



Big Bluestem & Indiangrass

# The “Tall” of the Tallgrass Prairie

By Paul D. Ohlenbusch

As the explorers and settlers first crossed the Great Plains, they described a “sea of grass.” But that sea of grass decreased in height as they traveled west. The sea of grass on the east and along the rivers and streams was dominated by what we now call the tall grasses. These included big bluestem, Indiangrass, switchgrass and eastern gamagrass. Based on the earliest botanists’ notes and other sources, the dominant species were big bluestem and Indiangrass.

Descriptions of the sea of grass indicated the grass was tall enough to be tied together over a saddle. Probably these described the growth in wet years and along river bottoms and similar deep sites. However, there are a few descriptions that indicate the area was on upland sites, too.

The sea of grass resulted from drought, grazing by bison, elk and other large herbivores, and recurring fires. The grazing was usually extreme, particularly in recently burned areas. As time passed, overgrazed areas were grazed less and grew taller. The more old growth, the less grazing occurred creating a high potential for another fire—and the cycle resumed.

The tallgrass prairie originally covered the Blackland Prairie of Texas, much of eastern Oklahoma, Kansas,

Nebraska, South Dakota and North Dakota, plus much of Minnesota, Iowa and Illinois, and western Missouri. The major area remaining today is the Flint Hills in eastern Kansas and the Osage Hills of northeastern Oklahoma. In Texas, the rich topsoil has been farmed and broken into small “ranchettes” for many years, resulting in most virgin prairie being destroyed.

There are few remaining large sites, but one of the largest is the Clymer Meadows near Celeste (northeast of Dallas). The area is a 1,068-acre preserve operated by The Nature Conservancy in Texas. It was restored through management, including rest, grazing and prescribed fire. It also includes an adjacent privately owned parcel. (The background photo was taken in June 2007 after a wet winter and spring. The wild flowers announce the coming of Indiangrass and big bluestem seed heads in late July.)

Big bluestem (*Andropogon gerardii*) and Indiangrass, also known as yellow Indiangrass (*Sorghastrum nutans*), reach a height of 3-8 feet. Both tend to form dense stands under good management. They grow best on deep soils with good water-holding capacity. Both

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Figure 1. Big bluestem in summer and winter color.



Figure 2. Indiangrass in summer and winter color.

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species have been found in all states except California, Idaho, Nevada, Oregon and Washington.

The two grasses occur together, but one will usually dominate. Soils, weather and management determine which will dominate. Other grasses found with these include little bluestem, switchgrass, eastern gamagrass, meadow dropseed, sideoats grama and Canada wildrye. Wildflowers may include rough-leaf rosinweed, purple Indian paintbrush, prairie clover and American basketflower.

Big bluestem is a bluish-green color during the first part of the growing season becoming reddish-brown in the fall (Figure 1). The seed head is arranged in two or three racemes per head and resemble a turkey foot. The seed heads vary in color, changing from green to yellowish to purple. Leaf growth is primarily at the base of the plant with leaves a foot or more in length. It is highly palatable forage for cattle. Many wildlife species use the seed as a winter food.

Indiangrass is green during most of the growing season, turning deep orange to purple in the fall (Figure 2). Leaf growth is primarily at the base of the plant with

leaves 10-28 inches long and less than half an inch wide. Indiangrass has a ligule at the base of the leaf that is unique (Figure 3). The seed head has a golden color. It provides

excellent nesting cover for upland game birds. The seeds are eaten by small mammals and numerous songbirds. It is a highly palatable forage for cattle.



Figure 3

TABLE 1. RECOMMENDED CULTIVARS FOR TEXAS USE

SPECIES	CULTIVAR	ORIGIN
Big bluestem	Earl	Parker County Texas
Big bluestem	Kaw	Kansas collection
Indiangrass	Cheyenne	Supply, Oklahoma
Indiangrass	Lometa	Lometa, Texas

**GENETIC VARIABILITY**

The cultivars adapted in Texas are in Table 1. The major areas of adaptation for both are East Texas, Edwards Plateau and South Texas. Other areas with deep, well-watered soils can support both species. The USDA-Natural Resources Conservation Service Plant Materials Centers are looking for seed sources to develop more cultivars with better adaptation to Texas areas. Kaw big bluestem is from a Kansas collection and Cheyenne Indiangrass is from the Supply, Oklahoma, area, which is sandy. Cultivars for South and East Texas are the greatest needs. For the Web sites of the Texas Plant Materials Centers see my Web site [www.grassbydesign.com](http://www.grassbydesign.com) or go to this Web site [www.tx.nrcs.usda.gov/technical/pmc/index.html](http://www.tx.nrcs.usda.gov/technical/pmc/index.html).

There are many uses for big bluestem and Indiangrass besides in mixtures. In pure stands, both can produce at high levels with medium fertilizer inputs. Big bluestem makes the better choice for hay production since it produces the most vegetative growth by early July when quality hay can be harvested.

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## MANAGEMENT NOTES MAY - AUGUST



If drought continues, carefully monitor water sources to ensure availability. Develop options if sources appear to be less than optimal.

Monitor rainfall history for the past 12-18 months, the forecast for the next 3-6 months and current soil moisture status. If soil moisture remains short and weather is projected to remain dry, plant growth may be slow and/or limited for 2009.

Evaluate the status of grazing for the 2009 year. The stubble height of desirable species as spring approaches is critical considering the dry weather for the past 12-18 months. If stubble height is short, reduce 2009 stocking rates to allow the preferred species to improve.

Review grazing and economic management plans for 2009 and adjust the 2009 and five-year management plan based on past weather and economic conditions.

Evaluate broadleaf and woody plant control in 2009. Update plans for application to ensure better application timing. Do not apply controls unless plants are rapidly growing and have soil moisture to continue growth.

Prepare for prescribed burns if growth and burning conditions are safe. If soil moisture is short and weather is dry, postpone burn until conditions are desirable.

Manage seeded areas for weed control to improve seedling establishment.

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Indiangrass has the ability to produce a second vegetative growth period in the July-August period if moisture is available. Combine the two species and the result is a mixture that has the potential to provide grazing for most of the growing season under average rainfall.

### THE FUTURE

The future of big bluestem and Indiangrass is through the restoration of the prairie through management or planting. Currently, there are several organizations offering Conservation Easements to limit how the land can be used in the future. This is a real value for small acreages that can be protected from development by individuals or families.

The greatest threat to the species and the prairie is fragmentation through urbanization, including ranchettes, subdivisions and industrial parks. As areas are divided, the ability to manage as a prairie is greatly reduced. The use of prescribed fire is limited or eliminated by houses and outbuildings. Also, roads and neighbors are close, adding to the limitations.

Grazing is often extremely heavy, particularly with horses. As a result, woody plants increase, broadleaf plants increase and a buildup of mulch and standing, dead material often builds up. When mulch increases, a high wildfire potential and an increase in habitat for rodents and their predators occur. This is true for open areas in developments, as well as the small parcels in the rural areas.

Managing grasslands, including for wildlife, domestic livestock or forage production, requires management goals to maintain the land resource, be profitable, sustainable and enjoyable. Developing management goals and short-term and long-term plans is a complex process, but understanding how and what goes into the process is important.

Next time, a series starts on the management resources and how they fit into an operation. The series is being developed from the Kansas Grazingland Management Notebook developed by two Agricultural Economics Extension Specialists and me.



*Editor's Note: Paul D. Ohlenbusch is a grazingland and Vegetation Management Consultant (www.grassbydesign.com). Additional readings and previous articles are available at www.grassbydesign.com/tda.*