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BAT FAUNA OF THE BIG BEND REGION -- A PRELIMINARY LIST
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More than half of the bat species known to occur in the United States are found in the Big Bend Region of Texas. The diversity found in this area points out the significance of the region to bats. This fact also points out the importance of these animals to the ecology of the area; bats are known to be the primary pollinator for numerous plant species including agaves, and their nightly foraging activities are responsible for the control of many species of night-flying insects including mosquitoes. However, of any animal group potentially found on the Big Bend Ranch State Natural Area property, bats are the most sensitive and easily disturbed of all.

Nightly foraging activities include visits to local water holes, springs and/or standing water in stream beds. On hot, dry nights, for which this region is infamous, these visits can become numerous. Simply put, repeated disturbance to these areas would be detrimental to bat populations. Additionally, protection of known roost sites is even more important. These sites can include, but are not limited to caves, mine shafts, vertical cracks and crevices along cliffs, overhangs, and woodlands. Old buildings, bridges and other man-made structures are also utilized. Some bats are colonial; known roost sites of these species can be permanent, and are extremely sensitive to disturbance. Colonial free-tail bats consume night-flying insects at the rate of six to seven tons per one million bats each and every night, *Myotis* species can consume 600 mosquitoes nightly; amazing facts that cannot be ignored.

Included in the attached list are all species of bats known to occur in the Big Bend Region of Texas. Attention was specifically given to Brewster and Presidio County records; however, four species are included as hypothetical because they have been recorded in adjacent areas. Hog-nosed Bat, Mexican Long-eared *Myotis*, and Western Yellow Bat have occurred in the Mexican States of Coahuila and/or Chihuahua; the Silver-haired Bat in Jeff Davis County, Texas.

One of the species included herein is federally listed endangered--the Mexican Long-nosed Bat. Loss of food plants, various species of cacti and agaves, and disturbance or destruction of roost sites are the primary reasons for its status. Five species on the list are considered threatened--Hog-nosed Bat, Small-footed *Myotis*, Spotted Bat, Western Yellow Bat, and Western Mastiff Bat. Three additional species deserve attention due to the fact that their range in the United States is limited and information is lacking concerning their complete life history. Included are the Ghost-faced Bat, Pocketed Free-tailed Bat, and Big Free-tailed Bat. With respect to conservation or enhancement of natural resources at Big Bend Ranch State

A PRELIMINARY CHECKLIST OF BATS OF BIG BEND RANCH STATE NATURAL AREA

	COMMON/SCIENTIFIC NAME	STATUS	NAS				OTHER				HABITAT					PREY				
			B	C	F	S	DS	WD	DE	MT	W	C	M	B	C	L	C	D	G	F
1	GHOST-FACED BAT <i>Mormoops megalophylla</i>	UNCOMMON		X	X	X		X	X	X	X		X	X	X	X				
2	HOG-NOSED BAT <i>Choeronycteris mexicana</i>	HYPOTHETICAL							X			X								X
3	MEXICAN LONG-NOSED BAT <i>Leptonycteris nivalis</i>	ENDANGERED					X	X	X		X									X
4	YUMA MYOTIS <i>Myotis yumanensis</i>	COMMON		X	X			X	X	X	X		X	X	X	X	X	X		
5	CAVE MYOTIS <i>Myotis velifer</i>	COMMON		X	X			X	X	X		X	X	X	X	?	?	X		
6	MEX. LONG-EARED MYOTIS <i>Myotis auricularis</i>	HYPOTHETICAL							X			?	?	?	?	?	?	X		
7	FRINGED MYOTIS <i>Myotis thysanodes</i>	COMMON					X	X	X	X		X	X	X	X	?	?	X		
8	LONG-LEGGED MYOTIS <i>Myotis volans</i>	VERY RARE					X	X	X		X			X	X	?	?	X		
9	CALIFORNIA MYOTIS <i>Myotis californicus</i>	RARE			X		X	X	X	X	X			X	X	?	?	X		
10	SMALL-FOOTED MYOTIS <i>Myotis leibii</i>	VERY RARE					X	X	X	X		X	X	X	X	?	?	X		
11	SILVER-HAIRED BAT <i>Lastonycteris noctivagans</i>	HYPOTHETICAL					X	X	X		X			X		?	?	?	?	
12	RED BAT <i>Lasius borealis</i>	VERY RARE					X		X?		X					X	X	X	X	
13	HOARY BAT <i>Lasius cinereus</i>	RARE					X	X	X	X	X					X				
14	WESTERN YELLOW BAT <i>Lasius ega</i>	HYPOTHETICAL							X		X					X	X	?		
15	CANYON BAT <i>Pipistrellus hesperus</i>	ABUNDANT	X	X	X	X	X	X	X	X				X	X	X	X			
16	BIG BROWN BAT <i>Eptesicus fuscus</i>	UNCOMMON		X	X			X	X	X	X	X		X	X		X	X	X	
17	SPOTTED BAT <i>Euderma maculatum</i>	RARE					X	X	X	X?					X	X				
18	TOWNSEND'S BIG-EARED BAT <i>Plecotus townsendii</i>	COMMON		X	X			X	X	X		X	X	X			X	X		
19	PALLID BAT <i>Antrozous pallidus</i>	ABUNDANT		X	X	X		X	X	X	X		X	X	X		X		X	
20	BRAZILIAN FREE-TAILED BAT <i>Tadarida brasiliensis</i>	ABUNDANT		X	X			X	X	X	X	X	X	X	X	X	X	X		
21	POCKETED FREE-TAILED BAT <i>Tadarida femorosacca</i>	UNCOMMON					X	X	X						X	X				
22	BIG FREE-TAILED BAT <i>Tadarida macrotis</i>	COMMON		X	X			X	X	X	X				X	X			X	
23	WESTERN MASTIFF BAT <i>Eumops perotis</i>	UNCOMMON		X	X			X	X	X	X				X	X		X	X	

Keys to abbreviations on the attached checklist are as follows:

Status = Occurrence

A = Accidental (A) or Rare (R)

General = seasonal occurrence

Habitat = Basic vegetation type preferred by each species

W = Water related habitats including rivers, ponds, shoreline and marshes

R = Riparian habitats in stream bottoms including woodlands, brushlands, and wet canyon woodlands.

D = Desert landscapes including arroyos, flats and hills

G = Grasslands: including desert grasslands and open oak-juniper woodlands on dry uplands

M = Montane woodlands and plant communities above 5,500 feet

NAS = Natural Areas Survey

B = Bofecillos Mountains

C = Colorado Canyon

F = Fresno Canyon

S = The Solitario

FLSHS = Fort Leaton State Historic Site

BGWMA = Black Gap Wildlife Management Area

Natural Area for the benefit of bats, the following recommendations are in order:

1. Western Mastiff Bat, the largest bat in the United States, requires long approach zones to watering holes which must be in excess of 100 feet long. The only locations for such watering spots are in stream beds which are constantly being changed by floods. Avoid conflicts between this species needs and visitor use at these sites.
2. Identify major roost locations for colonial bats such as in caves and old mine shafts. Attempt to document the use of crevices in vertical cliffs for roosting. Implement a plan for the conservation and restricted use of these sites.
3. Assure the integrity of all springs and associated woodlands on the property. Restrict use in these areas and eliminate impact by livestock.
4. Pursue joint research funding with Bat Conservation International. Identify and implement projects which would be beneficial to the conservation of bats.
5. Restrict the use of pesticides and herbicides which would be potentially harmful to bats and aquatic resources.

This listing was compiled from literature. Specifically included are four volumes of *A Natural Area Survey*, compiled for TPWD by the Division of Natural Resources and Environment, LBJ School of Public Affairs, The University of Texas at Austin. These include surveys in the Bofecillos Mountains, Colorado Canyon, Fresno Canyon, and The Solitario. Three other important references are cited; *The Mammals of Trans-Pecos Texas* by David J. Schmidly, *The Mammals of Texas* by William B. Davis, and *Ecology of the 18 Species of Chiroptera at Big Bend National Park, Texas* by David A. Easterla. In addition, observations by Merlin Tuttle, founder of Bat Conservation International, are included. Perhaps Dr. Tuttle summed it up best, "this is one of America's best pristine bat areas", let's "keep it that way".

Keys to abbreviations on the attached checklist are as follows:

NAS = Natural Areas Survey
B = Bofecillos Mountains
C = Colorado Canyon
F = Fresno Canyon
S = The Solitario

OTHER = Literature and correspondence references
DS = David Schmidly, *The Mammals of Trans-Pecos Texas*
WD = William Davis, *The Mammals of Texas*
DE = David Easterla, *Ecology of the 18 Species of Chiroptera at Big Bend National Park, Texas*
MT = Merlin Tuttle, trips to Fresno Canyon in 1988 and 1989.
HABITAT = Primary sites selected for roosting
W = Woodlands, specifically in trees
C = Caves
M = Mine shafts, entrances, and/or old tunnels
B = Buildings or other man-made structures such as bridges
C = Crevices and overhangs in vertical cliffs
PREY = Primary food selected
L = Lepidoptera including mostly moths
C = Coleoptera including mostly beetles
D = Diptera including mainly bees, flies and misquitos
G = Ground insects including mainly katydids, roaches, grasshoppers, and scorpions
F = Flowers found on species of cacti and agaves