

The Journal of the South Carolina Native Plant Society



Fall 2012

In this issue

Milkweeds of SC.....	1
Natural Heritage Garden...	3
Plant Propagation	4
Spring Plant Sale.....	9
SCNPS & Social Media...	12

Name That Plant!

I am a shrub to small tree. I am a bit unconventional, as I bloom in late fall to early winter. When my seeds are mature, I can hurl them long distances, allegedly up to 30 feet! Extracts from my twigs have for centuries, starting with the Native Americans, been used for medicinal and other uses. Folks even use my larger twigs to locate water or even precious metals. I have been very helpful to you humans, so I can't figure out why you gave me that bad name.



The answer is embedded in the text somewhere in this newsletter. Photo by Bill Stringer.

The Milkweeds of South Carolina

Bill Stringer

Milkweeds are common occupants of our roadsides, forest edges and wetlands, but a cursory examination of this genus reveals a far more intriguing story than we might guess. The milkweeds have had a close, long-term co-evolutionary relationship with a set of foraging insect species. The milky sap for which they are named is far more than just an innocuous liquid component of the tissues. The milkweeds are all members of the genus *Asclepias*, which contains about 90 species (including sub-species) in North America. The genus name *Asclepias*, applied by Carl Linnaeus, is derived from Asclepius, the ancient Greek god of healing and medicine. The famous serpent-and-staff symbol of the medical profession is known as the Rod of Asclepius, apparently from the tradition that he allowed snakes to run free in his medical facilities. Go figure! Interestingly, milkweeds have toxic properties as well as alleged healing properties. Some milkweeds have historically been used for medicinal and food purposes.

(See **Milkweeds**, page 4)

There are 20 *Asclepias* species (including 2 sub-species of *A. tuberosa*) found in South Carolina. They are found in a wide variety of habitats from dry sandy sites to marshy sites, and sunny open to forested sites. They range in appearance from drab to very showy. Ecologically, they have co-evolved into some



Figure 1. Typical milkweed milky sap or latex. Photo courtesy of Dan Culbert. okeechobee.ifas.ufl.edu

interesting relationships with insects and other animals. One of the most interesting aspects of milkweeds is their unique flower structure and mechanism of pollination, which can pose significant risk of injury for the pollinator insects. We will examine some of these issues and then examine the characteristics of the 20 milkweed species found in South Carolina.

The Natural Heritage Garden – An Unfolding Vision

Patrick McMillan, Ph. D

Interim Director, SC Botanical Garden

Imagine a place where in an hour or two you can walk onto the barrier islands of South Carolina, wander through incredibly diverse longleaf pine savannas, explore 5,000 year-old shell rings and Piedmont granite flatrocks, pass hundreds of carnivorous plants, travel back in time to visit a remnant of the vast savannas and prairies that dotted the Midlands and Upstate, and then continue into the cool ravines of Jocassee Gorges. All of this will soon be possible at the Natural Heritage Garden in the South Carolina Botanical Garden (SCBG).

This vision is coming to life right now. The idea for this project sprang from the mission of the SCBG. When I started as Garden interim director, my directive from the administration was fairly clear: “You need a vision and you need to do something that raises the awareness of the Garden and gives it a regional, national and international audience.” Geez, no pressure, right? I gave a lecture in Charleston shortly after accepting the position, and one of the leaders of the Charleston Garden Club commented to me that the SCBG just didn’t represent all of South Carolina. She was correct, it didn’t. Back in my office, during Christmas break a moment of clarity gave me an idea, one that has since been greatly shaped and grown by the amazing staff and students here at the Garden.

What makes the Heritage Garden unique is that it isn’t just a collection of plants that are native to South Carolina and the Southeast, it brings the natural habitats themselves, along with the ecological conditions and processes that maintain them into the garden. This means, soil, geology, hydrology and even fire! If a natural habitat needs to burn occasionally, we’re going to burn it. The goal is many-fold, but most importantly, we want the visitor to feel truly immersed in the habitat. We want them to understand what role humans have played in the past, and continue to play, in maintaining and shaping the habitats we see around us. We also want them to understand how the natural resources found in these habitats are connected directly to the quality of life and the rich cultural heritage we enjoy in SC.

As an example, let’s look at the maritime forest. In SC’s maritime strand you enter a forest with massive live oaks, palmettos, dense under-growths of Yaupon and even Sweetgrass on the fringe. Every one of these elements is directly tied to our diverse cultures and history. The palmetto forged the resilience of Ft. Moultrie in 1776, the live oak contributed the resistant timber of “Old Ironsides,” the Sweetgrass is intricately tied to Gullah culture and the Yaupon was the source of a very important, caffeinated beverage known as the “black drink” for the Native American culture.

In addition to understanding the importance and functioning of our natural habitats, this Garden seeks

to provide a genetic resource for the over 2,000 native species housed within it. These plants will be sourced as locally to their habitats as possible, and can provide valuable genetic stocks for seed selections and trials to encourage new cultivars developed from the local gene pools. The garden will also harbor a large number of rare and endangered plants – helping us to both educate the public about them and to conserve, in wild-simulated cultivation as stock of some of our most precious plants. Imagine how many classes, private organizations, societies, and general visitors will utilize such as exhibit.

Another critical issue to us here in the SCBG is that our only chance to truly interact with visitors and generate revenue on a daily basis is at our Visitor’s Center and the Bob Campbell Geology Museum. Unfortunately, this part of the Garden is very distant to the central core of most visitor trips to the SCBG. A study initiated in 2007 found that among our 250,000-400,000 visitors each year around 90% park at the Caboose, walk through the Hosta Garden and end up at the Duck Pond, feed the ducks then go home. We want them to experience much more. The Natural Heritage Garden connects the central core of the Garden with the Visitor’s Center, from the Hunt Cabin, just below the Duck Pond to the Visitor’s Center parking lot. And how do we get people interested in going all the way to the Visitor’s Center? This is where the enormous carnivorous plant display, the ancient grazers, and the Native American shell ring exhibits are! They are destined to be visited and attract attention.

So here’s the outline of the Garden. If you begin at the Hunt Cabin you will walk off the front porch, through a mountain meadow, past a Southern Appalachian Fen and along the edge of the woodlands into a deep, sheltered Acidic Cove Forest, sheltering thousands of Oconee Bells, and then stroll along the stream where you will emerge into a rich cove forest, teeming with flowering herbaceous forest floor plants. This part of the Garden is nearly finished – come have a look for yourself. The area was cleared of invasive species and was entirely prepared and planted this spring. A new walkway was installed using highly pervious geo-grid and Chapel Hill stone to reduce our impact on waterways to zero! Even though I gave several hundred hours of labor myself to this project, it is still hard for me to believe this exhibit was just installed. You are virtually in the middle of the mountains surrounded by hundreds of different species when you walk this trail.

From here the trail traverses a more formal shade wild-flower garden display. This is an area where we want to demonstrate to the public what they can do in their home landscape with some of the amazing plants they just saw in the habitat gardens. It winds along the creek and into

(See *Heritage Garden*, page 11)

Native Plant Propagation From Seed

Ryan Merck

Department of Plant Industry, Clemson University

Over the last ten years I propagated plants at the SC Botanical Garden (SCBG). I did a few other things too, but one of the constants in my life was propagating plants. I worked with some really good propagators over the last ten years and I read books by some even better propagators and I had conversations with some of the best propagators. All of this has provided me with a broad appreciation for how important the ability to propagate is to the native plant cause. As native plant enthusiasts we need to be able to grow plants that, in many cases, the industry just doesn't want to grow. It's also not a lot of fun to kill plants, so hopefully I can impart enough propagation knowledge so that you can successfully explore the world of native plant propagation.

First, let's talk about methods. There are a lot of ways to propagate plants but all of them boil down to either sexual (seed) propagation or asexual (clonal) propagation. When I do propagation workshops, asexual propagation (via root or stem cuttings) is the method that almost everyone wants to learn. It's also the

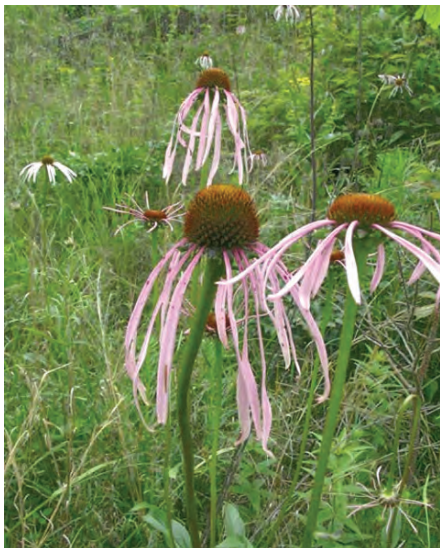


Figure 1. *Echinacea laevigata*, smooth coneflower. Photo courtesy of Bill Sharpton at <http://www.treehuggerimages.com/~treehuggerimages/>

type that is the most difficult, most expensive, and creates the least genetic diversity in plant populations. For those reasons, even though I have a lot of fun “making sticks grow roots”, I always try to propagate sexually first. Actually, why wouldn't we start with seeds? Sexual propagation is cheap, genetically diverse, and Mother Nature has already given us a blueprint for successfully producing a plant.

In the case of **smooth coneflower** (*Echinacea laevigata*), that blueprint is very, very simple. The hardest part of propagating smooth coneflower is finding a legal seed source, which thanks to the efforts of the SCNPS and SC Botanical Garden plant sales is now easier than before. Since smooth coneflower is a federal listed endangered species, collecting seed from a naturally existing population can bring a hefty fine, but collecting seed from your own plants is perfectly acceptable. So, all you have to do is show up for one of the SCNPS or SCBG native plant sales and purchase a few plants (Fig. 1). In October, after the flowers have faded, the seed heads will be full of small tan nutlets (seeds - See Fig. 2). Before the birds devour all of the seed, collect a few entire seed heads and hang them upside down in a paper bag. Allow them to dry a few days and then break the seed heads apart (Ouch! Use sturdy leather gloves) and separate the small nutlets from the chaff. You can directly sow these seeds in a prepared bed and allow them to overwinter naturally. However, if you want to have really high germination percentages, you should keep the seed in a paper bag in your refrigerator until the end of March and then sow outside in loose friable soil. Lightly cover them with one quarter inch of soil, keep the soil



Figure 2. Smooth coneflower nutlets (seeds).
Courtesy of author.

evenly moist, and expect germination in 14-21 days.

Cardinal flower (*Lobelia cardinalis*), is a beautiful native perennial (Fig. 3) that is found along ditches and streams in full sun locations. Because of the frequent rise and fall of water level, cardinal flower has adapted to being in environments where there is no leaf litter or build-up of detritus material. This is important to take note of since we frequently cover seeds as soon as we sow them, but in the case of cardinal flower, this will greatly decrease germination. The very tiny seeds (Fig. 4) are fully mature by the end of

(See *Plant Propagation*, page 10)



Figure 3. Cardinal flower. Photo courtesy of Burpee Nursery <http://www.burpee.com>.

Milkweeds, from page 1

Milkweeds and Insects. Most milkweeds exude milky sap when a leaf or stem is broken open. This sap appears to be maintained under *positive pressure* in long thin cells called *lactifers* that are associated with the regular vascular tissues. These lactifers reach throughout the living tissues of milkweeds, and thus a break anywhere in a living stem or leaf will result in rapid exudation of the milky latex (Fig. 1). The milky sap, or latex, of milkweeds contains a number of compounds, some of which serve to discourage insect larval feeding, or even endanger the lives of feeding larvae. In addition, the latex quickly becomes sticky, which can immobilize the mouth parts of feeding insect larvae. Over the millennia, certain insects have evolved mechanisms to cope with the latex of milkweeds. Some



Figure 2. Young monarch butterfly larva eating leaf material inside a ring of severed veins. Courtesy of <http://tywikiwdbi.blogspot.com/2011/07/milkweed-leaves-trenched-and.html>

species have developed specific biochemical mechanisms which render the latex toxins non-lethal. A prime example is the monarch butterfly, the larvae of which can safely sequester the toxic components in their bodies, which can then serve to discourage predator feeding on the larvae. A second coping mechanism

is behavioral. Early-stage larvae of some species will physically cut the veins and accompanying lactifer cells in a leaf, and then feed on the leaf downstream from the cut, thus avoiding ingestion of the latex (Fig. 2). **The pollination of *Asclepias* flowers is complicated by the unique flower structure.** The flowers consist of 5 petals, commonly drooping to parallel the pedicel of the flower. Above the petals is a structure called a gynostegium, which encloses both the male and female parts of the flower. The gynostegium is surrounded by five hooded nectaries (Fig 3), each of which has a horn bending over the hood. The nectaries produce large amounts of nectar, which attracts large numbers of potential pollinator species. The male and female parts of the flower are located within the gynostegium in the space between neighboring nectaries (Figs. 4 & 5). The horns force all but the long-

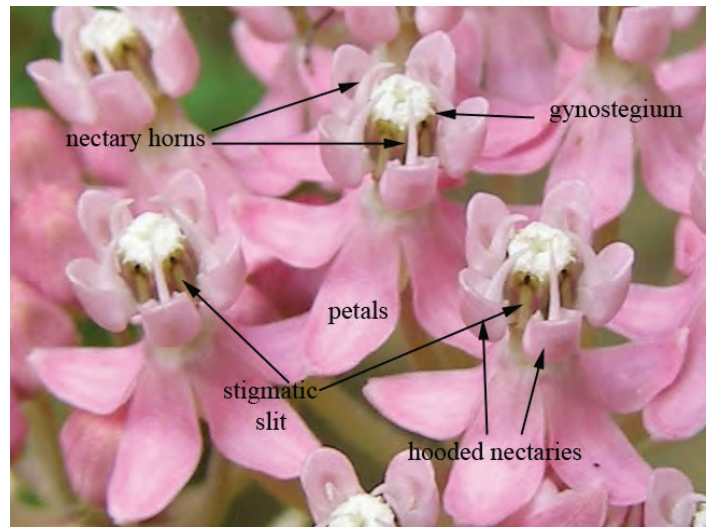


Figure 3. Swamp milkweed flower parts. Photo courtesy of Steve Wilson (labels by author) <http://bluejaybarrens.blogspot.com/2010/08/swamp-milkweed.html>

tongued butterflies and moths to approach the nectary from the space between two neighboring hoods. This ensures that feet and legs of pollinators contact the space around the pollinary gland (σ), as well as the area of the stigmatic slit (♀). The male parts consist of five pollinaria, each of which comprises a sticky central gland, attached to which are two arms, each with a packet of yellow pollen (pollinium) attached (Fig 4). The gland is very sticky, and is borne on the exterior of the gynostegium, with the arms and pollinia on the interior (Fig.5). When the pollinator leaves the flower, it generally extracts one or more pollinaria attached to its feet (Fig. 4). Also located on the gynostegium, just below the pollinary glands, are the stigmatic slits (Fig. 4), within which are found the stigmas, styles and ovaries (♀). So, when the pollinator visits another flower, this time with attached pollinaria, he or she must again wedge in between the nectaries to reach the nectar. In doing so, a bug leg with an attached pollinari-



Figure 4. Honeybee on a swamp milkweed flower. Courtesy of Bob Klips <http://bobklips.com/earlyjuly2010.html>

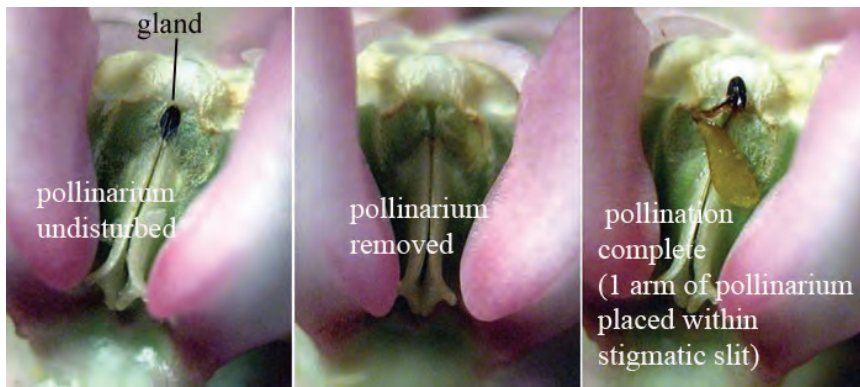


Figure 5. Stages of milkweed flower pollination. Photo courtesy of Bob Klips.
<http://bobklips.com/earlyjuly2009.html>

um (♂) commonly “accidentally” slides into the stigmatic slit, thus introducing a bag of pollen to the stigma (♀), and, Voila! pollination is accomplished. Figure 5 shows the sequence of stages in pollination. This good deed performed by the insect is not without danger. Sometimes the insect’s leg will get caught in the stigmatic slit to the point that the insect cannot escape (Fig. 6). Milkweed sex seems almost like mammalian sex. Fertilization results in the formation of a seed-bearing fruit, called a follicle.



Figure 6. Trapped honeybee on a milkweed flower. Notice the attached pollinaria. Courtesy of Bob Klips.
<http://bobklips.com/earlyjuly2010.html>

A follicle, not a pod (legume), because it only splits along one side at maturity, instead of two sides, as in a pod.

Native milkweeds found in South Carolina. One or more milkweed species are found in every county in the State. All native milkweed species in South Carolina are perennial. We will briefly examine each, in alphabetical order by scientific name. The figures start on page 7.

Clasping milkweed (*Asclepias amplexicaule*) is found in every part of the State. It has rose to purple flowers and broad, ripple-edged leaves. It has deep taproots, but unlike most milkweeds, it also has rhizomes. So it can be found in thin colonies of stems (20 to 40 inches tall). It

has milky sap. It prefers mesic to dry soil sites, and is usually in open to partially shaded sites such as roadsides.

Carolina milkweed (*Asclepias cinerea*) is found only in the southern corner of the State. It has lavender flowers in open umbels, and long linear leaves borne on single stems (12 to 30 inches tall) from taproots. Like most milkweeds, it has milky sap. It prefers mesic savanna (i.e., open forest canopy) sites.

Largeflower milkweed (*Asclepias connivens*) is found in much the same region as *A. cinerea*. It has sparse pale green flowers. The leaves are opposite, narrow-lance-like, sessile and hairy, and exude milky sap. It usually occurs as single stems from a taproot. The stem is 24 to 30 inches tall, but commonly leans, making it appear shorter. It prefers mesic to wet soil sites.

Poke milkweed (*Asclepias exaltata*) is found in the upper Piedmont counties. It has greenish-white flowers, each on a long drooping peduncle. The large lanceolate leaves are glabrous and petiolate, and found on tall (2 -6 ft.) solitary stems that arise each spring from a taproot. The oozing sap is milky. It likes mesic sites and is one of the few milkweeds that do well under forest cover.

Pinewoods milkweed (*Asclepias humistrata*) is found throughout the Sandhills and Coastal Plain counties. It has rose to lavender flowers and large sessile, ovate leaves, commonly with pink to purple veins. Multiple stems (12 to 30 inches tall) are low and spreading in appearance, arising each spring from a taproot. The leaves and stems are glaucous, and the oozing sap is milky. It prefers sandy, dry sites with plenty of sun.

Swamp milkweed (*Asclepias incarnata*) is found mostly in the Piedmont counties. It has rose-colored flowers and sessile lance-shaped leaves that are hairy, and the sap is milky. Tall (2 to 5 feet) solitary stems arise each spring from a taproot. It has a strong preference for wet soil sites and sunny exposure.

Few-flowered milkweed (*Asclepias lanceolata*) is found throughout the Coastal Plain counties. The flowers are pink-red, and the petiolate leaves are long-lanceolate and glabrous. Usually single-stemmed, up to 4 feet tall, arising from a tap root. The oozing sap is milky. It grows in sunny sites with wet (fresh to brackish) soils.

Longleaf milkweed (*Asclepias longifolia*) is found throughout the Coastal Plains counties. It has greenish-white flowers, and sessile, long-linear leaves that are glabrous, and with milky sap. Single stems (10 to 30 inches tall) arise from a tap root. It prefers mesic to wet savanna sites.

Michaux’s milkweed (*Asclepias michauxii*) is found throughout the Coastal Plains. It has greenish-white flowers, and long narrow linear leaves that are sessile and

glabrous, and have milky sap. It is a short-statured plant (4 to 16 inches) that arises from rhizomes. It prefers mesic to dry savanna-like sites that have partial sun exposure.

Pineland milkweed (*Asclepias obovata*) is found in the Savannah River counties of the Coastal Plain, and a couple of Coastal counties. It occurs as single stems (16 to 30 inches tall) arising from a tap root. It has yellow-green flowers, and sessile ovate leaves that have rippled edges, and are hairy on the lower surfaces. The stems and leaves exude milky sap. The plant prefers partially sunny savanna sites on dry to mesic soils.

Savanna milkweed (*Asclepias pedicellata*) is found in the coastal strand counties. It has cream-colored flowers in sparse umbels. The leaves are medium in length, linear, petiolate, and pubescent. The stems are very short (4 to 12 inches tall), and arise singly from tap roots. The oozing sap is milky. It prefers wet to mesic sites with partial shade. Witch hazel.

Aquatic milkweed (*Asclepias perennis*) is found in the Sandhills and Coastal Plain counties. It has white flowers, and petiolate, lanceolate, glabrous leaves. The plants ooze milky sap. Commonly has multiple stems (12 to 20 inches tall) arising each spring from a taproot. It prefers wet to mesic, forested sites.

Fourleaf milkweed (*Asclepias quadrifolia*) is found in higher elevations in the upper Piedmont counties. It has green-white to pink flowers, and ovate, glabrous leaves in whorls. Occurs as single stems, 12 to 20 inches tall, arising from a short rhizome. The sap is milky. It prefers dry to mesic soils in mixed forest sites.

Red milkweed (*Asclepias rubra*) is found in Sandhills and lower Coastal Plains counties. It has red to lavender flowers, and lance-shaped petiolate leaves with pubescent edges. Usually single-stemmed (20 to 40 inches tall) arising from a taproot. The sap oozes milky. It prefers wet to boggy savanna-like sites.

Common milkweed (*Asclepias syriaca*) is found in the upper Piedmont counties. It has rose to greenish-white flowers, and elliptic leaves that are glabrous above and pubescent below. It has milky sap. It has rhizomes, so it forms colonies of single stems, which can grow from 3 to 6 feet tall. Fruit is a muricate (prickly) follicle. It prefers mesic to dry soils and open sunny sites.

Tuba milkweed (*Asclepias tomentosa*) is found in the Sandhills counties. It has yellow-green flowers, and lanceolate to elliptic, woolly pubescent leaves and stem. Single stems (8 to 24 inches tall) arise from a taproot. The oozing sap is milky. It prefers dry sunny sites.

Butterfly milkweed (*Asclepias tuberosa*) occurs as two closely related sub-species in South Carolina. *Asclepias tuberosa* ssp. *tuberosa* is found in every county in the State. The flowers range in color from orange to red. The leaves are scabrous and linear to lanceolate in shape. *A. tuberosa*

ssp. *rolfsii* is found in the Sandhills counties, and has yellow flowers and arrowhead-shaped leaves. These species are the only milkweeds that **exude clear sap**. Both species have several stems (8 to 30 inches tall) arising each spring from a heavy taproot. Both prefer mesic to dry sites that are sunny to partly shaded.

Red-ring milkweed (*Asclepias variegata*) is found in almost every county in the State. It has bright white flowers with purple centers. Leaves are oval and glabrous, borne on single stems (8 to 40 inches tall), which arise each spring from a short sturdy rhizome. Sap is milky. Found in mesic sites in open woods and woodland borders.

Whorled milkweed (*Asclepias verticillata*) is found mainly in the Piedmont and Sandhills counties. The flowers are greenish-white. The leaves are narrow-linear and occur in whorls on stems (12 to 30 inches tall) that arise each spring from rhizomes, forming open colonies. It exudes milky sap. It prefers dry sites in open woods or roadsides.

Green comet milkweed (*Asclepias viridiflora*) is found in the Piedmont and Sandhills counties. The flowers are yellowish-green, and occur in globe-shaped umbels. The leaves are wide-linear, pubescent and leathery, and occur on single sturdy stems (8 to 30 inches tall). The exuded sap is milky. It prefers dry to mesic open sites.

There is at least one introduced milkweed that may be found in South Carolina. *Asclepias curassavica* (**Mexican (or tropical) butterfly weed**) is widely sold in the Southern US. In most areas it is effectively an annual, because it doesn't survive the winter. It reproduces readily by seed, and is found to be invasive in some areas.

As a group the milkweeds are very attractive. They produce large amounts of nectar, and thus are important to the sustenance of many species of pollinator insects. They provide food for the larval stages of several butterflies and moths, most notably monarch butterflies. They are very successful in implementing a very complex pollination strategy. And they are very resourceful perennial occupants of a wide range of habitats. Milkweeds are good citizens in habitats where they are found. We in South Carolina are very lucky to have a large suite of native milkweeds within our borders. We should join the butterfly enthusiasts in protecting and restoring the native milkweeds in our landscapes.

NOTE: The milky sap of one non-native *Asclepias* (*A. curassavica*, Mexican milkweed) has been shown to cause painful temporary damage when inadvertently introduced into your eye. This has not been demonstrated with other milkweeds, but prudence would suggest care when working with all milkweed species, as well any species with milky sap.



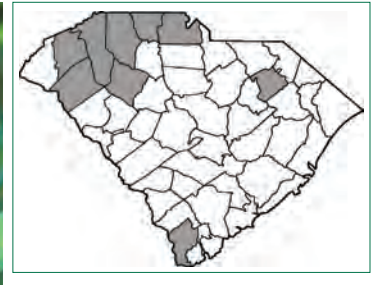
Clasp milkweed *Asclepias amplexicaulis*
Courtesy of John Gwaltney http://www.southeasternflora.com/view_flora.asp?plantid=663



Pinewoods milkweed *Asclepias humistrata*
Courtesy of Rebekah D. Wallace, University of Georgia, Bugwood.org



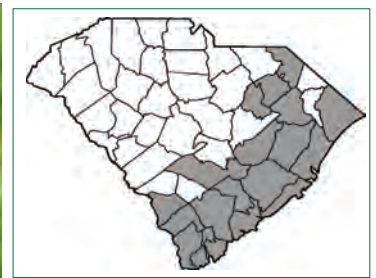
Carolina milkweed. *Asclepias cinerea*
Courtesy of <http://kellyandsarah.blogspot.com/2010/06/milkweeds.html>



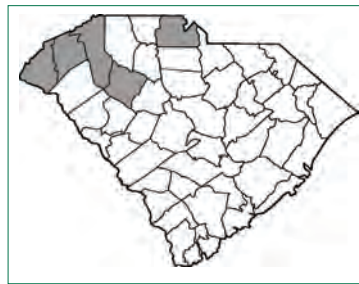
Swamp milkweed *Asclepias incarnata*
Courtesy of John Cardina, The Ohio State University, Bugwood.org



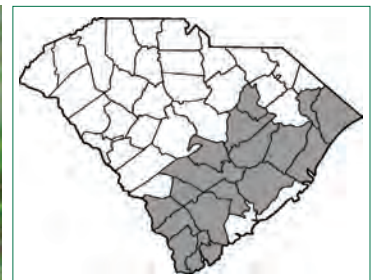
Large-flower milkweed. *Asclepias connivens*
Courtesy of <http://kellyandsarah.blogspot.com/2010/06/milkweeds.html>



Few-flower milkweed *Asclepias lanceolata*
Courtesy of J. Gwaltney, http://www.southeasternflora.com/view_flora.asp?plantid=664#

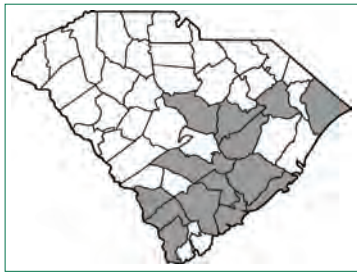


Poke milkweed *Asclepias exaltata*
Courtesy of J. Gwaltney http://www.southeasternflora.com/view_flora.asp?plantid=405#

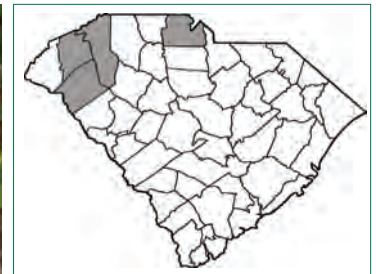


Long-leaf milkweed *Asclepias longifolia*
Courtesy of <http://kellyandsarah.blogspot.com/2010/06/milkweeds.html>

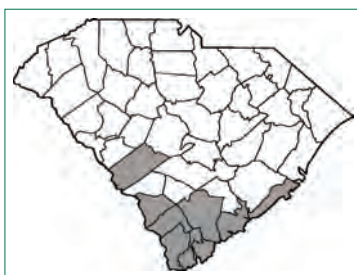
*Shaded areas on maps indicate presence of species.



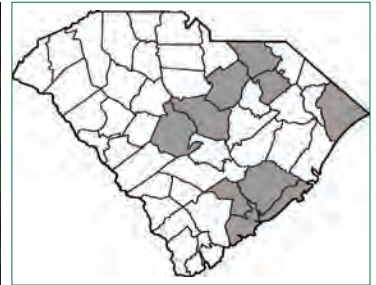
Michaux's milkweed *Asclepias michauxii*
Courtesy of <http://kellyandsarah.blogspot.com/2010/06/milkweeds.html>



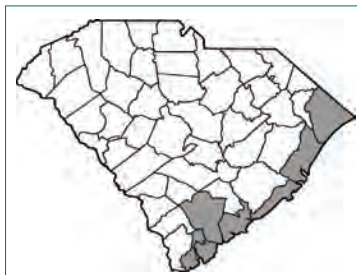
Four-leaf milkweed *Asclepias quadrifolia*
Courtesy of J. Gwaltney http://www.southeasternflora.com/view_flora.asp?plantid=670#



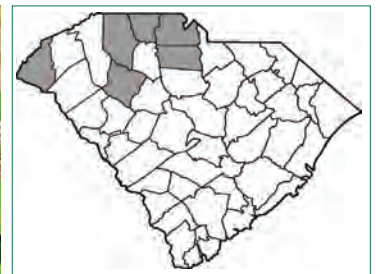
Pinelands milkweed *Asclepias obovata*
Courtesy of J. Gwaltney, http://www.southeasternflora.com/view_flora.asp?plantid=733



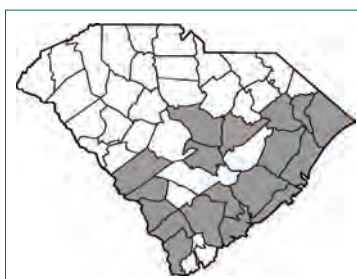
Red milkweed *Asclepias rubra*
Courtesy of J. Gwaltney http://www.southeasternflora.com/view_flora.asp?plantid=1320



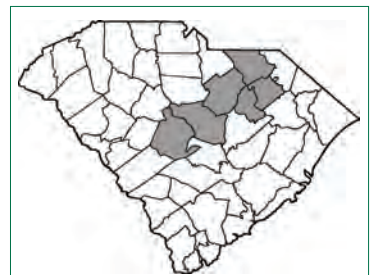
Savanna milkweed *Asclepias pedicellata*
Courtesy of J. Pippen, <http://www.duke.edu/~jspippen/plants/asclepias.htm>



Common milkweed *Asclepias syriaca*
Courtesy of Anonymous http://en.wikipedia.org/wiki/File:Asclepias_syriaca.jpg



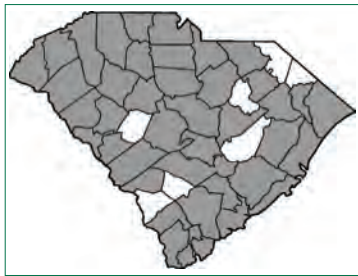
Aquatic milkweed *Asclepias perennis*
Courtesy of J. Gwaltney http://www.southeasternflora.com/view_flora.asp?plantid=648



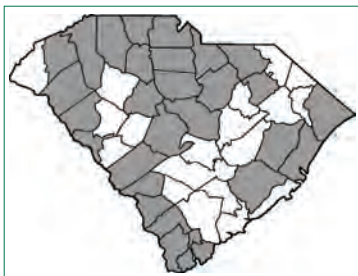
Tuba milkweed *Asclepias tomentosa* Courtesy of Robert L. Stone at <http://www.wildflower.org>



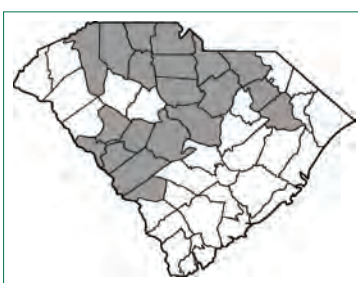
Butterfly milkweed *Asclepias tuberosa* ssp. *tuberosa*
 Photo courtesy of J. Gwaltney http://www.southeasternflora.com/view_flora.asp?plantid=10



Red-ring milkweed
Asclepias variegata
 Courtesy of J. Gwaltney http://www.southeasternflora.com/view_flora.asp?plantid=11



Whorled milkweed
Asclepias verticillata
 Courtesy of J. Gwaltney
http://www.southeasternflora.com/view_flora.asp?plantid=885#



Green comet milkweed
Asclepias viridiflora
 Courtesy of Steven J. Baskauf
<http://bioimages.vanderbilt.edu/>

Spring Native Plant Sales

“Working to preserve, protect & restore native plant communities in South Carolina”... So reads the mission statement of the SC Native Plant Society. One of the ways that we approach that mission is to organize plant sales where we offer only native species – trees, shrubs, vines, forbs and grasses. Our various regional Chapters organize sales events, and gather and offer plants that are native to each particular region of the State. In doing so, we make a wider range of native species available than you will find at any nursery. This enables our members to participate in “...restoring native plant communities in South Carolina”, by establishing a variety of native plant species in their home landscapes. Research has clearly documented that the higher the proportion of native species in a landscape, the better habitat that landscape offers for song-birds and other wildlife.

As a side benefit, our Chapters raise funds to assist them in pursuing protection and restoration projects in the natural areas of the state, as well as establishing educational native plant garden communities at local public facilities, such as schools and parks. As a non-profit environmental group, such fund-raising opportunities are indispensable to our mission.

We commonly offer plant sales in early spring and early fall. Spring native plant sales that are already planned for Spring 2013 are:

- **Lowcountry Chapter (Charleston)** – Saturday, March 16 at Charlestown Landing. The sale officially starts at 9:00 am, but Society members get a head-start at 8:00, so consider becoming a member.
- **Upstate Chapter (Greenville)** – Saturday, April 6 at McAllister Square parking lot, just off Laurens Rd. Sale starts at 9:00 am.
- **Southcoast Chapter (Beaufort)** - Saturday April 6 from 9:00 til 12:00 at Naturescapes Nursery, 48 Sherman Dr., Beaufort.

The Society plant sales offer native plants for a wide range of conditions – shady to sunny and dry to wetland soil sites. There are always plenty of knowledgeable members who will help you select the right plants for your site, as well as folks who will help you in collecting plants, moving them to the checkout, and loading into your vehicle. You do not have to be a Society member to purchase plants at our sales, but we hope that your experience at our events, and the wonderful increase in the beauty of your landscape will motivate you to become more involved in native plant activities through Society membership.



Figure 4. Cardinal flower seeds. Courtesy of Prairie Moon Nursery <http://www.prairiemoon.com>

September. I usually use a piece of white printer paper to both serve as a work mat and envelope for seed storage. Simply break apart the seed capsule and spill the seeds out onto the paper, fold the paper up around the seed and place in the refrigerator until you are ready to sow in the spring. Sow on top of the soil in April and keep evenly moist. Expect an even

carpet of lettuce like leaves to emerge in three weeks.

Jack-in-the-pulpit (*Arisaema triphyllum*) is a plant that really boosts my self-esteem as a propagator. To get really good uniform germination you need to prepare the seeds for a cold stratification or winter dormancy period to initiate germination. In late August, look for the bright red berry clusters (Fig. 5) that have developed from the flower structure. Collect the seeds and immediately prepare a water bath to allow the seeds to soak for 24 hours. This will loosen the fleshy seed coat and make them easier to clean. After the 24-hour soak is over, take the seed and roll them forcibly between two pieces of glossy paper like the advertising section of your newspaper. This will loosen the pulp while protecting the white seed from damage. Scrape the pulpy mess into a colander or screen and use a water spray to remove the pulp from the white seeds. When the seeds are clean, immerse them in a solution of ten percent bleach and warm water. Allow one hour to elapse and then rinse the clean, sterile seeds with cool



Courtesy of http://www.plant.photos.net/index.php?title=Jack_in_the_Pulpit

water. Package in a zip-loc bag with moist sphagnum moss and place in the refrigerator for at least ten weeks, or four weeks before your last spring frost date if you are sowing directly in the ground. Spread the entire mixture of sphagnum and seed into

your plant bed and lightly cover with soil. You should expect near 100 % germination in four weeks after sowing.

Bloodroot (*Sanguinaria canadensis*- Fig. 6) requires a double stratification, so seed preparation is a more involved process. Bloodroot is also a *myrmecochorous* plant (*myrmex* is Greek for an ant), meaning it utilizes a relationship with ants to

disperse its seeds. This process revolves around a strip of fatty lipids attached to the seed called an **elaiosome** (Fig. 7). This structure serves as a food source for the ant and after the elaiosome is removed from the seed, the ant will discard the clean seed in the loose friable soil just outside the colony. Since it is exceedingly difficult to employ a team of ants to clean and prepare seed, we must resort to more repeatable techniques. Fortunately, a one-hour soak in hydrogen peroxide does the trick quite nicely. Once the hour is up you must rinse the seed with clean water and then package in moist sphagnum moss in a zip-loc bag. First a ten-week cold stratification (refrigerator) is necessary followed by an eight week warm stratification in a dark location. This can be accomplished quite nicely with a sealed rubbermaid container kept inside the house. Place the zip-loc bag of moist sphagnum inside the rubbermaid container and open the bag slightly. This will allow some air exchange but will also allow the sphagnum to dry so



Figure 6. Bloodroot *Sanguinaria canadensis*. Courtesy of Bill Sharpton, <http://www.treehuggerimages.com/>

you may have to occasionally add moisture to the medium. After eight weeks, seal the bag and place the package



Figure 7. Seed pod of bloodroot showing seeds with elaiosomes. Courtesy of Mike Habeck. <http://www.eco-usa.net/nature/wildflowers/bloodroot.shtml>

back into the refrigerator for a second ten week cold stratification. The seeds have now been released from their chemical dormancy and will germinate two to four weeks after sowing in a warm location.

Now that you have examples of some of the more interesting blueprints from Nature's germination manual we must throw that book out of the window. Occasionally we come across a plant that for whatever reason just doesn't want to germinate readily. **Georgia aster** (*Symphytotrichum georgianum* – Fig.8) happens to be one of these plants. When left to its own devices, Georgia aster produces copious amounts of nearly worthless seed. However, if you cut the ripening (and dormancy development) processes short by collecting the seed as soon as the color fades from the rich purple petals (as seen in Fig. 9) and immediately sow in a warm, moist location and lightly cover the seed, you will see germination in a few short weeks. Germination percentages, depending on the seed source, can reach 85%. If grown in a greenhouse through the winter and pushed through the spring you can produce one gallon size blooming plants in one year. This is one of the most beautiful fall blooming plants native to South Carolina, and I encourage you to try your hand at propagating



Figure 8. *Georgia aster* *Symphytotrichum georgianum*. © 2012 rufino-osorio.blogspot.com



Figure 9. *Georgia aster* seed heads. Courtesy of Bill Stringer

this and any other native plant that arouses your curiosity. And remember, propagation **from seeds** gives a more naturally diverse population of plants than propagation via cuttings.

Heritage Gardens, from page 1

the Piedmont where all of a sudden you are transported into the basic mesic forests of places such as Stevens Creek. The high pH soils in this region of the Garden are perfectly suited to re-creating such an incredible community. From here you stroll up the hill, through Shortleaf Pine-Oak woodlands, fairly typical of the region and then into the vast Piedmont Prairie exhibit. Ahead will lie a granite flatrock, Sandhills, longleaf pine savannas, maritime forests and a Native American shell ring.

The vision is simple: to provide a space that illustrates the rich natural heritage of South Carolina. The mission is to foster an understanding among the public of the value of our natural resources and our connections to them; to provide a valuable research tool to faculty, staff, students and the broader academic and horticultural community; to better understand our threatened natural heritage; and to maintain viable genetic stocks of rare plants. The Natural Heritage Garden will be the largest, most comprehensive collection of native plants in the Southeast. This exhibit will truly be innovative in providing an outdoor living and growing diorama.

The power of such a place can be summed up through the example of the Native American shell ring. Here we will exhibit an example of a structure built along the coast. A mere ring of oyster shell, laid down by people as long as 5,000 years ago. Though we don't understand exactly why they built them, we do know that the choice they made 5000 years ago has had a profound impact on the ecology and distribution of life today. Because of the shell, the soil here is very high in calcium and pH, something that is missing in most soils of SC. This unique soil allows plants that normally grow far to the north or in the mountains to gain a foothold on the coast. Plants like Sugar Maple, Basswood, Indian Pink and Trillium grow under and around species which can be found nowhere else in South Carolina, such as Godfrey's Swamp Privet, Small-flowered Buckthorn and Leafless Swallowort. This is a great example of just how important our personal choices are in our own lives. If you ever feel like you just don't matter, think of this: the choice that someone made to build a ring out of shell 5000 years ago changed much in the ecology of the Lowcountry 5000 years later! How much larger are the choices we make in our every day lives? And... the choices those people made so long ago had a net positive impact on our biodiversity! Not all choices are bad and we need to concentrate on making such good choices ourselves, because though the human mind may, the world will never forget that you were here.

I hope you will spread the word and join us in helping to make this dream a reality at the SC Botanical Garden. For more information or to find out how you can help please contact us at scbg@clermson.edu or visit our website at <http://www.clemson.edu/public/scbg>.

All the best,
Patrick D. McMillan, PhD

New Website Features Services and Social Media

Harry Davis

Our previous website was a good place to go for information and news. With the introduction of our new enhanced website in April 2012, the South Carolina Native Plant Society has achieved some important new goals.

1. We now provide an **online join/renew** alternative to the traditional “paper based” membership system. Now, new members can join and existing members can renew online in a matter of minutes, while knowing that their payment will be handled by a secure credit card processing system. An added benefit of the new system: an automatically generated receipt e-mailed to the member.
2. We have added an **online bookstore** with order fulfillment being handled by **The Compleat Naturalist**, a nature store located in Asheville, NC. We decided to work with The Compleat Naturalist Natural History Store because they share our commitment to science education and conservation. In addition, owner Laura Mahan has offered SCNPS members a 10% discount on all purchases. The discount code can be found on the SCNPS Store page on our website (<http://scnps.org/scnps-store/>).
3. Social media exposure for the Society: From any page of our website, you will find links to our Facebook page and to Twitter.



If you are looking for a “community atmosphere” where you can post pictures, ask questions and comment on posts made by others, then you will want to “like” our Facebook page at <http://www.facebook.com/scnps> so you can join in. SCNPS events and news items will be posted to our Facebook page as well as to our website. Or, if you prefer your information in short and sweet “tweets”, then you can follow us on Twitter at @scnps1 to receive updates about SCNPS activities. NOTE: on the SCNPS Facebook page, you may notice advertisements on the right margin. Those are added by Facebook, and the Society has nothing to do with this feature.

4. But if you aren’t quite into social media yet, you can still receive announcements about SCNPS activities via e-mail by subscribing for e-mail announcements on our website **home page** (<http://scnps.org/>). These e-mail announcements will be about upcoming activities and news items and you may unsubscribe at any time. Please note that these e-mail announcements will **REPLACE** our current e-mail system through Yahoo Groups. Yahoo has proven to be too cumbersome and difficult to maintain. The Yahoo e-mail group is now closed, so please go to our home page and sign up for the new e-mail system now. You will receive return e-mail asking you to confirm that you want to subscribe (to protect against spam). **Please be sure to check your junk mail folder if you don’t receive this e-mail promptly...** several people have found it there.

Information and links to these services are also provided on the home page (<http://scnps.org/>) We think you will find the new website to be much more convenient and powerful when you gain experience with it. We hope you enjoy the changes and we welcome your feedback!

The Journal of the South Carolina Native Plant Society

Published quarterly
Editor: Bill Stringer
Design Editor: Charlene Mayfield
Upstate Chapter - Greenville
Lowcountry Chapter -
Charleston
Midlands Chapter - Columbia
Piedmont Chapter - Rock Hill
South Coast Chapter - Beaufort

www.scnps.org