip. If you do not have email access, please call the leader, co-leader, or recorder (whose phone numbers are listed on the schedule) to be sure that the walk is going to go as planned. Indoor programs are cancelled when Henderson County Schools are closed (see http://www.hendersoncountypublicschoolsnc.org), but NOT necessarily cancelled because of delayed opening.

For any change of address, email or telephone number, please inform Alan Graham, 42 Autumn Glen Court, Brevard, N.C., 28712. 828-884-3947 ——— adgraham@comporium.net.

ATTENTION; MEMBERSHIP DUES

If you haven’t yet renewed your membership in the Western Carolina Botanical Club you can mail or give a check for $15 to

Alan Graham
42 Autumn Glen Court
Brevard, NC 28712
President’s Message

In the Winter 2016 issue of Shortia I wrote about global warming. Now we’re roasting in February. What IS the world coming to?! Yesterday when I drove to Brevard I saw daffodils, forsythia, magnolias, ornamental cherries, and Bradford pears blooming! Checking my records shows the plants in my garden are flowering four to five weeks ahead of schedule, with not a single bee or butterfly to be seen! Fortunately the native plants seem to be skeptical of this fake weather and haven’t sprouted yet. In April 2007 we had a 3 day cold snap that killed new leaves and tender shoots on many native trees and plants. Let’s hope the weather cools off for a few more weeks, so that they stay dormant until the risk of damage is over.

I’ll bet that many of you have never heard of ITIS, the society that strikes terror into every botanist’s heart! I hadn’t either before I became a WCBC Board member. Well, ITIS (the Integrated Taxonomic Information System) is the authority that the Board endorsed a few years ago for plant botanical names. Thus over the past few years all the botanical plant names on our plant lists have been checked and rechecked by our long-suffering Master Recorders to confirm that they are currently acceptable. You may be interested to read an article by Alan Weakley that was reprinted in the summer 2004 issue of Shortia where he bemoans how the botanical names of asters changed, seemingly, overnight! I think we are all confused sometimes, even 13 years later.

In December I had the privilege of hiking in Panthertown Valley with a local emeritus professor of botany. While wandering down one of the trails, we came across several large patches of different club mosses. I thought I already knew Lycopodium digitatum, but when I asked I was told that it was Diphasiastrum digitatum. Oops! That will teach me to show off! However, I was pretty certain that I was remembering the name correctly. After all, we see this plant almost every week. So when I got home I did some checking. My “Ferns and Related Families” book listed the plant as Southern Ground Cedar (Southern Running Pine), with a primary botanical name Diphasiastrum digitatum and Lycopodium digitatum as a synonym. However, searching for Diphasiastrum digitatum at the USDA website brought up only pages for Lycopodium digitatum. A similar search at ITIS indicated that Diphasiastrum digitatum was a “not accepted” synonym and that the accepted name was Lycopodium digitatum with the common name fan clubmoss, exactly the way we have it in our plant lists (of course).

Does it really matter what name(s) we use for plants? I’ve heard a suggestion that we should use only common names because they don’t change as much as the botanical names. I think the important thing is that we be consistent. In many cases if you look at our plant lists you will see the old botanical name listed in the Notes column as “Ex.”; that can be helpful. We also have to be flexible because name changes are still happening. Maybe we should look at this as a way to stimulate our aging brains, like doing crosswords or Sudokus! Just last month Alan, our tree guy, sent an email to the Master Recorder saying “According to ITIS Chestnut Oak is now Quercus montana. I’m not sure how we have it in our database.” Well, if you look at your plant lists for Ashmore Heritage Preserve or Big Ridge to Stony Bald Overlook, you’ll see that we have it listed as Quercus prinus, a name that is now “not accepted” by ITIS. So be prepared to learn at least one new name when we embark on our field trips in 2017.
Ethnobotany of the Cherokee

by Susan Goldsworthy

In the last issue of Shortia I began a series on the ethnobotany of the Cherokee people, focusing on their relationship with seven sacred plants. In this issue we will explore the second of these plants, the Green Headed Coneflower.

Green Headed Coneflower or Sochan (*Rudbeckia laciniata* L.)

**Cherokee Name:** o tsa na

**Description:** The second sacred plant of the Cherokee is our native Green Headed Coneflower (*Rudbeckia laciniata* L.), referred to by the Cherokee as Sochan, an herbaceous perennial of the family Asteraceae with a branched, leafy stalk growing 3 to 12 feet tall. The 3 to 6 inch long leaves vary in shape: pinnately compound and coarsely serrate at the base, further up the stem deeply three-lobed and less serrate, and finally at the end of the stalks simple without serration or lobes. The light green leaves are roughly hairy on the surface and slightly silvery on the underside. Three to five inch composite flowers appear at the apex of the many stalks in mid- to late summer. These composite flowers have 6 to 17 yellow drooping (reflexed) ray flowers and green to yellow-green dome-like disc flowers which elongate and become brownish as the seeds ripen. The root system is fibrous and rhizomatous, often forming wide-spread clonal colonies of plants.

**Distribution and Adaptation:** The Green Headed Coneflower is native to central and eastern North America and has been distributed throughout the world for ornamental purposes. It is found in rich woodlands, thickets, moist meadows, along streams, or near standing water. It prefers partially shaded locations, but will tolerate full sun as well as dense shade.

**Cherokee Legend:** The Sochan plant is much respected and highly celebrated among the Cherokee people. As a leafy green vegetable it is an important spring staple that provides nutrition to their diets, as well as a spring tonic for “cleaning the blood” after a long winter. Sochan is commonly found at large family gatherings and homecomings, and collecting of the leaves is a family tradition and spring ritual, providing physical activity as well as valuable time spent together with children, parents, and grandparents. Each family holds as precious the location where their crop of Sochan has always grown. These revered places of harvest have been kept a family secret for generations.
**Cherokee Ethnobotany:** The Sochan plant has many uses in the culture of the Cherokee, including food, medicine and dye.

**Food:** Probably the most important use of Sochan is as a food source. One of the first green plants to emerge in the spring, the leaves and stems are harvested and eaten in several ways: fresh leaves as a salad; fresh stalks eaten like celery; leaves boiled with other greens as a potherb; leaves fried in fat with pokeweed (*Phytolacca americana*), dock (*Rumex crispus*), and eggs; young shoots boiled and then fried in fat; leaves hung, dried and stored for future use.

**Medicine:** Besides being eaten as a spring tonic to purify the blood and boost the immune system, Sochan has several other medicinal uses: blossoms made into a poultice for burns; roots macerated in cold water and then dripped into the ear for infection; roots boiled and drunk as a tea for treating worms and indigestion; an infusion made from the leaves for a bath to heal skin sores; leaf infusion used by midwives to ease labor pains; and a strong tea made from the leaves to treat symptoms of gonorrhea.

**Veterinary Medicine:** While reputed to be poisonous if ingested by cattle, pigs and sheep, it is used as a liniment on the chest and legs of horses.

**Dye:** The entire plant may be boiled and used as a brown dye, while flowers boiled alone produce a green dye.

**References**


Our Native Toothworts

by Lucy Prim

As we go about in the woods in the early spring, one of the lovely flowers we are likely to see is a Toothwort. Four different species of Toothworts grow here in the mountains of North Carolina, though I have only seen two of them myself, the one called simply “Toothwort” and the one called “Cutleaved Toothwort”. The other two, Slender Toothwort, and Forkleaf Toothwort, are rare so we probably won’t see them, though it would be a nice surprise if we ever did. The Toothworts used to be in the genus *Dentaria*. They still are classified this way in “Newcomb’s Wildflower Guide” and “Wildflowers of Tennessee, the Ohio Valley and the Southern Appalachians.” In Weakley’s Flora, in the section describing *Cardamine*, there is a little sentence which states “*Dentaria* should apparently be included.” Evidently there is a little bit of controversy here, and we are not alone when our intuition tells us there is something different about the Toothworts.

Last summer, on one of our scouting walks up at Bear Pen Gap, we came upon a lovely Toothwort in full flower. At first I thought it was *Cardamine diphylla*, Toothwort, but when I got home and looked at my photos and compared them with pictures in my identification books I began to wonder if it was another species, *Cardamine angustata*, Slender Toothwort, whose stem leaflets are much narrower. A few days later when the club was out on this trail, Joe Standaert wondered the same thing I did, and he set about trying to decide which it was, very methodically printing out the descriptions of the plants from his various sources so we could compare the two easily. What a good identifier Joe is! We had a fun time, wondering what this plant was, comparing our photos with the features described in the books. It turned out that aside from length of stem leaflets, another feature would really decide which species it was, and that feature was underground. It was the rhizome!. *C. angustata*, has a rhizome that is divided up into little easily separated tubers; *C. diphylla* has a rhizome that is long and continuous and has little “teeth”. So for this article, I decided to draw the four Toothworts that we might see as we go on our walks in the woods, including the rhizome. Although we won’t see the rhizome, it is interesting to think about it lying under the surface, with its identifying features of teeth or no teeth and the possible presence of “narrow, fragile connections.”
Cardamine dipolla
Toothwort

Cardamine angustata
Slender Toothwort

Cardamine dissecta
Toothwort

Cardamine concatenata
Cut-leaved Toothwort

1. The stem is elongated with "tops" and a uniform diameter.
2. The stem bulge may be more numerous than the head of flowers but not quite as numerous as they are wide.
3. Narrow, fleshy connection.

The stem has 23 toothless segments.

Intersepted leaves

Very dissected leaves

Upper stem is glabrous

Three whorled stem leaves

Bud leaves usually absent when flowering.

Rhizome with ~ 1" long segments, each separated by a narrow, fleshy connection.
Seeing Red in Winter

by Penny Longhurst

We are all accustomed to seeing the leaves of deciduous trees change color every fall, but have you ever wondered why the leaves of some evergreen plants, like Galax, Leucothoe, and even Shortia, turn red or purple during the winter when they are growing in sunny locations? Furthermore, have you noticed that only the uppermost Galax leaves are red, while those that are hidden in shady locations underneath remain green? Watchful waiting will reveal that these same red leaves turn green again in the spring when temperatures rise.

Let’s start with some background on leaf coloration. Green leaf color results from a predominance of chlorophyll during the growing season relative to other pigments. Chlorophyll is required for photosynthesis to occur, converting carbon dioxide into sugars using energy from light. However, chlorophyll breaks down on exposure to sunlight, so it needs to be continually replenished. In the fall, chlorophyll production in deciduous leaves decreases and then stops completely due to formation of the abscission layer which blocks transport of nutrients between branches and the leaves.
Other pigments present in leaves are carotenoids, which are responsible for the yellow-orange colors, and anthocyanins, which produce the red and purple coloration. Coloration due to carotenoids, which are present all year round, only becomes obvious in the fall when the chlorophyll breaks down. In contrast, anthocyanins don’t even start to form until the fall. Thus, fall colors depend on the relative amounts of each pigment within the leaves. Furthermore, dry sunny fall days and cool nights promote formation of anthocyanins, cause chlorophyll to be destroyed more quickly, and therefore produce more colorful foliage. This is why the uppermost leaves on Galax and Leucothoe growing in bright sunny locations turn red in the winter due to the anthocyanin formation, but the lower leaves and those on plants growing in shady locations remain green due to protection from sunlight.

There are several theories to explain why anthocyanins are formed in leaves. The most popular are the coevolution hypothesis and the photoprotection hypothesis. The coevolution hypothesis is that the red color of leaves is a signal to plant predators, such as insects, that the plant is inedible resulting in protection. However most reports have failed to show that red coloration stops insects or animals from eating the leaves. In the photoprotection hypothesis, anthocyanins are thought to protect leaves from photoinhibition, a process whereby bright light and cold temperatures reduce photosynthesis. Anthocyanins do this by absorbing radiant energy, acting as antioxidants, and protecting chloroplasts from oxidative damage. One possible benefit of this is that in the spring plants with red leaves may be able to produce chlorophyll more quickly than those with green leaves; a biological advantage. However, studies have found many similar physiological and biochemical characteristics in leaves from evergreen species that turn red in the winter and those which remain green, suggesting that other explanations are needed. In the meantime, we can enjoy seeing red leaves during our winter walks while we wait for spring colors to appear.

References


Richard Smith’s Sketch Book

A few months ago, Jeanne Smith gave to me her husband Dick’s sketch book he did of trees. I have been looking through it, enjoying the lovely sketches and observations. Here are a few of his sketches, for us all to enjoy!
Book Review

Wildflowers of the Blue Ridge Parkway

Reviewed by Penny Longhurst

I found this book in the library. After I got it home I noticed there was a plate attached inside the cover which said “In Memory of Dana Herrman, Presented by: The Mathatasian Club of Brevard.” That was intriguing; I had no idea what a Mathatasian was or that Dana was one! It turns out that in 1915 the E.O.T. (Every Other Thursday) Book Club was formed in Brevard. On April 12, 1917, members voted to change the name to the Mathatasian Club of Brevard. Mrs. Carl Trowbridge, wife of the president of Brevard Institute, which later became Brevard College, suggested the name because it meant "learner." Dana must have been a member of this book club. The other members must have known her well to donate a native plant book in her memory.

So, on to the book. It’s a handy pocket size; slimmer but a tad longer than the “Wildflowers of the Smokies” book, it fits into a jeans back pocket. Plants are organized first by color and then within color, alphabetically by family and then genus. For those of us who are a little rusty on our families this can be a little tricky! Some confusion might also arise based on color interpretation. For instance, Solomon’s seal (Polygonatum biflorum) is at the beginning of the book hidden in the “Green and Brown” section. However, in order to find Solomon’s plume you need to look in the index for either “False Solomon’s seal” or Maianthemum racemosum and locate it among the white flowers. I would have preferred to have them on adjacent pages in the White Flowers section.

Over 200 plants are included in the book. Each page shows one or more color photographs of the individual plant (and look-alikes), some “Quick ID” information (usually a brief flower or leaf description), height, and bloom season. The rest of the page often includes natural history and ethnobotanical information, as well as other interesting tidbits including name derivation.

The book amply covers most of the plants we see on our field trips, although I searched in vain for False goatsbeard (Astilbe biternata). Although it doesn’t often include enough information to definitively identify some of the closely related plants we find, its small size and nice photographs could make it a good companion on a botanizing trip.
Uvularia sessilifolia and Uvularia puberula

by Lucy Prim

Uvularia sessilifolia, Wild Oats, and Uvularia puberula, Mountain Bellwort, look so much alike we often pause beside a clump and try to decide which one we are looking at. Uvularia sessilifolia is said to have dull leaves, but seen in the shade a shiny leaf might look dull, and in the light a dull leaf might look shiny. Uvularia sessilifolia is described as being colonial, but the loose clumps are said to have 5–10 inches between stems. Uvularia puberula is said to be non-colonial, but it forms tighter clumps and the stems can be 1–3 inches between them. Now, I would have thought that a “colonial” plant would have stems growing closer together than one that is “non-colonial”, but my intuition was wrong on this. Closer stems for this plant means U. puberula has several stems emerging from the same crown, while U. sessilifolia has only one stem, and then five to ten inches away, another stem coming up perhaps connected to the first stem by an underground stolon. U. sessilifolia has a single flower on a stem, while U. puberula has one to three flowers per stem. And as would be expected, we might find fine hairs on the stems and lower side of the leaves of U. puberula, but this feature is not always present and can’t be relied on for identification.
Last summer I bought one of these two Uvularias from Louise at the Curb Market and spent a long time studying it, trying to decide which *Uvularia* it was. Most features suggested that it was *U. puberula*. It had three flowers per stem, there were tiny hairs here and there, and the stems were growing close together, just a few inches from each other. Were the leaves shiny? I looked at them and tilted them this way and that. They gleamed softly when the light hit the leaf surface. Would that be considered shiny? I wasn’t sure. What about the underground clues? *U. sessilifolia* is described as having long, slender, white stolons, and *U. puberula* does not typically have stolons. I couldn’t resist looking for this clue, so I turned the pot over and dumped my plant out into a glass bowl. Much to my surprise, there was a white underground stolon, as clear as could be! Why was there a big white stolon on the Uvularia that wasn’t supposed to have white stolons? How I wish I had done one more thing. I wish I taken out my magnifying glass and peered down the flower’s throat to see what the style looked like. If the style was split halfway along its length, that would suggest it is *U. puberula*. If it was split in the upper third or fourth, that would suggest *U. sessilifolia*. This spring I’m going take out my magnifying glass and take a closer look at these flowers and see what I can see down their little yellow throats!
SHORTIA

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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. Send dues to Alan Graham, 544 Tip Top Road, Brevard, NC 28712.

Please send me Botanical Articles or stories or tips on plant identification that you think would be good to include in one of our SHORTIAs. If you see anything that needs correction or if you have additional information about a subject or perhaps a personal experience related to a subject, send that in too, and I can include it in a future SHORTIA. Please try to get this to me by May 31 to get it into the Summer issue.