The Trillium

newsletter of
the **Piedmont Chapter** of the
North American Rock Garden Society

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A great time to begin experimenting **with . . .**

New Grasses for the Landscape

by Pat McNeal

The popularity of ornamental grasses has reached the point where it is now quite common to see their application in most types of landscaping. That popularity and the diverse types of growing conditions across the country means that there is a need to introduce a larger variety of grass species to meet these different needs. As this interest in landscape grasses grows, attention will also focus on grass-like plants and grass allies. Let's look at some of the basics of grasses first.

There are two broad categories of grasses based on their growth habit—sod forming and clump forming. Sod forming includes the turf species and others that spread to form a sod that can be one or many individual plants. Clumping species do just

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With Darrell Probst . . .

Trekking for Southeast Native Trilliums

by Tony Avent

Mission: The purpose of our trip was to observe trilliums and other plants in the wild, and where possible, make selections for unusual characteristics for propagation and potential introduction. Our timing was a bit early for peak trillium season, but other commitments dictated this time frame for this visit.

Monday 3/23/98. We departed early Monday morning to the western part of North Carolina via I-40 and then turned south on Interstate 85. Just outside of Lexington N.C. for a stretch break, we stopped beside the road for a brief walk. Imagine my surprise when after walking down the bank, through a patch of brambles along the roadside, we encountered a giant patch of *Trillium cuneatum*. The

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Our February Meeting of the Piedmont Chapter of the North American Rock Garden Society

Saturday, February 20, 1999
10:00 a.m., Totten Center
North Carolina Botanical Garden, Chapel Hill
Pat McNeal
Manchaca, Texas
"Garden-Worthy Texas Native Plants for North Carolina Gardens"

Last names "I" through "Q" bring "goodies."

Our January Meeting of the Piedmont Chapter of the North American Rock Garden Society

Saturday, January 16, 1999
10:00 a.m., Totten Center
North Carolina Botanical Garden, Chapel Hill
Tony Avent
Raleigh, N.C.
"Wild and Wonderful--A Teaser of New and Wonderful Perennials for Your Garden"

Last names "A" through "H" bring "goodies."

area was a very moist forested lowland, where the plants grew in loosely deposited sand.

Despite spending quite a bit of time in the woods as a kid, I had seen only a very few patches of trilliums. The wonderfully mottled foliage came in a variety of patterns. We were also excited to find a small patch of *Alopectrum hymale* (puttyroot orchid), which is not recorded from here in Davidson County.

Departing our roadside treasure trove, we headed to Lexington N.C. to visit the garden of Frank and Laura Lu Bell (both lawyers in Lexington). Frank was one of the participants of our 1996 China expedition. Frank and Laura Lu's garden was a virtual treasure trove of wonderful specimens laid out in a wonderful design; more people should make this pilgrimage.

After a lunch of famous Lexington-style barbecue, we headed out. From Lexington, we headed south on US #8, stopping often along the way to find the woods quite bare. Finally one of our stops revealed a marvelous mountain that was being turned into a housing community near High Rock (Davidson County). The scenery was incredible as were the mountainous lots. There was not much undergrowth, except for the mountain streams, which were adorned with some incredible blue flowered *Hepatica americana*, *Iris cristata*, and some nice light pink wood anemone (*Anemonella thalictroides*).

From here, we headed further south, where we stopped at an overpass that was literally smothered in large mountain laurel growing on a steep bank. A quick look around found the area to be covered with some fabulous leaf forms of *Asarum minor* or possibly *Asarum heterophyllum*.

Our day ended near Kings Mountain, N.C., as we recorded our finds for the day.

Tuesday 3/24/98. Today took us into the South Carolina mountains about 40 miles south of Asheville, N.C. (Spartanburg County, S.C.). We had made a wrong turn; only after turning around did we spot our first trilliums of the day. Along Hwy 176, we spotted a spectacular large patch growing on the north and east slope of a moist woodland area, beside a ramshackled country nightclub. After burning a role of film, we quickly headed further to the west in hopes of finding more species.

Stopping for gas outside Pickens (Pickens County, S.C., at 537' elevation), I called my friend Bill Head who had offered to show us around. In the meantime, we ventured off into the woods to find a giant patch of *Trillium discolor* scattered along the roadside for miles. *T. discolor* is mottled like *T. cuneatum*, but with yellow flowers that were not yet open.

Further into the woods on the moist hillsides, we found an all-green trillium that turned out to be the spectacular red-flowered species, *T. vaseyi*. It was only a few minutes before we were joined by Bill, who found us deep in the forests as if with a sixth sense. He took us up a hill that had been recently logged, but was still filled with some of the most spectacular *Asarum heterophyllum* plants that I had ever seen. The leaves were from 4 to 6 inches across with giant white and red-patterned flowers.

Across the top of the hill and down into the next valley brought an interesting surprise: native *Yucca filamentosa*, the largest ones that I had ever seen. These woodland clumps were easily 4 to 5 feet across. Folks are never going to believe that trilliums and yuccas grow side by side in the S.C. woodlands. The ground was covered with *Mitchella repens* (partridgeberry) in a particularly large-fruited form.

Wandering further down the road, we were greeted with giant patches of galax, including a particularly nice ruffled leaf clone, of which we were able to obtain a sample. Further down the road, we walked under the underpass and along the river to a sheer cliff that was dripping with water. All along the cliff above us were mountain laurels and giant drifts of *Adiantum pedatum* (northern maidenhair fern) and more *Hepatica americana* in flower. Just a bit further along the road was a bank filled with our native *Pachysandra procumbens*–great to finally see this plant in the wild. Along the driveway across the road was a small patch (and our first sighting) of the native *Iris verna*.

Bill then led us further up the road into Oconee county to Oconee Falls Park, where we saw the largest patch of *Trillium cuneatum* that you could imagine. Without trying to sound too much like a fisherman, there were easily several million plants including a large number of the yellow flowered variant of *T. cuneatum*. Walking for nearly one hour, the entire ground was carpeted on both sides of the path with *T. cuneatum* and *Podophyllum peltatum* (May apple). As we approached the magnificent waterfall, the banks were literally smothered with *Hepatica acutiloba*, *Asarum heterophylla*, and *Trillium vaseyi* (just emerging). We could have easily spent several days just wandering around with cameras in

hand looking at nature's riches.

We left just as dark was approaching, and followed Bill to a secret site where we saw our first *Shortia galacifolia* (Oconee Bells) in full flower growing alongside a river underneath the mountain laurels–a perfect end to a wonderful day.

After a nice evening meal in the metropolis of Seneca, we hunted for the closest vacant hotel, arriving in Clemson, S.C., for the evening.

Wednesday 3/25/98 After a quick morning hike around the Chau Ram State Park in S.C. (nice waterfall and swaying bridge), we crossed over the Savannah River into Georgia. As we entered Georgia, the entire banks were covered in an unusually long leaf form of *Carex plantaginea*–very different from that we grow in N.C. Again, *Hepatica acutiloba* was everywhere on the moist bank. This was also our first sighting of what we think was *Trillium catesbaei* or possibly *T. rugelii* that was just emerging on the bank. On the lower areas, and the opposite slope were again thousands of *Trillium cuneatum*, including several patches of solid silver leaf forms.

Most of the stops that day were relatively uninteresting until we reached a logged hillside near Pleasant Hill (Gilmer County, Georgia). What we spotted from the road turned out to be the most exciting find of the day. The hillside was filled with *Trillium decumbens*. This short species has dark green borders and heavily silver patterned leaves. We found this growing alongside *T. cuneatum* and what appeared to be an intermediate hybrid. This will await further study. It was sad that there was not time for a complete rescue, as this dry hillside–now sunny–will probably not be home to the these trilliums much longer.

As the day wound down, we found ourselves climbing some of our highest points yet (Murray County, Ga). We know this not only from the sick feeling in our stomachs, but from the unique odor of burning brakes as we headed downward.

Feeling nervous about our brakes, we took advantage of several of the pull-offs on our way down the mountain. At one of the pull-offs, we found some of the largest *Trillium cuneatum* that we had yet seen, including some with wonderfully ruffled leaves. Darrell was so excited that his camera managed to escape during one of those many stops, so if any of you folks reading this find a camera along highway 52/2, let me know. Actually, one of the stops in search of his camera turned up a nice patch of *Trillium catesbaei* [now *T. catesbyi*] growing in a mountain waterfall, amid thousands of *Sanguinaria canadensis* (bloodroot) in full flower.

We stopped for the evening in the town of La Fayette (Walker Co., Ga.). There was only one hotel left in the town, as the other one had been burned to the ground. The clerk filled us in on the rumor that this fellow from "up North" had borrowed money from organized crime for the hotel, but had not paid them back, so someone came to town and burned his newly renovated hotel for payback. Who says small town life is dull?

Thursday 3/26/98 We headed out of town early to the west, but we didn't get far. Just a few miles out of town (in Walker Co., Ga.), we began spotting trilliums . . . not just a few trilliums, but miles and miles of them. We saw along the roadside solid masses of *Trillium cuneatum*, *T. decumbens*, and a thick groundcover s *Erythronium umbillicatum* (trout lilies). Popping up through the trout lilies were marvelous clumps of *Dentaria laciniata* (toothwort) and *Podophyllum peltatum* (May apple). As the lowlands began to rise upwards into small hills, the bank was thick with *Hepatica americana* and *Phlox divaricata*. It wouldn't have been hard to spend the entire day in this horticultural paradise.

As we approached the Tennessee border on our way to Ruby Falls, we made a few roadside stops. Alongside a mountainside housing development, we found our first and only clumps of *Asarum shuttleworthii* and *Dodecatheon media*.

The mountains around Ruby Falls (Whitfield Co, Ga. on the Ga./Tenn. line) were stunning. The hills alongside the highway were filled with trillium, mostly *T. cuneatum*. As we approached the falls, however, we noticed another species of mottled trillium that was in flower much earlier than the nearby *T. cuneatum*. Matching the flower and using a trillium key, we concluded that this was the coastal species *T. maculatum*. Although we are far from being taxonomists, this is the only possible identification for this plant that certainly needs further study, being far outside its documented range.

Even more exciting that the trilliums was a threadlike toothwort (*Dentaria multifida*). I think this plant has superb potential as a spring woodland candidate. We continued looking around the Chattanooga area in hopes of finding the native *Trillium lancifolium*. Despite spending hours

wandering through bogs of privet and smilax, and ruining several sets of clothes, no luck, so off we went to Atlanta for the evening.

Arriving into Atlanta in late afternoon, our first stop was the magnificent garden of Ozzie and Jitsko Johnson. An extraordinary plant collector, Ozzie was another member of our 1996 China expedition. We were joined by Ron Dettermann of the Atlanta Botanical Garden and his wife Sue for an evening of plant chat.

Friday 3/27/98. Today was spent in Atlanta visiting gardeners. First, we ventured to the Decatur garden of plantsman Don Jacobs, where we spent most of the morning talking plants and viewing Don's array of treasures. Don has just authored one of two recent books on the genus trillium.

That afternoon, we were off to the garden of hosta guru George Schmid, who toured us around his small but spectacular garden as we watched the hostas begin to emerge. With a bit of light left, we headed north of town to visit Henning Von Schmulling of the Chatahoochee Nature Center. This private garden and education center is a real gem, filled with many native treasures.

Saturday 3/28/98. This was our day to spend some time at the great Atlanta Botanical Garden before my 2:00 pm lecture. Although I had visited the gardens many times, this was Darrell's first visit, and as always there is never enough time to see everything. I was very pleased to see the rapid development of the new woodland garden.

Immediately after my lecture, we again donned our woodland attire and headed back to Chatanooga (Whitfield County, Ga.), determined to find the *Trillium lancifolium*. This time, with night rapidly approaching, we were finally able to find these narrow leaf clump forming trilliums, growing in a bog among the healthiest patches of poison ivy that you have ever seen. The floor of the bog was also covered with a nice pink form of *Claytonia virginica* (first breath of spring) and *Arisaema triphyllum* (Jack-in-the-pulpit). The most interesting plant here was what appeared to be a giant amaryllis growing in the bog. The large clumps consisted of amaryllis-like foliage, large bulbs, and old bloom stalks (late March). I was able to obtain a couple of these strange bulbs, and can't wait to see some flowers.

With only a few minutes of light left, we dashed back down Interstate 75 in a futile attempt to find the only colony of *Trillium pusillum* var. *georgianum*. This dwarf Georgia native is known from only one swampy site along this north-south corridor. Unfortunately, none of our flashlight stops were productive, so we returned to Atlanta for the evening.

Sunday 3/29/98 Departing back to Raleigh, we were able to make a few short stops. We took some detours around the Strom Thurmond Dam, where we found a good bit of *Trilliums catesbaei* [=*T. catesbyi*] along with some wonderfully patterned *Oxalis violacea* (an overlooked garden plant).

Finally in a sandy moist woodland north of Augusta, we discovered a small bit of the Coastal Plain form of *Trillium maculatum*. The mottled foliage is topped by narrow purple petals on this spectacular tall growing species.

Our next stop was near a rest area on the interstate, where we stopped for a map. On a whim, we dashed out into the woods to find the aesculus filled woods brimming with *Trillium maculatum*, along with the very rare *Trillium reliquum* (another mottled foliage species). One moist slope was filled with some giant leaf *Zephranthes atamascoa* and *Asarum arifolium*, both in full flower.

From here, the final stop of the day was above Aiken, S.C.., where we discovered a recently logged lowland area that was literally filled with thousands of *Trillium maculatum* , which were already flagging from the sun and the now-baking soil. What a shame that these plants could not be rescued to a new home.

Anyway, time to return home to an expanding spring garden with plenty of pictures and memories . . . and especially a new appreciation for trilliums. We are currently working with two labs that are producing trilliums from tissue culture on an experimental basis. This will still be a slow process, but there is light at the end of the tunnel. We hope in the near future to be able to offer selections of trillium clones in commercial quantity; so stay tuned.

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New Grasses con'd from Page 1

that: each individual grows in a discrete clump. And there are the "in betweeners." One common southern weed, Johnson grass, will grow in large clumps but given the right soil conditions its rhizomes will grow many feet away from the clump, just like a sod-forming grass. The other broad category has to do with the season the grass actively grows. Thus we have warm season growers and cool season growers. Obviously the cool season grasses like the Bluegrasses (*Poa*), ryegrass (*Lolium)*, wintergrass (*Stipa*), Bromegrass (*Bromus*), fescue (*Festuca*) and wild-rye (*Elymus*) are more common in the colder regions of the country so much so those in the south may know only a few species from these genera. The warm season grasses are genera like Gramas (*Bouteloua*), bluestems (*Andropogon, Schizachyrium, Bothrichloa*), mountain Grasses (*Pennisetum*), maidengrass (*Miscanthus*), muhlys (*Muhlenbergia*), Bermuda grass (Cynodon), lovegrass (*Eragrostis*), panic grass (*Panicum*) and dropseed (*Sporobolus*). Warm season grasses predominate in the landscape and in the nursery trade.

The general distribution of grasses across the country favors the open habitats that receive 10 to 45 inches of rainfall. These areas have the greatest diversity of species. Although there are exceptions, in general the largest number of grass species are in the Midwest, West and Southwest. There are upwards of 1400 species of grasses in the United States with Texas having the largest number at over 600 species. If only 10% of those species are garden worthy, that means there are maybe 140 species worth cultivating. And there are other uses such as urban stream bank stabilization, wetland restoration, prairie restoration, and erosion control.

The fact that there are so few shade-tolerant grass species has created problems in the past trying to use a grass-like texture in the shade; now we are looking at a closely related family of grass-like plants, the Cyperacae. Poacae is the grass family and the next higher family in terms of evolution is the Cyperus family. Unlike the grasses, some of the species in this family, while resembling grasses superficially, are different. Examples are the genus Carex or sedges which are almost evergreen and grow well in the shade. Most of the sedges prefer moist-to-downright swampy conditions, but the search has been for drought tolerant species that look good in the garden. There are now a couple of dozen proven species and many more to experiment with. And, of course, you have a large number of species in this family that have utilitarian uses such as for erosion control, stream bank stabilization, and habitat restoration.

One particular characteristic of grasses and the grass-like plants is their type of root system. Woody plants have a permanent long-lived woody root system whereas grasses lack a woody root system; instead they have a fibrous root system with many smaller, finer roots that tend to hold the soil around them. This is the reason grasses perform so well in erosion-control applications. Another benefit is that grass root systems are short lived, which means that as old roots die off they leave channels of decaying organic matter deep into the soil. These channels open up the soil for the exchange of gases essential for good plant health and are an entry point for beneficial organisms as well as moisture. Grass-covered areas allow more moisture to enter the soil and to percolate into the lower profiles of the soils. Thus, the root systems can change the physical and chemical properties of the soil through the addition of more organic matter. In fact, the right choices of grasses can improve your soil. You can improve drainage and break up clay soils, and the suitable grasses can increase moisture retention in sandy soils. Some species can even remove salt and other contaminants.

Learning to identify the numerous different grass species can be difficult, but I think it is worth the effort. The following are some of the grasses to try in our landscapes.

Muhlenbergia

Of all the genera, the muhlenbergias are my favorite. They are generally called muhlys, and you can find them all across the country. All are warm-season grasses, and the most ornamental are clumping types. One of the most attractive and the most common in nursery production is *Muhlenbergia capilaris*, the Gulf Coast muhly. This grass is a medium-size, warm season clumping grass with narrow wire-thin leaves. It prefers full sun, does well in a range of soils, and tolerates heavy, wet soils. It is 36" tall and about the same width, which makes it globe shaped. This species has a near relative, *Muhlenbergia filipes*, which goes by the same common name, but it is only two-thirds the size. Both species take the southern heat and are hardy to

roughly USDA zone 6; they grow best with about 30-40 inches of water a year. Both these species have nice regular shapes but the real reason to plant them is their fall display. They bloom in the fall, and the flower panicles turn pink making the plant appear shrouded in hazy-pink smoke. In a mass planting, the muhlenbergia is as showy as any other blooming plant.

Another great muhly is *Muhlenbergia lindheimeri*, Lindheimer's muhly or big muhly. This is a large, warm-season clumping grass that grows to almost 5 feet tall. The foliage is a nice gray green, and the shape is nearly globular, just a little taller than it is wide. In the fall it has large plume-like flower spikes that may have a pinkish tone; most spikes are straw -colored that last throughout the winter. This grass prefers full sun to part shade, 25-30 inches of water year, and is tolerant of a wide range of soils. It can tolerate heat and is cold hardy to zone 6. This is a good species to use as a large specimen or in a large mass. Since these muhlys grow so large, they work well as a large area ground cover.

Another species comparable to big muhly is *Muhlenbergia rigens* or deer muhly. It also is a large warm-season clumping grass that is green, lush, and semi-pendent, unlike the upright and gray big muhly. For drier and rocky sites there is *Muhlenbergia dubia*, pine muhly; *Muhlenbergia emersleyi*, bull muhly; and *Muhlenbergia reverchonii*, the seep muhly. All three are about the same size at 18 to 30 inches tall and width. Pine muhly and bull muhly require well-drained, dry soil throughout the season, whereas seep muhly can stand less well-drained sites. These three require sun. The pine and bull muhly can accept only 15 to 20 inches of water a season. The seep muhly requires about 5 more inches of rain. Pine and seep muhlys have narrow leaves similar to the Gulf Coast muhly: like thin wire which is from the leaves being inrolled to retain moisture. Both are globe shaped with pine muhly having very straight leaves that project outwardly and evenly from the center of the plant. In the seep muhly the older leaves curl inwardly forming a globe of fine texture, which resembling steel wool. Bull muhly has much wider leaves, 1/4-inch and gray-green that tend to arch outward and then downward. Pine muhly flowers resemble the leaves and reinforce the nice regular shape of the plant as a whole. Seep muhly has fine textured, open panicles of diffuse spikes that (like Gulf Coast muhly) give it a gauzy smoke-like quality surrounding the plant without the pink color. Bull muhly has the biggest plumes in relation to the size of the plant. The flower spikes may reach 4 feet tall and stand 2 feet above the foliage in a nice open plume throughout the winter. Bull muhly is the hardiest of these three. It comes from the mountains of the Southwest U.S. and northern Mexico and should be cold hardy to USDA zone 5. Pine and seep muhlys are hardy to zone 6, and like most southwestern plant do best in the cold if kept on the dry side. With proper drainage, they should grow in the humid American Southeast.

Bamboo muhly (*Muhlenbergia dumosa*) is very different from the other muhlys. It is a warm season clump grass and is four to five times as tall as it is wide; it resembles a very fine textured bamboo. Alone or massed together, it is a truly striking grass with only one draw back: it has less tolerance for cold than the other species. During a wet, cold period you could lose them at around 20 degrees F. But the plant has such a wonderful texture that it is worth finding a protected place for it.

Another spectacular fall bloomer is purple plains lovegrass, *Eragrostis spectablis*. It is a warm season clump grass that has wider leaves than Gulf Coast muhly and because of that looks a lighter and more pronounced shade of green. When it blooms in the fall, it resembles Gulf Coast muhly with the same airy, pink, smoke-like inflorescences that make both grasses spectacular. This love grass is found on the Gulf Coastal plain and is tolerant of wet clayey soils. Its size is 30 inches by 30 inches in a loose semi-globe shape, but the real exceptional quality is, of course, the blooming in the fall. What makes it special is that it blooms three to four weeks later than Gulf Coast muhly. Just as the blooms on the Muhly are fading to the winter straw color, the love grass kicks in and blooms for three to four weeks. If you plant them together you can have that great fall color for up to seven weeks.

Bluestems

A large group of grasses which are commonly called "bluestems" are species of *Bothrichloa*, *Andropogon*, and *Shizachryium*. At one time, all the grasses listed below used to be andropogons, but diligent botanists have segregated them in the past 25 years. This might be a problem if you use an older grass manual such as *Manual of the Grasses of the United States* by A.S. Hitchcock. In this group are some of the most common warm-season clump

grasses that used to dominate the prairies of North America.

Cane bluestem, *Bothrichloa barbinoides*, is a mid-size grass about three-to-four feet tall and two-feet across that tends to fall over if given too much water and feeding. In the fall it had small feathery flowers that are quietly attractive. Silver bluestem, *Bothrichloa saccharoides*, is similar in many ways to cane bluestem but is not as attractive; it is a better restoration grass because it spreads from seeds quickly after being established. In size, shape, and culture, the two bothrichloas are the same—the only difference would be the use. Both grow best in full sun, any soil, and are cold hardy to USDA zone 5.

Another grass species that used to be common across the Great Plains and the eastern U.S. is big bluestem, *Andropogon gerardii*. Across its range it differs greatly in its growth habit. At high elevations in the Rockies it grows in distinct clumps, but in the southern edge of its range it is a complete sod-forming grass. This grass is highly nutritious and is a preferred food of cattle. They will graze it to the ground before they touch any other grass. It also varies in height across its range. Here at the southern edge in central Texas the foliage is no taller than 18 inches though the flower spikes grow to be 4 to 5 feet tall. Big bluestem has a distinct inflorescence that looks like a turkey foot and is attractive in the late summer when it blooms. Big bluestem is best used in large open areas because it tends to spread by seed and rhizomes and is excellent for wildlife habitat and restoration work.

A good species that withstands both inundation and drought is bushy bluestem, *Andropogon glomeratus*. This warm season clump grass makes a discrete clump up to 18 inches around and tall, and when it blooms it send up a very tight column of flower spikes to about 3 feet in the fall. This attractive attribute is enhanced by that fact that it also turns a warm orange-to-brick-red color in the fall. The flowers are in spikes and when mature are topped with silky cotton tops that adds to their beauty. Both andropogons are not particular about soil and need at least 25 inches of rain a year to grow vigorous and stay robust. Grow both in full sun for they do not tolerate much shade. They are not particular as to soil. *A. gerardii* is cold tolerant to Zone 3 while *A. glomeratus* can take zone 5.

The third genus of this group is schizachyrium. The most common species grown is little bluestem, *Schizachyrium scoparium*. It is another common prairie grass of North America. It is a nice medium-sized, warm season clumper that grows about 2 feet tall and up to 3 feet wide in good conditions. When it blooms in the fall the flower, its spikes can get up to 4 feet tall; like bushy bluestem it turns a warm orange-brown hue that is very striking; it holds its color through the winter. Little bluestem does best in full sun, doesn't make a fuss about soil, and is cold tolerant to the Great Lakes region. This genus (like the other two genera) do better without supplemental feeding or souped-up soil—all that is required is just a little organic matter if the soil is lacking. These three genera are perfect for use in large applications where soil preparation is cost prohibitive. To be sure of cold hardiness and soil adaptiveness, it is best to use clones reproduced from a local population. For optimum site adaptivness make sure the clones are from within 150 miles north or south and 200 miles east or west of your site.

Lyme Grass

Across the country there are up to 30 species of elymus or lyme grass and some species have been put into cultivation. On the West Coast, *Elymus condensatus*, *Elymus glaucus*, and *Elymus tritichoides* are attractive native grasses for that summer dry climate. All three are large coarse grasses like most lyme grasses, up to four feet tall; in some cases *E. condensatus* (or giant wild rye) can get up to six feet across. *E. tritichoides* is a sod-forming grass growing in large colonies; the others, *E. condensatus* and *E. glaucus* are clump forming. Two more traditional landscape species are *Elymus arenarius*, blue lyme grass, and *Elymus racemosus*, Siberian rye grass. The latter is an extra large species, and the former is one of the smaller species in the genus at maximum size three feet tall and wide. Both have gray-green foliage, and they grow in a wide range of soil types; however, in heavy wet soils, they can be invasive. One nice thing about these two species is they grow well in the shade. The same goes for the eastern species *Elymus canadensis*, the Canadian wild rye and its near-twin *Elymus virginicus*, the Virginia wild rye. The eastern wild rye grasses do well in the shade, but they are not the most attractive grasses. They are good wildlife plants and good for naturalizing in a woodland landscape. They are loose clumping grasses that tend to grow in colonies. Both grow to about four feet high and two and one-half feet across. Their seed heads resemble wheat. Neither

are picky about soil and grow well in full sun to full shade. When grown in the full shade, they can get by on less than 25 inches of rain per year.

Big Alkali Sacaton

One species that has shown some promise as an ornamental, especially where salt build-up is a problem, is *Sporobolous wrightii;* its common name is big alkali sacaton This species is a tall robust grower that at maturity can be 7 feet tall and 4 feet wide. It likes full sun, decent drainage, and will grow in clay and does equally well in gravelly soil. It is found in the southwestern part of the U.S. and can get by with 20 inches of rain a year and is cold hardy into zone 5. Big alkali sacaton blooms in the fall and has striking flowering panicles that stand up straight in a column from the clump and hold through the winter, which can add winter interest to the garden.

Purple Top

A good choice for a woodland landscape or any shady area is *Tridens flavus* or purple top. It gets its name from the beautiful fall flower spikes that are dark purple. The flowers are also oily, which makes them very shiny. It prefers light-to-medium shade and it very common under southern yellow pines that create high medium shade. They can be very drought tolerant on well drained sandy soil but will grow well on less well-drained sites with clay soil. It is a warm season clump grass where the clumps are 18 inches tall and about that wide with the flower spikes reaching 4 feet in the fall. *Tridens flavus* grows all over the East Coast west to Texas and Nebraska and is cold hardy to Zone 5.

Another good shade tolerant species is *Chasmantium latifolium,* or inland sea oats. It's name is from the seed heads' resemblance to the seashore grass sea oats. Inland sea oats is a loosely clumping grass that eventually forms colonies that look like solid masses. It does best in soil that has some organic matter in it like a woodland soil that has been built up from decomposing leaves. Avoid the extremes of sandy or clay soils. The foliage grows to about three feet, and the fall flowers are another one and one-half feet above that on plants that are two feet across. The flowers come on in late summer and last throughout the winter. The have been used for dried flower arranging because they are so striking and hold up well dry. The flower panicles are thin and flat and each panicle may have 15 to 50 spikelets. The panicles arch out and down, nodding gracefully and quaking in the smallest breeze.

Carex

As grasses have found wider acceptance in landscaping, onedraw back is that only a small number of grass species that grow well in the shade. This is a big drawback, especially in older urban areas where tree plantings have matured and in new suburbs where the value of the existing trees are appreciated and incorporated into the development. This means more and more landscaping deals with sites with shade. This led us to look for more shade-tolerant grasses and similar plants. In the wild, carex was a genus that filled the requirements of shade tolerance. Selecting species for characteristics compatible with nursery production and the needs of landscaping was the next step. Most sedges are hydric which means they are water-loving; in many areas of the country concerns about water usage makes it important to find adaptable species for dry conditions. Across the country there are now a few growers producing just those kinds of sedges. In the past some sedges have been grown for their ornamental qualities, but most are from New Zealand like *Carex comans, C. buchananii, C. testacea,* and *C. flagelifera;* or from Japan such as *Carex hachioensis, C.morrowii, C.sierostica* and *C. phyllocephala;* or Europe like *Carex elata, C. glauca, C. nigra, C. ornithipoda,* and *C. pendula.*

But most of these species come from more forgiving climates and must have special attention to grow well in most parts of the country. The species that have come into production in the last five years are much tougher and can withstand a wider range of conditions. Some will grow with little or no soil preparation and will grow robustly on the normal rainfall. Most sedges are tolerant of a wide range of soils types but if you have extreme conditions like very high (above 8) or low pH (below 5.5) be much more careful when selecting species. Because almost all carex grow in the shade or are shade tolerant, a convenient way to classify them is by their water requirements. For simplicity, I divide the genus into its need for more or less than 30 inches of rain fall a year. If you are growing a sedge that needs 40 inches of rain and you get 25 inches, that means you need to add 15 inches of water through the

growing season. In a season that is 250 days frost-free, you need to water 1 inch every other week. Therefore, it may be wiser to find a more adapted species.

Of the two groups--the ones that need more than 30 inches and the ones that do not--there are more in the former group. That group includes *Carex centa*, which is a small, fine bladed clump that puts out short rhizomes. The clumps are up to 8 inches across, and it spreads 2 to 4 inches a year. It makes a great moss-like texture much like the dwarf ophiopogons, but it much faster growing and robust. In the shade in may need 35 to 40 inches of water a year, is heat tolerant, and is cold tolerant to Zone 5. *Carex cherokeensis* is incredibly variable. In the western part of its range, it is a large clumping sedge, three feet across and 2 feet tall; the more east you go, the more they are shorter, and the more likely they put out rhizomes that form a sod. In either case, it is a fine garden perennial; the larger forms are great specimens, and the shorter clones almost make a turf. The larger forms tend to be more drought tolerant needing a little more than 30 inches whereas the sod forms that need around 40 inches of water. Both forms are will grow in a wide range of soils from limey clays to acid sands. They have equal heat and cold tolerance being hardy to at least zone 6.

Carex muskingumensis or palm sedge is a sedge for the short season in the North where it is deciduous in zone 4 but is evergreen in the more southern zones. Palm sedge wants to be in wet soil so it makes a great streamside planting. Because it creeps slowly and the foliage is less than 10 inches long, it makes a good erosion control plant. The flowers give it the name—the ends of the flowering culms have bract-like leaves radiating from the ends that resemble an umbrella and look vaguely palm-like. This species needs plenty of wate--at least 45 inches per year.

One of the most striking of the sedges is *Carex spissa*, San Diego sedge. This mondo big sedge can be a clump up to 5 feet across and a medium-gray color that is eye catching. Two drawbacks are that it needs 40 to 45 inches of water and are only cold hardy to zone 8. They get so big that we have grown them in 5 gallon pots. We have left them outside throughout the winter when the temperature has dropped just below 20 degrees, which makes me believe that they could take 10 degrees in the ground as long as it was for a short period of time. This is another good stream bank plant. Another nice gray water loving sedge is *Carex flaccosperma* or Conroe sedge. It has leaves that are 18 inches long making the plant a clump around 18 inches in height and width. Conroe sedge has the widest leaves (at about one and a half inches) of any of the presently grown sedges, and this makes it a unique specimen for garden use. It likes moist soils, does well in very heavy soils, and is cold hardy to zone 5.

Of the sedges the drought tolerant species are finding the most use as an alternative groundcover for shady areas where water efficiency is a prime importance. These will have the greatest use of this group in the future. One group that has been especially useful for the number of great species is Carex section Phaestoglochin. In this section are *Carex perdentata, C. retroflexa, C. texensis,* and *C. muehlenbergii*—all of which we have grown successfully in landscapes. In that section are other species that may well be as good or better such as *Carex leavenworthii, C. cephalophora, C. mesochorea,* and *C. austrina*. The members of the latter group are very similar and easy to hybridize which is also a rich vein to mine in the future. As a group these species are drought tolerant—needing only 20 to 30 inches of water a year. *Carex retroflexa* and *C. texensis* are smaller, about eight inches or less around and tall. Both have varying degrees of spreading depending on the clone; we are actively searchingout the most robust vigorously spreading clones. These two species have such fine foliage that a spreading clone would be a good turf substitute for shady dry conditions, which have limited choices of traditional turf. These two should be hardy to zone 5.

Carex perdentata and *C. muehlenbergii* are larger up to 16 inches tall and about 12 around. They are more clumping and less spreading than their smaller relatives. They make a good groundcover choice for shady dry sites that can be a problem in some landscapes. *Carex muehlenbergii* grows much further north into Minnesota while *C. perdentata* is a more southern species, growing only as far north as Oklahoma. Two other closely related species are *Carex blanda* and *C. amphibola*. Both grow into neat clumps of about the same size, 18 inches tall and wide. Again neither are particular of soil but need more water than the other species, requiring about 25 to 35 inches a year. The difference between the two is that *C. blanda* has much wider, more upright blades. From California come two very tough and useful sedges, *Carex pansa* and *C. tumicola*. *Carex pansa* is a very low-growing rhizomatous species

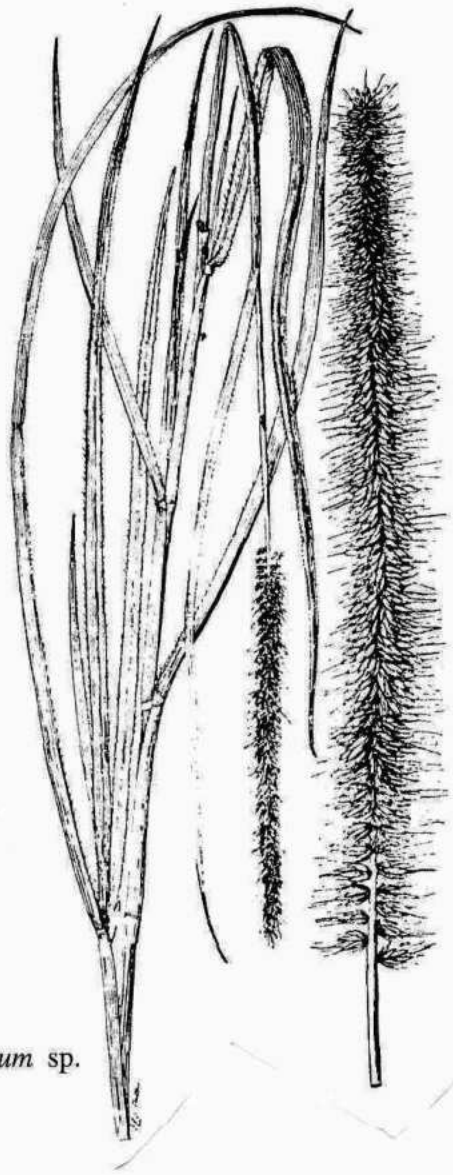
that can be used for a neat, low-area ground cover. California meadow sedgeas it is called is dark green andrequires about 35 inches of rain per year. It does best in well-drained soils and with some light shade and is hardy to zone 8. *Carex pansa* is one of the best turf substitutes for shade. *Carex tumicola* or Berkeley sedge is the exact opposite; it is a strong clump former. The clumps will grow to 12 to 16 inches high and across. This plant is very neat, and the clumps are so distinct in that they always have a spherical shape. The foliage is fine textured and also very thick; if they are planted closely it will suppress weed growth. This species maintains its fine dark green color with 30 inches of rain and is hardy to zone 7. Berkeley sedge is one of the best sedges for formal planting because of the deep color and the uniform and handsome growth habit.

Carex praegracilis is one of the many sedges from the mountains of the west. Mountain sedge as it is known is another creeping sedge that has culms close enough to the rhizomes to make a turf-like mat. It grows to 16 inches tall in the best conditions and spreads relatively quickly. Mountain sedge can be kept lower by restricting water and fertilizer. This species needs 25 inches of water a season, and some clones grow in the mountains up to 8,000 feet elevation so there should be clones that are hardy to around 0 degrees. The soil should be well drained.

Summary

This is a great time to begin experimenting with grasses and grass-like plants. We are at the beginning of a shift from the more traditional shrub and turf-based land designs to an explosion in the use of new and exciting plant species. This means new avenues to create landscapes that are more diverse and interesting, less resource intensive, and which maintain some kind of local feeling of place. In a world where every mall and development looks the same and cities are losing their regional character, we should embrace those things in our landscape that make our area unique.

[*Pat McNeal runs a wholesale nursery called McNeal's Nursery in Manchaca, Texas.*]



Pennisetum sp.

Call for Seed for 1999
Ephemeral Seed Exchange

by Nancy Swell

This year several rock gardening groups are participating in an exchange of seed with short viability. When seed of this type goes through the seed exchange and dry storage, they germinate poorly.

Appropriate candidates for the Ephemeral Seed Exchange include members of the *Ranunculaceae: Aconitum, Adonis, Anemone, Eranthis, Glaucidium, Helleborus, Hepatica, Ranunculus, Thalictrum; and the genera Asarum, Colchicum, Corydalis, Cyclamen, Dicentra, Dryas, Erythronium, Galanthus, Hacquetia, Hylomecon, Jeffersonia, Lysichiton, Salix, Sanguinaria, Shortia, Stylophorum* and *Trillium.*

This list is not exhaustive, but please restrict offerings to species with known short viability or those which exhibit dramatic differences in germination when sown promptly. (Note that Pulsatilla will no longer be accepted for inclusion.) If you have seeds to offer, please fill out the form below and mail it in now - the deadline is March 15. The list will be published in a spring newsletter along with the procedure for obtaining seeds.

Some guidelines for submission:

* A modest offering is advised. If you submitted one or two species last year, add another species or two this year. Try to offer up to half a dozen species, but no more.

* There tend to be many offerings of some taxa. If you have a copy of last year's list, choose items that were not offered or were offered by only one or two donors. If you don't have last year's list, keep the one that comes out his year as a reference.

* Diversity is one of our goals. Last year we were short in *Colchicum*, and *Epimedium* and there is never enough enough *Shortia*.

* Don't offer items from your garden that you haven't seen flower and fruit. Wait another year.

* Don't be afraid of crop failure. If there's no seed, drop a postcard to the requester and save the request for next year.

When the list is published, these are the directions that will be given to requesters: To request seeds, send a self-addressed, stamped envelope to the donor. (If the donor is across an international boundary, obtain International Reply Coupons.) Write the species name on the return envelope. If you are requesting more than one species from a donor, send the appropriate number of envelopes, though multiple forms of the same species are safe for a single envelope. You are responsible for appropriate packaging and sufficient postage.

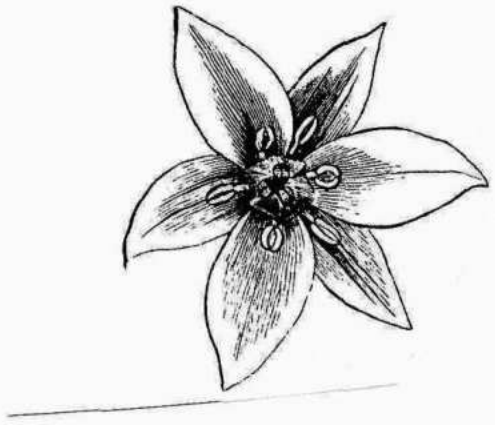
Submission form (or fascimile) for Ephemeral Seeds for the 1999 Exchange. Include the following information:

Your Name & Address:

Genus, species and form; Collection Date

Mail this form or fascimile by March 15, 1999 deadline to:

Nancy Swell
505 Baldwin Road
Richmond, VA 23229
Or e-mail swell@erols.com



Used Gardening Books Needed

The Piedmont Chapter of NARGS will offer a table of used gardening books for sale at the NARGS *Winter Study Weekend in January 29-31, 1999.* These books will be for sale at a nominal price to the attendees. Piedmont Chapter members are asked to donate used gardening books in good condition. You may want to consider donating duplicate copies of books you have.

Dee Hamilton and John Dilley are organizing the used garden book sale for our chapter. If you have books to donate contact Dee or John to discuss how they may acquire them. You may want to consider bringing them to our January 16 Piedmont Chapter meeting, where Dee and John will be happy to take them.

Call Dee (919-967-9534) or John (919-772-6761 for questions or to arrange a book pickup.

Plants Needed for Seedling Sale at WSW'99

The Piedmont Chapter of NARGS will have a table of small plants and seedlings for sale at the NARGS Winter Study Weekend in January 29-31, 1999. Piedmont Chapter members are requested to donate small plants for this sale.

The sale is being organized by John Barnes, who has small, new and clean pots that will be given to you to pot up the plants. In addition, standard labels should be used.

Please bring plants to our January 16 Piedmont Chapter meeting to give to one of the sale committee members. Or, bring them to the Sheraton Hotel between 1:00 and 3:00 p.m. on January 29 before the WSW begins. At any rate contact John to let him know prior to the January 16 meeting in order that he will have a list for making pot labels.

Contact John now to discuss what plants you will have to donate. His telephone number is (919) 851-5230.

The Piedmont Chapter of the North American Rock Garden Society invites you to its **Winter Study Weekend**
January 29-31, 1999
The Sheraton Imperial Hotel
Research Triangle Park between Raleigh and Durham, N. C.

Midwinter Musings:
A Garden of Pleasant Flowers

Plan now to travel to the Research Triangle for a weekend meeting of the North American Rock Garden Society. Tony Avent, Jack Elliott, Nancy Goodwin, John Grimshaw, Dan Hinkley, Will McLewin, Milo Pyne, and Nick Turland are slated to speak on a wide range of topics: from little bulbs to hellebores, peonies and shade plants; plant hunting in Chile, Greece, Crete, and East Africa; the native flora of Britain and N.C., and more. Plant sales will provide a look at what's offered by area nurseries, and the weekend also will include book and art sales. Contact Bob Wilder, the registrar, for a brochure and registration form; space will be limited, so please plan to register early.

Bob Wilder, Registrar wilder@pageszZnet (919) 781-2255
Bobby Ward, Chair biblio@pagesZ.net (919) 781-3291

Our Remaining Programs for the 1998-1999 Season for the Piedmont Chapter of NARGS

January 16, 1999
Tony Avent
Raleigh, N.C.
"Wild and Wonderful - A Teaser of New and Wonderful Perennials for Your Garden"

February 20, 1999
Pat McNeal
Manchaca, Texas
"Garden-Worthy Texas Native Plants for North Carolina Gardens"

March 20, 1999
Gwen Kelaidis
Denver, Col.
Title to be announced

April 24, 1999
Noon
Spring Picnic
Robert and Julia Mackintosh
1439 Dixie Trail
Raleigh, N.C.
Bring Covered Dish Lunch Item or Dessert

All Piedmont Chapter Programs are held at 10:00 a.m. on a Saturday in the Totten Center, N.C. Botanical Garden, Chapel Hill, N.C., except as noted.

Speakers arranged by Mike Chelednik, the 1998-99 Program Chair for Piedmont Chapter of NARGS.

Piedmont Chapter Election of Officers at March 20, 1999 Meeting

Piedmont Chapter of NARGS Board Members 1998-1999

Chairman: Barbara Scott, 1321 Chaney Road, Raleigh, NC 27606; telephone (919) 859-6703. e-mail barbara_scott@ncsu.edu

Vice-Chairman/Programs: Mike Chelednik, P.O. Box 20361, Greenville, NC 27858-0361; telephone (252) 752-9752; email b5h4j4gv@coastalnet.com

Treasurer: Bob Wilder, 1213 Dixie Trail, Raleigh, NC 27607; telephone (919)781-2255. e-mail wilder@pagesZ.net

Secretary: Wendy Wallace, 8124 Coleraine Court., Raleigh, NC 27615. (919) 846-3512. e-mail wpeter1479@aol.com

Board Member-at-Large: Rob Gardner, 5423 Bobcat Road, Chapel Hill, NC 27516; (919) 929-7252; e-mail gardner3@email.unc.edu

Board Member-at-Large: Ray Stilwell, Jr., 11900 Coachman's Way, Raleigh, NC 27614-9736; e-mail grsjr@juno.com

***The Trillium* Newsletter Editor**: Bobby J. Ward, 930 Wimbleton Drive, Raleigh, NC 27609-4356; telephone (919) 781-3291. e-mail biblio@pagesZ.net

Piedmont Chapter of NARGS Positions of Responsibility

Refreshments & Hospitality: Gwen and Maurice Farrier, 4205 Arbutus Dr., Raleigh, NC 27612; (919) 787-1933.

Fall Seedling Sale Co-Chairs John Barnes, 1601 Medfield Rd., Raleigh, N.C. 27607. (919) 851-5230; and Laddie Munger, 1001 Washington St., Cary, NC 27511, (919) 481-1127.

NARGS Eastern Winter Study Weekend Chair 1999: Bobby J. Ward, 930 Wimbleton Drive, Raleigh, NC 27609-4356; (919) 781-3291; e-mail biblio@pagesZ.net

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From the Chair

by Barbara Scott

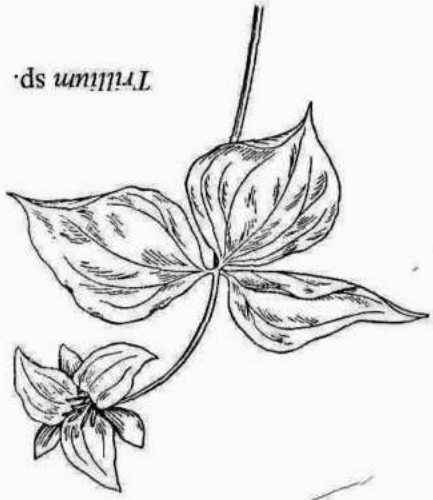
At this writing in late December, we have experienced unseasonably warm weather followed by an icey Christmas. It's supposed to turn warm again before the year is out. If that trend continues, visitors from all over the country will enjoy its advantages when they arrive at the end of January.

On January 29, 30, and 31, our chapter will host the 30th Eastern Winter Study Weekend of the North American Rock Garden Society. This effort marks the second such weekend that our chapter has organized. As the weekend approaches, our hopes for a successful event are being realized. An exceptional line-up of speakers from around this country and abroad are coming, and the volunteers organizing the event are working hard to handle all the details. Registrations for the weekend are now approaching what is needed to break even.

Since 1990 (when we first hosted one of these events), our chapter has grown considerably. The revenue from that weekend has helped to carry our chapter forward over the past seven years with programs presented by nationally known speakers and even some international visitors.

Please think about this as you decide whether to invest in your education as a gardener and attend the weekend. I hope you will decide to attend and enjoy speakers and new friends who will enrich your gardening efforts.

Mailed January 4, 1999



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First Class Mail

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