



## **Chapter 11: The High Plains**

The High Plains covers more than 80 million acres in several states, including 18 million acres in the Texas Panhandle also known as the Staked Plains or Llano Estacado. The region supported coniferous forest until the late Pleistocene, but is now a dry steppe (Wells 1970). The low and variable rainfall (15-20 inches annually) mostly occurs during summer and is sufficient to support the shortgrass prairies described by early writers as a "sea of grass" (Bray 1906). These rangelands attracted the cattle industry by the 1870s. Cultivation began in the 1920s and intensified with utilization of the vast (but diminishing) Ogallala Aquifer. Where dryland farming has not displaced ranching activities, native range dominated by blue grama, buffalograss, and other midgrasses and shortgrasses still covers areas of the High Plains and extends throughout the Great Plains north to the Canadian border. However, the majority of rangelands in Texas have been invaded by low-growing mesquite in the last century, perhaps a result of overgrazing (Allred 1956, Box 1967a).

In addition to upland short grasslands, range sites on the High Plains include areas of hardlands, wind-blown sand drifts that support Havard oak and other shinnery species, and a few riparian areas. The southwestern part of the region is increasingly arid, grading into semi-desert brushlands (Havard 1885, Petersen et al. 1987). The eastern edge of the High Plains falls away at the sharply eroded Caprock Escarpment; the plains are also bisected by the Canadian River breaks, which expose shales and sandstones of the Rolling Plains (described in Chapter 10).

Scattered throughout the level High Plains are thousands of mostly ephemeral depressional wetlands or playas, which are often used for water catchment and storage. These seasonal wetlands are extremely important resources for wildlife, supporting several million ducks and geese annually (USFWS 1979).

### **Plant Communities of the High Plains**

#### **89. Blue grama-buffalograss short grasslands.**

Synonyms: Mixed Prairie Climax (Rowell 1967); Blue Grama-Buffalograss Grassland; Mesquite Shrub/Grassland, in part (McMahan et al. 1984); Blue Grama-Buffalograss Series (Diamond 1993); Blue Grama Herbaceous Alliance (Weakley et al. 2000).

Description: The dominant vegetation type on level uplands of variable soil depths on the High Plains and western Rolling Plains is a shortgrass prairie of blue grama, buffalograss, hairy grama, sand dropseed, and other grasses and forbs. Grazing has favored "increasers" such as buffalograss, silver bluestem, and tobosa; taller grasses such as sideoats grama and western wheatgrass have probably decreased in abundance. Abundant forbs on hardland or grassland sites include stiffstem flax, locoweeds, bitterweeds, sunflowers, woolly-whites, scarlet globe-mallow, and other weedy species (Bray 1906, Rowell 1967, Ellis and Schuster 1968, Brown and Schuster 1969, Trlica and Schuster 1969,

McMahan et al. 1984). This community covers a vast area from West Texas to the northern Great Plains.

Status: Non-native grasses such as kleingrass have been widely seeded on millions of acres. Large areas of formerly treeless rangeland have been invaded by mesquite, narrowleaf yucca, junipers, and other brush species; broomweeds and other weedy forbs dominate many grazed areas. However, remnants of this relatively stable community probably retain pre-settlement species composition in spite of overgrazing. Some acreage is protected in the Lake Meredith National Recreation Area and Buffalo Lake and Muleshoe National Wildlife Refuges (National Park Service 1996; Clapp, Nymeyer pers. comm.)

Suggested Priority for Further Protection of Community: Medium

#### **90. Intermittent wetlands (playa lakes).**

Synonyms: Playa Lake (Rowell 1967); Western Wheatgrass Intermittently Flooded Herbaceous Alliance; Blue Mud-plantain Permanently Flooded Herbaceous Alliance; Smartweed species Seasonally Flooded Herbaceous Alliance, in part (Weakley et al. 2000).

Description: Intermittently flooded depressional lakes or playas occur throughout the High Plains, probably resulting from blowouts in sandy surface soils exposing the underlying clay. These wetlands are supported almost entirely by seasonal rainfall (though some now receive tailwater from irrigated cropland); the disturbance caused by fluctuating water levels strongly influences the composition of vegetation in the playas. Semipermanently inundated playas may contain vegetation similar to riparian areas (e.g. willows, grasses, rushes, and aquatic plants such as arrowheads and mud-plantains). Western wheatgrass may be dominant; other playas are often overgrown with successional species such as bur ragweed, alkali mallow, spotted evening-primrose, buffalograss, barnyardgrass, sunflowers, summer cypress, narrowleaf goosefoot, and other weedy forbs and grasses. Common species in frequently flooded areas include

smartweeds, large-spike spikedge, and knotgrass (Reed 1930, Penfound 1953, Haukos and Smith 1997).

Status: Though largely intact until the twentieth century, many playas have been dredged in recent decades or used to hold runoff from cropland. Overgrazing may be detrimental to playa vegetation, favoring invasion by unpalatable species (Haukos and Smith 1997). Despite the importance of playas for wildlife, few efforts have been made to protect them, with the only protected areas being the Playa Lakes WMA and an area owned by the city of Cactus (TPWD 1996).

Suggested Priority for Further Protection of Community: Fairly High

Table 11. Conservation areas in the High Plains, with types of vegetation occurring within each area.

Conservation Area	Vegetation Types Occurring in Area	Acreage in Conservation Area	Source
Buffalo Lake National Wildlife Refuge (USFWS)	82b (<5%),89 (40%)	7,664	Nymeyer pers. comm.
Muleshoe/Grulla National Wildlife Refuge (USFWS)	89 (70%),90 (10%),94 (20%)	5,814	Clapp pers. comm..
Lubbock Lake Landmark State Historical Park (TPWD)	82a (56%),92 (27%)	367	TPWD 1996
Playa Lakes State WMA (TPWD, 3 tracts)	84,89,90	1,660	TPWD 1996
Total: 15,505 acres (.08 percent of region)			
Abbreviations of Managing Entities: USFWS=U.S. Fish and Wildlife Service TPWD=Texas Parks and Wildlife Dept.			