



## **Chapter 8: The Edwards Plateau and Llano Uplift**

The Edwards Plateau is a 20 million acre shield of Cretaceous limestone that forms a region that is distinctively different from other areas of Texas in terrain, vegetation, and cultural character. The plateau is rolling, with eroded valleys and weathered hills inspiring the popular name of Texas Hill Country. The greatest vertical relief (300-800 feet) occurs along the dissected southern part of the Balcones Escarpment, the fault zone that separates the plateau from the South Texas Plains and the Blackland Prairie. Despite the shallow soils and relatively low annual rainfall (from 32 inches near San Antonio to 16 inches on the western plateau), the plateau has been intensively utilized for goat, sheep, and cattle production (Buechner 1944). Though still lightly settled, the rural areas are increasingly experiencing population growth and residential development.

The nature of the vegetation of the Edwards Plateau prior to goat and sheep ranching is uncertain (Van Auken 1993). The spread of brush species has

likely obscured natural variations in vegetation, which probably followed topographic gradients. Prior to Anglo-European settlement, upland areas probably supported a mix of woodlands, oak savannas, and grasslands (Fowler and Dunlap 1986), but the extent of open grasslands is unclear. Ashe juniper is believed to have been most dominant in canyons and on slopes. Overgrazing of uplands has encouraged the spread of unpalatable brush species such as juniper, Texas persimmon, and mesquite, which are now abundant throughout the region. Today, most uncleared areas are woodlands or regrown "shinnery." Similar oak and juniper woodlands and mixed grasslands also occur on limestone-bedded sites in the Cross Timbers (see Chapter 9).

The Edwards Plateau is one of the most floristically diverse regions of Texas. As rainfall decreases to the west, west Texas species become more abundant. To the north, the plateau grades into the mesquite-dominated Rolling Plains. Limestone aquifers produce large springs and semipermanent rivers. Limestone bluffs and canyons shelter a high number of endemic shrubs and forbs. River terraces support woodlands of sugarberry, pecan, and elms, with baldcypress reaching large size along spring-fed rivers. Smaller, high-energy streamcourses support sycamore, little walnut, and other deciduous species.

The Llano Uplift, an intrusion of Precambrian igneous and metamorphic rock, covers 2.5 million acres in Llano County and adjacent counties. The vegetation of the Llano Uplift shares general characteristics with that of the surrounding Edwards Plateau, but granite outcrops support unique plant communities (Whitehouse 1933, Riskind and Diamond 1988).

### **Plant Communities of the Edwards Plateau and Llano Uplift**

#### **66. Ashe juniper low forests.**

Synonyms: Live Oak-Ashe Juniper Woods; Ashe Juniper Parks/Woods (McMahan et al. 1984); Ashe Juniper-Oak Series (Diamond 1993), Ashe's Juniper Woodland Alliance (Weakley et al. 2000).

Description: Closed, often dense stands of Ashe juniper are the dominant type of vegetation in canyons and on slopes of the Edwards Plateau. Ashe juniper is now the dominant species throughout shallow-soiled uplands as well, invading former grasslands. This is also an important vegetation type on limestone hills in the Cross Timbers, especially Stephens and Palo Pinto counties (McMahan et al. 1984). Stands may be almost monospecific, but usually contain Texas oak, plateau live oak, cedar elm, shin oak, Texas persimmon, agarito, cedar sedge, elbowbush, deciduous holly, sumacs, twisted-leaf yucca, encinilla, and on some formations Texas mountain-laurel. Openings are dominated by grammas, bluestems, seep muhly, Texas wintergrass, and other grasses and forbs (Van Auken et al. 1979, Van Auken et al. 1980, Van Auken 1988, Terletzky and Van Auken 1996). Lacey oak can be a dominant species on slopes, ridges, and canyons on the southwestern Edwards Plateau, especially west and south of Kerrville (Buechner 1944); papershell pinyon occurs farther west (e.g. Edwards, Uvalde, and Kinney counties). Redberry juniper, Mohr oak, and shortgrasses are dominant at similar sites to the west and north of the plateau (Dye et al. 1995). Where overgrazing and recent soil erosion have exposed beds of caliche, colonies of *Nostoc commune* (a cyanobacterium) may predominate (Weakley et al. 2000).

Status: Though Ashe juniper woodlands are ubiquitous in limestone areas of central Texas, most mature stands have been cleared (Diamond et al. 1995). Regrown juniper forests are the dominant vegetation at many popular parks and wildlife areas, such as Lost Maples State Natural Area; Garner, Government Canyon, and Possum Kingdom State Parks; and many other sites, totaling roughly 45,000 acres. There are possibly "old growth" stands in protected areas, including the Balcones Canyonlands National Wildlife Refuge and Guadalupe River State Park; however, the old-growth site at Guadalupe River State Park is currently recommended for disposition by the General Land Office (TPWD 1996, Texas General Land Office 2000, Sexton pers. comm.).

Suggested Priority for Further Protection of Community: Low

**67. Upland plateau live oak savannas.**

Synonyms: Live Oak-Ashe Juniper Parks, Live Oak-Mesquite-Ashe Juniper Parks (McMahan et al. 1984); Plateau Live Oak Series (Diamond 1993); Plateau Oak Woodland Alliance (Weakley et al. 2000).

Description: Plateau live oak occurs in mottes or thickets on limestone and granite uplands throughout central Texas. Other common species include cedar elm, little bluestem, sideoats grama, silver bluestem, Texas wintergrass, Texas grama, curlymesquite, and forbs such as rough zexmenia, hairy least-daisy, Texas bluebonnet, Texas bush-clover, Engelmann daisy, rabbit-tobaccos, vervains, and many other forbs (Tharp 1939, Buechner 1944, Whisenant 1981, Fowler and Dunlap 1986). Many of these species (except little bluestem) increase with grazing; severely overgrazed areas are often low in diversity and dominated by species such as mesquite, Texas prickly pear, Ashe juniper, and Texas persimmon.

Status: Though planted grasses such as King Ranch bluestem are often dominant, native "increaser" grasses may also be abundant in pastures and oak savannas. Examples of this vegetation occur at a number of state parks and other sites (TPWD 1996). Most examples contain thick growth of plateau live oak and juniper that probably was controlled by natural fires prior to the twentieth century (Riskind and Diamond 1988).

Suggested Priority for Further Protection of Community: Fairly Low

**68a. Upland post oak-blackjack oak savannas (Llano Uplift).**

Synonyms: Post Oak-Blackjack Oak Series (Diamond 1993); Post Oak-Blackjack Oak Woodland Alliance, in part (Weakley et al. 2000).

Description: Uplands in the Llano Uplift and Cross Timbers and ridges in parts of the central Edwards Plateau support savannas of post oak with some blackjack oak. Cedar elm, black hickory, and plateau live oak may be dominant at various locales; mesquite and prickly pear are abundant at overgrazed sites. Little bluestem and sideoats grama were dominant grasses prior to overgrazing,

though Texas wintergrass, silver bluestem, purple threeawn, shortgrasses, and seep muhly are now more abundant (Buechner 1944, Whisenant 1981).

Status: Brush has invaded many examples, and the species composition in the herbaceous layer often has been greatly modified as a result of grazing. Enchanted Rock State Natural Area and Inks Lake State Park contain examples of this vegetation type (TPWD 1996). Similar vegetation is widespread on sand substrates throughout the eastern two-thirds of Texas.

Suggested Priority for Further Protection of Community: Fairly Low

**69. Upland mixed grasslands (western Edwards Plateau).**

Synonyms: Curlymesquite-Sideoats Grama Series (Diamond 1993); Curlymesquite-Sideoats Grama Herbaceous Alliance (Weakley et al. 2000).

Description: On uplands of the western Edwards Plateau, juniper and oak woodlands and savannas intermix with open rangelands and grass openings. Sideoats grama, Texas cupgrass, and green sprangletop may be dominant at relatively undisturbed range sites; curlymesquite, Texas wintergrass, hairy grama, red grama, Hall's panicum, buffalograss, purple threeawn, white tridens and hairy tridens are more abundant on grazed rangelands, depending on soil moisture, aspect, and range condition. Taller grasses such as little bluestem, Indiangrass, and meadow dropseed may have been more common prior to the ranching era. Abundant forbs (somewhat tolerant of grazing) include lazy-daisies, Texas bluebonnet, Mexican hat, arrowleaf sida, sennas, and prairie-tea (Smeins et al. 1976, McGinty et al. 1983, Waid et al. 1984, Fowler and Dunlap 1986, McPherson and Rasmussen 1990). Woodlands or shrublands of mesquite, acacias, junipers, oaks, netleaf hackberry, lotebush, Texas prickly pear, Texas persimmon and other brush species predominate in drainages and disturbed areas and on shallow soils (Barkley 1936, Smith and Butterwick 1975, TPWD 1992, McMahan et al. 2000).

Status: Many range sites are in poor condition or altered in species composition; many examples are savannas or brush-dominated (Smeins et al. 1976). Poor

examples occur at Devils River State Natural Area, Dolan Falls Preserve, Kickapoo Cavern State Park, and other areas (TPWD 1996).

Suggested Priority for Further Protection of Community: Low

**70. Upland savannas (western Edwards Plateau).**

Synonyms: Papershell Pinyon Woodland Alliance, in part (Weakley et al. 2000 )

Description: Papershell pinyon, Ashe or redberry juniper, plateau live oak, Vasey shin oak, mesquite, and shrubs (e.g. acacias, agarito, Texas persimmon, condalias, elbowbush) grow in open savannas on limestone uplands and in closed woodlands in canyons of the western Edwards Plateau and Stockton Plateau. Grasses in openings include grammas, bluestems, Canada wildrye, buffalograss, tridens, curlymesquite, and purple threeawn. This vegetation type grades into savannas of redberry juniper, mesquite, and Mohr shin oak on the Stockton Plateau and the southern Rolling Plains (TPWD 1990g). Uplands and canyons on limestone in the southeastern Trans-Pecos support similar vegetation (see Chapter 12).

Status: This poorly defined vegetation type is mainly on private lands, but occurs within Devils River State Nature Area and Dolan Falls Preserve (TPWD 1992).

Suggested Priority for Further Protection of Community: Fairly Low

**71a. Oak-juniper dry-mesic forests (Edwards Plateau).**

Synonyms: Texas Oak Series (Diamond 1993); Buckley Oak Forest Alliance (Weakley et al. 2000).

Description: Forests on limestone hillsides and slopes of the Edwards Plateau and Cross Timbers are often dominated by Texas oak, with Ashe juniper usually codominant. Plateau live oak, cedar elm, shin oak, and (in canyons) escarpment black cherry may be common. These closed forests are often adjacent to upland areas dominated by plateau live oak, monospecific Ashe juniper, or grasses, and may be indistinct from other communities. Limestone cliffs and canyons within these sites may shelter uncommon species (Diamond 1993, Weakley et al. 2000).

Status: Texas oak is one of the most abundant species in the Edwards Plateau, but stands with a healthy understory and herbaceous layer are rare. Deer overbrowsing of juvenile trees may threaten the viability of Texas oak and other hardwoods, as well as many forbs (Russell and Fowler 1999). About 8,000 acres are protected at conservation sites, but sites are of variable quality. Balcones Canyonlands National Wildlife Refuge and Pedernales Falls State Park contain fairly mature examples of this community (TPWD 1996, Sexton pers. comm.). Suggested Priority for Further Protection of Community: Medium

### **72. Deciduous mesic canyon forests.**

Synonyms: Bigtooth Maple-Oak Series, in part (Diamond 1993); Bigtooth Maple-Buckley Oak-Chinquapin Oak Forest Alliance (Weakley et al. 2000).

Description: Mesic slopes and steep canyon heads in the Edwards Plateau may support stands dominated by hardwood trees such as escarpment black cherry, walnuts, and Texas ash as well as Texas oak, Ashe juniper, cedar elm, and other widespread species. Some sheltered stream canyons in the southern Edwards Plateau contain mature mesophytic, mostly deciduous forests of slippery elm, chinquapin oak, and other hardwoods (Carr pers comm.). Forests dominated by bigtooth maple, chinquapin oak, and other hardwoods grow in a few sheltered, well-watered canyons in Bandera County and adjacent counties and at Fort Hood in Bell County, with a number of uncommon and disjunct species (Gehlbach and Gardner 1983). The natural occurrence of bigtooth maple may indicate microclimates with relatively lower temperatures and insolation (Rice 1960).

Status: These beautiful forests are rare, isolated, and increasingly pressured by rural residential development. Deer browsing may severely inhibit regeneration of oaks and other hardwoods. The Kerr WMA contains forests of slippery elm and chinquapin oak (Singhurst pers. comm.). Stands of bigtooth maple in protected areas are limited to riparian stringers in Lost Maples State Natural Area (75 acres), the Nature Conservancy's Love Creek Preserve, and a small area at Fort Hood

(Department of Defense) currently managed for preservation of golden-cheeked warbler (TPWD 1996, Carr pers. comm.).

Suggested Priority for Further Protection of Community: High

### **73. Limestone bluffs and seeps.**

Synonyms: Southern Maidenhair Saturated Herbaceous Alliance, Wand Butterfly-bush-Mexican Buckeye Shrubland Alliance (Weakley et al. 2000).

Description: Natural exposure of limestone in the Edwards Plateau is primarily limited to canyon bluffs and streambeds. Crevices and bluffs shelter plants such as wand butterfly-bush, cedar sage, shrubby boneset, sunflower goldeneye, Lindheimer rock-daisy, lip and cliffbrake ferns, and several rare or endemic species (e.g. mock-oranges), as well as woody species common in surrounding canyons such as Texas persimmon and Mexican-buckeye. Seepage areas in limestone bluffs and canyon walls create microhabitats supporting southern maidenhair, southern shield fern, mosses, and some unusual forbs (Palmer 1920, TPWD 1989g, Weakley et al. 2000). Similar vegetation occurs in limestone seep microhabitats in the Trans-Pecos (see Chapter 12).

Status: Canyons with unusual taxa are uncommon and local. Protected sites include Lost Maples and Devils River State Natural Areas, Dolan Falls Preserve, and some tracts of the city of Austin's Balcones Canyonlands Preserves (TPWD 1992). Seeps are fairly common in the Edwards Plateau and are protected at a number of sites. Unprotected examples are threatened by clearing, livestock, and overuse by recreational users.

Suggested Priority for Further Protection of Community: High

### **74. Exposed granite outcrops.**

Synonyms: Nuttall's Stonecrop Sparsely Vegetated Alliance (Weakley et al. 2000)

Description: Outcrops of Precambrian granitic rock are common in Llano, Mason and adjacent counties and support unique assemblages of plants. Bare granite

is typically covered with lichens; accumulations of shallow soil support Nuttall's stonecrop. Moist interstitial crevices between granite boulders contain spikemosses, lip and cliffbrake ferns, little bluestem and other grasses, cacti, unusual assemblages of forbs (including disjunct and endemic species), and stunted trees and shrubs of surrounding woodlands (e.g. post oak, blackjack oak, Texas persimmon, cedar elm, prickly pear, tasajillo). Shallow vernal pools occur on a few large granite exposures (e.g. Enchanted Rock) and support ephemeral populations of unusual or disjunct species such as quillworts and bladderworts (Whitehouse 1933, Walters and Wyatt 1982, Weakley et al. 2000).

Status: Often inaccessible to livestock, these uncommon and unusual communities have faced few threats other than sporadic quarrying, but may be threatened in the future by rural development. Good examples are protected at Enchanted Rock State Natural Area, Inks Lake State Park, and Mason Mountain WMA, totaling a few hundred acres (TPWD 1996, Singhurst pers. comm.).

Suggested Priority for Further Protection of Community: High

#### **75. Spring-fed streams (Edwards Plateau).**

Synonyms: None.

Description: Semipermanent springs and streams in the Edwards Plateau may support stable aquatic communities, with sedges, switchgrass, big muhly, bushy bluestem, and other graminoids on stream banks and water-pennywort, brookweeds, and algae in streams (TPWD 1989g).

Status: Stream banks and slopes in the Edwards Plateau are often overgrazed; increasingly, rural areas of the plateau are being cleared for development. Small springs and spring runs are protected in Lost Maples and Honey Creek State Natural Areas, Colorado Bend State Park, Kerr WMA, the City of Austin's Balcones Canyonlands Preserves, and other areas (TPWD 1989g).

Suggested Priority for Further Protection of Community: Fairly High

**76a. Pecan-elm floodplain woodlands (Edwards Plateau).**

Synonyms: Pecan-Elm Forest, in part (McMahan et al. 1984); Pecan-Sugarberry Series (Diamond 1993); Pecan-(Sugarberry) Temporarily Flooded Forest Alliance (Weakley et al. 2000).

Descriptions: Mature floodplains of permanent streams in the Edwards Plateau, Cross Timbers, and adjacent areas support deciduous woodlands dominated by pecan, American elm, sugarberry, plateau live oak, and along river banks eastern cottonwood, sycamore, and black willow. Virginia wildrye and other grasses, caric-sedges, Turk's cap, and frostweed are common in the ground layer (Havard 1885, Whisenant 1981, Ford and van Auken 1982, TPWD 1989g).

Status: Examples of this community are protected at Guadalupe River, Colorado Bend, and South Llano River State Parks and other sites.

Suggested Priority for Further Protection of Community: Fairly Low

**77. Streambeds.**

Synonyms: Sycamore-Willow Series, in part (Diamond 1993); Sycamore-(Green Ash, Sugarberry, Silver Maple) Temporarily Flooded Forest Alliance, in part; Switchgrass Temporarily Flooded Herbaceous Alliance (Weakley et al. 2000).

Description: Frequently flooded or scoured limestone streambeds, washes, and stream terraces in the Edwards Plateau and Cross Timbers and adjacent areas of the South Texas Plains support assemblages of sycamore, ashes, willows, walnuts, seep-willow, buttonbush, switchgrass, sedges, and other species (TPWD 1990e, 1992; Wood and Wood 1988). Most of these species also occur along semipermanent streams in the Rolling Plains and South Texas.

Status: This type of vegetation is widespread through the central and southern Edwards Plateau, though sites are limited in areal extent. Several state parks (e.g. Lost Maples, Garner) contain this community (TPWD 1992, TPWD 1996).

Suggested Priority for Further Protection of Community: Fairly High

**78. Baldcypress riparian woodlands.**

Synonyms: Baldcypress-Sycamore Series (Diamond 1993); Bald-cypress-(Sycamore) Temporarily Flooded Forest Alliance (Weakley et al. 2000).

Description: Baldcypress grows on frequently flooded banks of permanent streams (e.g. the Guadalupe, Frio, Medina, Blanco, Pedernales, and Colorado rivers) flowing through the Edwards Plateau and adjacent South Texas Plains and Blackland Prairie. Adjacent terraces and slopes usually support deciduous floodplain forests or oak-juniper woodlands (Wood and Wood 1989).

Status: This community is widespread along rivers and streams in the Edwards Plateau, though the herbaceous layer is often modified by grazing or for recreational use. Poor recruitment of baldcypress is often observed (Van Auken 1993). Most areas are in private ownership, but examples occur at Hamilton Pool Preserve; at Guadalupe River, Honey Creek, Garner, and Pedernales Falls State Parks; and other areas (TPWD 1996).

Suggested Priority for Further Protection of Community: Fairly High

**79. Netleaf hackberry-plateau live oak floodplain woodlands.**

Synonyms: Plateau Live Oak-Netleaf Hackberry Series (Diamond 1993); Plateau Oak-Sugarberry Woodland Alliance, in part (Weakley et al. 2000).

Description: Gallery forests on drainages and floodplains in the western Edwards Plateau and adjacent South Texas west to the Pecos River may be dominated by netleaf hackberry, plateau live oak, pecan, little walnut, ashes, and other species, with Texas persimmon, Texas mountain-laurel, and Mexican-buckeye in the understory. Surrounding woodlands are composed of junipers, oaks, or mesquite and acacias (Wood and Wood 1989, TPWD 1992, TPWD 1994).

Status: Mature examples of this community are protected at Devils River State Natural Area and Dolan Falls Preserve, totaling 500 acres (TPWD 1992, 1996). This community is not yet threatened by population pressure, but is noteworthy because of the presence of Mexican species unique to Texas (TPWD 1992).

Suggested Priority for Further Protection of Community: Medium

Table 8. Conservation areas in the Edwards Plateau, with types of vegetation occurring within each area.

Conservation Area	Vegetation Types Occurring in Area	Acreage in Area	Source
Balcones Canyonlands National Wildlife Refuge (USFWS)	66 (50%),67 (30%), 68a (3%),71a (16%),76a and 77 (1%),80 (1%)	16,480	Sexton pers. comm.
Balcones Canyonlands Preserves (City of Austin, LCRA, City of Cedar Park, and conservation agreements), Baker Sanctuary (TAS), Ruth P. Lehmann Preserve (TNC)	26,66 (55%),67 (20%),71a (15%),80 (3%)	16,121 (City of Austin, LCRA, etc.); 160 (TAS); 680 (TNC)	Sexton pers. comm.
Barton Creek Greenbelt and Wilderness Park (City of Austin)	66,77	1,812	
Barton Creek Habitat Preserve (TNC)	66 (20%),67 (30%),76a (10%)	4,050	Wolfe pers. comm.
Blanco State Park (TPWD)	26,66	104	
Bright Leaf State Natural Area (TPWD)	26 (6%), 66 (52%), 71a (38%)	217	TPWD 1996
Canyon of the Eagles Preserve (LCRA)	66,67	940	LCRA 1995
Colorado Bend State Park (TPWD)	66 (22%),67,71a, 76a (4%),75,77	5,328	TPWD 1996, 1989g
Devils River State Natural Area (TPWD) and Dolan Falls Ranch Preserve (TNC)	56 and 57(21%),69 (23%),70 (30%), 73 and 75 (<1%), 77,79 (1%),101, 104 (15%),111	19,989 (TPWD); 4,795 (TNC)	TPWD 1992, 1996; Karges pers. comm.
Devil's Sinkhole State Natural Area (TPWD)	67 (92%),70 (4%), 79 (2%)	1,801	TPWD 1994, 1996
Eckert James River Bat Cave Preserve (TNC)	67	9	
Eisenhauer Park (City of San Antonio)	66	340	Nelka pers. comm.
Emilie and Albert Friedrich Park (City of San Antonio)	66,71a	239	Nelka pers. comm.
Enchanted Rock State Natural Area (TPWD)	68a (60%), 74 (20%), 76a (<1%)	1,643	TPWD 1996
Ezell's Cave Preserve (TNC)	66	3.5	
Fort McKavett State Historic Park (TPWD)	67 (34%)	53	TPWD 1996
Garner State Park (TPWD)	26 (5%), 57 (4%),66 (45%),79 (4%),78	1,424	TPWD 1996
Government Canyon State Natural Area (TPWD)	66,71a	6,643	TPWD 1996

Guadalupe River State Park and Honey Creek State Natural Area (TPWD)	66 (16%),67 (48%),75,76a,78	4,699	TPWD 1996
Hill Country State Natural Area (TPWD)	66 (25%),67 (25%),71a (16%)	5,370	TPWD 1996
Inks Lake State Park (TPWD)	67and 74 (91%), 76a (1%)	1,201	TPWD 1996
Kerr State WMA (TPWD)	66 (35%),67 (35%),68a (20%), 71a (10%),72	6,493	TPWD 1996
Kerrville-Schreiner State Park (TPWD)	66 (75%)	517	TPWD 1996
Kickapoo Cavern State Park (TPWD)	56,57,66,67 (6%), 69 (4%),70 (4%), 79	6,368	TPWD 1996
Longhorn Cavern State Park (TPWD)	66 (86%)	639	TPWD 1996
Los Rincones Preserve (NAPA)	66,71a	138	
Lost Maples State Natural Area (TPWD)	66 (77%),69,71a (2%),72 (4%),73, 75,77	2,174	TPWD 1996
Love Creek Ranch (TNC)	66,71a,72,73,75, 77	1,850	Carr pers. comm.
Lyndon B. Johnson State Historical Park (TPWD) and National Historical Park (NPS)	66,67,76a	733 and 1,560	TPWD 1996
Mason Mountain State WMA (TPWD)	68a and 71a (90%), 74 (8%?)	5,363	Singhurst pers. comm.
Old Tunnel State WMA (TPWD)	67,68,71a,76a	11	TPWD 1996
Pedernales Falls State Park (TPWD)	66 (50%),67 (14%), 71a (10%),73,75,76a (2%),77,78 (<1%)	5,212	TPWD 1996
South Llano River State Park and Walter Buck State WMA (TPWD)	66 (52%),67 (12%),71a (24%), 76a (9%)	2,631	TPWD 1996
Westcave Preserve (LCRA)/ Hamilton Pool Preserve (Travis County)	66,67,73,75,78	26 (LCRA) 232 (Travis Co.)	
Wild Basin Wilderness Park (Travis County) and Vireo Preserve (City of Austin)	26,66,67,71a	227 (Travis Co.) 214 (City of Austin)	
Total: 142,246 acres (.62 percent of region)			
Abbreviations of Managing Entities: USFWS=U.S. Fish and Wildlife Service      TNC=Nature Conservancy of Texas LCRA=Lower Colorado River Authority      TPWD=Texas Parks and Wildlife Dept. TAS=Travis County Audubon Society      NPS=National Park Service			