

APPENDIX C

Fish and Wildlife Coordination Act Report
for
El Paso Rio Bosque Wetlands Restoration
El Paso, Texas



November 2020

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1. INTRODUCTION

This Fish and Wildlife Coordination Act Report (FWCAR) for the Rio Bosque Wetlands Project, El Paso, Texas, was prepared by the U.S. Army Corps of Engineers (USACE), Albuquerque District, in coordination with the U.S. Fish and Wildlife Service (USFWS), Texas Coastal Ecological Services Field Office. This report was prepared under the authority of Sections 2(a) and (b) of the Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 USC 661) and in accordance with the Agreement between the USFWS and the USACE for conducting Fish and Wildlife Coordination Act activities, signed January 22, 2003.

1.1. Fish and Wildlife Coordination Act Requirements

Section 1 of the FWCA states that fish and wildlife conservation shall receive equal consideration with other project purposes. Section 2(a) establishes that preconstruction planning on project development shall be coordinated with the USFWS. Section 2(b) authorizes the FWS to conduct surveys and investigations to determine the possible damage of proposed developments on wildlife resources; to make recommendations for preventing their loss or damage; and to offer measures for developing and improving them. Section 2(a) of the FWCA also establishes coordination with the State agency exercising administration over the wildlife resources of the State. For this project, the appropriate agency is the Texas Parks and Wildlife Department (TPWD), Wildlife Diversity Program.

1.2. Project Authority and Background

The USACE is studying the feasibility of an aquatic ecosystem restoration project at the Rio Bosque Wetlands Park, El Paso, Texas. The project would be implemented under Section 206 of the Water Resources Development Act of 1996 (Public Law 104-303). The project authority and background are described more completely in the Detailed Project Report and Environmental Assessment.

Rio Bosque Wetlands Park is owned by the City of El Paso and managed by the El Paso Water Utility (EPWU, the project's non-federal sponsor). The Center for Environmental Resource Management at the University of Texas El Paso (UTEP) oversees management of the Park under a cooperative agreement with the City. As stipulated in this agreement, management of the 372-acre Park is focused on restoring and enhancing valuable riparian and wetland habitat along the Rio Grande while providing public open space and educational opportunities. The overarching goal for management of the Park is to restore the pre-settlement mosaic of habitats characteristic of the Rio Grande and its floodplain, including riparian bosque and shrubs, wetlands, and upland habitats. The proposed project would directly address this goal.

Existing conditions at the Park are shown in Figure 1 and proposed project measures appear in Figure 2.



Figure 1: Rio Bosque Park location, existing wetlands and biological features.

1.3. Current Ecological Conditions in the Project Area

1.3.1. Floodplains

The proposed project area is located in the former floodplain of the Rio Grande, but is no longer part of the floodplain due to the channelization of the river and construction of levees and the Riverside Canal.

1.3.2. Wetlands

The Park currently includes two created wetland cells that have received reclaimed water seasonally during the winter non-irrigation season via a pipeline from the Bustamante Wastewater Treatment Plant. These wetlands consist of seasonally flooded (mid-October to mid-February) open water ponds that primarily benefit migratory and winter-resident waterfowl.

In 2017, 304.03 acres of Park land was reclassified as irrigable and the Park began receiving irrigation water during the growing season. Because water has been present only seasonally until this year, the wetlands have mostly annual plants. Small patches of willows and cattails have become established near water outlets, but the wetlands are otherwise lacking in riparian and wetland vegetation. The wetlands have been dominated in recent years by early successional vegetation, including Russian thistle (*Salsola tragus*), desert seepweed (*Suaeda suffrutescens*), Indian rushpea (*Hoffmannseggia glauca*), lanbsquarters (*Chenopodium album*), and tumbling saltbush (*Atriplex rosea*) (Table 1). Photos of wetland areas appear below.



Figure 3: Wetland E2 near WWTP pipeline outlet, Dec. 2016. Willows are becoming established in areas that have been reliably wet since WWTP water became available in 2015.



Figure 4: Wetland E2, December 2016. Note dead early successional vegetation; very little wetland vegetation exists.

1.3.3. Vegetation Communities

Vegetation information has been obtained from The *Biological Management Plan for Rio Bosque Wetlands Park* (Watts et al. 2002; hereafter referred to as “the Management Plan”) and observations made by USACE biologists during site visits on several dates including February 6, 2014, June 11, 2014, April 14, 2016 and December 1, 2016.

Vegetation patterns in the Park have been greatly influenced by past disturbance, including the channelization of the Rio Grande in the 1930s, past farming of lands now included in the Park, and the construction of the wetland cells and water-delivery system along with removal of extensive stands of saltcedar in 1997. In 2002, the vegetation in over approximately 65% of the Park was in early successional stages. These areas are dominated by species such as Russian thistle (*Salsola tragus*), seepweed (*Suaeda* sp.), alkali heliotrope (*Heliotropium curassavicum*), jackass clover (*Wislizenia refracta*), bitterweed (*Hymenoxys odorata*), tansy mustard (*Descurainia pinnata*), mountain pepperweed (*Lepidium montanum*) and Indian rushpea (*Hoffmanseggia glauca*). Some areas remained largely barren (Watts et al. 2002, p.13). Since then, through natural successional processes and active control efforts, these species have become less common in many areas but are still prominent in some. The Park has poorly developed herbaceous plant communities and understory vegetation. Open areas are currently

occupied by early successional species, including invasive weeds like Russian thistle, rather than grasses and forbs (Figure 3).

In 2002, approximately 15% of the Park supported shrublands (Figure 4) dominated by fourwing saltbush (*Atriplex canescens*), honey mesquite (*Prosopis glandulosa* var. *torreyana*) and jimmyweed (*Isocoma pluriflora*). Another 15% of the park supported woodlands, with tornillo (*Prosopis pubescens*) (Figure 5) and saltcedar (Figure 6) as the dominant species. Today, the shrublands have matured in many areas and have expanded into a number of areas that were previously largely barren. Tornillo has colonized new areas throughout the park, especially after a series of major storm events in the El Paso region in summer 2006. Two mature stands of saltcedar that were deliberately left in place in 1997 remain, but elsewhere saltcedar has largely disappeared from the park. These areas are noteworthy as habitat for migrating birds. Also, long-eared owls have occasionally nested in dense mature saltcedar (Figure 7), although they are not present every year.

In 2002, only small areas (approximately 5%) of the Park near the Riverside Canal and the irrigation drains support riparian shrubs such as wolfberry (*Lycium berlandieri*), arrowweed (*Pluchea sericea*), and coyote willow (*Salix exigua*). Today, all are more abundant and widespread.

Efforts to establish riparian habitat along the historic river channel within the Park struggled during the years without water during the growing season. Pole plantings of Rio Grande cottonwood, Goodding willow and coyote willow persisted only with regular deliveries of water trucked from the WWTP. During drought years, when heavy groundwater pumping in the region caused steep declines in the water table, many trees died. More favorable conditions began to emerge in 2014: With both of the Park's wells operating together for the first time, a flow was maintained almost the full length of the historic river channel during the growing season. The pole plantings grew vigorously, and young cottonwood and willow seedlings appeared at scattered locations along the channel. Conditions continued to improve in 2015 when the new pipeline made possible growing-season water deliveries from the WWTP. In 2017, irrigation water, available for the first time from the Riverside Canal, further improved conditions for establishment of riparian habitat.

Today, a narrow band of wetland and riparian vegetation is developing along the historic river channel. Clusters of Rio Grande cottonwoods, scattered Goodding willows and thickets of coyote willow are present along much of the channel, with seepwillow, willow baccharis (*Baccharis salicina*) and Torrey wolfberry present in the understory. Two small stands of Goodding willows have become established in the wetland cells (Figure 3).

Photos of these vegetation types appear below. Dominant plant species in three areas during three study years as reported by UTEP are listed in Table 1.

Table 1: Dominant species found in each site type over 3 years of study.

Dominant plant species are those that exceed 20% or more of the total importance value or frequency measure. The numbers in parentheses are relative frequencies in 1997 and importance values in 2005 and 2009.

Site	1998	2005	2009
Pond 1	<i>Suaeda suffrutescens</i> (45) <i>Salsola tragus</i> (31)	<i>Salsola tragus</i> (42) <i>Hoffmannseggia glauca</i> (15) †	<i>Salsola tragus</i> (47) <i>Chenopodium album</i> (10)†
Pond 2	<i>Suaeda suffrutescens</i> (21) <i>Tamarix ramosissima</i> (18) <i>Salsola tragus</i> (15)	<i>Polygonum ramosissimum</i> (16)** <i>Machaeranthera canescens</i> (12) <i>Rumex maritimus</i> (9)** <i>Heliotropium curassavicum</i> (9)** <i>Chenopodium album</i> (8) †	<i>Atriplex rosea</i> (26) <i>Chenopodium album</i> (20) † <i>Salsola tragus</i> (15)
Upland	<i>Salsola tragus</i> (31) <i>Suaeda suffrutescens</i> (19) <i>Prosopis pubescens</i> (17)	<i>Suaeda suffrutescens</i> (30) <i>Salsola tragus</i> (22)	<i>Suaeda suffrutescens</i> (28) <i>Hoffmannseggia glauca</i> (29)†

** FACW; *FAC; †FAC (Region 6 only).



Figure 5: Early successional vegetation in the Park.



Figure 6: Fourwing saltbush and honey mesquite with early successional vegetation.



Figure 7: Sparse tornillo in area slated for restoration of riparian woodland.



Figure 8: Saltcedar with tornillo and saltbush.



Figure 9: Dense saltcedar along the old river channel.



Figure 10: Willows planted along a trail by student volunteers.

2. FISH AND WILDLIFE IN THE PROJECT AREA

Information on the wildlife of Rio Bosque Park was obtained primarily from three sources:

- 1) The *Biological Management Plan for Rio Bosque Wetlands Park* (Watts et al. 2002).
- 2) Rio Bosque species lists (UTEP unpublished data, 2020).
- 3) UTEP data collected from monthly bird surveys at point count stations, 2007-2017 (UTEP unpublished data, 2017) and vertebrate trapping data from 2001-2016 (UTEP unpublished data, 2016).

Information on species of conservation concern was obtained from the USFWS IPaC system (USFWS 2017), the Texas Parks and Wildlife Natural Diversity Database (TPWD 2017), and the Texas Conservation Action Plan (TPWD, 2012)

2.1. Mammals

Mammals found in the Park are listed in Table 2 (UTEP 2020). According to the Management Plan, the Park's most conspicuous mammal is the black-tailed jackrabbit (*Lepus californicus*). Desert cottontail (*Sylvilagus audubonii*) is also seen regularly. Other mammals observed in the Park include spotted ground squirrel (*Spermophilus spilosoma*), desert pocket gopher (*Geomys arenarius*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*). When water is present, beaver (*Castor canadensis*) and muskrat (*Ondatra zibethicus*) use the water-delivery channels in the Park. The muskrat subspecies in this area (*O. zibethicus ripensis*) is the Pecos River muskrat, a rare species tracked by TPWD (Evans 2017).

Trapping data from 2007-2016 resulted in captures of eight identified small mammal species, listed in Table 4: five native mice, including the Chihuahuan Desert pocket mouse (*Chaetodipus eremicus*), a Species of Greatest Conservation Need (SGCN); the native hispid cotton rat; the native desert cottontail; the non-native house mouse; and two mice that were not identified to species.

Table 2: Mammals of Rio Bosque Wetlands Park (UTEP unpublished data, 2020)

Family	Scientific Name	Common Name	Conservation Status
Molossidae: Molossid Bats	<i>Tadarida brasiliensis</i>	Brazilian free- tailed bat	
Leporidae: Hares and Rabbits	<i>Sylvilagus audubonii</i>	desert cottontail	
	<i>Lepus californicus</i>	Black- tailed jackrabbit	
Sciuridae: Squirrels	<i>Spermophilus spilosoma</i>	spotted ground squirrel	
	<i>Spermophilus variegatus</i>	rock squirrel	
Geomyidae: Pocket Gophers	<i>Geomys arenarius</i>	desert pocket gopher	SGCN
Heteromyidae: Heteromyid Rodents	<i>Perognathus flavescens</i>	Plains pocket mouse	
	<i>Perognathus flavus</i>	silky pocket mouse	
	<i>Chaetodipus eremicus</i>	Chihuahuan Desert pocket mouse	SGCN
Castoridae: Beavers	<i>Castor canadensis</i>	American beaver	
Cricetidae: Cricetid Rodents	<i>Reithrodontomys megalotis</i>	western harvest mouse	
	<i>Peromyscus leucopus</i>	White- footed mouse	
	<i>Peromyscus maniculatus</i>	deer mouse	
	<i>Sigmodon hispidus</i>	hispid cotton rat	
	<i>Ondatra zibethicus</i>	common muskrat	
Muridae: Murid Rodents	<i>Mus musculus</i>	house mouse	
Canidae: Canids	<i>Canis latrans</i>	coyote	
	<i>Urocyon cinereoargenteus</i>	common gray fox	
Felidae: Cats	<i>Lynx rufus</i>	bobcat	
Procyonidae: Procyonids	<i>Procyon lotor</i>	northern raccoon	
Mephitidae: Skunks	<i>Mephitis mephitis</i>	striped skunk	
	<i>Spilogale gracilis</i>	western spotted skunk	
	<i>Mustela frenata</i>	Long-tailed weasel	
Tayassuidae: Peccaries	<i>Pecari tajacu</i>	collared peccary	

Table 3: Amphibians and Reptiles of Rio Bosque Wetlands Park (UTEP unpublished data, 2020)

Group	Family	Scientific Name	Common Name	Conservation Status
REPTILES	Kinosternidae: Mud and Musk Turtles	<i>Kinosternon flavescens</i>	yellow mud turtle	
	Trionychidae: Softshell Turtles	<i>Apalone spinifera</i>	spiny softshell	SGCN
	Iguanidae: Iguanid Lizards	<i>Phrynosoma cornutum</i>	Texas horned lizard	State Threatened, SGCN
		<i>Sceloporus cowlesi</i>	Southwestern fence lizard	
		<i>Uta stansburiana</i>	side-blotched lizard	
	Teiidae: Whiptails	<i>Aspidoscelis exsanguis</i>	Chihuahuan spotted whiptail	
		<i>Aspidoscelis inornata</i>	little striped whiptail	
	Colubridae: Colubrid Snakes	<i>Arizona elegans</i>	glossy snake	
		<i>Elaphe emoryi</i>	Great Plains rat snake	
		<i>Hypsiglena torquata</i>	night snake	
		<i>Lampropeltis splendida</i>	desert kingsnake	
		<i>Masticophis flagellum</i>	coachwhip	
		<i>Pituophis catenifer</i>	gopher snake	
		<i>Rhinocheilus lecontei</i>	longnose snake	
<i>Tantilla hobartsmithi</i>		Smith's black-headed snake		
<i>Tantilla nigriceps</i>		Plains black-headed snake		
<i>Thamnophis marcianus</i>		checkered garter snake		
AMPHIBIANS				
	Bufo idae: Toads	<i>Bufo punctatus</i>	red-spotted toad	
		<i>Bufo woodhousii</i>	Woodhouse's toad	SGCN
	Pelobatidae: Spadefoot Toads	<i>Scaphiopus couchii</i>	Couch's spadefoot	
	Ranidae: True Frogs	<i>Lithobates catesbeiana</i>	bullfrog	

Table 4: Vertebrate species trapping data for Rio Bosque Park (UTEP unpublished data, 2016).

Common Name	Scientific Name	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Trap Nights:		112	301	301	294	301	301	294	112	301	294
Mammals:											
desert cottontail	<i>Sylvilagus audubonii</i>									2	
Plains pocket mouse	<i>Perognathus flavescens</i>	2	2	2		1			1	2	
silky pocket mouse	<i>Perognathus flavus</i>	3	5	29	12	11	4	4	10	14	3
Chihuahuan Desert pocket mouse	<i>Chaetodipus eremicus</i>	1		11	2	7	22	12	5	22	8
white-footed mouse	<i>Peromyscus leucopus</i>	1	1	3	2	2	4	4	1	7	
deer mouse	<i>Peromyscus maniculatus</i>	9	15	34	10	12	13	11	4	20	4
<i>Peromyscus, sp.</i>	<i>Peromyscus, sp.</i>						1		1		
western harvest mouse	<i>Reithrodontomys megalotis</i>			2							
hispid cotton rat	<i>Sigmodon hispidus</i>	23	2	40	12	11	6		2	25	1
house mouse	<i>Mus musculus</i>		1	15	2	1	1			2	
mouse, sp.					1						
Reptiles:											
Southwestern fence lizard	<i>Sceloporus cowlesi</i>		1	3	2	5	7	1		1	
side-blotched lizard	<i>Uta stansburiana</i>		3	7		10	12	11	1	9	3
little striped whiptail	<i>Aspidoscelis inornata</i>		1	2	5	7	3				
glossy snake	<i>Arizona elegans</i>		1					1			2
longnose snake	<i>Rhinocheilus lecontei</i>			1		1	1				1
lizard, sp.											1
Amphibians:											
red-spotted toad	<i>Bufo punctatus</i>		1								
Woodhouse's toad	<i>Bufo woodhousii</i>		1	1							
Couch's spadefoot	<i>Scaphiopus couchii</i>		72	37	20	3	18	11		1	3

2.2. Reptiles and Amphibians

The herpetofauna of Rio Bosque has been studied by UTEP using trap collections. A complete list appears in Table 3. As stated in the Management Plan, the commonly observed lizards are the little striped whiptail (*Aspidoscelis inornatus*), prairie lizard (*Sceloporus undulatus*), Southwestern fence lizard (*Sceloporus cowlesi*) and side-blotched lizard (*Uta stansburiana*). Also present is the Texas horned lizard (*Phrynosoma cornutum*), a state-listed threatened species and SGCN. Snakes observed include glossy snake (*Arizona elegans*), Great Plains rat snake (*Elaphe emoryi*), night snake (*Hypsiglena torquata*), common kingsnake (*Lampropeltis getula*), coachwhip (*Masticophis flagellum*), gopher snake (*Pituophis catenifer*), longnose snake (*Rhinocheilus lecontei*) and checkered garter snake (*Thamnophis marcianus*) (Watts et al. 2002, p. 16).

Aquatic herps include the spiny softshell turtle (*Trionyx spiniferus*, a SGCN), observed regularly in the Riverside Canal and now being seen more frequently in the Park since water has become more consistently available during the growing season. Red-spotted toad (*Bufo punctatus*), Woodhouse's toad (*Bufo woodhousii*, a SGCN), and Couch's spadefoot (*Scaphiopus couchii*) all have been observed at the park. Couch's spadefoot is the most commonly encountered of these (Table 4). In years when no spring-summer water is available, these species utilize ephemeral rain-fed pools and moist areas maintained by seepage from the Riverside Canal. Bullfrogs (*Rana catesbeiana*), which is considered non-native to the Rio Grande, first appeared in 2000, when water persisted all summer at several of the park's water-control gates.

2.3. Migratory Birds

The most recent Field Checklist for Rio Bosque (UTEP 2020) lists 242 bird species. All but a few of these are protected by the Migratory Bird Treaty Act (species not protected include the non-native House Sparrow, European Starling, Pigeon and Eurasian Collared Dove). The Field Checklist is appended to this report as Enclosure 1.

Common nesting species in the Park, as reported in the Management Plan, include Harris's Hawk (*Parabuteo unicinctus*), Swainson's Hawk (*Buteo swainsoni*), Gambel's Quail (*Callipepla gambelii*), Mourning Dove (*Zenaida macroura*), Greater Roadrunner (*Geococcyx californianus*), Burrowing Owl (*Athene cunicularia*), Black-chinned Hummingbird (*Archilochus alexandri*), Western Kingbird (*Tyrannus verticalis*), Verdin (*Auriparus flaviceps*), Northern Mockingbird (*Mimus polyglottos*), Crissal Thrasher (*Toxostoma crissale*), Yellow-breasted Chat (*Icteria virens*), Cassin's Sparrow (*Peucaea cassinii*), Blue Grosbeak (*Passerina caerulea*), Painted Bunting (*Passerina ciris*) and House Finch (*Haemorhous mexicanus*).

Raptors in the Park, in addition to the resident Harris' Hawk, include wintering Northern Harriers (*Circus hudsonius*), Sharp-shinned Hawks (*Accipiter striatus*), Cooper's Hawks (*Accipiter cooperii*), Red-tailed Hawks (*Buteo jamaicensis*), Ferruginous Hawks (*Buteo regalis*) and Peregrine Falcons (*Falco peregrinus*) and Bald Eagle (*Haliaeetus leucocephalus*). Long-eared owls (*Asio otus*) are rare at Rio Bosque in fall and winter but have nested in the Park. White-tailed Kites (*Elanus leucurus*), a species first seen in the El Paso area in 2000 and near the Park in 2001, nested successfully at the Park in 2009, 2011, 2015 and 2017.

When the wetlands are flooded in fall through spring, thousands of waterfowl and other water birds use the Park (Watts et al., p. 15). Some of the ducks commonly attracted to these shallow-water areas include Gadwall (*Anas strepera*), American Wigeon (*Anas americana*), Mallard (*Anas platyrhynchos*), Cinnamon Teal (*Anas cyanoptera*), Northern Shoveler (*Anas clypeata*), Northern Pintail (*Anas acuta*) and Green-winged Teal (*Anas crecca*). Wading birds and shorebirds using the wetlands include Great Blue Heron (*Ardea herodias*), Great Egret (*Ardea alba*), Snowy Egret (*Egretta thula*), Greater Yellowlegs (*Tringa melanoleuca*), Black-necked Stilts (*Himantopus mexicanus*), and American Avocets (*Recurvirostra americana*).

The Park is important to nearctic-neotropical migrant birds that prefer riparian habitats, such as Yellow-breasted Chat, Blue Grosbeak, Painted Bunting, Southwestern Willow Flycatcher (*Empidonax traillii extimus*), and Western Yellow-billed Cuckoo (*Coccyzus americanus*). The flycatcher and cuckoo will be discussed below (Section 2.6).

USFWS Threatened and Endangered species, Birds of Conservation Concern and TPWD Rare Species and Species of Greatest Conservation Need that are recorded at Rio Bosque are listed below (Table 5). The Field Checklist (Enclosure 1) identifies the season of observation and whether the species is accidental, rare, uncommon or common.

Table 5: Special Status Migratory Bird Species

(Threatened- T; Endangered- E; USFWS Bird of Conservation Concern- BCC; State of TX Species of Greatest Conservation Need- SGCN)

Common Name	Species Name	Status
American Kestrel	<i>Falco sparverius</i>	TX: SGCN
Bald Eagle	<i>Haliaeetus leucocephalus</i>	BCC
Baird's Sparrow	<i>Ammodramus bairdii</i>	TX: Rare, SGCN
Bell's Vireo	<i>Vireo bellii</i>	BCC; TX: SGCN
Brewer's Sparrow	<i>Spizella brewer</i>	BCC
Burrowing Owl	<i>Athene cunicularia</i>	BCC; TX: Rare, SGCN
Cassin's Sparrow	<i>Aimophila cassinii</i>	BCC; TX: SGCN
Ferruginous Hawk	<i>Buteo regalis</i>	TX: Rare, SGCN
Golden Eagle	<i>Aquila chrysaetos</i>	BCC; TX: SGCN
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	TX: SGCN
Harris' Hawk	<i>Parabuteo unicinctus</i>	TX: SGCN
Lark Bunting	<i>Calamospiza melanocorys</i>	BCC
Lark Sparrow	<i>Chondestes grammacus</i>	TX: SGCN
Least Tern	<i>Sterna antillarum</i>	USFWS: E
Loggerhead Shrike	<i>Lanius ludovicianus</i>	BCC; TX: SGCN
Long-billed Curlew	<i>Numenius americanus</i>	BCC; TX: SGCN
Lucy's Warbler	<i>Vermivora luciae</i>	BCC
Northern Harrier	<i>Circus cyaneus</i>	TX: SGCN
Painted Bunting	<i>Passerina ciris</i>	BCC; TX: SGCN
Peregrine Falcon	<i>Falco peregrinus</i>	BCC; TX: T, SGCN
Prairie Falcon	<i>Falco mexicanus</i>	TX: Rare
Scaled Quail	<i>Callipepla squamata</i>	TX: SGCN
Snowy Plover	<i>Charadrius alexandrinus</i>	TX: Rare; SGCN
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	USFWS: E; TX: E
Summer Tanager	<i>Piranga rubra</i>	TX: SGCN
Swainson's Hawk	<i>Buteo swainsoni</i>	BCC; TX: SGCN
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	USFWS: T; TX: Rare, SGCN
Zone-tailed Hawk	<i>Buteo albonotatus</i>	TX: SGCN

2.4. Invertebrates

In an aquatic ecology survey conducted in summer 2001, the following aquatic invertebrates were observed: ciliates, coelenterates, rotifers, bdelloids, cladocerans, gastrotrichs, flatworms, nematodes, oligochaetes, gastropods, ostracods, copepods, collembola, and insects (adults and larvae). The relative proportions of taxa that were collected quantitatively are pictured below (Figure 9). Other taxa (bdelloids, gastropods, water mites, oligochaetes, gastrotrichs, ostracods, flatworms, and nematodes) were noted as present (Watts et al. 2002; UTEP unpublished data).

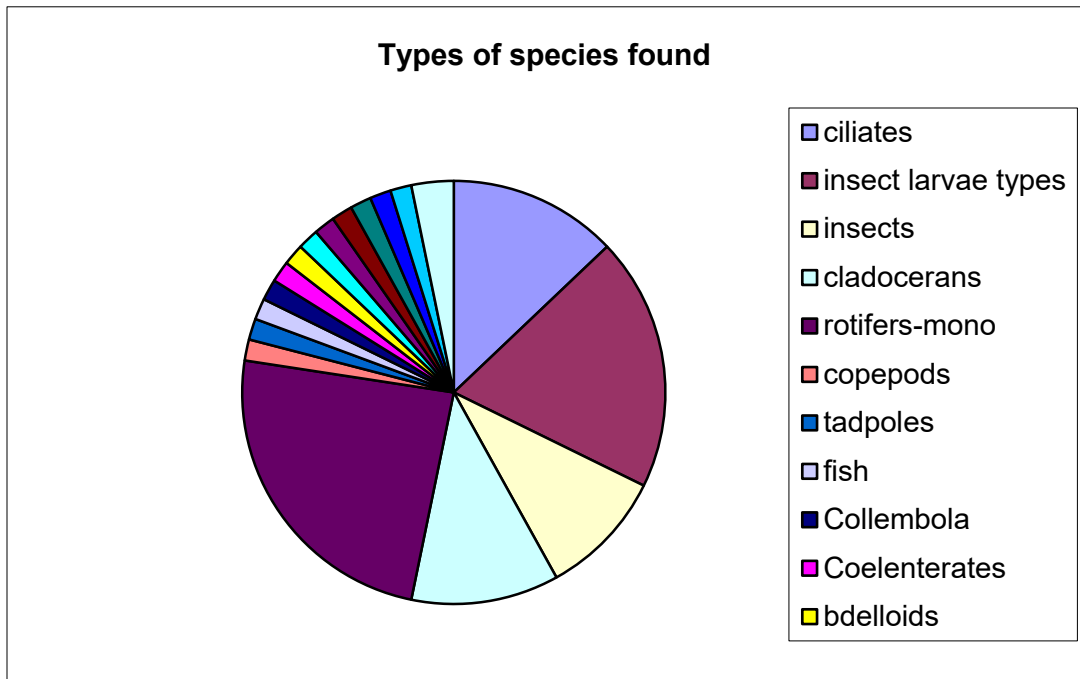


Figure 11: Aquatic taxa identified in 2001.

Total collection was 62 individuals with rotifers having the highest count (15).

Two bumblebee Species of Greatest Conservation Need, *Bombus sonorus* and *Bombus pensylvanicus*, have potential to occur in the Park. These species prefer a mix of flowering grasses, forbs and cactus, or trees such as mesquite (Hutchins 2017). Their current status in the Park is unknown, but these pollinators would be potential targets for citizen science surveys.

A list of insects identified in the Park by a student was provided by UTEP and is appended to this report as Enclosure 2.

2.5. Fish

The only fish that have been identified within the Park are common carp (*Cyprinus carpio*) and mosquitofish (*Gambusia affinis*). The seasonal nature of water in the Park and the lack of connection to the Rio Grande preclude most fish from establishing in the Park.

2.6. Threatened and Endangered Species

Threatened and endangered plant or animal species are protected from harm, harassment, or destruction of habitat under the federal Endangered Species Act or state law. Two agencies have primary responsibility for protecting and conserving plant and animal species within the proposed project area. The United States Fish and Wildlife Service (USFWS), under authority of the Endangered Species Act of 1973 (16 U.S.C. 1531), as amended, has the responsibility for federally listed species. The Texas Parks and Wildlife Department (TPWD) is responsible for state-listed species. Each agency maintains a continually updated list of species that are classified, or are candidates for classification, as protected based on their present status and potential threats to future survival and recruitment into viable breeding populations. Special status species that potentially occur in El Paso County and may occur near the proposed project area are listed in Table 6 and discussed below.

Of the eight species listed under the federal Endangered Species Act in El Paso County, only three could potentially occur in the Rio Bosque wetlands based on habitat requirements and field observations. These include the Least Tern, Southwestern Willow Flycatcher and Yellow-Billed Cuckoo. These species are discussed below. Additionally, the Burrowing Owl is discussed because of special conservation actions taken within the Park for this species.

2.6.1. Southwestern Willow Flycatcher

The Southwestern Willow Flycatcher (flycatcher), a Neotropical migrant, is found in the U.S. from May until September. It winters in southern Mexico, Central America, and northern South America (Sogge et al. 2010). The flycatcher was listed as an endangered species by the U.S. Fish and Wildlife Service in 1995 (USFWS 1995). Critical habitat has been designated and was revised in 2013 (USFWS 2013) but does not exist in the proposed project area. The Texas Management Unit does not have any goals identified in the Recovery Plan because of “either the lack of habitat, the inability for habitat to recover, or the determination that meaningful populations could not be established and persist”; therefore, no critical habitat was proposed.

The flycatcher is an obligate riparian species. Flycatchers occur in riparian habitats along rivers, streams, or other wetlands, where dense growth of willows (*Salix* spp.), *Baccharis*, arrowweed (*Pluchea* sp.), saltcedar (*Tamarix* sp.) or other plants are present, often with an overstory of cottonwood (Sogge et al. 2010). These riparian communities provide nesting and foraging habitat. Southwestern Willow Flycatchers nest in thickets of trees and shrubs approximately 6 to 23 feet in height or taller, with a densely vegetated understory approximately 12 feet or more in height. Nests are frequently associated with an overstory of scattered cottonwood. Surface water or saturated soil is usually present beneath or next to occupied thickets. Habitats not selected for nesting include narrow (less than 30 feet wide) riparian strips, small willow patches, and stands with low stem density. Areas not utilized for nesting may still be used during migration.

Throughout the range of flycatcher, suitable riparian habitats tend to be rare, widely separated, small and often linear locales, separated by vast expanses of arid lands. The flycatcher is endangered by extensive loss and modification of suitable riparian habitat and other factors, including brood parasitism by the Brown-Headed Cowbird (*Molothrus ater*).

The nearest known breeding and critical flycatcher habitat to the project area occurs approximately 140 miles upriver, along the Rio Grande upstream of Elephant Butte Reservoir, or 160 miles overland along the Gila River.

Surveys conducted by a USACE biologist detected a flycatcher that was determined to be a migrant because the bird was detected early in the season and was not observed again that season. In monthly surveys and observations recorded in the Park, Willow Flycatchers have been seen intermittently on migration in spring and late summer. Observations were in May and August 2009 and May 2011. The most recent observation was on 21 May 2017. However, there has been no evidence of breeding (Sproul, 2017).

The area where flycatchers have been observed from bird-survey station N-6 is near the Tornillo Trailhead next to a stand of mature tornillo (Figure 10). Other wooded habitat within the Park includes small patches of willow and a narrow strip of mature saltcedar. These vegetation patches provide stopover or foraging habitat during migration, but are not large enough in area to constitute viable nesting habitat.

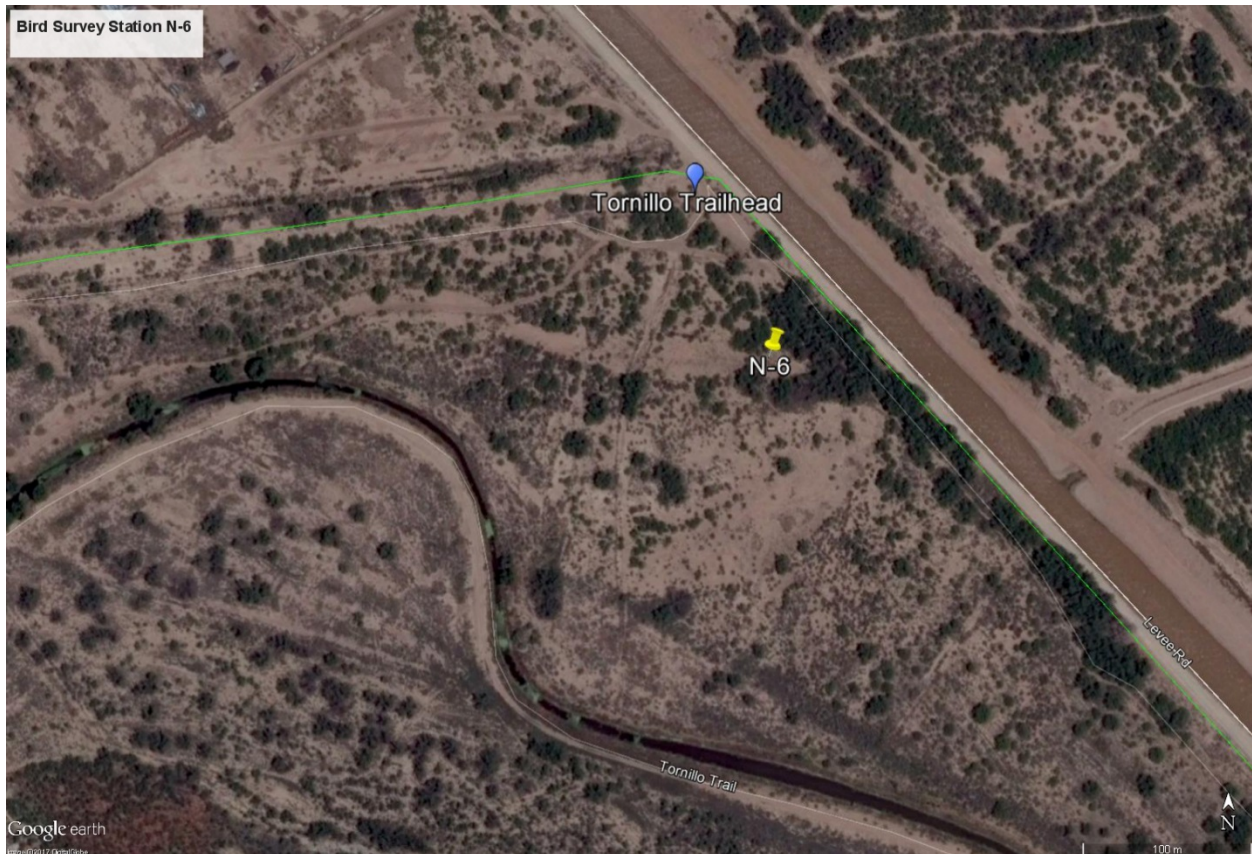


Figure 12: Location of bird survey station N-6 adjacent to stand of dense, mature tornillo.

2.6.2. Yellow-billed Cuckoo, Western population

The Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*; cuckoo) was federally listed as threatened in 2014 (USFWS 2014b). Critical habitat was also proposed in 2014 (USFWS 2014a). The cuckoo is also a riparian obligate species and is migratory, wintering in South America. The breeding range of this bird species extends from California and northern Utah eastward to southwestern Quebec and south to Mexico. The decline of the cuckoo is primarily the result of riparian habitat loss and degradation. Within the three States with the highest historical number of cuckoo pairs, past riparian habitat losses are estimated to be about 90 to 95 percent in Arizona, 90 percent in New Mexico, and 90 to 99 percent in California (USFWS 2014).

The cuckoo requires dense riparian vegetation for nesting. They nest almost exclusively in low to moderate elevation riparian woodlands with native broadleaf trees and shrubs, typically dominated by cottonwood and willow, within arid to semiarid landscapes. Cuckoos are most likely to be found in patches of willow–cottonwood riparian habitat greater than 200 acres in size and rarely use smaller patches of habitat (under 50 acres in size) (Halterman et al. 2015). The nearest known breeding and proposed critical habitat for cuckoos is located approximately 75 miles downstream from Rio Bosque Park on the Rio Grande, 120 miles northwest of the Park on the Mimbres River, or 140 miles upstream above Elephant Butte Reservoir.

Cuckoos were formerly reported as nesting in dense saltcedar within the Park (Watts et al. 2002). After the majority of the saltcedar was cleared in 1997, this species was not observed again until 2007. Migrating cuckoos have been detected infrequently since, including in 3 of the past 4 years. However, in recent years, all cuckoo detections have been in native vegetation. Migrant cuckoos have been detected in June 2007 (2 observations), June 2014 June and July 2016, June 2017, and most recently in summer 2020. These detections have been in the dense stands of tornillo along the east side of the Park (Sproul, 2017).

2.6.3. Least Tern

The interior population of the Least Tern was listed on June 27, 1985 (U. S. Fish and Wildlife Service 1985). Terns typically nest on gravel bars of large rivers and on barren shorelines of reservoirs. They forage on small fish. This species is listed on the Rio Bosque bird checklist but is only rarely observed from the Park. Suitable habitat for nesting does not occur within the Park.

2.6.4. Burrowing Owl

Burrowing Owls (*Athene cunicularia*), a TPWD Species of Greatest Conservation Need, occur within the Park (Figure 11). Burrowing Owls use a variety of grassland and open shrubland habitats and rely on abandoned mammal burrows (or artificial substitutes) for shelter and nesting habitat. Artificial nest burrows have been placed within the Park to increase habitat for the owls.



Figure 13: Burrowing Owl on a perch at a nest location.

Table 6: Federal and State Endangered and Threatened Species in El Paso County.

Data from Texas Parks and Wildlife Department (TPWD 2017) and USFWS (2017). Additional rare species that have no legal status, Birds of Conservation Concern, and Species of Greatest Conservation Need are listed in Table 7.

Common Name	Scientific Name	Group	Status	Habitat, distribution	Potential in area?
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	Bird	FE, SE	Riparian woodland	Y-migrants
Northern Aplomado Falcon	<i>Falco femoralis septentrionalis</i>	Bird	FE, SE	Savanna, open grassy plains with scattered mesquite, yucca, cactus	N
Least Tern (Interior Population)	<i>Sterna antillarum</i>	Bird	FE, SE	Sand and gravel bars within streams, rivers	N
Piping Plover	<i>Charadrius melodus</i>	Bird	FT	Sand and gravel bars within streams, rivers	N
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	Bird	ST	Nests in tall cliff eyries; urban habitats	Y
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	Bird	FT, ST	Coniferous mountain woodland canyons	N
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Bird	FT	Riparian woodland	Y-migrants
Red Knot	<i>Calidris canutus rufa</i>	Bird	FT	(species only needs to be considered for wind energy projects)	N
Rio Grande silvery minnow	<i>Hybognathus amarus</i>	Fish	FE, SE	In the Rio Grande	N
Sneed pincushion cactus	<i>Escobaria sneedii var sneedii</i>	Plant	FE, SE	Limestone outcrops; Franklin Mts	N
Bluntnose shiner	<i>Notropis simus</i>	Fish	ST	In the Rio Grande	N
Mountain short-horned lizard	<i>Phrynosoma hernandesi</i>	Reptile	ST	Open, shrubby, areas with sparse vegetation at ground level	N
Texas horned lizard	<i>Phrynosoma cornutum</i>	Reptile	ST	Open, arid and semi-arid areas with sparse vegetation	Y-present
Chihuahuan Desert lyre snake	<i>Trimorphodon vilkinsonii</i>	Reptile	ST	Crevice-dwelling in limestone-surfaced desert	N
Gray wolf	<i>Canis lupus</i>	Mammal	FE, SE, ext	Formerly in forests, brushlands, or grasslands	N
Black-footed ferret	<i>Mustela nigripes</i>	Mammal	FE, SE, ext	Inhabited prairie dog towns	N
Black bear	<i>Ursus americanus</i>	Mammal	ST	Bottomland hardwoods and large tracts of inaccessible forest	N

Status Key: FE = Federally Endangered; SE = State Endangered; FT = Federally Threatened; ST= State Threatened; FC = Federal Candidate; blank = no legal status; ext = extirpated from county

Table 7: TPWD rare species, Species of Greatest Conservation Need (SGCN), and USFWS Birds of Conservation Concern (BCC) with potential or observed occurrence in the project area.

Common Name	Scientific Name	Group	Status	Habitat, distribution (TPWD), season (USFWS)
BIRDS				
Baird's Sparrow	<i>Ammodramus bairdii</i>	Bird	Rare, SGCN	shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State
Prairie Falcon	<i>Falco mexicanus</i>	Bird	rare	open, mountainous areas, plains and prairie; nests on cliffs
Snowy Plover	<i>Charadrius alexandrinus</i>	Bird	rare	formerly an uncommon breeder in the Panhandle; potential migrant;
Western Burrowing Owl	<i>Athene cunicularia hypugaea</i>	Bird	Rare, SGCN, BCC	open grasslands, prairie, plains, and savanna, sometimes in open areas such as vacant lots; nests and roosts in abandoned burrows; Year-Round
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	Bird	rare	uncommon breeder in the Panhandle; potential migrant; winter along
Scaled Quail	<i>Callipepla squamata</i>	Bird	SGCN	Desert Scrub, Grassland, Shrubland
Northern Harrier	<i>Circus cyaneus</i>	Bird	SGCN	Grassland, Shrubland
Harris's Hawk	<i>Parabuteo unicinctus</i>	Bird	SGCN	Desert Scrub, Grassland, Shrubland
Swainson's Hawk	<i>Buteo swainsoni</i>	Bird	SGCN, BCC	Desert Scrub, Grassland, Shrubland; Breeding
Zone-tailed Hawk	<i>Buteo albonotatus</i>	Bird	SGCN	Barren/Sparse Vegetation, Riparian
Ferruginous Hawk	<i>Buteo regalis</i>	Bird	SGCN	Grassland
Golden Eagle	<i>Aquila chrysaetos</i>	Bird	SGCN, BCC	Desert Scrub, Grassland, Shrubland; Year-Round
American Kestrel	<i>Falco sparverius</i>	Bird	SGCN	Grassland, Savanna/Open Woodland
Long-billed Curlew	<i>Numenius americanus</i>	Bird	SGCN, BCC	Grassland, Freshwater or Saltwater Wetland, Agricultural; Wintering
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Bird	SGCN, BCC	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed; Year-Round
Bell's Vireo	<i>Vireo bellii</i>	Bird	SGCN, BCC	Desert scrub, Shrubland, Riparian
Cassin's Sparrow	<i>Aimophila cassinii</i>	Bird	SGCN, BCC	Grassland, Shrubland

Common Name	Scientific Name	Group	Status	Habitat, distribution (TPWD), season (USFWS)
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Bird	SGCN	Grassland, Agricultural
Lark Sparrow	<i>Chondestes grammacus</i>	Bird	SGCN	Grassland, Shrubland, Savanna/Open Woodland
Summer Tanager	<i>Piranga rubra</i>	Bird	SGCN	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Painted Bunting	<i>Passerina ciris</i>	Bird	SGCN, BCC	Shrubland, Agricultural; Breeding
Brewer's Sparrow	<i>Spizella breweri</i>	Bird	BCC	Wintering
Lark Bunting	<i>Calamospiza melanocorys</i>			Wintering
Lucy's Warbler	<i>Vermivora luciae</i>			Breeding
MAMMALS				
Desert pocket gopher	<i>Geomys arenarius</i>	Mammal	rare	cottonwood-willow association along the Rio Grande in El Paso and Hudspeth counties; live underground, but build large and conspicuous mounds
Pecos River muskrat	<i>Ondatra zibethicus ripensis</i>	Mammal	rare	creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation
Chihuahuan Desert pocket mouse	<i>Chaetodipus eremicus</i>	Mammal	rare	Riparian, Desert Scrub, Grassland
Desert pocket gopher	<i>Geomys aurenarius</i>	Mammal	rare	Riparian
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	Mammal	rare	Cave/Karst, Artificial Refugia
Sand prickly-pear	<i>Opuntia arenaria</i>	Plant	rare	deep, loose or semi-stabilized sands in sparsely vegetated dune or sandhill areas, or sandy floodplains in arroyos
REPTILES AND AMPHIBIANS				
Woodhouse's toad	<i>Anaxyrus (Bufo) woodhousii</i>	Amphibian	SGCN	woodland, forest, freshwater wetland
spiny softshell turtle	<i>Apalone spinifera</i>	Reptile	SGCN	riparian, riverine, lacustrine, freshwater wetland
Ornate box turtle	<i>Terrapene ornata</i>	Reptile	SGCN	grassland, barren/sparse vegetation, desert scrub, savanna, woodland

3. ENVIRONMENTAL BASELINE

Based on the conditions described in Sections 1 and 2 of this FWCAR, the Park ecosystem is currently degraded by the overall lack of native riparian vegetation due to past disturbances and channelization of the Rio Grande that occurred in the 1930s. The ongoing lining of the adjacent Riverside Canal by the El Paso County Water Improvement District No. 1 is expected to reduce seepage from the canal to the groundwater underlying the Park, although groundwater monitoring to date indicates that irrigation water supply may compensate for the reduced groundwater. The U.S. Customs and Border Protection's border wall on the west side of Rio Bosque isolates the Park from surrounding areas, making it an island ecosystem. Urbanization of the surrounding area as seen in aerial photos (Figure 14) further reduces the Park's connectivity from habitats and populations of native species. Generally, these influences have also reduced the quality and availability of native wetland resources in the general area beyond the Park. The Park is predominantly vegetated by native shrubs and annual species as well as exotic species including Russian thistle (*Salsola tragus*) and saltcedar (*Tamarix sp.*). Conditions would be expected to gradually improve with an increase in shrubs such as tornillo if this project is not conducted. However, conditions would remain less than ideal, species diversity would remain low and the general regional trend of native wetland losses would continue. The lack of suitable persistent wetlands would continue to restrict development of mature riparian and wetland communities.

4. DESCRIPTION OF PROPOSED PROJECT

The project sponsor, EPWU, would like to develop a more ecologically diverse, self-sustaining mix of aquatic, riparian, wetland, and upland habitats in the Park as described in the Management Plan. This would provide year-round habitat for a variety of aquatic and terrestrial species, including invertebrates, amphibians and reptiles, mammals, and migratory birds. To accomplish this, the Tentatively Selected Plan for the Rio Bosque Wetlands project includes:

- **Existing wetland deepening and lining:** The existing wetland cells would be deepened to create zones of open water (5 ft. deep) surrounded by shallower edge habitat. Portions of existing wetland habitat with sandy, permeable soils would be lined. Additional topography could be created (as beneficial for waterfowl). These areas would be connected to water sources as needed. After earthwork is complete, the shallower edge habitat areas would be planted with emergent wetland plants such as bulrushes and other plants that provide food for waterfowl.
- **Wetland creation:** One new wetland area would be created. This area would be excavated to a similar depth as the existing wetlands, with shallow edge habitat 0.5 – 1.5 feet deep sloping down into wetland with open water 5 feet deep. Planting would occur similar to the existing wetlands.
- **Wet marsh creation:** New wet marshes would be shallow wetland habitat up to two feet deep. These would be seasonally or semi-permanently wet depending on water availability (full or partial allocation of irrigation water) in a particular year. Marshes would be constructed adjacent or close to existing wetland habitat and near water sources. Marshes would act as a connection from water sources to the deeper wetland habitat with the water flowing through the wet marsh habitat. Shallow marshes would be planted with wetland plugs and seeding, and are expected to become completely vegetated over time.
- **Riparian habitat creation:** Currently existing riparian areas would be enhanced and new riparian areas would be created adjacent to existing riparian habitat or in other suitable areas.

These areas would be connected to water sources as needed. Plantings would include cottonwood, willows, and seepwillows. The understory would be seeded with riparian grasses. Natural recruitment of species such as tornillo (screwbean mesquite), wolfberry, saltbush, arrowweed, and jimmyweed is expected to occur as well. Maintenance control of saltcedar resprouts will likely be needed.

- **Saltcedar thinning:** The initial set of proposed restoration measures included selectively removing the majority of saltcedar within selected areas. During feasibility Cost Effectiveness and Incremental Cost Analysis, the study team determined that saltcedar removal was a less cost-effective way to generate habitat compared to other measures, and this measure was dropped from the project. However, it is anticipated that the Sponsor will continue selective removal of saltcedar. We anticipate that tornillo, which is abundant in the Park, will colonize these areas so other plantings won't be necessary. Maintenance control of saltcedar resprouts will be needed.
- **Floodplain Grassland planting:** Grass meadow habitat provides a buffer between other habitats. This drier floodplain habitat type will be suitable for wildlife such as small mammals and grassland birds including burrowing owls. Non-native shrubs would be removed from these areas prior to seeding with native grasses and forbs.

5. FISH AND WILDLIFE RESOURCES WITH THE PROJECT

The proposed project would create new wetland and riparian plant communities and enhance those that already exist; replace some areas that are in early successional stages or largely barren with native grasslands and shrubs; and increase the area of native riparian vegetation. Areas within the Park that support tornillo woodlands would be left as-is and would not be affected by construction. Where saltcedar is dominant, it would be selectively removed and replaced with native species by planting and natural recruitment. These would all be beneficial effects to wildlife habitat by increasing the extent of wetland and riparian areas, the availability of water, the diversity of vegetation, and the proportion of vegetation that is native.

The proposed wetland enhancements would benefit aquatic herpetofauna, waterfowl and shorebirds, while the increase in riparian habitat would benefit nearctic-neotropical migrant birds. Mammals that utilize aquatic habitats, beavers and Pecos river muskrat, would also benefit. The increased plant diversity would result in increases in numbers and diversity of insect species, which in turn would provide an improved food resource for insectivorous birds and bats. Finally, it is expected that recreational and educational use of the Park would increase and with it, visitor appreciation of the wetlands and wildlife. The importance of growing a constituency for conservation cannot be underestimated.

Because the Park has an established bird monitoring program, we expect that long-term trends will be demonstrable.

During construction of the project, temporary construction-related adverse impacts would be minimized through timing and phasing of construction; particularly, conducting construction activities outside the migratory bird nesting season. Measures would be taken to minimize impacts to wetland habitat during construction. This would also minimize impacts to wildlife, especially waterfowl, using the wetlands. For terrestrial and upland species, sensitive areas such as the Burrowing Owl habitat areas would be buffered by at least 300 ft. from construction activity. To minimize adverse effects to small mammals and herpetofauna, all trenches (such as those dug for water supply lines) would be covered the same day or escape ramps would be provided for small animals.

6. THREATENED AND ENDANGERED SPECIES WITH THE PROJECT

Two listed endangered birds, the Southwestern Willow Flycatcher and the western Yellow-billed Cuckoo, are discussed here. The Least Tern, although listed on the Park's bird checklist, would not be affected because it is rarely observed and suitable habitat does not occur within the Park.

Both the flycatcher and the cuckoo are riparian obligate species, although their habitat preferences are somewhat different, with the cuckoo preferring denser habitat. As stated above (2.6) both species are occasionally observed in the Park during migration and are found almost exclusively in dense tornillo habitat. This habitat would be undisturbed by the project. Additionally, construction and saltcedar removal would be conducted outside the migration season. Therefore, there would be no construction-related adverse effects to these species.

As vegetation in the restored riparian areas develops, the area may become more suitable for foraging by migrant cuckoos and flycatchers. During the Corps' five-year post project monitoring period, surveys for these species would be conducted according to protocol. Beyond this initial monitoring period, any change in use of habitats in the Park would be detected during the Park's regular bird surveys. However, the Park is surrounded by a mix of agricultural, industrial and residential habitat that is unsuitable for nesting (Figure 11). The Park is too removed from known nesting areas and is probably too small to support nesting by either species, even if habitat were to develop optimally. The nearest known breeding and proposed critical habitat for cuckoos is located approximately 75 miles downstream on the Rio Grande, 120 miles northwest on the Gila River, or 140 miles upstream above Elephant Butte Reservoir. For the flycatcher, the nearest breeding area and final designated critical habitat is approximately 140 miles upriver, along the Rio Grande upstream of Elephant Butte Reservoir (Figure 13). For this reason, possible beneficial effects to the flycatcher and cuckoo, although hoped for, are not anticipated to reach a population level benefit.



Figure 14: Aerial images of area surrounding Rio Bosque Park showing increased urban development and lack of riparian habitat, 1991 (above) -2016 (below).

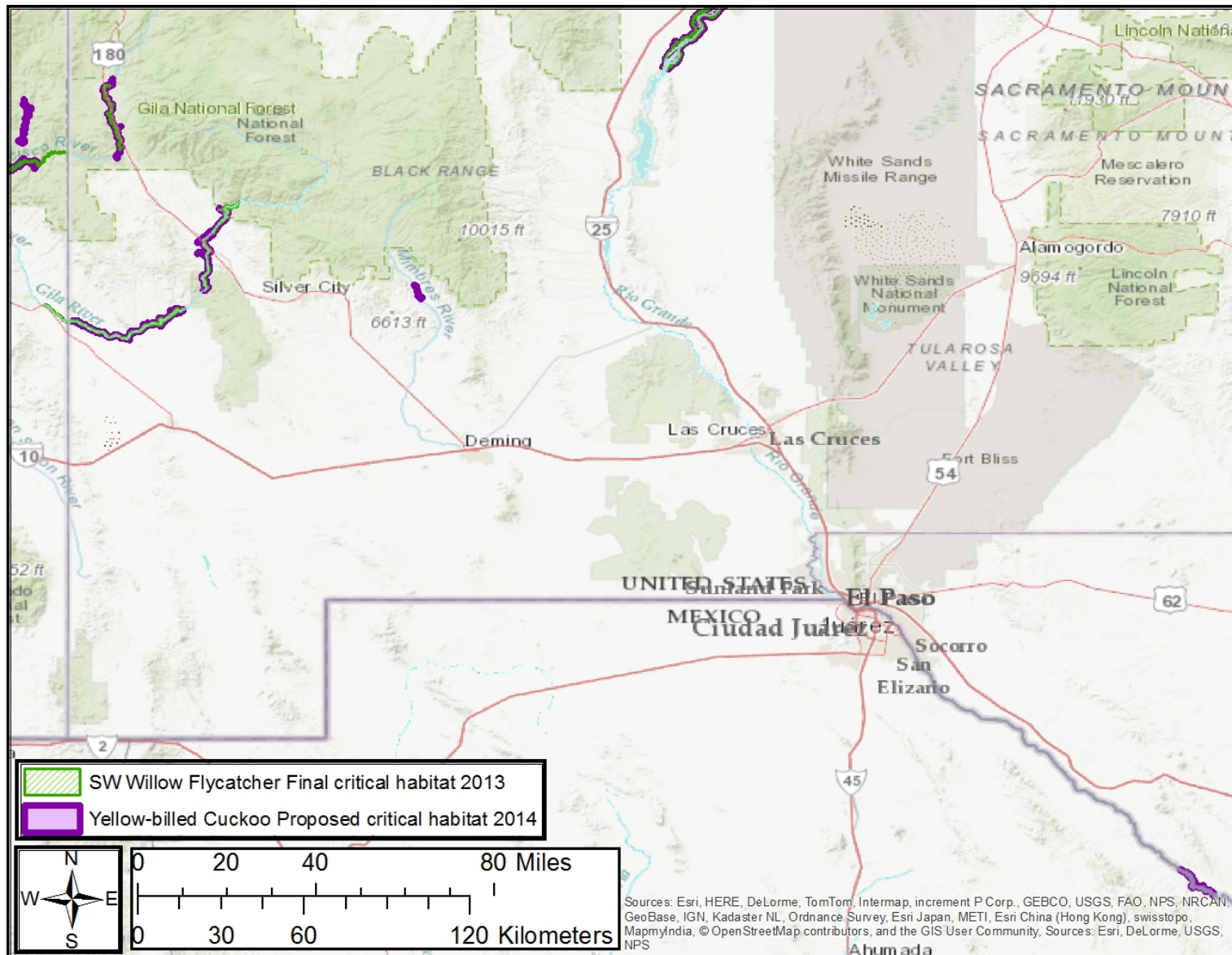


Figure 15: Map of proposed (yellow-billed cuckoo) and final (Southwestern willow flycatcher) critical habitats.

7. RECOMMENDATIONS

The following measures are recommended to improve the potential benefits of project features and reduce and/or eliminate any potential adverse impacts to fish and wildlife resources.

Project improvements to the water distribution system are expected to provide short- as well as long-term benefits as water is provided to new areas within the Park. Vegetation treatments would provide intermediate to long-term benefits as the quantity and diversity of native vegetation would increase as riparian vegetation develops. Riparian and wetland bird species would gain nesting and feeding habitat by the enhancement of existing wetlands and the creation of new wetland cells and riparian areas.

Temporary, short-term impacts to fish and wildlife may occur from the excavation of wetlands; noise and dust; and the presence of workers and machinery during project construction. Runoff from construction work sites, access routes, staging areas, and unprotected fills may degrade water quality in the wetlands. Accidental spills of fuels, lubricants, hydraulic fluids and other petrochemicals, although unlikely, would be harmful to aquatic life if they occurred.

The following measures were identified as part of the proposed action by the USACE to maximize project benefits and minimize potential adverse effects on fish and wildlife resources.

Potential Benefits, Impacts and Protective Measures for Saltcedar removal: Saltcedar removal is no longer proposed for implementation as part of the project; however, these measures are retained to inform the Sponsor's ongoing saltcedar removal work.

- Removal of saltcedar from existing vegetation communities would result in increased coverage by native species, resulting in a long-term improvement in wildlife and bird habitat. Areas from which saltcedar is removed, if not slated for another restoration measure, should be seeded and planted with native grasses, forbs and shrubs to supplement expected natural recruitment.
- Saltcedar removal should be conducted in two phases if possible, with the denser, mature saltcedar removed after native plantings have become established. This would allow species utilizing the saltcedar habitat to move into other parts of the Park.
- Saltcedar removal will be conducted between September and March, outside of the migratory bird breeding season, to avoid Migratory Bird Treaty Act violations including destruction of nests and mortality of young birds.
- Long-eared owl activity in the mature saltcedar should be monitored; if the owls have recently nested in this area, these trees should not be removed. A 300-foot buffer around the owls' nest site should be established and no activity or equipment should be allowed inside this buffer.
- Saltcedar may be removed using cut-stump herbicide treatment or whole-tree extractor. Only approved herbicides shall be used (for example, Rodeo® for application near wetlands). Herbicides will be mixed with a water-soluble dye to allow visual tracking of application. The herbicide should be applied to stumps immediately after cutting by an experienced, licensed pesticide applicator.
- Operation of equipment such as the tree extractor shall be restricted as much as possible to saltcedar stands and moved as little as necessary to minimize ground disturbance.
- A qualified biologist will monitor work, inspect work areas before work begins, and provide guidance to avoid or minimize impacts to native plants and wildlife, including migratory birds.
- A 150-foot buffer around burrowing owl habitats will be demarcated (CDOW 2008) with no activity or equipment allowed inside this buffer.

Potential Impacts and Protective Measures for Water Quality

- An approved Stormwater Pollution Prevention Plan will be required prior to construction.
- All equipment will be inspected daily to ensure that oils, fuels, or lubricants are not leaking.
- All servicing and fueling of equipment should be conducted in a designated area hydrologically isolated from surface waters. Emergency spill kits will be placed in the designated fueling area to absorb and contain any accidental spills of fuels, lubricants, or other chemicals.
- The construction contractor will be required to submit a Spill Control Plan prior to initiation of the proposed action. All heavy equipment should carry an oil spill kit or spill blanket at all times and the operator should be knowledgeable in the use of spill containment equipment.
- The proposed action involves application of herbicides to cut-stumps for removal of large trees. The contractor will be required to submit a Pesticide Management Plan detailing methods for application and spill prevention.
- Establishment of perennial, emergent vegetation in the wetlands would improve water quality. Planting plugs or larger plants and installing a variety of species will allow more rapid establishment of wetland plants and improvement in water quality.

Potential Benefits, Impacts and Protective Measures for Wetland Enhancement and Creation

Average water depth and hydroperiod in the existing wetland vegetation communities are expected to change with implementation of the proposed action. As a result, wildlife habitat characteristics in the existing wetlands would change in several ways. First; the proposed action would create more diversity in water depths. Second; open water habitat would be available for a longer period during the growing season. Third; the proposed action would increase the area covered by native herbaceous wetland vegetation.

- The creation of new wetlands and riparian areas should occur in specific sites that currently are either upland or transitional between riparian and upland. There is minimal existing native vegetation that would be disturbed in these sites when the new wetlands are constructed or new riparian vegetation is planted.
- During the design and pre-construction phases, a biologist will conduct more site-specific evaluation of these areas to determine where existing vegetation will not be disturbed and where wetland excavation or riparian plantings should occur.
- As with saltcedar removal, direct impacts to nesting birds should be avoided during wetland construction and riparian area planting through seasonal restrictions.
- The wetlands will be planted with a variety of emergent wetland plant species to encourage a diverse plant community that would provide food and cover for a diverse faunal community.
- Post-project monitoring would be conducted to inform adaptive management needs (e.g., conduct periodic wildlife surveys, monitoring vegetation and ecosystem response, etc.) to ensure project success.

8. LITERATURE CITED

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Enclosures

Enclosure 1: Rio Bosque Field Checklist of Bird Species. *Highlighted species:* **Federally listed**, **state SGCN**, **USFWS BCCs**.

DUCKS, GEESE AND SWANS					RAILS, GALLINULES AND COOTS					IBISES AND SPOONBILLS					TYRANT FLYCATCHERS					
Sp	Su	F	W		Sp	Su	F	W		Sp	Su	F	W		Sp	Su	F	W		
___ Fulvous Whistling-Duck	X	X			___ Virginia Rail	X				___ Little Blue Heron		X			___ Olive-sided Flycatcher	U	R	R		
___ Snow Goose	X		R	R	___ Sora	X	R	R	X	___ Tricolored Heron	X	X	X		___ Western Wood-Pewee	U	R	U		
___ Ross's Goose		X	X		___ Common Gallinule	R	U*	U	U	___ Reddish Egret		X			___ Willow Flycatcher		R			
___ Canada Goose	X		R		___ American Coot	U	C*	C	C	___ Cattle Egret	U	U†	U	R	___ Least Flycatcher			X		
___ Tundra Swan			X		CRANES	___ Sandhill Crane	X		U	R	___ Green Heron	U	U†	U	R	___ Hammond's Flycatcher	X		X	
___ Wood Duck	X		R	R	STILTS AND AVOCETS	___ American Golden-Plover	X			___ Black-crowned Night-Heron	R	R†	R	R	___ Gray Flycatcher	X	X	X		
___ Gadwall	U	R	C	C	___ Black-necked Stilt	C	C*	U	R	___ Yellow-crowned Night-Heron		X			___ Dusky Flycatcher		R	X	X	
___ Eurasian Wigeon		R	R		___ American Avocet	U	U*	R	X	NEW WORLD VULTURES	___ Turkey Vulture	U	U	U	R	___ Cordilleran Flycatcher	R	X	X	
___ American Wigeon	R	X	C	A	PLOVERS	OSPREYS	___ Osprey	R	U		___ Black Phoebe		R	R†	C	C				
___ Mallard	U		C	C	___ American Golden-Plover	X			HAWKS, KITES, EAGLES AND ALLIES	___ White-tailed Kite	U	U*	U	R	___ Eastern Phoebe	X		R	R	
___ Mallard (Mexican Duck)	C	U*	C	C	___ Snowy Plover	X			___ White-tailed Kite	U	U*	U	R	___ Say's Phoebe	U	U	U	C		
___ Blue-winged Teal	R	RT	U	R	___ Semipalmated Plover	X			___ Mississippi Kite	R	U	X		___ Vermilion Flycatcher	X					
___ Cinnamon Teal	U	R*	R	C	___ Killdeer	C	C*	C	C	___ Bald Eagle				R	___ Ash-throated Flycatcher		R		X	
___ Northern Shoveler	C	R	C	C	SANDPIPERS, PHALAROPES AND ALLIES	___ Upland Sandpiper	R	X		___ Northern Harrier	C	R	C	C	___ Cassin's Kingbird	R		R		
___ Northern Pintail	U	R	C	C	___ Long-billed Curlew	R	R	R	X	___ Sharp-shinned Hawk	U	U	U		___ Western Kingbird	A	A*	U		
___ Green-winged Teal	C	R	C	A	___ Marbled Godwit		X		___ Cooper's Hawk	U	R	U	U	___ Eastern Kingbird	X		X			
___ Canvasback		R	R		___ Stilt Sandpiper	X	X	X	___ Harris's Hawk	C	C*	C	C	___ Scissor-tailed Flycatcher	X		X			
___ Redhead	R	R	R	R	___ Baird's Sandpiper	X	X	R	___ Broad-winged Hawk	X				SHRIKES						
___ Ring-necked Duck	R		R	U	___ Least Sandpiper	R	R	U	U	___ Swainson's Hawk	U	U*	U		___ Loggerhead Shrike	U	R	U	C	
___ Greater Scaup	X				___ Western Sandpiper	X	X		___ Zone-tailed Hawk	X		X		VIREOS						
___ Lesser Scaup	R		R	U	___ Long-billed Dowitcher	U	R	U	U	___ Red-tailed Hawk	C	X	C	C	___ Bell's Vireo	U	C*	R		
___ Bufflehead	R		R	U	___ Wilson's Snipe	R		U	U	___ Ferruginous Hawk				R	___ Cassin's Vireo	R	X	X		
___ Common Goldeneye		X	X		___ Spotted Sandpiper	R	U	R	R	___ Golden Eagle			X		___ Plumbeous Vireo	R	X	X		
___ Hooded Merganser	X	R			___ Solitary Sandpiper	R	R	R		BARN OWLS	___ Warbling Vireo	R	R	R		JAYS, MAGPIES AND CROWS				
___ Common Merganser		X	X		___ Greater Yellowlegs	R	R	U	U	___ Barn Owl	R	R	R	R	___ Steller's Jay	X	X	X		
___ Ruddy Duck	R	R	R	U	___ Willet	R				TYPICAL OWLS	___ Woodhouse's Scrub-Jay	R	X	R	R	___ American Crow	U	A	A	
QUAIL	___ Scaled Quail	X	X	R	X	___ Lesser Yellowlegs	R	R	X	___ Flammulated Owl	X				___ Chihuahuan Raven	C	R	A	A	
___ Gambel's Quail	C	A*	C	C	___ Wilson's Phalarope	U	R	R	___ Western Screech-Owl	R	X†	R	R	LARKS						
GREBES	___ Pied-billed Grebe	R	R*	R	U	GULLS, TERNS AND SKIMMERS	___ Sabine's Gull	X			___ Great Horned Owl	X	X	X		___ Horned Lark	X			
___ Eared Grebe		R	R		___ Bonaparte's Gull	X	X		___ Burrowing Owl	C	C*	U	R	SWALLOWS						
PIGEONS AND DOVES	___ Rock Pigeon	R	R	R	R	___ Franklin's Gull	X			___ Long-eared Owl	X*	X	R	R	___ Tree Swallow	R		X	R	
___ Eurasian Collared-Dove	U	U*	U	R	___ Ring-billed Gull	R			KINGFISHERS	___ Violet-green Swallow	R		R	X	___ N. Rough-winged Swallow	U	R	R	R	
___ Inca Dove	X	X			___ Herring Gull		R	R	___ Belted Kingfisher	R	X	U	U	___ Bank Swallow	R	R	R			
___ White-winged Dove	U	U*	R		___ Least Tern	X	X		WOODPECKERS AND ALLIES	___ Cliff Swallow	C	C	U		___ Cave Swallow	U	U	U	R	
___ Mourning Dove	C	A*	C	C	___ Black Tern	R	R		___ Ladder-backed Woodpecker	R	U*	R	R	___ Barn Swallow	C	C	C	R		
CUCKOOS, ROADRUNNERS AND ANIS	___ Yellow-billed Cuckoo	R†			___ Forster's Tern	X	X		___ Downy Woodpecker	X				VERDINS						
___ Greater Roadrunner	C	C*	C	U	CORMORANTS	___ Neotropic Cormorant	R	R	R	___ Northern Flicker	U		U	C	___ Verdin	C	C*	C	C	
GOATSUCKERS	___ Lesser Nighthawk	R	R	R	___ Double-crested Cormorant	R	R	R	CARACARAS AND FALCONS	___ American Kestrel	U	U†	U	U	NUTHATCHES					
___ Common Nighthawk		R	R		PELICANS	___ American White Pelican	X		X	___ Merlin	X		R	R	___ Red-breasted Nuthatch	X	X			
___ Common Poorwill	X	X			___ American Bittern	X		X	___ Peregrine Falcon	R	R	R	R	WRENS						
SWIFTS	___ White-throated Swift			R	___ Great Blue Heron	C	U	C	C	___ Prairie Falcon	R		R	R	___ Rock Wren	R	X	X		
HUMMINGBIRDS	___ Black-chinned Hummingbird	C	C*	U	___ Great Egret	U	U†	U	C	___ House Wren	R		R	R	___ Marsh Wren	R		U	U	
___ Broad-tailed Hummingbird	X	/R	R		___ Snowy Egret	U	U†	U	U	___ Bewick's Wren	U		U	U	___ Cactus Wren	R	R†	R	R	
___ Rufous Hummingbird	/R	R																		

	Sp	Su	F	W
GNATCATCHERS				
Blue-gray Gnatcatcher.....	R	X	R	X
Black-tailed Gnatcatcher.....	R		R	R
KINGLETS				
Ruby-crowned Kinglet.....	U	X	U	U
SOLITAIRES, THRUSHES AND ALLIES				
Eastern Bluebird.....			X	
Western Bluebird.....	R	X	X	
Mountain Bluebird.....			X	
Townsend's Solitaire.....		X		
Hermit Thrush.....	R			R
American Robin.....	R	R		
MOCKINGBIRDS, THRASHERS AND ALLIES				
Curve-billed Thrasher.....	R		X	
Brown Thrasher.....	X	X		
Crissal Thrasher.....	C	C*	C	C
Sage Thrasher.....	R	X	R	X
Northern Mockingbird.....	A	A*	R	R
STARLINGS				
European Starling.....	R	R		X
WAXWINGS				
Cedar Waxwing.....			X	
SILKY-FLYCATCHERS				
Phainopepla.....	R	X	R	R
OLD WORLD SPARROWS				
House Sparrow.....	U	R	X	X
PIPITS				
American Pipit.....	R		U	U
FINCHES AND ALLIES				
House Finch.....	A	A*	A	A
Pine Siskin.....		X	X	
Lesser Goldfinch.....	R	R	R	R
American Goldfinch.....		X	X	
WOOD-WARBLED				
Northern Waterthrush.....	X		X	
Black-and-white Warbler.....	X	X		
Orange-crowned Warbler.....	R	/R	U	R
Lucy's Warbler.....	X			
Nashville Warbler.....	X		X	
Virginia's Warbler.....	R	/R	U	
MacGillivray's Warbler.....	U	/R	U	
Common Yellowthroat.....	R	R*	R	R
American Redstart.....	X			
Yellow Warbler.....	X	R	R	
Palm Warbler.....		X	X	
Yellow-rumped Warbler.....	C	X	C	C
Grace's Warbler.....	X			
Black-throated Gray Warbler.....	X	/R	R	
Townsend's Warbler.....	U	/R	U	
Wilson's Warbler.....	C	R	C	
Yellow-breasted Chat.....	U	C*		

	Sp	Su	F	W
NEW WORLD SPARROWS AND ALLIES				
Green-tailed Towhee.....	U	X	U	R
Spotted Towhee.....	U		U	R
Cassin's Sparrow.....	R	U*	X	
Chipping Sparrow.....	U	R	U	R
Clay-colored Sparrow.....	X	/R	R	
Brewer's Sparrow.....	C	/R	U	R
Vesper Sparrow.....	U	X	U	R
Lark Sparrow.....	R	R	R	
Black-throated Sparrow.....	R			
Lark Bunting.....	R	/R	R	R
Savannah Sparrow.....	U		R	C
Grasshopper Sparrow.....	X		X	
Baird's Sparrow.....		X		
Fox Sparrow.....	X		X	
Song Sparrow.....	R		U	C
Lincoln's Sparrow.....	R		U	U
Swamp Sparrow.....	X		X	R
White-throated Sparrow.....	X		X	X
Harris's Sparrow.....	X		X	
White-crowned Sparrow.....	C	X	C	A
Dark-eyed Junco.....	C		U	U
CARDINALS, GROSBEAKS, BUNTINGS AND ALLIES				
Hepatic Tanager.....	X		X	
Summer Tanager.....	R	R	R	
Western Tanager.....	R	R	R	
Northern Cardinal.....	R	R*	X	X
Pyrrhuloxia.....	R	R	R	U
Black-headed Grosbeak.....	R	/R	X	
Blue Grosbeak.....	U	C*	U	
Lazuli Bunting.....		/R		
Indigo Bunting.....		X		
Painted Bunting.....	U	C*	X	
Dickcissel.....		X		
BLACKBIRDS, MEADOWLARKS AND ORIOLES				
Red-winged Blackbird.....	U	U*	U	U
Western Meadowlark.....	R		R	U
Yellow-headed Blackbird.....	R	U	U	R
Rusty Blackbird.....				X
Brewer's Blackbird.....	R		R	R
Common Grackle.....				X
Great-tailed Grackle.....	U	U*	U	U
Brown-headed Cowbird.....	U	U†	R	
Bullock's Oriole.....	U	U†	X	
Scott's Oriole.....	X	X		

Field Checklist

BIRDS OF RIO BOSQUE WETLANDS PARK

El Paso, Texas



Legend

- Sp -- Spring (March-May)
 Su -- Summer (June-August)
 F -- Fall (September-November)
 W -- Winter (December-February)
- A -- Abundant should see 90-100% of time in proper habitat and season
 C -- Common should see 50-90% of time in proper habitat and season
 U -- Uncommon should see 20-50% of time in proper habitat and season
 R -- Rare should see < 20% of time in proper habitat and season
 X -- Accidental only 1 or 2 records
- / -- when preceding summer status, indicates the bird's presence in summer is due to early southbound migrants
 * -- breeding confirmed
 † -- breeding suspected
 ‡ -- formerly nested

October 2016

Total Species: 244

Rio Bosque Wetlands Park is a 372-acre City of El Paso park located next to the Rio Grande. UTEP manages the site under an agreement with the City's Public Service Board. At the park, UTEP and its partners are working to establish an approximation of the mix of habitats found in the river valley in pre-settlement days. These habitats supported a wealth of birds; bird numbers and variety at Rio Bosque have increased since restoration efforts began. The centerpiece of the restoration work is a wetland project built in 1997. When available, treated wastewater from the treatment plant just north of the park flows through the park in a former meander of the Rio Grande and is used to flood large, shallow wetland cells.



CENTER FOR ENVIRONMENTAL RESOURCE MANAGEMENT
 The University of Texas at El Paso

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 El Paso, TX 79968-0684
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Enclosure 2: Lists of Insects identified at Rio Bosque Park.

1. Giant Walking Stick

Megaphasma dentricus

Phasmatodea: Heteronemiidae

2. Plains Lubber

Brachystola magna

Orthoptera: Acrididae

3. Carolina Grasshopper

Dissosteira carolina

Orthoptera: Acrididae

4a. Band-winged grasshopper

Spharagemon sp.

Orthoptera: Acrididae

4b. Differential Grasshopper

Melanoplus differentialis

Orthoptera: Acrididae

5a. Creosotebush Grasshopper

Boottettix argentatus

Orthoptera: Acrididae

5b. Red-legged Grasshopper

Melanoplus femur-rubrum

Orthoptera: Acrididae

6. Black Swallowtail

Papilio polyxenes

Lepidoptera: Papilionidae

7. Queen

Danaus gilippus

Lepidoptera: Nymphalidae

8. Mourning Cloak

Nymphalis antiopa

Lepdoptera: Nymphalidae

9. American Lady

Vanessa virginiensis

Lepidoptera: Nymphalidae

10. Tarantula Hawk

Pepsis sp.

Hymenoptera: Pompilidae

11. Earwig

Forficula sp.

Dermaptera: Forficulidae

12. Narrow-winged damselfly

Odonata: Coenagrionidae

13. Cockroach

Blattodea: Blattidae (2 entries)

15. Cockroach

Blatta sp.

Blattodea: Blattidae

16. Cricket

Orthoptera: Gryllidae

17. Wheel bug

Arilus sp.

Hemiptera: Reduviidae

18. Assassin bug

Barce sp.

Hemiptera: Reduviidae

19. Assassin bug

Narvesus sp.

Hemiptera: Reduviidae

20. Assassin bug

Hemiptera: Reduviidae (3 entries)

22. Harlequin bug

Murgantia histrionica

Hemiptera: Pentatomidae

23. Stink bug

Oebalus sp.

Hemiptera: Pentatomidae

24. Leafhopper

Catonia sp.

Hemiptera: Achilidae

25a. Spittlebug

Homoptera: Cercopidae (2 entries)

26. Burrowing bug

Pangaeus sp.

Hemiptera: Cydnidae

27. Planthopper

Sternocranus sp.

Hemiptera: Delphacidae

28. Seed bug

Eremocoris sp.

Hemiptera: Lygaeidae

29. Plant bug

Halticus sp.

Hemiptera: Miridae

30. Plant bug

Hemiptera: Miridae

31. Damsel bug

Nabicula sp.

Hemiptera: Nabidae

32. Ash-gray leaf bug

Piesma sp.

Hemiptera: Piesmatidae

33. Scentless plant bug

Hemiptera: Rhopalidae (7 entries)

40. Seed bug

Hemiptera: Rhyparochromidae (5 entries)

43. Shield-backed bug

Hemiptera: Scutelleridae

44. Lace bug

Hemiptera: Tingidae

45a. Leafhopper

Erythroneura sp.

Homoptera: Cicadellidae

45b. Water beetle

Coleoptera: Dytiscidae

46. Powder-post beetle

Trogoxylon sp.

Coleoptera: Bostrichidae

47. Tiger beetle

Cicindela sp.

Coleoptera: Carabidae

48a. Longhorn beetle

Coleoptera: Cerambycidae

48b. Elderberry longhorn beetle

Desmocerus sp.

Coleoptera: Cerambycidae

49a. Lady beetle

Hippodamia sp.

Coleoptera: Coccinellidae

49b. Lady Beetle

Hippodamia convergens

Coleoptera: Coccinellidae

50a. Leaf beetle

Coleoptera: Chrysomelidae

50b. Southern Corn Rootworm

Diabrotica undecimpunc

Coleoptera: Chrysomelidae

51. Pales weevil

Hylobius pales

Coleoptera: Curculionidae

52. Riffle beetle

Stenelmis sp.

Coleoptera: Elmidae

53a. Carpet beetle

Coleoptera: Dermestidae

53b. False click beetle

Coleoptera: Eucnemidae

54a. Minute bark beetle

Cerylon sp.

Coleoptera: Cerylonidae

54b. Blister beetle

Epicauta sp.
Coleoptera: Meloidae

55. June beetle

Phyllophaga sp.
Coleoptera: Scarabaeidae

56a. Scarab beetle

Osmoderma sp.
Coleoptera: Scarabaeidae

56b. Scarab beetle

Pelidnota sp.
Coleoptera: Scarabaeidae

57. Scarab beetle

Coleoptera: Scarabaeidae

58. Scarab beetle

Trox scabrosus
Coleoptera: Scarabaeidae

59. Scarab beetle

Trox scabrosus
Coleoptera: Scarabaeidae

60a. Rove beetle

Creophilus sp.
Coleoptera: Staphylinidae

60b. Rove beetle

Coleoptera: Staphylinidae

61. Shining fungus beetle

Scaphidium sp.
Coleoptera: Staphylinidae

62. Shining fungus beetle

Coleoptera: Staphylinidae

63. Darkling beetle

Coleoptera: Tenebrionidae (2 entries)

65. Darkling beetle

Eusattus sp.
Coleoptera: Tenebrionidae

66. Darkling beetle

Eleodes sp.
Coleoptera: Tenebrionidae

67a. Darkling beetle

Merinus sp.
Coleoptera: Tenebrionidae

67b. Darkling beetle

Helops sp.
Coleoptera: Tenebrionidae

68. Cabbage White

Pieris rapae
Lepidoptera: Pieridae

69. Checkered White

Pontia protodice
Lepidoptera: Pieridae

70. Pearl Crescent

Phyciodes tharos
Lepidoptera: Nymphalidae

71. Bordered Patch

Chlosyne lacinia
Lepidoptera: Nymphalidae

72. Southern Spring Azure

Celistrina ladon
Lepidoptera: Lycaenidae

73. Juniper Hairstreak

Callophrys gryneus
Lepidoptera: Lycaenidae

74a. March fly

Diptera: Bibionidae

74b. Bee fly

Diptera: Bombyliidae

75a. Blow-fly

Diptera: Calliphoridae (4 entries)

77a. Lake Fly

Chironomis plumosus
Diptera: Chironomidae

77b. Empidid fly

Diptera: Empididae

78a. Fly

Diptera: Muscidae (3 entries)

79b. Scatopsid fly

Diptera: Scatopsidae

80. Syrphid fly

Eristalis sp.
Diptera: Syrphidae

81a. Parasitic fly

Archytas sp.
Diptera: Tachinidae (2 entries)

82a. Braconid wasp

Hymenoptera: Braconidae (2 entries)

83a. Parasitic Wasp

Hymenoptera: Pteromalidae (3 entries)

84b. Ichneumon wasp

Hymenoptera: Ichneumonidae

85. Wasp

Hymenoptera: Vespidae

86. Paper Wasp

Polistes apachus
Hymenoptera: Vespidae

87. Paper Wasp

Polistes navajo
Hymenoptera: Vespidae

88. Paper Wasp

Polistes metricus
Hymenoptera: Vespidae

89. Paper Wasp

Polistes sp.
Hymenoptera: Vespidae

90. Bee

Apis sp.
Hymenoptera: Apidae

91a. Ant

Hymenoptera: Formicidae (5 entries)

94a. Carpenter ant

Camponotus sp.
Hymenoptera: Formicidae (2 entries)

95a. Seed-harvester ant

Pheidole sp.
Hymenoptera: Formicidae

95b. Harvester ant

Pogonomyrmex sp.
Hymenoptera: Formicidae

Dragonflies and Damselflies of Rio Bosque Wetlands Park

(13 October 2015)

Order Odonata

Suborder Anisoptera – **The Dragonflies**

Family Aeshnidae – **Darners**

<i>Anax junius</i>	Common Green Darner
<i>Rhionaeschna multicolor</i>	Blue-eyed Darner

Family Libellulidae – **Skimmers**

<i>Libellula luctuosa</i>	Widow Skimmer
<i>Libellula lydia</i>	Common Whitetail
<i>Libellula pulchella</i>	Twelve-spotted Skimmer
<i>Libellula comanche</i>	Comanche Skimmer
<i>Libellula saturata</i>	Flame Skimmer
<i>Orthemis ferruginea</i>	Roseate Skimmer
<i>Pseudoleon superbus</i>	Filigree Skimmer
<i>Sympetrum corruptum</i>	Variiegated Meadowhawk
<i>Pachydiplax longipennis</i>	Blue Dasher
<i>Erythemis collocata</i>	Western Pondhawk
<i>Erythemis vesiculosa</i>	Great Pondhawk
<i>Pantala hymenaea</i>	Spot-winged Glider
<i>Tramea lacerata</i>	Black Saddlebags
<i>Tramea onusta</i>	Red Saddlebags

Suborder Zygoptera – **The Damselflies**

Family Calopterygidae – **Broad-winged Damsels**

<i>Hetaerina americana</i>	American Rubyspot
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Family Coenagrionidae – **Pond Damsels**

<i>Argia moesta</i>	Powdered Dancer
<i>Enallagma civile</i>	Familiar Bluet
<i>Ischnura denticollis</i>	Black-fronted Forktail (Behrstock 2002)
<i>Telebasis salva</i>	Desert Firetail

Butterflies of Rio Bosque Wetlands Park
(Updated 6 May 2020)

Pyrginae: Spread-wing Skippers

Funereal Duskywing	<i>Erynnis funeralis</i>
Common Sootywing	<i>Pholisora Catullus</i>
Small Checkered-Skipper	<i>Pyrgus scriptura</i>

Hesperiinae: Grass-Skippers

Fiery Skipper	<i>Hylephila phyleus</i>
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Papilionidae: Swallowtails

Pipevine Swallowtail	<i>Battus philenor</i>
Giant Swallowtail	<i>Papilio cresphontes</i>
Two-tailed Swallowtail	<i>Papilio multicaudatus</i>
Black Swallowtail	<i>Papilio polyxenes</i>

Pieridae: Whites and Yellows

Checkered White	<i>Pontia protodice</i>
Cabbage White	<i>Pieris rapae</i>
Orange Sulphur	<i>Colias eurytheme</i>
Sleepy Orange	<i>Abaeis nicippe</i>

Theclinae: Hairstreaks

Juniper Hairstreak	<i>Callophrys gryneus</i>
Gray Hairstreak	<i>Strymon melinus</i>

Polyommatainae: Blues

Western Pygmy-Blue	<i>Brephidium exile</i>
Spring Azure	<i>Celastrina ladon</i>

Libytheinae

American Snout	<i>Libytheana carinenta</i>
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Heliconiinae

Gulf Fritillary	<i>Agraulis vanillae</i>
Variegated Fritillary	<i>Euptoieta claudia</i>

Melitaeinae: Patches, Checkerspots and Crescents

Bordered Patch	<i>Chlosyne lacinia</i>
Pearl Crescent	<i>Phyciodes tharos</i>
Texan Crescent	<u><i>Anthanassa texana</i></u>

Nymphalinae: True Brushfoots

Common Buckeye	<u><i>Junonia coenia</i></u>
Tropical Buckeye	<i>Junonia evarete</i>
Mourning Cloak	<i>Nymphalis antiopa</i>
Red Admiral	<i>Vanessa atalanta</i>
Painted Lady	<i>Vanessa cardui</i>
American Lady	<i>Vanessa virginiensis</i>

Danainae: Monarchs

Monarch	<i>Danaus plexippus</i>
Queen	<i>Danaus gilippus</i>

Enclosure 3: Plants of Rio Bosque Wetlands Park

Updated: 23 Aug 2020

Primary nomenclature follows Powell and Worthington (2018):

Powell, A. M. and R. D. Worthington. 2018. Flowering plants of Trans-Pecos Texas and adjacent areas. Sida; Bot. Misc. 49. Botanical Research Institute of Texas, Fort Worth, Texas, U.S.A. 1444 p.

* -- introduced

Common Name (and Synonyms)	Scientific Name (and Synonyms)
FERNS AND ALLIES	
AZOLLACEAE	
mosquito fern	<i>Azolla caroliniana</i>
EQUISETACEAE	
scouring rush	<i>Equisetum hyemale</i> var. <i>affine</i>
GYMNOSPERMS	
EPHEDRACEAE	
longleaf ephedra joint-fir, Mormon tea	<i>Ephedra trifurca</i>
EUDICOTS	
AIZOACEAE	
western sea-purslane sea purslane, winged sea-purslane, camburito	<i>Sesuvium verrucosum</i>
AMARANTHACEAE	
Palmer's amaranth carelessweed	<i>Amaranthus palmeri</i>
ASTERACEAE	
spiny-fruited ragweed flatspine burr ragweed, annual bursage	<i>Ambrosia acanthacarpa</i> <i>Franseria acanthacarpa</i>

Plains lazy daisy Plains dozedaisy, western lazy daisy	<i>Aphanostephus ramosissimus</i> var. <i>humilis</i>
sand sagebrush sand sage, threadleaf sage-wort, estafiate	<i>Artemisia filifolia</i> <i>Artemisia plattensis</i>
willowleaf baccharis seepwillow, seepwillow baccharis, mule fat	<i>Baccharis salicifolia</i> <i>Baccharis glutinosa</i>
Panhandle baccharis willow baccharis, Great Plains false willow	<i>Baccharis salicina</i> <i>Baccharis emoryi</i>
broom baccharis desertbroom, groundsel	<i>Baccharis sarothroides</i>
desert marigold wild marigold, desert baileya	<i>Baileya multiradiata</i>
Wright's pappus cup white cup-fruit, white tack-stem, Wright's tackstem	<i>Calycoseris wrightii</i>
spiny aster Green-thorn daisy, Mexican devilweed	<i>Chloracantha spinosa</i> <i>Aster spinosus</i> , <i>Erigeron ortegae</i> var. <i>spinosus</i>
horseweed	<i>Conyza canadensis</i>
hoary-aster sand aster, goldenweed, purple aster	<i>Dieteria canescens</i> <i>Machaeranthera canescens</i>
*false daisy	<i>Eclipta prostrata</i>
Plains fleabane	<i>Erigeron modestus</i>
broom snakeweed broomweed, snakeweed	<i>Gutierrezia sarothrae</i>
common sunflower annual sunflower	<i>Helianthus annuus</i>
blueweed blueweed sunflower, Plains sunflower, Texas blueweed	<i>Helianthus ciliaris</i>
poison bitterweed bitterweed, pungent bitterweed, bitter rubberweed	<i>Hymenoxys odorata</i>
southern jimmyweed jimmyweed, rayless goldenrod, rocea	<i>Isocoma pluriflora</i> <i>Haplopappus heterophyllus</i> , <i>Isocoma wrightii</i>
Coulter's false conyza Coulter conyza, Coulter horseweed, Coulter laennecia, gordolobo	<i>Laennecia coulteri</i> <i>Conyza coulteri</i>
tansy-aster tansy-leaf aster, tansyleaf spine aster, Tahoka-daisy	<i>Machaeranthera tanacetifolia</i>

purple pluchea marsh fleabane, salt marsh fleabane, shrubby camphorweed, sweetscent	<i>Pluchea odorata</i> <i>Pluchea purpurascens</i>
arrowweed	<i>Pluchea sericea</i> <i>Tessaria sericea</i>
woolly paperflower paper daisy	<i>Psilostrophe tagetina</i>
Riddell's groundsel ragwort, Riddell senecio	<i>Senecio riddellii</i> <i>Senecio spartioides</i> var. <i>riddellii</i>
*common sow thistle annual sowthistle, sowthistle	<i>Sonchus oleraceus</i>
cowpen daisy golden crownbeard	<i>Verbesina encelioides</i>
common cocklebur cocklebur, abrojo	<i>Xanthium strumarium</i>
BIGNONIACEAE	
desert willow	<i>Chilopsis linearis</i>
BORAGINACEAE	
Alkali heliotrope Salt heliotrope	<i>Heliotropium curassavicum</i>
Hispid nama bristly nama, purple mat, rough nama, sandbells	<i>Nama hispida</i>
Gypsum phacelia gyp bluecurls, gypsum scorpionweed	<i>Phacelia integrifolia</i>
BRASSICACEAE	
bipinnate tansy-mustard tansy mustard	<i>Descurainia pinnata</i>
*flixweed tansy-mustard flixweed	<i>Descurainia sophia</i>
Wislizenus' spectacle-pod spectacle pod, touristplant	<i>Dimorphocarpa wislizeni</i> <i>Dithyrea wislizenii</i>
*garden-rocket salad-rocket, rocket-salad, arugula, roquette	<i>Eruca vesicaria</i> ssp. <i>sativa</i>
narrowleaf pepperweed mountain pepperweed, peppergrass	<i>Lepidium alyssoides</i> <i>Lepidium montanum</i>
hairy-fruited pepperweed hairypod pepperweed	<i>Lepidium lasiocarpum</i> ssp. <i>wrightii</i>

broadleaf pepperweed perennial pepperweed	<i>Lepidium latifolium</i>
*London-rocket rocket-mustard, yellow rocket	<i>Sisymbrium irio</i>
CACTACEAE	
tree cholla cane cactus, cardenche	<i>Cylindropuntia imbricata</i> var. <i>imbricata</i> <i>Opuntia imbricata</i>
sand prickly pear El Paso prickly pear	<i>Opuntia polyacantha</i> var. <i>arenarea</i> <i>Opuntia arenarea</i>
Long-spined purplish prickly pear long-spine prickly pear, purple prickly pear	<i>Opuntia macrocentra</i> var. <i>macrocentra</i>
CHENOPODIACEAE	
iodine bush pickleweed, quinine bush, hierba del burro	<i>Allenrolfea occidentalis</i>
four-wing saltbush chamiza	<i>Atriplex canescens</i> var. <i>canescens</i>
white-scale saltbush wheelscale saltbush	<i>Atriplex elegans</i> var. <i>elegans</i>
stalked orach sack saltbush	<i>Atriplex saccaria</i> var. <i>saccaria</i>
lamb's-quarters common lambsquarters, pigweed, quelite	<i>Chenopodium album</i>
*Mexican fireweed belvedere, green molly, kochia, summer-cypress	<i>Kochia scoparia</i> ssp. <i>scoparia</i> <i>Bassia scoparia</i>
*prickly Russian thistle, tumbleweed, yerba del vidrio	<i>Salsola tragus</i> <i>Salsola iberica</i> , <i>Salsola kali</i>
bush seepweed desert seepweed	<i>Suaeda nigra</i> <i>Suaeda suffrutescens</i>
CLEOMACEAE	
jackass clover, spectacle-fruit	<i>Wislizenia refracta</i>

CONVOLVULACEAE	
alkali weed spreading alkaliweed	<i>Cressa depressa</i> <i>Cressa truxillensis</i>
dodder	<i>Cuscuta</i> , sp.
*Japanese morning-glory wine & roses morning-glory, white-edge morning-glory	<i>Ipomoea nil</i>
FABACEAE	
Indian rush pea hog potato, pig nut, camote de raton	<i>Hoffmannseggia glauca</i> <i>Hoffmannseggia densiflora</i>
*honey mesquite	<i>Prosopis glandulosa</i> var. <i>glandulosa</i>
western honey mesquite	<i>Prosopis glandulosa</i> var. <i>torreyana</i>
tornillo screwbean, screwbean mesquite	<i>Prosopis pubescens</i>
broom dalea broom glandbush, broom indigobush, broom psorothamnus, purple sage	<i>Psorothamnus scoparius</i> <i>Dalea scoparia</i>
senna	<i>Senna</i> sp.
LOASACEAE	
many-flowered stickleaf Adonis blazingstar, many-flowered blazingstar	<i>Mentzelia longiloba</i> <i>Mentzelia multiflora</i>
MALVACEAE	
*common mallow buttonweed, cheesepant, cheeseweed	<i>Malva neglecta</i>
alkali mallow Scruffy sida	<i>Malvella leprosa</i> <i>Sida leprosa</i> , <i>Sida hederacea</i>
narrowleaf globemallow	<i>Sphaeralcea angustifolia</i>
NYCTAGINACEAE	
winged sand-verbena circlewing sand-verbena, boutonniere plant	<i>Tripterocalyx carneus</i> <i>Abronia carnea</i>
ONAGRACEAE	
water primrose floating evening primrose	<i>Ludwigia peploides</i>
small-flowered beeblossom lizardtail, small-flowered gaura, velvet-leaf gaura, velvetweed, velvety gaura, willow gaura	<i>Oenothera curtiflora</i> <i>Gaura parviflora</i>

PLANTAGINACEAE	
climbing snapdragon snapdragon vine, little snapdragon vine, blue snapdragon vine, violet vining snapdragon, roving sailor	<i>Maurandella antirrhiniflora</i> <i>Maurandya antirrhiniflora</i>
POLYGONACEAE	
pale smartweed curltop knotweed, curltop smartweed, willow smartweed	<i>Persicaria lapathifolia</i> <i>Polygonum lapathifolium</i> var. <i>lapathifolium</i>
curly dock yellow dock	<i>Rumex crispus</i>
PORTULACACEAE	
*common purslane garden purslane, hogweed, verdolaga	<i>Portulaca oleracea</i>
sinker-leaf portulaca silk-cotton purslane, sinkerleaf purslane	<i>Portulaca halimoides</i> <i>Portulaca parvula</i>
shaggy portulaca chisma, verdolaga	<i>Portulaca pilosa</i> <i>Portulaca mundula</i>
SALICAEAE	
Rio Grande cottonwood	<i>Populus deltoides</i> var. <i>wislizeni</i> <i>Populus wislizeni</i> , <i>Populus fremontii</i> var. <i>wislizeni</i>
coyote willow bank willow, basket willow, narrowleaf willow, sandbar willow	<i>Salix exigua</i> var. <i>exigua</i>
Goodding's black willow Goodding willow	<i>Salix gooddingii</i>
SOLANACEAE	
oak-leaf thorn-apple Chinese thorn-apple, oak-leaved thorn-apple, oakleaf datura	<i>Datura quercefolia</i>
Wright's jimsonweed sacred thorn-apple, sacred datura, Southwestern thorn-apple	<i>Datura wrightii</i> <i>Datura meteloides</i>
Torrey's wolfberry agrito, garumbullo, tomatillo, Torrey's desert-thorn	<i>Lycium torreyi</i>
*tree tobacco	<i>Nicotiana glauca</i>

sharp-leaf groundcherry Irrigation groundcherry, Wright's groundcherry	<i>Physalis acutiflora</i> <i>Physalis wrightii</i>
silver-leaf nightshade purple nightshade, trompillo, white horsenettle, whiteweed	<i>Solanum elaeagnifolium</i>
buffalo-bur nightshade buffalobur, Kansas-thistle	<i>Solanum rostratum</i>
TAMARICACEAE	
*saltcedar five-stamen tamarisk, tamarisco	<i>Tamarix chinensis</i> <i>Tamarix ramosissima</i>
ULMACEAE	
*Siberian elm Asiatic elm	<i>Ulmus pumila</i>
VISCACEAE	
American mistletoe Christmas mistletoe, hairy mistletoe, injerto	<i>Phoradendron leucarpum</i> ssp. <i>tomentosum</i> <i>Phoradendron tomentosum</i>
ZYGOPHYLLACEAE	
*puncturevine goathead, punctureweed, bullhead, caltrop, Mexican sandbur, Texas sandbur, abrojo de flor, cadillo	<i>Tribulus terrestris</i>
MONOCOTS	
ARACEAE	
minute duckweed least duckweed	<i>Lemna minuta</i> <i>Lemna minima</i>
ASPARAGACEAE	
soaptree yucca palmella	<i>Yucca elata</i> var. <i>elata</i>
COMMELINACEAE	
birdbill dayflower	<i>Commelina dianthifolia</i>

CYPERACEAE	
pallid-scale alkali bulrush cosmopolitan bulrush, prairie saltmarsh bulrush	<i>Bolboschoenus maritimus</i>
yellow nut-grass chufa, flatsedge, yellow nutsedge	<i>Cyperus esculentus</i>
large spike spikerush largespike spikesedge, marsh spikerush	<i>Eleocharis palustris</i> <i>Eleocharis macrostachya, Scirpus palustris</i>
hard-stem braided-sedge hard-stem bulrush, tule	<i>Schoenoplectus acutus</i> <i>Scirpus acutus</i>
common three-square bulrush chair-maker's rush	<i>Schoenoplectus pungens</i> <i>Scirpus pungens</i>
POACEAE	
needle grama six-weeks needle grama	<i>Bouteloua aristidoides</i>
sixweeks grama	<i>Bouteloua barbata</i>
*feather windmill-grass feather fingergrass, showy chloris	<i>Chloris virgata</i>
*Bermudagrass	<i>Cynodon dactylon</i>
bearded sprangletop	<i>Diplachne fusca</i> var. <i>fascicularis</i> <i>Leptochloa fascicularis</i>
Mexican sprangletop	<i>Diplachne fusca</i> var. <i>uninervia</i> <i>Leptochloa uninervia</i>
saltgrass	<i>Distichlis spicata</i>
*hare barley False barley, mouse barley, wall barley	<i>Hordeum murinum</i> ssp. <i>glaucum</i> <i>Hordeum leporinum</i>
*annual rabbitsfoot grass	<i>Polypogon monspeliensis</i>
Plains bristlegrass streambed bristlegrass	<i>Setaria leucopila</i>
*Johnsongrass	<i>Sorghum halepense</i>
alkali sacaton	<i>Sporobolus airoides</i>
spike dropseed	<i>Sporobolus contractus</i>
sand dropseed	<i>Sporobolus cryptandrus</i>
giant dropseed	<i>Sporobolus giganteus</i>
sixweeks fescue common sixweeksgrass	<i>Vulpia octoflora</i>
TYPHACEAE	
southern cat-tail	<i>Typha domingensis</i>

Enclosure 4: USFWS Trust Resources

Highlighted species have been observed at Rio Bosque Park.

04/28/2017

Event Code: 02ETAU00-2017-E-01337

2

Project Summary

Consultation Code: 02ETAU00-2017-SLI-0780
Event Code: 02ETAU00-2017-E-01337
Project Name: El Paso Rio Bosque Wetlands
Project Type: ** OTHER **
Project Description: Wetland restoration

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/31.639775768130946N106.3083239228838W>



Counties: El Paso, TX

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Birds

Least Tern <i>Sterna antillarum</i>	Endangered
CRITICAL HABITAT No critical habitat has been designated for this species. http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B07N	
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened
CRITICAL HABITAT There is final critical habitat designated for this species. http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B074	
Northern Aplomado Falcon <i>Falco femoralis septentrionalis</i>	Endangered
CRITICAL HABITAT No critical habitat has been designated for this species. http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06V	
Piping Plover <i>Charadrius melodus</i>	Threatened
THIS SPECIES ONLY NEEDS TO BE CONSIDERED IF THE FOLLOWING CONDITION APPLIES Wind Energy Projects CRITICAL HABITAT There is final critical habitat designated for this species. http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B079	
Red Knot <i>Calidris canutus rufa</i>	Threatened
THIS SPECIES ONLY NEEDS TO BE CONSIDERED IF THE FOLLOWING CONDITION APPLIES Wind Energy Projects CRITICAL HABITAT No critical habitat has been designated for this species. http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0DM	
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered
CRITICAL HABITAT There is final critical habitat designated for this species. http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B094	
Yellow-billed Cuckoo <i>Coccyzus americanus</i>	Threatened
CRITICAL HABITAT There is proposed critical habitat designated for this species. http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06R	

Flowering Plants

Sneed Pincushion Cactus *Coryphantha sneedii* var. *sneedii*

Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1UX

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.^[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data
<http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle <i>Haliaeetus leucocephalus</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008	
Bell's Vireo <i>Vireo bellii</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JX	
Black-chinned Sparrow <i>Spizella atrogularis</i>	Bird of conservation concern
Season: Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JR	
Brewer's Sparrow <i>Spizella breweri</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HA	

Burrowing Owl <i>Athene cunicularia</i>	Bird of conservation concern
Season: Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0NC	
Cassin's Sparrow <i>Aimophila cassinii</i>	Bird of conservation concern
Season: Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0K2	
Golden Eagle <i>Aquila chrysaetos</i>	Bird of conservation concern
Season: Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0DV	
Lark Bunting <i>Calamospiza melanocorys</i>	Bird of conservation concern
Season: Wintering	
Loggerhead Shrike <i>Lanius ludovicianus</i>	Bird of conservation concern
Season: Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FY	
Long-billed Curlew <i>Numenius americanus</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06S	
Lucy's Warbler <i>Vermivora luciae</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0DL	
Mccown's Longspur <i>Calcarius mccownii</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HR	
Painted Bunting <i>Passerina ciris</i>	Bird of conservation concern
Season: Breeding	
Peregrine Falcon <i>Falco peregrinus</i>	Bird of conservation concern
Season: Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU	
Rufous-crowned Sparrow <i>Aimophila ruficeps</i>	Bird of conservation concern
Season: Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MX	
Short-eared Owl <i>Asio flammeus</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD	
Sonoran Yellow Warbler <i>Dendroica petechia</i> ssp. <i>sonorana</i>	Bird of conservation concern
Season: Migrating http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F7	

Swainson's Hawk <i>Buteo swainsoni</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B070	

Enclosure 5: TPWD Rare Species Report, El Paso County

Highlighted species have been observed at Rio Bosque Park.

EL PASO COUNTY

AMPHIBIANS

Federal Status State Status

Northern leopard frog *Rana pipiens*

streams, ponds, lakes, wet prairies, and other bodies of water; will range into grassy, herbaceous areas some distance from water; eggs laid March-May and tadpoles transform late June-August; may have disappeared from El Paso County due to habitat alteration

BIRDS

Federal Status State Status

American Peregrine Falcon *Falco peregrinus anatum*

DL T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Arctic Peregrine Falcon *Falco peregrinus tundrius*

DL

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Baird's Sparrow *Ammodramus bairdii*

shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties

Ferruginous Hawk *Buteo regalis*

open country, primarily prairies, plains, and badlands; nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, power line towers; year-round resident in northwestern high plains, wintering elsewhere throughout western 2/3 of Texas

Interior Least Tern *Sterna antillarum athalassos*

LE E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Mexican Spotted Owl *Strix occidentalis lucida*

LT T

remote, shaded canyons of coniferous mountain woodlands (pine and fir); nocturnal predator of mostly small rodents and insects; day roosts in densely vegetated trees, rocky areas, or caves

Montezuma Quail *Cyrtonyx montezumae*

open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills; travels in pairs or small groups; eats succulents, acorns, nuts, and weed seeds, as well as various invertebrates

EL PASO COUNTY

BIRDS

		Federal Status	State Status
Northern Aplomado Falcon	<i>Falco femoralis septentrionalis</i>	LE	E
open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species			
Peregrine Falcon	<i>Falco peregrinus</i>	DL	T
both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.			
Prairie Falcon	<i>Falco mexicanus</i>		
open, mountainous areas, plains and prairie; nests on cliffs			
Snowy Plover	<i>Charadrius alexandrinus</i>		
formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast			
Southwestern Willow Flycatcher	<i>Empidonax traillii eximius</i>	LE	E
thickets of willow, cottonwood, mesquite, and other species along desert streams			
Sprague's Pipit	<i>Anthus spragueii</i>		
only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.			
Western Burrowing Owl	<i>Athene cunicularia hypugaea</i>		
open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows			
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>		
uncommon breeder in the Panhandle; potential migrant; winter along coast			
Western Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>		T
status applies only to western population beyond the Pecos River Drainage; breeds in riparian habitat and associated drainages; springs, developed wells, and earthen ponds supporting mesic vegetation; deciduous woodlands with cottonwoods and willows; dense understory foliage is important for nest site selection; nests in willow, mesquite, cottonwood, and hackberry; forages in similar riparian woodlands; breeding season mid-May-late Sept			

FISHES

		Federal Status	State Status
Bluntnose shiner	<i>Notropis simus simus</i>		T
extinct; Rio Grande; main river channel, often below obstructions over substrate of sand, gravel, and silt; damming and irrigation practices presumed major factors contributing to decline			

EL PASO COUNTY

FISHES

		Federal Status	State Status
Rio Grande silvery minnow	<i>Hybognathus amarus</i>	LE	E
extirpated; historically Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves			

INSECTS

		Federal Status	State Status
A Royal moth	<i>Sphingicampa raspa</i>		
woodland - hardwood; with oaks, junipers, legumes and other woody trees and shrubs; good density of legume caterpillar foodplants must be present; Prairie acacia (<i>Acacia augustissima</i>) is the documented caterpillar foodplant, but there could be a few other woody legumes used			
A tiger beetle	<i>Cicindela hornii</i>		
grassland/herbaceous; burrowing in or using soil; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses, invertivore; diurnal, hibernates/aestivates, active mostly for several days after heavy rains. the life cycle probably takes two years so larvae would always be present in burrows in the soil			
Barbara Ann's tiger beetle	<i>Cicindela politula barbaraemae</i>		
limestone outcrops in arid treeless environments or in openings within less arid pine-juniper-oak communities; open limestone substrate itself is almost certainly an essential feature; roads and trails			
Poling's hairstreak	<i>Fixsenia polingi</i>		
oak woodland with <i>Quercus grisea</i> as substantial component, probably also uses <i>Q. emoryi</i> ; larvae feed on new growth of <i>Q. grisea</i> , adults utilize nectar from a variety of flowers including milkweed and catslaw acacia; adults fly mid May - Jun, again mid Aug - early Sept			

MAMMALS

		Federal Status	State Status
Big free-tailed bat	<i>Nyctinomops macrotis</i>		
habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore			
Black bear	<i>Ursus americanus</i>		T
bottomland hardwoods and large tracts of inaccessible forested areas			
Black-footed ferret	<i>Mustela nigripes</i>	LE	
extirpated; inhabited prairie dog towns in the general area			
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>		
dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups			

EL PASO COUNTY

MAMMALS

Federal Status State Status

Cave myotis bat

Myotis velifer

colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore

Desert pocket gopher

Geomys arenarius

cottonwood-willow association along the Rio Grande in El Paso and Hudspeth counties; live underground, but build large and conspicuous mounds; life history not well documented, but presumed to eat mostly vegetation, be active year round, and bear more than one litter per year

Gray wolf

Canis lupus

LE

E

extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands

Long-legged bat

Myotis volans

in Texas, Trans-Pecos region; high, open woods and mountainous terrain; nursery colonies (which may contain several hundred individuals) form in summer in buildings, crevices, and hollow trees; apparently do not use caves as day roosts, but may use such sites at night; single offspring born June-July

Pale Townsend's big-eared bat *Corynorhinus townsendii pallascens*

roosts in caves, abandoned mine tunnels, and occasionally old buildings; hibernates in groups during winter; in summer months, males and females separate into solitary roosts and maternity colonies, respectively; single offspring born May-June; opportunistic insectivore

Pecos River muskrat

Ondatra zibethicus ripensis

creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation; diet is mainly vegetation; breed year round

Western red bat

Lasiurus blossevillii

roosts in tree foliage in riparian areas, also inhabits xeric thorn scrub and pine-oak forests; likely winter migrant to Mexico; multiple pups born mid-May - late Jun

Western small-footed bat

Myotis ciliolabrum

mountainous regions of the Trans-Pecos, usually in wooded areas, also found in grassland and desert scrub habitats; roosts beneath slabs of rock, behind loose tree bark, and in buildings; maternity colonies often small and located in abandoned houses, barns, and other similar structures; apparently occurs in Texas only during spring and summer months; insectivorous

MOLLUSKS

Federal Status State Status

Franklin Mountain talus snail

Sonorella metcalfti

terrestrial; bare rock, talus, scree; inhabits igneous talus most commonly of rhyolitic origin

EL PASO COUNTY

MOLLUSKS

Federal Status State Status

Franklin Mountain wood snail *Ashmunella pasonis*

terrestrial; bare rock, talus, scree; talus slopes, usually of limestone, but also of rhyolite, sandstone, and siltstone, in arid mountain ranges

REPTILES

Federal Status State Status

Big Bend slider *Trachemys gaigeae*

almost exclusively aquatic, sliders (*Trachemys* spp.) prefer quiet bodies of fresh water with muddy bottoms and abundant aquatic vegetation, which is their main food source; will bask on logs, rocks or banks of water bodies; breeding March-July

Chihuahuan Desert lyre snake *Trimorphodon wilkinsonii*

T

mostly crevice-dwelling in predominantly limestone-surfaced desert northwest of the Rio Grande from Big Bend to the Franklin Mountains, especially in areas with jumbled boulders and rock faults/fissures; secretive; egg-bearing; eats mostly lizards

Mountain short-horned lizard *Phrynosoma hernandesi*

T

diurnal, usually in open, shrubby, or openly wooded areas with sparse vegetation at ground level; soil may vary from rocky to sandy; burrows into soil or occupies rodent burrow when inactive; eats ants, spiders, snails, sowbugs, and other invertebrates; inactive during cold weather; breeds March-September

New Mexico garter snake *Thamnophis sirtalis dorsalis*

nearly any type of wet or moist habitat; irrigation ditches, and riparian-corridor farmlands, less often in running water; home range about 2 acres; active year round in warm weather, both diurnal and nocturnal, more nocturnal during hot weather; bears litter July-August

Texas horned lizard *Phrynosoma cornutum*

T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

PLANTS

Federal Status State Status

Bigelow's desert grass *Blepharidachne bigelovii*

GLOBAL RANK: G4; Restricted to xeric limestone or various gypsum-influenced habitats; Perennial; Flowering March-Dec; Fruiting March-Dec

Comal snakewood *Cobubrina stricta*

in El Paso County, found in a patch of thorny shrubs in colluvial deposits and sandy soils at the base of an igneous rock outcrop; the historic Comal County record does not describe the habitat; in Mexico, found in shrublands on calcareous, gravelly, clay soils with woody associates; flowering late spring or early summer

EL PASO COUNTY

PLANTS

Federal Status State Status

Desert night-blooming cereus *Peniocereus greggii* var *greggii*

Chihuahuan Desert shrublands or shrub invaded grasslands in alluvial or gravelly soils at lower elevations, 1200-1500 m (3900-4900 ft), on slopes, benches, arroyos, flats, and washes; flowering synchronized over a few nights in early May to late June when almost all mature plants bloom, flowers last only one day and open just after dark, may flower as early as April

Fleshy tidestromia *Tidestromia carnososa*

GLOBAL RANK: G2G4; Occurs in saline or gypseous soils in open situations; Annual; Flowering March-Nov; Fruiting April-Nov

Great sage *Salvia summa*

GLOBAL RANK: G3?; Limestone cliffs and slopes in the Guadalupe and Franklin Mountains; Perennial; Flowering April-June; Fruiting May-Oct

Hawksworth's mistletoe *Phoradendron hawksworthii*

GLOBAL RANK: G3; Parasitic on Juniperus in the mountains of the Trans-Pecos and at lower elevations on the western Edwards Plateau; Perennial; Flowering/Fruiting April-Dec

Hueco rock-daisy *Perityle huecoensis*

north-facing or otherwise mostly shaded limestone cliff faces within relatively mesic canyon system; flowering spring-fall

Mt. Davis brickellbush *Brickellia parvula*

GLOBAL RANK: G3; Occurs on rocky slopes and ridges in the mountains of the southwestern U.S. at elevations between 1200 and 2100 m; Perennial; Flowering Aug-Sept; Fruiting Sept-Oct

Payson's hiddenflower *Cryptantha paysonii*

GLOBAL RANK: G3; Rocky limestone slopes in mountains; Perennial; Flowering May; Fruiting May-June

Plank's catchfly *Silene plankii*

GLOBAL RANK: G2; Franklin Mountains of El Paso County, occurring in crevices on shaded igneous cliff faces above ca. 5000 ft.; Perennial; Flowering summer-early autumn

Sand prickly-pear *Opuntia arenaria*

deep, loose or semi-stabilized sands in sparsely vegetated dune or sandhill areas, or sandy floodplains in arroyos; flowering May-June

Sand sacahuista *Nolina arenicola*

Texas endemic; mesquite-sand sage shrublands on windblown Quarternary reddish sand in dune areas; flowering time uncertain May-June, June-September

Sneed's pincushion cactus *Escobaria sneedii* var *sneedii*

LE E

xeric limestone outcrops on rocky, usually steep slopes in desert mountains, in the Chihuahuan Desert succulent shrublands or grasslands; flowering April-September (peak usually in April, sometimes opportunistically after summer rains; fruiting August - November

EL PASO COUNTY

PLANTS

Federal Status State Status

Texas false saltgrass *Allolepis texana*

Sandy to silty soils of valley bottoms and river floodplains, not generally on alkaline or saline sites; Perennial; Flowering (May-) July-October depending on rainfall

Waterfall's milkvetch *Astragalus waterfallii*

GLOBAL RANK: G3?; Rocky limestone slopes; Perennial; Flowering Feb-May; Fruiting April- May

Wheeler's spurge *Chamaesyce geyeri* var *wheeleriana*

sparingly vegetated, loose eolian quartz sand on reddish sand dunes or coppice mounds; flowering and fruiting at least August-September, probably earlier and later, as well