



Chapter 5: The Blackland Prairies

Prior to Anglo-European settlement, a swath of tall grasslands and scattered woods extended from the vicinity of present-day San Antonio to the Red River, covering more than 8.5 million acres. After a few decades of utilization as open rangeland, the Blackland Prairies were broken and cultivated in the late nineteenth century. The water-retentive, calcareous dark clay soils became highly productive farmland. Similar soils occur in two separate belts of grasslands to the southeast, the Fayette Prairie and the San Antonio Prairie (so called because the original road from East Texas to San Antonio followed it); both areas were also grazed and cultivated beginning in the mid-nineteenth century. Dominant plants of the prairies included little bluestem, big bluestem, Indiangrass, switchgrass, tall dropseed, eastern gammagrass, and other grasses, with a variety of composites, legumes, mints, and other forbs (Tharp 1926, Launchbaugh 1955, Riskind and Collins 1975).

The Blackland Prairies of Texas are now among the most profoundly altered landscapes anywhere in the United States. More than 98 percent of the

former grassland area has been converted to cropland, or non-native pastures of grasses such as Bermudagrass, King Ranch bluestem, Johnsongrass, and others (Riskind and Collins 1975). Many formerly abundant species, such as big bluestem, are now uncommon throughout the region. Woody species have invaded many upland sites; fallow pastures are commonly dominated by weedy forbs such as ragweeds, nightshades and crotons (Dyksterhuis 1946). A second, even more irrevocable, transformation in land use is now taking place as Dallas-Fort Worth, Austin, and other urban areas displace farms and ranches.

Plant Communities of the Blackland Prairies

27. Upland Vertisol tall grasslands (Blackland Prairies).

Synonyms: Bluestem prairie (Küchler 1974); Little Bluestem-Indiangrass Series, in part (Diamond 1993); Little Bluestem-Yellow Indiangrass Herbaceous Alliance, in part (Weakley et al. 2000).

Description: Dark, calcareous Vertisols (e.g. Houston Black, Ferris, and Heiden associations) once supported millions of acres of grassland on the rolling uplands of the Blackland Prairie and Fayette Prairie, as well as on scattered inclusions in eastern Texas (primarily on the Fleming Formation). Abundant graminoids included little bluestem, Indiangrass, big bluestem, tall dropseed, eastern gammagrass (primarily in North Texas), switchgrass, sideoats grama, Texas cupgrass, and littletooth sedge. A diverse array of forbs carpeted the prairies, including Maximilian sunflower, heath aster, cusp gayfeather, prairie-bishop, rosinweeds, goldenrods, prairie bundleflower, prairie-clovers, prairie bluets, blue sage, narrowleaf coneflower, sensitive-briers, Indian-paintbrush, and many other species. Invasion by woody species (e.g. mesquite, sumac, eastern redcedar, elms, roughleaf dogwood) occurs in the absence of mowing or fire and may be exacerbated by overgrazing (Collins et al. 1975, Smeins and Diamond 1983, Diamond and Smeins 1985, Amos 1986, Carr 1993, TPWD 1993).

Status: These grasslands were extirpated in less than a century. Today, perhaps no more than 100 unplowed remnants exist; most high-quality remaining examples are tracts that were used by farmers as hay meadows (Diamond and Smeins 1985). Most other areas have been invaded by non-native grasses and clovers or weedy native forbs and woody plants. Protected acreage of native prairie totals about 6,000 acres, with perhaps 1,500 acres of that relatively unaltered in species composition. The largest remnant in a protected area is at the Clymer Meadow Preserve owned by The Nature Conservancy. Small remnants of prairie are located at other Conservancy preserves, Eisenhower State Recreation Area, Cedar Hill State Park and on lands owned by the City of Garland (Rosehill Prairie), Collin County (Parkhill Prairie), City of Ennis (Kachina Prairie), and City of Dallas (TPWD 1990a; Eidson, O'Kennon, Singhurst, J. Williams pers. comm.).

Suggested Priority for Further Protection of Community: High

28. Upland Alfisol tall grasslands.

Synonyms: Little Bluestem-Indiangrass Series, in part (Diamond 1993); Little Bluestem-Yellow Indiangrass Herbaceous Alliance, in part (Weakley et al. 2000).

Description: Grasslands occur on sandy soils on the Lissie Formation in the northern part of the Coastal Prairie region and isolated locales on the southern margin of the Fayette Prairie (e.g. Oakville Formation). Important species on these sites may include little bluestem, brownseed paspalum, Indiangrass, slender bluestem, rosettegrasses, bush-clovers, woolly croton, sunflowers, camphorweeds, firewheels, sensitive-briers, goldenrods, phloxes, pinweeds, and Drummond sandwort (Brackett 1939, Timmons 1942, Launchbaugh 1955, Collins et al. 1975, Diamond and Smeins 1985, Weakley et al. 2000, Singhurst pers. comm.).

Status: As with many grassland types, there are few remaining examples of these prairies of significant size and quality. More than 5,000 acres in good

condition is protected at Attwater's Prairie Chicken National Wildlife Refuge, with small examples protected on lands managed by the Katy Prairie Conservancy.

Suggested Priority for Further Protection of Community: High

29. Switchgrass-gammagrass mesic tall grasslands.

Synonyms: Gammagrass-Switchgrass Series (Diamond 1993); Switchgrass-Eastern Gammagrass Herbaceous Alliance, in part (Weakley et al 2000).

Description: Low-lying sites in the Blackland and Coastal Prairies supported tall grass communities dominated by eastern gammagrass and in some cases switchgrass, with hydrophilic species such as sedges and rushes as well as other prairie species such as bluestems, asters, sunflowers, and other forbs (Collins et al. 1975, Smeins and Diamond 1983, Diamond and Smeins 1984). (Eastern gammagrass may also be a dominant species in upland Vertisol and Mollisol prairies on various landscape positions in North Texas.) Gammagrass, switchgrass, and bluestems also form communities in bottomlands, swales, and other mesic sites within grasslands in other regions of Texas, including the Coastal Prairies, Edwards Plateau, and the Panhandle.

Status: As with all native tall grassland types in Texas, virtually all examples of these communities have been converted to agricultural uses (USDA 1996). Only small examples are preserved statewide, with the best example at the Nature Conservancy's Cowleech Prairie Preserve (Eidson, J. Williams pers. comm.). A couple of larger examples are known on private land. This is likely among the most threatened vegetation types in Texas.

Suggested Priority for Further Protection of Community: High

30. Silveanus dropseed Alfisol tall grasslands.

Synonyms: Silveanus Dropseed Series (Diamond 1993); Silveus Dropseed Herbaceous Alliance (Weakley et al. 2000).

Description: Uplands on sandy loam soils in the northeastern Blackland Prairie region including Lamar, Fannin, Bowie, Franklin, Hopkins, Rains, Delta and

Grayson counties (receiving more than 35 inches of annual rainfall) support prairies dominated by a unique mix of species. Silveanus dropseed, longspike tridens, and Mead sedge are dominant species, generally co-occurring with bluestems, Florida paspalum, rosettegrasses, Indiangrass, hairy fimbry, and other graminoids. Forb diversity of forbs may be high; common species include blue sage, sunflowers, asters, wild indigos, gayfeathers, yellow-puff, roughstem rosinweed, black-eyed Susan and many others (Collins et al. 1975, Weakley et al. 2000, Eidson pers. comm.).

Status: This vegetation type is possibly unique to Texas. Like other native tall grasslands, most examples have been plowed. Only a handful of examples occur in protected areas, but a few are in excellent condition: The Nature Conservancy's Tridens Prairie, the City of Paris Gambill Goose Refuge, and the Talbot Prairie Preserve owned by the Native Prairies Association of Texas.

Suggested Priority for Further Protection of Community: High

31. Deciduous mesic slope forests.

Synonyms: None.

Description: Mesic areas in the northern Blackland Prairie region, including parts of the Red, upper Sabine, and upper Trinity basins in Fannin, Grayson, Dallas, Hunt, Ellis and adjacent counties, may support predominantly deciduous forests or woodlands with both eastern and western affinities. Shumard oak, bur oak, post oak, and (on some areas of calcareous soils) chinquapin oak may be important, along with eastern redcedar, elms, redbud, blackjack oak, sugarberry or netleaf hackberry, white ash or Texas ash, mockernut hickory, roughleaf dogwood, red mulberry, coralberry, Cherokee sedge, grasses and vernal forbs. Shumard oak, chinquapin oak and the other species listed above can also be dominant on drier, somewhat sheltered sites such as hill slopes and bluffs in the northern Cross Timbers region. Adjacent uplands are typically (former) prairies or post oak-blackjack oak woodlands (Orzell 1990, Singhurst et al. 1998, Singhurst pers. comm.). Almost monospecific native stands of eastern redcedar

occur on upper terraces near the Red River adjacent to deciduous forests, with Texas ash, redbud, oaks and other species (Singhurst pers. comm.).

Status: These forests or woodlands have not been extensively described. Examples in conservation areas include Spring Creek Forest Preserve in the city of Garland, Fort Worth Nature Center, Cooper Lake State Park, Pat Mayse WMA, Eisenhower State Park, and some municipal parks in the Dallas area (Singhurst pers. comm.)

Suggested Priority for Further Protection of Community: Medium

32. Bur oak-Shumard oak bottomland forests.

Synonyms: Pecan-Sugarberry Series, in part (Diamond 1993).

Description: Bottomlands and floodplain terraces on alluvium influenced by calcareous soils occur throughout the region. These sites are typically dominated by elms, sugarberry, pecan, green ash, eastern cottonwood, and bois d'arc; however, relatively undisturbed floodplains with calcareous influence in North Texas may be dominated by forests of bur oak and Shumard oak. Associated species commonly include elbowbush, roughleaf dogwood, red mulberry, American beautyberry, deciduous holly, Virginia wildrye, Cherokee sedge, Virginia-creeper, poison-ivy, autumn bluegrass, coralberry, white avens, Turk's cap, frostweed, and other forbs typical of floodplain forests. Species composition differs somewhat in similar floodplains to the south and west (Tharp 1926, TPWD 1978, Nixon et al. 1991, Singhurst et al. 1998). Adjacent sites may be post oak-dominated woodlands or prairies.

Status: Many bottomland areas have been converted to pasture or farmland. The Spring Creek Forest Preserve owned by the city of Garland contains a mature, possibly old-growth example of this community (Nixon et al. 1991). Examples also occur at Fort Worth Nature Center, Hagerman National Wildlife Refuge, Big Lake Bottom WMA, and Rochester Park and other parks in the city of Dallas (TPWD 1978; J. Williams, Singhurst pers. comm.).

Suggested Priority for Further Protection of Community: Medium

Table 5. Conservation areas in the Blackland Prairies, with types of vegetation occurring within each area.

| Conservation Area and Manager | Vegetation Types Occurring in Area (fair condition or better) | Acreage of Conservation Area | Source of Information |
|--|---|--|--------------------------------------|
| Bilindsay Cove (AT) | | 81 | |
| Bois d'Arc (AT) | | 44 | |
| Cedar Hill State Park (COE/TPWD), Dallas Nature Center, Cedar Ridge and Cedar Mountain Preserves (Dallas County), and Dogwood Canyon Audubon Center and Sanctuary (AT) | 26 (7%),27 and 80 (17%),68b, 71b (40%) | 1,810 (TPWD) 424 (Dallas Co.) 141 (AT) | TPWD 1993,1996; Hellmann pers. comm. |
| Cedar Mountain Preserve (Dallas County) | 71b | 110 | |
| Clymer Meadow Preserve (TNC) | 27 (60%) | 1,113 | Eidson pers. comm. |
| Connemara Meadow (Connemara Conservancy) | | 73 | |
| Cottonwood Creek Preserve (Dallas County) | Not available | 220 | |
| County Line Prairie Preserve (TNC) | 26,27 (60%) | 39 | Eidson pers. comm. |
| Cowleech Prairie Preserve (TNC) | 29 | 86 | |
| Eisenhower State Park (COE/TPWD) | 27 (19%),31, 71b (74%) | 457 | TPWD 1996, 1990a |
| Elm Fork Preserve (Dallas County) | 26 | 22 | Flood pers. comm. |
| Ennis Kachina Prairie (City of Ennis) | 27 (80%) | 30 | |
| Fish Creek Preserve (Dallas County) | Not available | 37 | |
| Gambill Goose Refuge (City of Paris) | 30 (16%) | 670 | Eidson pers. comm. |
| Goat Island Preserve (Dallas County) | Not available | 348 | |
| Granger WMA (COE/TPWD) | 26 (20%),27,77 (5%) | 6,642 (land) | TPWD 1996 |
| Grapevine Springs Park Preserve (Dallas County) | Not available | 16 | |
| Great Trinity Forest Park (City of Dallas) | 26,32 | 210 | Hellmann pers. comm. |
| Indiangrass Prairie Nature Preserve (City of Austin) | 27 (25%) | 200 | Stone pers. comm. |
| Joppa Preserve (Dallas County) | 26 | 307 | |
| L. B. Houston Park (City of Dallas) | 32 | part of 476 | Hellman pers. comm. |
| Lee F. Jackson Spring Creek Forest Preserve (Dallas County) | 26,31,32,71b,80 | 102 | |
| Leonhardt Prairie Preserve (TNC) | 27 (95%) | 40 | Amos 1986 |

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|---|------------------|-------------|-----------------------|
| Lester Lorch Park (Dallas County) | Not available | 82 | |
| Mathews Prairie Preserve (TNC conservation easement) | 27 (100%) | 100 | Eidson pers. comm. |
| McCommas Bluff Preserve (Dallas County) | 21a,71b,76b | 111 | Seaman pers. comm. |
| McKinney Falls State Park (TPWD) | 26 | 630 | TPWD 1996 |
| Monument Hill/Kreische Brewery State Historical Park (TPWD) | 21a (42%),27 | 40 | TPWD 1996 |
| Muddy Creek Preserve (Dallas County) | Not available | 206 | |
| North Mesquite Creek Preserve (Dallas County) | Not available | 22 | |
| Oak Cliff Preserve (TLC) | 32,71b | 111 | |
| Palmetto-Alligator Slough Preserve (Dallas County) | 18,32,68b,76b | 267 | Seaman pers. comm. |
| Parkhill Prairie (Collin County) | 27 (15%) | 436 | Eidson pers. comm. |
| Post Oak Preserve (Dallas County) | 21a | 335 | Flood pers. comm. |
| River Bend Preserve (Dallas County) | Not available | 412 | |
| Rochester Park (City of Dallas) | 26,32 | part of 985 | |
| Rosehill Prairie (City of Garland) | 27 (90%) | 70 | |
| Rowlett Creek Preserve (Dallas County) | Not available | 97 | |
| Tenmile Creek Preserve (Dallas County) | Not available | 125 | |
| Tridens Prairie Preserve (TNC) | 26 (5%),30 (95%) | 97 | Eidson pers. comm. |
| Trinity Island Preserve (Dallas County Audubon Society) | 19,26,32? | 40 | |
| Trinity River Greenbelt Preserve (Dallas County) | 76b | 530 | |
| Trinity River/Mountain Creek Preserve (Dallas County) | Not available | 52 | |
| Veda Farrington Preserve (TLC) | 32,71b,80? | 314 | |
| White Rock Creek Park/Greenbelt (City of Dallas) | 31,32,80 | part of 770 | Singhurst pers. comm. |
| Windmill Hill Preserve (Dallas County) | Not available | 75 | |
| Woodland Basin Nature Area (City of Rowlett) | Not available | 300 | |
| Total: 19,905 acres (.19 percent of region) | | | |
| Abbreviations of Managing Entities: TNC=Nature Conservancy TPWD=Texas Parks and Wildlife Dept. TLC=Texas Land Conservancy COE=U.S. Army Corps of Engineers AT=Audubon Texas | | | |