

A Walk In The Woods

***A Guide for the Identification of Plants
Commonly Encountered Along the Cross Timbers Nature
Trail***

GRASSES & FORBS



The Tulsa Botanic Garden

***By Ronald J. Tyrl and Jay B. Walker and Eli Hayes
Illustrations by Bellamy Parks Jansen***

How to Use This Guide

The Tulsa Botanic Garden site has a great diversity of plants encompassing a variety of habitats. This guide will introduce you to some of them, primarily the forest and grassland species characteristic of The Cross Timbers, which is described on the next pages. It also will introduce you to species that are indicative of certain ecological conditions such as thin soils, watercourses, or disturbance.

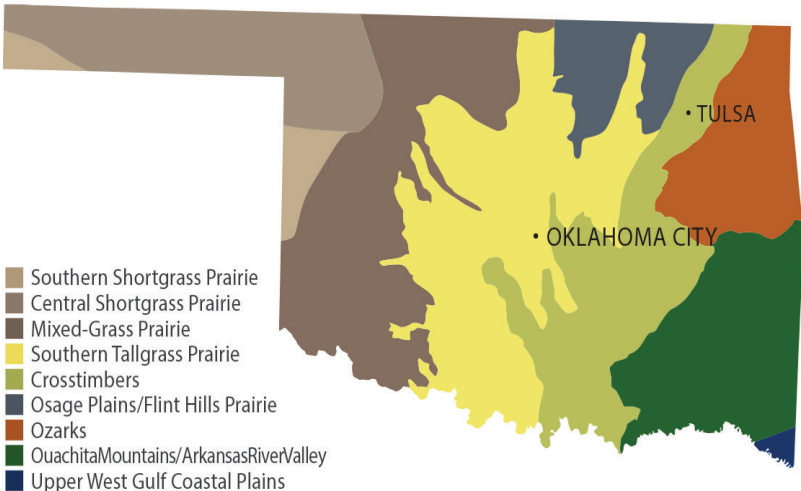
As you follow the approximately one mile trail, stop periodically and look at the common plants around you. Identify them by comparing their features to the illustrations and descriptions offered in the following pages.

In addition to presenting the features that are used in recognizing individual species, each synopsis provides information about the ecology, and economic, wildlife, and/or ethnobotanical significance of the species. Unfortunately, space limitations prevent us from listing and illustrating all of the species you are likely to encounter. We selected the most common species that are found along the trail and those that give the vegetation its characteristic appearance. Enjoy your walk!

Oklahoma – A Botanical Crossroads

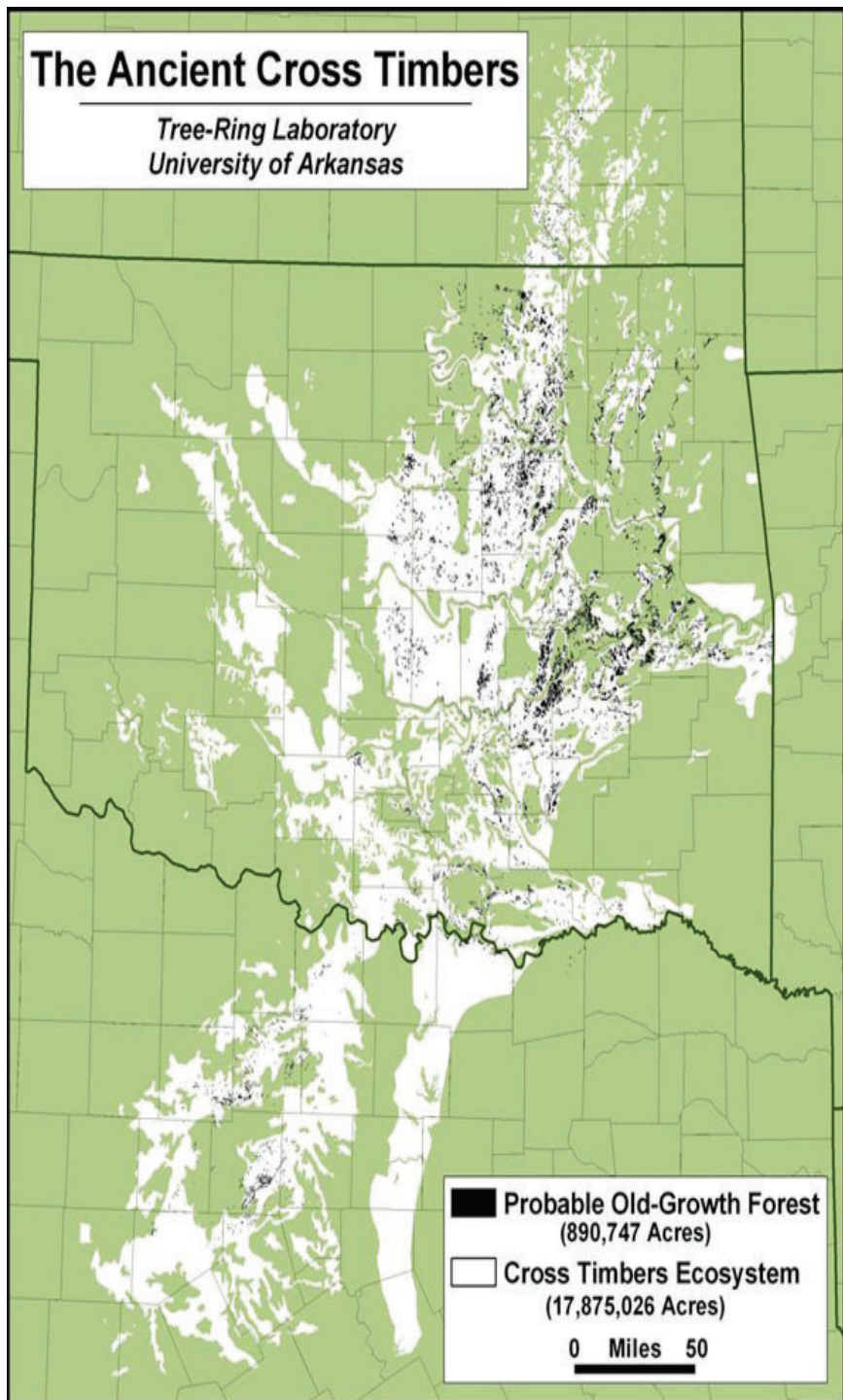
Biologically, Oklahoma is a remarkable state! The state lies at the intersections of some of the most significant ecosystems of America. The tall grass prairies of the north battle with the short grass prairies of the west, the mesquite grasslands of the south, and the forests of the east. The state includes pinyon pines in the foothills of the Rocky Mountains and stately cypress in the swamps of the southeast. A distinct gradient of rainfall is evident across the state, with only 15” falling annually in the northwest, to 60” in the southeast. This diversity of ecosystems leads to a remarkable assemblage of plants, including 173 families, 868 genera, and 2540 species. From Alligators to Antelope, from mesquite to magnolias, Oklahoma has it all.

ECOREGIONS OF OKLAHOMA



The Ancient Cross Timbers

Tree-Ring Laboratory
University of Arkansas



The Cross Timbers

Nowhere is this conflict between the prairie and forest more evident than in the Cross Timbers. The Tulsa Botanic Garden lies in the midst of this remarkable ecosystem, located at the intersection of Eastern and Western America. The stately Eastern forests do battle with the western prairies, forming a mosaic of upland forests and tallgrass prairies that extends from southeastern Kansas across Oklahoma to north-central Texas. Although the forests here contain many of the same species as those farther east, here the trees are stunted and gnarled. This forest is so dense, it is said that wagon trains traveled to the north or south of the region, considering the Cross Timbers impassable. In 1832, Washington Irving compared traveling through the ecosystem to “struggling through forests of cast iron.” However, this quality of the Cross Timbers has left Oklahoma with one of its greatest treasures. The forest being too stunted to have been logged, and the soil too shallow to be farmed has left the ecosystem essentially intact. High quality sections of Cross Timbers, such as that which exists here at the Botanical Garden, appear much the same and contain the same animals and plants as they did prior to the arrival of Europeans.

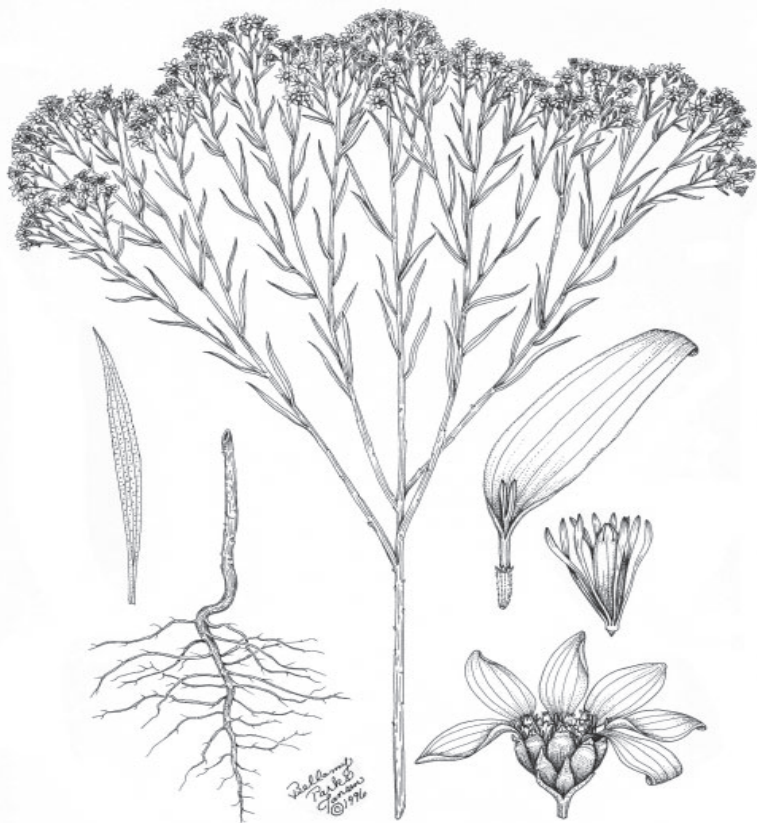
FORBS

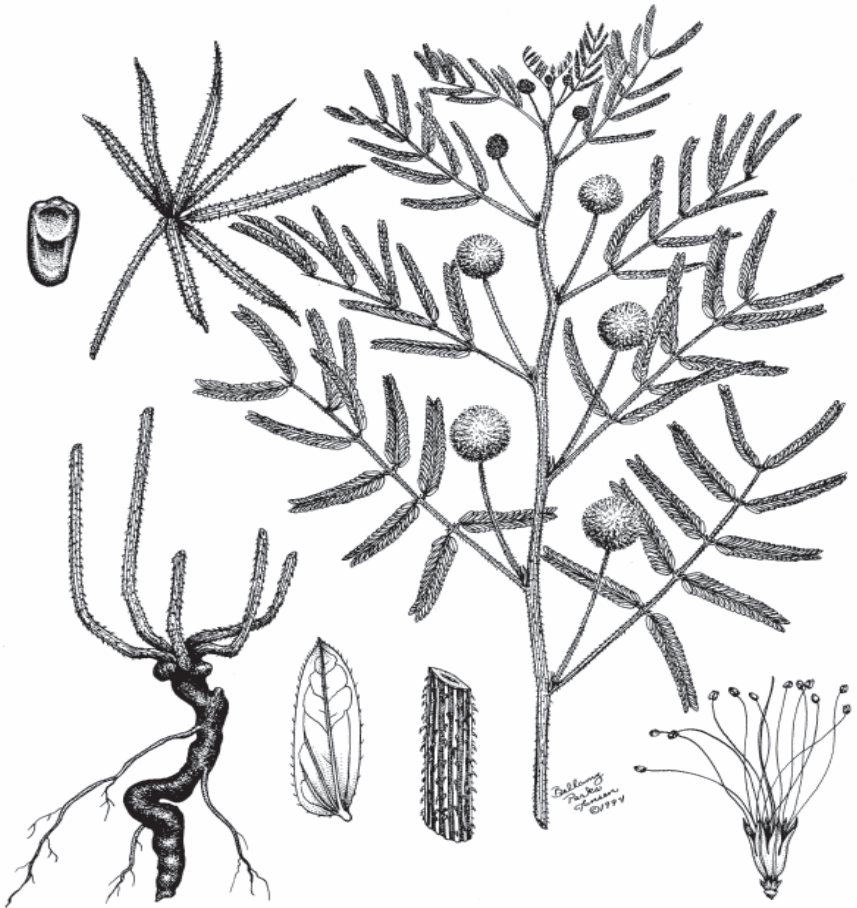
Annual Broomweed

Gutierrezia dracunculoides

Annual composite from taproot; stems erect, unbranched below and branched above, 1-3 feet tall; leaves alternate, narrow, sessile; heads numerous, small, yellow, ray florets 6-10, disk florets 10-50.

Classic indicator of disturbance typically forming large populations in barren soil of waste areas, rights-of-way, overgrazed pastures. Unpalatable to livestock. Plant and pollen may cause dermatitis. Used in dried floral arrangements and architectural models.





Catclaw Sensitivebriar

Mimosa quadrivalvis

Perennial legume; ribbed stems 1.5-5 feet long, trailing or arching from woody taproot, with stout curved prickles; leaves alternate, 2-pinnately compound, leaflets many, fold when touched; flowers small, pink or rose-purple, in ball-like cluster; stamens elongated; fruits 4-sided, prickly.

Solitary plants or small populations in prairies and open woods; becomes abundant in disturbed soils. Birds and small mammals eat seeds to limited extent; Cattle and deer occasionally eat young branches and leaves.

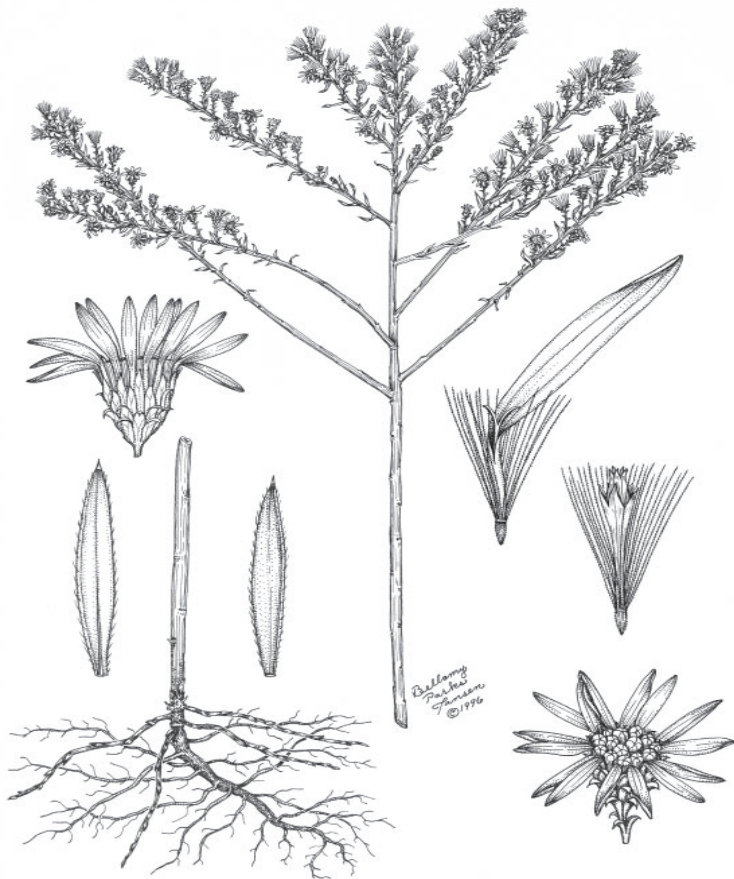
Goldenrods

Solidago spp.

Perennial composites from rhizomes or branching crowns; stems erect, 1-6 feet tall; leaves alternate, simple; heads numerous, small, cylindrical to bell-shaped, yellowish, typically borne on branch sides; ray and disk florets yellow.

Twenty-one native species in prairies, open forests, and disturbed sites. May form large populations. Although insect pollinated, they are mistakenly blamed for hay fever because they flower at same time as the ragweeds. Wildlife eat young plants and fruits.





Heath Aster, White Prairie Aster

Aster ericoides

Rhizomatous perennial composite forming small clones; stems 2-3 feet tall; leaves alternate, small, stiff, linear; heads many, borne on 1 side of arching branches, with 8-20 white ray florets and 4-15 yellow disk florets.

Normal component of prairies, also in old fields, waste areas, and edges of open woods. Typically last of asters to flower in autumn. Native Americans used to produce smoke for sweat baths or to revive unconscious individuals.

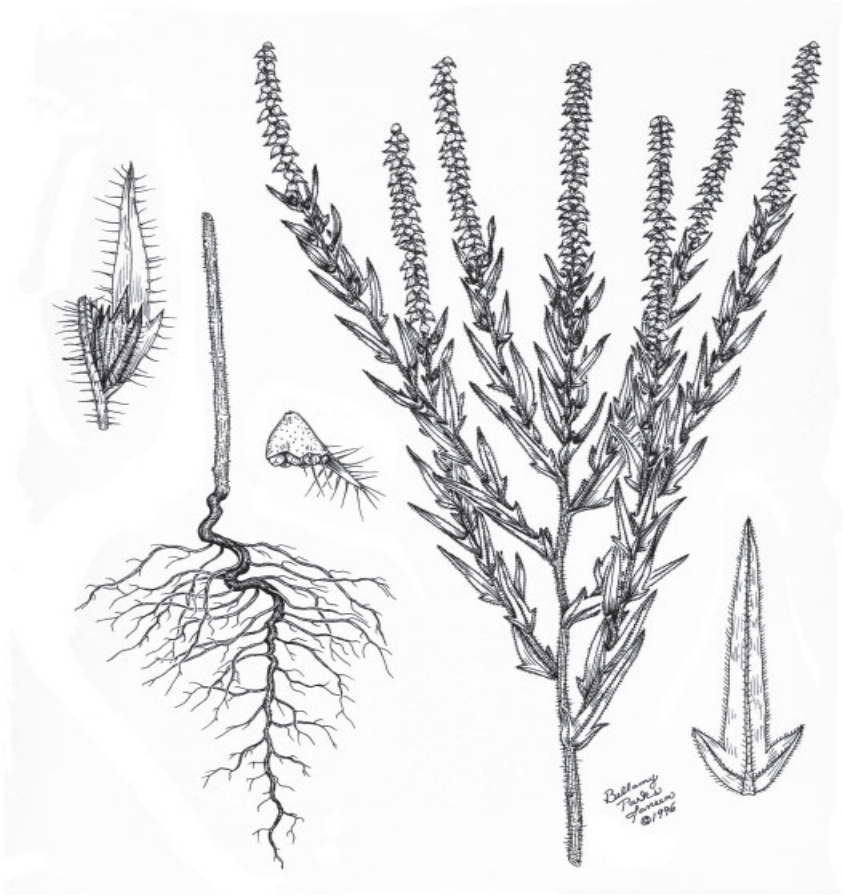
Wildlife eat plants; when abundant provides cover for quail.

Lanceleaf Ragweed

Ambrosia bidentata

Annual composite; stems 1-3 feet tall from large taproots; leaves alternate, sessile, lance-shaped with 2 basal lobes; heads of 2 types; staminate borne in terminal spikes; pistillate heads forming hardened burs in upper leaf axils.

Classic indicator of disturbance, especially heavy grazing. Pollen causes severe hay-fever in many humans, can be dangerous to especially sensitive individuals. Songbirds and upland game birds eat achenes, but species less important for wildlife than western and common ragweed.





Leadplant

Amorpha canescens

Silvery-gray, perennial legume; stems 1-4 feet tall; leaves alternate, 1-pinnately compound with 13-24 leaflet pairs; flowers bright purple or violet, borne in dense racemes at branch ends; fruits 1-seeded, plump, gland-dotted.

One of most important prairie legumes; nutrient content high; readily eaten by livestock and its abundance an indicator of range condition. Native Americans used as beverage, for smoking, and as a treatment for eczema, pinworms, stomach pain, rheumatism, and neuralgia.

Plains Wild Indigo

Baptisia bracteata

Perennial legume; stems branched, 1-2 feet tall; leaves alternate, palmately compound, leaflets 3; flowers yellowish or cream-white, butterfly-like, borne on elongated axes at ends of branches; fruits plump, gray or black.

Scattered plants or small populations in prairies and open woods. Native Americans made infusions from roots, decoctions from leaves, salves from seeds for various ailments. Fruits used for rattles. Limited value for wildlife.





Prairie Petunia, Wild Petunia

Ruellia humilis

Coarsely hairy perennial from short knotty rhizomes; stems branched, 4-sided, 0.75-1.5 feet tall; leaves opposite, egg- to lance-shaped; flowers borne in leaf axils, funnellform, petals 5, fused, light blue or lavender; fruits tan or dark brown, with long style persistent at apex.

Solitary plants in prairies and open upland forests. Abundance increases after fire. Prairie chickens, wild turkey, and songbirds eat seeds. White-tailed deer and rabbits browse occasionally.



Slender Bush Clover

Lespedeza virginica

Perennial legume from woody rootstocks; stems long, with crowded leaves on spreading branches; leaves alternate, 1-pinnately compound, leaflets 3; flowers small, butterfly-like, purple to pink, borne on short stalks in leaf axils; fruits flattened, 1-seeded.

Individual plants or small, scattered populations in prairies, open woods, and sandy stream valleys. Good wildlife species with fruits, stems, and leaves eaten. Cattle also relish; abundance decreases with heaving grazing.

Pussy-toes

Antennaria parlinii

Perennial composite from short rhizomes or stolons; stems woolly white, 4-12 inches tall; leaves forming basal rosettes of spatula-shaped leaves; heads whitish, small, clustered at ends of stems, with stamens or styles protruding.

Classic indicator of shaded forest floor. Typically forming large localized populations. Native Americans and settlers used medicinally for dysentery, bruises, inflammations, tumors, snake bites, respiratory congestion, problems of childbirth, bowels, and liver. Wildlife eat rosettes of leaves.



Tickclovers, Beggar's Lices

Desmodium spp.

Perennials; stems erect, with hooked hairs; leaves alternate, 1-pinnately compound, leaflets 3; flowers butterfly-like, pink or red-purple or lavender, borne on elongated axes at ends of stems; fruits flat, constricted into 2-8 1-seeded segments, covered with hooked hairs.

Fourteen native species. Fruit segments break apart at maturity and cling to clothing, skin, or fur. Both deer and cattle readily eat. Birds and small mammals eat nutritious seeds. Bees visit for nectar.





Western Ragweed

Ambrosia psilostachya

Perennial composite often forming extensive clones; stems 1-2 feet tall; leaves gray-green, sessile, both opposite and alternate; heads of 2 types; staminate borne in terminal spikes; pistillate heads forming hardened burs in leaf axils.

Classic indicator of land use; normal component of prairies, but increases with heavy grazing. Native Americans brewed leaves to relieve intestinal cramps, diarrhea, sore eyes. Pollen causes severe hay-fever, can be dangerous to sensitive individuals. Important food source for birds.

GRASSES

Big Bluestem, Turkeyfoot

Andropogon gerardii

Tall, perennial; stems solitary or small bunched, 3-8 feet tall; leaf blades flat, 1/4-1/2 inches wide, sparsely hairy; flowers in spikelets; spikelets paired, borne on 2-7 (typically 3) branches at ends of long stalks near ends of stems.

Native; one of the four dominant species of tallgrass prairie. Characteristic of late stages of plant succession. Adapted to fire and grazing. Decreases with soil disturbance. Increases with fire. Produces high quality hay. Provides food and cover for wildlife.





Broomsedge Bluestem

Andropogon virginicus

Perennial bunchgrass; straw-yellow or yellow-brown; stems 1-3 feet tall; leaf blades flat or folded, 1/8-1/4 inches wide; flowers in spikelets; spikelets partially hidden in clusters of leaves, branches, and long hairs arising near tops of stems.

Native; classic indicator of soil disturbance, poor land management, and fire suppression in fall. Seldom eaten by livestock, except when other forage scarce. Provides cover for birds and small mammals when dense.

Fish-on-a-Fishing-Pole Grass *Chasmanthium latifolium*

Rhizomatous, clone-forming, perennial; stems 2-3.5 feet tall; leaf blades flat, 1/4-3/4 inches wide; spikelets strongly flattened, borne at ends of long slender drooping branches.

Native; classic indicator of shaded moist soils of stream bottoms or lower slopes. Principal use in dried floral arrangements or as shaded border plant. Quail, turkey, and songbirds eat small amounts of caryopses. Not important forage for cattle.





Canada Wildrye

Elymus canadensis

Rhizomatous, perennial; stems 2-4 tall; leaf blades flat, 1/4-3/4 inches wide; spikelets borne in dense, cylindrical bristly spike that nods to one side at ends of stems.

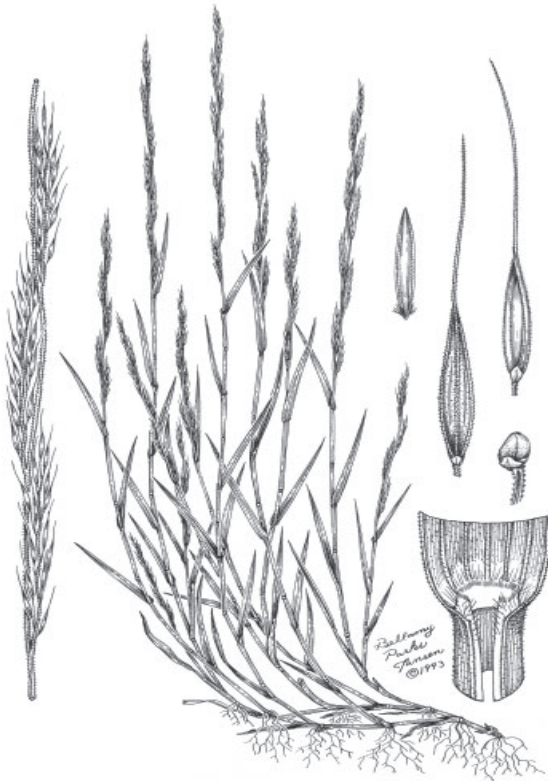
Native; typically encountered in open sites in prairies or along streams or in disturbed area. Minor component of Oklahoma's tallgrass prairie. Growth begins in autumn with flowering in early summer. White-tailed deer occasionally eat stems and leaves; use by other wildlife not reported.

Nimblewill

Muhlenbergia schreberi

Perennial bunchgrass; stems slender, 1-2 feet tall, bent and rooting at lower nodes; leaf blades 1/8-1/4 inches wide; spikelets small, each with long bristle, borne on slender overlapping branches of narrow panicles.

Native; characteristic of shaded soils of open woods and bottomlands. When abundant may provide some cover for small mammals. Quail, turkey, and a few songbirds occasionally consume caryopses.





Switchgrass

Panicum virgatum

Rhizomatous, clone-forming perennial; stems 2-5 feet tall; leaf blades long, curled or twist, flat, 1/4-3/4 inches wide, with triangular tuft of hairs at base; spikelets round, pointed, borne at ends of stiff, ascending and spreading branches in open panicles.

Native; one of the four dominant species of tallgrass prairie. Palatable and nutritious for livestock; produces good quality hay if cut before maturity. Several hay varieties developed. Wild mammals eat stems and leaves in spring and after fire. Birds eat caryopses.

Florida Paspalum

Paspalum floridanum

Robust, perennial, from short knotty rhizomes; stems 2-5 feet tall; leaf blades long, flat, 1/4-3/4 inches wide; spikelets large, box-turtle shaped, borne in pairs on one side of elongate axes near tips of stems.

Native; characteristic of moist sites in tallgrass prairie and open woods. Palatable and readily grazed by livestock. White-tailed deer, rabbits, and small mammals consume stems and leaves to a limited extent. Shorebirds, upland game birds, and songbirds eat caryopses.





Little Bluestem

Schizachyrium scoparium

Perennial sod-forming or bunchgrass; stems reddish blue-green, 1.5-4 feet tall, strongly flattened at bases; leaf blades flat or folded, narrow, long; spikelets borne on single branch at ends of numerous stalks arising along stems.

Native; one of the four dominant species of tallgrass prairie; also present in almost all communities across state.

Adapted to fire. Graze resistant. Provides cover for ground nesting birds and small mammals. Important component of prairie hay. Used to cover strip mine spoils.

Knotroot Bristlegrass

Setaria parviflora

Perennial from short, knotty rhizomes; stems 1.5-3 feet tall; leaf blades flat, 1/4-1/2 inches wide; spikelets borne in dense, cylindrical, bristly panicles, each with 4-12 long bristles partially hiding it.

Native; characteristic of early stages of plant succession. Best growth in moist or wet sites. Indicator of soil disturbance. Caryopses important food for many songbirds, upland game birds, and small mammals.





Indiangrass

Sorghastrum nutans

Perennial from short scaly rhizomes; stems and leaves blue-green; stems 3-6 feet tall; leaf blades flat, 1/4-3/4 inches wide, constricted at base; sheaths with 2 triangular “ears” at top; spikelets solitary, borne in soft golden asymmetrical panicles.

Native; one of the four dominant species of tallgrass prairie, and key management species. Provides high-quality forage when green. Cut for hay. Major component of seed mixtures for prairie restoration.

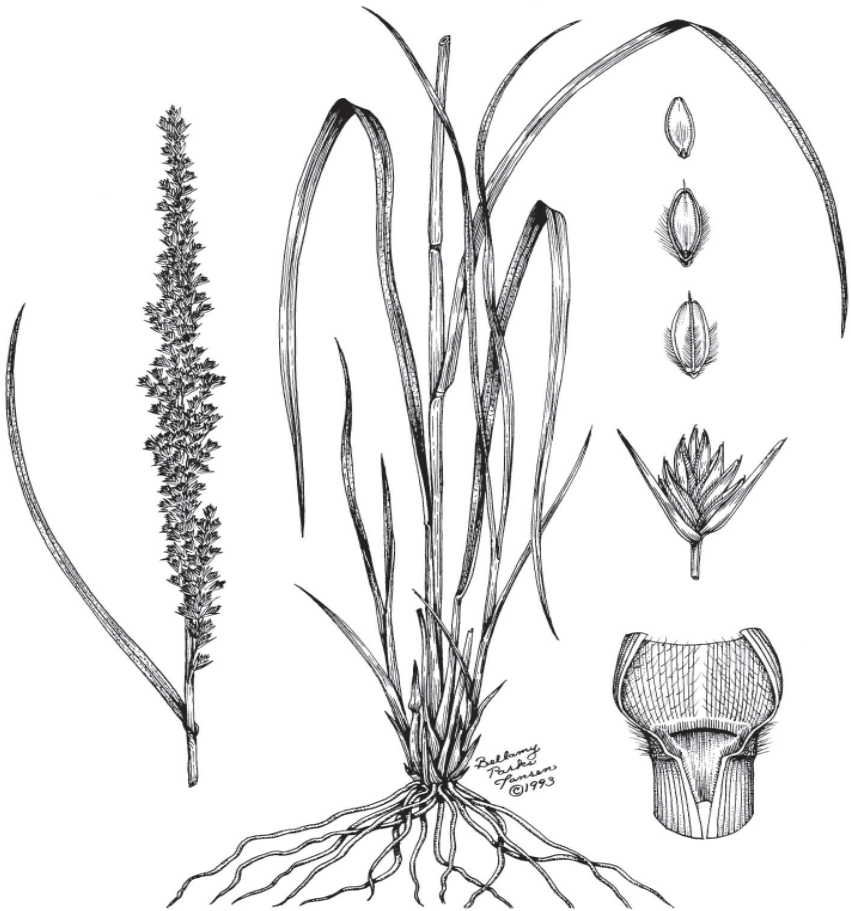
Purpletop, Greasegrass

Tridens flavus

Perennial bunchgrass from knotty base; stems 2-5 tall; leaf blades dark green, flat or curled, 1/4-1/2 inches wide; spikelets purple, flattened, borne at ends of spreading or drooping branches of panicles at end of oily/greasy stem.

Occupies variety of sites from rocky, uplands to bottomlands. Increases in abundance with moderate disturbance, heavy grazing. Not palatable to livestock until after frosts in autumn. Small mammals eat plants. Wild turkey and ground-feeding songbirds eat caryopses.





Longspike Tridens

Tridens strictus

Perennial bunchgrass; stems 2.5-5 feet tall; leaf blades flat or curled, 1/8-1/2 inches wide; spikelets borne in dense cylindrical panicles that are dark brown when mature.

Often forms large populations in moist sites of prairies and open, lowland woods. Growth begins in early spring with flowering in autumn. Small mammals eat limited amounts; other wildlife and livestock apparently do not eat. Songbirds occasionally eat the caryopses.

Tulsa Botanic Garden

The Tulsa Botanic Garden is remarkable in that it has been created on virgin land -- a site found after an exhaustive search of the greater Tulsa area for an ideal place for a botanical garden. It is an untouched landscape of contrasts of wide-open spaces framed by patches of woodland, of rolling hills, bright wildflowers, swaying grasses and gnarled oaks, some more than 100 years old. The Botanical Garden hosts botanical research, youth and adult education programs, special events, and stunning gardens. It will become one of Oklahoma's most diverse botanical gardens, with 15 major gardens encompassing at least 60 smaller gardens and dozens of special features and structures. The majority of the 170-acre site will be preserved for its historical and ecological significance. Natural areas are providing visitors the opportunity to explore native prairie and Cross Timbers forests in its natural state. Trails such as you will explore with this guide will help interpret the plants, animals, and history of this enchanted area. All of this exists only seven miles from downtown Tulsa, so enjoy an Oklahoma botanical treasure!



TULSA botanic GARDEN

918.289.0330 • tulsabotanic.org • 3900 Tulsa Botanic Drive, Tulsa, OK 74127

The Garden is a nicotine-free, non-smoking facility (including e-cigarettes and vaporizers).



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