

# The Journal of the South Carolina Native Plant Society



Volume 3 Issue 2  
Fall 2009

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## Name That Native Plant!

I am a fine member of many native plant communities without being up-standing. I am a very resourceful plant, and can establish and persist on stuff too sorry to dignify with the name soil. I am a leguminous plant, which helps, because I can make my own nitrogen fertilizer. You can find me in forest clearings and infrequently mowed roadsides. My comrades are usually native grasses that can handle low pH, low-fertility sites.



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



Indiangrass, SC State Grass, in flower. Photo courtesy of Bill Stringer

## Native Alternatives to Introduced Grass Lawns

Bill Stringer

For most of us, a lawn is the more or less green, more or less short, uniform area of grass out front. But, let's look a little closer at the concept. A lawn is defined as an area of recreational or amenity land planted with grass, which is maintained at a low, uniform height. The key element in that definition is the "low, uniform height". Lawns are usually mowed at 1 to 2 inches, as often as every 5 to 10 days. For most plants, being mown closely and frequently is un-natural. Up to this point, American lawns have comprised exclusively introduced grasses. There will be more natives in future lawns. We will look at lawn management, and then some native species which may be adapted to lawn use.

Grasses, like all herbaceous plants, go through vegetative, reproductive and dormant stages. The vegetative stage is the least problematic stage, as grass plants are usually leafy, short and compact in that stage. Mowing during the vegetative stage is easy, and imposes less stress on the grass plant, because only small amounts of growth are removed at each mowing. Mowing during the **vegetative** stage does not remove the **meristems**, the part of the grass plant that produces new leaf growth. Inevitably, grass plants grow into the **reproductive** stage, in which the plants grow taller, and produce flowers and seed. Grasses devote a lot of energy to producing stems, flowers, and seeds. The tall stems, flow-

(See **Lawns**, page 4)

# The View From Here

This will be my last president's column for the Journal. Back when I agreed to take on the president's job, I looked with some trepidation at the prospect of adding this on top of my day job at Clemson University. We needed to grow some of our chapters to make them more effective. We had a spotty record of getting our organizational newsletter out. And we needed to work on member recruitment and retention. Not to mention the plans to play a stronger role statewide in support of native habitat protection. It looked like a daunting task.



Bill Stringer

But it turned out to be an excellent learning and growing opportunity for me. Thanks to the wonderful group of hard-working, creative state board members and chapters, the Society has made some real strides. We have seen membership growth in all the chapters, and, thanks to the efforts of folks in the Beaufort-Hilton Head area, we have a new chapter blooming there. We have stood up, along with other environmental groups, to advocate for protection of habitats in various parts of SC. We have been a part of efforts to protect important parcels of land from development. We are continuing our restoration of the Lisa Mathews Bay property in Bamberg County. We have been a part of efforts to promote better stewardship of the environment by government agencies. We have organized annual Native Plant Symposia and a national symposium on native grasslands.

We have adopted an official position on sources of plant material for use in native habitat restoration in South Carolina. Note the fine article by Glitzenstein et al in this issue, in which this position is articulated and explained. We continue to present position responses to management proposals by various land stewardship agencies. Our organization is gaining a reputation as a source of science-based input to these agencies, and they regularly factor our input into their management plans.

Maintaining a regular schedule of publishing the SCNPS Journal has been a bit of a challenge. creeping lespedeza This was not made any easier by the job of organizing the Eastern Native Grass Symposium in 2008. Another help in this job would be more participation of professionals within the state in writing articles on their work for the Journal. We are planning to get the Journal back on a quarterly publication schedule as soon as possible, and are urging more participation by plant science professionals, as well as lay members.

So it is with some measure of regret, tempered with satisfaction, that I will lay down the president's gavel at our Symposium business meeting on October 17. We have some excellent candidates standing for election to the positions of president, vice president, and secretary, so the Society will continue to grow in size and effectiveness. And I will still be helping out as a member of the state board.

Thanks  
Bill Stringer, President

## Welcome to the South Carolina Native Plant Society

The South Carolina Native Plant Society is a non-profit organization committed to the preservation and protection of native plant communities in South Carolina. We work to make this happen by providing programs and activities designed to:

- educate and inform members and the general public about the importance of native plants
- support efforts by government agencies to protect habitats and endangered species
- encourage the use of native plant materials in public and private landscaping
- promote the commercial availability of native plant materials

Join us in helping more people come to understand and appreciate the vital role native plant species play in the health and sustainability of our natural ecosystems!

## Society Reprints Classic Native Grasses Handbook

We have updated and reprinted the USDA Handbook entitled *100 Native Forage Grasses in 11 Southern States*. For more info and a link to an order form, go to [http://www.scnps.org/news\\_state.html](http://www.scnps.org/news_state.html).

## The Journal of the South Carolina Native Plant Society

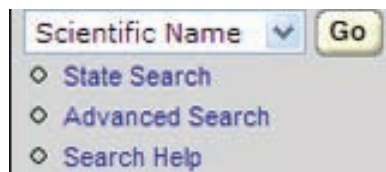
Published quarterly  
**Editor:** Bill Stringer  
**Design Editor:** Charlene Mayfield  
Upstate Chapter - Greenville  
Lowcountry Chapter -  
Charleston  
Midlands Chapter - Columbia  
Piedmont Chapter - Rock Hill  
South Coast Chapter - Beaufort

[www.scnps.org](http://www.scnps.org)

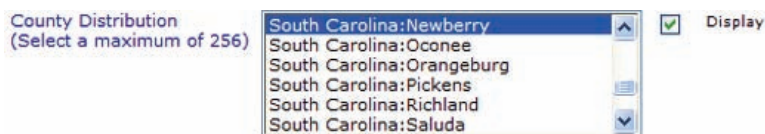
# Do-It-Yourself Plant Lists

Bill Stringer

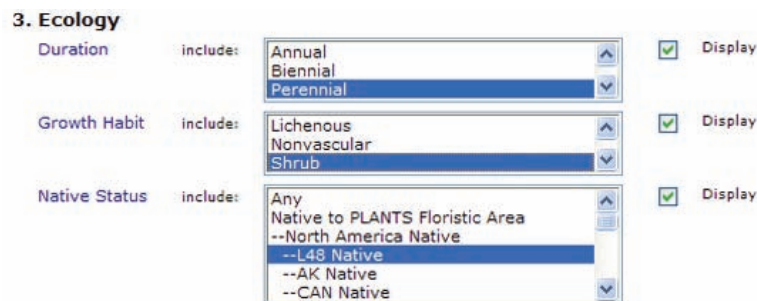
We commonly get requests for plant lists from folks who want to plant natives locally appropriate to their landscape. The best plant lists are those that have been created and reviewed by a group of local experts, but such lists are not always available yet. There is a way that you can create a comprehensive plant list for your state and county, using the search capabilities of the USDA-NRCS Plants Database website. So let's say you want a list of native trees, shrubs, forbs and grasses that occur naturally in Newberry County, SC. Go to the Database website at <http://plants.usda.gov>. Then in the gray column on the left, click on **Advanced search**.



Then, Under 1. Distribution, select your state and county, then check Display



Then, go to 3. Ecology, look under Native status, and click L48 Native (indicates native to lower 48 states).



While you're here, you can specify perennials only in your list by checking the appropriate entry under Duration. You can also specify only shrubs by checking the appropriate entry under Growth Habit. You can also check several categories under each criterion. Check the appropriate Display box to have the duration, growth habit, etc. indicated in your print-out for each species on your list. **If you are unclear as to what the categories mean, click on the blue criterion name for a brief definition of what the criterion pertains to.**

Then go down to the middle of the page or to the bottom and click on the **Display Results** button.

**Display Results**

Display Results runs the entire search, Parts A and B

The website will then output a list of scientific names, each of which is a link to a separate page with a lot more info on that species. You have just created a list of plants in your home county that have the characteristics that you specified. Your list can be copied and pasted into an Excel file. From your list you can access images of the plant, as well as a lot more information, such as endangered status, wetland designation, etc. So if you click on *Schizachyrium scoparium* in your list, you will be taken to a page of images and information on little bluestem, which will include the common name. If you click on Characteristics in the list of links to the right of image, you will get a complete listing of the characteristics of that species from the database. All of a sudden you're an expert!

*Lawns*, from page 1

ers and seedheads produce a “scruffy” look, and it takes regular mowing to remove this scruffy growth. Plant recovery from mowing takes more energy during the reproductive stage, when much more plant material is removed at each mowing. The energy shortage thus created leaves less energy available to grow new leaves and roots. Thus a plant that is mowed frequently will usually have a shorter, less effective root system. The energy shortage also makes the plant more subject to heat and drought stresses, diseases and insect pests.

Mowing reduces the regrowth capacity of a grass plant, and just as importantly reduces the depth and vigor of the root system. So the close, regular mowing of a lawn, while producing the short neat look we treasure in a lawn, is very stressful to the plant. In order to help the plant survive the stress of regular mowing, we have to add large amounts of fertilizer nutrients and water, and we have to protect the plant from diseases and other pests with pesticide applications. So maintaining a dense, green, uniform grass lawn takes a lot of effort and costly inputs. Most of the grasses we use for lawns are **introduced** cool-season and warm-season grasses.

But there is an ecological cost that we don't notice because it doesn't affect the appearance of the lawn. Areas of closely mown introduced grasses offer almost no habitat value to wildlife. Songbirds need insects to feed to their growing nestlings, and

lawns produce very little in the way of insect biomass. When we devote more of our home landscape to manicured lawn, we are disproportionately



*Little bluestem Schizachyrium scoparium.*



*Carpetgrass Axonopus fissifolius.*

reducing the habitat value to wildlife and songbirds. In addition, native species usually require less fertilizer, pesticides and irrigation than similar introduced species. Lawns produce more pesticide residue and nutrient runoff per acre than most agricultural fields. So reducing the proportion of lawn in our landscape, and using **native alternatives** to introduced grasses, will reduce the monetary and ecological costliness of our landscapes.

So, why don't we just replace the introduced grasses in our lawns with native grasses? This would reduce the inputs costs, and increase the habitat value of our lawns, right? The main reason that we don't is that the introduced cool-season **tall fescue, bluegrass and ryegrass**; and the in-

roduced warm-season **bermudagrass, bahiagrass, and St. Augustine**, are much more tolerant than the native grasses of the mowing regimes that result in the treasured manicured lawn look.

So to increase the use of native plants in our lawns, we may have to make some compromises. We may have to mow the lawn a little higher, and less frequently. This means that we may need to change our appearance standards a bit. We may have to accept a taller, less uniform turf, and we may have to be satisfied with a lighter green color in our new natives-based lawn. The look of our natives-based lawn will be less manicured, as we will have to raise the mower up to 3-4 inches, instead of 1-2 inches. We will also be mowing less frequently. The color may be a lighter green to silver-green, and maybe even a red-brown in the winter. With the forbs, we can leave areas un-mowed during their blooming season, and find ourselves with strips of colored flowers (yellows and blues). We can make the lawn even more interesting by planting warm-season and cool-season natives together. These native grasses are compatible with each other, and will give us growth over more of the



*Panicgrass - Dichanthelium commutatum.*

Photos for this story courtesy of Bill Stringer



Grass leafed aster – *Pityopsis graminifolia* .

12 months. We may be able to have a multi-colored lawn if we plant a native mixture. But this will be achieved at a lower use of chemical inputs, water and labor. And we will be rewarded with many more wild-life viewing opportunities, and the knowledge that we are contributing much less polluting runoff into our local water bodies.

There are several native species that are worthy of investigation. These are species that I have observed to persist in mowed highway medians, or that have low-growing to prostrate leaves. Some produce large numbers of new vegetative shoots during much of the growing season. Many are fairly short (up to 18 inches) in the mature growth form.

Other alternatives to sterile, manicured lawns include converting more of the lawn area into native trees and beds of native herbaceous plants and shrubs. These will serve to dramatically increase the habitat value of the landscape to songbirds and other wildlife.

We have long imposed our human-centered aesthetic on our private landscapes. When our ancestors first came to these shores they brought with them their favorite plants from home. Since that time we have developed a burgeoning industry of importing and introducing exotic plants and landscaping concepts. The well-manicured lawn was a major product of this approach to personal landscaping. But this was before research highlighted the unintended consequences of importing

our landscapes. Now that we are becoming painfully aware of the negative impacts of this approach, we need to focus just as intently on going back to the landscaping designs that Mother Nature so effortlessly designs and implements. We need to listen to our Mother!

#### Warm season perennial native grasses:

- Broomsedge bluestem\* – *Andropogon virginicus*
- Splitbeard bluestem – *Andropogon ternarius*
- Little bluestem – *Schizachyrium scoparium*
- Beaked panicum\* – *Panicum anceps*
- Purpletop – *Tridens flavus*
- Carpetgrass – *Axonopus fissifolius*
- Panicgrass\* – *Dichanthelium commutatum*

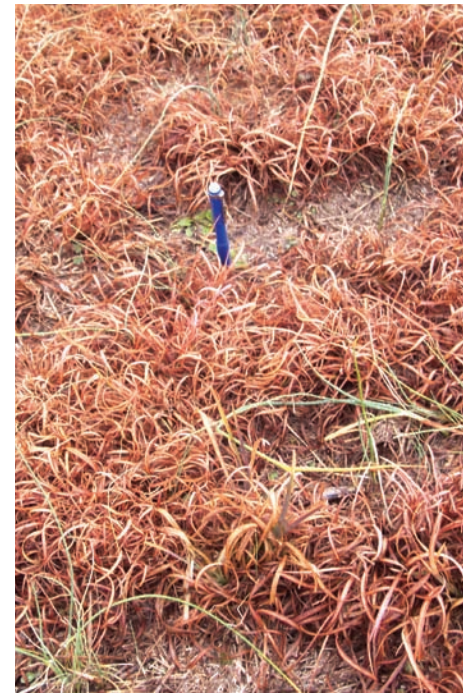
#### Cool-season perennial native grasses

- Silky oatgrass\* – *Danthonia sericea*
- Needlegrass\* (aka speargrass) – *Piptochaetium avenaceum*

#### Perennial forbs with lawn potential

- Grass leafed aster\* – *Pityopsis graminifolia*
- Elephantsfoot\* – *Elephantopus carolinianus*
- Spiked hoarypea\* – *Tephrosia spicata*
- Blue-eyed grass\* – *Sisyrinchium angustifolium*
- Creeping lespedeza\* – *Lespedeza repens*

Seeds of most of the species in the lists above are not available commercially yet. Small amounts of seeds are easily collected by hand locally if you wish to experiment. We commonly collect these seeds and more on SCNPS native seed collection field trips.



Winter color of splitbeard bluestem

#### Definitions

**Cool-season grasses** - grass species that are reproductive in late spring, and make most of their yearly growth during spring, fall and winter - tall fescue, Kentucky bluegrass, bentgrasses.

**Warm-season grasses** - grass species that are reproductive in summer, and make most of their annual growth in late spring, summer, and early fall. - bermudagrasses, zoysia. St. Augustine, bahiagrass.

**Meristem** - a form of tissue, often localized within a plant, that is capable of cell division, thus can produce new cells for continued plant growth.

\*seed supplies need to be developed



Creeping lespedeza - *Lespedeza repens*.

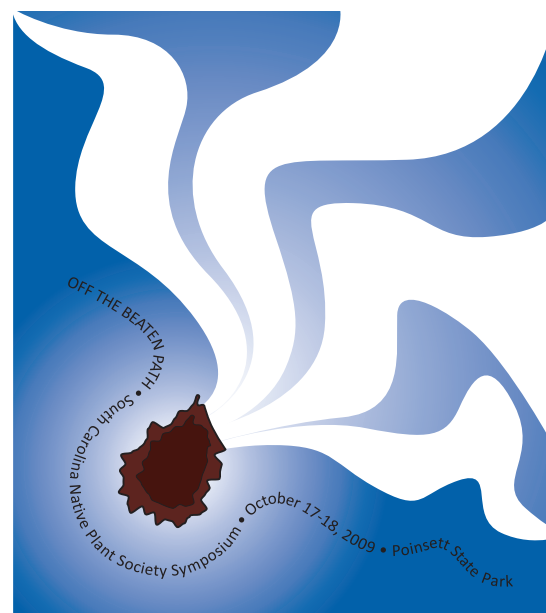
# Off the Beaten Path

## SCNPS 2009 Symposium Agenda at a Glance

Saturday October 17, 2009 All activities will start or be held at the Poinsett State Park mill pond (next to the office) The Poinsett Range field trip will be the only activity not on-site and will require a short car ride.

### Morning:

8:30-1:00	Registration
9:30-10:00	Welcome and logistics
10:00-10:20	<b>Relict Trillium bait experiment at Savannah River Bluffs</b> - Smith/Gordon/Moule
10:20-11:00	<b>Restoration of an Urban Forest - USC Belser Arboretum</b> - Patricia DeCoursey
11:00-12:00	Carolina Seeps Dan Tufford
12:00-1:00	Lunch - box lunches may be <b>pre-ordered with early registration only</b> . Choice of pimento cheese or egg salad sandwich.



### Afternoon:

1:00-5:00	<b>Concurrent workshops and field trips(select one)</b> <ul style="list-style-type: none"><li>•<b>Bog Gardening</b> with Mike Creel. Learn how to plan and prepare a bog garden. Mike will demonstrate preparing a small bog garden.</li><li>•<b>Nature-Scaping Workshop</b> with Jean Woods. Learn about landscaping with native plants and how to manage a compost pile.</li><li>•<b>Poinsett Range Manchester State Forest Walk</b> Terry Madewell will lead a group to a restricted area with Carolina Bays and managed longleaf pine habitat in Manchester State Forest.</li><li>•<b>Seeps /Bottomlands Nature Walk</b> Bert Pittman and Kathy Boyle will lead a group through peat moss seeps along a stream and into a bottomland forest.</li><li>•<b>Coquina Trail Walk</b> Jeff Glitzenstein will lead a group around the millpond up into the sand hills covered with mountain laurel and Spanish moss and then down into wetlands.</li></ul>
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### Evening:

5:00-6:00	Business meeting in meeting room next to park office
6:00-7:00	Dinner Pig Picking at large picnic shelter
7:00-8:00	<b>Spider Lilies</b> Gerald Smith
8:00-8:30	<b>Spider Lily restoration update</b> - Bert Pittman

**Sunday morning:** **All Field trips** begin at 10:00 AM and meet at the field trip site. Wear appropriate shoes, and bring bug spray, water & snacks.

- Congaree National Park Big Tree Walk** - Gordon Murphy
- Sparkleberry Swamp kayak trip** - Jerry Bright. **Bring your own kayak.** Meet at Sparkleberry boat landing.
- USC Arboretum** - Pat DeCoursey. Meet at entrance (Poinsettia & Bloomwood, Columbia)

This year's Symposium is coming to us thanks to the magnificent efforts of the Midlands Chapter. They have put together a very interesting-looking program in a more rustic location than we have met in before. Poinsett State Park is in the Sandhills of Sumter County near Wedgefield.

**Accommodations:** Camping is available at Poinsett State Park. For reservations and information go to <http://www.southcarolinaparks.com/park-finder/state-park/662.aspx>

There are no hotels near the park and we have not designated an official hotel. We suggest that each participant select a hotel close to their Sunday field trip. Nearest hotels are in the Shaw Air Force Base - Sumter area.

**Directions:** Poinsett State Park is located about 30 miles east of Columbia and 20 miles west of Sumter near Wedgefield. Take 378 to SC261 south to Wedgefield. Stay on 261 for 10.2 miles. Turn right onto Poinsett Park Road. Go 1.7 miles and turn left into the park. Follow signs to the Park Office. For more information on the park and maps, go to the link under accommodations.

**Registration:** Register by mail or online. To register by mail, send the completed registration form to Ted Thern with a check payable to SCNPS. To register online and pay by credit card, go to [www.regonline.com/scnps2009](http://www.regonline.com/scnps2009) and follow directions. For more information contact Mary Morrison at [mary-rob1@comporium.net](mailto:mary-rob1@comporium.net) or 803-329-6990.

## Using our SC Native Plant Society list serve facility

**List serve:** An electronic discussion group based on common interests that uses a mailing list to distribute messages to all members' electronic mail boxes.

By facilitating the distribution of information on topics, upcoming events, and concerns of the membership, a list serve can revolutionize the communication among people with a common interest. I am a member of several native plant list serves around the country, and every day I receive information on a variety of native plant issues, controversies and strategies from around the country. It comes in the form of e-mails asking questions and responses to those question by experts and other laypersons. It comes as links to newly released articles dealing with a variety of native and invasive plant issues. I learned several years back about "sudden oak death", a problem that first became apparent on the west coast, but now may be working its way to the east. I recently gained insights from California native plant people on the impacts of the Station wild fire, the kind of information that never makes it into media reports. I have been pointed to innovative approaches to native habitat restoration in various parts of the country, some of which I have shared on our list serve. My feeling is that active participation in a good list serve is a phenomenal way to learn and share.

A key component of the definition above is the term "common interests". We are all complex people and take a variety of positions on a wide array of interests. We all encounter a number of things every day that we find interesting. But, by definition, we all share the one common interest in the use and welfare of native plants and communities. This should define for us the nature of topics that we might share through our list-serve.

By the nature of list serves, the potential for increased traffic in our e-mail in-boxes is high. It can be a positive experience if this traffic relates interesting, useful information on native plant communities. We all need to remember this when we consider posting a message about a political issue or event, or a matter of commercial interest. We have several members who have plant materials for sale, yet they wisely refrain from posting notices to that effect on our list serve.

The major concern from excessive, or "off-topic" postings is that the increased traffic drives members to consider opting out of the list-serve. For every member who opts out we lose an opportunity to communicate interesting information and opportunities to work together more effectively for the sake of our endangered native communities. Also, as a non-profit, we must avoid any appearance of taking a position on a political issue or candidate.

So, as you consider posting a message to the SC Native Plant Society list serve, please remember that you are communicating to a large group of people whose interests come together in the protection and restoration of native plants. Please don't abuse their trust.

Bill Stringer, President

# Seed Production and Transfer: Issues, Guidelines and Possibilities

Jeff Glitzenstein, TJ Savereno, Danny Gustafson and Robin Mackie

When restoring a native plant community, an important and often limiting resource is availability of ecologically appropriate seed (Gustafson, Gibson, & Nickrent 2005; Gustafson, Halfacre, & Anderson 2008). Ecological appropriateness is a function of two factors. First, the **species** to be seeded must occur naturally on similar undisturbed or minimally disturbed sites. That is, the species should be commonly found in the native vegetation typical of sites with similar environmental conditions in the vicinity of the restoration site. Second, within the species, the seed should be **genetically appropriate**. For example, little bluestem (*Schizachyrium scoparium*) seed from a tallgrass prairie in Kansas (KS) would likely be inappropriate for restoration in South Carolina. This is because the environmental conditions shaping the KS ecotypes are considerably different from the environmental conditions found in South Carolina. As a result, the genotype of KS plants is likely to be significantly different from that of SC ecotypes of little bluestem. The question of how far it is appropriate to transfer seed is referred to in the seed literature as **seed transfer, seed source, or seed provenance** issues. One objective of this article is to articulate the position of SC Native Plant Society on the issue of native plant seed sources.

Those of us with opinions about seed transfer tend to fall into three camps. On **one extreme are the purists** who argue that seed should be obtained from donor sites located at most a few miles from the restoration area. The advantage of this position is that one is almost certain to obtain appropriate genotypes. The disadvantage is that appropriate seed is very unlikely to be commercially available. The restoration worker

must be willing to locate a suitable donor site, manage it for seed production, and then collect and clean seed. This is assuming that a suitable donor site exists, access can be obtained, and removal of seed from the donor site will not have negative effects on its population and community dynamics.

On the **other extreme are those willing to move seeds within a species geographic range, but across ecologically meaningful boundaries**. For these individuals, any US seed source might be good enough for a SC project site. The advantage of this approach is that one is likely to find commercially available seed, at least for the more commonly used species. The **disadvantage** is that the resulting plants might not be adapted to the site, or, if they are, there may be unknown and potentially dangerous genetic or ecological consequences (Gustafson, Gibson, Nickrent 2001; 2005). One very practical problem is that the reproductive biology may not be appropriate to the site. Examples include time of flowering (often controlled by daylength), as well as germination cues such as length of the cold period required for germination (AKA cold stratification). A plant established outside its ecological region might bloom too early or too late, or seeds

might germinate in the field before temperatures are safe for seedlings. These problems may lead to eventual population failures even if initial establishment is successful.

We should point out that, from the plant materials viewpoint, ecologically meaningful boundaries may be local and **edaphic** (see example in Figure 1) as well as eco-regional (larger scale). For example, Kindell et al. (1996) reported different performance of **reciprocal transplants**



Figure 1. Significant edaphic (soils) differences on a local scale. Map from USDA-NRCS Web Soil Survey.

<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>



of wiregrass between dry sandhill and wet savanna habitats from the same locality. These differences are also apparent in **common garden** nursery situations (Steve Gilley, FL Dept. of Forestry Andrews Nursery, personal communication). On the other hand, wiregrass seed obtained from mesic flatwoods vs. xeric sandhills sites performed similarly in restoration situations (Kalmbacher et al. 2004). This illustrates the need for continuing research to determine what is meaningful in a restoration context. Until that research is completed our position needs to be conservative, i.e. choosing the most local seed from the most similar site.

The **final group of seed transfer advocates is moderates** who are willing to move seeds moderate distances, but within defined **ecologically meaningful boundaries**. This approach, which we will term the **eco-region approach**, is advocated, for example, by USDA Forest Service National Seed Laboratory (Karfalt and Shaw, draft ms) and by America's Longleaf Initiative, a working group dedicated to restoration of longleaf pine habitats. This position is also consistent with US Forest Service's Native Plant Policy for the Southern Region, which encourages the use of native plant materials collected within the same ecological section as the project area. This was also the core concept of the pioneering joint SC Native Plant Society/ US Forest Service native seed collection program.

What do eco-regions look like? One example is taken from Peet's (2006) analysis of ground-layer vegetation within the range of longleaf pine. This analysis resulted in six coarse-scale eco-regions: (1) Atlantic Coastal Plain, (2) Fall-Line Sandhills, (3) Southern Coastal Plain, (4) Eastern Gulf Coastal Plain, (5) Western Gulf Coastal Plain, and (6) Piedmont and Montane Uplands (see Figure 2). These regions are based on roughly homogenous vegetation and environmental characteristics. Plants growing within each eco-region presumably have experienced similar

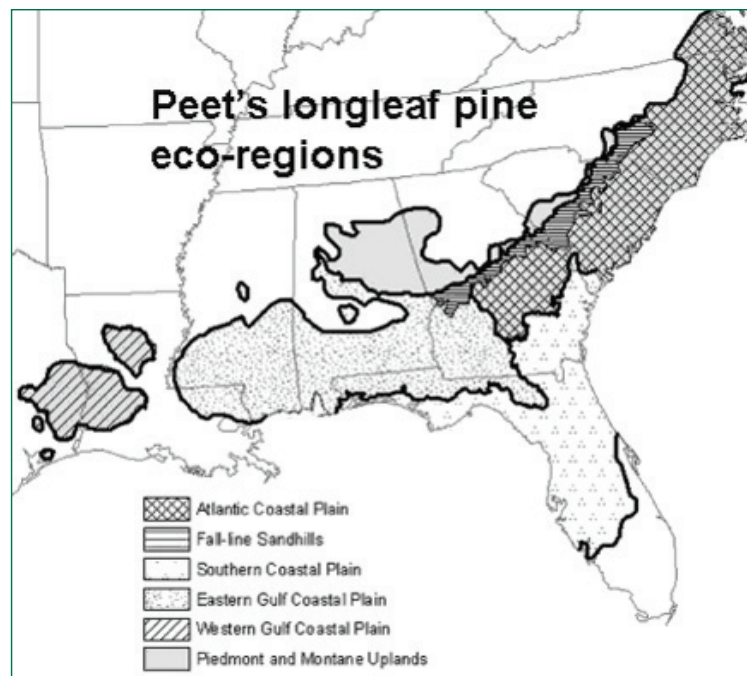


Figure 2. Peet's eco-regions map for longleaf pine restoration

environments and biota and might be expected to behave similarly in restorations.

Peet's eco-regions are roughly consistent with EPA's Level 3 Eco-regions of the Continental United States (see excerpt in Figure 3, or at [http://www.epa.gov/wed/pages/ecoregions/level\\_iii.htm](http://www.epa.gov/wed/pages/ecoregions/level_iii.htm)). This map indicates five level 3 eco-regions within SC. Listed in order of distance from the coast these include Middle Atlantic Coastal Plain, Southern Coastal Plains, (together the

outer coastal plain), Southeastern Plains (inner coastal plain and sandhills), Piedmont, and Blue Ridge, with the last occupying only a narrow zone in the far west of the state.

Similar in approach is the classification of ecological units of the Eastern United States developed by the USDA-FS in participation with partners in 1995. Within South Carolina for instance, four Ecological Sections have been mapped (Blue Ridge Mountains, Southern Appalachian Piedmont, Coastal Plain Middle Section, and Atlantic Coastal Flatwoods Section (Keys et al., 1995).

**One goal of this article is to state clearly the SC-NPS position on seed transfer. This position is the consensus of the authors, as ratified by the SCNPS board.**

1. Restoration and re-vegetation projects should strive whenever possible to use the closest available seed source. Ideally this would be a donor site with matching habitat located in close proximity to the restoration site.
2. If this first option is not feasible, purchased seed should be from within the appropriate eco-region or ecological section. For longleaf pine areas we prefer the Peet regions, for piedmont and mountains the EPA classification or the USDA FS ecological sections can be used.

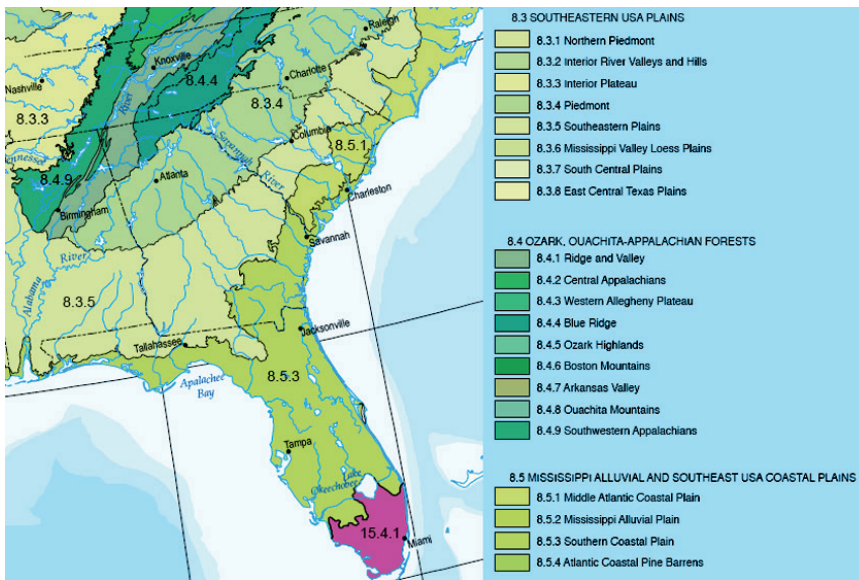


Figure 3. Excerpt from EPA Level 3 Ecoregions of the Continental United States

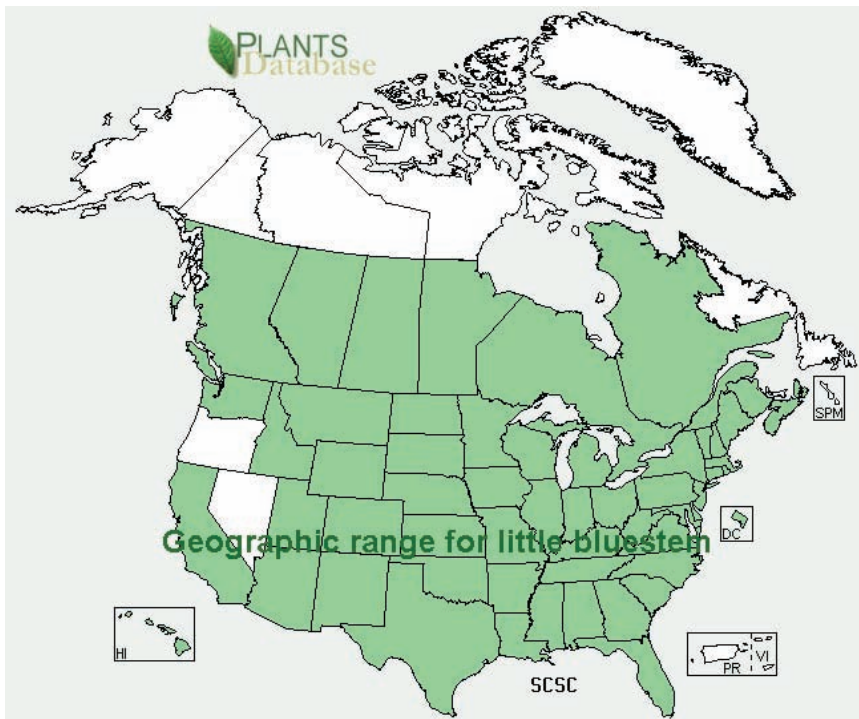


Figure 4. The geographic range of little bluestem (*Schizachyrium scoparium*). From USDA-NRCS Plants Database website (<http://plants.usda.gov/>)

3. Seed should be moved from outside eco-regions **only** in cases of extreme necessity, e.g. providing critical habitat for some rare or threatened species. Typical re-vegetation or habitat restoration projects do not fit this criterion.
4. **Under no circumstances** should seed be used in a project if the source of the seed is unclear. Docu-

mentation of seed origin will help to avoid introduction of potentially inappropriate ecotypes. In addition, this information may be invaluable for future researchers seeking to understand effects of seed source on population performance and restoration success (Gustafson, Gibson, and Nickrent 2005).

Seed transfer has recently become an important topic, mainly due to a number of government-sponsored programs that are making funds available to landowners for habitat and restoration activities. These include USFWS Partners for Fish and Wildlife and USDA Farm Bill Programs (Conservation Reserve Program, Wildlife Habitat Incentives Program, Environmental Quality Incentives Program, etc.), among others. The criteria for at least some of these programs have, in our opinion, tended to put the cart before the horse, mandating the use of native seed, especially warm-season grasses, without clearly defining native or appropriately restricting seed source. This has led, at least in some cases, to haphazard seed transfer with little appreciation for ecological or genetic consequences. Tragically, in some cases perfectly suitable existing habitat has been destroyed in order to site-prepare and plant **genetically inappropriate** commercial seed.

The authors recognize a practical issue with using only eco-regional seed, in that for most species such seed is not presently available. However there are numerous on-going efforts, including by some of us, to rectify that limitation. We will discuss those efforts further in the next issue of

the SCNPS Journal. We can say, however, that development of an ecologically/genetically responsible seed industry appears likely to have ramifications for local economies as well as for the environment. Purchasing local produce can benefit local farmers, limit global resource consumption and help to reduce climate change. In the same way, purchasing locally produced and ecologically appropriate seed can benefit local growers and at the same time safeguard our natural habitats.

So, the next time you need to purchase native seeds for landscaping, wildlife planting or restoration, remember to check the seed origin and buy local-origin seeds if at all possible. Thanks.

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### Definitions added by Editor

**Genetically appropriate seed** - Seed of a species that are similar enough genetically to plants of that species on a restoration site that **they will respond similarly**, and there will be no risk of **introduction of distinctly different genotypes** into the local population.

**Edaphic** - Pertaining to the soil in its ecological relationships; Factors pertaining to, or influenced by, soil conditions.

**Species geographic range** - The portion of a region (country, continent, etc.) in which a species can be found. See figure 4.

**Ecologically meaningful boundary** - A boundary between areas with sufficiently different edaphic, and/or climatic characteristics that individuals of a species from the different areas may respond differently when grown together.

**Reciprocal transplanting** - transplanting individuals from two (or more) areas together in both of their areas of origin, ie, little bluestem from Kansas and South Carolina planted together at sites in both states.

**Common garden**- Individuals of a species from several regions planted together at a common location.

# Warm season native grasses in bloom

The warm season native grasses are coming into peak bloom in early October, and are a sight to be appreciated. The colorful flower heads, often borne atop colorful stems, form an attractive canopy over roadsides and old fields. Here are a few species for your viewing pleasure.



*Little bluestem*



*Splitbeard bluestem*



*Pink Muhlygrass*



*Slender indiangrass*



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