APPENDIX H
BIOLOGICAL RESOURCES SUPPORT DOCUMENTATION

The following tables provide a list of all plant and wildlife species mentioned in Section 4.3 (Biological Resources) of the RBTI EIS. These lists include both their common and scientific names. Tables describing all species mentioned in the text that are listed as state and federal threatened, endangered, and sensitive species are also provided. This appendix also includes correspondence between the Air Force and USFWS regarding informal discussions for RBTI.

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Table H-1. Representative Plant Species in the Affected Area	
Common Name	*Scientific Name*
Acacia	*Acacia* spp.
Agave	*Agave* spp.
Arizona fescue	*Festuca arizonica*
Bitterweed	*Hymenoxys odorata*
Black grama	*Bouteloua eriopoda*
Broadleaf milkweed	*Ascelpias latifolia*
Broomweed	*Amphiachyris* spp. and *Gutierrezia* spp.
Buffalograss	*Buchloe dactyloides*
Cane bluestem	*Bothriochloa barbinodis*
Catclaw	*Acacia greggii*
Catclaw mimosa	*Mimosa biuncifera*
Creosote bush	*Larrea tridentata*
Douglas fir	*Pseudotsuga menziesii*
Fragrant ash	*Fraxinus cuspidata*
Galleta grass	*Hilaria jamesii*
Gambel (=shin) oak	*Quercus gambelii*
Guajillo	*Acacia berlandieri*
Juniper	*Juniperus* spp.
Little bluestem	*Schizachyrium scoparium*
Live oak	*Quercus turbinella*
Mesquite	*Prosopis* spp.
Mexican pinyon	*Pinus cembroides*
Mountain laurel	*Sophora secundiflora*
Mountain muhly	*Muhlenbergia montana*
Needlegrass	*Achnatherum* spp.
Ocotillo	*Fouquieria splendens*
Pinyon pine	*Pinus edulis*
Pinyon ricegrass	*Piptochaetium fimbriatum*
Plains lovegrass	*Eragrostis intermedia*
Ponderosa pine	*Pinus ponderosa*
Post oak	*Quercus margarettiae*
Pricklypear and cholla	*Opuntia* spp.
Sage	*Artemisia* spp.
Sand shin oak	*Quercus havardii*
Sandpaper oak	*Quercus pungens*
Sideoats grama	*Bouteloua curtipendula*
Snakeweed	*Gutierrezia* spp.
Soapweed	*Yucca glauca*
Switchgrass	*Panicum capillare*
Tarbush	*Floureusia cernua*
Texas bluestem	*Schizachyrium cirratum*
Texas grama	*Bouteloua rigidiseta*
Texas kidneywood	*Eysenhardtia texana*
Threeawn grass	*Aristida* spp.
Tobosa	*Hilaria mutica*
Walnut	*Juglans* spp.
White fir	*Abies concolor*
Whitethorn	*Acacia constricta*
Wolftail	*Lycurus phleoides*
Yucca	*Yucca* spp.

Table H-2. Representative Wildlife Species in the Affected Area (page 1 of 3)	
Common Name	*Scientific Name*
REPTILES AND AMPIBIANS	
Checkered whiptail	*Cnemidophorus tesselatus*
Couch's spadefoot toad	*Scaphiopus couchii*
Crevice spiny lizard	*Scleoporus poinsettii*
Four-lined skink	*Eumeces tetragrammus*
Great Plains skink	*Eumeces obsoletus*
Great Plains toad	*Bufo cognatus*
Greater earless lizard	*Cophosaurus texanus*
Kingsnake	*Lampropeltis* spp.
Lesser earless lizard	*Holbrookia maculata*
Mojave rattlesnake	*Crotalus scutulatus*
Ornate box turtle	*Terrapene ornata*
Plains black-headed snake	*Tantilla nigriceps*
Plains spadefoot	*Scaphiopus bombifrons*
Prairie lizard	*Sceloporus undulatus*
Red-spotted toad	*Bufo punctatus*
Side-blotched lizard	*Uta stansburiana*
Six-lined racerunner	*Cnemidophorus sexlineatus*
Skink	*Eumeces* spp.
Texas banded gecko	*Coleonyx brevis*
Texas black-headed snake	*Tantilla atriceps*
Texas horned lizard	*Phrynosoma cornutum*
Texas spotted whiptail	*Cnemidophorus gularis*
Trans-Pecos ratsnake	*Elaphe subocularis*
Western boreal toad	*Bufo boreas*
Western diamondback	*Crotalus atrox*
Western hognose snake	*Heterodon nasicus*
Yellow mud turtle	*Kinosternon flavescens*

Table H-2. Representative Wildlife Species in the Affected Area (page 2 of 3)

Common Name	*Scientific Name*
BIRDS	
Acorn woodpecker	*Melanerpes formicivorus*
American dipper	*Cinclus mexicanus*
American peregrine falcon	*Falco peregrinus anatum*
Bald eagle	*Haliaeetus leucocephalus*
Black phoebe	*Sayornis nigricans*
Black-capped vireo	*Vireo atricapillus*
Black-headed grosbeak	*Pheucticus melanocephalus*
Black-throated sparrow	*Amphispiza bilineata*
Brown pelican	*Pelecanus occidentalis*
Brown-headed cowbird	*Molothrus ater*
Burrowing owl	*Athene cunicularia*
Cactus wren	*Campylorhynchus brunneicapillus*
Chihuahuan raven	*Corvus cryptoleucus*
Common nighthawk	*Chordeiles minor*
Common poorwill	*Nyctidromus albicollis*
Cooper's hawk	*Accipiter cooperi*
Crested caracara	*Caracara plancus*
Crissal thrasher	*Toxostoma crissale*
Dark-eyed junco	*Junco hyemalis*
Eastern bluebird	*Sialia sialia*
Golden eagle	*Aquila chrysaetos*
Golden-cheeked warbler	*Dendroica chrysoparia*
Grasshopper sparrow	*Ammodramus savannarum*
Greater roadrunner	*Geococcyx californianus*
Great-horned owl	*Bubo virginianus*
Harris' hawk	*Parabuteo unicinctus*
Interior least tern	*Sterna antillarum athalassos*
Juniper titmouse	*Baeolophus griseus*
Lark bunting	*Calamospiza melanocorys*
Lark sparrow	*Chondestes grammacus*
Mexican spotted owl	*Strix occidentalis lucida*
Mountain chickadee	*Parus gambeli*
Mountain plover	*Charadrius montanus*
Mourning dove	*Zenaida macroura*
Northern aplomado falcon	*Falco femoralis septentrionalis*
Northern bobwhite	*Colinus virginianus*
Northern cardinal	*Cardinalis cardinalis*
Northern flicker	*Colaptes auratus*
Piping plover	*Charadrius melodus*
Prairie falcon	*Falco mexicanus*
Sandhill crane	*Grus canadensis*
Scaled quail	*Callipepla squamata*
Scissor-tailed flycatcher	*Tyrannus forficatus*
Southwestern willow flycatcher	*Empidonax traillii extimus*
Stellar's jay	*Cyanocitta stelleri*
Upland sandpiper	*Bartramia longicauda*
Vesper sparrow	*Pooecetes gramineus*
Western wood-pewee	*Contopus sordidulus*
Whooping crane	*Grus americana*

Table H-2. Representative Wildlife Species in the Affected Area (page 3 of 3)	
Common Name	*Scientific Name*
MAMMALS	
American bison	*Bos bison*
Badger	*Taxidea taxus*
Bighorn sheep	*Ovis canadensis*
Black-footed ferret	*Mustela nigripes*
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed prairie dog	*Cynomys ludovicianus*
Chipmunk	*Tamias* spp.
Collared peccary	*Pecari tajacu*
Coyote	*Canis latrans*
Desert cottontail	*Sylvilagus audubonii*
Desert mule deer	*Odocoileus hemionus crooki*
Elk	*Cervus elaphus*
Hispid pocket mouse	*Chaetodipus hispidus*
Kangaroo rat	*Dipodomys* spp.
Mexican (=greater) long-nosed bat	*Leptonycteris nivalis*
Mule deer	*Odocoileus hemionus*
Northern grasshopper mouse	*Oncychomys leucogaster*
Ocelot	*Leopardus pardalis*
Ord's kangaroo rat	*Dipodomys ordii*
Plains harvest mouse	*Reithrodontomys montanus*
Plains pocket gopher	*Geomys bursarius*
Plains pocket mouse	*Perognathus flavescens*
Pronghorn	*Antilocapra americana*
Ringtail	*Bassariscus astutus*
Sonoran Desert pocket mouse	*Chaetodipus penicillatus*
Southern plains woodrat	*Neotoma micropus*
Spotted ground squirrel	*Spermophilus spilosoma*
Swift fox	*Vulpes velox*
Thirteen-lined ground squirrel	*Spermophilus tridecemlineatus*

Table H-3. Federally Listed Threatened and Endangered Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species (Common Name / *Scientific Name*)	County																																														
	Andrews, TX	Borden, TX	Brewster, TX	Colfax, NM	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	De Baca, NM	Ector, TX	Eddy, NM	Fisher, TX	Garza, TX	Glasscock, TX	Guadalupe, NM	Harding, NM	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Lea, NM	Loving, TX	Lynn, TX	Mitchell, TX	Mora, NM	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Quay, NM	Reagan, TX	Reeves, TX	Rio Arriba, NM	San Miguel, NM	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Taos, NM	Tom Green, TX	Torrance, NM	Union, NM	Upton, TX	Ward, TX	Winkler, TX
Plants																																																
Bunched cory cactus (FT, ST) *Coryphantha ramillosa*			XX																																													
Chiricahua dock (FC/PT) *Rumex orthoneurus*																																				X						X						
Chisos Mt. hedgehog cactus (FT, ST) *Echinocereus chisoensis* var. *chisoensis*			XX																																													
Tall paintbrush (FC, SSC) *Castilleja elongata*			XX																																													
Guadalupe Mtns. fescue ((FC, SSC) *Festuca ligulata*			XX				XX																																									
Puzzle (=Pecos) sunflower (FC/PT, SSC-TX, SE-NM) *Helianthus paradoxus*																XX														XX					XX													
Shinner's tickle-tongue (FC, SSC) *Zanthoxylum parvum*			XX																			XX																										
Davis green pitaya (FE, SE) *Echinocereus viridiflorus var. correllii*			XX																																													
Gypsum wild buckwheat (FT, SE-NM) *Eriogonum gypsophilum*							XX					XX																																			
Hinkley oak (FT, ST) *Quercus hinckleyi*			XX																													XX																
Holy Ghost ipomopsis (FE, SE) *Ipomopsis sancti-spiritus*																																					XX											
Kuenzler hedgehog cactus (FE, SE) *Echinocereus fendleri* var. *kuenzleri*												XX																																			
Lee pincushion cactus (FT, SE) *Coryphantha sneedii* var. *leei*												XX																																			
Little Aguja pondweed (FE, SE) *Potamogeton clystocarpus*																						XX																										
Lloyd hedgehog cactus (FE, SE) *Echinocereus lloydii*			XX				XX					X																		XX		XX																
Lloyd Mariposa cactus (FT, ST) *Neolloydia (Echinomastus) mariposensis*			XX																													X																
Nellie cory cactus (FE, SE) *Coryphantha minima*			XX																																													
Terlingua Creek cat's-eye (FE, SE) *Cryptantha crassipes*			XX																																													
Texas poppy-mallow (FE, SE) *Callirhoe scabriuscula*																												XX																				
Fish																																																
Arkansas River shiner (FT, SSC) *Notropis girardi*				X													X					X					X	X	XX		X		XX				XX								X			
Big Bend gambusia (FE, SE) *Gambusia gaigei*			XX																																													
Colorado squawfish (FE) *Ptychocheilus lucius*																																			X	XX												
Comanche Springs pupfish (FE, SE) *Cyprinodon elegans*																						XX								X					XX													
Leon Springs pupfish (FE w/CH, SE) *Cyprinodon bovinus*																														XX																		
Pecos bluntnose shiner (FT, ST-NM) *Notropis simus pecosensis*										XX		XX																																				
Pecos gambusia (FE, SE) *Gambusia nobilis*												XX										XX								XX					XX													
Pecos pupfish (FC/PE, ST) *Cyprinodon pecosensis*					XX	XX	XX					XX													XX					XX					XX												XX	

Table H-3. Federally Listed Threatened and Endangered Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species	County																																																	
Common Name / *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Colfax, NM	Crane, TX	Crockett, TX	Culberson, TX	Dallam, TX	Dawson, TX	De Baca, NM	Ector, TX	Eddy, NM	Fisher, TX	Garza, TX	Glasscock, TX	Guadalupe, NM	Harding, NM	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Lea, NM	Loving, TX	Lynn, TX	Mitchell, TX	Mora, NM	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Quay, NM	Reagan, TX	Reeves, TX	Rio Arriba, NM	San Miguel, NM	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Taos, NM	Tom Green, TX	Torrance, NM	Union, NM	Upton, TX	Ward, TX	Winkler, TX
Reptiles and Amphibians																																																		
Boreal western toad (FC, SE-NM)																																				XX													
Bufo boreas boreas																																																	
Concho water snake (FT, ST)																					XX							X																				
Nerodia paucimaculata																																											XX						
Birds																																																	
Bald eagle (FT, ST)				XX						X		XX				XX	XX	XX				X		XX			XX	X			X		XX			XX	XX					XX	X	X	XX			
Haliaeetus leucocephalus																																																	
Black-capped vireo (FE, SE)			XX			XX															XX	X								XX				X				X		X			XX			X		
Vireo atricapillus																																																	
Brown pelican (FE, SE)	X							X				XX				XX	X												X								XX											
Pelecanus occidentalis																																																	
Golden-cheeked warbler (FE, SE)			X																																														
Dendroica chrysoparia																																																	
Interior least tern (FE, SE)						X				X		XX	X		X				X		X	X						X	XX		X			X		XX		X	X	X	X		X			X		
Sterna antillarum athalassos																																																	
Mexican spotted owl (FT, ST-TX)				XX			XX					X								X		XX					XX	X								XX	XX					XX		X				
Strix occidentalis lucida																																																	
Mountain plover (FC/PT, SSC-NM)				X								X				X	X											X					X	X		X	X					X		X	X			
Charadrius montanus																																																	
Northern aplomado falcon (FE, SE)			X									XX								X		X		XX								XX			X			X										
Falco femoralis septentrionalis																																																	
Piping plover (FT,SE-NM)				XX								X				X																																	
Charadrius melodus																																																	
SW willow flycatcher (FE, SE)			XX	XX			XX			X		X				XX	X			XX		XX					X	X				XX	X			XX	XX					XX		X				
Empidonax traillii extimus																																																	
Whooping crane (FE, SE)		X	X						X				X	X					XX				X			XX		X			X					XII	XII		X	X	X	XII	X		XII			
Grus americana																																																	
Mammals																																																	
Black bear (FT/SA, ST)			X			X	X															X										X		X														
Ursus americanus																																																	
Black-footed ferret (FE, SE)				X, ex								X, ex				X, ex	X, ex							X, ex			X, ex	X		X			X, ex		X	X, ex	X, ex					X, ex			X, ex			
Mustela nigripes																																																	
Mexican (greater) long-nosed bat (FE, SE)			XX																													XX																
Leptonycteris nivalis																																																	
Ocelot (FE, SE)			X																																														
Leopardus pardalis																																																	
Swift fox (FC, SSC)	X			X	X	X		XX		X	X	XX				XX	XX		X					XX			XX		XX	X			XX				XX								XX			X
Vulpes velox																																																	

ex = extirpated
FC/PT= Federal Candidate/Proposed Threatened
FSC = Federal species of concern
FC = Federal candidate
FE = Federally listed endangered

FT = Federally listed threatened
PE= Proposed Endangered
PT= Proposed Threatened
SA = Similarity of Appearance
SE = State-listed endangered

SSC = State species of concern
ST = State-listed threatened
xn = Experimental non-essential population
XX =USFWS lists
x =state lists

XX =USFWS & state lists

Table H-4. Sensitive Plant Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species	County																																															
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Alkali spurge (SSC) *Chamaeosyce astyla*																							x																									
Appressed two-bristle rock-daisy (SSC) *Perityle bisetosa* var. *appressa*			x																																													
Arborales milkvetch (SSC) *Astragalus oocalycis*																																											x					
Arizona willow (FSC) *Salix arizonica*																																											xx			x		
Bearded mock-orange (SSC) *Philadelphius crinitus*																	x																															
Biennial woolywhite (SSC) *Hymenopappas biennis*						x																																										
Big Bend (Desert Mtns.) bluegrass (FSC) *Poa strictiramea*			xx																																													
Big Bend hop hornbeam (FSC, SSC) *Ostrya chisosensis*			xx																																													
Bigpod bonamia (FSC, SSC) *Bonamia ovalifolia*			xx																																													
Boquillas lizardtail (SSC) *Gaura boquillensis*			x																						x																							
Broad-pod rushpea (FSC, SSC) *Caesalpinia brachycarpa*					xx																																											
Brush-pea (FSC, SSC) *Genistidium dumosum*			xx																																													
Bunched cory cactus (FT, ST) *Coryphantha ramillosa*			xx																																													
Bushy wild buckwheat (FSC, SSC) *Eriogonum suffruticosum*			xx																				xx		xx																							
Chaffey's cory cactus (FSC, SSC) *Coryphantha chaffeyi*			xx																																													
Chisos (slender) oak (FSC, SSC) *Quercus graciliformis*			xx																																													
Chisos agave (FSC, SSC) *Agave glomeruliflora*			xx			xx									xx		x																															
Chisos coral-root (FSC, SSC) *Hexalectris revoluta*			xx			xx																																										
Chisos Mt. hedgehog cactus (FT, ST) *Echinocereus chisoensis* var. *chisoensis*			xx																																													
Chisos pinweed (FSC, SSC) *Lechea mensalis*			xx																																													
Cliff bedstraw (FSC, SSC) *Galium correllii*			xx																																													
Colorado larkspur (SSC) *Delphinium alpestre*																																													x			
Contra yerba (= three-nerve scurfpea) (FSC, SSC) *Pediomelum pentaphyllum*																									xx																							
Correll green pitaya (SSC) *Echinocereus viridiflorus* var. *davisii*			x																				x																									
Cox dalea (FSC, SSC) *Dalea bartonii*			xx																																													

Table H-4. Sensitive Plant Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species	County																																															
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Cutler twistflower (FSC, SSC) *Streptanthus cutleri*			XX																																													
Cylinder spikerush (FSC, SSC) *Eleocharis cylindrica*																									XX																							
Davis green pitaya (FE, SE) *Echinocereus viridiflorus var. correllii*			XX																																													
Dense cory cactus (FSC, SSC) *Coryphantha dasyacantha* var. *dasyacantha*			XX												XX		XX						XX																								
Desert night-blooming cereus (FSC, SSC) *Cereus greggii* var. *greggii*			XX												XX		XX						XX		XX																						
Duncan cory cactus (FSC, SSC) *Coryphantha duncanii*			XX																						XX																							
Dune unicorn plant (SSC) *Proboscidea sabulosa*	X			X															X															X	X		X			X								
Durango yellow-cress (SSC) *Rorippa ramosa*			X																																													
Dwarf broomspurge (SSC) *Chamaesyce jejuna*			X*																		X*		X																									
Dwarf milkweed (FSC) *Asclepias unicialis* var. *uncialis*																																												X		X	XX
Erlanson desert rose (SSC) *Rosa stellata* ssp. *mirifica* var. *erlansoniae*						X																																										
Few-flowered jewelflower (FSC, SSC) *Streptanthus sparsiflorus*						XX																															XX											
Foster rock daisy (SSC) *Perityle fosteri*						X																																										
Fresno Creek thelypody (FSC, SSC) *Thelypodium tenue*																									XX																							
Fringed monkeyflower (SSC) *Mimulus dentilobus*																									X																							
Fringed paintbrush (FSC, SSC) *Castilleja ciliata*																	XX																															
Galisteo sand verbena (SSC) *Abronia bigelovii*																																											X					
Glass Mtn. coral-root (FSC, SSC) *Hexalectris nitida*			XX																				XX														XX											
Glass Mtn. rock-daisy (FSC, SSC) *Perityle vitreomontana*			XX																																													
Golden-spine hedgehog cactus (FSC, SSC) *Echinocereus chloranthus* var. *neocapillus*			XX																						XX																							
Golden-spined prickly pear (FSC, SSC) *Opuntia aureispina*			XX																																													
Gray rock daisy (SSC) *Perityle cinerea*																							X				X						X															
Gray sibara (SSC) *Sibara grisea*															X																						X											
Great Plains lady's tresses (SE-NM) *Spiranthes magnicamporum*																																											X					
Great sage (SSC-NM) *Salvia summa*																																					X											
Green spikemoss (SSC) *Selaginella viridissima*			X														X																															

Table H-4. Sensitive Plant Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species	County																																												
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Guadalupe Mtn. violet (FSC) *Viola guadalupensis*						XX																																							
Guadalupe Mtns. aster (SSC) *Aster laevis* var. *guadalupensis*						X																																							
Guadalupe Mtns. columbine (SSC) *Aquilegia chrysantha* var. *chaplinei*						X																			X												X										
Guadalupe Mtns. fescue (FC, SSC) *Festuca ligulata*			XX			XX																																							
Guadalupe Mtns. mescal bean (SSC) *Sophora gypsophila* var. *guadalupensis*						X																															X								
Guadalupe Mtns. rabbitbrush (FSC, SSC) *Chrysothamnus nauseosus* ssp. *texensis*						XX																															XX								
Guadalupe Mtns. valerian (SSC) *Valeriana texana*						X																															X								
Guadalupe pincushion cactus (FSC, SSC) *Escobaria guadalupensis*						XX																																							
Gyp locoweed (SSC) *Astragalus gypsodes*						X									X												X										X								
Gypsum scalebroom (FSC, SSC) *Lepidospartum burgessii*															XX																														
Gypsum wild buckwheat (FT, SE-NM) *Eriogonum gypsophilum*						X																															XX								
Hardtoe seepweed (FSC, SSC) *Suaeda duripes*																							XX				XX																		
Havard stonecrop (SSC) *Sedum havardii*			X														X																												
Heather leaf-flower (FSC, SSC) *Phyllanthus ericoides*			XX																																										
Hester cory cactus (FSC, SSC) *Coryphantha hesteri*			XX																				XX																						
Hill Country wild mercury (SSC) *Argythamnia aphoroides*																																XX													
Hinckley bricklebush (FSC, SSC) *Brickellia brachyphylla* var. *hinckleyi*			XX														XX																												
Hinckley columbine (FSC, SSC) *Aquilegia chrysantha hinckleyana*																									XX																				
Hinkley jacob-ladder (FSC, SSC) *Polemonium pauciflorum* ssp. *hinckleyi*																	XX																												
Hinkley oak (FT, ST) *Quercus hinckleyi*			XX																						XX																				
Holy Ghost ipomopsis (FE, SE) *Ipomopsis sancti-spiritus*																																											XX		
Irion County wild buckwheat (SSC) *Eriogonum nealleyi*														X		X							X			X				X															
Jackie's bluet (SSC) *Hedyotis pooleana*			X																																										
Kay's grama (SSC) *Bouteloua kayi*			X																																										
Kuenzler hedgehog cactus (FE, SE) *Echinocereus fendleri* var. *kuenzleri*																																					XX								
Lateleaf oak (FSC, SSC) *Quercus tardifolia*			XX																																										

Table H-4. Sensitive Plant Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species	County																																														
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Leatherweed croton (SSC) *Croton pottsii* var. *thermophilus*			x																																												
Lee pincushion cactus (FT, SE-NM) *Coryphantha sneedii* var. *leei*																																					XX										
Leoncita false foxglove (FSC, SSC) *Agalinis calycina*			XX																																												
Little-leaf brongniartia (FSC, SSC) *Brongniartia minutifolia*			XX																																												
Little Aguja pondweed (FE, SE) *Potamogeton clystocarpus*																	XX																														
Livermore sandwort (FSC, SSC) *Arenaria livermorensis*																	XX																														
Livermore sweet-cicely (FSC, SSC) *Osmorhiza mexicana* ssp. *bipatriata*																	XX																														
Lloyd hedgehog cactus (FE, SE) *Echinocereus lloydii*			XX			XX																	XX		XX												X										
Lloyd Mariposa cactus (FT, ST) *Neolloydia (Echinomastus) mariposensis*			XX																						X																						
Long spur columbine (FSC, SSC) *Aquilegia longissima*			XX														XX								XX																						
Many-flowered unicorn plant (FSC, SSC) *Proboscidea spicata*			XX*														XX								XX																						
Manystem spiderflower (FSC) *Cleome multicaulis*																									XX																						
Maravillas milkwort (FSC, SSC) *Polygala maravillasensis*			XX																																												
Mary's bluet (FSC, SSC) *Hedyotis butterwickiae*			XX																																												
Mat leastdaisy (FSC, SSC) *Chaetopappa hersheyi*						XX									XX																						XX										
McKittrick pennyroyal (ST-TX, SSC-NM) *Hedeoma apiculatum*						x																															x										
McKittrick snowberry (FSC, SSC) *Symphoricarpos guadalupensis*						XX																																									
Mexican dwarf oak (SSC) *Quercus depressipes*																	x																														
Mexican mud plantain (SSC) *Heteranthera mexicana*																								x																							
Milkvetch (SSC) *Astragalus siliceus*																																														x	
Milkvetch (SSC) *Astragalus cyaneus*																																											x				
Murray plum (SSC) *Prunus murrayana*			x			x											x																														
Neglected sunflower (SSC) *Helianthus neglectus*				x					x										x															x	x												
Nellie cory cactus (FE, SE) *Coryphantha minima*			XX																																												
Ojinaga ringstem (FSC, SSC) *Anulocaulis reflexus*																	XX								XX																						
Old blue mock pennyroyal (FSC, SSC) *Hedeoma pilosa (pilosum?)*			XX*																																												

Table H-4. Sensitive Plant Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species	County																																														
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Orcutt senna (SSC) *Senna orcuttii*			x																																												
Pagosa phlox (SSC) *Phlox caryophylla*																																										x					
Pale phacelia (FSC, SSC) *Phacelia pallida*			xx																																												
Panhandle spurge (SSC-NM) *Euphorbia strictior*																																							x			x					
Paper-spined cactus (FSC, SSC) *Sclerocactus papyracanthus*															xx																																
Patterson milkvetch (SSC) *Astragalus pattersonii*																																										x					
Perennial caltrop (FSC, SSC) *Kallstroemia perennans*			xx																						xx																						
Plains feverfew (SSC-NM) *Parthenium alpinum* var. *alpinum*																																							x								
Prickley pear (SSC) *Opuntia densispina*			x																																												
Purple gay-mallow (FSC, SSC) *Batesimalva violacea*			xx																																												
Puzzle (=Pecos) sunflower (FC/PT, SSC-TX, SE-NM) *Helianthus paradoxus*																							xx				xx											xx									
Ripley milkvetch (FSC) *Astragalus ripleyi*																																											xx		xx		
Ripley senna (FSC, SSC) *Senna ripleyana*			xx																																												
Robert stonecrop (FSC, SSC) *Sedum robertsianum*			xx																																												
Robust oak (SSC) *Quercus robusta*			x																																												
Rock crevice milkwort (SSC) *Polygala rimulicola* var. *rimulicola*						x									x																						x										
Royal red penstemon (SSC) *Penstemon cardinalis* ssp. *regalis*						x											x																				x										
Sand prickly pear (FSC, SSC) *Opuntia arenaria*															xx																																
Sand sacahuista (FSC, SSC) *Nolina arenicola*						xx									xx																																
Sandhill goosefoot (FSC, SSC) *Chenopodium cycloides*	x			xx		x											xx	xx	x															xx	x								x				
Santa Fe cholla (FSC) *Opuntia viridiflora*																																							x								
Scented croton (SSC) *Croton suaveolens*			x			x											x																														
Scheer's pincushion cactus (SE-NM) *Coryphantha scheeri* var. *scheeri*																																					x										
Sessile-flower false carrot (SSC) *Aletes sessiliflorus*																																											x		x		
Shinner's tickle-tongue (FC, SSC) *Zanthoxylum parvum*			xx														xx																														
Sierra Vieja brickelbush (FSC, SSC) *Brickellia viejensis*																									xx																						

Table H-4. Sensitive Plant Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species	County																																													
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Silver cholla (FSC, SSC) *Opuntia imbricata* var. *argentea*			XX																																												
Slimlobe rock-daisy (SSC) *Perityle dissecta*			x																						x																						
Small-head goldenweed (SSC) *Haplopappus microcephalus*																																											x				
Smooth-stem skullcap (FSC, SSC) *Scutellaria laevis*						XX									XX																																
Sneed's pincushion cactus (SE-NM) *Coryphantha sneedii* var. *sneedii*																																					x										
Sonora fleabane (FSC, SSC) *Erigeron mimegletes*			XX		XX																							XX																			
Spellenberg groundsel (FSC) *Senecio spellenbergii*																																							XX								x
Spiny kidney-wood (SSC) *Eysenhardtia spinosa*																									x																						
Stairstep two-bristle rock-daisy (FSC, SSC) *Perityle bisetosa var. scalaris*			XX																																												
Standley whitlow grass (FSC, SSC) *Draba standleyi*																	XX																														
Straw-spine glory of Texas (FSC, SSC) *Thelocactus bicolor* var. *flavidispinus*			XX																																												
Strong bladderpod (SSC) *Lesquerella valida*						x									x																																
Swallow spurge (FSC, SSC) *Chamaesyce golondrina*			XX												XX										XX																						
Tall paintbrush (FC, SSC) *Castilleja elongata*			XX																																												
Tall prairie gentian (SSC-NM) *Eustoma exaltatum*																																					x										
Terlingua bricklebush (FSC, SSC) *Brickellia brachyphylla* var. *terlinguensis*			XX												XX																																
Terlingua Creek cat's-eye (FE, SE) *Cryptantha crassipes*			XX																																												
Texas false saltgrass (FSC, SSC) *Allolepsis texana*			XX														XX								X																						
Texas largeseed bittercress (SSC) *Cardamine macrocarpa* var. *texana*			x																																												
Texas milkvine (FSC, SSC) *Matelea texensis*			XX																																												
Texas poppy-mallow (FE, SE) *Callirhoe scabriuscula*																					XX																										
Texas purple spike (=Warnock coral-root) (FSC, SSC) *Hexalectris warnockii*			XX														XX																														
Texas wolfberry (FSC, SSC) *Lycium texanum*			XX			XX									XX																																
Tharp blue-star (FSC, SSC) *Amsonia tharpii*																							XX														XX										
Three-tongued spurge (FSC, SSC) *Chamaesyce chaetocalyx* var. *triligulata*			XX			x																																									
Tigna potato (SSC) *Solanum leptosepalum*																	x								x																						

Table H-4. Sensitive Plant Species Potentially Found in the Study Area of New Mexico and Texas Counties

Species	County																																															
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Trans-Pecos false mountain parsley (SSC-NM) *Pseudocymopterus longiradiatus*																																					x											
Trans-Pecos maidenbush (FSC, SSC) *Andrachne arida*			XX																						XX																							
Two-bristle rock-daisy (FSC, SSC) *Perityle bisetosa var. bisetosa*			XX																				XX																									
Umbrella dune sedge (FSC, SSC) *Cyperus onerosus*	XX																																	XX	XX													
Waterfall milkvetch (SSC-NM) *Astragalus waterfallii*																																					x											
Watson false clappia bush (FSC, SSC) *Pseudoclappia watsonii*															XX		XX																															
Wheeler spurge (SSC) *Chamaesyce geyeri* var. *wheeleriana*															x																																	
White column cory cactus (FSC, SSC) *Coryphantha albicolumnaria*			XX																				XX		XX																							
Wilkinson whitlow-wort (FSC, SSC) *Paronychia wilkinsonii*			XX																																													
Withered wooly milk-vetch (= loco) (FSC, SSC) *Astragalus mollissimus marcidus*							XX						x				XX								XX																							
Wright marsh thistle (FSC) *Cirsium wrightii*																																						XX											
Wright trumpets (SSC) *Acleisanthes wrightii*																							x				x																						
Wright water-willow (FSC, SSC) *Justicia wrightii*			XX*																				XX														XX											
Young snowbell (FSC, SSC) *Styrax youngae*																	XX																															

FC = Federal candidate
FE = Federally listed endangered
FSC = Federal species of concern
FT = Federally listed threatened

PT = Proposed threatened
SE = State-listed endangered
SSC = State species of concern
ST = State-listed threatened

XX =USFWS & state lists
X =USFWS lists
x =state lists
* =historical in Texas, not verified w/in past 50 years but suspected to be extant.

Table H-5. Sensitive Invertebrate Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																													
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Balmorhea damselfly (FSC, SSC) *Argia* sp.																											XX																				
Balmorhea saddle-case caddisfly (FSC, SSC) *Protoptila balmorhea*																											XX																				
Barbara Ann's tiger beetle (FSC, SSC) *Cicendela politula barbarannae*															XX																																
Blanchard's sphinx moth (FSC, SSC) *Amplypterus blanchardi* or *Adhemarius blanchardorum*			XX																																												
Blue-black silverspot butterfly (FSC) *Speyeria nokomis nokomis*																																									x			x	x		
Bonita diving beetle (FSC,SSC) *Deronectes neomexicana*			XX																																												
Brune's tryonia (FSC, SSC) *Tryonia brunei*																	XX																														
Chisos Mtns. threeband (SSC) *Humboldtiana chisosensis*			x																																												
Cockerell's striate disc snail (FSC, SSC-NM) *Discus shimecki cockerelli*																																									x			x	XX		
Conchas crayfish (SSC) *Orconectes deanae*																																						x	x		x	x		x			
Davis County springsnail (FSC, SSC) *Fontelicella davisi*																	XX																														
Davis Mtns. threeband (SSC) *Humboldtiana cheatum*																	x																														
Diamond Y springsnail (FC, SSC) *Tryonia adamantina*																							XX																								
Diminutive amphipod (FSC, SSC) *Gammarus hyalleloides*																	XX																														
Gonzales Spring tryonia (FC, SSC) *Tryonia stocktonensis*																							XX																								
Guadalupe cave pseudoscorpion (FSC, SSC) *Archeolarca guadalupensis*						XX																																									
Guadalupe Mtns. tiger beetle (FSC, SSC) *Cicendela politula petrophila*						XX																																									
Long fingernail clam (ST-NM) *Musculium transversum*																																												x			x
Mitre Peak threeband (SSC) *Humboldtiana ferrissiana*																	x																														
Mount Livermore threeband (SSC) *Humboldtiana palmeri*																	x																														
Ovate vertigo snail (FSC, ST-NM) *Vertigo ovata*																																					XX										
Paper pondshell mussel (SE-NM) *Utterbackia (Anodonta) imbecillis*																																							x					x			
Pearly checkerspot butterfly (FSC) *Charidryas acastus acastus*																																											x		x		
Pecos amphipod (FSC, SSC) *Gammarus pecos*																							XX																								
Pecos assiminea snail (FC, SSC) *Assiminea pecos*																							XX																								
Pecos pyrg snail (FSC, ST-NM) *Pyrgulopsis pecosensis*																																					XX										

Table H-5. Sensitive Invertebrate Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																													
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Phantom Lake cave snail (FSC, SSC) *Cochliopa texana*																	xx										xx																				
Phantom Cave Spring tryonia (=Cheatum's snail) (FSC, SSC) *Tryonia cheatumi*																	xx										xx																				
Presidio County springsnail (FSC, SSC) *Fontelicella metcalfi*																									xx																							
San Carlos threeband (SSC) *Humboldtiana hoegiana praesidii*																									x																							
Sangre de Cristo pea clam (FSC, ST-NM) *Pisidium sanguinichristi*																																														xx		
Stockton Plateau threeband (SSC) *Humboldtiana texana*			x																				x																									
Subtropical blue-black tiger beetle (FSC) *Cicindela nigrocoerula subtropica*			x																																													
Swamp fingernail clam (ST-NM) *Musculium partumeium*																																																x
Texas hornshell (mussel) (FSC, SE-NM)) *Popenaias popeii*																							x														xx											
Texas minute moss beetle (FSC, SSC) *Limnebius texanus*						xx											xx																															

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FE = Federally listed endangered
FSC = Federal species of concern
FT = Federally listed threatened

SE = State-listed endangered
SSC = State species of concern
ST = State-listed threatened

x =USFWS lists
x =state lists
xx =USFWS & state lists

Table H-6. Sensitive Fish Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																																	
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	Colfax, NM	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Arkansas River shiner (FT, SSC) *Notropis girardi*																						XX		X												X				X		X	XX		XX			X
Arkansas River speckled chub (FSC, SSC) *Macrhybopsis aestivalis tetranemus*																						XX		X																			XX					
Big Bend gambusia (FE, SE) *Gambusia gaigei*			XX																																														
Bigscale logperch (ST-NM) *Percina macrolepida*																																					X	X	X									
Blotched gambusia (FSC, ST) *Gambusia senilis*			X																																													
Blue sucker (FSC, ST-TX, SE-NM) *Cycleptus elongatus*			XX																						XX													XX										
Brook stickleback (ST-NM) *Culaea inconstans*																																				X							X					
Chihuahua shiner (FSC, ST) *Notropis chihuahua*			XX																						XX																							
Colorado squawfish (FE) *Ptychocheilus lucius*																																												X, ex?				
Comanche Springs pupfish (FE, SE) *Cyprinodon elegans*																	XX						X				XX																					
Conchos pupfish (FSC, ST) *Cyprinodon eximus*			XX																						XX																							
Flathead chub (FSC) *Platygobio (=Hybopsis) gracilis*																																				XX	XX		XX	XX		XX	XX	XX	XX	XX		XX
Gray redhorse (ST-NM) *Moxostoma congestum*																																						X										
Greenthroat darter (ST-NM) *Etheostoma lepidum*																																						X										
Guadalupe bass (SSC) *Micropterus treculi*																												X				X																
Headwater catfish (FSC) *Ictalurus lupus*																																					XX	XX										
Leon Springs pupfish (FE, SE) *Cyprinodon bovinus*																							XX																									
Mexican stoneroller (FSC, ST) *Campostoma ornatum*			XX																						XX																							
Mexican tetra (ST-NM) *Astyanax mexicanus*																																						X	X									
Pecos bluntnose shiner (FT, ST-NM) *Notropis simus pecosensis*																																					XX	XX										
Pecos gambusia (FE, SE) *Gambusia nobilis*																	XX						XX				XX											XX										
Pecos pupfish (FC/PE, ST) *Cyprinodon pecosensis*				XX	XX	XX													XX				XX				XX							XX				XX										
Plains minnow (FSC, SSC-NM) *Hybognathus placitus*																																				XX	X	X	X	XX			XX		XX			XX
Proserpine shiner (FSC, ST) *Cyprinella proserpina*			X	X	XX																		X		X		X																					
Rio Grande chub (ST-TX, SSC-NM) *Gila pandora*																	X																			X		X	X			X		X	X	X		

Table H-6. Sensitive Fish Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																																			
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	Colfax, NM	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Rio Grande cutthroat trout (SSC) *Oncorhynchus clarki virginalis*																																				x						x		x		x			
Rio Grande darter (FSC, ST) *Etheostoma grahami*			x		xx																																												
Rio Grande shiner (FSC, SSC-NM) *Notropis jemezanus*			xx																						x												xx	xx	x										
Roundtail chub (FSC, SSC-NM) *Gila robusta*																																													xx				
Sharpnose shiner (FSC) *Notropis oxyrhynchus*										x								x													x																		
Smalleye shiner (FSC, SSC) *Notropis buccula*											x							xx													x																		
Southern redbelly dace (SE-NM) *Phoxinus erythrogaster*																																				x						x							
Suckermouth minnow (ST-NM) *Phenacobius mirabilis*																																				x	x		x	x		x			x			x
West Mexican redhorse (SSC) *Moxostoma austrinus*																									x																								

FC = Federal candidate
FE = Federally listed endangered
FSC = Federal species of concern
FT = Federally listed threatened

PE = proposed endangered
SE = State-listed endangered
SSC = State species of concern
ST = State-listed threatened

x =USFWS lists
x =state lists
xx =USFWS & state lists

Table H-7. Sensitive Reptile and Amphibian Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																														
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	Colfax, NM	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Arid land ribbon snake (ST-NM) *Thamnophis proximus diabolicus*																																						x		x								x
Big Bend blackhead snake (ST) *Tantilla rubra*			x														x						x	x																								
Big Bend (Chihuahuan) mud turtle (FSC, ST) *Kinosternon hirtipes murrayi*			x																					xx																								
Big Bend slider (SSC) *Trachemys gaigeae*			x												x		x							x																								
Blotched water snake (ST-NM) *Nerodia erythrogaster transversa*																																						x										
Boreal western toad (FC, SE-NM) *Bufo b. boreas*																																												xx				
Concho water snake (FT, ST) *Nerodia paucimaculata*																xx					x											xx																
Gray-banded kingsnake (SSC-NM) *Lampropeltis alterna*																																						x										
Gray-checkered whiptail (FSC) *Cnemidophorus dixoni*																								x																								
Jemez Mtns salamander (FSC, ST-NM) *Plethodon neomexicanus*																																												xx				
Mottled rock rattlesnake (ST-NM) *Crotalus l. lepidus*																																						x										
Mountain short-horned lizard (ST) *Phrynosoma hernandesi*						x									x		x																															
Reticulated gecko (ST) *Coleonyx reticulatus*			x																					x																								
Spot-tailed earless lizard (SSC) *Holbrookia lacerata*					x							x		x		x										x		x		x		x		x														
Texas horned lizard (FSC, ST-TX) *Phrynosoma cornutum*	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	x	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	x	xx	xx	x	x	x	x	x		xx		xx	xx
Texas lyre snake (ST) *Trimorphodon biscutatus*			x												x									x																								
Texas (dunes) sagebrush lizard (FSC, SSC-TX, ST-NM) *Sceloporus arenicolus*	x			x																														x	x			xx			xx							
Texas tortoise (ST) *Gopherus berlandieri*			x																																													
Western river cooter (ST-NM) *Pseudemys gorzugi*																																						x										

FC = Federal candidate
FE = Federally listed endangered
FSC = Federal species of concern
FT = Federally listed threatened
SE = State-listed endangered
SSC = State species of concern
ST = State-listed threatened
x =USFWS lists
x =state lists
xx =USFWS & state lists

Table H-8. Sensitive Bird Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																															
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallam, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	Colfax, NM	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
American peregrine falcon (SE-TX, ST-NM) *Falco peregrinus*	x	x	XX	x	x	XX	x	x	x	x	x	x	XX	x	XX	x	XX	x	x	x	x	x	XX	x	XX	x	XX	x	x	x	x	x	x	x	x	XX	x	XX	XX	XX	XX	XX	XX	XX	XX	XX	x	XX
Arizona Botteri's sparrow (ST) *Aimophila botterii arizonae*																									x																								
Baird's sparrow (FSC, ST-NM) *Ammodramus bairdii*			X																																	XX	x	XX	XX	XX	XX	XX	XX	XX	XX	XX	x	XX
Bald eagle (FT, ST) *Haliaeetus leucocephalus*													XX				X							X								X				XX	x	XX	XX	XX	XX	XX	XX	XX	XX	XX	x	XX
Bell's vireo (ST-NM) *Vireo bellii*																																						X			X							X
Black-capped vireo (FE, SE) *Vireo atricapillus*			XX		XX											XX	X						XX			X		X		X		XX	X														
Black tern (FSC) *Chlidonias niger*							X				X		X							X																XX		XX	X				XX	XX	XX		x	
Boreal owl (ST-NM) *Aegolius funereus*																																				x						x		x	x	x		
Broad-billed hummingbird (ST-NM) *Cyanthus latirostris magicus*																																						X							x			
Brown pelican (FE, SE) *Pelecanus occidentalis*	x						x						x									x															XX	XX						XX			
Common black hawk (ST) *Buteogallus anthracinus*			x														x																						X									
Common ground dove (SE-NM) *Columbina passerina pallescens*																																						X										
Ferruginous hawk (FSC) *Buteo regalis*	x	x	x			x	x	x	x		x		x	x	x		x			x		x	x	x	x									x	XX	x	XX	XX	XX	XX	XX	XX	XX	XX	XX	x	XX
Golden-cheeked warbler (FE, SE) *Dendroica chrysoparia*			x																																													
Gray vireo (ST-NM) *Gray vicinior*																																						x	x				x		x	x		
Harlequin duck (FSC) *Histrionicus histrionicus*																																												x		x		
Interior least tern (FE, SE) *Sterna antillarum athalassos*					x					x		x		x		x	x				x	xx		x		x		x	x	x	x	x	x				x	xx						xx			
Loggerhead shrike (FSC) *Lanius ludovicianus*	x	x	x	x	x																															XX		XX	XX	XX	XX	XX	XX	XX	XX	x	XX
Mexican hooded oriole (FSC) *Icterus c. cucullatus*						x																																										
Mexican spotted owl (FT, ST-TX, SSC-NM) *Strix occidentalis lucida*						XX									x		XX																			XX		x				XX		XX	XX	XX	x	
Mountain plover (FC, SSC) *Charadrius montanus*			XX				XX						XX				XX			X		X		X											XX	x	x	XX	XX	x	XX	XX	x	XX	XX	x	XX
Neotropic cormorant (ST-NM) *Phalacrocorax brasilianus*																																						X										
Northern aplomado falcon (FE, SE) *Falco femoralis septentrionalis*			X												X		X								XX		X											XX			XX							

Table H-8. Sensitive Bird Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																																	
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	Ector, TX	Fisher, TX	Garza, TX	Glasscock, TX	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Loving, TX	Lynn, TX	Mitchell, TX	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX	Colfax, NM	De Baca, NM	Eddy, NM	Guadalupe, NM	Harding, NM	Lea, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM
Northern goshawk (FSC, SSC-NM) *Accipiter gentilis*			x			x									x		x																			xx		xx				xx		xx	xx	xx	x	xx
Northern gray hawk (FSC, ST) *Buteo nitidus maximus*			xx														xx																																
Piping plover (FT,SE-NM) *Charadrius melodus*																																				xx		x	x										
SW willow flycatcher (FE, SE) *Empidonax traillii extimus*			xx			xx									xx		xx								xx											xx	x	x	xx	x		xx	x	xx	xx	xx	x	
Texas olive sparrow (FSC) *Arremonops r. rufivirgatus*			x																																														
Varied bunting (ST-NM) *Passerina versicolor*																																						x											
Western burrowing owl (FSC, SSC-NM) *Athene cunicularia hypugea*	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x		x	x		x	x	x	x	x	x		x	x		x	x	x	x	xx		xx		xx	xx	xx	xx		xx	x		xx
White-eared hummingbird (ST-NM) *Hylocharis leucotis borealis*																																														x	x		
White-faced ibis (FSC, ST-TX) *Plegadis chihi*	xx	x	x	x		x	xx	x	x	x	x		xx		x		x	x		x		xx	x	x			x	x	x		x	x				xx	x	xx	xx	xx		xx	xx	xx	xx	xx		xx
White-tailed hawk (ST) *Buteo albicaudatus*			x																																														
White-tailed ptarmigan (SE-NM) *Lagopus leucurus altipetens*																																				x						x		x	x	x		
Whooping crane (FE, SE) *Grus americana*		x	x					x		x	x			xx				x		xx	x			x					x	x	x	x												xn	xn	xn		xn
Wood stork (ST) *Mycteria americana*																																																	
Zone-tailed hawk (ST) *Buteo albonotatus*			x			x											x								x		x	x				x																

FC = Federal candidate
FE = Federally listed endangered
FSC = Federal species of concern
FT = Federally listed threatened
SE = State-listed endangered
SSC = State species of concern
ST = State-listed threatened
xn = Experimental non-essential population
x =USFWS lists
x =state lists
xx =USFWS & state lists

Table H-9. Sensitive Mammal Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																																			
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Colfax, NM	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	De Baca, NM	Ector, TX	Eddy, NM	Fisher, TX	Garza, TX	Glasscock, TX	Guadalupe, NM	Harding, NM	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Lea, NM	Loving, TX	Lynn, TX	Mitchell, TX	Mora, NM	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Quay, NM	Reagan, TX	Reeves, TX	Rio Arriba, NM	San Miguel, NM	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Taos, NM	Tom Green, TX	Torrance, NM	Union, NM	Upton, TX	Ward, TX	Winkler, TX
American marten (ST) *Martes americana origenes*				x																								x								x	x					x						
Arizona black-tailed prairie dog (FSC, SSC) *Cynomys ludovicianus arizonensis*			x				x					xx								x										x		x			x													
Big free-tailed bat (FSC, SSC) *Nyctinomops macrotis (=Tadarida molossa)*												xx																								xx													
Black bear (FT/SA, ST) *Ursus americanus*			x			x	x															x										x		x															
Black-footed ferret (FE, SE) *Mustela nigripes*				ex								ex				ex	ex							ex				ex		x			ex		x	ex	ex					ex			ex			
Cave myotis (FSC, SSC) *Myotis velifer*			x			x	x					xx								x		x		xx							x	x																
Davis Mt. cottontail rabbit (FSC, SSC) *Sylvilagus floridanus robustus*			xx				x															xx								xx		xx																
Desert pocket gopher (FSC) *Geomys bursarius arenarius*							x													xx																													
Fringed myotis (FSC, SSC) *Myotis thysanodes*			x	xx			x					xx								x		x						xx				x					xx					xx		x	xx			
Goat Peak pika (FSC) *Ochotona princeps nigrescens*																																				xx													
Gray-footed chipmunk (FSC, SSC) *Tamias canipes*							x					xx																																					
Greater western mastiff bat (FSC, SSC) *Eumops perotis californicus*			xx																													xx																	
Guadalupe southern pocket gopher (FSC, SSC) *Thomomys umbrinus guadalupensis*							xx					xx																																					
Jones' pocket gopher (SSC) *Geomys knoxjonesi*	x				x																																											x	x
Least shrew (ST) *Cryptotis parva*												x				x																	x																
Limpia Creek pocket gopher (FSC) *Thomomys umbrinus texensis*																						xx																											
Limpia southern pocket gopher (FSC) *Thomomys umbrinus limpiae*																						xx																											
Long-eared myotis (FSC, SSC) *Myotis evotis*				x																																xx	xx					xx							
Long-legged myotis (FSC, SSC) *Myotis volans*			x	x			x					xx										x						xx				x				xx	xx					xx		x	xx			
Mexican (greater) long-nosed bat (FE, SE) *Leptonycteris nivalis*			xx																													xx																	
New Mexican meadow jumping mouse (FSC, ST-NM) *Zapus hudsonius luteus*				xx																								x								xx	x					xx							
Occult little brown bat (FSC) *Myotis lucifugus occultus*				xx								x								x								x								x	xx					xx							
Ocelot (FE, SE) *Leopardus pardalis*			x																																														
Pale Townsend's (=western) big-eared bat (FSC, SSC) *Plecotus townsendii pallescens*												xx																xx								xx	xx					xx			xx				
Palo Duro mouse (FSC, ST) *Peromyscus truei comanche*														x												x				x																			
Pecos River muskrat (FSC, SSC) *Ondatra zibethicus ripensis*												xx				xx																x			x		xx												

Table H-9. Sensitive Mammal Species Potentially Found in Study Area of New Mexico and Texas Counties

Species	County																																																	
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Colfax, NM	Crane, TX	Crockett, TX	Culberson, TX	Dallum, TX	Dawson, TX	De Baca, NM	Ector, TX	Eddy, NM	Fisher, TX	Garza, TX	Glasscock, TX	Guadalupe, NM	Harding, NM	Hartley, TX	Howard, TX	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Kent, TX	Lea, NM	Loving, TX	Lynn, TX	Mitchell, TX	Mora, NM	Oldham, TX	Pecos, TX	Potter, TX	Presidio, TX	Quay, NM	Reagan, TX	Reeves, TX	Rio Arriba, NM	San Miguel, NM	Schleicher, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Taos, NM	Tom Green, TX	Torrance, NM	Union, NM	Upton, TX	Ward, TX	Winkler, TX
Presidio mole (FSC, SSC) *Scalopus aquaticus texanus*			x																			xx										xx																
Small-footed myotis (FSC, SSC) *Myotis ciliolabrum*												xx				xx																				xx	xx					xx		x	xx			
Southwestern otter (FSC) *Lutra canadensis sonorae*																																				x						xx						
Spotted bat (FSC, ST) *Euderma maculatum*			xx													x												x								xx	x					x						
Swift fox (FC, SSC) *Vulpes velox*	x			x	x	x		xx		x	x	xx				xx	xx		x					xx				xx	xx	x	x		xx				xx								xx			x
White-nosed coati (ST) *Nasua narica*			x																																														
Yellow-nosed cotton rat (SSC) *Sigmodon ochrognathus*			x																			x										x																
Yuma myotis (FSC, SSC) *Myotis yumanensis*			x									xx										x						xx		x		x				xx	xx					xx			xx			

ex = extirpated
FC = Federal candidate
FE = Federally listed endangered
FSC = Federal species of concern

FT = Federally listed threatened
SE = State-listed endangered
SSC = State species of concern
ST = State-listed threatened

x =USFWS lists
x =state lists
xx =USFWS & state lists

Table H-10. Sensitive Species Potentially Found in Affected Counties under Alternative B

Species	County																													
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dawson, TX	Ector, TX	Eddy, NM	Fisher, TX	Garza, TX	Glasscock, TX	Howard, TX	Hudspeth, TX	Jeff Davis, TX	Kent, TX	Lea, NM	Loving, TX	Lynn, TX	Mitchell, TX	Pecos, TX	Presidio, TX	Reagan, TX	Reeves, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Upton, TX	Ward, TX	Winkler, TX
Plants																														
Bunched cory cactus (FT, ST) *Coryphantha ramillosa*			XX																											
Chisos Mt. hedgehog cactus (FT, ST) *Echinocereus chisoensis* var. *chisoensis*			XX																											
Davis green pitaya (FE, SE) *Echinocereus viridiflorus var. correllii*			XX																											
Guadalupe Mtns. fescue (FC) *Festuca ligulata*			XX			XX																								
Gypsum wild buckwheat (FT, SE-NM) *Eriogonum gypsophilum*						X			XX																					
Hinkley oak (FT, ST) *Quercus hinckleyi*			XX																			XX								
Kuenzler hedgehog cactus (FE, SE) *Echinocereus fendleri* var. *kuenzleri*									XX																					
Lee pincushion cactus (FT, SE) *Coryphantha sneedii* var. *leei*									XX																					
Little Aguja pondweed (FE, SE) *Potamogeton clystocarpus*															XX															
Lloyd hedgehog cactus (FE, SE) *Echinocereus lloydii*			XX			X			XX												XX	XX								
Lloyd Mariposa cactus (FT, ST) *Neolloydia (Echinomastus) mariposensis*			XX																			X								
Nellie cory cactus (FE, SE) *Coryphantha minima*			XX																											
Puzzle (=Pecos) sunflower (FC/PT, SE-NM) *Helianthus paradoxus*																					XX			XX						
Shinner's tickle-tongue (FC) *Zanthoxylum parvum*			XX												XX															
Tall paint brush (FC) *Castilleja elongata*			XX																											
Terlingua Creek cat's-eye (FE, SE) *Cryptantha crassipes*			XX																											
Texas poppy-mallow (FE, SE) *Callirhoe scabriuscula*																				XX										
Fish																														
Big Bend gambusia (FE, SE) *Gambusia gaigei*			XX																											
Comanche Springs pupfish (FE, SE) *Cyprinodon elegans*															XX						X			XX						
Leon Springs pupfish (FE, SE) *Cyprinodon bovinus*																					XX									
Pecos bluntnose shiner (FT, ST-NM) *Notropis simus pecosensis*									XX																					
Pecos gambusia (FE, SE) *Gambusia nobilis*									XX						XX						XX			XX						
Pecos pupfish (FC/PE) *Cyprinodon pecosensis*				XX	XX	XX			XX									XX			XX			XX					XX	
Reptiles																														
Concho water snake (FT, ST) *Nerodia paucimaculata*																				X										

Table H-10. Sensitive Species Potentially Found in Affected Counties under Alternative B

Species	County																												
Common Name *Scientific Name*	Andrews, TX	Borden, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Dawson, TX	Ector, TX	Eddy, NM	Fisher, TX	Garza, TX	Glasscock, TX	Howard, TX	Hudspeth, TX	Jeff Davis, TX	Kent, TX	Lea, NM	Loving, TX	Lynn, TX	Mitchell, TX	Pecos, TX	Presidio, TX	Reagan, TX	Reeves, TX	Scurry, TX	Sterling, TX	Stonewall, TX	Upton, TX	Ward, TX	Winkler, TX
Birds																														
American peregrine falcon (SE-TX) *Falco peregrinus*	x	x	xx	x	x	xx	x	x	xx	x	x	x	x	xx	xx	x	xx	x	x	x	xx	xx	x	xx	x	x	x	x	x	x
Bald eagle (FT, ST) *Haliaeetus leucocephalus*									xx						x		xx													
Black-capped vireo (FE, SE) *Vireo atricapillus*			xx		xx										x						xx		x			x		x		
Brown pelican (FE, SE) *Pelecanus occidentalis*	x								xx																					
Golden-cheeked warbler (FE, SE) *Dendroica chrysoparia*			x																											
Interior least tern (FE, SE) *Sterna antillarum athalassos*					x				xx	x		x	x		x					x			x	x	x	x	x	x		
Mexican spotted owl (FT, ST-TX) *Strix occidentalis lucida*						xx			x					x	xx															
Mountain Plover (FC/PT, SSC-NM) *Charadrius montanus*			x				x		x						x		x		x											
Northern aplomado falcon (FE, SE) *Falco femoralis septentrionalis*			x						xx					x	x		xx					xx		x						
Piping plover (FT, SE-NM) *Charadrius melodus*									x																					
SW willow flycatcher (FE, SE) *Empidonax traillii extimus*			xx			xx			x					xx	xx							xx								
Whooping crane (FE, SE) *Grus americana*		x	x				x			x	x		xx			x			xx	x					x	x	x			
Mammals																														
Black bear (FT/SA, ST) *Ursus americanus*			x		x	x									x							x	x							
Black-footed ferret (FE, SE) *Mustela nigripes*									ex								ex				x			x						
Mexican (greater) long-nosed bat (FE, SE) *Leptonycteris nivalis*			xx																			xx								
Ocelot (FE, SE) *Leopardus pardalis*			x																											
Swift fox (FC) *Vulpes velox*	x			x	x			x	xx				x				xx				x									x

ex = extirpated
FC = Federal candidate
FC/PT = Federal Candidate/ Proposed Threatened
FE = Federally listed endangered

FT = Federally listed threatened
SE = State-listed endangered
SSC = State Species of concern
ST = State-listed threatened

x =USFWS lists
x =state lists
xx =USFWS & state lists

Cnty =underlies MTR
Cnty =underlies MOA

Table H-11. Sensitive Species Potentially Found in Affected Counties under Alternative C

Species	County																					
Common Name *Scientific Name*	Andrews, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Ector, TX	Eddy, NM	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Lea, NM	Loving, TX	Pecos, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Sterling, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX
Plants																						
Bunched cory cactus (FT, ST) *Coryphantha ramillosa*		XX																				
Chisos Mt. hedgehog cactus (FT, ST) *Echinocereus chisoensis* var. *chisoensis*		XX																				
Davis green pitaya (FE, SE) *Echinocereus viridiflorus var. correllii*		XX																				
Guadalupe Mtns. fescue (FC, SSC) *Festuca ligulata*		XX			XX																	
Gypsum wild buckwheat (FT, SE-NM) *Eriogonum gypsophilum*					X		XX															
Hinkley oak (FT, ST) *Quercus hinckleyi*		XX												XX								
Kuenzler hedgehog cactus (FE, SE) *Echinocereus fendleri* var. *kuenzleri*							XX															
Lee pincushion cactus (FT, SE) *Coryphantha sneedii* var. *leei*							XX															
Little Aguja pondweed (FE, SE) *Potamogeton clystocarpus*										XX												
Lloyd hedgehog cactus (FE, SE) *Echinocereus lloydii*		XX			X		X						XX	XX								
Lloyd Mariposa cactus (FT, ST) *Neolloydia (Echinomastus) mariposensis*		XX												X								
Nellie cory cactus (FE, SE) *Coryphantha minima*		XX																				
Puzzle (=Pecos) sunflower (FC/PT, SSC-TX, SE-NM) *Helianthus paradoxus*							XX						XX			XX						
Shinner's tickle-tongue (FC, SSC) *Zanthoxylum parvum*		XX								XX												
Tall paintbrush (FC, SSC) *Castilleja elongata*		XX																				
Terlingua Creek cat's-eye (FE, SE) *Cryptantha crassipes*		XX																				
Fish																						
Big Bend gambusia (FE, SE) *Gambusia gaigei*		XX																				
Comanche Springs pupfish (FE, SE) *Cyprinodon elegans*										XX			X			XX						
Leon Springs pupfish (FE, SE) *Cyprinodon bovinus*													XX									
Pecos bluntnose shiner (FT, ST-NM) *Notropis simus pecosensis*							XX															
Pecos gambusia (FE, SE) *Gambusia nobilis*							XX			XX			XX			XX						
Pecos pupfish (FC/PE,ST) *Cyprinodon pecosensis*			XX	XX	XX		XX					XX	XX			XX					XX	
Reptiles																						
Concho water snake (FT, ST) *Nerodia paucimaculata*									XX										XX			

Table H-11. Sensitive Species Potentially Found in Affected Counties under Alternative C

Species	County																					
Common Name *Scientific Name*	Andrews, TX	Brewster, TX	Crane, TX	Crockett, TX	Culberson, TX	Ector, TX	Eddy, NM	Hudspeth, TX	Irion, TX	Jeff Davis, TX	Lea, NM	Loving, TX	Pecos, TX	Presidio, TX	Reagan, TX	Reeves, TX	Schleicher, TX	Sterling, TX	Tom Green, TX	Upton, TX	Ward, TX	Winkler, TX
Birds																						
American peregrine falcon (SE-TX) *Falco peregrinus*	x	xx	x	x	xx	x	xx	xx	x	xx	xx	x	xx	xx	x	xx	x	x	x	x	x	x
Bald eagle (FT, ST) *Haliaeetus leucocephalus*							xx			x	xx								x			
Black-capped vireo (FE, SE) *Vireo atricapillus*		xx		xx					xx	x			xx		x			x	xx	x		
Brown pelican (FE, SE) *Pelecanus occidentalis*	x						xx															
Golden-cheeked warbler (FE, SE) *Dendroica chrysoparia*		x																				
Interior least tern (FE, SE) *Sterna antillarum athalassos*				x			xx		x	x					x	x	x	x	x	x		
Mexican spotted owl (FT, ST-TX) *Strix occidentalis lucida*					xx		x	x		xx												
Mountain Plover (FC/PT, SSC-NM) *Charadrius montanus*		x					x			x	x			xx		x						
Northern aplomado falcon (FE, SE) *Falco femoralis septentrionalis*		x					xx	x		x	xx			xx		x						
Piping plover (FT, SE-NM) *Charadrius melodus*							x															
SW willow flycatcher (FE, SE) *Empidonax traillii extimus*		xx			xx		x	xx		xx				xx								
Whooping crane (FE, SE) *Grus americana*		x																x	x			
Mammals																						
Black bear (FT/SA, ST) *Ursus americanus*		x		x	x					x				x	x							
Black-footed ferret (FE, SE) *Mustela nigripes*							ex				ex		x			x						
Mexican (greater) long-nosed bat (FE, SE) *Leptonycteris nivalis*		xx												xx								
Ocelot (FE, SE) *Leopardus pardalis*		x																				
Swift fox (FC, SSC) *Vulpes velox*	x		x	x		x	xx				xx		x									x

FE = Federally listed endangered
FT = Federally listed threatened
FC = Federal candidate
FC/PT =Federal candidate/Proposed threatened
SA =Similarity of appearance
SSC = State species of Concern
SE = State-listed endangered
ST = State-listed threatened
ex = extirpated
PE = proposed endangered

x =USFWS lists
x =state lists
xx =USFWS & state lists

Cnty =underlies MTR
Cnty =underlies MOA

Table H-12. Sensitive Species Potentially Found in Affected Counties under Alternative D

Species	*County*														
Common Name *Scientific Name*	Colfax, NM	De Baca, NM	Guadalupe, NM	Harding, NM	Mora, NM	Quay, NM	Rio Arriba, NM	San Miguel, NM	Taos, NM	Torrance, NM	Union, NM	Dallam, TX	Hartley, TX	Oldham, TX	Potter, TX
Plants															
Holy Ghost ipomopsis (FE, SE) *Ipomopsis sancti-spritus*								xx							
Puzzle (=Pecos) sunflower (FC/PT, SSC-TX, SE-NM) *Helianthus paradoxus*			xx												
Fish															
Arkansas River shiner (FT) *Notropis girardi*	x			x	x	xx		xx			x			xx	x
Colorado squawfish (FE) *Ptychocheilus lucius*							x, ex								
Pecos bluntnose shiner (FT, ST-NM) *Notropis simus pecosensis*		xx													
Birds															
American peregrine falcon (ST- NM) *Falco peregrinus*	xx	x	xx	xx	xx	xx	xx	xx	xx	x	xx	x	xx	x	x
Bald eagle (FT, ST) *Haliaeetus leucocephalus*	xx	x	xx	xx	xx	xx	xx	xx	xx	x	xx		xx		x
Brown pelican (FE, SE) *Pelecanus occidentalis*			xx					xx				x	x	x	
Interior least tern (FE, SE) *Sterna antillarum athalassos*							xx							xx	x
Mexican spotted owl (FT, ST) *Strix occidentalis lucida*	xx				xx		xx	xx	xx	x					
Mountain Plover (FC/PT, SSC-NM) *Charadrius montanus*	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Piping plover (FT) *Charadrius melodus*	xx		x												
SW willow flycatcher (FE, SE) *Empidonax traillii extimus*	xx	x	xx	x	xx	x	xx	xx	xx	x					
Whooping crane (FE, SE) *Grus americana*							xn	xn	xn		xn				x
Mammals															
Black-footed ferret (FE, SE) *Mustela nigripes*	x,ex		x,e	x,e	x,e	x,e	x,ex	x,e	x,ex		x,ex				
Swift fox (FC, SSC) *Vulpes velox*	x		xx	xx	xx	xx		xx			xx				x

FE = Federally listed endangered
FT = Federally listed threatened
FC = Federal candidate
FC/PT =Federal candidate/Proposed threatened
ex = extirpated
SSC = State species of concern
SE = State-listed endangered
ST = State-listed threatened
xn = Experimental non-essential population

x =USFWS lists
x =state lists
xx =USFWS & state lists

Cnty =underlies MTR
Cnty =underlies MOA

CORRESPONDENCE

MEMORANDUM

TO: Jennifer Fowler-Propst
State Supervisor
USDI, Fish and Wildlife Service
Albuquerque, NM 87113

FROM: HQ ACC/CEVP
129 Andrews St., Suite 102
Langley AFB, VA 23665-2969

SUBJECT: Realistic Bomber Training Initiative (RBTI)

DATE: December 22, 1997

1. The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to implement the Realistic Bomber Training Initiative in the airspace and land in west Texas and northeastern New Mexico. This proposal is intended to provide efficient, integrated training opportunities for aircrews flying B-1 and B-52 aircraft from Dyess Air Force Base (AFB), Texas and Barksdale AFB, Louisiana, respectively. The proposed action for RBTI would involve several interrelated elements:

A. Modifications and additions to existing military training route (MTR) airspace used generally for low-altitude navigation training activities;
B. Modifications and additions to existing military operations area (MOA) airspace used for medium to high altitude training and maneuvering;
C. Increased flights by B-1 and B-52 aircraft in the MTR and MOA airspace;
D. Acquisition of a total of 12, 15-acre parcels under the MTR and MOA airspace for construction and operation of an Electronic Scoring Site system consisting of electronic emitters and associated facilities; and
E. Closure of existing Electronic Scoring Site systems at Harrison, Arkansas and La Junta, Colorado, and transfer of equipment to the proposed Electronic Scoring Site system developed for RBTI.

2. The proposed RBTI project could potentially affect those areas under MTR (low-altitude scoring site) and the MOA (high-altitude scoring site) where the emitter sites will be located. The accompanying maps identify those areas of potential impact. Pursuant to ESA and NEPA, we would like to request information regarding federally listed threatened, endangered, candidate, and proposed to be listed species that occur or may occur in the potentially affected area. To support this data collection effort, please provide the requested information to: Ogden Environmental and Energy Services, RBTI EIS, 910 Main Street, Suite 352, Boise, Idaho, 83702. If you could provide or direct us to a source of digital information on species list/concentration sites, we would be grateful. Until the extent of the potential impact to species is determined, no determination regarding the need for Section 7 consultation will be made.

3. The Air Force intends to hold public scoping meetings in the affected areas of Texas, New Mexico, Arkansas, and Colorado. Dates, times, and locations for these meetings will be announced through newspaper notifications and other media sources accessible to the public and agencies. These meetings are the first step in soliciting public and government agency comments on the RBTI proposal as required by NEPA. During the meetings, the Air Force will describe the proposed action and alternatives, the National Environmental Policy Act process, and outline the opportunities for involvement in the process.

4. If you have any specific questions about the RBTI proposal, we encourage you to contact Ms. Brenda Cook at the following address: HQ ACC/CEVP, Attention: Brenda Cook, 129 Andrews Street, Suite 102, Langley AFB, VA 23665-5542, (757) 764-9339 or RBTI EIS, 7th CES/CEV, 710 3rd Street, Dyess AFB, TX, 79607. Thank you for your assistance in this matter.

BRENDA W. COOK
Acting Chief, Environmental Impact Analysis Branch

Attachment:
Maps of Potential Impact Areas

MEMORANDUM

TO: Nancy M. Kaufman
State Director
USDI, Fish and Wildlife Service
Albuquerque, NM 87102

FROM: HQ ACC/CEVP
129 Andrews St., Suite 102
Langley AFB, VA 23665-2969

SUBJECT: Realistic Bomber Training Initiative (RBTI)

DATE: December 22, 1997

1. The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to implement the Realistic Bomber Training Initiative in the airspace and land in west Texas and northeastern New Mexico. This proposal is intended to provide efficient, integrated training opportunities for aircrews flying B-1 and B-52 aircraft from Dyess Air Force Base (AFB), Texas and Barksdale AFB, Louisiana, respectively. The proposed action for RBTI would involve several interrelated elements:

A. Modifications and additions to existing military training route (MTR) airspace used generally for low-altitude navigation training activities;
B. Modifications and additions to existing military operations area (MOA) airspace used for medium to high altitude training and maneuvering;
C. Increased flights by B-1 and B-52 aircraft in the MTR and MOA airspace;
D. Acquisition of a total of 12, 15-acre parcels under the MTR and MOA airspace for construction and operation of an Electronic Scoring Site system consisting of electronic emitters and associated facilities; and
E. Closure of existing Electronic Scoring Site systems at Harrison, Arkansas and La Junta, Colorado, and transfer of equipment to the proposed Electronic Scoring Site system developed for RBTI.

2. The proposed RBTI project could potentially affect those areas under MTR (low-altitude scoring site) and the MOA (high-altitude scoring site) where the emitter sites will be located. The accompanying maps identify those areas of potential impact. Pursuant to ESA and NEPA, we would like to request information regarding federally listed threatened, endangered, candidate, and proposed to be listed species that occur or may occur in the potentially affected area. To support this data collection effort, please provide the requested information to: Ogden Environmental and Energy Services, RBTI EIS, 910 Main Street, Suite 352, Boise, Idaho, 83702. If you could provide or direct us to a source of digital information on species list/concentration sites, we would be grateful. Until the extent of the potential impact to species is determined, no determination regarding the need for Section 7 consultation will be made.

3. The Air Force intends to hold public scoping meetings in the affected areas of Texas, New Mexico, Arkansas, and Colorado. Dates, times, and locations for these meetings will be announced through newspaper notifications and other media sources accessible to the public and agencies. These meetings are the first step in soliciting public and government agency comments on the RBTI proposal as required by NEPA. During the meetings, the Air Force will describe the proposed action and alternatives, the National Environmental Policy Act process, and outline the opportunities for involvement in the process.

4. If you have any specific questions about the RBTI proposal, we encourage you to contact Ms. Brenda Cook at the following address: HQ ACC/CEVP, Attention: Brenda Cook, 129 Andrews Street, Suite 102, Langley AFB, VA 23665-5542, (757) 764-9339 or RBTI EIS, 7th CES/CEV, 710 3rd Street, Dyess AFB, TX, 79607. Thank you for your assistance in this matter.

BRENDA W. COOK
Acting Chief, Environmental Impact Analysis Branch

Attachment:
Maps of Potential Impact Areas

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 761-4525 Fax: (505) 761-4542

RECEIVED JAN 30 1997

January 27, 1998

Cons. #2-22-98-I-124

Brenda Cook, Acting Chief
Environmental Impact Analysis Branch
HQ ACC/CEVP
129 Andrews St., Suite 102
Langley AFB, Virginia 23665-2969

Dear Ms. Cook:

This responds to your December 22, 1997, request for information regarding federally listed, proposed, and candidate species that could occur within the proposed training area. The U.S. Air Force is in the process of preparing an Environmental Impact Statement to assess the potential impacts of a proposal to implement the Realistic Bomber Training Initiative (RBTI) in the airspace and land within west Texas and northeastern New Mexico. The proposed action is intended to provide efficient, integrated training opportunities for aircrews flying B-1 and B-52 aircraft from Dyess Air Force Base (AFB), Texas and Barksdale AFB, Louisiana, and would involve the following activities: 1) Modifications and additions to existing military training route (MTR) airspace used for low-altitude navigation training activities; 2) Modifications and additions to existing military operations area (MOA) airspace used for medium to high altitude training and maneuvering; 3) Increased flights by B-1 and B-52 aircraft in the MTR and MOA airspace; 4) Acquisition of a total of 12, 15-acre parcels under the MTR and MOA airspace for construction and operation of an Electronic Scoring Site system consisting of electronic emitters and associated facilities; and 5) Closure of existing Electronic Scoring Site systems at Harrison, Arkansas and La Junta, Colorado and transfer of equipment to the proposed Electronic Scoring Site system developed for RBTI.

These operations may potentially affect threatened and endangered species in counties where overflights and ground disturbing activities occur. The U.S. Fish and Wildlife Service (Service) is particularly concerned about the potential adverse impacts of low-level flight noise disturbance on nesting raptors. The Service is currently in formal consultation with the Air Force, under Section 7 of the Endangered Species Act of 1973, as amended, on the proposed expansion of German Air Force (GAF) operations at Holloman AFB and continued use of existing MTRs and MOAs managed by Holloman, Cannon, and Air National Guard. Our main concern is that these actions may affect the

following threatened and endangered species: American peregrine falcon, northern aplomado falcon, bald eagle and Mexican spotted owl. Based on the maps provided, it appears that the RBTI will use some of the same airspace as the GAF proposal. The Service is concerned about the additive impacts of all military flights within this airspace. On January 14 and 15, 1998, Service and Air Force personnel met to discuss the RBTI and other proposals and whether it was feasible to combine them into the ongoing GAF consultation. The Air Force determined that it was not possible and informed the Service that the GAF consultation is still the top priority. It was agreed that the RBTI and other proposals, for which there is currently no information, are lower priority and will not be addressed by the Service until the GAF consultation is completed because of limited staff availability.

In New Mexico, the proposed action could impact airspace and/or land in the following counties: Colfax, Eddy, Guadalupe, Harding, Lea, Mora, Quay, Rio Arriba, San Miguel, Taos, and Union. Enclosed is a list of endangered, threatened and candidate species that may be found in these counties. These species should be considered in the analysis of environmental effects for the proposed action. Due to staffing constraints we are unable to provide more specific information at this time. We recommend you contact the Arlington and Austin Ecological Services Field Offices for information concerning federally listed species in Texas, and the New Mexico Department of Game and Fish and the New Mexico Energy, Minerals and Natural Resources Department, Forestry and Resources Conservation Division for information concerning fish, wildlife, and plants of State concern. In addition, we suggest you contact land management agencies (Federal, State, and Tribal) and private land owners for information concerning habitat and occurrence/concentration sites within the region of influence.

In future communications regarding this project, please refer to Consultation # 2-22-98-I-124. If we can be of further assistance, please contact Carol Torrez of my staff at (505) 761-4525 ext. 115.

Sincerely,

Jennifer Fowler-Propst
Field Supervisor

Enclosure

cc: (w/o enc)
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals and Natural Resources Department, Forestry and Resources Conservation Division, Santa Fe, New Mexico
Field Supervisor, U.S. Fish and Wildlife Service, Arlington Ecological Services Field Office, Arlington, Texas

Field Supervisor, U.S. Fish and Wildlife Service, Austin Ecological Services Field Office, Austin, Texas
Ogden Environmental and Energy Services, RBTI EIS, 910 Main Street, Suite 352, Boise, Idaho 83702

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services Field Office
10711 Burnet Road, Suite 200
Hartland Bank Bldg.
Austin, Texas 78758

SURNAME

FEB 20 1998

92-15-98-I-758

Ogden Environmental and Energy Services
910 Main Street, Suite 352
Boise, ID 83702

RE: Realistic Bomber Training Initiative

Dear Sir:

This letter responds to the memorandum from HQ ACC/CEVP, Langley AFB, to Nancy Kaufman, Regional Director, Region 2, U.S. Fish and Wildlife Service (Service), dated December 22, 1997. The letter states that the Air Force is in the process of preparing an Environmental Impact Statement for the subject project proposal. As requested, we are providing you with a list of threatened and endangered species from the counties in Texas that could be affected, according to the maps provided.

The New Mexico Ecological Service Field Office of the Service will be the lead office for consultation on this project. However, we will be of assistance to you for assessment of affects on species occurring in Texas, if needed. Please contact Mr. Nathan Allan, at (512) 490-0063, if you need further information.

Sincerely,

/s/ William Seawell

Field Supervisor

Enclosure

cc: USFWS, Field Supervisor, New Mexico ESFO
USFWS, Region 2, Geographic Manager, Texas
USFWS, Field Supervisor, Arlington ESFO

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services Field Office
10711 Burnet Road, Suite 200
Hartland Bank Bldg.
Austin, Texas 78758

FEB 20 1998

92-15-98-I-758

Ogden Environmental and Energy Services
910 Main Street, Suite 352
Boise, ID 83702

RE: Realistic Bomber Training Initiative

Dear Sir:

This letter responds to the memorandum from HQ ACC/CEVP, Langley AFB, to Nancy Kaufman, Regional Director, Region 2, U.S. Fish and Wildlife Service (Service), dated December 22, 1997. The letter states that the Air Force is in the process of preparing an Environmental Impact Statement for the subject project proposal. As requested, we are providing you with a list of threatened and endangered species from the counties in Texas that could be affected, according to the maps provided.

The New Mexico Ecological Service Field Office of the Service will be the lead office for consultation on this project. However, we will be of assistance to you for assessment of affects on species occurring in Texas, if needed. Please contact Mr. Nathan Allan, at (505) 490-0063, if you need further information.

Sincerely,

William Seawell

Acting Field Supervisor

RECEIVED
FEB 23 1998

Enclosure

cc: USFWS, Field Supervisor, New Mexico ESFO
USFWS, Region 2, Geographic Manager, Texas
USFWS, Field Supervisor, Arlington ESFO

OGDEN *ENVIRONMENTAL AND ENERGY SERVICES*

One East Anapamu Street
Santa Barbara, CA 93101
805 962 0992
Fax 805 966 1706

March 25, 1998

U.S. Fish and Wildlife Service
Field Supervisor
Ecological Services
10711 Burnet Dr., Suite 200
Austin, TX 78758

SUBJECT: Realistic Bomber Training Initiative (RBTI)

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to implement the Realistic Bomber Training Initiative in the airspace and land in west Texas and northeastern New Mexico. This proposal is intended to provide efficient, integrated training opportunities for aircrews flying B-1 and B-52 aircraft from Dyess Air Force Base (AFB), Texas and Barksdale AFB, Louisiana, respectively. The proposed action for RBTI would involve several interrelated elements:

A. Modifications and additions to existing military training route (MTR) airspace used generally for low-altitude navigation training activities;
B. Modifications and additions to existing military operations area (MOA) airspace used for medium to high altitude training and maneuvering;
C. Increased flights by B-1 and B-52 aircraft in the MTR and MOA airspace;
D. Acquisition of a total of 12, 15-acre parcels under the MTR and MOA airspace for construction and operation of an Electronic Scoring Site system consisting of electronic emitters and associated facilities; and
E. Closure of existing Electronic Scoring Site systems at Harrison, Arkansas and La Junta, Colorado, and transfer of equipment to the proposed Electronic Scoring Site system developed for RBTI.

The proposed RBTI project could potentially affect those areas under MTR (low-altitude scoring site) and the MOA (high-altitude scoring site) where the emitter sites will be located. The accompanying maps identify those areas of potential impact. Pursuant to ESA and NEPA, we would like to request information regarding federally listed threatened, endangered, candidate, and proposed to be listed species that occur or may occur in the potentially affected area. Please send the requested information to the above address, attention: Rick Spaulding. If you could provide or direct us to a source of digital information on species list/concentration sites, we would be grateful. Until the extent of the potential impact to species is determined, no determination regarding the need for Section 7 consultation will be made.

The Air Force intends to hold public scoping meetings in the affected areas of Texas, New Mexico, Arkansas, and Colorado. Dates, times, and locations for these meetings will be announced through newspaper notifications and other media sources accessible to the public and agencies. These meetings are the first step in soliciting public and government agency comments on the RBTI proposal as required by NEPA. During the meetings, the Air Force will describe the proposed action and alternatives, the National Environmental Policy Act process, and outline the opportunities for involvement in the process.

If you have any specific questions about the RBTI proposal, we encourage you to contact Ms. Brenda Cook at the following address: HQ ACC/CEVP, Attention: Brenda Cook, 129 Andrews Street, Suite 102, Langley AFB, VA 23665-5542, (757) 764-9339 or RBTI EIS, 7th CES/CEV, 710 3rd Street, Dyess AFB, TX, 79607. Thank you for your assistance in this matter.

Rick Spaulding
Biologist/Environmental Analyst/Specialist

Attachment: Areas of Interest Maps

OGDEN *ENVIRONMENTAL AND ENERGY SERVICES*

One East Anapamu Street
Santa Barbara, CA 93101
805 962 0992
Fax 805 966 1706

March 25, 1998

U.S. Fish and Wildlife Service
Field Supervisor
Ecological Services
711 Stadium Dr., Suite 252
Arlington, TX 76011

SUBJECT: Realistic Bomber Training Initiative (RBTI)

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to implement the Realistic Bomber Training Initiative in the airspace and land in west Texas and northeastern New Mexico. This proposal is intended to provide efficient, integrated training opportunities for aircrews flying B-1 and B-52 aircraft from Dyess Air Force Base (AFB), Texas and Barksdale AFB, Louisiana, respectively. The proposed action for RBTI would involve several interrelated elements:

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Rick Spaulding
Biologist/Environmental Analyst/Specialist

Attachment: Areas of Interest Maps

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Taos Resource Area
226 Cruz Alta Road
Taos, New Mexico 87571-5983

In Reply Refer To:
2000 (018)
March 10, 1998

RBTI EIS
c/o 7 CES/CEV
710 3rd Street
Dyess AFB, TX 79607

To whom it may concern:

After reviewing the Realistic Bomber Training Initiative newsletter provided to us, we have the following comments:

- recommend no flyovers between April 15 and September 15 in the Ute Mountain area.
- see the enclosed Aircraft Overflight Problems - Wilderness/Wild and Scenic Rivers

Please provide us a copy of the Draft EIS when available. Thank you for allowing us to review your proposal.

Sincerely,

Steve Henke
Area Manager

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

17 DEC 1999

MEMORANDUM FOR Field Supervisor
U.S. Fish and Wildlife Service
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque NM 87113

FROM: HQ ACC/CEVP
129 Andrews Street, Suite 102
Langley AFB VA 23665-2969

SUBJECT: Realistic Bomber Training Initiative (RBTI), Cons. #2-22-98-I-124

1. This is a request for consultation under the Endangered Species Act for possible impacts to listed species or species proposed for listing that may be caused by the implementation of the Realistic Bomber Training Initiative (RBTI) by the United States Air Force (Air Force). Pursuant to the National Environmental Policy Act (NEPA), this request is for consultation on all of the alternatives considered, since final selection of an alternative will not occur until the NEPA process is completed with a Record of Decision.

2. The Air Force has developed this project in ways that allow us to conclude that the proposed action may affect but is not likely to adversely affect any listed species or critical habitat. Consequently, we believe the proposed action qualifies under 50 CFR 402.14(b)(1) as an exception to the requirement for formal consultation, and seek your written concurrence with this conclusion.

3. We look forward to a successful conclusion of this consultation. Please direct any questions to Mr. Roy Barker, HQ ACC/CEVPN at (757) 764-9338.

Alton Chavis
ALTON CHAVIS
Chief, Environmental Analysis Branch

Attachment:
Biological Evaluation

BIOLOGICAL EVALUATION
Realistic Bomber Training Initiative

1. In accordance with the U.S. Fish and Wildlife Service's request during a 22 Sep 99 meeting with Ms. Torrez, the Air Force is providing the following material in support of consultation #2-22-98-I-124:

   A. This document, which:

   - summarizes the analysis of potential impacts to listed species or species proposed for listing as identified and discussed in the Draft Environmental Impact Statement (EIS) for RBTI, which was previously provided to you,
   - details the applicability to RBTI of recent consultations on other Air Force actions in the region,
   - presents relevant mitigation measures resulting from those consultations, and
   - discusses the potential of RBTI to affect the mountain plover and the aplomado falcon. (This information will appear in the Final EIS.)

   B. Maps showing RBTI alternatives, areas of RBTI alternatives covered under previous consultations, and airspace not previously consulted on that is associated with RBTI.

   C. A copy of the RBTI Natural Resources Report describing the background, methods, and results of biological surveys of candidate emitter sites and Electronic Scoring Sites.

   D. A CD containing photographs (in MS Word software) of the candidate emitter and scoring sites described in the Natural Resources Report.

   E. An updated version of Appendix H from the Draft EIS reflecting changes and corrections made to species lists at the request of Ms Torrez.

2. **Background.** The Air Force is in the process of preparing a Final EIS to assess the potential environmental impacts of a proposal to implement RBTI in the airspace and land in western Texas or northeastern New Mexico. This proposal is intended to provide efficient, integrated training opportunities for aircrews flying B-1 and B-52 aircraft from Dyess Air Force Base (AFB), Texas and Barksdale AFB, Louisiana, respectively. The Draft EIS was provided to the U.S. Fish and Wildlife Service in March, 1999. As detailed in Section 2.4 of the Draft EIS, the proposed action for RBTI would involve several interrelated elements:

   - Modifications (including elimination in some cases) and additions to existing Military Training Route (MTR) airspace used for low-altitude (300 to 3,000 feet above ground level [AGL]) training activities;

- Modifications (including elimination in some cases) and additions to existing Military Operations Area (MOA) airspace used for training and maneuvering above 3,000 feet AGL;

- Increased annual flights by B-1 and B-52 aircraft in the proposed MTR and MOA airspace;

- Acquisition of twelve 15-acre parcels under or near the proposed MTR and MOA airspace for construction and operation of an Electronic Scoring Site system consisting of 10 electronic emitters and 2 scoring sites; and

- Closure of existing Electronic Scoring Sites at Harrison, Arkansas and La Junta, Colorado.

The proposed action for RBTI has three alternative locations: Alternatives B, C, and D. Regardless of the alternative ultimately selected, the basic features of the proposed action, as outlined above, would be the same. A fourth alternative, Alternative A (No-Action), would involve no changes to current conditions or operations.

3. **Related Consultations.** The Air Force has conducted several recent consultations that overlap with areas affected by RBTI (See attached maps). These previous consultations resulted in mitigation measures affecting airspace also associated with RBTI alternatives. The outcomes of those consultations are found in:

   - Consultation #2-22-96-F-334: Biological Opinion dated 8 May 98 for the Proposed Expansion German Air Force (GAF) Operations at Holloman AFB, New Mexico

   - Consultation #2-22-98-I-224: USFWS Letter dated 14 Dec 98 for Proposed Force Structure and Foreign Military Sales at Cannon AFB, New Mexico (Cannon)

   RBTI operations would incorporate the GAF and Cannon consultation commitments as applicable, depending upon the RBTI alternative selected.

4. **Summaries of Anticipated Species Effects From Air Operations.** The only potential effects from aircraft operations associated with the alternatives for the proposed action would derive from noise and visual disturbance. Consequently, this discussion will focus on species that might be affected by noise and visual disturbance (e.g., birds and mammals).

   a) Alternative A. This is the No-Action Alternative. Its selection would entail no change in the current bomber training activities on the existing IR-178, or in the shape or size of the airspace. The affected area lies primarily within the same area covered by Alternatives B and C (see discussion for Alternative B below).

      Areas under Alternative A that do not overlap with Alternatives B and C are in portions of southeastern New Mexico and Texas (segments VW through YZ, AA-AB through AS-AT, and BA-BB through BJ-BK). This area is either rangeland or agricultural land. Potential habitat for the proposed mountain plover is found there. Listed species

potentially there include: bald eagle, brown pelican, interior least tern, northern aplomado falcon, southwestern willow flycatcher, and black-footed ferret.

The northern aplomado falcon has not recently been sighted this far north. However, some portions of this Alternative overfly a portion of the species' historical range and it could occur in the area as a rare transient visitor.

The bald eagle, brown pelican, and interior least tern depend on major water bodies and would only occur in the area affected by Alternative A as rare transient visitors.

The southwestern willow flycatcher has specific habitat requirements that are not commonly found under the affected airspace. This species is not known to occur in the affected areas of either New Mexico or Texas.

The black-footed ferret was last reported in Bailey County, Texas, in 1963 and is not expected to be found beneath Alternative A.

In consideration of these factors, and factors discussed below for the areas where this alternative "overlaps" other alternatives, the Air Force has concluded that Alternative A is not likely to affect listed species.

b) Alternative B. This alternative is located primarily in western Texas.

About 33 percent of Alternative B airspace (IR-178 segments AG-AH, AH-AI, AI-AJ, AJ-AK, and the proposed Lancer MOA) would involve flights only above 2,000 feet AGL, which the Air Force believes is high enough to avoid an adverse effect on listed species.

Another 33 percent of the total airspace (IR-178 segments AB, BC, CD, DE, EF, FG, GH, HI, IJ, JK, and half of KL) coincide with (but are at various points wider than) segments of IR-102/141 consulted on for GAF. As we previously reported to you, it has been decided that the GAF-related operations will now not take place on IR-102/141. RBTI aircraft using these areas will operate under the Terms and Conditions of the GAF Biological Opinion.

Another 33 percent of the airspace includes new areas not previously overflown by military aircraft or consulted on. This includes IR-178 segments VA-VB, VB-R, KL (partial), LM, MN, NO, OP, PQ, QR, RS, ST, TU, UV, VW, WA, WX, XY, YZ, Z-AA, AA-AB, AB-AC, AC-AD, AD-AE, AE-AF, AF-AG, O-OA, and OA-AE.

Potential impacts for Alternative B are as follows:

- Black-capped vireos are known to nest in only two Texas counties affected by Alternative B: Pecos and Brewster (USFWS 1991). In a report to Congress in 1992, the U.S. Forest Service reviewed potential impacts of aircraft overflights. Among their conclusions were: passerines cannot be driven any great distance from a favored food by a non-specific disturbance and; while passerines avoid intermittent or unpredictable sources of disturbance more than predictable ones, they return rapidly

to feed or roost once the disturbance ceases. In consideration of the infrequency of overflight that birds under this airspace may experience, the Air Force has concluded that RBTI Alternative B may affect, but is not expected to adversely affect this species

- The mountain plover was once thought to be particularly associated with Lea County, New Mexico (Ligon 1961), but there are no records of it in this county for 25 years (the 1970s through 1995) (Sager 1996), and the species is currently classified by the New Mexico Department of Game and Fish as uncommon in Lea County. The mountain plover has also been reported in Eddy County, New Mexico, as well as Jeff Davis, Brewster, Dawson, and Lynn counties in Texas. Air operations over Dawson and Lynn counties would take place at a minimum altitude of 3,000 feet AGL. The other three counties have not had confirmed nesting activity, although they are likely to be visited by migrants as they fly between their winter home in southern Texas and Mexico and the common breeding area in northern New Mexico (Peterson 1990). In consideration of these factors, the Air Force has concluded that Alternative B is not likely to jeopardize the continued existence of this proposed species.

- The northern aplomado falcon is a potential resident along the Texas and Mexico border. During GAF consultations for this species, it was determined that aircraft overflight actions "may affect but are not likely to jeopardize the continued existence of" the northern aplomado falcon. As a result of the GAF consultation, the Air Force has initiated annual aplomado falcon surveys (with reports of findings to the USFWS) under airspace flown by GAF aircraft. By expanding the ongoing northern aplomado falcon survey/reporting effort to cover potential falcon habitat under that airspace associated with RBTI Alternative B and which is overflown below 2,000 feet AGL, the Air Force believes it may conclude that Alternative B may affect, but is not likely to adversely affect, the northern aplomado falcon.

- Based on their known distribution and available habitat, none of the listed mammal species in this region (black-footed ferret, Mexican long-nosed bat, black bear, and ocelot) are expected to be found under the airspace affected by this alternative. Therefore, Alternative B is expected to have no effect on these species.

- The remaining listed bird species found in the region either do not have habitat directly under the airspace or would only be transient visitors in the area (see Appendix H of the Draft EIS, Table H-10, for a complete listing of sensitive species). Transient visitors include the bald eagle, interior least tern, whooping crane, piping plover, and brown pelican. Because of the small chance of overflight, these species would experience no adverse effect from Alternative B. Species that do not have habitat under the airspace include Mexican spotted owl, southwestern willow flycatcher, and golden-cheeked warbler. These species would experience no effect from Alternative B.

- Aircraft overflights from Alternative B are expected to have no effect on the 14 listed or proposed-for-listing plant species potentially found under the affected airspace. The six sensitive fish species present are expected to experience no adverse effect due

to habituation and to noise attenuation at the air/water interface. The only listed reptile species (the Concho water snake) is likewise not expected to respond to aircraft overflights. Therefore, Alternative B is not expected to adversely affect this species.

In summary, the Air Force has concluded that Alternative B may affect, but is not likely to adversely affect, listed species.

c) Alternative C. This alternative is very similar to Alternative B, and is roughly 75 percent existing airspace.

Under this alternative, aircraft would use the proposed Texon MOA (instead of the Lancer MOA and IR-178 segments AE-AF through AJ-AK in Alternative B). All flights in the Texon MOA would be at or above 3,000 feet AGL, which the Air Force believes is high enough to preclude an adverse effect on listed species.

IR-178 segments AB, BC, CD, DE, EF, FG, GH, HI, IJ, JK, and half of KL) coincide with (but are at various points wider than) segments of IR-102/141 which were consulted on for GAF. As we previously reported to you, it has been decided that the GAF-related operations will now not take place on IR-102/141. Like Alternative B, this alternative would include new IR-178 segments VA-VB and VB-R, but Alternative C would additionally have new segment N-NA. All segments of IR-178 would have minimum altitudes of less than 2,000 feet AGL, and RBTI aircraft using these areas would operate under the Terms and Conditions of the GAF Biological Opinion.

In summary, the overall potential effects for this alternative would be the same as for Alternative B. Consequently, the Air Force has concluded that Alternative C may affect, but is not likely to adversely affect, listed species.

d) Alternative D. This alternative is mostly located in northeastern New Mexico, with four counties in northern Texas also affected. Much of the airspace associated with Alternative D was covered in the Cannon and/or GAF consultations, although some segments will now be widened. New segments are Z-ZA (which would be flown at or above 2,000 feet AGL) and CD, WA-WB. Potential impacts for this alternative are as follows:

- Concentrations of wintering bald eagles occur within Alternative D. Those populations along the Canadian River and at Conchas Lake are under high-altitude overflight areas (greater than 2,000 feet AGL) and are expected to experience no adverse effect. Populations along the Pecos River and the Rio Chama could experience lower overflights, which could result in an adverse effect. New airspace in reconfigured segment HI is adjacent to a designated roost area. With the application of the eagle overflight restrictions described in the Cannon consultation to RBTI Alternative D, the Air Force concludes that Alternative D may affect, but is not likely to adversely affect, the bald eagle. The flight restrictions are as follows:

- *Avoid known nest sites by 1 mile laterally or 2,000 feet AGL during the entire bald eagle breeding season (October 1 to July 15).*
- *Avoid water bodies (named lakes, perennial rivers, and reservoirs) by 2,000 feet AGL October 1 through March 1 of each year.*
- *Avoid known roost sites by a minimum of 1,000 feet AGL from October 1 through March 1 of each year.*

- The Mexican spotted owl has potential habitat along the Rio Chama which would be overflown. Low-altitude overflight in this area could result in an adverse effect. By applying to RBTI Alternative D the Mexican spotted owl overflight restrictions described in the Cannon consultation, the Air Force concludes that Alternative D may affect, but is not likely to adversely affect, the Mexican spotted owl. The flight restrictions are as follows:

  - *Avoid known protected activity centers by 2,000 feet AGL and 2,900 feet laterally during the period 1 March to 31 August.*
  - *Overflights along the western segments of IR-109 and IR-111 will be restricted to 2,000 feet AGL during the breeding season (March 1 - August 31 of each year) to avoid impacts to inadequately surveyed owl habitat.*

- The mountain plover is considered to potentially occur in all of the 15 counties overflown by Alternative D. The mountain plover is considered common in only three affected New Mexico counties (Union, Colfax, and Torrance). Union and Colfax, the two counties identified by U.S. Fish and Wildlife Service as of high concern (USFWS 1999), would not experience overflight below 2000 feet AGL. Torrance County is crossed only in the northeast corner, leaving most of the county unaffected. Four Texas counties (Dallum, Hartley, Oldham, and Potter) have a low relative abundance. Flights in Dallum County would be over 3,000 feet AGL, and flights in Potter County and half of Oldham would be over 2,000 feet AGL, so any populations of mountain plovers in these areas would not be disturbed by low overflight. The remaining eight counties have uncommon to rare breeding populations (NMDGF 1997). In summary, low-altitude overflight would occur only over the uncommon to rare mountain plover population sites in the state, leaving most of the concentrations of birds relatively unaffected. In consideration of these factors, the Air Force has concluded that Alternative D is not likely to jeopardize the continued existence of this proposed species.

- Piping plover have been reported in the state on only six occasions. Because of the infrequency of exposure, the piping plover is likely to experience no effect from the Alternative D.

- The whooping crane exists only as a poorly performing experimental flock in New Mexico that is soon to be extirpated. The closest frequently used habitat is hundreds of miles from the RBTI area along the south coast of Texas. The state of New Mexico is considering delisting the whooping crane. Since this species occurs so

infrequently in the state as to warrant consideration for delisting, the Air Force concludes that all RBTI alternatives are likely to have no effect on this species.

- The brown pelican is only a rare visitor to the area, occurring primarily as immature wanderers during the summer and fall seasons: presumably these are storm-driven birds. Therefore, because of the infrequency of exposure, Alternative D is likely to have no effect on this species.

- The southwestern willow flycatcher is predominantly found in the southwestern portion of New Mexico and not underneath the proposed alternative airspace. Habitat has been identified along the Rio Grande west of Taos. However, the Alternative D proposed flight path bypasses this habitat to the north by more than 15 miles. Critical habitat in New Mexico is restricted to portions of the Gila, San Francisco, and Tularosa rivers in the southwestern corner of the state and is not found under the affected airspace. Therefore, Alternative D is likely to have no effect on this species.

- The interior least tern does not have nesting habitat under Alternative D airspace, although wintering or migrating birds may use wetlands and open water in the proposed project area. These same areas are frequented by the bald eagle, and are avoided by aircraft. This avoidance will afford coincidental protection to the tern. Therefore, the Air Force concludes that Alternative D will have no adverse effect on the interior least tern.

- The only listed mammal potentially found in the area is the black-footed ferret, but it is considered extirpated from the area. Therefore, Alternative D would have no effect on the black-footed ferret.

- By the very nature of the proposed action and the species themselves, the two listed plants and three listed fish species would not be affected by aircraft overflight under Alternative D. Proposed RBTI activities would have no effect on the holy ghost ipomopsis and the puzzle sunflower, and no adverse effect on the Arkansas River shiner, Colorado squawfish, and Pecos blunt-nose shiner.

In summary, the Air Force has concluded that Alternative D may affect, but is not likely to adversely affect, listed species.

7. **Summary of Anticipated Species Effects From Electronic Scoring and Emitter Sites.** As detailed in Section 2.4.1 of the Draft EIS, the Air Force specifically sought candidate sites that were previously disturbed in order to avoid impacts to biological and other resources. Development of the ten selected emitter sites would consist of the installation of a chain-link fence, a 14-foot-wide gravel driveway, and 0.25-acre gravel parking lot at each 15-acre site. The two electronic scoring sites would have a chain-link fence, a 14-foot-wide asphalt driveway, and a 3-acre asphalt pad. The attached Natural Resources Report details the methodology and findings of the site surveys. Key points are outlined below:

- Surveys of the 42 candidate emitter and electronic scoring sites were conducted 20-28 Apr 98 and 10-11 Sep 98 in Texas and 11-18 May 98 in New Mexico.

- Biologists conducting the survey were Kirk Lakey and Scot Greenwood. Mr. Lakey is a Senior Biologist with The Environmental Company, Inc., and has a B.S. degree in Range Management and Wildlife Habitat Management and over 14 years' experience. Mr. Greenwood is an Environmental Analyst with Ogden Environmental and Energy Services Company, Inc., and has a B.S. degree in Natural Resources and Environmental Science and three years' experience.

- Sensitive plants surveyed include, but were not limited to, those listed in the Draft EIS Appendix H, Table H-4. All species observed were noted so that unexpected sensitive species present would have been discovered.

- The overall habitat disturbed by the sites would be less than 20 acres over twelve locations, all of which have already been disturbed by agriculture, grazing, or oil and gas development.

No listed species or potential habitat were observed during biological surveys of each of the candidate Electronic Scoring Sites and emitter sites in Texas or New Mexico. No sites are near known locations of listed bird species. Therefore, even though the sites overlap the general range of several sensitive bird, mammal, and reptile species, site inspections lead the Air Force to conclude that no adverse effect on listed wildlife species and no effect on listed plant species is expected from the development of these sites.

Attachments:
1. References Cited
2. Maps of Airspace
3. Natural Resources Report w/ CD Photo Album
4. RBTI Final EIS, Volume III, Appendix H

Bibliography:

NMGF. 1998. New Mexican Wildlife of Concern: Status and Distribution. New Mexico Department of Game and Fish, Conservation Services Division. Biota Information System of New Mexico (BISON-M) 6 April.

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NMNHP. 1998. "New Mexico Natural Heritage Program - Plants in Heritage Database." http://nmnhp.unm.edu/. 3 April.

Poole, J.M. and W.R. Carr. 1997. Rare Plants of Texas. TPWD, Endangered Resources Branch and Texas Conservation Data Center of The Nature Conservancy of Texas. December.

TPWD. 1998. County Lists of Texas' Special Species. Sent via fax and email my D. Scott, Texas Biological and Conservation Data System, Endangered Resources Branch, Austin, TX. 9 April.

USFWS. 1998. Federally Listed as Threatened and Endangered Species of Texas. Ecological Services Field Office, Austin, TX. 16 July.

USFWS. 1998. Species List, Proposed Realistic Bomber Training Initiative: Colfax, Eddy, Guadalupe, Harding, Lea, Mora, Quay, Rio Arriba, San Miguel, Taos, and Union counties, New Mexico. Letter from J. Fowler-Propst, Field Supervisor, NM Ecological Services Field Office, Albuquerque, to B. Cook, Environmental Analysis Branch, HQ ACC/CEVP. 27 January.

USFWS. 1998. Species List, Proposed Force Structure Changes at Cannon AFB: Chaves, Colfax, Curry, DeBaca, Guadalupe, Harding, Lea, Mora, Quay, Rio Arriba, Roosevelt, Sandoval, San Miguel, Socorro, Taos, Torrance, and Union counties, New Mexico. Letter from B. Hanson, Acting Field Supervisor, NM Ecological Services Field Office, Albuquerque, to A. Chavis, Environmental Analysis Branch, HQ ACC/CEVP. 29 April.