SHORTIA

NEWSLETTER OF THE

WESTERN CAROLINA BOTANICAL CLUB

Shortia galacifolia

Oconee Bells

Winter 2019-2020
Board of Directors

President       Gayle Mercurio
Vice-President  Joe Standaert
Secretary       Mary Standaert
Treasurer (Acting) Penny Longhurst
Members at Large John Harrison and David Havener

MEMBER NEWS

Field Trip Cancellations: Occasionally, field trips must be canceled 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 canceled when Henderson County Schools are closed (see http://www.hendersoncountypublicschoolsnc.org) but NOT necessarily canceled because of the delayed opening.
For any change of address, email or telephone number, please send an email to wcbotanicalclub@gmail.com.
Sitting there trying to think of something to write, my hubby, Vince, walked in, plopped a big book down in front of me and said “I have the subject for your next article… flower flies”. The name of this 511 page book is Flower Flies of North Eastern North America. Included in the book are location maps for each species which covers the southeast. After reading the book and doing lots of research, my eyes were opened to a whole new world of pollinators.

**Flower Flies**

Pollinating flowers is big business and essential for their survival. Because it is done in so many ways, it takes a lot of methods to accomplish this task. Insects are a large factor in transportation of pollen. Honey bees and bumble bees do a great deal of the work and along with these are lesser known flower flies. The flower fly’s method is Batesian mimicry which, according to Webster’s Dictionary, is where an edible animal is protected by its resemblance to a noxious one that is avoided by predators. In other words, flower flies are mimics of stinging insects. About a third of all the pollen collected is done by flower flies which makes them important contributors. There are around 6,000 species of flower flies and of these nearly 900 species in North America. Many more are being discovered each year.

Flower flies are called syrphid flies, pronounced “surfids”, of the insect order Syrphidea. In appearance they look and behave like the insects they mimic to accomplish their duties. To be especially good pollinators, they mimic honeybees, bumble bees, wasps, hornets and yellow jackets. Some even buzz like a bee. Since syrphids can neither bite nor sting, they are harmless to humans but are protected from predators by the fierce reputation of the insects they mimic. Though at first glance they look much like their mimics but if studied very closely you can see the difference. The flower fly’s eyes are compound and much larger, the antennae are shorter and thicker with bristles in the middle, some syrphids hold their prolegs up in front and wiggle them to mimic wasp antenna.

Syrphids do not have pockets or spurs to store pollen. Pollen simply clings to their body. Flower flies only have one pair of wings instead of two pairs. Flower flies disguise themselves with vivid colors and patterns to mimic a specific insect. Most have black, brown or yellow stripes with markings of red, orange or yellow as needed. In order to collect pollen and nectar, their mouth parts are either an extendable sponge to soak it up on an open flower head or a tube to suck it up from a tubular flower. Even though flower flies cannot carry as much pollen as most pollinators, they work much faster and visit the flowers more often. Flower flies are sometimes called hover flies because they hover over flowers like bees. They are superb hoverers and can remain perfectly still in the air. Bees and wasps tend to go up and down as they hover. Also flower flies have the unusual ability to fly backwards.

In addition to the value of adult syrphids as pollinators, the larvae are also extremely beneficial in other ways. About a third of the larvae eat soft body insects like aphids. Others fulfill other duties. Some are fungal feeders helping with recycling, aquatic filter feeders in ponds and lagoons, feeders of bacteria in tree sap or under tree bark and specialists in old growth forests as indicators of the forest’s health are just a few of the many beneficial things they do.
Flower flies go through complete metamorphosis—egg, larva, pupa, adult. Hundreds of single tiny eggs are placed individually on leaves by the female syrphids. In about three days, the larvae hatch as creamy white, green or brown tapered oval slug-like maggots that are blind, legless and have transparent skin. Its sucking mouth is a triple pointed dart for piercing prey. After sucking the soft bodied insect dry, the outside skin is discarded. These ferociously feeding maggot larvae search for food on leaves and in soil. As valuable predators, larval syrphid fly maggots eat damaging insects such as aphids, thrips, scales, small caterpillars and other small insects. They can eat 50-60 aphids in a day and up to 400 during their three larval stages. Evidence of their foraging presence is the oily black tar like smudges left behind on the leaves.

In about two to three weeks the slug like maggots complete their last instar and develop into a pupa with a hard skin around their body. Adult syrphids emerge in one to two weeks unless they are late and overwinter and emerge in the spring. You may see newly emerged flower flies in April, May or June. After a season of pollinating, they will disappear usually sometime in October. Insect pollinators are credited with over 500 billion dollars of direct benefits to crops each year. The syrphid flower flies are credited with innumerable benefits to wildflowers.

This coming spring I’m looking forward to searching for flower flies. It would be a thrill to watch them working and maybe even find some of their larvae devouring aphids.
Missing Plants

We have plants in our database that we’ve never recorded. Maybe if we knew what they looked like we could find them.

Field Garlic (*Allium vineale*)

Field Garlic (*Allium vineale*) * Purplish or greenish flowers in an umbel; leaves very narrow, hollow. Flowers often replaced by bulblets. 1-3’ high. Serious pest of lawns, pastures and meadows; it is native to Europe, northwestern Africa and the Middle East, and a non-native weed in the USA. Summer. Lily Family.

We’ve probably seen this and ignored it. Maybe we could be a little more alert in the future.
What’s in a Name – *Linnaea*
by Penny Longhurst

Linnaeus is probably the most famous botanist in the world. Sadly, the only plant that bears his name, *Linnaea borealis* (Twinflower), has not been reported in this area, other than a herbarium specimen that was collected in Sevier County, Tennessee in 1892\(^1\). I have seen Twinflower on several hiking trips to the Northeastern states and Canada. It also grows in many Western states, as far south as Arizona and New Mexico. It's a little strange, therefore, that it disappeared from the Southern Appalachians. The photographs below were taken in Newfoundland where it grows in abundance.

Carl Linnaeus was born in Råshult, Sweden in 1707. His father, a Lutheran curate, was an amateur botanist and taught him the names of the local plants. From an early age Carl was a keen collector of botanical specimens. In 1727 he enrolled at the University of Lund to study Medicine (and Botany on the side), but transferred to the University of Uppsala the following year. The Professor of Botany, Olof Rudbeck the Younger, hired Linnaeus and he gave his first botanical demonstration in the Botanical Gardens at Uppsala in 1730. Linnaeus named our very own Green-headed Coneflower, “A tall noble American plant”, *Rudbeckia laciniata* in honor of Rudbeck. That same year he began work on a new system of botanical classification, “The Sexual System of Linnaeus”, dividing plants into 24 classes based on the number of stamens and pistils. The first edition of his “*Systema Naturae*”, which included classification of the plant, animal, and mineral kingdoms, was published in 1735.

In 1732 Linnaeus received a grant to mount a botanical expedition to Lapland. During this trip he covered more than 3,000 kilometers and found the Twinflower plant which would be named *Linnaea borealis* in his honor. He travelled to Holland in 1735 to obtain his medical degree and remained there until 1737. Most of that time was spent at Hartekamp, the estate of George Clifford, a wealthy Dutch banker. Linnaeus was employed to supervise his hothouses, catalog his herbarium, and act as his personal physician. He was provided access to Clifford’s extensive library, which included Mark Catesby’s “*The Natural History of Carolina, Florida and the Bahama Islands*” as well as many other important botanical texts. In 1738 Linnaeus published “*Hortus Cliffortianus*”, a catalog of the plants growing at Hartekamp and found in the herbarium. That same year, Linnaeus returned to Sweden and moved to Stockholm to work as a physician in order to earn enough money so that he could get married. In Stockholm his reputation as a curer of venereal diseases and smallpox spread and his practice grew!
In October 1741, Linnaeus and his family moved to Uppsala where he was appointed Professor of Medicine and Botany at the University. They made their home in the Professor’s residence in the Botanic Garden, now the Linnaeus Garden and Museum. The Garden had fallen into decay after the great fire of Uppsala in 1702, but Linnaeus managed to get money allocated to renovate the house, build an orangery, and restore the plantings.

As Professor of Botany, Linnaeus taught students in the Garden or the Gustavianum Building (now museum) at the University for the next 35 years. Every Saturday during the summer, he would lead as many as 150 students on botanical excursions (and we worry about the numbers on our field trips?!). When a rare plant was discovered, a bugle was sounded and everyone ran to see what was found. The students who found the best plants got to eat lunch at the same table as Linnaeus!

Linnaeus is probably best known for his binomial nomenclature system of naming organisms, where one word (the genus) is applicable to a group of similar plants and the second (the specific epithet) to a specific member of that group. The genus, a group of species possessing similar flowers and fruits, was often named after fellow botanists, patrons, friends, or characters from Greek or Roman mythology, while the epithet was often descriptive, referring to geography, habitat, form, or commemorative of the plants’ discoverer.

In 1753 he published his 1,200 page “Species Plantarum” which included all plants he had actually seen or read about in published sources (almost 6,000 species and 2,000 genera arranged by his sexual system) with their new binomial names, brief descriptions, references to previous literature, and geographical location.

Before the introduction of binomial scientific nomenclature the names of plants included a long description in Latin. For example, the figure below illustrates Linnaeus’s proposed nomenclature for the Flowering Dogwood.

Linnaeus’s familiarity with so many different plant species was due to two sources: his mentors in Sweden who gave him access to their hothouses and libraries, and his pupils or “Apostles” who travelled the world acquiring new specimens (plant and animal) that were sent back for him to examine. Seventeen apostles were sent off to collect from all corners of the earth; not all survived. Among the most notable was Per Kalm who was sent to the Northeastern United States and Canada between 1747 and 1751 to find plants that would survive in Sweden. He returned with 90 unique plants, including *Kalmia* which was named in his honor. Another famous apostle was Daniel Solander, who joined the English botanist, Joseph Banks, when he sailed with Captain Cook on his first voyage around the world between 1768 and 1771, including stops in Australia and New
Zealand. Almost 4,000 new plants were collected on the voyage. Solander annoyed Linnaeus by remaining in England on his return and not sending him any specimens.

In his later years Linnaeus was plagued by ill health and suffered a series of strokes. He died in January 1778 and is buried in Uppsala Cathedral. His books, correspondence, and collections were purchased by a keen English naturalist, James Edward Smith. On his death Smith’s widow sold the collection to the Linnean Society of London, where they are housed today.

References:

2. Kemp, Steve: LINNAEA BOREALIS, FOUND—THEN LOST. Great Smoky Mountains Association News. June 4, 2018


Online Linné: On this website Uppsala University presents results of research relating to the work of one of the most famous professors throughout its history, namely Carl Linnaeus (Carl von Linné) (1707–1778).

The Linnean Society of London: The Society takes its name from the Swedish naturalist Carl Linnaeus (1707–1778) whose botanical, zoological and library collections have been in its keeping since 1829

Linnaei, Caroli:: Species plantarum. Holmiae :Impensis Laurentii Salvii, 1753

The Linnaean Gardens of Uppsala, Uppsala University. The Linnaeus Garden lies in central Uppsala, just north of Svartbäcksgatan. The Botanical Garden is directly west of Uppsala Castle.
Plants We Love to Hate! Hog Peanut (*Amphicarpaea bracteata*)

by Penny Longhurst

On our field trips we are surrounded by plants we love and some we hate. We see Hog Peanut, the plant described in this issue of Shortia, on almost every walk. It’s a native, found principally east of the Dakotas and down the Appalachian mountains to northern Georgia, although sporadic occurrences have been reported in other southeastern states.

Like Pilewort, Hog Peanut has been known for a very long time. Linnaeus gave Hog Peanut the botanical name *Glycine comosa* and described it as found in shady places (*umbrosis*) in Virginia. He references a 1695 publication from James Petiver’s *Musei Petiveriani* (*Pet. mus.*). Petiver had 6,000 botanical specimens; many received from the Reverend Hugh Jones of Maryland. John Clayton, a county clerk in Virginia, sent samples of Hog Peanut (as well as many other plants) to the Dutch botanist, Jan Fredrik Gronovius, who included it in *Flora Virginica* (*Gron. virg.*) published between 1739 and 1743. Linnaeus named Spring Beauty, *Claytonia*, in honor of this John Clayton.

Hog Peanut is a weedy, coiling, annual vine, despised by some (mentioning no names!) for its tendency to clamber over other plants. We don’t generally pay it much attention, other than to abuse it! However, it’s got some interesting characteristics, including one we never think of looking for. Hog Peanut has typical pea family trifoliate leaves which are a larval host for skipper and cloudy wing butterflies, as well as beetles. The flowers that we typically associate with the plant are pea-like, with wings, and after fertilization produce pods containing up to 4 seeds, which I don’t recall ever seeing. The genus name, *Amphicarpaea*, is derived from “Amphi” meaning both kinds and “carpos” meaning fruit. That’s because the plants have a second, hidden, flower which I have never seen either! Clearly, I’m not a very observant botanist.

Runners (stolons) produce self-fertile flowers without petals. Each produces a single-seeded “peanut” that buries itself just under the soil. These are edible and can be eaten like other nuts. They may also be grubbed up and eaten by wild hogs, hence the common name. I pulled up some Hog Peanuts while hiking in September and it seemed to me that you would need a whole bunch of those teeny nuts to make eating them worthwhile, but maybe they still needed time to grow!

References:


Mahr, S.: *American Hog-peanut, Amphicarpaea bracteata*. University of Wisconsin at Madison Master Gardeners Program, December 10, 2018

Our Rare American Barberry

By Lucy Prim

For many years now I've noticed a very prickly little shrub, one here at my house and one close to the lake at Carl Sandburg's, that has red shiny oblong berries that daintily dangle from a crooked thorny stem. Could this be a native plant? After researching it in my books, I was disappointed to find out it wasn't native, but was Japanese Barberry, *Berberis thunbergii*. Ron Lance, in his book "Woody Plants of the Southeastern United States," describes this plant as, "An exotic shrub that has naturalized from VA to GA, mostly in Appalachian and Piedmont regions. The most commonly encountered Barberry in open woods, forest edges, and pastures."

My disappointment soon changed to surprise when I came upon an interesting story! Even though the most commonly encountered Barberry is the exotic Japanese Barberry, we do have a native Barberry, the very rare and seldom encountered American Barberry, *Berberis canadensis* which, amazingly enough, has been the subject of an eradication program for the last 100 years! Why would this nice rare native shrub be the subject of an eradication program? Because it is the alternate host for Black Stem Rust, a fungus which is devastating to wheat and other cereal crops. Although the Barberry, our native and the European Barberry which is also an alternate host for this fungus, has been extirpated in other states, that has not happened here in North Carolina. Here in our mountains, there are still some populations we might come upon and it has been reported in Pickens County. According to Ken's records, the club has seen it at Kellogg's Center and Humphrey Farm. The skeptics among us would like to see these for ourselves!

As you can see from the drawings I made, the leaves of *Berberis canadensis* are quite different from the leaves of *Berberis thunbergii*. Another clue is that the spines of *B. canadensis* are usually in threes. Most likely when we come upon a Barberry in the woods, it will be Japanese Barberry, but maybe it will be our rare native, described by Alan Weakley in his Flora as "a broad Southern Appalachian-Ozarkian endemic." I will certainly be keeping my eyes peeled for it!
**Berberis canadensis**  
American Barberry

- Deciduous
- Weak bristle on each tooth tip
- Spines are mostly trifurcate, but some are bivincate
- 1-9 teeth on each side of leaf
- Flowers: 3 to many on a drooping raceme
- Leaves: They grow from the stem clustered in fascicles.

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<thead>
<tr>
<th>Wintergreen Barberry</th>
<th>Japanese Barberry</th>
<th>European Barberry</th>
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<tr>
<td><strong>B. julianne</strong></td>
<td><strong>B. thunbergii</strong></td>
<td><strong>B. vulgaris</strong></td>
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- **Wintergreen Barberry**  
  - The teeth are tipped with firm prickles.
  - Leaves are evergreen.
  - Spines are mostly trifurcate and quite long.
- **Japanese Barberry**  
  - This is the most commonly encountered Barberry in our area.
  - It is immune to wheat rust.
- **European Barberry**  
  - Leaves have 18-36 bright-tipped teeth on each margin. Because this Barberry serves as an alternate host to Wheat rust, it has been quite thoroughly eradicated and may no longer occur in our area.
Here's a poetic contribution from the March 1980 issue of Shortia. It doesn't sound like too much has changed in the last 40 years.

**BOTANICALLY SPEAKING**

No tiny seed nor noxious weed
Escapes our close attention
From allium to zizia
Or dandelion to gentian.
We poke and pry and scrutinize
And peer in mossy crannies
And when a slope's too slippery
We slide down on our fannies
We photograph and carry books
For solemn consultation
On species new as we pursue
Our botany education.

Helen Tullar
Minutes of October 22, 2019 Western Carolina Botanical Club Board Meeting

Present: President Gayle Mercurio, Secretary Mary Standaert, Past-President Susan Sunflower, Scheduler Juanita Lambert, Members-at-Large David Heavner and John Harrison, Recorder and Shortia Editor, Ken Borgfeldt, Interim Treasurer and Webmaster Penny Longhurst, Club Member Vince Mercurio

President Mercurio called the meeting at Sol Y Luna to order at 11:15 am on October 22, 2019.

The minutes of the October 11, 2018 Board meeting were unanimously accepted as presented.

Penny Longhurst presented the Treasurer’s Report. The balance on hand at the start of the fiscal year (July 2019 - June 2020) was $4,722.24. The balance as of October was $4,284.34 of which $107.30 is dedicated to printing the Buck Spring Nature Trail Brochures. A discussion was held concerning the effectiveness of printing the brochures as they do not seem to be readily available to the public. No decision was made. Eight members have joined since July bringing $64 in income. Expenditures paid to date are $483.90 for 2018-2019 printing costs and $18 for the website URL (wcbotanicanclub.org). $300 is scheduled for future indoor presentations through Dec. 2019, a $50 donation will be given to Asheville Botanical Gardens in December 2019 and an $800 donation will be given to Bullington in April 2020. The projected end of the year (June 30, 2020) balance was projected to be approximately $4300. Penny also reported that Joe Standaert will make the wooden name tags for new members. Membership now stands at 105 with 23 new members. Ken Borgfeldt sends welcome e-mails to new members.

As the Treasurer position was vacant, following the financial report, a motion was made by Susan Sunflower and seconded by Ken Borgfeldt that when Board vacancies occur between elections, that the Board be authorized to fill the position with an interim appointment until the next election cycle for that position. After discussion, the motion was unanimously passed. John Harrison moved to appoint Penny Longhurst as the Interim Treasurer. This motion was seconded by David Heavner. Penny Longhurst was elected by a unanimous vote and accepted the position.

Webmaster Penny Longhurst reported that there had been 149 posts to the Club website with 245,944 views by 17,443 viewers since its inception in October 2015. In 2019, there were 96,302 views, 6,425 viewers and 34 posts. On August 18, 2019, the peak day for 2019, there were 2,935 views of Sam Knob, Flat Laurel Loop. Of additional note, 39 membership brochures, 19 Buck Springs brochures, 39 Weekly Flora, 48 2015 Fall Shortia issue with a tribute to Millie Pearson and 245 Kellogg Center Trail maps have been viewed or downloaded since July 2019.

Scheduler Juanita Lambert reported that the next scheduling meeting would be held Dec. 5th at Etowah library. Indoor meetings will begin on Friday, Nov. 1st. Programs for the indoor sessions are being finalized. Suggestions for indoor programs and botany hikes are welcomed.

Recorder and E-version editor of Shortia, Ken Borgfeldt reported that all is going well with plant lists but that printing costs are increasing with the addition of many seldom-seen plants. Gayle Mercurio continues to determine which plants on the lists are native and which are invasive. Shortia is sent electronically to members on the last day of the quarter. Articles to be included in the quarter’s edition need to be submitted to Ken by the 15th of the last month of the quarter.

A motion was made, seconded and unanimously passed that the minutes of the club meetings be approved electronically by the board soon after the meeting, rather than waiting for a prolonged time before the occurrence of the next meeting. Following approval minutes will be distributed in the subsequent edition of Shortia.

Penny Longhurst suggested that the club consider a 4-hour boat excursion on Lake Jocassee in March 2020 to see Oconee bells in bloom. This would include a botany presentation as an indoor program prior to the trip. The cost would be $55 per person with a $395 minimum required. The board indicated their approval to move forward with inquiring about the trip. The tentative schedule is for the Oconee Bells talk on Friday, March 13 and the boat trip on Monday, March 16, 2020.

Plans were made for the club Holiday Party in December. Members will be asked to bring their own place settings. Susan Sunflower will bring cloth table cloths and will facilitate the gathering as a Zero Waste event.

The meeting adjourned at 12:45 pm

Respectfully submitted,

October 25, 2019

Mary L. Standaert
The mission of the Club is to identify and study native plants and their habitats and to advocate the protection of biodiversity in our natural world. 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 Western Carolina Botanical Club, 351 Cheestoonaya Way, Brevard, NC 28712