

Return of the Natives

Indigenous grasses make a comeback in the East

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In 1752 a group of American settlers entered a territory yet unreached by Europeans, which their chronicler described as “a large plain” containing “more meadowland than one could make use of.” He observed that “a man could make several hundred loads of hay of the wild grass. For stock raising, it is also incomparable; pasture in abundance.” They had previously passed through an area that “up to this time has been a buffalo pasture, whose tracks and paths may yet be ascertained.” The pioneers had found land “already cleared and there long grass abounds.”

Where were they? At the headwaters of the New River in the mountains of North Carolina. They were a group of Moravians from Pennsylvania, a religious sect led by Augustus Spangenberg, looking for a location to establish a new settlement. Before eventually colonizing what is now the Winston-Salem area, they examined large tracts of land throughout northwestern North Carolina. The open, cleared expanses they found belies our popular image of a landscape dominated by thick virgin forest. On these spacious savannas grew wild grasses typically associated with the Great Plains, but also native to the Appalachian Mountains and other points east. These indigenous species were soon overtaken by European grasses, however; but today the natives are making a comeback in pastures and hayfields east of the Mississippi River.

The role of fire

Fire was largely responsible for the presence of open meadows in the East. Lightning strikes set woodlands ablaze, which was un-suppressed by Native Americans. Grass quickly overspread these scorched landscapes. The Indians themselves intentionally set wildfires for various reasons. Grassy areas among sparse trees provided ideal habitat for wildlife, such as deer and turkey, which the Native Americans hunted for food and trade. The open environment made game easier to spot and provided better aim for shooting. In addition to wildlife common today, elk and buffalo- prevalent at that time-



grazed the meadows, keeping trees from reforesting the landscape. Regular fires also destroyed many insect pests, and made travel easier for the Native Americans across land that was not tangled with shrubby forest undergrowth. Fires that consumed existing grasslands actually encouraged native grasses to grow back even thicker, as dead matting that smothered new growth was burned off.

Newcomers take over

Old World grasses spread with European settlement. Not only did settlers sow their own species, they also suppressed fires, which gave nonnative grasses an advantage, as

Indiangrass

Old World grasses are more competitive where dead vegetation is not removed. Though not totally eradicated, native grasses became increasingly scarce in the East as orchardgrass, fescue, timothy, and other nonnatives spread easily through fields that were rarely burned off. In addition, cattle introduced by Europeans grazed more intensively than wildlife and therefore reduced the natives because the species will not tolerate being cropped too close to the ground (cattle actually *prefer* the natives, which contributed to their

overgrazing). After they were initially sown, nonnative grasses naturalized and became so common and “wild” that today many assume they are indigenous to America. These newcomers are more than adequate for hay, and make fine pasture. Several species, when mowed, form a thick green turf that many find appealing for yards. In short, on the surface it seems that little has been lost with the decline of the natives, as Old World grasses sufficiently suit the needs of farmers and landscapers.

Benefits to wildlife

Wildlife, however, has suffered. Native grasses grow erect and in clumps, providing shelter and a habitat structure that benefits wildlife. Birds and small mammals are able to navigate among the clumps, foraging for food and taking cover from predators. Nonnative grasses grow thick and mat-like, allowing no room for wildlife passage. Quail numbers, for example, have dropped precipitously, due in part to the loss of good habitat that native grasses once provided. Growing up in the 1970s in the North Carolina mountains, I remember hearing the familiar call of bobwhite quails on a regular basis, but it has now been many years since I last heard that distinctive sound in the same area. Wildlife agencies and advocacy organizations now go to great lengths to promote the planting of native grasses to create natural habitats. Quail Forever, an interest group comprised mostly of hunters, bills itself as “The Habitat Organization.” The National Wild Turkey Federation, another hunter group, has the tag line “Save the Habitat. Save the Hunt.” Agencies promoting various conservation measures, such as streambank rehabilitation, encourage sowing indigenous grass species for erosion control, which provides an incidental benefit for wildlife.

Benefits to farmers

For many years now, native grasses have been making a comeback as farmers intentionally sow them for pasture and hay. Natives are favored for many reasons: 1) They grow well in poor soils- from rocky to swampy- therefore excessive fertilizer is not needed to produce good growth; 2) They tolerate drought because their root system is extensive (up to 12 feet); 3) cattle tend to gain more weight on native grasses. In one test, steers grazing a big bluestem/indiangrass mix gained 2.1 pounds per day, which is almost three times higher than those grazing nonnatives; 4) evidence (at least anecdotal) suggests that cattle who consume native grass are healthier; 5) native grasses produce higher hay yields than

conventional grasses, meaning that fewer acres are needed to produce the same amount of hay, leaving more acres available for grazing.

The downside of raising cattle on native grasses is that it requires careful management; i.e. cattle must be rotated on pastures to ensure that the grass is not grazed to an unsustainable low level. In addition, establishing an initial good stand can be challenging and somewhat expensive, though the investment usually pays off in the long run.

Finding the right cultivar

As native grasses have become more in demand, many cultivars have been developed. For example, many varieties of big bluestem exist, known as Bison, Eldorado, Bonilla, Kaw, Niagara, Rountree, Earl, Pawnee, Champ, and Sunnyview. Each one is usually bred for a particular purpose. Bison, for instance, is good for wildlife cover, while Earl makes excellent cattle forage. Because these varieties were developed from local ecotypes (i.e. wild grasses in a specific geographic area), each variety is also suited to the particular climate in which the ecotype grew. Therefore, a cultivar like Eldorado, which originated in Texas, might



Big bluestem

not grow well in the mountain South. Because native grasses have historically been a defining feature of the Great Plains, many (if not most) of the cultivars commercially available today originated in that part of the country. But that situation appears to be changing as interest in varieties adapted to other areas is growing. For example, Niagara, released by USDA's Natural Resource Conservation Service, was developed in New York and might be better matched to the southern mountains than a variety such as Bison, which came from North Dakota. An internet search will reveal several seed companies that sell these and other native grass cultivars at affordable prices.

We are continually losing native plants in the Appalachians to disease, insects, and invasive species. The chestnut and the hemlock are two examples. Fortunately, native grasses might soon be bucking that trend. While we may never see expansive meadows of wild grass like the Moravians witnessed, native grasses are not on the brink of extinction and could become more prevalent as interest in their practical uses grows.

A SELECTION OF NATIVE GRASS SPECIES

Big bluestem (*Andropogon gerardii*)

True to its name, big bluestem grass can grow as high as nine feet tall with roots up to 12 feet deep. It can be easily identified by its seedheads, which spread at wide angles, giving the appearance of a turkey's foot. The grass is considered to be the best for cattle, and satisfactory for ornamental plantings. It is used for mine reclamation, logging road restoration, and soil protection from wind erosion.

Little bluestem (*Schizachyrium scoparium*)

Historically, little bluestem has been one of the most widespread grasses, being native to 45 states. While not as productive as a cattle forage, the wispy appearance and vivid blue tone of little bluestem makes it a fine selection for ornamental gardens; perhaps the most ornamental of all the natives. The grass turns reddish-yellow in the winter. It grows better in poor soils than any other native grass. As its name indicates, it grows only 2 to 4 feet high, making it excellent for use as a garden border.

Indiangrass (*Sorghastrum nutans*)

Indiangrass is one of the best forages for cattle, but it is also spectacular as an ornamental when in bloom. The seedheads are a vivid reddish-orange color. A blooming stand of Indiangrass at sunset in August is comparable to the most fantastic display of leaf color in October. It is a food source for butterfly larvae and a favorite of turkeys for cover and food. Indiangrass produces lots of seed, meaning that it is quick to spread if soil is disturbed nearby.

Eastern gamagrass (*Tripsacum dactyloides*)

Eastern gamagrass is a bit unusual among native grasses in that its leaves emerge directly from the base of the plant at the ground, rather than from erect stems. The wide leaves resemble corn, which is a close relative, and grow about waist high. This growth habit gives a stand of gamagrass the appearance of long shag carpet, which has value in ornamental plantings. Livestock do well on Eastern gamagrass and it's one of the most productive hay grasses. It regrows quickly after grazing and mowing.

eastern gamagrass



Canada wildrye (Elymus Canadensis)

Canada wildrye is characterized by its bent seedhead, which is often dried and used in flower arrangements. It's not the best forage for cattle, but it is great for erosion control. The grass grows about 2-4 feet tall and is more tolerant of shade than most other species.

Virginia wildrye (Elymus virginicus)

Virginia wildrye is similar in appearance to Canada wildrye, except its seedhead is erect. It's good forage for deer. Birds and small mammals pick the grass for nesting material. It is even more shade tolerant than Canada wildrye, but requires more moisture.



Canada wildrye



Virginia wildrye

Switchgrass (Panicum virgatum)

Switchgrass holds much promise as a sustainable biofuel. Not only would it reduce carbon dioxide in the atmosphere, it can be cultivated on marginal lands where food crops are unable to grow. Unlike corn, it is a perennial that would not have to be replanted every year, and it would require less chemical fertilizer to produce an acceptable harvest. Much research and breeding is underway.