

## WHERE'S THE TALL GRASS?

by Marva L. Weigelt

Reports from early explorers and pioneer diarists crossing the tallgrass prairie describe grass as tall as *oxen...a woman's shoulder...the belly of a horse...a man on horseback...9 feet*. So where, you might wonder, is the tall grass now? This, incidentally, is one of the most frequently asked questions by visitors to the Tallgrass Prairie National Preserve in the Flint Hills.

One of the simplest answers is that the grass resides in your steaks, roasts and hamburgers. Wherever cattle graze native range, the diverse mix of vegetation in the tallgrass prairie ecosystem is undergoing an amazingly efficient transformation into nutritious beef. Even if you are not a meat-eater, you might appreciate the beauty of a self-renewing system in which a low biological value protein (from a human standpoint) undergoes a conversion into one of higher biological value through the unique relationship between cattle and native plants.

Before cattle, bison performed a similar function. In the absence of fences, however, the buffalo were free to wander the vast smorgasbord of the prairies and could afford to be picky about their forage, leaving random patches of taller, less palatable grass for humans to rave about in diaries.

Roadsides, isolated pioneer cemeteries and ungrazed pastures still afford a glimpse of the grasses' full potential. When Annie Wilson stumbled upon High Prairie Cemetery in the early 1990s, she was struck by the remarkable sight of the *...ungrazed, unmowed bluestem/Taller than the five-wire fence around it/A refuge of plant life...a forest of grass stems*.

Lest anyone jump to the conclusion that we ought to preserve what little remains of the tallgrass prairie by eating more beans, giving up beef and yanking the cattle out of the pastures so we can enjoy the sight of mammoth bluestem waving in the wind, a few cautionary notes are in order:

- Unlike the native legumes consumed by cattle on rangeland, most of the beans we eat are cultivated annual crops requiring regular inputs of non-renewable resources, namely, fossil fuels in various forms, including pesticides and fertilizers.
- Periodic disturbance (i.e., fire, drought and grazing) is essential to maintaining the prairie's vigor and diversity. High Prairie Cemetery offers an excellent illustration of this principle. Although the cemetery has been periodically burned and mowed, the absence of intermittent grazing during the last century has noticeably reduced the variety of plant species present in that plot by comparison with the four grazed pastures nearby. Prior to European settlement, bison, drought, lightning, untended campfires, and strategic burning by indigenous tribes provided these same diversity-producing disturbances. Without them, species' variety slowly decreases and opportunistic trees begin an invasive march into the open grasslands. Further, bison and cattle serve as prairie gardeners—pruning vegetation, randomly tilling the soil as they walk, and



*Native Indiangrass (above) and big bluestem (left) still reach astonishing heights on the tallgrass prairie under optimum conditions.*

returning recycled vegetation to the soil, where it serves as compost and habitat for beneficial microbes and insects.

- The height of plants is far less important than the underground biomass. Grazing and fire both stimulate root production. If you could dig up the first six inches of soil in an acre of good bluestem pasture and separate out the roots, they would weigh between 6,000 and 7,000 pounds. Here, in the rich, unseen underworld of the prairie, the tangle of roots and rhizomes prevents erosion, stores surplus food, converts harvested sun and water into protein, and serves as a sink and filter for atmospheric carbon dioxide.
- Even 200 years ago, grasses did not uniformly reach the belly of a horse. Species and soil composition, topography and weather each play important roles in determining grass height. Some species—for example, little bluestem, switchgrass and sideoats grama—are not genetically programmed to achieve great stature. In addition, some soil types are too thin and rocky to sustain truly tall grass, although they produce nutritious vegetation of less dramatic heights. Topography is a related factor: valleys and flat areas tend to support taller grass because hills and slopes have lower soil quality and retain less moisture. As to weather, in prolonged periods of heat and drought, prairie plants make the economic decision to reallocate resources from reproduction (above ground) to preservation (below ground). This flexibility in response to changing external circumstances is what has kept the remaining tallgrass prairie a viable and renewable system for 8,000-10,000 years.
- Finally, all of these points converge to greater or lesser extent in this last and most important consideration. Virtually all of the richest prairie soil—the moist, fertile locations in which grass once-upon-a-time put on a noteworthy vertical show—succumbed long ago to the plow. Where the tallest big bluestem and Indiangrass once waved in the wind, you will now find corn, wheat, soybeans and other annual crops.

If you truly suffer from a deep craving to see grass as tall as a person on horseback and you live anywhere within the original extent of the tallgrass prairie, consider spearheading a prairie restoration project in your garden, a pioneer cemetery or other community open space, such as a schoolyard.

Nothing will make you appreciate the genius of nature's design more than attempting to mimic her patterns. Many years of labor and patience will be required before your efforts begin to manifest even a slight resemblance to the root systems and species diversity of native prairie. But little in human life will compare with the profound satisfaction you'll experience if you live long enough to stand in your plot of grasses and wildflowers, in the dancing shadow of nine-foot-tall big bluestem, knowing that you are the steward responsible for returning some of this majestic grass to its rightful place on the planet.

