

NATURAL RESOURCES AND PHYSICAL ENVIRONMENT
OF
INDIO MOUNTAINS RESEARCH STATION (IMRS),
SOUTHEASTERN HUDSPETH COUNTY, TEXAS
A HANDBOOK FOR STUDENTS AND RESEARCHERS

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INTRODUCTION

It is our pleasure to welcome students and visitors to the Indio Mountains Research Station (IMRS; Indio Ranch). A key mission of this facility is to provide a viable research and learning experience in the Chihuahuan Desert. We hope that this manual will assist you in planning your activities. The Station Director upon entering IMRS will probably give you a short lecture. Please pay attention to your activities, as Indio Ranch is not without potential hazards and long-term research projects are underway that could be disturbed if one is careless.

Indio Mountains Research Station came into being because of the generosity of a benefactor and the far-sighted vision of former UTEP President Haskell Monroe. Upon his death in 1907, the will of Boston industrialist Frank B. Cotton placed his estate, including land holdings in Hudspeth and Culberson Counties, into a trust for the education of Boston women. Never able to meet such lofty expectations, the executor of the estate transferred the Texas property to UTEP (then Texas College of Mines) in 1937 for back taxes owed on the land. In 1984, most of the scattered parcels of land in Hudspeth and Culberson Counties were part of a land exchange with an adjacent owner to form a consolidated, contiguous tract of 38,238 acres. In 1987, at the urging of Biology Department Chairman Jack Bristol and Assistant to the President Wynn Anderson, former President Haskell Monroe proposed that the lands be managed with an emphasis on “research and instruction for the biological and geological sciences” at UTEP. In 1991, then current UTEP President Diana Natalicio reaffirmed and broadened its educational purpose and approved a basic mission organization and goals statement for IMRS. In 1992, UTEP gained management responsibilities for the land from the UT System, so IMRS became a stable educational extension of the UTEP campus. An additional gift of two adjacent sections from Allar Corporation in 1992 added an additional 1280 acres to IMRS, which brought total holdings to 39,518 acres. Recent funding from National Science Foundation and other sources provided new facilities to IMRS, which enhanced its educational mission and field research activities in not only the Biological and Geological Sciences, but in Archeology/Anthropology and Environmental Sciences as well. In 2020, another 1280 acres (2 sections) were purchased from the Chantal and Sofia Ann Slattery trust that included Rio Grande frontage. The IMRS website, which contains additional information is accessible through www.utep.edu/indio. IMRS and UTEP are members of the Chihuahuan Desert Biosphere Reserve. Other members are the Biosphere Reserves of Mapimi in Mexico, Big Bend National Park, and the Jornada Experimental Range (near Las Cruces, New Mexico). For information on IMRS and opportunities for visitation, contact the Director, Dr. Vicente Mata-Silva, Department of Biological Sciences, The University of Texas at El Paso, El Paso, Texas 79968; 915-747-5354, 915-637-3163 (cell); imrs@utep.edu, vmata@utep.edu. Current members of the UTEP IMRS Oversight Committee include Dr. Richard Langford (Geology), Dr. Elizabeth A. La Rue (Biology), Dr. Vicente Mata-Silva (Biology), Dr. Brett Seymoure (Biology), Dr. Michael Harvey (Biology), and Roberto Gomez (Biology Graduate Student).

All sections below will include a listing of literature cited after those sections along with other relevant references that can be used by qualified students and other researchers using IMRS.

COLLECTING IMRS RESOURCES

The collection and preservation of biological materials is an integral part of the learning experience and permitted on IMRS properties within the context of approved research projects and educational activities. One should understand that most species are protected by state and federal laws and would require a hunting license or permit to take them. Furthermore, some research could be jeopardized if marked individuals under current study are removed from the population. IMRS Director will review proposed studies and alert or notify individuals to what can and cannot be taken. No collecting of any IMRS resources is permitted without the Director’s permission.

Biological materials taken should receive proper preservation and disposition, and have adequate locality data. UTEP Biodiversity Collections is one proper depository and will willingly receive and curate specimens for long-term storage. Visitors may wish to take specimens back to their own institution or museum, which is permitted. A requirement is to submit, within reasonable time, a collections list, especially identified material not on inventory lists reported below. **We do not permit taking biological specimens for personal use (i.e., for pets, gardens, souvenirs, or for commercial purposes).**

We discourage taking fossils, especially for souvenirs. If one is interested in removing fossil material from IMRS, the following criteria is required:

1. The collector must know the formation from which the fossils are taken.
2. The collector must obtain GPS coordinates for the sample locality.
3. The fossils will be deposited in a research collection (at UTEP or elsewhere).
4. The list of specimens removed from IMRS will be given to the IMRS Director.

Cultural artifacts are scattered over IMRS from past activities of indigenous humans and from more recent ranching and mining ventures. All IMRS archaeological artifacts will be left undisturbed. We request that anyone finding evidence of prehistoric human occupation, such as pottery fragments, scatters of lithic materials, or actual sites of habitation, obtain GPS coordinates for the find and give that information to the station Director.

POLICIES FOR THE PROTECTION OF RESOURCES

The IMRS Director will approve research and educational projects, which is necessary to reduce impacts on the physical environment and biological resources and reduce conflicts with educational programs and ongoing research projects.

1. Any indiscriminant collecting of plant, animal, mineral, fossil and cultural material is prohibited, except within the context of approved projects.
2. Off-road vehicle activities are prohibited. SUV and ATV users must access sites using existing roads; off-road sites must then be reached only by foot.
3. When collecting by turning rocks, downed wood, sotol and yucca logs, or other natural objects, they will be returned to their original position (see Pike et al., 2010).
4. When temporary pit-fall traps are used, all must be removed when project is completed; flagging should also be removed. Personnel involved with long-term pit-fall trapping projects should close traps when they leave IMRS for more than one day.
5. Use of enduring markers such as spray paint, digging large holes to recover plants and animal material, and prying apart boulders are not permitted.
6. Open campfires are not permitted, except in specified firepits; firewood must be brought in; use of native fuels found on the property is not allowed.
7. Trash must be removed off site. For convenience, Van Horn has community dumpsters.
8. Hunting is not permitted on IMRS unless approved by the Director and a hunting lease is obtained through The University of Texas Lands Office.
9. State or federal permits are required to work with most organisms, and appropriate laws will be followed.
10. Camping within 500 feet of the limited watering holes for wildlife is prohibited (e.g., Echo Spring and all earthen tanks).
11. Useful phone numbers of persons involved in IMRS activities are as follows: Dr. Kendal Hirschi, Biol. Dept. Chair 915-747-5844; Dr. Robert Kirken, Dean of Sciences 915-747-5536; Biol. Dept. staff 915-747-7479; Luis B. Morales Associate Director of UTEP Facilities Services; Rene Lopez, UTEP Facilities Assistant Director Business Operations; Cliff Walsh, UTEP Police Dept. 915-747-6148; Mike McKinny, Hunting coordinator and road maintenance 915-328-0645.
12. Pertinent Policy Enclosures are listed at the end of this IMRS Natural Resources and Physical Environment for Students and Researchers Handbook that include: Enclosure 1, IMRS Field Safety Guidelines; Enclosure 2, IMRS Field Program Code of Conduct; Enclosure 3, IMRS Sexual Misconduct Policy; and Enclosure 4, Statement of Acknowledgment Form that is to be signed by users before entering IMRS.

Exceptions to the above rules: One may petition to “bend” some of the above rules. The case for doing so will be presented to Station Oversight Committee for approval.

PHYSICAL SETTING

Indio Mountains Research Station Headquarters (IMRS HQ) is in the southeast tip of Hudspeth County about 40 km southwest of Van Horn, Texas. IMRS now consists of 41,200 acres. It contains most of the Indio Mountains, which is the lower southern spur of the Eagle Mountains, located to the north, and the recently purchased two sections adjoining the Rio Grande containing The Box Canyon. Elevations range from 900 to 1,600 m.

IMRS is within the Basin and Range Physiographic Province of North America. The topography is mostly the result of block faulting. Tilted beds of mostly Cretaceous limestone are observed in several directions from IMRS HQ. Volcanic activity has further shaped the terrain and will be briefly discussed. Block faulting, folding, volcanic activity, and contraction and extensional events in the earth's crust have shaped IMRS's present terrain (see below).

CHIHUAHUAN DESERT

IMRS is situated within the Chihuahuan Desert portion located in Trans-Pecos, Texas adjacent to the Rio Grande on the south and southwest. Many interpretations of the exact delineation of the entire Chihuahuan Desert have been proposed (see Schmidt, 1979, for a review). The description below will follow the climatic delineation proposed by Schmidt, 1979.

Schmidt, 1979, gathered climatic data from several hundred stations in Mexico and southwestern USA to establish a delineation of the Chihuahuan Desert. He used the Martonne Index of Aridity in his evaluation. Values < 5 are considered to be true desert and those at >10 are grassland. He found what was considered Chihuahuan Desert sites had an average Martonne Index of Aridity of 7.9 (4.7–10.0 range). He determined the climate of the Chihuahuan Desert to be surprisingly uniform. Average precipitation is 235 mm with a narrow range of variation (67% range is 225–275 mm). The average annual temperature is 18.6 C. The reason for uniformity of climate in part is due to: 1) a base elevation of about 1,200 m throughout much of the Desert; 2) orographic effects due to large mountain masses to the east and west; 3) being nearly equidistant between the Pacific Ocean (and Gulf of California) and Gulf of Mexico; 4) having few through-flowing rivers to form erosional lowlands; and 5) being of low latitude such that frontal activity is minimal (i.e., most rainfall is from summer monsoon season).

The Chihuahuan Desert extends from the Rio Grande Valley south of Albuquerque, New Mexico, southwestern New Mexico, and an isolated pocket around Pecos, Texas, south through much of the eastern half of Chihuahua, western two-thirds of Coahuila to extreme eastern Durango and southern Coahuila at the transverse extension of the Sierra Madre Oriental. The Chihuahuan Desert as thus defined has an area of 355,000 km². About 75% of the area is in Mexico and makes up 13% of the area of that country. Somewhat controversial is inclusion into the Chihuahuan Desert of an arid area of Mexico south of the transverse extension of the Sierra Madre Oriental, mostly within the states of Zacatecas and San Luis Potosi (Henrickson and Johnston, 1997). That area, called the Saladan, is higher than the Chihuahuan Desert to the north and has a richer flora.

CLIMATE

Weather data from Indio Mountains Research Station may be available from the Director and eventually on the IMRS web site. Schmidt, 1995, has described the climate of Trans-Pecos, Texas; therefore, we have drawn mostly upon information in that source for the account below. De La Cerda, 2011, produced a thesis on influences of orography, weather patterns, and water availability on IMRS.

Precipitation over the Trans-Pecos region of Texas is scant because of subtropical high pressure, orographic barriers, and continentality. Precipitation in El Paso (1,230 m elev.) annually averages 230 mm, that of Marathon (1,230 m elev.) is 375 mm, and the average for the entire Trans-Pecos is about 300 mm. The average rainfall for sites throughout the Chihuahuan Desert is 235 mm, with a 67% range of sites receiving 235–275 mm annually (Schmidt, 1979). More than 70% of the rainfall occurs during the warmest months (June–September). More than half of the moisture yielding precipitation in the Chihuahuan Desert is derived from tropical storms that lift moisture into the troposphere passing over orographic barriers.

Solar insolation in the Trans-Pecos is very high, with El Paso (the “Sun City”) averaging 84% of days per year with sunshine (highest locality percentage in the U.S.). The average annual temperature in the Trans-Pecos is 18° C. The Trans-Pecos is characterized by the highest average maximum temperatures in the winter and the lowest average maximum temperatures in the summer compared to other sites in Texas. El Paso is characterized by having 18 days with the maximum temperature >38° C and 50 days with the lowest temperatures below freezing. Just down the Rio Grande at Presidio, Texas, 121 days during an average year are greater than 38° C. The coolest months in the Trans-Pecos average 7–12° C. Cold fronts can drop the average temperature to 6° C. The growing season in the

Trans-Pecos is 220–240 days. The last frost is generally in the 3rd week of March and the end of the growing season is normally during the 2nd week of November.

Over about two-thirds of the year winds in the Trans-Pecos are generally westerly. In July and August, the westerly flow is interrupted by easterly flowing winds that bring in moisture from the Gulf of Mexico, thereby increasing humidity. Easterly airflow fades out in September and is normally gone by October.

Thornthwaite, 1931, places the area within the E.B.'d (arid mesothermal) with no surplus water (Johnson II et al., 1977). The Precipitation/Evaporation index is less than 16 and the moisture deficiency is between 40% and 60% (Thornthwaite, 1948; Johnson II et al., 1977). Using the Koeppen Climatic Classification, the climate of the area is “BWK” (dry; desert; mean annual temperature less than 64.4° F) (Underwood, 1963). A more detailed Koeppen Classification (Russell, 1945) places the area in “BWSCw” (mesothermal desert steppe with winter dry season).

LITERATURE CITED AND SELECTED REFERENCES: COLLECTING AND PROTECTING RESOURCES, PHYSICAL SETTING, CHIHUAHUAN DESERT, AND CLIMATE.

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GEOLOGY

Formation of the Indio Mountains. In the Cretaceous, in the area of what is now the Indio Mountains was a shallow sea filling what is now known as the Chihuahuan Trough. At the eastern edge of the Chihuahuan Trough, sediments were deposited that eventually gave rise to the 3,210 m section of Cretaceous rocks exposed in IMRS today (Underwood, 1963; Wallace, 1972; Reaser, 1974; Price et al., 1985). Sediments were derived from nearby land and thus many of the beds have a sand and pebble composition that reflect that erosional source, while other beds are of more typical marine limestone origin. During the Laramide Orogeny from the Late Cretaceous into the Early Tertiary, the area was deformed primarily by thrust faulting, folding and some strike-slip faulting (Wallace, 1972; Price et al., 1985). The next event to shape the area was volcanic activity during the Oligocene. Although calderas were located no closer than seven miles north of the central Indio Mountains, their eruptions deposited ash on the area to form tuffs and trachytes (welded tuffs) (Price et al., 1985). The rimrock of Flat Top Mountain that is visible southeast of IMRS HQ is made of trachyte (Wallace, 1972). In the Middle and Late Tertiary, the extensional block faulting that gave rise to the Basin and Range Physiographic Province put final changes on the present shape of the Indio Mountains, except for normal erosional processes (Price et al., 1985; Rohrbaugh, 2001). Of note is the “Indio Fault” that divides the range into an eastern block and a western block (Wallace, 1972). The vertical slippage along that fault was over 7000 feet. Carciumaru and Ortega, 2008, commented on the geologic structure of the northern margin of the Chihuahua Trough, including the Indio Mountains, and found evidence for controlled deformation during the Laramide Orogeny.

Stratigraphy. The stratigraphy of the Indio Mountains consists of a 3,210 m Cretaceous section, four layers of Oligocene volcanic tuffs, trachytes, and Tertiary to Recent alluvial sediments (Underwood, 1963; Wallace, 1972; Reaser, 1973). Underwood, 1963, divided the Cretaceous section into eight formations. Some of the beds are carbonate (limestone) and others are siliclastic (sandstones and conglomerates). Youngest formation is the Buda Limestone, and oldest is the Yucca Formation of siliclastic conglomerate that can be observed in the bottom of Echo Canyon and just east of IMRS HQ.

The Yucca Formation is the oldest formation in the Indio Mountains (Underwood, 1963). This formation is 621 m thick (Price et al., 1985). It is siliclastic and without fossils. It has four mappable members as follows (Price et al., 1985):

- Y1 Basal conglomerate
- Y2 Conglomerate with interbedded small amounts of sandstone
- Y3 Sandstone interbedded with small amounts of conglomerate
- Y4 Sandstone and sandy siltstone that include clay drapes, ripple marks and burrows.

At the upper contact of the Yucca Formation with the younger Bluff Formation is a 60 m thick fossiliferous section of limestone and shale that is not assigned to either formation and is referred to as a “transition zone.”

The Bluff Formation is 239 m thick in the Indio Mountains (Wallace, 1972). The lower part is described as being light gray oolitic limestone with sparry calcite cement. The middle of the Bluff Formation is of alternating layers of fossiliferous limestone and quartz sandstone. The upper part of the Bluff Formation is mostly fossiliferous micritic limestone (Underwood, 1962, 1963; Wallace, 1972). Above the Bluff Formation is the Cox Sandstone. It caps the central ridge of the Indio Mountains and is 380 m thick (Underwood, 1962, 1963; Wallace, 1972). It is described as being light but variable in color and quartz sandstone with thin beds of limestone and conglomerate (Wallace, 1972). Above the Cox Sandstone are remaining formations consisting of Finlay Sandstone (120 m thick), Benavides Formation (36 m thick), Espy Limestone (328 m thick), Eagle Mountains Sandstone (23 m thick) and Buda Limestone (youngest; 65 m thick). Underwood, 1962, 1963, describe those formations in detail.

Mining. Sporadic exploration has occurred in the area since the early 1900's. In the late 1940's, Walter Rossman of Kerrville, Texas, prospected at Black Diamond Mine and Rossman Prospect, sinking a vertical shaft to a depth of 100 ft. (Wallace, 1972). Cecil Geslin and Walter Mayfield of Van Horn, Texas, examined the Carpenter Prospect and Purple Sage Mine. In the 1950's the Carpenter Exploration Company sank the Purple Sage shaft to a depth of 175 feet (Wallace, 1972). Wallace learned from Geslin that two rail cars of ore were shipped for processing (Wallace, 1972). The Carpenter Prospect ore was about 2.5% copper and that from Purple Sage Mine contained insufficient amounts to offset the shipping costs from Scott's Crossing.

In 1970, the Duval Corporation conducted a geochemical survey and drilled a 2,250 ft. hole near the Rossman Prospect in an attempt to check for mineralization and intercept Permian limestone. They did find limestone of unknown age at 1,880 ft., but no significant mineralization was found (Wallace, 1972).

Paleontology. At the top of the Yucca Formation is a fossiliferous bed of limestone and shale that contains: *Actinastrea* sp., *Microsolena texana* Wells, *Unio* sp., *Cardium* sp., *Arctica* sp., *Ostrea* sp., *Exogyra quitmanensis* Cragin, *Corbula* sp., *Toucasia* sp., *Turritella* sp., *Trigonia* sp., and *Lima* sp. (Wallace, 1972). Within the upper part of the Bluff Formation is a fossiliferous micritic limestone layer that contains: *Orbitolina* sp., miliolid foraminifera, *Pecten* sp., *Cyprimeria* sp., *Hemiaster* sp., *Enallaster* sp., *Holcetypus* sp., and ostracods (Wallace, 1972). In a zone of limestone near the top of the Cox Sandstone, *Exogyra texana* Roemer, *Gryphaea washitaensis* Hill, and *Toucasia* sp. occur (Wallace, 1972). Underwood, 1962, 1963, list fossils in the upper Cretaceous strata for which an abbreviated summary is available in Table 1. It should be noted that some beds in the Cretaceous sequence were of terrestrial origin as evidenced by the finding of a fossil cycad strobilus or cone. Ager et al., 1963, described a new species of Cretaceous brachiopod from IMRS, *Lamellaerhynchia indi*, from the Yucca and Bluff formations.

Elsewhere on IMRS, the volcanic tuffs have preserved an Oligocene soil surface where *Mesohippus* sp., oreodont remains, and the land snail *Humboldtiana* sp. have been found (Wallace, 1972; Underwood and Wilson, 1974). At the south end of IMRS near the Rio Grande, as many as three Cenozoic alluvial terraces are present and eroded that should contain fossils.

Table 1: Partial inventory of the Upper Cretaceous fauna by formation.

Taxon	Upper Cretaceous Formations							
	Yucca	Bluff	Cox	Finlay	Benavides	Espey	Eagle	Buda
Foraminifera:								
<i>Dictyoconus walnutensis</i>				X				
<i>Haplostiche texana</i>							X	
<i>Orbitolena</i> sp.		X						
Coelenterate: Anthozoans								
<i>Isoastrea whitneyi</i>	X							
<i>Microsolena taxana</i>	X							
<i>Polytrema</i> cf. <i>hancockensis</i>	X							
Brachiopoda								
<i>Kingena wacoensis</i>						X		
<i>Lamellaerhynchia indi</i>	X	X						
Mollusca: Cephalopoda								
<i>Acaathohoplites</i> sp.	X							
<i>Budaiceras</i> sp.								X
<i>Engonoceras</i> sp.			X	X				
<i>Eopachydiscus</i> sp.						X		
<i>Eradiolites davidsoni</i>				X				
<i>Goodhallites</i> cf. <i>aquilerae</i>						X		
<i>Metengonoceras</i> sp.							X	
<i>Mortoniceras</i> sp.						X		
<i>Oxytropidoceras autocarinatum</i>					X			
<i>Oxytropidoceras belknapi</i>					X			
<i>Oxytropidoceras bravoense</i>					X			
<i>Oxytropidoceras</i> cf. <i>chihuahuanensis</i>				X				
<i>Oxytropidoceras geniculatum</i>					X			
<i>Oxytropidoceras</i> cf. <i>trinitense</i>					X			
<i>Pervinqueria equidistans</i>						X		
<i>Pervinqueria</i> sp.				X				
Mollusca: Gastropods								
<i>Actaeonella texana</i>			X					
<i>Alipes</i> sp.						X		
<i>Aptyxiella</i> sp.	X							
<i>Cerithium</i> cf. <i>bosquense</i>					X			
<i>Lunatia</i> sp.				X				
<i>Natica</i> sp.	X							
<i>Nerinea</i> sp.	X		X	X				
<i>Turritella</i> sp.	X					X		X
<i>Tylostoma harrisi</i>								X
<i>Tylostoma</i> sp.	X	X	X	X	X	X		
Mollusca: Pelecypods								
<i>Alectryonia carinata</i>				X				X
<i>Anatina</i> sp.	X	X						
<i>Anchura</i> sp.								X
<i>Arctica roemeri</i>		X						
<i>Arctica</i> sp.	X							
<i>Astarte</i> cf. <i>roemeri</i>		X						

<i>Cardium</i> sp.	X							
<i>Corbula</i> sp.	X							
<i>Crassatellites</i> sp.	X							
<i>Cyprimeria</i> sp.	X	X						
<i>Exogyra cartledgei</i>								X
<i>Exogyra plexa</i>					X			
<i>Exogyra quitmanensis</i>	X	X						
<i>Exogyra texana</i>		X	X	X	X			
<i>Gryphaea corrugate</i>					X			
<i>Gryphaea graysonana</i>								X
<i>Gryphaea mucronata</i>			X					
<i>Gryphaea navia</i>					X			
<i>Gryphaea washitaensis</i>			X			X		
<i>Homomya</i> sp.	X	X						
<i>Lima scumardi</i>								X
<i>Lima</i> sp.	X							
<i>Monopleura</i> sp.		X						
<i>Ostrea</i> sp.	X	X	X					
<i>Pecten georgetowensis</i>						X		
<i>Pecten irregularis</i>			X					
<i>Pecten</i> cf. <i>subalpina</i>					X			
<i>Pecten texanus</i>						X		
<i>Pecten</i> sp.	X	X			X			X
<i>Pholadomaya sancti-sabae</i>						X		
<i>Pholadomya shattacki</i>								X
<i>Protocardia</i> sp.	X	X	X					
<i>Requinea</i> sp.				X				
<i>Sphaera</i> sp.					X			
<i>Tapes</i> sp.		X						
<i>Toucasia</i> cf. <i>patagata</i>				X				
<i>Toucasia</i> cf. <i>texana</i>				X				
<i>Toucasia</i> sp.	X		X					
<i>Trigonia mearnsi</i>	X							
<i>Trigonia stolleyi</i>	X					X		
<i>Trigonia</i> sp.	X	X						X
<i>Unio</i> sp.	X							

Echinodermata: Echinoids

<i>Actinastrea whitneyi</i>	X							
<i>Actinastrea</i> sp. A	X							
<i>Actinastrea</i> sp. B	X							
<i>Actinastrea</i> sp. C	X							
<i>Enallaster</i> cf. <i>texanus</i>								X
<i>Enallaster</i> sp.		X				X		
<i>Epiaster</i> cf. <i>elegans</i>						X		
<i>Hemiaster</i> cf. <i>elegans</i>						X		
<i>Hemiaster</i> sp.		X						X
<i>Holaster simplex</i>						X		
<i>Holectypus</i> cf. <i>planatus</i>						X		
<i>Holectypus</i> sp.		X				X		
<i>Pedinopsis</i> sp.						X		
<i>Salenia</i> sp.						X		
<i>Tetragramma</i> sp.						X		

SOILS

The only early survey report we are aware of for the IMRS area is a review of Trans-Pecos soils by Carter et al., 1928. The soils of the area are mapped as either “mostly limestone” (essentially bedrock areas) or “Reeves of very gravelly loam.” The latter is composed almost entirely of rounded gravel with small fine-earth content. It is a common soil type found on ancient terraces bordering the Rio Grande. United States Department of Agriculture, Natural Resources Conservation Service, 2013, did an extensive soil report on Hudspeth County, Texas.

Johnson II et al., 1977, reviewed some soil maps produced by the Department of Agriculture and the Texas Agricultural Experiment Station, Texas A&M University, and discusses the Harkey-Glendale Association found along the flood plain of the Rio Grande. This is a deep, nearly level, calcareous, loamy soil found near the Rio Grande.

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CULTURAL RESOURCES

The cultural resources on IMRS span a long period, from perhaps the Paleo-American or Paleo-Indian stage (ca. 10,000-6,000 B.C.) to the modern activities of ranching and mining. About 62 Native American sites are documented on IMRS (Carmichael and Unsinn, 2000). Most Native American sites consist of small ring middens and large sheet middens of fire-cracked rock known to be associated with pit baking of succulent plants; Carmichael and Unsinn, 2000, also reported lithic and ceramic scatters.

An introduction to the archeological resources of this part of Trans-Pecos Texas are found in papers by Greer, 1965, Johnson II et al., 1977, Hedrick, 1988, and Carmichael and Unsinn, 2000, who cover documented IMRS sites.

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PLANT COMMUNITIES

The plant communities of the IMRS have not been studied or mapped, except for an overview classification by Escamilla, 2012, as part of a dissertation on land cover change. Most of the following alerts students and visitors to some information sources and to what is thought to be represented on IMRS.

Henrickson and Johnston (1983) would classify IMRS vegetation as Chihuahuan Desert Scrub. Some units that appear to be represented on IMRS following their scheme are:

- Larrea* scrub (dominant around the ranch house).
- Mixed desert scrub.
- Canyon scrub.
- Lechuguilla scrub (in areas of limestone outcrops).
- Prosopis-Atriplex* scrub (in flat areas with deep soil).
- Riparian Woodlands (something near to that at Echo Spring).

The Texas Natural Heritage Program series-level plant communities (Anonymous, 1993) indicates the following should occur on IMRS:

- Apache plume series (in arroyos).
- Creosote-mariols series (on well-drained slopes with limestone substrate).
- Creosote series (*Larrea, Atriplex, Flourensia, Acacia, Parthenium*) (something similar occurs around HQ, but it is not a perfect match).
- Lechuguilla-sotol series (occurs on thin soils on limestone).
- Mesquite-saltbush series (occurs in areas of deep soil).
- Viscid acacia series (occurs on some gravel benches).

The Association for Biodiversity Information's, 2001, international classification of ecological community alliances for the Chihuahuan Desert region, offers the following:

- Larrea tridentata* shrubland alliance
- Atriplex canescens* shrubland alliance
- Fallugia paradoxa* intermittently flooded shrubland alliance
- Acacia neovernicosa* shrubland alliance
- Prosopis glandulosa* shrubland alliance
- Chilopsis linearis* shrubland alliance

The above are described in some detail on the Web along with others. Some unadulterated grassland may occur on IMRS property, but must be limited because we have not observed it for determining its numerically dominant species, so it is not considered herein. Escamilla, 2012, assessed landcover changes on IMRS.

LITERATURE CITED AND SELECTED REFERENCES: PLANT COMMUNITIES

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SUMMARY OF THE BIOTA

Authorities follow scientific names. Common names are ones commonly found in the literature. Most localities listed with records of taxa are identified in the IMRS Gazetteer section. Authorities follow species names. * refers to introduced species, ** refers to fossils. Collectors and sometimes field numbers are in brackets. Common names are from literature sources or made up from names associated with species. Common names, for consistency are hyphenated as in some references, and because they are proper nouns, first letters are capitalized. Vouchers are mostly in UTEP herbarium. L.M. Horne (UTEP) added several species and localities beginning in 2021.

LICHENS

Compiled by Richard D. Worthington

Collections referenced below are deposited at UTEP and COLO. Thanks to W.A. Weber, M. Schulz, and C.M. Wetmore for determinations on many of the lichens. Family common names are not given. NCN refers to no known species common names.

ACAROSPORACEAE

- Acarospora fuscata* (Schrader) Arnold **Brown Cobblestone Lichen**
[McGoldrick 90]
Note: its substrate is volcanic rock.
- Acarospora schleicheri* (Acharius) Massalongo **Schleicher’s Cracked Lichen**
[McGoldrick 89, 101, 115]
Note: its substrate volcanic rock, sandstone, and conglomerate.
- Sarcogyne regularis* Körber **Frosted Grain-spored Lichen**
[Worthington 21652, 31913]
Note: its substrate is limestone flakes on pavement.

CANDELARIAACEAE

- Candelina submexicana* (De Lesd.) Poelt **Candelina Lichen**
[McGoldrick 91, Worthington 21671]
Note: its substrate is igneous rock.

COLLEMATACEAE

- Collema tenax* (Swartz) Acharius **Black Jelly Lichen**
[Worthington 31908]
Note: its substrate is dirt on limestone outcrops.
- Collema texanum* Tuckerman **Texas Jelly Lichen**
[Worthington 21676, 21678, 21702]
Note: its substrate is limestone.

HYMENELIACEAE

- Circinaria contorta* (Hoffmann) Nordin, Savić, and Tibel **Chiseled Sunken-disk Lichen**
[McGoldrick 118 (COLO)]

<i>Lobothallia alphoplaca</i> (Wahlenberg) Hafellner [Worthington 21666] Note: <i>Aspicilia alphoplaca</i> (Wahlenberg) Poelt and Leuckert is a synonym Its substrate is rock.	Variable Sunken-disk Lichen
LECANORACEAE	
<i>Lecanora bipruinosa</i> Fink [McGoldrick 93] Note: its substrate is sandstone.	Rim Lichen
<i>Lichieilla nigrیتella</i> (Lettau) Moreno and Egea [Worthington 21699, 21700] Note: <i>Gonohymenia nigrیتella</i> (Lettau) Henssen is a synonym. Its substrate is limestone.	NCN
<i>Pleopsidium chlorophanum</i> (Wahlenberg) Zopf [Worthington (UTEP)] <i>Acarospora texana</i> Magnusson; <i>Acarospora chlorophana</i> (Wahlenb.) Massal	Gold Cobblestone Lichen
LICHENACEAE	
<i>Heppia lutosa</i> (Acharius) Nylander [McGoldrick 111, Worthington 21680] Note: removed from the family Heppiaceae by Schultz and Büdel, 2003. Its substrate is on dirt in limestone cracks.	Pale Soil Ruby Lichen
<i>Lichinella granulosa</i> Schultz [Schultz, 2005, Schultz 16292c] Note: its substrate is calcareous sandstone.	Grainy Rock Licorice Lichen
<i>Lichinella minnesotensis</i> (Fink) Esslinger [Schultz, 2005, mapped]	Minnesota Rock Licorice Lichen
<i>Lichinella sinaica</i> (Martin and Galun) Moreno and Egea [Schultz, 2005, Schultz 16306] Note: its substrate is limestone.	NCN
<i>Lichinella stipulata</i> Nylander [Schultz, 2005]	NCN
<i>Peccania arizonica</i> (Tuckerman) Herre [McGoldrick 106] Note: its substrate is limestone.	Arizona Peccania Lichen
<i>Phloeopeccania major</i> Henssen and Weber [<i>nomen in edit</i>] [McGoldrick 97, 107] Note: its substrate is limestone.	NCN
<i>Pterygiopsis atra</i> Vanio [Schultz, 2006, Schultz 16311a, Worthington 31911] Note: its substrate is limestone.	Pterygiopsis Lichen
<i>Pterygiopsis canariensis</i> Henssen [Schultz, 2006, Schultz 16317d, Worthington (UTEP)]	NCN
<i>Thyrea confuse</i> Henssen [Worthington 31910] Note: <i>Thyrea pulvinata</i> of American authors. Substrate limestone.	Confused Limestone Lichen
<i>Thyrea pachyphylla</i> (Müller and Argoviensis) Henssen [Worthington 31909] Note: its substrate is limestone.	NCN
PARMELIACEAE	
<i>Xanthoparmelia novomexicana</i> (Gyelnik) Hale [Worthington 21684]	New Mexico Rockshield Lichen
<i>Xanthoparmelia psoromifera</i> (Kurok) Hale [Worthington 21682, 21682B, McGoldrick 83]	Xanthoparmelia Lichen
<i>Xanthoparmelia subdecepiens</i> (Vainio) Hale [Lieb 1000, McGoldrick 121, Worthington 21682A]	Deceiving Rockshield Lichen

PELTULACEAE

Peltula sp.

[McGoldrick 98]

Note: its substrate is sandstone.

PHYSICIACEAE

Buellia punctata (Hoffmann) Coppins and Schreideggar

[Worthington 21698]

Note: its substrate is limestone.

Tiny Button Lichen

Buellia retrovertens Tuckerman

[McGoldrick 103, Worthington 21670]

Note: its substrate is igneous rock.

Disk Lichen

Physcia biziana (Massalongo) Zahlbruckner

[Lieb 1058]

Note: its substrate is on bark of shrubs.

Rosette Lichen

PLACYNTHIACEAE

Placynthium nigrum (Hudson) Gray

[Worthington 31907]

Note: its substrate is limestone.

Blackthread Lichen

PSORACEAE

Psora crenata (Taylor) Reinke

[McGoldrick 112]

Note: its substrate is on dirt in limestone cracks.

Crenate Fishscale Lichen

Psora pseudorusseii Timdal

[Worthington 21669, 21701, 31904]

Note: its substrate is limestone.

False Russel's Fishscale Lichen

RAMALINACEAE

Toninia squalida (Acharius) Massalongo

[McGoldrick 80]

Note: this family is synonymous with Biatraceae by some authorities.

Squalid Bruised Lichen

TELOSCHISTACEAE

Caloplaca galactophylla (Tuckerman) Zahlbruckner

[Worthington 31905]

Note: its substrate is limestone.

Firedot Lichen

Caloplaca microphyllina (Tuckerman) Hasse

[Worthington 21677]

Note: its substrate is on wood.

Orange Lichen

Caloplaca rubelliana (Acharius) Lojka

[McGoldrick 95]

Note: its substrate is sandstone

Rose Gold Lichen

Caloplaca squamosa (De Lesd.) Zahlbruckner

[Worthington 21672, Wetmore, 2003]

Note: its substrate is igneous rock.

Sun Burst Lichen

VERRUCARIACEAE

Dermatocarpon miniatum (Linnaeus) Mann

[Worthington 21667]

Note: its substrate is rock.

Leather Lichen

Endocarpon pusillum Hedwig

[McGoldrick 96; Worthington 31906]

Note: its substrate is in dirt in limestone cracks.

Scaly Stippled Lichen

Placidium sp.

[Worthington 21673, 21674]

Staurothele drummondii (Tuckerman) Tuckerman

[Worthington 21668]

Note: its substrate is limestone. Some UTEP IMRS collections were originally identified as

Drummond's Rock Pimple Lichen

Catapyrenium lachneum, need review.

NONVASCULAR PLANTS

Compiled by Richard D. Worthington

Phylum: BRYOPHYTA (Mosses)

We thank W.A. Weber for determinations of our moss specimens. A set of duplicate specimens is at COLO. We thank R.H. Zander for determining *Pseudocrossidium* while reviewing duplicates at COLO. No common names for the families are given.

BRYACEAE

Bryum argenteum Hedwig Silver Moss
[Worthington 21694]

FUNARIACEAE

Funaria flavicans Michaux Funeria Moss
[Worthington 21688]

GRIMMIACEAE

Grimmia pulvinata (Hedwig) Smith Pulvinate Dry Rock Moss
[Worthington 21665]

Jaffuelobryum wrightii (Sullivant) Sullivant and Lesquereux Wright's Jaffuelobryum Moss
[Worthington 21664, 21691]

POTTIACEAE

Pseudocrossidium crinitum (Schultz) Zander Pseudocrossidium Moss
[Lieb (UTEP); Worthington 21690]

Note: *Tortula aurea* Bartram is a synonym.

Syntrichia ruralis (Hedwig) Weber and Mohr Twisted Moss
[Worthington 21686, 21687, 21696]

Note: *Tortula ruralis* (Hedwig) Gaertn is a synonym.

Tortula mucronifolia Schwaegr Mucronleaf Tortula Moss
[Worthington 21692]

Weissia ligulaefolia (Bartram) Grout Liguleleaf Weissia Moss
[Worthington 21697]

Phylum: HEPATOPHYTA (Liverworts)

No common name for family is given.

AYTONIACEAE

Plagiochasma rupestre (Forster and Forster) Steph. Cliff Waxwort Liverwort
[Worthington 21685]

VASCULAR PLANTS

Revised and expanded since Lieb et al., 1996, by R.D. Worthington, and others.

Phylum: PTERIDOPHYTA (Ferns)

PTERIDACEAE (Brake Fern Family)

Adiantum capillus-veneris Linnaeus Southern Maidenhair Fern
[Worthington 25507]

Note: this species grows among rocks in streambed at Echo Spring.

Astroblepis cochisensis (Goodding) Benham and Windham Cochise Scaly Cloakfern
[Lieb 814, 846]

Astroblepis integerrima (Hooker) Benham and Windham Wavyleaf Cloakfern
[Lieb 931]

<i>Astrolepis sinuata</i> (Lagasca and Swartz) Benham and Windham [Worthington 13568, 21644]	Bulb Lipfern
<i>Cheilanthes eatonii</i> Baker [Lieb 932, Worthington 21646]	Eaton's Lipfern
<i>Cheilanthes feei</i> Moore [Lieb 928]	Fee's Lipfern
<i>Pellaea intermedia</i> Mettenius and Kuhn [Lieb 937, Worthington 30682]	Creeping Cliffbrake

Phylum: LYCOPODIOPHYTA (Spikemosses)

SELAGINELLACEAE (Spikemoss Family)

<i>Selaginella lepidophylla</i> (Hook and Greville) [Lieb 930] Note: it is common on north-facing conglomerate near IMRS HQ.	Resurrection Plant
<i>Selaginella peruviana</i> (Milde) Hieron [Worthington 31920]	Peruvian Spikemoss

Phylum: CONIFEROPHYTA (Conifers)

CUPRESSACEAE (Cypress Family)

<i>Juniperus pinchotii</i> Sudworth [Garza, 2018, Lieb 933] Records: it was observed during 2017 in Oak-Juniper Arroyo by K. Garza (UTEP).	Red Berry Juniper
<i>Juniperus coahuilensis</i> (Martinez) Records: it was observed during 2017 in Juniper Groove by K. Garza (UTEP).	Coahuila Juniper

Phylum: GNETOPHYTA (Gnetophytes)

EPHEDRACEAE (Mormon Tea Family)

<i>Ephedra aspera</i> Engelmann and Watson [Lieb 1079, 1355, Worthington 30676] Note: one UTEP IMRS collection from near Flat Top Mountain may be a different species.	Mormon Tea
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Phylum: MAGNOLIOPHYTA (Flowering Plants)

Powell and Worthington, 2018, published a large volume on flowering plants of Trans Pecos, Texas.

Class: MAGNOLIOPSIDA (Dicots)

ACANTHACEAE (Acanthus Family)

<i>Ruellia parryi</i> Gray [Lieb 985, 1298, Worthington 23342]	Parry's Wild-petunia
<i>Stenandrium barbatum</i> Torrey and Gray [Lieb 1018]	Early Shaggytuft

AMARANTHACEAE (Amaranthus Family)

* <i>Amaranthus blitoides</i> Watson [Worthington 25933]	Prostrate Pigweed
<i>Amaranthus palmeri</i> Watson [Lieb 1352]	Palmer's Pigweed

<i>Froelichia arizonica</i> Thornber and Standley [McGoldrick 53]	Arizona Snakecotton
<i>Tidestroemia lanuginosa</i> (Nuttall) Standley [McGoldrick 50]	Wooly Honeysweet
<i>Tidestroemia suffruticosa</i> (Torrey) Standley [Lieb 1208]	Shrubby Honeysweet
ANACARDIACEAE (Sumac Family)	
<i>Rhus microphylla</i> Engelman and Gray [Lieb 1116]	Littleleaf Sumac
<i>Rhus virens</i> Lindheimer and Gray [Lieb 929, Worthington 17842]	Evergreen Sumac
APOCYNACEAE (Dogbane Family)	
<i>Telosiphonia macrosiphon</i> (Torrey) Henrickson [Lieb 824]	Rock-trumpets
Note: <i>Macrosiphonia macrosiphon</i> (Torrey) Heller is a synonym.	
ARISTOLOCHIACEAE (Pipevine and Birthwort Family)	
<i>Aristolochia wrightii</i> Seemann [Lieb 808]	Wright's Dutchman's-pipe
ASCLEPIADACEAE (Milkweed Family)	
<i>Asclepias asperula</i> (Decne.) Woodson	Spider Wilkweed
Records: it was observed 30 April 2010 at Purple Sage Mine by V. Mata-Silva (UTEP).	
Note: some authorities put it in the Dogbane Family, Apocynaceae.	
<i>Asclepias macrotis</i> Torrey [Lieb 991]	Long-hoof Milkweed
<i>Asclepias oenotheroides</i> Schltl. and Cham.	Zizotes Milkweed
Records: it was observed 27 August 2016 near Purple Sage Mine by V. Mata-Silva (UTEP).	
<i>Asclepias subverticillata</i> (Gray) Vail [Lieb 1001]	Horsetail Milkweed
<i>Sarcostemma crispum</i> Bentham [Lieb 1183]	Wavyleaf Milkvine
ASTERACEAE [COMPOSITAE] (Sunflower Family)	
<i>Ageratina wrightii</i> (Gray) King and Robins [Lieb 1181]	Wright's Snakeroot
Note: <i>Eupatorium wrightii</i> Gray is a synonym.	
<i>Ambrosia confertiflora</i> De Candolle [Lieb 1006, Worthington 17949]	Weak-leaf Ragweed
<i>Aphanostephus ramosissimus</i> De Candolle [McGoldrick 58]	Low Faintcrown
<i>Artemisia ludoviciana</i> Nuttall [Worthington 17473]	Wormwood
<i>Baccharis salicifolia</i> (Ruiz and Pavon) Persoon [Worthington 17469]	Willow Baccharis
Note: <i>Baccharis glutinosa</i> Persoon is a synonym.	
<i>Baccharis salicina</i> Torrey and Gray [Lieb 1011, Worthington 17479]	Great Plains Seep Willow
<i>Bahia absinthifolia</i> Bentham [Worthington 17454]	Hairy-seed Bahia
<i>Bahia pedata</i> Gray [Lieb 1140]	Blunt-scale Bahia
<i>Baileya multiradiata</i> Harvey and Gray [McGoldrick 64]	Desert Marigold
<i>Chaetopappa ericoides</i> (Torrey) Nesom [Lieb 1213]	Sand Aster
Note: <i>Leucelene ericoides</i> (Torrey) Greene is a synonym.	
<i>Chloracantha spinosa</i> (Beth) Nesom	Spiny Chloracantha

Records: Collected and photographed on 8 October 2021 at the Box, Rio Grande, by V. Mata-Silva and A. Rocha (UTEP).	
<i>Chrysactina mexicana</i> Gray [Lieb 1211]	Damianita
<i>Cirsium ochrocentrum</i> Gray [Worthington 17490]	Yellow-spine Thistle
<i>Cirsium undulatum</i> (Nuttall) Sprengel [Lieb 856, 1044]	Wavy-leaf Thistle
<i>Conoclinium greggii</i> (Gray) Small [Lieb 1045, Worthington 17452] Note: <i>Eupatorium greggii</i> Gray is a synonym.	Mist-flower
* <i>Conyza canadensis</i> (Linnaeus) Cronquist [Worthington 17461]	Canadian Horseweed
<i>Diaperia verna</i> (Rafinesque) Morefield [Lieb 1097, 1124, Worthington 30681]	Spring Pigmy Cudweed
<i>Erigeron divergens</i> Torrey and Gray [Lieb 1102, 1211]	Spreading Fleabane Daisy
<i>Erigeron modestus</i> Gray [Lieb 1241]	Plains Fleabane Daisy
<i>Erigeron tracyi</i> Greene [Lieb 810, 1201]	Running Fleabane Daisy
<i>Evax verna</i> Rafinesque [Lieb 1097, 1124, Worthington 30681] Note: <i>Evax multicaulis</i> De Candolle is a synonym	Spring Cudweed
<i>Flourensia cernua</i> De Candolle [Lieb 1344].	Tarbush
<i>Gaillardia pinnatifida</i> Torrey [Lieb 1215]	Red-dome Blanket-flower
<i>Gutierrezia microcephala</i> (De Candolle) Gray [Worthington 17466]	Thread-leaf Snakeweed
<i>Gutierrezia sphaerocephala</i> Gray [Lieb 1179]	Round-head Snakeweed
<i>Gymnosperma glutinosum</i> (Sprengel) Lessing [Worthington 17485]	Gumhead
<i>Hedosyne ambrosiifolia</i> (Gray) Strother [Lieb 1035] Note: <i>Iva ambrosiifolia</i> (Gray) Gray is a synonym.	Ragged Marsh-elder
<i>Helenium microcephalum</i> De Candolle var. <i>microcephalum</i> [Lieb 1012]	Small-head Sneezeweed
<i>Helianthus ciliaris</i> De Candolle [Lieb 1197]	Texas Blueweed
<i>Isocoma pluriflora</i> (Torrey and Gray) Greene [Lieb 1032] Note: <i>Isocoma wrightii</i> (Gray) Wootton and Standley is a synonym.	Southern Jimmyweed
<i>Jefea brevifolia</i> (Gray) Strother [Worthington 17465] Note: <i>Zexmenia brevifolia</i> Gray is a synonym.	Boss Daisy
<i>Laennecia coulteri</i> (Gray) Nesom [Worthington 23364] Note: <i>Conyza coulteri</i> Gray is a synonym.	Coulter's Woolwort
<i>Machaeranthera pinnatifida</i> (Hooker) Shinnars var. <i>pinnatifida</i> [Lieb 830, Worthington 17457]	Lacy Spine-aster
<i>Machaeranthera tanacetifolia</i> (Kunth) Nees [Lieb 1219]	Tahoka Daisy
<i>Melampodium leucanthum</i> Torrey and Gray [Lieb (UTEP)]	Blackfoot-daisy

<i>Nicolletia edwardsii</i> Gray [McGoldrick 11, 21]	Edward's Nicollet
<i>Packera tampicana</i> (De Candolle) Jeffrey [Lieb 934, 935, 1091] Note: <i>Senecio greggii</i> Rydberg, and <i>Senecio tampicanus</i> De Candolle are synonyms.	Great Plains Ragwort
<i>Parthenium confertum</i> Gray var. <i>lyratum</i> (Gray) Rollins [McGoldrick 70]	Gray's Feverfew
<i>Parthenium incanum</i> Kunth [McGoldrick 42]	Mariola
<i>Pectis angustifolia</i> Torrey [McGoldrick 13, 49]	Lemonweed
<i>Porophyllum scoparium</i> Gray Note: it grows in arroyos near IMRS HQ, but not vouchered.	Trans-Pecos Poreleaf
<i>Psathyrotopsis scaposa</i> (Gray) Robins. [Lieb, UTEP] Note: <i>Psathyrotes scaposa</i> Gray is a synonym.	Naked Turtleback
<i>Pseudognaphalium stramineum</i> (Kunth) Weber [Worthington 17478] Note: <i>Gnaphalium chilense</i> Sprengel is a synonym.	Cotton Batting Plant
<i>Psilactis asteroides</i> Gray [Lieb 1195] Note: <i>Machaeranthera boltoniae</i> (Greene) Turner and Horne is a synonym.	New Mexico Ray-aqster
<i>Psilostrophe gnaphalioides</i> De Candolle [Worthington 32537]	Dudweed
<i>Sartwellia flaveriae</i> Gray [Lieb 1198]	Thread-leaf Glow-wort
<i>Senecio flaccidus</i> Lessing [Lieb 1100] Note: <i>Senecio douglasii</i> De Candolle is a synonym.	Thread-leaf Groundsel
* <i>Sonchus oleraceus</i> Linnaeus [Worthington 23362]	Common Sow-thistle
<i>Symphotrichum subulatum</i> (Michaux) Nesom [Lieb 1349, Worthington 17455] Note: <i>Aster subulatus</i> Michaux is a synonym.	Seaside Aster
<i>Tetraneuris scaposa</i> De Candolle [Lieb 1139] Note: <i>Hymenoxys scaposa</i> (De Candolle) Parker is a synonym.	Naked Rubberweed
<i>Thelesperma longipes</i> Gray [Lieb 835]	Long-stalk Greenthread
<i>Thelesperma megapotamicum</i> (Sprengel) Kuntze [Worthington 17475].	Navajo-tea
<i>Thymophylla acerosa</i> (De Candolle) Strother [Lieb 845, 1263] Note: <i>Dyssodia acerosa</i> De Candolle is a synonym.	Prickle-leaf Dogweed
<i>Thymophylla pentachaeta</i> (De Candolle) Robinson [Lieb 839, McGoldrick 65] Note: <i>Dyssodia pentachaeta</i> De Candolle is a synonym.	Parralena
<i>Trixis californica</i> Kellogg [Lieb 927]	California Threefold
<i>Verbesina encelioides</i> (Cavanilles) Bentham, Hooker, and Gray [Lieb 1021]	Cowpen Daisy
<i>Viguiera dentata</i> (Cavanilles) Sprengel [Lieb 1037, Worthington 17470]	Toothed Goldeneye
<i>Viguiera stenoloba</i> Blake	Skeleton Goldeneye

[Worthington 17476].

<i>Xanthisma spinulosum</i> (Pursh) Morgan and Hartmen [Lieb 830, Worthington 17457] Note: <i>Macharanthera pinnatifida</i> is a synonym.	Cutleaf Goldenweed
<i>Xanthium strumarium</i> Linnaeus [Lieb 1004]	Rough Cocklebur
<i>Zinnia acerosa</i> (De Candolle) Gray [Lieb 998, 1038]	Desert Zinnia
BERBERIDACEAE (Barberry Family)	
<i>Berberis trifoliolata</i> Moricand [Worthington 13564] Note: <i>Mahonia trifoliolata</i> (Moricand) Fedde is a synonym.	Laredo Oregon-grape
BIGNONIACEAE (Catalpa and Bignonia Family)	
<i>Chilopsis linearis</i> (Cavanilles) Sweet [Lieb 1309]	Desert-willow
<i>Tecoma stans</i> (Linnaeus) Jussieu and Kunth [Lieb 1328]	Yellow Trumpet-bush
BORAGINACEAE (Borage Family)	
<i>Cryptantha crassisejala</i> (Torrey and Gray) Greene [Lieb 1095]	Thick-sepal Cat's-eye
<i>Cryptantha mexicana</i> (Brandege) Johnston [Lieb 1114]	Mexican Cat's-eye
<i>Heliotropium curassavicum</i> Linnaeus [Lieb 1010, McGolderick 44]	Seaside Heliotrope
<i>Lappula occidentalis</i> (Watson) Greene [Lieb 1135] Note: <i>Lappula redowskii</i> (Hornemann) Greene is a synonym.	Spiny Sheepbur
<i>Lithospermum incisum</i> Lehmann [Lieb 1077, Worthington 21642]	Fringed Groomwell
<i>Tiquilia canescens</i> (De Candolle) Richards [Lieb 831]	Wooly Crinklemat
<i>Tiquilia gossypina</i> (Wooton and Standley) Richards [Worthington 32436]	Texas Crinklemat
<i>Tiquilia greggii</i> (Torrey) Richards [Lieb 844]	Plumed Crinklemat
<i>Tiquilia hispida</i> (Torrey) Richards [Worthington 32533]	Hairy Crinklemat
BRASSICACEAE [CRUCIFERAE] (Mustard Family)	
<i>Descurainia pinnata</i> (Walter) Britton [Lieb 1073]	Tansy Mustard
<i>Dimorphocarpa wislizeni</i> (Engelmann) Rollins [McGoldrick 63]	Spectacle-pod
<i>Draba cuneifolia</i> Nuttall ex. Yorry and Gray var. <i>cuneifolia</i> [Worthington 21649]	Wedgeleaf Ehitlow-grass
* <i>Eruca vesicaria</i> (Linnaeus) Cavanilles ssp. <i>stiva</i> (Miller) Thellung [Lieb 1117]	Garden Rocket
<i>Lepidium alyssoides</i> Gray [Lieb 917, 1118]	Mesa Pepperweed
<i>Lepidium lasiocarpum</i> Nuttall var. <i>wrightii</i> (Gray) Hitchcock [Lieb 1078]	Wright's Pepperweed
<i>Lesquerella fendleri</i> (Gray) Watson [Lieb 822] Note: <i>Physaria fendleri</i> (Gray) O'Kane and Al-Shehbaz is a synonym.	Fendler's Bladderpod

<i>Lesquerella gordonii</i> (Gray) Watson [McGoldrick 57] Note: <i>Physaria gordonii</i> (Gray) O’Kane and Al-Shehbaz is a synonym.	Gordon’s Bladderpod
<i>Lesquerella purpurea</i> (Gray) Watson [Lieb 936, 1090] Note: <i>Physaria purpurea</i> (Gray) O’Kane and Al-Shehbaz is a synonym.	Purple Bladderpod
<i>Nerisyrenia camporum</i> (Gray) Greene [Lieb 1072, 1084]	Bicolored Fan-mustard
* <i>Sisymbrium irio</i> Linneaus [Worthington 21653]	London Rocket
<i>Streptanthus carinatus</i> Wright ex. Gray ssp. <i>carinatus</i> [Lieb 1076]	Lyer-leaf Jewel-flower
BUDDLEJACEAE (Butterfly-bush Family)	
<i>Buddleja marrubifolia</i> Bentham Reports: it was observed 30 July 2016 near Prospect Pits by V. Mata-Silva (UTEP).	Wooly Butterfly-bush
<i>Buddleja scordioides</i> Kunth [Lieb 1036]	Escobilla
CACTACEAE (Cactus Family)	
<i>Ariocarpus fissuratus</i> (Engelmann) Schumman [Worthington 17493]	Living Rock Cactus
<i>Corynopuntia schotti</i> (Engelmann) Kunth Reports: it was observed from Rattlesnake Tank and IMRS HQ by V. Mata-Silva (UTEP).	Dog Cholla
<i>Coryphantha dasyacantha</i> (Engelmann) Orcutt [Anderson (UTEP)]	Big Bend Cactus
<i>Cylindropuntia leptocaulis</i> (De Candolle) Kunth [Lieb 1295] Note: <i>Opuntia leptocaulis</i> De Candolle is a synonym. As many as two additional species in this genus remain to be vouchered.	Desert Christmas Cactus
<i>Cylindropuntia imbricata</i> (Haworth) Kunth Records: it was observed near Rattlesnake Tank by V. Mata-Silva (UTEP) [Photo].	Tree Cholla
<i>Echinocactus horizonthalonius</i> Lemaire [Worthington 21655]	Turk’s Head Cactus
<i>Echinocereus coccineus</i> Engelmann var. <i>gurneyi</i> (Benson) Heil and Brack [Lieb 1052] Note: <i>Echinocereus triglochidiatus</i> Engelmann var. <i>gurneyi</i> (Benson) Heil and Brack is a synonym.	Scarlet Hedgehog Cactus
<i>Echinocereus enneacanthus</i> Engelmann var. <i>enneacanthus</i> [Anderson (UTEP), Photographic voucher] Note: <i>Echinocereus enneacanthus</i> Englemann var. <i>dubius</i> (Engelmann) Benson is a synonym.	Pitaya Cactus
<i>Echinocereus pectinatus</i> (Scheidweiler) Engelmann var. <i>dasyacanthus</i> (Engellmann) Taylor [Lieb 1230] Note: <i>Echinocereus dasyacanthus</i> Engelmann is a synonym.	Rainbow Hedgehog Cactuts
<i>Echinocereus stramineus</i> (Engelmann) Seitz [Lieb 1222] Note: <i>Echinocereus enneacanthus</i> Engelmann var. <i>stranineus</i> (Engelmann) Benson is a synonym.	Strawberry Hedgehog Cactus
<i>Epithelantha micromeres</i> (Engelmann) Weber [Anderson (UTEP) [Photo], Worthington 21657]	Ping-pong-ball Cactus
<i>Escobaria tuberculosa</i> (Engelmann) Britton and Rose [Lieb 851] Note: <i>Coryphantha strobiliformis</i> (Poselger) Orcutt is a synonym.	White Foxtail Cactus
<i>Mammillaria heyderi</i> Muehlenpfordt [Anderson (UTEP)]	Little Nipple-cactus
<i>Mammillaria lasiacantha</i> Engelmann	Lace-spine Nipple-cactus

[Lieb 956] <i>Opuntia engelmannii</i> Salm-Dyck [Lieb 1226]	Engelmann's Prickly-pear Cactus
<i>Opuntia macrocentra</i> Engelmann [Lieb 1050]	Purple Prickly-pear Cactus
<i>Opuntia phaeacantha</i> Engelmann [Lieb 1221]	Plains Prickly-pear Cactus
<i>Opuntia rufida</i> Engelmann [Mata-Silva (UTEP), Photographic voucher]	Blind Prickly-pear Cactus
<i>Sclerocactus warnockii</i> (Benson) Taylor [Lieb 1144]	Warnock's Fish-hook Cactus
<i>Sclerocactus uncinatus</i> (Galeotti) Taylor var. <i>wrightii</i> (Engelmann) [Lieb 1108, Worthington 21656] Note: <i>Ancistrocatus uncinatus</i> (Galeotti) Benson is a synonym.	Chihuahuan Fish-hook Cactus
CAPPARIDACEAE [CAPPARACEAE] (Caper Family)	
<i>Polanisia dodecandra</i> (L.) De Candolle var. <i>uniglandulosa</i> (Cavanilles) Iltis [McGoldrick 24]	Red-wisker Clammyweed
CARYOPHYLLACEAE (Pink Family)	
<i>Spergularia marina</i> (Linnaeus) Besser [Lieb 1101]	Salt-marsh Sand-spurrey
CHENOPODIACEAE (Goosefoot Family)	
<i>Atriplex canescens</i> (Pursh) Nuttall [McGoldrick 43]	Four-wing Saltbush
<i>Chenopodium incanum</i> (Watson) Heller [Worthington 17477]	Mealy Goosefoot
CONVOLVULACEAE (Morning Glory Family)	
<i>Evolvulus alsinoides</i> Linnaeus var. <i>angustifolia</i> Torrey [Lieb 1205]	Slender Morning Glory
CROSSOSOMATACEAE (Crossosoma Family)	
<i>Glossopetalon spinescens</i> Gray [Worthington 13570] Note: <i>Forsellesia spinescens</i> (Gray) Green is a synonym.	Spiny Greasebush
CUCURBITACEAE (Gourd Family)	
<i>Ibervillea tenuisecta</i> (Gray) Small [Lieb 976]	Deer-apples
CUSCUTACEAE (Dodder Family)	
<i>Cuscuta indecora</i> Choisy [Lieb 1359]	Large-seed Dodder
EUPHORBIACEAE (Spurge Family)	
<i>Argythamnia neomexicana</i> Müller Argoviensis [Lieb 1127] Note: <i>Ditaxis neomexicana</i> (Müller Argoviensis) Heller is a synonym.	New Mexico Silverbush
<i>Bernardia obovata</i> Johnston [Lieb (UTEP)]	Desert Bernardia
<i>Croton dioicus</i> Cavanilles [Lieb 838]	Grassland Croton
<i>Croton fruticosus</i> Engelmann ex. Torrey [Lieb 1042, Worthington 17464]	Bush Croton
<i>Croton pottsii</i> (Klotzsch) Müller Argoviensis [Lieb 925]	Leatherweed
<i>Chamaesyce arizonica</i> (Engelmann) Arthur [Lieb 1089]	Arizona Spurge
<i>Chamaesyce fendleri</i> (Torrey and Gray) Small [Lieb 1110]	Fendler's Spurge

<i>Chamaesyce lata</i> (Engelmann) Small [Lieb 1138]	Hoary Spurge
<i>Chamaesyce serpyllifolia</i> (Persoon) Small [McGoldrick 47]	Thyme-leaf Spurge
<i>Chamaesyce stictospora</i> (Engelmann) Small [Lieb 1022]	Slim-seed Spurge
<i>Euphorbia antisiphilitica</i> Zuccarini [Lieb 1279]	Candelilla
<i>Euphorbia exstipulata</i> Engelmann [McGoldrick 22]	Square-seed Spurge
<i>Euphorbia spathulata</i> Lamarck [Lieb 1096]	Warty Spurge
<i>Jatropha dioica</i> Sesse ex. c [Lieb 832]	Leather Stem
<i>Phyllanthus polygonoides</i> Nuttall [Lieb 834A, 1326]	Smartweed Leaf Flower
<i>Tragia amblyodonta</i> (Müller Argoviensis) Pax and Hoffman [Lieb 1312]	Dogtooth Noseburn
<i>Tragia ramosa</i> Torrey [Garza (UTEP)]	Desert Tragia
Records. It was observed 29 August 2017 at Oak Arroyo by K. Garza (UTEP) [Photo].	
FAGACEAE (Oak Family)	
<i>Quercus pungens</i> Leibman [Lieb 1311, Worthington 21645]	Sandpaper Oak
FABACEAE [LEGUMINOSAE] (Legume Family)	
<i>Astragalus emoryanus</i> (Rydberg) Cory [Lieb 1272]	Red-stemmed Peavine
<i>Astragalus nuttallianus</i> De Candolle [Lieb 1093, 1106]	Nuttall's Milkvetch
<i>Calliandra conferta</i> Benthham [Lieb 989]	Rio Grande Stickpea
<i>Dalea formosa</i> Torrey [Lieb 947, 1088]	Feather Plume
<i>Dalea neomexicana</i> (Gray) Cory [Lieb 1112]	New Mexico Prairie Clover
<i>Dalea wrightii</i> Gray [Lieb 1223]	Wright's Prairie Clover
<i>Lupinus havardii</i> Watson [Lieb 809]	Big Bend Bluebonnet
<i>Mimosa borealis</i> Gray [Lieb 818, McGoldrick (UTEP)]	Fragrant Mimosa
<i>Mimosa emoryana</i> Benthham [Lieb 843]	Emory's Mimosa
<i>Mimosa turneri</i> Barneby [Anderson 56, Lieb 993]	Desert Mimosa
<i>Prosopis glandulosa</i> Torrey [Lieb 1209]	Honey Mesquite
<i>Prosopis pubescens</i> Benthham [Worthington 17480]	Screwbean Mesquite
<i>Rhynchosia senna</i> Gillies and Hooker var. <i>texana</i> (Torrey and Gray) Johnston [Lieb 990]	Texas Snout-bean
<i>Senegalia greggii</i> (Gray) [Lieb 849, 1003]	Catclaw
Note: <i>Acacia greggii</i> is a synonym.	
<i>Senna durangensis</i> (Rose) Irwin and Barneby [Lieb 1141]	Durango Senna

<i>Vachellia constricta</i> (Bentham) Seigler and Ebinger [Lieb 848] Note: <i>Acacia constricta</i> is a synonym. Ebinger and Seigle, 2005, placed it into the genus <i>Vachellia</i> .	Whitethorn Acacia
<i>Vachellia neovernicosa</i> (Isley) [Lieb 1229] Note: <i>Acacia neovernicosa</i> is a synonym. Ebinger and Seigle, 2005, considered it a synonym of <i>V. vernicosa</i> .	Viscid Acacia
FOUQUIERIACEAE (Ocotillo Family) <i>Fouquieria splendens</i> Engelm [Lieb 1220]	Ocotillo
GENTIANACEAE (Gentian Family) <i>Eustoma exaltatum</i> (Linnaeus) Salisbury ex. Don [Worthington 17452] <i>Zeltnera arizonica</i> (Gray) Mansion Records: observed 3 April 2018 at Corral Tank by V. Mata-Silva (UTEP).	Prairie Gentian Arizona Centaury
GERANIACEAE (Geranium Family) <i>Erodium texanum</i> Gray [Lieb (UTEP)]	Texas Filaree
HYDROPHYLLACEAE (Waterleaf Family) <i>Nama havardii</i> Gray [Lieb 1276] <i>Nama hispidum</i> Gray [Lieb 1076] <i>Phacelia coerulea</i> Greene [McGoldrick 55] <i>Phacelia integrifolia</i> Torrey [Lieb 1130, 1080]	Havard's Fiddleaf Sandbells Notched Scorpion-weed Gypsum Scorpion-weed
KOEBERLINIACEAE (Crucifixion-thorn Family) <i>Koerberlinia spinosa</i> Zuccarini var. <i>spinosa</i> [Lieb 1296]	Crucifixion-thorn
KRAMERIACEAE (Ratany Family) <i>Krameria erecta</i> Willdenow ex. Schultes [Lieb 823] Note: <i>Krameria glandulosa</i> Rose and Painter is a synonym. <i>Krameria grayi</i> Rose and Painter [Lieb 994]	Range Ratany White Ratany
LAMIACEAE [LABIATAE] (Mint Family) <i>Hedeoma drummondii</i> Benth [Lieb 1131] <i>Hedeoma nana</i> (Torrey) Briquet [Lieb 840] <i>*Marrubium vulgare</i> Linnaeus [Lieb 1002] <i>Salvia reflexa</i> Horneman [Lieb 1346]	Drummond's False-pennyroyal Dwarf False-pennyroyal Horehound Lanceleaf Sage
LINACEAE (Flax Family) <i>Linum puberulum</i> (Engelmann) Heller [Lieb 1120, McGoldrick 73] <i>Linum rupestre</i> (Gray) Engelmann ex. Gray [Lieb 984]	Plains Flax Rock Flax
LOASACEAE (Stick Leaf Family) <i>Cevallia sinuata</i> Lagasca [McGoldrick 46] <i>Mentzelia multiflora</i> (Nuttall) Gray [Lieb 1109]	Stinging-serpent Adonis Blazingstar

<i>Mentzelia saxicola</i> Thompson and Zavortink [Lieb 1324]	El Paso Blazingstar
MALPIGHIACEAE (Malpighia Family)	
<i>Janusia gracilis</i> Gray	Propeller-plant
Note: it has not been vouchered on IMRS, but observed northeast of IMRS HQ in Bailey Evans Arroyo, which drains westside of IMRS HQ complex.	
MALVACEAE (Mallow Family)	
<i>Abutilon malacum</i> Watson [Lieb 1239]	Yellow Indian-mallow
<i>Abutilon parvulum</i> Gray [Anderson (UTEP), Worthington 2593]	Dwarf Indian-mallow
<i>Ayenia microphylla</i> Gray	Dense Ayenia
Records: it was observed 9 October 2016 at Prospect Pits, between pitfall traps P3-6 and P4-5 by V. Mata-Silva [Photo].	
<i>Hibiscus coulteri</i> Harvey <i>ex.</i> Gray [Anderson (UTEP), Worthington 32528]	Desert Rose-mallow
<i>Hibiscus denudatus</i> Bentham [McGoldrick 27]	Palefaces
<i>Malvella leprosa</i> (Ortega) Krapovickas [Anderson (UTEP), Worthington 32103]	Alkali Mallow
<i>Sida abutifolia</i> Miller [McGoldrick 14]	Spreading Fan-petal
Note: <i>Sida filicaulis</i> Torrey and Gray, and <i>Sida procumbens</i> Swartz are synonyms.	
<i>Sphaeralcea angustifolia</i> (Cavanilles) Don [McGoldrick 3]	Copper Globemallow
<i>Sphaeralcea fendleri</i> Gray [Lieb 1214]	Fendler's Globemallow
NYCTAGINACEAE (Four O'Clock Family)	
<i>Aclesanthes chenopodioides</i> (Gray) Levin [Lieb 1033]	Goosefoot Moonpod
Note: <i>Ammocodon chenopodioides</i> (Gray) Standley is a synonym.	
<i>Acleisanthes longiflora</i> Gray [Lieb 837, McGoldrick 19, Worthington 11948]	Angel's Trumpets
<i>Allionia incarnata</i> Linnaeus [Lieb 1017]	Trailing Windmills
<i>Boerhavia anisophylla</i> Torrey [Worthington 23346]	Wine Flower
<i>Boerhavia intermedia</i> Jones [Lieb 1030, McGoldrick 18]	Five-wing Spiderling
<i>Cyphomeris gypsophiloides</i> (Martens and Galeotti) Standley [Lieb 1200]	Delicate Darling
<i>Nyctaginea capitata</i> Choisy [Lieb 1016]	Devil's Bouquet
OLEACEAE (Olive Family)	
<i>Forestiera angustifolia</i> Torrey [Lieb 1047, Worthington 13569]	Texas Swamp-privet
<i>Menodora scabra</i> Gray [McGoldrick 52]	Rough Menodora
ONAGRACEAE (Primrose Family)	
<i>Camissonia chamaenerioides</i> (Gray) Raven [Lieb 1283]	Fireweed Suncup
<i>Oenothera brachycarpa</i> Gray [Lieb 816, 992, McGoldrick (UTEP)]	Desert Evening-primrose
<i>Oenothera curtiflora</i> Wagner and Hoch [Lieb 1218]	Velvet-weed

Note: *Gaura mollis* James and *G. parviflora* Douglas ex. Hooker are both synonyms.

<i>Oenothera primiveris</i> Gray ssp. <i>primiveris</i> [Lieb 1081]	Early Evening-primrose
OROBANCHACEAE (Broomrape Family) <i>Orobanche cooperi</i> (Gray) Heller var. <i>cooperi</i> [Lieb 825, 1051, 1353]	Desert Broom-rape
PAPAVERACEAE (Poppy Family) <i>Argemone chisosensis</i> Ownbey [Lieb 1126, McGoldrick 72]	Chisos Mountain Pricklypoppy
PEDALIACEAE (Benne Family) <i>Proboscidea parviflora</i> (Wooton) Wooton and Standley [McGoldrick 41] Note: some authorities retain this species in the family Martyniaceae.	Wooton's Devil's-claw
PLANTAGINACEAE (Plantain Family) <i>Plantago patagonica</i> Jacquin [Lieb 1082]	Wooly Plantain
POLEMONIACEAE (Phlox Family) <i>Giliastrum acerosum</i> (Gray) Rydberg [Lieb 1360] Note: <i>Gilia rigidula</i> Bentham var. <i>acerosa</i> (Gray) Wherry is a synonym.	Spiny Blue-bowls
<i>Gilia stewartii</i> Johnston [Lieb 1113, 1284]	Stewart's Gilia
<i>Ipomopsis longiflora</i> (Coulter) Grant [Lieb 1029]	Blue Trumpets
POLYGALACEAE (Milkwort Family) <i>Polygala barbeyana</i> Chodat [Lieb 981, 999, Worthington 23344] Note: <i>Polygala longa</i> Blake is a synonym.	Blue Milkwort
<i>Polygala macradenia</i> Gray [Lieb 1143]	Glandular Milkwort
<i>Polygala scoparioides</i> Chodat [Lieb 833, 1085]	Broom Milkwort
POLYGONACEAE (Knotwort and Buckwheat Family) <i>Eriogonum abertianum</i> Torrey [McGoldrick 60].	Abert's Wild-buckwheat
<i>Eriogonum rotundifolium</i> Bentham [Lieb 1104]	Saucer-leaf Wild-buckwheat
<i>Eriogonum tenellum</i> Torrey [Worthington 23350]	Tall Wild-buckwheat
* <i>Polygonum aviculare</i> Linnaeus [Lieb 1111, 1225, Worthington 23366]	Yard Knotweed
<i>Polygonum pennsylvanicum</i> Linnaeus [Lieb 926]	Pinkweed
<i>Rumex maritimus</i> Linnaeus [Lieb 1009]	Golden Dock
PORTULACACEAE (Purslane Family) * <i>Portulaca oleracea</i> Linnaeus [Worthington 17481]	Garden Purslane
<i>Portulaca pilosa</i> Linnaeus [Worthington 17481]	Kiss-me-quick
<i>Portulaca suffrutescens</i> Engelm [McGoldrick 4]	Shrubby Purslane
<i>Talinum aurantiacum</i> Engelm [Lieb 1299]	Orange Flameflower

RANUNCULACEAE (Crowfoot and Buttercup Family)	
<i>Clematis drummondii</i> Torrey and Gray [Lieb 1237]	Drummond's Virgin's-bower
RESEDACEAE (Mignonette Family)	
<i>Oligomeris linifolia</i> (Vahl) Macbride [Lieb 1103, 1123]	Lineleaf Whitepuff
RHAMNACEAE (Buckthorn Family)	
<i>Condalia ericoides</i> (Gray) Johnston [Lieb 1119]	Javalena-bush
<i>Ziziphus obtusifolia</i> (Hooker <i>ex.</i> Torrey and Gray) Gray [Worthington 25508]	Lotebush
ROSACEAE (Rose Family)	
<i>Fallugia paradoxa</i> (Don) Endlicher <i>ex.</i> Torrey. [Lieb 828]	Apache-plume
RUBIACEAE (Madder Family)	
<i>Galium proliferum</i> Gray [Lieb 1132]	Limestone Bedstraw
<i>Stenaria nigricans</i> (Lamarck) Terrell [Worthington 30680]	Diamond Flower
Note: <i>Hedyotis nigricans</i> (Lamarck) Fosberg is a synonym.	
RUTACEAE (Citrus Family)	
<i>Thamnosma texana</i> (Gray) Torrey [Lieb 834]	Texas Rue
SALICACEAE (Willow Family)	
<i>Salix gooddingii</i> Ball [Lieb 817]	Goodding's Willow
SCROPHULARIACEAE (Figwort Family)	
<i>Castilleja integra</i> Gray [Lieb 815]	Southwestern Indian Paintbrush
<i>Castilleja nervata</i> Eastwood [Lieb 982, Worthington 32564]	Trans-Pecos Indian Paintbrush
<i>Leucophyllum minus</i> Gray [Lieb 987]	Big Bend Texas Sage
<i>Maurandya antirrhiniflora</i> Humbolt, Bonpland <i>ex.</i> Willdenow Records: it was observed 18 November 2016 in arroyo southeast of Red Tank by V. Mata-Silva (UTEP) [Photo].	Snapdragon Vine
<i>Mercardonia procumbens</i> (Miller) Small Records: it was observed 11 June 2016 at Road Tank by V. Mata-Silva (UTEP) [Photo].	Baby Jump-up
<i>Veronica perigrina</i> Linnaeus var. <i>xalapensis</i> (Kunth) Pennell [Lieb 1122]	Neckweed
SOLANACEAE (Potato and Nightshade Family)	
<i>Chamaesaracha crenata</i> Rydberg [Lieb 977, 1105, McGoldrick 16]	Toothed Five Eyes
<i>Chamaesaracha edwardsiana</i> Averett [Lieb 821]	Edwards Plateau Five Eyes
<i>Chamaesaracha villosa</i> Rydberg [Anderson (UTEP)]	Trans-Pecos Five Eyes
<i>Lycium puberulum</i> Gray [Lieb 1115]	Downy Desert-thorn
<i>Lycium torreyi</i> Gray [Lieb 1281, McGoldrick 75]	Torrey's Wolfberry
<i>Nicotiana trigonophylla</i> Dunal [Lieb 1044]	Desert Tobacco
<i>Quincula lobata</i> (Torrey) Rafinesque [Lieb 1125, McGoldrick 20] Note: <i>Physalis lobata</i> Torrey is a synonym.	Chinese Lanterns

<i>Solanum elaeagnifolium</i> Cavanilles [Lieb 1310]	Silverleaf Nightshade
<i>Solanum triquetrum</i> Cavanilles [Anderson (UTEP), Worthington 25939]	Texas Nightshade
TAMARICACEAE (Tamarisk Family)	
* <i>Tamarix chinensis</i> Loureiro [Lieb 1007, Worthington 17453]	Saltcedar
Note: there is a large grove along the Rio Grande and it is introduced to Echo Creek Canyon near Echo Spring. <i>Tamarix ramosissima</i> Ledebour is a synonym.	
ULMACEAE (Elm Family)	
<i>Celtis reticulata</i> Torrey [Worthington 23369]	Western Hackberry
VERBENACEAE (Verbain Family)	
<i>Aloysia gratissima</i> (Gillies and Hooker) Troncoso [Lieb 1216]	White Beebush
<i>Aloysia wrightii</i> (Gray) Heller and Abrams [Lieb 1328]	Wright's Beebush
<i>Glandularia bipinnatifida</i> (Nuttall) Nuttall var. <i>ciliata</i> (Bentham) Turner [Lieb 1092]	Dakota Vervain
Note: <i>Verbena wrightii</i> Gray is a synonym.	
* <i>Phyla nodiflora</i> (Linnaeus) Greene [Lieb 1008, Worthington 17460]	Turkey-tangle
Note: <i>Phyla incisa</i> Small is a synonym.	
<i>Tetradlea coulteri</i> Gray [McGoldrick 23]	Coulter's Wrinklefruit
<i>Verbena bracteata</i> Lagasca and Rodriguez [Lieb 1034, Worthington 32560]	Carpet Vervain
VISCACEAE (Mistletoe Family)	
<i>Phoradendron serotinum</i> (Raf.) Johnston var. <i>tomentosum</i> (De Candolle) Kuijt [Lieb 1041].	Christmas Mistletoe
VITACEAE (Grape Family)	
<i>Vitis arizonica</i> Engelman [Lieb 1280]	Arizona Grape
ZYGOPHYLLACEAE (Caltrop Family)	
<i>Kallstroemia grandiflora</i> Torrey ex. Gray [McGoldrick 1]	California Caltrop
<i>Larrea tridentata</i> (De Candolle) Coville [Worthington 32557]	Creosotebush
* <i>Peganum harmala</i> Linnaeus [Lieb 1023, 1212]	African-rue
Note: a stand of this toxic plant is established at Double Tank Corral.	

Class: LILIOPSIDA (Monocots)

AGAVACEAE (Agave Family)	
<i>Agave lechuguilla</i> Torrey	Lechuguilla
Note: even though this species is unvouchered, it is quite abundant on IMRS. Lechuguilla scrub is one of the most common plant communities.	
<i>Agave parryi</i> Engelman var. <i>neomexicana</i> (Woot. & Standl.) Ullrich [J.D. Johnson (UTEP)]	New Mexico Agave
Note: <i>Agave neomexicana</i> (Wooten and Standley) Ullrich is a synonym.	
Records: this species is rare on IMRS, but was observed west of Double Tank Corral along Main Road. The small cluster froze to death in 2011 (J.D. Johnson, UTEP).	
<i>Yucca faxoniana</i> Sargent [Lieb 1048]	Eve's Needle

<i>Yucca treculiana</i> Carrière [Lieb 1049, 1046] Note: <i>Yucca torreyi</i> Shafer is a synonym. Hybrids may occur on IMRS between this species and <i>Y. faxoniana</i> .	Torrey's Yucca
<i>Yucca baccata</i> Torrey in Emory [Mata-Silva (UTEP), (Photo)]	Banana Yucca
COMMELINACEAE (Spiderwort Family)	
<i>Commelina erecta</i> Linnaeus var. <i>angustifolia</i> (Michaux) Fernald [McGoldrick 17]	White-mouth Dayflower
CYPERACEAE (Sedge Family)	
<i>Eleocharis microformis</i> Buckley [Worthington 17456]	Buckley's Dwarf Spike-rush
<i>Eleocharis palustris</i> (Linnaeus) Roemer and Schultes [Lieb 622, Worthington 32556] Note: thanks to Stanley Jones for identification of the above species.	Marshy Spike-rush
JUNCACEAE (Rush Family)	
<i>Juncus torreyi</i> Coville [Lieb 852]	Torrey's Rush
LILIACEAE (Lilly Family)	
<i>Allium macropetalum</i> Rydberg [McGoldrick 56]	Arizona Onion
NOLINACEAE (Nolina Family)	
<i>Dasyilirion leiophyllum</i> Engelman <i>ex.</i> Trelease [Lieb 1297, 1300, Worthington 17468]	Green Sotol
<i>Nolina erumpens</i> (Torrey) Watson [Worthington 17491]	Beargrass
POACEAE [GRAMINEAE] (Grass Family)	
<i>Aristida purpurea</i> Nuttall var. <i>nealleyi</i> (Vasey) Alred [Lieb 1031, McGoldrick 7, 31, 36, Worthington 17467, 17486] Note: other varieties of this variable species may be representd in this lot of specimens and from elsewhere on IMRS.	Nealley's Threeawn
<i>Bothriochloa laguroides</i> (De Candolle) Herter var. <i>torryana</i> (Steudel) Allred and Gould [Worthington 17463]	Silver Bluestem
<i>Bouteloua barbata</i> Lagasca [McGoldrick 35]	Sixweeks Grama
<i>Bouteloua breviseta</i> Vasey [McGoldrick 34]	Gyp Grama
<i>Bouteloua eriopoda</i> (Torrey) Torrey [McGoldrick 30]	Black Grama
<i>Bouteloua gracilis</i> (Willdenow <i>ex.</i> Kunth) Lagasca <i>ex.</i> Griffiths [McGoldrick 9]	Blue Grama
<i>Bouteloua trifida</i> Thurber <i>ex.</i> Watson [Worthington 32534]	Red Grama
* <i>Cenchrus ciliaris</i> Linnaeus [McGoldrick 6] Records: this exotic species is establisherd around IMRS HQ, especially in corral near Jerry Johnson multipurpose buiding (J.D. Johnson, UTEP).	Buffel Grass
* <i>Chloris virgata</i> Swartz [Lieb 1020, McGoldrick 39]	Showy Windmillgrass
* <i>Cynodon dactylon</i> (Linnaeus) Persoon [Lieb 1343, Worthington 17472]	Bermudagrass
<i>Dasyochloa pulchella</i> (Kunth) Willdenow and Rydberg [McGoldrick 40] Note: <i>Erioneuron pulchellum</i> (Willdenow and Rydberg.) Tateoka, and <i>Tridens pulchellus</i>	Fluffgrass

(Willdenow and Rydberg) Hitchcock are synonyms.	
<i>Digitaria californica</i> (Bentham) Henrard [McGoldrick 29A]	Arizona Cottontop
Note: <i>Trichachne californica</i> (Bentham) is a synonym.	
* <i>Echinochloa colona</i> (Linnaeus) Link [Worthington 17496]	Jungle-rice
* <i>Echinochloa crus-galli</i> (Linnaeus) Beauvois [Lieb 1025]	Large Barnyardgrass
* <i>Eragrostis cilianensis</i> (Allioni) Latati <i>ex.</i> Janchen [Lieb 1026]	Stinkgrass
<i>Erioneuron pilosum</i> (Buckley) Nash [Lieb 820]	Hairy Tridens
<i>Heteropogon contortus</i> (Linnaeus) Beauvois <i>ex.</i> Roemer and Schultes [Lieb 924]	Tanglehead
<i>Leptochloa dubia</i> (Kunth) Nees [Lieb 1347, Worthington 17471]	Green Sprangletop
<i>Leptochloa fusca</i> (Linnaeus) Kunth var. <i>fascicularis</i> Snow [Lieb 1024]	Bearded Sprangletop
Note: <i>Leptochloa fascicularis</i> is a synonym.	
<i>Muhlenbergia arenacea</i> (Buckley) Hitchcock [Lieb 1187]	Ear Muhly
<i>Muhlenbergia fragilis</i> Swallen [Worthington 25937]	Delicate Muhly
* <i>Panicum antidotale</i> Retzius [McGoldrick 2]	Blue Panicum
<i>Panicum hallii</i> Vasey [Worthington 32539]	Hall's Panicum
<i>Panicum hirticaule</i> Presl [McGoldrick 28]	Mexican Witchgrass
<i>Panicum obtusum</i> Kunth [Lieb 1019]	Vine Mesquite
* <i>Pennisetum ciliare</i> (Linnaeus) Link [J.D. Johnson (UTEP)]	Buffelgrass
* <i>Polypogon viridis</i> (Gouan) Breistroffer [Lieb 813]	Water Polypogon
Note: <i>Agrostis semiverticillata</i> (Forsskal) Christensen is a synonym.	
<i>Scleropogon brevifolius</i> Philippi [McGoldrick 10]	Burrograss
<i>Setaria leucopila</i> (Scribner and Merrill) Schumann [McGoldrick 33]	Plains Bristlegrass
<i>Sporobolus airoides</i> (Torrey) Torrey [Worthington 17474]	Alkali Sacaton
<i>Sporobolus contractus</i> Hitchcock [Worthington 17489]	Spike Dropseed
<i>Sporobolus cryptandrus</i> (Torrey) Gray [Worthington 17487, McGoldrick 29B]	Sand Dropseed
<i>Sporobolus flexuosus</i> (Thurber <i>ex.</i> Vasey) Rydberg [McGoldrick 38]	Mesa Dropseed
<i>Tridens albescens</i> (Vasey) Wooten and Standley [Worthington 17497]	White Tridens
<i>Tridens muticus</i> (Torrey) Nash [Lieb 1342, McGoldrick 37]	Slim Tridens
POTAMOGETONACEAE (Pondweed Family)	
<i>Stackenia pectinata</i> (Linnaeus) Borner [Lieb 1227]	Sago Pondweed
Note: <i>Potamogeton pectinatus</i> Linnaeus is a synonym. Thanks to C.B. Hellquist for	

identifying this species.

TYPHACEAE (Cattail Family)

Typha domingensis Persoon

[Worthington 17458]

Records: it is common around Echo Spring (J.D. Johnson, UTEP).

Southern Cattail

PROTOZOANS AND ANIMALS

Esposito, 2012, produced a study on the role of isolation and disturbance on the diversity of aquatic microenvertebrates on IMRS.

Phylum: PROTOZOA

Subphylum: SPOROZOA

Order: COCCIDIA

EIMERIIDAE (Enteric Coccidia Family)

Eimeria sexlineata Shrock and Tucker

[Carranza, 1997]

Note: it was reported to infect the Little Striped Whiptail lizard, *Aspidoscelis inornatus*, on IMRS.

Prairied Racerunner Eimeria

Phylum: PLATYHELMINTHES (Flatworms)

Class: TREMATODA (Tapeworms)

ANOPLOCEPHALIDAE (Unarmed Scolex Tapeworm Family)

Oocharistica sp.

Note: it was reported by Carranza, 1997, to infect *Aspidoscelis inornatus*, *A. exsanguis*, and *A. tessellatus* on IMRS.

Phylum: NEMATODA (Roundworms)

OXYURIDAE (Pinworm Family)

Pharyngodon warneri Harwood

Note: it was reported by Carranza, 1997, to infect *Aspidoscelis exsanguis* and *A. inornatus* on IMRS.

Werner's Pinworm

Pharyngodon cnemidophori Read and Armein

Note: Mata-Silva et al., 2008, reported an individual from an *Aspidoscelis marmoratus* on IMRS.

Whiptail Pinworm

PHYSALOPTERIDAE (Spirurian Nematodes)

Abbreviata terrapenis Hill

Note: it was reported by Carranza, 1995, to infect *Aspidoscelis inornata*, *A. exsanguis* and *A. tessellatus*, and by Mata-Silva et al., 2008, to infect *Aspidoscelis marmoratus* and *A. tessellatus* on IMRS.

Phylum: ROTIFERA (Rotifers)

Compiled by Elizabeth Walsh (1 January 2017). No common family or species names were given.

Class: MONOGONONTA (Single Gonad Rotifers)

ASPLANCHNIDAE

Asplanchna sp.

Records: it was reported from Corral Tank, Peccary Tank, and Red Tank.

Asplanchna brightwellii Gosse

Records: it was reported from Peccary Tank.

Asplanchna intermedia Hudson

Records: it was reported from Rattlesnake Tank.

Asplanchna multiceps (Schrank)

Records: it was reported from Corral Tank.

BRACHIONIDAE

Brachionus angularis Gosse

Records: it was reported from Corral Tank.

Brachionus quadridentatus Hermann

Records: it was reported from Corral Tank and Peccary Tank.

Platyias quadricornis (Ehrenberg)

Records: it was reported from Corral Tank.

COLLOTHECIDAE

Collotheca campanulata (Dobie)

Records: it was reported from Corral Tank.

Collotheca coronetta (Cubitt)

Records: it was reported from Echo Spring.

Collotheca ornata (Ehrenberg)

Records: it was reported from Red Tank.

Collotheca trilobata (Collins)

Records: it was reported from Corral Tank.

EPIPHANIDAE

Epiphanes branchionis (Ehrenberg)

Records: it was reported from Corral Tank, Peccary Tank, and Rattlesnake Tank.

Rhinoglena ovigera Segers, Hendrik, and Walsh

Records: it was reported from Peccary Tank and Red Tank.

EUCLANIDAE

Euchlanis dilatata Ehrenberg

Records: it was reported from Corral Tank and Peccary Tank.

FLOSCULARIIDAE

Ptygura sp.

Records: it was reported from Red Tank.

HEXARTRIDAE

Hexarthra mira (Hudson)

Records: it was reported from Bailey Evens Canyon, near IMRS HQ, Red Tank, and Echo Spring.

Note: the Bailey Evens Canyon specimens were found in a rock pool.

Hexarthra oxyuris (Zernov)

Records: it was reported from Peccary Tank and Red Tank.

LECANIDAE

Lecane bulla (Gosse)

Records: it was reported from Corral Tank and Echo Spring.

Lecane luna (Müller)

Records: it was reported from Corral Tank, Peccary Tank, and Red Tank.

Lecane quadridentata (Ehrenberg)

Records: it was reported from Corral Tank, Red Tank, and Echo Spring.

NOTOMMATIDAE

Cephalodella gibba (Ehrenberg)

Records: it was reported from Corral Tank.

Cephalodella catellina (Mueller)

Records: it was reported from Peccary Tank.

Cephalodella sterea (Gosse)

Records: it was reported from Peccary Tank.

Cephalodella tenuiseta (Burn)

Records: it was reported from Red Tank.

PROALIDAE

Proales sp.

Records: it was reported from Echo Spring.

Encentrum sp.

Records: it was reported from Echo Spring.

SYNCHAETIDA

Polyarthra dolichoptera Idelson

Records: it was reported from Peccary Tank.

Polyarthra vulgaris Carlin

Records: it was reported from Corral Tank and Echo Spring.

TRICHOCERCIDAE

Trichocerca similis (Wierzejski)

Records: it was reported from Corral Tank.

TROCHOSPHAERIDAE

Filinia cornuta (Weisse)

Records: it was reported from Peccary Tank.

Filinia pejleri Hutchinson

Records: it was reported from Corral Tank and Peccary Tank.

Filina sp.

Records: it was reported from the Narrows near Twin Tanks.

Class: BDELLOIDEA (Bdelloid Rotifers)

PHILODINIDAE

Philodina megalotrocha Ehrenberg

Records: it was reported from Echo Spring.

Phylum: ANNELIDA (Annelids)

Class: HIRUDINEA (Leeches)

ERPOBDELLIDAE (Hundiglar Leech Family)

Erpobdella punctata (Leidy)

[Lieb (UTEP)]

Records: it was reported from Pirtle Tank.

Note: thanks to D.J. Klemm for its identification.

Tiger Leech

Phylum: MOLLUSCA (Molluscs)

Compiled by Richard D. Worthington

Order: BASOMMATOPHORA

PHYSIDAE (Bladder Snail Family)

Physella virgata (Gould)

[Worthington (UTEP)]

Records: it was reported from Echo Spring.

Protean Physa

PLANORBIDAE (Ramshorn Snail Family)

Planorbella tenuis (Dunker)

[Worthington (UTEP)]

Records: it was reported from Double Tank Corral and Red Tank.

Mexican Ramshorn

Order: STYLOMMATOPHORA

BULIMULIDAE (Tree Snail Family)

Rabdotus alternatus (Say)

[Lieb (UTEP)]

Striped Rabdotus

HELICODISCIDAE (Toothy Coil Snail Family)

Lucilla singleyana (Pilsbry)

[Worthington (UTEP)]

Records: it was reported in drift near Double Tank Corral.

Smooth Coil

HUMBOLDTIANIDAE (Terrestrial Air-breathing Snail Family)

***Humboldtiana* sp.

Note: Underwood and Wilson, 1974, report fossil shells from early Oligocene volcanic tuff from a site on or very near IMRS.

PUPILLIDAE (Chrysalis Snail Family)

Gastrocopta ashmun (Sterki)

[Worthington (UTEP)]

Records: it was reported in drift near Double Tank Corral.

Sluice Snaggletooth

SUCCINEIDAE (Amber Snail Family)

Succinea grosvenorii Lea

[Worthington (UTEP)]

Records: it was reported from limestone talus on upper wall of Echo Canyon.

Note: the identification is tentative as living material is required for positive ID.

Santa Rita Ambersnail

Succinea luteola Gould

[Worthington (UTEP)]

Records: it was reported from Double Tank Corral.

Mexico Ambersnail

UROCOPTIDAE (Urocoptid Land Snail Family)

Holospira pasonis Dall

[Worthington (UTEP)]

Records: it was observed 18 August 2001 at base of rimrock on north end of Flat Top Mountain.

Robust Holospira Land Snail

Metastoma roemeri (Pfeifer)

[Worthington (UTEP)]

Records: it was reported at base of limestone cliffs at Echo Spring and upper Echo Canyon.

Distorted Metastoma Land Snail

ZONITIDAE (True Glass Snail Family)

Hawaiiia minuscule (Binney)

[Worthington (UTEP)]

Records: it was reported from drift near Double Tank Corral.

Minute Gem Glass Snail

Phylum: ARTHROPODA (Arthropods)

Lenhart et al., 2010, identified arthropods and other small animals eaten by Pallid Bats, *Antrozous pallidus*, on IMRS. Davis, 2003, did a study on limnology and macroinvertebrates of Echo Spring. Evans, 2008, produced a field guide to insects and spiders.

Subphylum: CHELICERATA (Scorpions and Spiders)

Order: SCORPIONES (Scorpions)

Grimsley visited IMRS and collected most of the following species in 1991. Scorpions collected on IMRS by Gardea and Hill and Mata-Silva were identified by D. Sissom. Maldonado et al., 2006, produced a photographic atlas depicting all species on IMRS except *V. crassimannus*.

BUTHIDAE (Buthid Scorpion Family)

Centruroides vittatus (Say) **Striped Centruroides Scorpion**
[Maldonado et al., 2006, Gardea and Hill, 1996, Grimsley et al., 1991,
V. Mata-Silva (UTEP), J.D. Johnson (UTEP)]

VAEJOVIDAE (Vaejovid Scorpion Family)

Paruroctonus gracilior (Hoffman) **Chihuahuan Slendertail Scorpion**
[Maldonado et al., 2006, Grimsley et al., 1991]

Pseudouroctonus apacheanus Gertsch and Soleglad **Apache Forest Scorpion**
[Maldonado et al., 2006, Gardea and Hill, 1996; Grimsley et al, 1991]
Note: Stockwell (1992) removed this species from *Uroctonus*.

Vaejovis coahuilae Williams **Lesser Stripetail Scorpion**
[Maldonado et al., 2006, Gardea and Hill, 1996, Grimsley et al., 1991,
V. Mata-Silva (UTEP)]

Note: some authorities consider it to be in the Genus Hoffmannius.

Vaejovis crassimanus Pocock **Thickhanded Scorpion**
[Mata-Silva (UTEP)]

Vaejovis intermedius (Borelli) **Intermediate Scorpion**
[Maldonado et al., 2006, Gardea and Hill, 1996, Grimsley et al., 1991, Lieb (UTEP)]
Records: it was reported on a talus slope north of Peccary Tank.
Note: thanks to M. Zillig for its identification.

Vaejovis russelli Williams **Russell's Scorpion**
[Maldonado et al. 2006, Grimsley et al., 1991]

Vaejovis springeris (Wood) **Striped-tailed Scorpion**
[Maldonado et al., 2006, Grimsley et al, 1991]

Order: AMBLYPYGI (Whip Spiders)

PHRYNIDAE (Whip Spinder Family)

Phrynus operculatus Pocock **Tailless Whip Spider**
[Lenhart (UTEP), J.D.Johnson (UTEP), Riveroll (UTEP), Maldonado et al., 2006]
Records: these interesting spiders were found near IMRS HQ in pit-fall traps.

Order: UROPYGI (Vinegaroons)

THELYPHONIDAE (Vinegaroon Family)

Mastigoproctus giganteus (Lucas) **Giant Vinegaroon**
[Maldonado et al., 2006]
Note: this species is found occasionally on IMRS.

Order: ARANEAE (Spiders)

ARANEIDAE (Orbweaver Family)

Neoscona oaxacensis (Keyserling)

[Maldonado et al., 2006, Worthington (UTEP)]

Western Spotted Orbweaver

FILISTATIDAE (Crevice Weaver Family)

Kukulcania hibernalis (Hentz)

[Maldonado et al., 2006, Worthington (UTEP)]

Southern House Spider

GNAPHOSIDAE (Ground Spider Family)

[Maldonado et al., 2006]

HETEROPODIDAE (Crab Spider Family)

Olios sp.

[Maldonado et al., 2006]

LYCOSIDAE (WOLF SPIDER Family)

Geolycosa sp.

[Maldonado et al., 2006]

Burrowing Wolf Spider

Pardosa sp.

[Maldonado et al., 2006, Worthington (UTEP)]

Thin-Legged Wolf Spider

PHOLCIDAE (Daddy Longleg Spider Family)

Polcus sp.

[Maldonado et al., 2006]

Daddy-longleg Spider

SALTICIDAE (Jumping Spider Family)

Metacyrba taeniola Hertz

[Maldonado et al., 2006]

Ribbon Jumping Spider

SELENOPIDAE (Wall Crab Spiders)

Selenops actophilus Chamberline

[Maldonado et al., 2006]

World Crab Spider

SICARIIDAE (Recluse Spider Family)

Loxosceles blanda (Gertsch and Ennick)

[Maldonado et al., 2006 (as *Loxoscelus* sp.)]

Note: our material is at New Mexico State University for verification.

It is commonly encountered in pit-fall traps. It is venomous.

Big Bend Recluse Spider

TETRAGNATHIDAE (Longjawed Orbweaver Family)

Tetragnatha laboriosa Hentz

[Maldonado et al., 2006, Worthington (UTEP)]

Silver Longjawed Orbweaver

Tetragnatha nitens (Audouin) Savigey

[Maldonado et al., 2006; Worthington (UTEP)]

Brown Longjawed Orbweaver

Tetragnatha sp.

[Lieb (UTEP)]

THERAPHOSIDAE (Tarantula Family)

Aphonopelma sp.

[Maldonado et al., 2006]

Note: several species of Tarantulas are apparently present on IMRS. Hamilton et al.,

2016, produced a monograph on the genus *Aphonopelma*, and Cooper et al., 2019,

contains a key to the Tarantulas on IMRS.

THERIDIIDAE (Cobweb Weaver Family)

Latrodectus hesperus Chamberlin and Ivie

[Maldonado et al., 2006, Worthington (UTEP)]

Western Black Widow Spider

Steatoda sp.

[Maldonado et al., 2006]

Cobweb Spider

THOMISIDAE (Crab Spiders)

Misumenops sp.

[Maldonado et al., 2006, Worthington (UTEP)]

Xysticus sp.

[Maldonado et al., 2006]

Note: thanks to D. Richman (NMSU) for its identification.

Order: OPILIONES (Harvestmen)

SCLEROSOMATIDAE (World Harvestmen Family)

Eurybunus sp. (undescribed)

[Maldonado et al., 2006, Mackay et al., 1992]

Trachyrhinus marmoratus Banks

Desert Harvestman

[Maldonado et al., 2006, MacKay et al., 1992]

Order: PSEUDOSCORPIONES (Pseudoscorpions)

We have one UTEP IMRS collection awaiting identification.

Order: SOLIFUGAE (Windscorpions and Sun Spiders)

EREMOBATIDAE

Eremobates sp.

Windscorpion

[Maldonado et al., 2006]

Note: two families and 26 species are reported from Texas. One large species is frequently seen at night around IMRS HQ, but not identified. We have other UTEP IMRS collections awaiting identification.

Order: ACARI (Mites and Ticks)

ERYTHRAEIDAE

Leptus sp.

[Maldonado et al., 2006, Mackay et al., 1992]

Note: these mites are parasitic on Desert Harvestmen, *Trachyrhinus marmoratus*.

TROMBICULIDAE (Chigger Mites)

[Lukefahr, 2013]

Note: thanks to Dr. C. Welbourn from Florida Department of Agriculture and Consumer Services for identifying chiggers listed below.

Acomatacarus arizonensis Ewing

Arizona Chigger Mite

Note: sometimes incorrectly placed in the genus *Odontacarus*. It is a lizard parasite.

Eutrombicula alfreddugési Oudemans

Dugés's Chigger Mite

Note: it is most common chigger on IMRS lizards, J.D. Johnson (UTEP).

Hyponeocula deserticola Tanigoshi and Loomis

Desert Chigger Mite

Note: it was found on *Aspidoscelis marmoratus*, Coachwhip snakes, pocket mice, and pocket gophers.

TROMBIDIIDAE (Velvet Mites)

Dinothrobium sp.

[Lenhart (UTEP), Maldonado et al., 2006]

Note: our UTEP IMRS collections are not yet determined to species.

AGRASIDAE (Soft Ticks)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species. These ticks are parasitic on mammals, including the Rock Pocket Mouse, *Chaetodipus intermedius*.

Subphylum: DIANTENNATA

Class: CRUSTACEA (Crustaceans)

Subclass: BRANCHIOPODA

Thanks to D.C. Rogers for identifying our Anostraca and Notostraca.

Order: ANOSTRACA (Fairy Shrimp)

STREPTOCEPHALIDAE (Brine Shrimp Family)

Streptocephalus mackini Moore

Mackin's Fairy Shrimp

[Worthington (UTEP)]

Records: it was reported from Red Tank.

Order: NOTOSTRACA (Tadpole Shrimp)

TRIOPSIDAE (American Tadpole Shrimp Family)

Triops longicaudatus (LeConte)

Long-tailed Tadpole Shrimp

[Worthington (UTEP)]

Records: it was reported from Red Tank.

Order: CLADOCERA (Water Fleas)

DAPHNIDAE (Daphnia Family)

Ceriodaphnia reticulata (Jurine)

Reticulated Water Flea

Note: it was reported by Elizabeth Walsh (UTEP).

Simocelphalus sp.

Note: it was reported by Elizabeth Walsh (UTEP).

Subclass: OSTRACODA (Seed Shrimp)

Ostracods are in the waters coming from Echo Spring, but no attempt has been made to identify them.

Subclass: COPEPODA – None Identified

Subclass: MALACOSTRACA – None Identified

Subphylum: TRACHEATA

Class: MYRIAPODA (Centipedes and Millipedes)

Subclass: CHILOPODA (Centipedes)

Maldonado, 1998, collected the below three centipede species on IMRS, but disposition of vouchers are unknown to us.

SCUTIGERIDAE (House Centipedes)

Scutigera coleoptrata (Linnaeus)

Deadly House Centipede

[Maldonado et al, 2006]

SCOLOPENDRIDAE (Large Terrestrial Centipedes)

Arthrorhabdus pygmaeus Pocock

Desert Pygmy Centipede

[Maldonado et al, 2006, Maldonado, 1998]

Scolopendra heros Girard

[Maldonado et al., 2006, Maldonado, 1998]

Note: a photographic voucher is in Maldonado, 1998. Johnson, Johnson, and Riveroll, Jr., 2007, reported *S. heros* eating a Ground Snake, *Sonora semiannulata*.

Giant Desert Centepede

Scolopendra polymorpha Wood

[Maldonado et al., 2006, Maldonado, 1998]

Note: a photo of voucher is reported in Maldonado, 1998.

Common Desert Centepede

Subclass: DIPLOPODA (Millipedes)

SPIROSTREPTIDAE

Orthoporus ornatus (Girard)

[Maldonado et al., 2006, Lieb (UTEP)]

Note: this large brown millipede is common throughout the region and frequently seen crawling on the ground after rains.

Desert Millipede

Class: INSECTA (Insects)

Compiled primarily by R.D. Worthington, P.A. Lenhart, E.G. Chapman (Univ. Kentucky), and entomologists that participated in the Texas A&M University (TAMU) Entoblitz field trip to IMRS, 12 and 13 April 2002. Entomologist from all over Texas participated. Voucher specimens for most species cited below are assumed to be in the TAMU Entomology Collection, but exact localities on IMRS where they were found are not given. Baqla, 2017, produced a UTEP Biology MS Thesis on IMRS grasshoppers.

Order: COLEOPTERA (Beetles)

ANTHICIDAE (Antlike Flower Beetle Family)

Neoeurygenius sp.

[E.G. Riley, TAMU Entoblitz 2002]

Notoxus calcaratus Horn

[Lenhart (UTEP)]

Monoceros Beetle

Vacusus confinis (LeConte)

[E.G. Riley, TAMU Entoblitz 2002]

Confined Flower Beetle

BOSTRICHIDAE (Horned Powder-post Beetle Family)

Note: our UTEP IMRS collections are not yet identified to species.

BUPRESTIDAE (Metalic Woodboring Beetle Family)

Acmaeodera auritincta Fall

[Worthington (UTEP)]

Fall's Buprestid Beetle

Records: it was observed 8 September 2018 at Echo Spring by V. Mata-Silva (UTEP).

Note: thanks to N. Woodbury for its identification..

Acmaeodera mixta LeConte

[Worthington (UTEP)]

LeConte's Metalic Woodboring Beetle

Acmaeodera quadrivittatoides Nelson and Westcott

[E.G. Riley, TAMU Entoblitz 2002; Worthington (UTEP)]

Agrilus pulchellus Bland

[E.G. Riley, TAMU Entoblitz 2002]

Chrysobothris exesa LeConte

[E.G. Riley, TAMU Entoblitz 2002]

Large Yellowish Buprestid Beetle

Chrysobothris lateralis Waterhouse

[E.G. Riley, TAMU Entoblitz 2002]

Waterhouse's Buprestid Beetle

Chrysobothris merkelii Horn

[E.G. Riley, TAMU Entoblitz 2002]

Merkel's Buprestid Beetle

<i>Gyascutus caelatus</i> (LeConte) [Lenhart (UTEP)]	Caelate Buprestid Beetle
<i>Lampetis drummondi</i> Laporte and Gory [McClure (UTEP)]	Drummond's Buprestid Beetle
<i>Thrincopyge alacris</i> LeConte [E.G. Riley, TAMU Entoblitz 2002]	Spry Buprestid Beetle
BRACHYPSECTRIDAE (Texas Beetle Family)	
<i>Brachypsectra fulva</i> LeConte [Lenhart (UTEP)]	Texas Beetle
Note: it is a rare beetle found under yucca logs. Adults can be attracted to UV lights.	
CANTHARIDAE (Soldier Beetle Family)	
<i>Cantharis</i> sp. [Herrera (UTEP)]	
<i>Chauliognathus basalis</i> LeConte [McClure (UTEP), Worthington (UTEP)]	Colorado Soldier Beetle
CARABIDAE (Ground Beetle Family)	
<i>Agonum extensicolle</i> (Say) [Lenhart (UTEP)]	Galerita Beetle
Note: this needs verification.	
<i>Bembidion</i> sp. (2X spp.) [E.G. Riley, TAMU Entoblitz 2002]	
<i>Brachinus</i> sp. [Lenhart (UTEP)]	
<i>Bradycellus</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Calosoma peregrinator</i> Guérin-Méneville [Lenhart (UTEP)]	Traveling Caterpillar Hunter Beetle
<i>Chlaenius</i> sp. [Lenhart (UTEP), Horne (UTEP) 2021, corrected misspelling]	
<i>Cicindelidia ocellata</i> (Klugе) [Worthington (UTEP)]	Ocellated Tiger Beetle
<i>Cicindelidia sedecimpunctata</i> (Klugе) [Herrera (UTEP), McClure (UTEP), Perez (UTEP), Worthington (UTEP)]	Western Red-bellied Tiger Beetle
<i>Discoderus impotens</i> (LeConte) [E.G. Riley, TAMU Entoblitz 2002]	Impotent Ground Beetle
<i>Elaphropus</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Helluomorphoides</i> sp. [Lenhart (UTEP)]	
<i>Lebia</i> sp. [Lenhart (UTEP)]	
<i>Panagaeus sallei</i> Chaudoir [Lenhart (UTEP)]	Salle's Hairy Ground Beetle
<i>Parvendela lemniscata</i> (LeConte) [Lenhart (UTEP)]	White-striped Tiger Beetle
<i>Tetracha carolina</i> (Linnaeus) [Leaton (UTEP), McClure (UTEP)]	Carolina Metallic Tiger Beetle
Note: Additional collections are not yet determined to species.	
CERAMBYCIDAE (Longhorned Beetle Family)	
<i>Aneflomorpha weneri</i> Chemsak Note: it was identified by E.G. Chapman, 2014, Univ. Kentucky.	Werner's Longhorned Beetle
<i>Aneflus obscurus</i> (LeConte) Records: it was observed 8 July 2017 at IMRS HQ by V. Mata-Silva (UTEP). Note: it was identified by E.G. Chapman, 2014, Univ. Kentucky.	Obscure Longhorned Beetle
<i>Anelaphus moestus</i> Casey Note: it was identified by E.G. Chapman, 2014, Univ. Kentucky.	August Longhorned Beetle

<i>Anelaphus piceum</i> (Chemsak)	Chemsak's Longhorned Beetle
Note: it was identified by E.G. Chapman, 2014, Univ. Kentucky.	
<i>Crossidius coralinus</i> (LeConte)	Coraline Longhorned Beetle
[Worthington (UTEP)]	
<i>Derobrachus hovorei</i> Santos-Silva	Palo Verde Root Borer
[Santos-Silva, 2007, Mata-Silva (UTEP)]	
<i>Eustromula validum</i> (LeConte)	Desert Longhorned Beetle
Note: it was identified by E.G. Chapman, 2014, Univ. Kentucky.	
<i>Haplidus laticeps</i> Knull	Wide-headed Longhorned Beetle
[E.G. Riley, TAMU Entoblitz 2002]	
<i>Megacyllene antennata</i> (White)	Round-necked Longhorned Beetle
Note: it was identified by E.G. Chapman, 2014, Univ. Kentucky.	
<i>Methia</i> sp.	
Note: it was identified by E.G. Chapman, 2014, Univ. Kentucky.	
<i>Monielega armatum</i> Bland	Cactus Longhorned Beetle
[McClure (UTEP), Mata-Silva (UTEP)]	
<i>Oncideres rhodosticta</i> Bates	Mesquite Girdler
[Lenhart (UTEP)]	
<i>Sphaenothecus bilineatus</i> (Gory)	Double-banded Longhorned Beetle
[Leaton (UTEP), Lieb (UTEP), Perez (UTEP)]	
<i>Stenaspis solitaria</i> Say	Say's Solitary Black Longhorned Beetle
[Hovore et al., 1987, Horne (UTEP)]	
Records: it was reported from IMRS HQ.	
<i>Sternidius mimeticus</i> (Casey)	Spotted Apple Tree Borer
Note: it was identified by E.G. Chapman, 2014, Univ. Kentucky. It needs verification as members of the genus are difficult to differentiate.	
<i>Tragidion</i> sp.	
[Lenhart (UTEP)]	
Note: it is a mimic of Tarantula Hawk wasp, <i>Pepsis</i> sp. Additional species need identification.	
CHRYSOMELIDAE (Leaf Beetle Family)	
<i>Acanthoscelides</i> sp. (2X sp.)	
[E.G. Riley, TAMU Entoblitz 2002]	
<i>Algarobius prosopis</i> (LeConte)	Masked Leaf Beetle
[E.G. Riley, TAMU Entoblitz 2002]	
<i>Calligrapha</i> sp.	
[Lenhart (UTEP)]	
<i>Chaetocnema</i> sp.	
[Worthington (UTEP)]	
<i>Chaetocnema ectypa</i> Horn	Desert Corn Flea Beetle
[E.G. Riley, TAMU Entoblitz 2002]	
<i>Diabrotica</i> sp.	
[Lenhart (UTEP)]	
<i>Disonycha</i> sp.	
[Lenhart (UTEP)]	
<i>Epitrix hirtipennis</i> (Melsheimer)	Tobacco Flea Beetle
[E.G. Riley, TAMU Entoblitz 2002]	
<i>Glyptina</i> sp.	
[E.G. Riley, TAMU Entoblitz 2002]	
<i>Monoxia</i> sp.	
[E.G. Riley, TAMU Entoblitz 2002]	
<i>Pachybrachis</i> sp. (3X sp.)	
[E.G. Riley, TAMU Entoblitz 2002]	
<i>Pachybrachis haematodes</i> Suffrian	Bloody Pachy Beetle
[E.G. Riley, TAMU Entoblitz 2002]	

<i>Pachybrachis subvittatus</i> LeConte [E.G. Riley, TAMU Entoblitz 2002]	Casebearing Scriptured Leaf Beetle
<i>Paranapiacaba tricincta</i> (Say) [Herrera (UTEP); Worthington (UTEP)]	Checkered Melon Beetle
<i>Phyllotreta</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Pteleon brevicornis</i> (Jacoby) [Lieb (UTEP)]	Short-horned Pteleon
<i>Stator</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
CLERIDAE (Checkered Beetle Family)	
<i>Cymatodera</i> sp. (2X sp.) [Lenhart (UTEP), E.G. Riley, TAMU Entoblitz 2002]	
<i>Cymbatodera dietrichi</i> Barr [E.G. Riley, TAMU Entoblitz 2002]	Dietrich's Checkered Beetle
<i>Phyllobaenus</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Phyllobaenus rudis</i> (Gorham) [E.G. Riley, TAMU Entoblitz 2002]	Rude Checkered Beetle
COCCINELLIDAE (Ladybird Beetle Family)	
<i>Novius virginalis</i> (Wickham) [E.G. Riley, TAMU Entoblitz 2002]	Virginal Ladybird Beetle
<i>Chilocorus cacti</i> (Linnaeus) [E.G. Riley, TAMU Entoblitz 2002, Worthington (UTEP)]	Cactus Ladybird Beetle
<i>Coleomegilla maculata</i> (Degeer) [Worthington (UTEP)]	Spotted Pink Ladybird Beetle
<i>Hippodamia convergens</i> Guérin-Ménéville [Worthington (UTEP), E.G. Riley, TAMU Entoblitz 200]	Convergent Ladybird Beetle
<i>Hyperaspidius</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Hyperaspis</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Olla v-nigra</i> (Mulsant) [E.G. Riley, TAMU Entoblitz 2002, Worthington (UTEP)]	Ashy Gray Ladybird Beetle
<i>Rhizobius lophanthae</i> (Blaisdell) [E.G. Riley, TAMU Entoblitz 2002]	Purple Scale Predator
<i>Scymnus</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Selvadius</i> sp. [E.G. Wiley, TAMU Entoblitz 2002]	
<i>Stethorus</i> sp. [E.G. Wiley, TAMU Entoblitz 2002]	
CRYPTOPHAGIDAE (Silken Fungus Beetle Family)	
<i>Anchicera</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Cryptophagus</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
CURCULIONIDAE (Snout Beetle and Weevil Family)	
<i>Cleonus quadrilineatus</i> (Chevrolat) [Worthington (UTEP)]	Four-lined Loco Weevil
<i>Gerstaeckeria</i> sp. [Lenhart (UTEP)]	
<i>Ophyrastes</i> sp. (2X sp.) [Lenhart (UTEP), E.G. Riley, TAMU Entoblitz 2002]	
<i>Pandeleteinus elytroplanatus</i> Howden [E.G. Riley, TAMU Entoblitz 2002]	Broad-nosed Weevil

<i>Peltohorus polymitus</i> (Boheman) [E.G. Riley, TAMU Entoblitz 2002]	Agave Weevil
<i>Sibinia</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Rhinostomus frontalis</i> (LeConte) [E.G. Riley, TAMU Entoblitz 2002]	Yucca Weevil
Note: additional UTEP IMRS species remain to be identified.	
DERMESTIDE (Carpet Beetle Family)	
<i>Cryptorhopalum</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Novelsis</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Dermestes marmoratus</i> Say [Lenhart (UTEP)]. Note: it is found on carrion.	Common Carrion Beetle
DYTISCIDAE (Predaceous Diving Beetle Family)	
<i>Bidessus</i> sp. [Davis, 2003]	
<i>Deronectes</i> sp. [Davis, 2003]	
<i>Dysticus habilis</i> Say [Larson et al., 2000, Horne (UTEP)] Record: Echo Spring.	Swift Diving Beetle
<i>Eretes sticticus</i> (Linnaeus) [Davis, 2003, Perez (UTEP)]	Western Eretes
<i>Laccophilus fasciatus</i> Aubé [E.G. Riley, TAMU Entoblitz 2002]	Banded Predaceous Diving Beetle
<i>Laccophilus horni</i> Van den Branden [E.G. Riley, TAMU Entoblitz 2002]	Horn's Predaceous Diving Beetle
<i>Laccophilus pictus</i> Laporte [E.G. Riley, TAMU Entoblitz 2002]	Painted Predaceous Diving Beetle
<i>Neoclypeodytes</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Neoclypeodytes cinctellus</i> (LeConte) E.G. Riley, TAMU Entoblitz 2002]	NCN
<i>Platambus semivittatus</i> (LeConte) [E.G. Riley, TAMU Entoblitz 2002]	NCN
<i>Rhantus gutticollis</i> (Say) [E.G. Riley, TAMU Entoblitz 2002]	NCN
<i>Thermonectus marmoratus</i> (Hope) [Davis, 2003, Herrera (UTEP), E.G. Riley, TAMU Entoblitz 2002, Worthington (UTEP)]	Sunburst Diving Beetle
<i>Uvarus</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
ELATERIDAE (Click Beetle Family)	
<i>Paradonis</i> sp. [Lenhart (UTEP) E.G. Riley, TAMU Entoblitz 2002] Note: our UTEP IMRS collections are not yet determined to species.	
ENDOMYCHIDAE (Handsome Fungus Beetle Family)	
<i>Holoparamecus</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
GEOTRUPIDAE (Earth-boring Dung Beetle Family) [Lenhart (UTEP)] Note: our UTEP IMRS collections are not yet determined to species.	
GYRINIDAE (Whirligig Beetle Family)	
<i>Dineutes</i> sp. [Lenhart (UTEP)]	

<i>Gyrinus</i> sp. [Lenhart (UTEP)]	
HALIPLIDAE (Crawling Water Beetle Family)	
<i>Peltodytes dispersus</i> Roberts [Davis, 2003, E.G. Riley, TAMU Entoblitz 2002]	Roberts's Crawling Water Beetle
HETERO CERIDAE (Variegated Mud-loving Beetle Family)	
<i>Heterocerus</i> sp. [Lenhart (UTEP)]	
HISTERIDAE (Clown Beetle Family)	
<i>Hololepta</i> sp. [Lenhart (UTEP)]	
Note: it was found on carrion. Additional UTEP IMRS collections are not yet determined.	
HYBOSORIDAE (Scavenger Scarab Beetle Family)	
<i>Hybosorus illigeri</i> Reiche [Worthington (UTEP)]	Small Scavenger Scarab Beetle
HYDROPHILIDAE (Water Scavenger Beetle Family)	
Additional UTEP IMRS collections are not yet determined.	
<i>Berosus</i> sp. (3X sp.) [Davis, 2003, E.G. Riley, TAMU Entoblitz 2002]	
<i>Berosus blechrus</i> Leech [E. G. Riley, TAMU Entoblitz 2002]	Palpicorn Water Scavenger Beetle
<i>Berosus hoplites</i> (Sharp) [E.G. Riley, TAMU Entoblitz 2002]	Hoplites Water Scavenger Beetle
<i>Berosus miles</i> LeConte [E.G. Riley, TAMU Entoblitz 2002]	Miles' Water Scavenger Beetle
<i>Chaetarthria</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Helochares</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Paracymus</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
<i>Hydrophilus triangularis</i> Say [Lenhart (UTEP)]	Giant Black Water Scavenger Beetle
<i>Tropisternus ellipticus</i> (LeConte) [E.G. Riley, TAMU Entoblitz 2002]	Small Hydrophilid Beetle
<i>Tropisternus lateralis</i> (Fabricius) [E.G. Riley, TAMU Entoblitz 2002].	Strudulating Water Scavenger Beetle
LAEMOPHLOEIDAE (Lined Flat Bark Beetle Family)	
<i>Cryptolestes</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
LAMPYRIDAE (Firefly Beetle Family)	
<i>Lucidota punctata</i> LeConte [Worthington (UTEP)]	Punctated Firefly Beetle
<i>Pleotomus nigripennis</i> LeConte [Lenhart (UTEP)]	Black-winged Firefly Beetle
LATRIDIIDAE (Minute Brown Scavenger Beetle Family)	
<i>Melanophthalma</i> sp. [E.G. Riley, TAMU Entoblitz 2002]	
LYCIDAE (Net-winged Beetle Family)	
Thanks to B. Mathison for this identification. Most UTEP IMRS collections are not yet determined.	
<i>Lycus fernandezi</i> Duges	Fernandez's Net-winged Beetle
Records: it was observed 9 August 2016 north of IMRS HQ in large arroyo after Y on road to windmill by V. Mata-Silva (UTEP).	

MELOIDAE (Blister Beetle Family)

Cysteodemus wizlizeni LeConte
[Horne (UTEP)]

Black Bladder-bodied Meloid

Records: it was observed on 25 August 2012 and on 29 September 2018 at the Rio Grande (The Box) by V. Mata-Silva (UTEP) (Photos); it was found dead during May 2021 at Lonely Tank by L.M. Horne (UTEP).

Epicauta atrivittata (LeConte)

Oasis Ranch Blister Beetle

Records: it was observed 7 May 2016 at Rattlesnake Tank by V. Mata-Silva (UTEP) and 17 June 2016 at IMRS HQ by J.D. Johnson (UTEP).

Note: all UTEP IMRS records were found on Mequite flowers and leaves.

Epicauta corvina LeConte

Burning Blister Beetle

[Hollebeke (UTEP), McClure (UTEP)]

Lytta sp.

[Lenhart (UTEP), Worthington (UTEP) as *Pleurospasta* sp.]

Nemognatha nigripennis LeConte

Black-winged Blister Beetle

[E.G. Riley, TAMU Entoblitz 2002]

Pleuropasta reticulata Van Dyke

Netted Blister Beetle

Records: it was observed 25 September 2015 at Peccary Tank by V. Mata-Silva (UTEP).

Note: thanks to J.S. Ascher for its identification. More UTEP IMRS collections are not yet determined to species.

MELYRIDAE (Soft-winged Flower Beetle Family)

Attalus sp. (2X sp.)

[E.G. Riley, TAMU Entoblitz 2002]

Attalus rufiventris Horn

Red-bellied Soft-winged Flower Beetle

[E.G. Riley, TAMU Entoblitz 2002]

Attalus serraticornis Fall

Serrated Horn Soft-winged Flower Beetle

[E.G. Riley, TAMU Entoblitz 2002]

Attalusinus sp.

[E.G. Riley, TAMU Entoblitz 2002]

Callops sp. (2X sp.)

[Worthington (UTEP), E.G. Riley, TAMU Entoblitz 2002]

Cradytes sp.

[E.G. Riley, TAMU Entoblitz 2002]

Dasytes sp.

[E.G. Riley, TAMU Entoblitz 2002]

Radalus lecontei Casey

Leconte's Soft-winged Flower Beetle

[E.G. Riley, TAMU Entoblitz 2002]

MORDELLIDAE (Tumbling Flower Beetle Family)

Our UTEP IMRS collections not yet determined to species.

MYCTERIDAE (Palm and Flower Beetle Family)

Mycterus canescens Horn

Grayish-white Palm and Flower Beetle

[E.G. Riley, TAMU Entoblitz 2002]

NITIDULIDAE (Sap-feeding Beetle Family)

Carpophilus sp.

[E.G. Riley, TAMU Entoblitz 2002]

Conotelus sp.

[E.G. Riley, TAMU Entoblitz 2002]

Cybocephalus sp.

[E.G. Riley, TAMU Entoblitz 2002]

Note: our IMRS collections are not yet determined to species. They are commonly found in *Opuntia* flowers.

OEDEMERIDAE (False Blister Beetle Family)

Our UTEP IMRS collections are not yet determined to species.

PHENGODIDAE (Glowworm Beetle Family)

Phengodes sp.

[Lenhart (UTEP)]

Note: the orange and black striped larval females are specialist predators on Millipedes. Males are rare and possess reduced elytra, plumose antennae, and sickle-shaped mandibles. Our UTEP IMRS collections are not yet determined to species.

PTINIDAE (Death-watch and Spinder Beetle Family)

Gastrallus fasciatus White

Banded Death-watch Beetle

[E.G. Riley, TAMU Entoblitz 2002]

Tricorynus estriatus (Horn)

Unlined Death-watch Beetle

[E.G. Riley, TAMU Entoblitz 2002]

Tricorynus sp.

[E.G. Riley, TAMU Entoblitz 2002]

RHIPIPHORIDAE (Wedge-shaped Beetle Family)

Rhipiphorus sp.

[E.G. Riley, TAMU Entoblitz 2002]

Note: our UTEP IMRS collections are not yet determined to species.

SALPINGIDAE (Narrow-waisted Bark Beetle Family)

Elacatis sp.

[E.G. Riley, TAMU Entoblitz 2002]

Note: our UTEP IMRS collections are not yet determined to species.

SCARABAEIDAE (Lamellicorn Beetle Family)

Subfamily: APHODIINAE (Aphodiine Dung Beetles)

Ataenius sp.

[Lenhart (UTEP), E.G. Riley, TAMU Entoblitz 2002]

Note: Our UTEP IMRS collections are not yet determined to species.

Subfamily: CETONIINAE (Fruit and Flower Chafers)

Cotinus mutabilis Gory and Percheron

Figearer Beetle

[Herrera (UTEP), E.G. Riley, TAMU Entoblitz 2002]

Euphoria sp.

[Lenhart (UTEP)]

Subfamily: DYNASTINAE (Rhinoceros Beetles)

Oxygryllus ruginasus (LeConte)

Reddish June Beetle

[Worthington (UTEP)]

Subfamily: MELOLONTHINAE (May Beetles)

Diplotaxus sp. (2X sp.)

[Worthington (UTEP), E.G. Riley, TAMU Entoblitz 2002]

Phyllophaga ignava (Horn)

Lazy May Beetle

[Worthington (UTEP)].

Subfamily: SCARABAEINAE (Dung Beetles)

We thank E.G. Riley for making the following determinations.

Canthon sp.

[Lenhart (UTEP)]

Onthophagus gazelle (Fabricius)

Gazelle Scarab Beetle

[Lenhart (UTEP)]

SCRAPTIIDAE (False Flower Beetle Family)

Canifa sp.

[E.G. Riley, TAMU Entoblitz, 2002]

Naucles sp.

[E.G. Riley, TAMU Entoblitz 2002]

Pentaria sp.

[E.G. Riley, TAMU Entoblitz 2002]

Scraptia sp.

[E.G. Riley, TAMU Entoblitz 2002]

SILPHIDAE (Carrion Beetle Family)

Nicrophorus marginatus Fabricius
[Lenhart (UTEP)]

Margined Burying Beetle

Records: the partial remains of this beetle were found in a pit-fall trap at IMRS HQ
(J.D. Johnson, UTEP).

STAPHYLINIDAE (Rover Beetle Family)

Our UTEP IMRS collections are not yet determined to species.

TENEBRIONIDAE (Darkling Beetle Family)

Additional UTEP IMRS collections are not yet determined to species.

Asbolus mexicanus (Champion)
[Aalbu, 1985, Mead (UTEP)]
Records: IMRS HQ.

Mexican Darkling Beetle

Blapstinus sp.
[E.G. Riley, TAMU Entoblitz 2002]

Texas Darkling Beetle

Centrioptera texana Blaisdell
[Lieb (UTEP)]

Cynaesus angustus (LeConte)
[E.G. Riley, TAMU Entoblitz 2002]

Larger Black Flour Beetle

Eleodes sp.
[Lenhart (UTEP)]
Eleodes longicollis LeConte
[Triplehorn et al., 2009, Horne (UTEP)]

Desert Stink Beetle

Eleodes spinipes Solier
[E.G. Riley, TAMU Entoblitz 2002]

Large Darkling Beetle

Embaphion contusum LeConte
[Lenhart (UTEP)]

Subdued Darkling Beetle

Harpalus rufipes (De Geer)
[Lenhart (UTEP)]

Strawberry Seed Darkling Beetle

Hymenorus sp.
[E.G. Riley, TAMU Entoblitz 2002]

Mean Darkling Beetle

Philolithus sordidus (LaConte)
[Lenhart (UTEP)]

Invisible Darkling Beetle

Stenomorpha obliterata (Champion)
[Lenhart (UTEP); E.G. Riley TAMU Entoblitz 2002]

Triorophus laevis LeConte
[Mata-Silva (UTEP)]

Smooth Darkling Beetle

Triorophus nodiceps LeConte
[E.G. Riley, TAMU Entoblitz 2002]

Knotty Darkling Beetle

TROGIDAE (Hide Beetle Family)

Omorgus suberosus (Fabricius)
[Herrera (UTEP)]

Hastate Hide Beetle

Note: it is found on carrion at IMRS (J.D. Johnson, UTEP).

TROGOSSITIDAE (Bark Gnawing Beetle Family)

Our UTEP IMRS collections are not yet determined to species.

ZOPHERIDAE (Ironclad Beetle Family)

Bitoma gracilis (Sharp)
[E.G. Riley, TAMU Entoblitz 2002]

Cylindrical Bark Beetle

Hyporhagus sp.
[E.G. Riley, TAMU Entoblitz 2002]

Order: DERMAPTERA (Earwigs)

ANISOLABIDIDAE (Earwig Family)

Euborellia annulipes (Lucas)

[Lenhart (UTEP)]

Ring-legged Earwig

LABIDURIDAE (Striped Earwig Family)

Labidura repara (Pallas)

[Perez (UTEP), Lenhart (UTEP)]

Shore Earwig

SPONGIPHORIDAE (Little Earwig Family)

Vostox apicedentatus (Caudell)

[Lenhart (UTEP)]

Toothed Earwig

Order: MANTODEA (Mantids)

MANTIDAE (Mantids)

Litaneutria sp.

[Lenhart (UTEP)]

Stagmomantis californica Rehn and Hebard

[McClure (UTEP)]

California Mantis

Order: BLATTODEA (Cockroaches and Termites)

CORYDIIDAE (Sand Cockroach Family)

Males in this family are winged and attracted to lights at night. Females are wingless and burrow in sandy areas. Some of our UTEP IMRS collections not yet determined to species.

Arenivaga sp.

[Lenhart (UTEP)]

Note: our UTEP IMRS collections not yet determined to species.

Desert Cockroach

Eremoblatta sp.

[Lenhart (UTEP)]

ECTOBIIDAE (German Cockroach Family)

Blatella sp.

[Lenhart (UTEP)]

RHINOTERMITIDAE (Subterranean Termite Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

TERMITIDAE (Higher Termite Family)

Termites made up the majority of food items eaten by two teiid lizards, *Aspidoscelis marmoratus* and *Aspidoscelis tessellatus* on IMRS (Mata-Silva, 2005, Mata-Silva et al., 2013).

Gnathamitermes sp.

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

Tube Building Termites

Order: DIPTERA (Flies)

ASILIDAE (Robber Fly Family)

Efferia argyrosoma (Hine)

[Worthington (UTEP)]

Argyrosoma Robber Fly

Efferia kelloggi (Wilcox)

[Worthington (UTEP)]

Kellogg's Robber Fly

<i>Efferia luna</i> (Wilcox)	Luna Robber Fly
[Worthington (UTEP)]	
<i>Efferia tuberculata</i> (Coquillett)	Tuberculated Robber Fly
[Worthington (UTEP)]	
Note: thanks to G. Forbes for its identification.	
<i>Mallophora</i> sp.	
[Lenhart (UTEP)]	
<i>Ospriocerus</i> sp.	
[Lenhart (UTEP)]	
<i>Proctacanthella exquisite</i> (Osten-Sacken)	Exquisite Robber Fly
[Lenhart (UTEP)]	
Note: thanks to E. Fisher for its identification.	
BIBIONIDAE (March Fly Family)	
[Lenhart (UTEP)]	
Note: our UTEP IMRS collections are not yet determined to species	
BOMBYLLIDAE (Bee Fly Family)	
[Lenhart (UTEP)]	
Note: our UTEP IMRS collections are not yet determined to species.	
<i>Anthrax</i> sp.	
[Horne (UTEP)]	
CALLIPHORIDAE (Blow Fly Family)	
[Lenhart (UTEP)]	
Note: our UTEP IMRS collections are not yet determined to species.	
CHAOBORIDAE (Phantom Midge Family)	
<i>Chaoborus</i> sp.	
[Davis, 2003]	
CHIRONOMIDAE (Non-biting Midge Family)	
<i>Chironomus</i> sp.	
[Davis, 2003]	
<i>Pentaneura</i> sp.	
[Davis, 2003]	
CULICIDAE (Mosquito Family)	
<i>Anopheles</i> sp.	
[Davis, 2003]	
<i>Culista inornata</i> (Williston)	Winter Marsh Mosquito
[Davis, 2003]	
<i>Uranotaenia</i> sp.	
[Davis, 2003]	
DOLICHOPIDIDAE (Longlegged Fly Family)	
[Lenhart (UTEP)]	
Note: our UTEP IMRS collections are not yet determined to species.	
DROSOPHILIDAE (Fruit Fly Family)	
[Lenhart (UTEP)]	
Note: our UTEP IMRS collections are not yet determined to species.	
MUSCIDAE (House Fly Family)	
<i>Musca domestica</i> Linnaeus	House Fly
[Lenhart (UTEP)]	
<i>Stomoxys calcitrans</i> (Linnaeus)	Stable Fly
[Lenhart (UTEP)]	
MYDIDAE (Mydas Fly Family)	
[Lenhart (UTEP)]	
Note: our UTEP IMRS collections are not yet determined to species.	
NERIIDAE (Cactus Fly Family)	
<i>Odontoloxozus longicornis</i> (Coquillett)	Longhorn Cactus Fly
[Lenhart (UTEP)]	

NYCTERIBIIDAE (Bat Fly Family)

Basilisa antrozoi (Townsend)

Antrozoi Bat Fly

[Lenhart (UTEP)]

Note: these wingless spider-like flies are ectoparasites on Pallid Bats, *Antrozous Pallidus*, which have a night roost at entrance to IMRS HQ bathrooms.

OESTRIDAE (Bot Fly Family)

Cuterebra sp.

[Lenhart (UTEP)]

Note: the larvae, which can be 2.5 cm long, infest the skin of Mammals. Adults are short-lived, do not feed, and are seldom seen.

SARCOPHAGIDAE (Flesh Fly Family)

Sarcophaga sp.

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

SIMULIIDAE (Black Fly Family)

Simulium sp.

[Davis, 2003]

STRATIOMYIDAE (Soldier Fly Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

SYRPHIDAE (Flower Fly Family)

Copestylum mexicana (Macquart)

Mexican Flower Fly

[Lenhart (UTEP)]

Eristalis tenax (Linnaeus)

Drone Fly

[Barton, López, and Villaseñor, UTEP Field Biology, 2007]

Note: our additional UTEP IMRS collections are not yet determined to species.

TABANIDAE (Horse and Deer Fly Family)

Tabanus punctifer Osten Sacken

Western Horse Fly

[Lenhart (UTEP)]

TIPULIDAE (Crane Fly Family)

Prionocera sp.

[Davis, 2003]

TACHINIDAE (Parasitic Fly Family)

[Lenhart (UTEP)]

Archytas metallicus (Robineau-Desvoidy)

Metallic Bristle Fly

Records: it was observed 18 August 2017 near Echo Spring by V. Mata-Silva (UTEP).

Note: thanks to J.F. Carr for its identification.

Order: EPHEMEROPTERA (Mayflies)

Our UTEP IMRS collections not yet determined to species.

Order: HEMIPTERA (True Bugs)

Suborder: AUCHENORRHYNCHA (Cicadas, Planthopper, Leafhopper, and Treehopper Families)

CICADELLIDAE (Leafhopper Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

CICADIDAE (Cicada Family)

Beameria venosa (Uhler)

Aridland Cicada

[Lenhart (UTEP), Mata-Silva (UTEP)]

Cacama valvata (Uhler)

Common Cactus Dodger

[Lenhart (UTEP), Worthington (UTEP)]

- Diceroprocta eugraphica* (Davis) **Scrub Cicada**
 [Lenhart (UTEP), Mata-Silva (UTEP)]
- Hadoa townsendii* (Uhler) **Townsend's Cicada**
 [Lenhart (UTEP)]
Note: thanks to A.F. Sandborn for its identification.
- CIXIIDAE (Cixiid Planthopper Family)**
 [Dash (UTEP)]
Note: our UTEP IMRS collections are not yet determined to species.
- DELPHACIDAE (Delphacid Planthopper Family)**
 [Dash (UTEP)]
Note: our UTEP IMRS collections are not yet determined to species.
- DERBIDAE (Derbid Planthopper Family)**
Cedusa sp.
 [Dash (UTEP), Lenhart (UTEP)]
Note: our UTEP IMRS collections are not yet determined to species.
- FULGORIDAE (Fulgorid Planthopper Family)**
Poblicia sp.
 [Lenhart (UTEP)]
- Poblicia fuliginosa* (Oliver) **Fuliginose Planthopper**
Records: it was observed 24 September 2016 near junction to Purple Sage Mine Road
 and Main Road by V. Mata-Silva (UTEP).
Note: thanks to Y. Alexander for its identification.
- MEMBRACIDAE (Treehopper Family)**
 [Lenhart (UTEP)]
Note: or UTEP IMRS collections are not yet determined to species.

Suborder: HETEROPTERA (Aquatic and Semiaquatic Bugs)

- ALYDIDAE (Broad Headed Bug Family)**
 [Lenhart (UTEP)]
Note: our UTEP IMRS collections are not yet determined to species.
- BELOSTOMATIDAE (Giant Water Bug Family)**
Lethocerus medius (Guérin-Méneville) **Giant Water Bug**
 [Davis, 2003, Mata-Silva et al., 2012, Menke, 1963, Herrera (UTEP),
 Horne (UTEP), McClure (UTEP), Worthington (UTEP)]
Records: this large predaceous bug inhabits Echo Spring and occasionally Double Tank
 and Red Tank. It sometimes is attracted to lights around IMRS HQ.
- COREIDAE (Leaf-footed Bug Family)**
 Additional UTEP IMRS collections are not yet determined to species.
- Acanthocephala thomasi* Uhler **Giant Agave Bug**
 [Lenhart (UTEP)]
- Chelinidea vittiger* Uhler **Cactus Coreid**
 [Lenhart (UTEP)]
- Leptoglossus clypealis* Heidemann **Western Leaf-footed Bug**
 [Brailovsky, 2014, Horne (UTEP), Lenhart (UTEP)]
- Narnia* sp.
 [Lenhart (UTEP)]
- CORIXIDAE (Water Boatman Family)**
Graptocorixa abdominalis (Say) **Water Boatman**
 [Davis, 2003]
Records: it was collected at Echo Spring and Identified at TAMU.
Note: another UTEP IMRS collection is not yet identified to species.

CYDNIDAE (Burrowing Bugs)	
<i>Pangaeus bilineatus</i> (Say)	Peanut Burrowing Bug
[Worthington (UTEP)]	
GERRIDAE (Water Strider Family)	
<i>Gerris marginatus</i> Say	Marginal Water Strider
[Davis, 2003]	
Records: it was reported at Echo Spring.	
GELASTOCORIDAE (Toad Bug Family)	
<i>Gelastocoris rotundatus</i> Champion	Round Toad Bug
[Davis, 2003]	
Records: it was collected at Echo Spring and identified at TAMU.	
LARGIDAE (Bordered Plant Bug Family)	
<i>Largus</i> sp.	
[Lenhart (UTEP)]	
MIRIDAE (Plant Bug Family)	
(Lenhart (UTEP))	
Note: our IMRS collections are not yet determined to species.	
NABIDAE (Damsel Bug Family)	
[Lenhart (UTEP)].	
Note: our IMRS collections are not yet determined to species.	
NAUCORIDAE (Creeping Water Bug Family)	
<i>Ambrysus circumcinctus</i> Montandon	Belted Creeping Water Bug
[Davis, 2003, Worthington (UTEP)]	
Records: it was collected at Echo Spring and identified at TAMU.	
NEPIDAE (Waterscorpion Family)	
<i>Ranatra</i> sp.	
[Lenhart (UTEP)]	
NOTONECTIDAE (Backswimmer Family)	
<i>Buenoa</i> sp.	
[Lenhart (UTEP)]	
<i>Notonecta lobata</i> Hungerford	Red-backed Backswimmer
[Davis, 2003, Worthington (UTEP)]	
Records: it was reported from Echo Spring.	
Note: thanks to F. Truxal for its identification.	
<i>Notonecta unifasciata</i> Guérin-Méneville	Guérin-Méneville's Backswimmer
[Davis, 2003].	
Records: it was collected at Echo Spring and identified at TAMU.	
PENTATOMIDAE (Stink Bug Family)	
<i>Brochymena</i> sp.	
[Lenhart (UTEP)]	
<i>Chlorochroa</i> sp. (2X sp.)	
[Lenhart (UTEP), Worthington (UTEP)]	
<i>Mecidea</i> sp.	
[Lenhart (UTEP)]	
<i>Murgantia histrionica</i> (Hahn)	Harlequin Bug
[Lenhart (UTEP)]	
REDUVIIDAE (Assassin Bug Family)	
<i>Apiomerus</i> sp.	Bee Assassin
[Lenhart (UTEP)]	
<i>Phymata</i> sp.	Ambush Bug
[Lenhart (UTEP)]	
<i>Rasahus</i> sp.	
[Lenhart (UTEP)]	
<i>Rhiginia</i> sp.	
[Lenhart (UTEP)]	

Sinea sp.

[Lenhart (UTEP)]

Triatoma rubida (Uhler)

[Lenhart (UTEP)]

Zelus renardii Kolenati

[Worthington (UTEP)]

VELIIDAE (Small Water Strider Family)

Microvelia sp.

[Davis, 2003]

Records: it was collected at Echo Spring and identified at TAMU.

Bloodsucking Conenose

Leafhopper Assassin Bug

Suborder: STERNORRHYNCHA

APHIDIDAE (Aphid Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

DACTYLOPIIDAE (Cochineal Scale Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

PSEUDOCOCCIDAE (Mealybug Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

Order: HYMENOPTERA (Bees, Ants, Wasps, and Sawflies)

ANDRENIDAE (Miner Bee Family)

Perdita stathamae Timberlake

[John Neff, TAMU Entoblitz 2002]

Lost Miner Bee

Ptotoxaea gloriosa (Fox)

Glorious Protoxea

Records: it was observed 9 July 2013 near Rattlesnake Tank by V. Mata-Silva (UTEP).

Note: thanks to J.S. Ascher for its identification.

APIDAE (Bee Family)

Additional UTEP IMRS collections are not yet determined to species.

Anthophora californica Cresson

[John Neff, TAMU Entoblitz 2002]

California Digger Bee

Apis mellifera Linnaeus

[John Neff, TAMU Entoblitz 2002]

Western Honeybee

Note: Mata-Silva, Johnson, and Juarez-Reina, 2006, reported honeybee killing a Texas Earless Lizard, *Cophosaurus texanus*.

Centris atripes Mocsáry

[John Neff, TAMU Entoblitz 2002]

Black-footed Oil-digger Bee

Ceratina neomexicana Cockrell

[John Neff, TAMU Entoblitz 2002]

New Mexico Small Carpenter Bee

Nomada sp.

[John Neff, TAMU Entoblitz 2002]

Townsendiella pulchra Crawford

[John Neff, TAMU Entoblitz 2002]

Townsend's Cuckoo Bee

Xylocopa californica Cresson

[John Neff, TAMU Entoblitz 2002]

Western Carpenter Bee

BETHYLIDAE (Flat Wasp Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

BRACONIDAE (Braconid Wasp Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

CABRONIDAE (Square-headed Wasp Family)

Phylanthus gibbosus (Fabricius)

Beewolf Square-headed Wasp

Records: it was observed 21 October 2016 at IMRS HQ by V. Mata-Silva (UTEP).

Note: thanks to J. Ascher for its identification.

CHRYSIDIDAE (Cuckoo Wasp Family)

[Lenhart (UTEP)]

Note: our UTEP IMRS collections are not yet determined to species.

CHYPHOTIDAE (Chyphotid Wasp Family)

[Lenhart (UTEP)]

Note: oue UTEP IMRS collection has not yet been determined to species.

COLLETIDAE (Plasterer Bee Family)

Other UTEP IMRS collections are not yet determined to species.

Colletes phaceliae Cockrell

Scorpionweed Plasterer Bee

[John Neff, TAMU Entoblitz 2002]

Note: this may be a synonym of *C. salcicola*.

Colletes salcicola Cockerell

Salcicola Plasterer Bee

[John Neff, TAMU Entoblitz 2002]

Hylaeus episcopalis Cockrell

Coquillett's Masked Bee

[John Neff, TAMU Entoblitz 2002]

FORMICIDAE (Ant Family)

Novomessor cockerelli Andre

Cockerell's Red Ant

[Hollebeke, 1991, Mata-Silva (UTEP), Riveroll (UTEP)]

Camponotus festinatus (Buckley)

Desert Carpenter Ant

[Hollebeke, 1991]

Camponotus ulcerosus Wheeler

Ulcerous Carpenter Ant

[Lenhart (UTEP), Riveroll (UTEP)]

Crematogaster depilis Wheeler

Hairless Acrobat Ant

[Morgan (UTEP)]

Crematogaster laeviuscula Mayr

Shiny Acrobat Ant

[Morgan (UTEP)]

Crematogaster larrea Buren

Creosote Acrobat Ant

[Morgan (UTEP)]

Cyphomyrmex wheeleri Forel

Wheeler's Fungus Growing Ant

[Lenhart (UTEP)]

Dorymyrmex insanus Buckley

Crazy Pyramid Ant

[Hollebeke, 1991]

Forelius mccooki McCook

McCook's Asbestos Ant

[Hollebeke, 1991]

Forelius pruinosus (Roger)

High Noon Asbestos Ant

[Mata-Silva (UTEP)]

Hypoponera opaciceps (Mayr)

Granulate Mini Ponerine Ant

[Dash (UTEP)]

Monomorium cyaneum Wheeler

Wheeler's Cyaneum Ant

[Hollebeke, 1991]

Myrmecocystus depilis Forel

Hirless Honeypot Ant

[Hollebeke, 1991]

Myrmecocystus flaviceps Wheeler

Yellow-headed Honeypot Ant

[Hollebeke, 1991]

Myrmecocystus mimicus Wheeler

Farcical Honeypot Ant

[Hollebeke, 1991]

Myrmecocystus romainei Snelling

Romanian Honeypot Ant

[Mata-Silva (UTEP)]

<i>Neivamyrmex</i> sp. [Dash (UTEP)] Reports: raiding swarms of these army ants were observed at Echo Spring.	Common Army Ant
<i>Odontomachus clarus</i> Roger [Mackay (UTEP)]	Clear Trapjawed Ant
<i>Pheidole soritis</i> Wheeler [Hollebeke, 1991]	Wheeler' Sorited Ant
<i>Pogonomyrmex apache</i> (Wheeler) [Riveroll (UTEP)]	Apache Harvester Ant
<i>Pogonomyrmex barbatus</i> (Smith) [Mata-Silva (UTEP)]	Red Harvester Ant
<i>Pogonomyrmex imberbicus</i> Wheeler [Mata-Silva (UTEP), Worthington (UTEP)]	Wheeler's Imberbicated Ant
<i>Pogonomyrmex maricopa</i> Wheeler [Riveroll (UTEP)]	Maricopa Harvester Ant
<i>Pogonomyrmex rugosus</i> (Emery) [Riveroll (UTEP)]	Rough Harvester Ant
<i>Solenopsis aurea</i> Wheeler [Hollebeke, 1991]	Golden Fire Ant
<i>Solenopsis molesta</i> (Say) [Hollebeke, 1991]	Grease Ant
<i>Temnothorax bristoli</i> Mackay [Mackay, 2000] Note: its type locality is on IMRS.	Bristol's Acorn Ant
<i>Temnothorax liebi</i> Mackay [Mackay, 2000] Note: its type locality is on IMRS.	Lieb's Acorn Ant
<i>Tetramorium hispidum</i> (Wheeler) [Mata-Silva (UTEP)] Note: Hollebeke, 1991, yielded specimens verified by W.A. Mackay (UTEP). Presumably, vouchers are in Mackay's UTEP collection.	Hispid Acorn Ant
HALICTIDAE (Sweat Bee Family)	
<i>Lasioglossum sepmicaeruleum</i> (Cockerell) [John Neff, TAMU Entoblitz 2002]	Half-blue Metallic Sweat Bee
<i>Lasioglossum morrilli</i> (Cockerell) [John Neff, TAMU Entoblitz 2002] Note: other UTEP IMRS collections are not yet determined to species.	Morrill's Sweat Bee
<i>Lasioglossum sisymbrii</i> (Cockerell) Records: it was observed 11 June 2017 at IMRS HQ by V. Mata-Silva (UTEP). Note: thanks to J.S. Ascher for its identification.	Tansy Mustard Sweat Bee
ICHNEUMOPNIDAE (Ichneumon Wasp Family)	
[Lenhart (UTEP)] Note: our UTEP IMRS collections are not yet determined to species.	
MEGACHILIDAE (Leaf-cutter Bee Family)	
<i>Anthidium sockerelli</i> Schwartz [John Neff, TAMU Entoblitz 2002]	Sockerell's Leaf-cutter Bee
<i>Ashmeadiella erema</i> Michener [John Neff, TAMU Entoblitz 2002]	Desert Leaf-cutter Bee
<i>Ashmeadiella bigeloviae</i> (Cockerell) [John Neff, TAMU Entoblitz 2002]	Bigelov's Leaf-cutter Bee
<i>Lithurgus</i> sp. [Lenhart (UTEP)] Note: thanks to E. Eaton for this identificatin. Our other UTEP IMRS collections not yet determined to species.	
<i>Megachile odontostoma</i> Cockerell [John Neff, TAMU Entoblitz 2002]	Cockerell's Leaf-cutter Bee

<i>Megachile prosopidis</i> Cockerell [John Neff, TAMU Entoblitz 2002]	Prosopidis Leaf-cutter Bee
<i>Megachile gentilis</i> Cresson [John Neff, TAMU Entoblitz 2002]	Common Leaf-cutter Bee
<i>Megachile lippiae</i> Cockerell [Dash (UTEP), John Neff, TAMU Entoblitz 2002]	Lippia Leaf-cutter Bee
<i>Megachile newberryae</i> Cockerelle [John Neff, TAMU Entoblitz 2002]	Newberry's Leaf-cutter Bee
<i>Megachile polycaris</i> Say [John Neff, TAMU Entoblitz 2002]	Thumbed Leaf-cutter Bee
<i>Megachile sidalceae</i> Cockerelle [Dash (UTEP)] Records: it was reported from near IMRS HQ. Note: thanks to J.S. Ascher for its identification.	Silver-tailed Petal-cutter Bee
<i>Osmia</i> sp. [John Neff, TAMU Entoblitz 2002]	
<i>Osmia subfasciata</i> Cresson [John Neff, TAMU Entoblitz 2002]	Punctate Mason Bee
MELITTIDAE (Melittid Bees)	
<i>Hesperapis larreae</i> Cockerell [John Neff, TAMU Entoblitz 2002]	Creosote Evening Bee
MUTILLIDAE (Velvet Ant Family)	
<i>Dasymutilla</i> sp. [Lenhart (UTEP)]	
<i>Dasymutilla gloriosa</i> (Saussure) [Lenhart (UTEP)] Note: additional UTEP IMRS collections are not yet determined to species.	Thistledown Velvet Ant
POMPILIDAE (Spider Wasp Family)	
<i>Pepsis</i> sp. [Lenhart (UTEP)] Note: our UTEP IMRS collections are not yet determined to species.	
SCOLIIDAE (Scoliid Wasp Family)	
<i>Scolia</i> sp. [Lenhart (UTEP)] Note: our UTEP IMRS collections are not yet determined to species.	
SPHECIDAE (Threadwaisted Wasp Family)	
<i>Ammophila</i> sp. [Lenhart (UTEP)]	
<i>Sceliphron caementarium</i> (Drury) [Lenhart (UTEP)]	Black and Yellow Muddauber Wasp
<i>Sphecius grandis</i> Say [Lenhart (UTEP)]	Western Cicada Killer Wasp
<i>Sphex pensylvanicus</i> (Linnaeus) Records: it was observed 22 September 2017 at Echo Spring by V. Matta-Silva (UTEP). Note: thanks to J.S. Ascher for its identification. Additional UTEP IMRS collections are not yet determined to species.	Great Black Wasp
TIPHIIDAE (Tiphid Wasp Family) [Lenhart (UTEP)] Note: our UTEP IMRS collections are not yet determined to species.	
VESPIDAE (Hornets and Paper Wasp Family) Additional UTEP IMRS collections are not yet determined to species.	
<i>Eumenes</i> sp. [Lenhart (UTEP)]	
<i>Eurodynerus</i> sp. [Lenhart (UTEP)]	

- Polistes apachus* Saussure **Apache Paper Wasp**
 [Bequaert, 1940, Horne (UTEP)]
- Polistes comanchus* Saussure **Comanche Paper Wasp**
 [Bequaert, 1940, Lenhart (UTEP)]
Records: it was observed 19 August 2017 near Echo Spring by V. Mata-Silva [Photo].
- Polistes flavus* Cresson **Yellow Paper Wasp**
 [Bequaert, 1940, Dash (UTEP), Lenhart (UTEP)]
Records: it was observed 21 October 2016 at IMRS HQ by V. Mata-Silva (UTEP).
Note: additional UTEP IMRS collections have not yet been determined to species.

Order: ISOPTERA (Termites)

Unidentified termites made up the majority of the food items eaten by *Aspidoscelis marmoratus* and *A. tessellatus* on IMRS (Mata-Silva, 2005, Mata-Silva et al., 2013).

Order: LEPIDOPTERA (Moths and Butterflies)

CRAMBIDAE (Crambid Snout Moths Family)

- Epipagis fenestralis* (Hübner) **Orange Epipagis Moth**
 [Worthington (UTEP)]
- Mimoschinia rufofascialis* (Stephens) **Rufus-banded Crambid Moth**
 [Worthington (UTEP)]
- Mojavia achemonalis* (Barnes and McDunnough)
Records: it was observed 6 October 2017 at MRS HQ by V. Mata-Silva (UTEP).
Note: thanks to K. Austin for its identification.

EREBIDAE (Erebid Moths)

- Ascalapha odorata* (Linnaeus) **Black Witch Moth**
Records: it was observed 9 July 2013 at Echo Spring by V. Mata-Silva (UTEP).
Note: thanks to B. Woo for its identification.
- Cisthene angelus* (Dyar) **Angel Lichen Moth**
 [Worthington (UTEP)]
- Pygarctia murina* (Stretch) **Mousey Tiger Moth**
 [Worthington (UTEP)]

GEOMETRIDAE (Geometer Moth Family)

- Chlorospilates bicoloraria* Packard **Bicolored Chloraspilates Moth**
 [Worthington (UTEP)]
- Glaucina* sp.
 [Worthington (UTEP)]
- Rindgea cyda* Druce **Mesquite Looper Moth**
 [Worthington (UTEP)]
- Semiothisa* sp.
 [Worthington (UTEP)]
- Marcaria pallipennata* (Barnes and McDunnough) **NCN**
Records: it was observed 8 July 2017 at IMRS HQ by V. Mata-Silva (UTEP) [Photo].
Note: thanks to K. Austin for its identification.

LYCAENIDAE (Hairstreak, Copper, and Blue Butterfly Family)

- Echinargus isola* (Reakirt) **Isola's Blue Butterfly**
 [Worthington (UTEP)]

HESPERIIDAE (Skipper Butterfly Family)

- Copaeodes aurantiacus* (Hewitson) **Orange Skipperling Butterfly**
 [Worthington (UTEP)]
- Pygrus albescens* Plotz **White Checkered Skipper Butterfly**
 [Worthington (UTEP)]

NOCTUIDAE (Owlet Moth Family)

- Basilodes chrysopsis* Grote **Grote's Owlet Moth**
 [Worthington (UTEP)]

<i>Cobubantha orthozona</i> (Hampson) [Worthington (UTEP)]	NCN
<i>Copanarta aurea</i> (Grote) [Worthington (UTEP)]	NCN
<i>Euscirrhopterus cosyra</i> (Druce) [Worthington (UTEP)]	Staghorn Cholla Moth
<i>Helicoverpa zea</i> (Boddie) [Worthington (UTEP)]	Corn Earworm Moth
Records: it was observed 8 July 2017 at IMRS HQ by V. Mata-Silva (UTEP). Note: thanks to K. Austin for its identification.	
<i>Lacinipolia buscki</i> (Barnes and Benjamin) [Worthington (UTEP)]	NCN
<i>Leucocnemis perfundis</i> (Smith) [Worthington (UTEP)]	NCN
<i>Lineostriastiria hachita</i> (Barnes) Records: it was observed 7 October 2017 at IMRS HQ by V. Mata-Silva (UTEP).	
<i>Marathyssa inflicta</i> (Walker) [Worthington (UTEP)]	Dark Marathyssa Moth
<i>Mastigramma rubrosuffusa</i> Grote [Worthington (UTEP)]	Grote's Rubrosuffusa Owlet Moth
<i>Policocnemis ungulatus</i> (Benjamin) Records: it was observed 18 August 2017 at IMRS HQ by V. Mata-Silva (UTEP) [Photo]. Note: thanks to B. Biagi for its identification.	NCN
<i>Ponometia cuta</i> (Smith) [Worthington (UTEP)]	Cuta Bird Dropping Moth
Records: it was observed 18 July 2017 at IMRS HQ by V. Mata-Silva (UTEP) [Photo]. Note: thanks to K. Austin for its identification.	
<i>Ponometia libedis</i> (Smith) [Worthington (UTEP)]	Libedis Bird Dropping Moth
NYMPHALIDAE (Brush-footed Butterfly Family)	
<i>Chlosyne chinatiensis</i> (Tinkham) [Perez (UTEP), McClure (UTEP)]	Chinati Checkerspot Butterfly
<i>Danaus gilippus</i> (Cramer) [Lenhart (UTEP)]	Queen Butterfly
<i>Danaus plexippus</i> (Linnaeus) Records: 20 April 2024 at the Rio Grande (The Box) by M. Montoya (UTEP) [Photo].	Monarch Butterfly
<i>Euptoieta claudia</i> (Cramer) Records: it was observed 1 April 2016 at Corral Tank area by K. Garza (UTEP) [Photo].	Variegated Fritillary Butterfly
<i>Junonia coenia</i> (Hübner) Records: it was observed 30 July 2017 at Oak Arroyo by K. Garza (UTEP) [Photo].	Common Buckeye Butterfly
<i>Phycioides phaon</i> (Edwards) [Worthington (UTEP)]	Phaon Crescent Butterfly
<i>Vanessa atalanta</i> (Linnaeus) [Lenhart (UTEP)]	Red Admiral Butterfly
<i>Vanessa cardui</i> (Linnaeus) Records: it was observed 13 November 2016 in Prospect Pits Arroyo by K. Garza (UTEP) [Photo].	Painted Lady Butterfly
PAPILIONIDAE (Swallowtail Butterfly Family)	
<i>Battus philenor</i> (Linnaeus) Records: it was observed 19 July 2014 at Echo Spring by V. Mata-Silva (UTEP) [Photo].	Pipevine Swallowtail Butterfly
<i>Papilio polyxenes</i> Fabricius [Lenhart (UTEP)]	Black Swallowtail Butterfly
PIERIDAE (Sulphur, White, and Orange-tip Butterfly Family)	
<i>Colias caesonia</i> Stoll [Worthington (UTEP)]	Southern Dogface Butterfly

<i>Nathalia isole</i> Boisduval [Worthington (UTEP)]	Boisduval's Nathalia Butterfly
<i>Phoebis sennae</i> Linnaeus [Worthington (UTEP)]	Cloudless Sulphur Butterfly
<i>Pontia protodice</i> Boisduval and Leconte Records: it was observed 13 November 2016 in Prospect Pits Arroyo by K. Garza (UTEP) [Photo].	Checkered White Butterfly
SATURNIDAE (Silkworm and Royal Moth Family)	
<i>Agapema dyari</i> (Cockerell) Records: it was observed at IMRS HQ by V. Mata-Silva (UTEP) [Photo]. Note: thanks to R. St. Laurent for identification..	Chihuahuan Agapema Moth
<i>Anisota oslari</i> Rothschild [Garza et al., 2018] Records: it was observed fall 2017 in Montane Oak Wash and Oak Arroyo by K. Garza (UTEP) [Photo].	Oslar's Oakworm Moth
<i>Hemileuca chinatiensis</i> (Tinkham) Records: it was observed 13 October 2012 at Prospect Pits by V. Mata-Silva (UTEP) [Photo].	Chinati Sheepmoth
SPHINGIDAE (Hawk Moth Family)	
<i>Hyles lineata</i> (Fabricius) [Worthington (UTEP)]	White-lined Sphinx Moth
<i>Manduca quinquemaculata</i> (Haworth) [Lenhart (UTEP)]	Five-spotted Hawk Moth
<i>Manduca rustica</i> (Fabricius) [Lenhart (UTEP)]	Rustic Sphinx Moth
<i>Sphinx asellus</i> (Rothschild and Jordan) [Lenhart (UTEP)]	Asellus Sphinx Moth
<i>Syssphinx hubbardi</i> (Dyar) [Mata-Silva (UTEP), Montoya (UTEP), and Tipton (UTEP)] Records: it was observed 10 September 2022 near Box Canyon on Rio Grande by V. Mata-Silva (UTEP)	Hubbard's Silk Moth
YPONOMEUTIDAE (Erimine Moth Family)	
<i>Atteva punctella</i> (Cramer) [Lenhart (UTEP)]	Webworm Moth

Order: MICROCORYPHIA (Bristletails)

MACHILIDAE (Jumping Bristletail Family)

Our material is presently at NMSU awaiting determination. A single species is represented from pit-fall traps on IMRS. It may be a very significant find.

Order: NEUROPTERA (Antlions, Lacewings, and Allies)

BEROTHIDAE (Beaded Lacewing Family)

Lomamyia sp.
[John Oswald, TAMU Entoblitz 2000]

CHRYSOPIDAE (Green Lacewing Family)

<i>Chrysoperla plorabunda</i> (Fitch) [John Oswald, TMAU Enoblitz 2002]	Weeping Green Lacewing
<i>Chrysoperla rufilabris</i> (Burmeister) [John Oswald, TAMU Entoblitz 2002]	Red-lipped Green Lacewing
<i>Eremochrysa punctinervis</i> (MacLachlen) [John Oswald, TMAU Entoblitz 2002]	Green Lacewing

CONIOPTERYGIDAE (Dusty Lacewing Family)

Aleuropteryx sp.

[John Oswald, TAMU Entoblitz 2002]

Coniopteryx sp. (2X spp.)

[John Oswald, TAMU Entoblitz 2002]

Neoconis sp.

Note: it is probably *N. marginata*.

Semidalis sp.

[John Oswald, TAMU Entoblitz 2002]

HEMEROBIIDAE (Brown Lacewing Family)

Hemerobius discretus Navás

Discrete Brown Lacewing

[John Oswald, TAMU Entoblitz 2002]

Megalomus moestus Banks

Mourning Brown Lacewing

[John Oswald, TAMU Entoblitz 2002]

Micromus variolosus Hagen

Mottled Brown Lacewing

[John Oswald, TAMU Entoblitz 2002]

Symphorobius killingtoni Carpenter

Killington's Brown Lacewing

[John Oswald, TAMU Entoblitz 2002]

Symphorobius perparvus (McLachlan)

Trivial Brown Lacewing

[John Oswald, TAMU Entoblitz 2002]

MANTISPIDAE (Mantidfly Family)

Climaciella brunnea Say

Brown Wasp Mantidfly

[Lenhart (UTEP)]

Note: this mantidfly closely mimics the paperwasp, *Polistes comanchus*, on IMRS. Larvae are predators on spider egg sacs.

MYRMELEONTIDAE (Antlion Family)

Vouchers for the following species are at Texas A&M University.

Brachynemurus sackeni Hagen

Sacken's Antlion

[John Oswald, TAMU Entoblitz 2002]

Clathroneuria coquilletti (Currie)

Long-tailed Antlion

[John Oswald, TAMU Entoblitz 2002]

Euptilon ornatum (Dury)

Ornate Antlion

[John Oswald, TAMU Entoblitz 2002]

Gnopholeon delicatulus (Currie)

Delicate Antlion

[John Oswald, TAMU Entoblitz 2002]

Myrmeleon arizonicus Banks

Arizona Antlion

[John Oswald, TAMU Entoblitz 2002]

Paranthaclisis hageni (Banks)

Hagen's Antlion

[John Oswald, TAMU Entoblitz 2002]

Scotolion longipalpis (Hagen)

Long-palped Antlion

[John Oswald, TAMU Entoblitz 2002]

Scotolion nigrescens (Strange)

Black Antlion

[John Oswald, TAMU Entoblitz 2002]

Order: ODONATA (Dragonflies and Damselflies)

AESHNIDAE (Darner Dragonfly Family)

Anax sp.

[Lenhart (UTEP), Mata-Silva (UTEP)]

Rhionaeschna multicolor (Hagen)

Blue-eyed Darner Dragonfly

[J.C. Abbott, TAMU Entoblitz 2002, Chee (UTEP)]

Records: it was found at Double Tank Corral.

CALOPTERYGIDAE (Broad-Winged Damselfly Family)

Hetaerina sp.

[Lenhart (UTEP)]

COENAGRIONIDAE (Narrow-winged Damselfly Family)

- Argia hinei* Kenedy **Lavendar Dancer Damselfly**
[J.C. Abbott, TAMU Entoblitz 2002, Worthington (UTEP)]
Records: it was found at Echo Spring.
- Argia leonorae* Garrison **Leonora's Dancer Damselfly**
[Worthington (UTEP)]
Records: it was found at Echo Spring.
- Enallagma civile* (Hagen) **Familiar Bluet Damselfly**
[Worthington (UTEP)]
Records: it was found in Double Tank Corral area.
- Ischnura denticollis* (Burmeister) **Black-fronted Forktail Damselfly**
[Worthington (UTEP)]
Records: it was found at Double Tank Corral.

LESTIDAE (Spreadwing Damselfly Family)

- Archilestes grandis* (Rambur) **Great Spreadwing Damselfly**
[J.C. Abbott, TAMU Entoblitz 2002, Davis, 2003]
- Lestes disjunctus* Selys **Northern Spreadwing Damselfly**
[Worthington (UTEP)]
Records: it was found at Double Tank Corral.

LIBELLULIDAE (Common Skimmer Dragonfly Family)

- Libellula pulchella* Drury **Twelve-spotted Skimmer Dragonfly**
[Perez (UTEP)]
Records: it was found in Double Tank Corral area.
- Libellula saturate* Uhler **Flame Skimmer Dragonfly**
[J.C. Abbott, TAMU Entoblitz 2002]
- Paltothemis lineatipes* Karsch **Red Rock Skimmer Dragonfly**
[Herrera (UTEP)]
- Sympetrum corruptum* (Hagen) **Variiegated Meadowhawk Skimmer Dragonfly**
[Worthington (UTEP)]
Records: it was found at Double Tank Corral.
- Tramea onusta* (Hagen) **Red Saddlebags Skimmer Dragonfly**
[Worthington (UTEP)]
Records: it was found at Double Tank Corral.

Order: ORTHOPTERA (Grasshoppers, Crickets, and Katydid)

Baqila, 2017, did a Biology MS Thesis study on IMRS orthopterans and their plant communities.

ACRIDIDAE (Short-horned Grasshopper Family)

- Subfamily: COPIOCERINAE (Creosote Grasshoppers)**
- Clematodes larreae* Cockerell **Grey Creosotebush Grasshopper**
[Lenhart (UTEP)]
- Subfamily: CYRTACANTHACRIDINAE (Bird Grasshoppers)**
- Schistocerca nitens* (Thunberg) **Gray Bird Grasshopper**
[Worthington (UTEP)]
- Subfamily: MELANOPLINAE (Spur-throated Grasshoppers)**
- Melanoplus bivittatus* (Say) **Two-striped Grasshopper**
[Worthington (UTEP)]
- Melanoplus herbaceous* Brunner **Arrowweed Grasshopper**
[Lenhart (UTEP)]
- Melanoplus differentialis* (Thomas) **Differential Grasshopper**
[Perez (UTEP)]

Subfamily: GOMPHOCERINAE (Slant-faced Grasshoppers)	
<i>Acantherus piperatus</i> (Scudder) [Lenhart (UTEP)]	Slender Range Grasshopper
<i>Acrolophitus maculipennis</i> (Scudder) [Worthington (UTEP)]	Texas Point-headed Grasshopper
<i>Boottettix argentatus</i> Brunner [Worthington (UTEP)]	Creosote Bush Grasshopper
<i>Cibolacris parviceps</i> (Walker) [Worthington (UTEP)]	Cream Grasshopper
<i>Mermiria bivittata</i> (Serville) [Worthington (UTEP)]	Mermiria Grasshopper
<i>Mermiria texana</i> Brunner [Worthington (UTEP)]	Texas Mermiria Grasshopper
<i>Opeia obscura</i> (Thomas) [Herrera (UTEP)]	Obscure Grasshopper
<i>Psoloessa texana</i> Scudder [Lenhart (UTEP)]	Texas Spotted Range Grasshopper
<i>Syrbula admirabilis</i> (Uhler) [Worthington (UTEP)]	Handsome Grasshopper
Subfamily: OEDIPODINAE (Band-winged Grasshoppers)	
<i>Arphia conspersa</i> (Scudder) [Lenhart (UTEP)]	Speckled Rangeland Grasshopper
<i>Arphia pseudonietana</i> (Thomas) [Worthington (UTEP)]	Red-winged Grasshopper
<i>Derotmema laticinctum</i> Scudder [Worthington (UTEP)]	Scudder's Derotmema Grasshopper
<i>Encoptolophus subgracilis</i> Caudell [Lenhart (UTEP)]	Southwestern Dusky Grasshopper
<i>Hippopedon capito</i> (Ståhl) [Lenhart (UTEP), Worthington (UTEP)]	Apache Grasshopper
<i>Mestobregma plattei</i> (Thomas) [Worthington (UTEP)]	Platte Range Grasshopper
<i>Trimerotropis californica</i> Brunner [Worthington (UTEP)]	Strenuous Grasshopper
<i>Trimerotropis pallidipennis</i> (Burmeister) [Worthington (UTEP)]	Pallid-winged Grasshopper
<i>Trimerotropis pistrinaria</i> Saussure [Lenhart (UTEP)]	Barren Land Grasshopper
GRYLLIDAE (True Cricket Family)	
<i>Gryllus</i> sp. [Lenhart (UTEP)]	Field Cricket
<i>Oecanthus</i> sp. [Lenhart (UTEP)]	Tree Cricket
RHAPHIDOPHORIDAE (Camel Cricket Family)	
<i>Ceuthophilus variegatus</i> (Scudder) [Horne (UTEP), Lenhart (UTEP)]	Variiegated Camel Cricket
ROMALEIDAE (Lubber Grasshopper Family)	
<i>Phrynotettix robustus</i> (Bruner) [Worthington (UTEP)]	Robust Toad Lubber Grasshopper
<i>Taeniopoda equus</i> (Burmeister) [McClure (UTEP)]	Horse Lubber Grasshopper
TETTIGONIIDAE (Katydid Family)	
<i>Capnobotes fuliginosus</i> (Thomas) [Lenhart (UTEP)]	Sooty Long-wing Katydid
<i>Insara elegans</i> Scudder [Worthington (UTEP)]	Elegant Bush Katydid

Pediodectes tinkhami Hebard
[Lenhart (UTEP)]

Tinkham's Shieldback Katydid

Scudderia sp.
[Lenhart (UTEP)]

Bush Katydid

TETRIGIDAE (Pygmy Grasshopper Family)

Paratettix aztecus (Saussure)
[Lenhart (UTEP)]

Aztec Pigmy Grasshopper

Paratettix brevipennis (Hancock)
[Lenhart (UTEP)]

Short-winged Pygmy Grasshopper

Paratettix mexicanus (Saussure)
[Lenhart (UTEP)]

Mexican Pygmy Grasshopper

Paratettix toltecus (Saussure)
[Lenhart (UTEP)]

Toltec Pygmy Grasshopper

Order: PHASMATODEA (Walkingsticks)

DIAPHEROMERIDAE (Northern Walkingstick Family)

Diapheromera covilleae Rehn and Hebard
[Herrera (UTEP), Worthington (UTEP)]

Creosote Bush Walkingstick

HETERONEMIIDAE (Common Walkingstick Family)

Parabacillus coloradus (Scudder)
[Worthington (UTEP)]

Colorado Short-horned Walkingstick

Pseudosermyle straminea (Scudder)
[Lenhart (UTEP)]

Straw-colored Walkingstick

Order: SIPHONAPTERA (Fleas)

Our UTEP IMRS collections are not yet determined to species. Fleas were found on Cactus Mice, *Peromyscus eremicus*.

Order: TRICHOPTERA (Caddisflies)

HYDROPSYCHIDAE (Common Net-spinning Caddisfly Family)

Cheumatopsyche sp.
[Worthington (UTEP)]

Records: it was found at Echo Spring.

ODONTOCERIDAE (Mortarjoint Casemaker Caddisfly Family)

Marilia flexuosa Ulmer
[Worthington (UTEP)]

Winding Mortarjoint Caddisfly

Records: it was found at Echo Spring.

Note: thanks to S. Moulton for the above identification. Davis, 2003, identified all caddisflies she found as belonging to Family Limnephilidae (*Limnephilus* sp.).

Phylum: CHORDATA (Chordates)

Subphylum: VERTEBRATA (Vertebrates)

Carranza, 1997, looked at parasites of whiptail lizards. Dominguez, 2000, completed a morphometric and molecular analysis of *Crotalus lepidus*. Lannutti, 2000, studied morphological variation in Long-nosed Snakes (genus *Salvadora*). Sweetay, 2001, did a survey of small terrestrial mammals occurring on IMRS. Hotchkin, 2002, completed a behavioral comparison between *Aspidoscelis marmorata* and *A. tessellata*. Brewer, 2004, reported on the habitat diversity and seasonal changes in small mammal populations on

IMRS, as well as a field guide to the mammals (Brewer, 2007). Mata-Silva (2005, 2011) completed diet comparisons between *A. marmorata* and *A. tessellata* and a spatial ecology study of *C. lepidus*, respectively. Couvillon, 2011a, completed a study on the ecogeographical analysis of the herpetofauna of IMRS and produced a handbook on the herpetofauna (Couvillon, 2011b). Rocha, 2012, produced a study on the spatial ecology of the Trans Pecos Ratsnake (*Bogertophis subocularis*). Lukefahr, 2013, completed a study of chigger mites on whiptail lizards. Wiseman, 2014, produced an ecogeographic study of birds. Alva, 2014, studied thermal ecology of *Urosaurus ornatus*. Franco, 2015, studied population ecology of the Greater Earless Lizard (*Cophosaurus texanus*). DeSantis, 2019, studied spatial movement and ecology of *Crotalus atrox*, and Emerson, 2020, examined the ecology and movement of *C. ornatus*. J. Schlichte is comparing lizard ecology between species at Jornada LTR site and IMRS. Garza, 2018, investigated birds in isolated juniper and oak communities on IMRS. G. Alvarez is working on community structure of reptiles between disturbed and undisturbed areas on IMRS. O. Da Cunha is investigating predator prey relationships within *C. atrox* on IMRS, and J.J. Mead is comparing spatial ecology between syntopic *C. atrox*, *C. ornatus*, and *C. lepidus*. A. Benson-Pedraza is investigating trophic transfer of heavy metals to whiptail lizards in urban and remote Chihuahuab Desert food chains. L.M. Horne is examining spatial ecology of *Phrynosoms modestum*, and has been helping update this handbook since early 2021. McGinnis and Stebbins, 2018, produced a revised edition of a field guide to western reptiles and amphibians of USA.

Class: ACTINOPTERYGII (Ray Finned Fish)

Order: CYPRINODONTIFORMES (Toothcarps)

CYPRINIDAE (Carp Family)

Cyprinus carpio Linnaeus

European Carp

Records: it was found in Box Canyon on Rio Grande by V. Mata-Silva (UTEP).

Note: some authorities include Cyprinid Minnows in the Family Peociliidae.

PEOCILIIDAE (Live Bearer Family)

Gambusia affinis Baird and Girard

Western Mosquitofish

Records: it was found in Box Canyon on Rio Grande by L.M. Horne (UTEP).

Order: LEPISOSTEIFORMES (Gar)

LEPISOSTEIDAE (Gar Family)

Lepisosteus osseus Linnaeus

Longnose Gar

[Mata-Silva (UTEP), Rocha (UTEP)]

Records: it was found in Box Canyon on Rio Grande.

Order: SILURIFORMES (Catfish)

ICTALURIDAE (North American Catfish)

Ictalurus punctatus Rafinesque

Channel Catfish

[Rocha (UTEP)]

Records: it was found in Box Canyon on Rio Grande.

Class: AMPHIBIA (Amphibians)

Compiled by J.D. Johnson and C.S. Lieb. Dixon, 2013, covers IMRS species.

Order: ANURA (Frogs and Toads)

The following classification and common names generally follow that recommended by The Center for North American Herpetology (www.cnah.org).

BUFONIDAE (North American Toad Family)

The genus for all species of North American toads occurring on IMRS was changed from *Bufo* to *Anaxyrus* by Frost et al., 2006.

***Anaxyrus cognatus* Say Great Plains Toad**

[Couvillon, 2011a, b, J.D. Johnson (UTEP)]

Records: one individual was found at IMRS HQ. Several others were observed during Summer of 2014 at Peccary Tank.

***Anaxyrus debilis* Girard Chihuahuan Green Toad**

[Couvillon, 2011a, b, J.D. Johnson (UTEP)]

Records: it was observed during August 2010 at Pirtle Tank and on road to Echo Spring north of IMRS HQ by V. Mata-Silva (UTEP), during July 2010 at Rattlesnake Tank by A. Rocha (UTEP), and in July 2013 on road to Echo Spring by D.L. DeSantis (UTEP).

***Anaxyrus punctatus* Baird and Girard Red-spotted Toad**

[Couvillon, 2011a, b, Mata-Silva et al., 2012]

Records: it is the most abundant amphibian on IMRS. It breeds in Echo Spring and in canyon pools during rainy periods. It is common around IMRS HQ (J.D. Johnson, UTEP).

***Anaxyrus speciosus* Girard Texas Toad**

[Couvillon, 2011a, b, J.D. Johnson (UTEP)]

Records: it was observed during July 2006 at Pirtle by J.D. Johnson (UTEP).

MICROHYLIDAE (Narrow-mouthed Toad Family)

***Gastrophryne olivacea* (Hallowell) Western Narrow-mouthed Toad**

[Dilks, Johnson, and Mata-Silva (UTEP), Couvillon, 2011a, b, Mata-Silva (UTEP)]

Records: it was observed 26 July 2008 at Peccary Tank by J.D. Johnson (UTEP). Large choruses were heard 21 August 2009 at Echo Canyon TwinTanks, Peccary Tank, and Rattlesnake Tank after heavy afternoon rainstorms, and again in July 2010, 2011, May 2012, and June through August 2013 through 2017 (J.D. Johnson, UTEP).

RANIDAE (True Frog Family)

***Lithobates berlandieri* (Baird) Rio Grande Leopard Frog**

Records: At Box Canyon on the Rio Grande. Observed on 14 July 2023 by M. Montoya and V. Mata-Silva (UTEP) [Photos].

***Lithobates catesbeianus* Shaw American Bullfrog**

[Mata-Silva (UTEP)]

Records: it is common in Box Canyon on the Rio Grande, and observed there on 20 October 2014 by V. Mata-Silva (UTEP) [Photo].

SCAPHIOPODIDAE (North American Spadefoot Family)

***Scaphiopus couchii* Baird Couch's Spadefoot**

[Couvillon, 2011a, b, J.D. Johnson (UTEP)]

Records: it was observed at IMRS HQ, Road Tank, PirtleTank, Red Tank, and Peccary Tank.

Order CAUDATA (Salamanders)

The Barred Tiger Salamander (*Ambystoma mavortium*) is expected to occur on IMRS, but has not yet been verified there.

Class REPTILIA (Turtles, Snakes, and Lizards)

Compiled by J.D. Johnson and C.S. Lieb.

The following classification and common names of turtles, lizards, and snakes, mostly follow that recommended by Reptile Database, although it is a paraphyletic classification. Turtles are considered in their own taxonomic class (Chelonia) by many authorities.

Order: TESTUDINES (Turtles)

EMYDIDAE (Box and Pond Turtle Family)

Terrapene ornata Agassiz **Ornate Box Turtle**
[Couvillon, 2011a, b]

Records: it was caught on one occasion near Double Tank Corral.

Trachemys gaigeae (Hartweg) **Big Bend Slider**

[G.W. Johnson (UTEP), Mata-Silva (UTEP)]

Records: it was observed 18 June 2011 and 22 November 2020 in Box Canyon on Rio Grande by V. Mata-Silva (UTEP) [Photo].

KINOSTERNIDAE (Mud and Musk Turtle Family)

Kinosternon flavescens Agassiz **Yellow Mud Turtle**
[Couvillon, 2011a, b]

Records: it is known from a shell fragment found at Red Tank. It has been observed in a tank along Green River Road a few miles northeast of IMRS.

TRIONYCHIDAE (Softshell Turtle Family)

Apalone spinifera LeSueur **Spiny Softshell Turtle**
[V. Mata-Silva (UTEP)]

Records: it is the most common turtle in the Box Canyon of Rio Grande; observed there 7 August 2011 by V. Mata-Silva (UTEP) [Photo].

Order: SQUAMATA (Lizards and Snakes)

Lizards

Frost and Etheridge, 1989, determined Iguanian Lizard families. Dixon, 2013, covers IMRS species.

CROTAPHYTIDAE (Collard and Leopard Lizard Family)

Crotaphytus collaris Say **Eastern Collared Lizard**
[Couvillon, 2011a, b, J.D. Johnson (UTEP)]

Records: it is known from several locations, including IMRS HQ area, Echo Canyon, and on Main Road to Echo Spring north of IMRS HQ.

EUBLEPHARIDAE (Eyelid Gecko Family)

Eyelid Geckos were removed from the Family Gekkonidae by Kluge, 1987.

Coleonyx brevis Stejneger **Texas Banded Gecko**
[Couvillon, 2011a, b, Johnson et al., 2004]

Records: it was found in several locations, including IMRS HQ area and Prospect Pits by UTEP personnel.

PHRYNOSOMATIDAE (Earless, Horned, Side-blotched, Spiny, and Tree Lizard Family)

Cophosaurus texanus Troschel **Greater Earless Lizard**
[Axtell, 1991, Couvillon, 2011a, b, Franco, 2015, Mata-Silva et al., 2006, 2010, 2011]

Records: it was observed in several locations, including IMRS HQ and Echo Spring area (J.D. Johnson, UTEP).

Note: it is the most abundant lizard on IMRS, and is known for death feigning.

Phrynosoma cornutum (Harlan) **Texas Horned Lizard**

[Axtell, 1996, Couvillon 2011a, b]

Records: it is known from a single specimen on IMRS (SRSU; Axtell, 1996). Origin there is unknown, but most likely from near Double Tank Corral.

Phrynosoma modestum Girard **Round-tailed Horned Lizard**

[Couvillon, 2011a, b, Mata-Silva and Johnson, 2011a]

Records: it was observed from throughout IMRS, but specifically from IMRS HQ area and Lonely Tank.

Sceloporus cowlesi

Southwestern Fence Lizard

[Couvillon, 2011a, b]

Records: it was found during April 2016 at IMRS HQ area by J.D. Johnson and D.L. DeSantis, and in Echo Creek Canyon, Double Tank Corral area, and Oak Arroyo by Couvillon, 2011a, b).

Note: it was elevated from a subspecies of *S. undulatus* by Leache and Reeder (2002).

Sceloporus poinsetti Baird and Girard

Crevice Spiny Lizard

[Couvillon, 2011a, b, Lukefahr et al. 2011]

Records: it is known from throughout IMRS, especially near Echo Spring, and Baily Evens Canyon (UTEP), on road to Echo Spring (Lukefahr, 2010), Echo Canyon (Couvillon 2011a, b), and at Red Tank (J.D. Johnson, UTEP).

Note: It is usually found on rocky cliff faces and on large rocks with crevices.

Urosaurus ornatus (Baird and Girard)

Ornate Tree Lizard

[Alva, 2014, Axtell, 1997, Couvillon, 2011a, b, Garza et al., 2017, Mata-Silva et al., 2014]

Records: it is known from Echo Spring, IMRS HQ area, and Agate Hill.

Uta stansburiana (Baird and Girard)

Side-blotched Lizard

[Couvillon, 2011a, b]

Records: it was found at IMRS HQ and in Echo Creek Canyon.

SCINCIDAE (Skink Family)

The genus of skinks in the New World, formerly *Eumeces*, was changed to *Plestiodon* independently by Smith, 2005, and Brandley et al., 2005.

Plestiodon obsoletus Baird and Girard

Great Plains Skink

[Axtell, 2000, Couvillon, 2011a, b]

Records: it was reported from IMRS HQ area and Echo Spring.

Plestiodon tetragrammus Baird

Four-lined Skink

[Axtell, 2001, Couvillon, 2011a, b, Johnson and Johnson, 1999]

Records: it is known only from the Echo Spring area.

TEIIDAE (Ameivas, Racerunners, and Whiptails Family)

The genus of whiptail lizards in most of North America, formerly *Cnemidophorus*, was changed to *Aspidoscelis* by Reeder et al., 2002).

Aspidoscelis exsanguis (Lowe)

Chihuahuann Spotted Whiptail

[Axtell, 2003, Carranza, 1997, Couvillon, 2011a, b, Lukefahr, 2013]

Records: it has been observed since 16 July 2011 mostly on eastern side of IMRS in canyons draining directly into Green River; also at Echo Spring, Oak Arroyo, and Prospect Pits.

Note: it is a unisexual (3n) parthenogenetic species.

Aspidoscelis inornata (Baird)

Little Striped Whiptail

[Axtell, 1994, Carranza, 1997, Couvillon, 2011a, b, Gordon, 1997, Lukefahr, 2013]

Records: it was reported from IMRS HQ and Double Tank Corral areas by UTEP personnel.

Note: it is a bisexual species.

Aspidoscelis marmorata (Baird and Girard)

Marbled Whiptail

[Couvillon, 2011a, b, Hotchkin and Riveroll, 2005, Lukefahr, 2013, Mata-Silva, 2005, Mata-Silva et al., 2008, 2010, 2013, Benson-Pedraza, 2022]

Records: it is known from throughout IMRS by UTEP personnel.

Note: it is a bisexual species. It is also ecognized as *A. tigris marmorata* by some authors.

It is the most abundant whiptail on IMRS in most areas where it occurs.

Aspidoscelis tessellata (Baird)

Common Checkered Whiptail

[Carranza, 1997, Couvillon, 2011a, b, Hotchkin and Riveroll, 2005, Lukefahr, 2013, Mata-Silva, 2005, Mata-Silva et al., 2008, 2010, 2013]

Records: it is known from numerous records from throughout IMRS by UTEP personnel.

Note: it is a unisexual parthenogenetic species (2n).

Snakes

See CNAH website (www.cnah.org) for history behind snake family realignment. Dixon, 2013, Dixon and Werler, 2005, Werler and Dixon, 2000, and Dixon et al., 2020, cover IMRS species.

COLUBRIDAE (Harmless Egg-laying Snake Family)

- Arizona elegans* Kennicott **Glossy Snake**
[Couvillon, 2011a, b]
Records: one was observed from west of IMRS HQ by J.D. Johnson (UTEP).
- Bogertophis subocularis* (Brown) **Trans-Pecos Rat Snake**
[Couvillon, 2011a, b, Rocha, 2012, Rocha et. al., 2013, 2014]
Records: it was observed at IMRS HQ, Peccary Tank, Echo Canyon, Flat Top Mountain, and Black Diamond Mine by UTEP personnel.
- Gyalopion canum* Cope **Western Hook-nosed Snake**
[Couvillon, 2011a, b]
Records: it was observed 2 June 2015 near Purple Sage Mine and Peccary Tank.
- Lampropeltis alterna* (Brown) **Gray-banded Kingsnake**
[Couvillon, 2011a, b]
Records: it was observed near Red Tank and Prospect Pits area by UTEP personnel, and near Peccary Tank during July 2015 and July 2017 between Rattlesnake Tank and Red Tank by J.D. Emerson (UTEP).
- Masticophis flagellum* Shaw **Coachwhip**
[Couvillon, 2011a, b, Mata-Silva et al., 2015]
Records: it was observed on River Road south of Campo Bonito, IMRS HQ area, Peccary Tank, and Carpenter Mine area by UTEP personnel.
- Masticophis taeniatus* Hallowell **Striped Whipsnake**
[Couvillon, 2011a, b]
Records: it was observed in August 2011 at IMRS HQ area and Rattlesnake Tank by V. Mata-Silva (UTEP).
- Pituophis catenifer* Blainville **Gopher Snake**
[Couvillon, 2011a, b]
Records: it was reported on eastern slope of IMRS and at Peccary Tank by UTEP personnel.
- Rhinocheilus lecontei* Baird and Girard **Long-nosed Snake**
[Couvillon, 2011a, b]
Records: it is known from hills east of Main Road on Purple Sage Mine Road by UTEP personnel, and during August 2011 from IMRS HQ and Prospect Pits area, and during June 2016, on 29 July 2016, and during 2017 at Peccary Tank and near Red Tank by J.D. Emerson, and 30 July 2016 near Rattlesnake Tank by D.L. DeSantis.
- Salvadora deserticola* Schmidt **Big Bend Patch-nosed Snake**
[Couvillon, 2011a, b]
Records: it is known from River Road, Double Tank Corral area, and from Rattlesnake Tank and IMRS HQ area by UTEP personnel.
- Salvadora grahamiae* Baird and Girard **Mountain Patch-nosed Snake**
[Couvillon, 2011a, b, DeSantis et al., 2016]
Records: it was observed mostly from the western slope of Indio Mountains, including River Road, Double Tank Corral, and in Echo Canyon by UTEP personnel.
- Sonora semiannulata* Baird and Girard **Western Groundsnake**
[Couvillon, 2011a, b, Johnson, Johnson, and Riveroll, Jr., 2007, Mata-Silva et al., 2012]
Records: it was reported mostly from near IMRS HQ area in pit-fall traps.
Note: A dead Western Ground Snake was fed to three nestling Greater Road Runners 11 September 2012 at IMRS HQ.
- Tantilla hobartsmithi* Taylor **Smith's Black-headed Snake**
[Couvillon, 2011a, b]

Records: it was observed several times from IMRS HQ area by UTEP personnel.

Note: it was often found under fallen yucca logs and in pit-fall traps.

Tantilla nigriceps Kennicott

Plains Black-headed Snake

[Couvillon, 2011a, b]

Note: the occurrence of this species on IMRS needs confirmatin.

Trimorphodon wilkinsonii Cope

Chihuahuan Desert Lyresnake

[Couvillon, 2011a, b, J.D. Johnson (UTEP), LaDuc and Johnson, 2003]

Records: it was observd 2 May1992 from Double Tank Corral area, from 12 July 2008, 20 June 2015, and during June 2017 near Prospect Pits and Echo Canyon by UTEP personnel, 22 July 2016 near Red Tank by J.D. Emerson, 30 July 2016 on mountain directly northeast of IMRS HQ, and June 2017 at Prospect Pits and Echo Canyon by UTEP personnel.

Note: there is a photograph of the Double Tank Corral area snake on Centennial Museum, Chihuahuan Desert Website. LaDuc and Johnson, 2003, changed the specific epithet from *T. biscutatus*.

DIPSADIDAE (Slender Rear-fanged Snake Family)

Diadophis punctatus Linnaeus

Ring-necked Snake

[Couvillon, 2011a, b]

Records: it was found 19 June 2009 near IMRS HQ and near Peccary Tank by UTEP personnel.

Note: it is discovered mostly from under fallen yucca logs and in pit-fall traps.

Hypsiglena jani (Dugès)

Chihuahuan Nightsnake

[Couvillon, 2011a, b, Mata-Silva et al., 2010, 2014]

Records: several have been taken near IMRS HQ by UTEP personnel.

Note: they are often discovered under fallen yucca logs and in pit-fall traps. The species name was changed from *H. torquata* by Mulcahy, 2008.

LEPTOTYPHLOPIDAE (Thread Snake Family)

Rena segregata Klauber 1939

Trans-Pecos Thread Snake

[Couvillon, 2011a, b, Mata-Silva and Johnson, 2011b]

Records: it is known from IMRS HQ area and on 20 August 2011 from Woodpecker Well by UTEP personnel.

Note: it is frequently taken in pit-fall traps. The genus name was changed from *Leptotyphlops* by Adalsteinsson et al., 2009. Wallach et al., 2014, elevated it from a subspecies of *R. humilis*

NATRICIDAE (Harmless Live-bearing Snake Family)

Thamnophis cyrtopsis (Kennicott)

Black-necked Garter Snake

[Couvillon, 2011a, b]

Records: it was observed at Echo Spring, East Well Draw, IMRS HQ area, Peccary Tank, and Red Tank by UTEP personnel.

Note: it is not restricted to wetlands on IMRS.

Thamnophis marcianus (Baird and Girard)

Checkered Garter Snake

Records: one individual was observed 4 October 2014 in Box Canyon on Rio Grande by D.L. DeSantis (UTEP) and V. Mata-Silva (UTEP) [Photos].

VIPERIDAE (Viper Family)

At least one other species of rattlesnake likely occurs on IMRS (*Crotalus scutulatus*), because they are frequently observed along Green River Road east and northeast of IMRS. It is considered to be in Family Crotalidae by some authorities.

Crotalus atrox Baird and Girard

Western Diamond-backed Rattlesnake

[Couvillon, 2011a, b, Mata-Silva et al., 2011, Mata-Silva and Johnson, 2014]

Records: it is ubiquitous on IMRS and frequently encountered at Peccary Tank, Red Tank, IMRS HQ, Echo Spring, and Double Tank Corral area by UTEP personnel.

Note: Chavarria et al. 2021, reported an individual eating a chicken femur at IMRS HQ [Photo].

Crotalus lepidus Kennicott

Rock Rattlesnake

[Campbell and Lamar, 2004 [Photo]; Couvillon, 2011a, b, DeSantis et al. 2015,

Dominguez, 2000, Mata-Silva et al., 2010, 2011, 2015 (2014), 2018, Price, 2009 [Photo],

Rael et al., 1992]

Records: it is nearly ubiquitous in rocky areas on IMRS (J.D. Johnson, UTEP).

Crotalus ornatus Baird and Girard

Eastern Black-tailed Rattlesnake

[Anderson and Greenbaum, 2012, Couvillon, 2011a, b, Miranda et al., 2008]

Records: it is nearly ubiquitous on IMRS in rocky areas.

Note: it was elevated from a subspecies of *C. molossus* by Anderson and Greenbaum, 2012.

Class: AVES (Birds)

Compiled by G.H.Wiseman, K. Garza, J.D. Johnson, S. Cutler, and C.S. Lieb.

Many of the following observations on the avifauna were taken from the field notes of S. Cutler (UTEP) who visited the ranch 19–21 May 1995 and 15–16 July 2000. Merged in are observations listed on past Field Biology classes, and observations by T. Hibbits and J.D. Johnson (UTEP). Wiseman, 2014, completed a three-year bird survey, especially near five water sources on IMRS. K. Garza (UTEP) did an ecogeographic study of IMRS birds in oak/juniper canyon and arroyo habitats. The order of the families and nomenclature follows the Texas Parks and Wildlife “A Checklist of Texas Birds” 6th Ed. 2003. The avifauna of the area between Indian Hot Springs and Presidio was reported to consist of 160 species; 30 residents (West, 1976). Others were seasonally or migratory. G.H.Wiseman, 2014, recorded 141 species on IMRS.

ACCIPITRIDAE (Hawk, Kite, and Eagle Family)

Accipiter cooperii (Bonaparte)

Cooper’s Hawk

Records: 9 April 2022 at the headquarters by V. Mata-Silva and A. Rocha (UTEP) (Video); 24 October 2023 at the Rio grande [The Box] by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) (Video).

Accipiter striatus (Vieillot)

Sharp-shinned Hawk

Records: 2 April 2024 at the Rio Grande [The Box] by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) (Video).

Aquila chrysaetos (Linnaeus)

Golden Eagle

[G.W. Johnson (UTEP), J.D. Johnson (UTEP)]

Records: A pair were observed during May 2009 near Box Canyon on Rio Grande, and in May 2009 by G.W. Johnson (UTEP); June 2015 in Echo Canyon by J.D. Johnson (UTEP); 25 August 2020 at the spring by V. Mata-Silva (UTEP) (Videos).

Buteo albonotatus Kaup

Zone-tailed Hawk

Records: it was observed 30 May 2020 near Double Tank Corral by V. Mata-Silva (UTEP).

Buteo jamaicensis (Gmelin)

Red-tailed Hawk

Records: it was observed in July 2000 southeast of IMRS HQ and at Echo Spring by S. Cutler (UTEP), 2–3 May 1992 on IMRS by T. Hibbits, during March 1995 on IMRS by UTEP Field Biology class, and 12 June 2001 at Echo Spring by J.D. Johnson (UTEP).

Buteo regalis (Gray)

Ferruginous Hawk

Records: it was observed 3 May 2008 at IMRS HQ by S. Dash (UTEP).

Buteo swainsoni Bonaparte

Swainson’s Hawk

Note: this species needs verification on IMRS.

Circus cyaneus (Linnaeus)

Northern Harrier

Records: it was observed during March and April 1991 on IMRS by UTEP Field Biology class, and 21 October 2016 at IMRS HQ by J.D. Johnson (UTEP).

Elanus leucurus (Vieillot)

White-tailed Kite

Records: it was observed during May 2008 at IMRS HQ by J.D. Johnson (UTEP) [Photo]; verified from photo by S. Cutler (UTEP).

Pandion haliaetus (Linnaeus)

Osprey

Records: it was observed during April 2006 and May 2008 at IMRS HQ area by J.D. Johnson (UTEP).

Parabuteo unicinctus (Linnaeus)

Harris’s Hawk

Records: 11 June 2022 at the Rio Grande (The Box) by V. Mata-Silva and A. Rocha (UTEP) (Videos).

ALAUDIDAE (Horned Lark Family)

Eremophila alpestris (Linnaeus) **Horned Lark**

Note: this species needs verification on IMRS.

ALCEDINIDAE (Kingfisher family)

Chloroceryle americana (Gmelin) **Green Kingfisher**

Records: 4 November 2023 at Rio Grande [The Box] by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) (video).

Megaceryle alcyon (Linnaeus) **Belted Kingfisher**

Records: 15 and 17 January 2022 at Rio Grande [The Box] by V. Mata-Silva, and A. Rocha (UTEP) (videos).

ANATIDAE (Duck and Geese Family)

Aix sponsa (Linnaeus) **Wood Duck**

Records: 07 November 2021 at the Rio Grande [The Box] by V. Mata-Silva, and A. Rocha (UTEP) (Videos).

Anas crecca Linnaeus **Green-winged Teal**

Records: it was observed 16 March 1991 on IMRS by UTEP Field Biology class, and 14 January 2012 at Road Tank by G.H. Wiseman (UTEP); 21 January 2012 at Corral Tank by V. Mata-Silva (Utep) (Photos).

Anas platyrhynchos Linnaeus **Mallard**

Records: it was observed 14 January 2012 at Road Tank by G.H. Wiseman (UTEP).

Anas strepera Linnaeus **Gadwall**

Records: it was observed 5 April 1991 on IMRS by UTEP Field Biology class (J.D. Johnson, UTEP).

Bucephala albeola (Linnaeus) **Bufflehead**

Records: it was observed 14 January 2012 at Road Tank by G.H. Wiseman (UTEP).

Spatula discors Linnaeus **Blue-winged Teal**

Records: it was observed 8 September 2012 at Pirtle Tank by G.H. Wiseman (UTEP); 29 September 2018 at Corral Tank by V. Mata-Silva (UTEP) (Photos).

APODIDAE (Swift Family)

Aeronautes saxatalis (Woodhouse) **White-throated Swift**

Records: it was reported 2–3 May 1992 on IMRS by T. Hibbits, and observed 12 August 2016 at IMRS HQ by J.D. Johnson (UTEP).

ARDEIDAE (Bittern, Heron, and Egret Family)

Ardea alba Linnaeus **Great Egret**

Records: it was observed 1 February 2021 in Box Canyon on Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].

Ardea herodias Linnaeus **Great Blue Heron**

[Wiseman (UTEP)

Records: it was observed 31 March 2021 in Box Canyon on Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP [video].

Note: thanks M. Harvey (UTEP) for its identification.

Bubulcus ibis (Linnaeus) **Cattle Egret**

Records: 25 April 2021 at the Rio Grande by V. Mata-Silva, A. Rocha (UTEP) (Photos); 13 May 2022 at Bull Tank by A. Rocha, and V. Mata-Silva (UTEP), (Photos).

Butorides virescens (Linnaeus) **Green Heron**

Records: 22 May 2021 at the Rio Grande [The Box] by V. Mata-Silva, A. Rocha (UTEP) (Photos).

Egretta thula (Molina) **Snowy Egret**

Records: it was observed 25 September 2016 at IMRS HQ by V. Mata-Silva (UTEP): 13 May 2022 at Bull Tank by A. Rocha, and V. Mata-Silva (UTEP), (Photos).

Nycticorax nycticorax (Linnaeus) **Black-crowned Night-heron**

[Wiseman (UTEP)]

Records: it was observed during May 1995 on IMRS by G.H. Wiseman (UTEP); 19 September 2014 at RionGrande [The Box] by V. Mata-Silva (UTEP) (Photos).

BOMBYCILLIDAE (Waxwing Family)*Bombycilla cedrorum* Vieillot**Cedar Waxwing****Records:** it was observed during May 1995 on IMRS by UTEP Herpetology class field trip (J.D. Johnson, UTEP).**CAPRIMULGIDAE (Nighthawk and Poor-will Family)***Chordeiles acutipennis* (Hermann)**Lesser Nighthawk**

[Garza (UTEP), J.D. Johnson (UTEP)]

Records: it was observed summer 2016 at IMRS HQ by K. Garza (UTEP) and J.D. Johnson (UTEP).*Chordeiles minor* (Foster)**Common Nighthawk**

[Cutler (UTEP)]

Records: it was observed during May 1995 at IMRS HQ by S. Cutler (UTEP).**Note:** it is common near IMRS HQ (J.D. Johnson, UTEP).*Phalaenoptilus nuttallii* (Audubon)**Common Poor-will****Records:** it was observed 2–3 May 1992 at IMRS HQ by T. Hibbits, and there 18 March 2011 by J.D. Johnson (UTEP) and 7 March 2014 by G.H. Wiseman (UTEP).**CARDINALIDAE (Cardinal, Bunting, Dickcissel, Grosbeak, and Pyrrhuloxia Family)***Cardinalis cardinalis* Linnaeus**Notern Cardinal****Records:** 17 June 2011 at the Rio Grande [The Box] by V. Mata-Silva (Photo).*Cardinalis sinuatus* Bonaparte**Pyrrhuloxia****Records:** it was observed in May 1995 at IMRS HQ, and in July 2000 at E Spring, and 1.5 mi. southeast of IMRS HQ by S. Cutler, also in April 1990 on IMRS by UTEP Field Biology class, during summer 2010 at IMRS HQ and Echo Spring and 7 April 2011 and during August 2014 at IMRS HQ by J.D. Johnson (UTEP).*Passerina ameona* (Say)**Lazuli Bunting****Records:** it was observed 27 August 2016 in Juniper Grove by K. Garza (UTEP) [Photo].*Passerina caerulea* (Linnaeus)**Blue Grosbeak****Records:** it was observed during May 1995 at IMRS by UTEP Herpetology field trip, 2 May 2010 and 12 June 2019 at IMRS HQ and during June 2010 and on 12 June 2010 and at Echo Spring by J.D. Johnson (UTEP), on 4 August 2011 at Mesquite Tank and 4 August 2011 by G.H. Wiseman (UTEP), and during June 2017 at Juniper Grove by K. Garza (UTEP).*Passerina ciris* (Linnaeus)**Painted Bunting****Records:** observation of mating pair 16 July 2011 at Peccary Tank by G.H. Wiseman (UTEP); 18 July 2020 at IMRS headquarters by V. Mata-Silva (UTEP) (Photo). 25 May 2022 at the Rio Grande (The Box) by V. Mata-Silva and A. Rocha (UTEP) (Video).*Passerina versicolor* (Bonaparte)**Varied Bunting****Records:** it was observed during May 1995 at Echo Spring, by S. Cutler (UTEP).*Pheucticus melanocephalus* (Swainson)**Black-headed Grosbeak****Records:** it was observed during July 2000 north of IMRS HQ on road to Echo Spring by S. Cutler (UTEP), and there 10 May 2013 by G.H. Wiseman (UTEP).*Spiza americana* (Gmelin)**Dickcissel****Records:** it was observed 10 September 2010 and 27 August 2011 at Rattlesnake Tank by G.H. Wiseman (UTEP).**CATHARTIDAE (Vulture Family)***Cathartes aura* (Linnaeus)**Turkey Vulture****Records:** it was observed during May 1995 at Echo Spring by J.D. Johnson (UTEP), although they are commonly **seen** throughout IMRS.**Note:** Turkey Vultures usually arrive early in April and leave in October.*Coragyps atratus* (Bechstein)**Black Vulture****Records:** 25 September 2021 at the Rio Grande (The Box) by V. Mata-Silva, A. Rocha [Photos].**CHARADRIIDAE (Plover and Killdeer Family)***Charadrius vociferous* Linnaeus**Killdeer****Records:** it was observed 2–3 May 1992 on IMRS by T. Hibbits; 9 August 2013 by G.H. Wiseman (UTEP); 13 October 2011 at Corral Tank by V. Mata-Silva (UTEP) (Photos).

COLUMBIDAE (Dove and Pigeon Family)

- Columba livia* (Gmelin) **Rock Dove**
Records: 13 June 2021 at the IMRS headquarters by V. Mata-Silva (UTEP) (Photos).
- Columbina inca* (Lesson) **Inca Dove**
Note: This species needs documentation on IMRS.
- **Streptopelia decaocto* (Frivaldwsky) **Eurasian Collared Dove**
Records: 27 August 2011 at IMRS HQ by G.H. Wiseman (UTEP) and J.D. Johnson (UTEP); 8 October 2011 at IMRS HQ, V. Mata-Silva [Photos].
Note: The first report was possibly for the Ringed Turtle Dove, *S. risoria*.
- **Streptopelia orientalis* (Latham) **Oriental Turtle Dove**
Records: it was observed during May 2005 at IMRS HQ by J.D. Johnson (UTEP) with flock of White-winged Doves.
- Zenaida asiatica* (Linnaeus) **White-winged Dove**
Records: it was observed during May 1995 and July 2000 at IMRS HQ area, and July 2000 at Echo Spring by S. Cutler (UTEP), and 2–3 May 1992 on IMRS by T. Hibbits.
- Zenaida macroura* (Linnaeus) **Mourning Dove**
Records: it was observed during May 1995 and July 2000 at Echo Spring, and May 1995, and July 2000 by S. Cutler (UTEP), and from there 2–3 May 1992 by T. Hibbits.
Note: it is common around IMRS HQ and Echo Spring (J.D. Johnson, UTEP).

CORVIDAE (Jay, Crow, and Raven Family)

- Aphelocoma woodhouseii* (Baird) **Woodhouse's Scrub Jay**
Records: it was observed 11 and 18 April 2010 at IMRS HQ by J.D. Johnson (UTEP).
- Corvus cryptoleucus* Couch **Chihuahuan Raven**
Records: it was observed 2–3 May 1992 on IMRS by T. Hibbits, on 18 April 2010, and 25 November 2012 at IMRS HQ by G.H. Wiseman (UTEP), and there 2 May 2014, and during January 2015 by J.D. Johnson (UTEP).
- Cyanocitta stelleri* (Gmelin) **Steller's Jay**
Records: it was observed 19 April 2018 at Echo Spring by D.L. DeSantis (UTEP).
- Gymnorrhinus cyanocephalus* (Wied-Neuwied) **Pinyon Jay**
Records: 24 September 2022 at Echo Canyon by V. Mata-Silva (UTEP) (Photo).

CUCULIDAE (Cuckoo Family)

- Geococcyx californianus* (Lesson) **Greater Roadrunner**
[Mata-Silva et al., 2012]
Records: it was observed during July 2000 southeast of IMRS HQ by S. Cutler (UTEP), 2–3 May 1992 at IMRS HQ by T. Hibbits, and there during May 2009, 12 June 2010, and July 2016 by J.D. Johnson (UTEP).
Note: a nesting pair with nest high in a Catclaw on 14 August 2010 near IMRS HQ laid four eggs, three of which hatched. On 11 September 2010, the male brought nestlings a dead *Sonora semiannulata*.

EMBERIZIDAE (Sparrow and Towhee Family)

- Aimophila ruficeps* (Cassin) **Rufous-crowned Sparrow**
Records: it was reported during March 1992 at IMRS HQ by Gardea and Mena, 1992, during April 1990 on IMRS by UTEP Field Biology class, and on 2–3 May 1992 on IMRS by T. Hibbits.
Note: It is common around IMRS HQ (J.D. Johnson, UTEP).
- Amphispiza bilineata* (Cassin) **Black-throated Sparrow**
Records: it was observed during May 1995 at IMRS HQ and at Echo Spring during July 2000 by S. Cutler (UTEP), and reported during March 1992 at IMRS HQ by Gardea and Mena, 1992.
Note: it was commented during April 1990 to be common near IMRS HQ by J.D. Johnson (UTEP).
- Calamospiza melanocorys* Stegner **Lark Bunting**
Records: it was observed during April 1990 on IMRS by UTEP Field Biology class, on 11 April 2010, and 7 August 2010 at IMRS HQ by J.D. Johnson (UTEP), and then 4 August 2011 and 3 May 2014 by G.H. Wiseman (UTEP); 15 May 2012 at headquarters by V. Mata-Silva (UTEP) (Photos).

- Chondestes grammacus* (Say) **Lark Sparrow**
Records: it was observed 26 August 2011 at IMRS HQ by J.D. Johnson (UTEP), and at Mesquite Tank 20 August 2011 by G.H. Wiseman (UTEP).
- Junco hyemalis* (Linnaeus) **Dark-eyed Junco**
Records: it was observed 4 November 2012 and 5 May 2018 at IMRS HQ by J.D. Johnson (UTEP), and there 5 May 2018 by G.H. Wiseman (UTEP).
- Melospiza melodia* (Wilson) **Song Sparrow**
Records: it was observed 7 September 2013 at Rattlesnake Tank by G.H. Wiseman (UTEP).
- Melospiza lincolni* (Audubon) **Lincoln Sparrow**
Records: it was observed 2 March 2013 at Echo Spring by G.H. Wiseman (UTEP).
- Passerculus sandwichensis* (Gmelin) **Savannah Sparrow**
Records: it was observed 10 September 2011 at Rattlesnake Tank and 10 September 2011 by G.H. Wiseman (UTEP).
Note: it was seen at all ephemeral tanks, but not at Echo Spring (G.H. Wiseman, UTEP).
- Pipilo chlorurus* (Audubon) **Green-tailed Towhee**
Records: it was observed 2–3 May 1992 on IMRS by T. Hibbits, and on 8 May 2010 at IMRS HQ by J.D. Johnson (UTEP).
- Pipilo erythrophthalmus* (Linnaeus) **Eastern Towhee**
Records: it was observed during April 1990 on IMRS by UTEP Field Biology class.
- Pipilo fuscus* Swainson **Canyon Towhee**
Records: it was observed during May 1995 north of IMRS HQ by S. Cutler (UTEP), on IMRS during March 1995 by UTEP Field Biology class, and on 7 April 2011 at IMRS HQ by J.D. Johnson (UTEP).
- Pipilio maculatus* Swainson **Spotted Towhee**
Records: it was observed 15 October 2011 at Pirtle Tank by G.H. Wiseman (UTEP).
- Pooecetes gramineus* (Gmelin) **Vesper Sparrow**
Records: it was observed 15 October 2011 at Pirtle Tank by G.H. Wiseman (UTEP).
Note: it was seen at all ephemeral tanks, but not Echo Spring (G.H. Wiseman, UTEP).
- Spizella atrogularis* (Cabanis) **Black-chinned Sparrow**
Records: it was reported for March 1992 at IMRS HQ by Gardea and Mena, 1992.
- Spizella breweri* Cassin **Brewer's Sparrow**
Records: it was reported from March 1992 for IMRS HQ by Gardea and Mena, 1992, and from April 1991 and March 1995 for IMRS by UTEP Field Biology Classes.
- Spizella pallida* (Swainson) **Clay-colored Sparrow**
Records: it was observed 10 September 2011 at Rattlesnake Tank by G.H. Wiseman (UTEP).
Note: it is common during summer months (G.H. Wiseman (UTEP)).
- Spizella passerina* (Bechstein) **Chipping Sparrow**
Records: it was reported during March 1992 at IMRS HQ by Gardea and Mena, 1992, 2–3 May 1992 on IMRS by T. Hibbits, and during August 2011 at Mesquite Tank by G.H. Wiseman (UTEP).
- Spizella pusilla* (Wilson) **Field Sparrow**
Records: it was observed 30 September 2012 at Echo Spring by G.H. Wiseman (UTEP).
- Zonotrichia leucophrys* (Forster) **White-crowned Sparrow**
Records: it was observed during May 1995 at Echo Spring by S. Cutler (UTEP), reported during March 1992 at IMRS HQ by Gardea and Mena, 1992, and 7 April 2011 and March 2013 at IMRS HQ by J.D. Johnson (UTEP).
- FALCONIDAE (Falcon Family)**
- Falco sparverius* Linnaeus **American Kestrel**
Records: it was observed 2 May 1992 on IMRS by T. Hibbits, and during July and August 2016 at IMRS HQ by J.D. Johnson (UTEP); 17 December 2020 near The Box on the road to the Rio Grande by V. Mata-Silva and A. Rocha (UTEP) (Photos).
- Falco mexicanus* Schlegel **Prairie Falcon**
Records: it was observed 12 June 2015 at IMRS HQ bathroom building by J.D. Johnson (UTEP).
Note: the falcon seemed to be attracted to the Pallid Bat night roost.
- FRINGILLIDAE (Finch, Crossbill, and Goldfinch Family)**
- Haemorhous mexicanus* Müller **House Finch**

Records: it was observed during May and July 1995 at Echo Spring by S.Cutler (UTEP), reported during March 1992 from IMRS HQ by Gardea and Mena, 1992, observed 2–3 May 1992 from IMRS by T.Hibbits, in April and 9 July 2016 from Echo Spring, and 12 June 2010 and 4 August 2011 from IMRS HQ and Echo Spring by G.H. Wiseman (UTEP).

Spinus pinus (Wilson) **Pine Siskin**

Records: it was observed 24 November 2012 at Mesquite Tank and 12 April 2014 at Rattlesnake Tank by G.H. Wiseman (UTEP).

Spinus psaltria (Say) **Lesser Goldfinch**

Records: it was observed 8 July 2011 from Echo Spring, and 28 January 2012 at Pirtle Tank by G.H. Wiseman (UTEP); 23 February 2024 at HQ by M. Montoya, A. Rocha, and V. Mata-Silva (UTE) [Photos].

Spinus tristis (Linnaeus) **American Goldfinch**

Records: it was observed 31 March 2013 at Pirtle Tank by G.H. Wiseman (UTEP).

HIRUNDINIDAE (Martin and Swallow Family)

Hirundo rustica Linnaeus **Barn Swallow**

Records: it was observed during May 1995 at IMRS by UTEP field trip personnel.

Petrochelidon pyrrhonota Vieillot **Cliff Swallow**

Note: it needs to be verified on IMRS.

ICTERIDAE (Blackbird, Cowbird, Meadowlark, and Oriole Family)

Agelaius phoeniceus (Linnaeus) **Red-winged Blackbird**

Records: it was observed 10 September 2011 at Rattlesnake Tank by G.H. Wiseman (UTEP). Rio Grande [The Box], 19 July 2023, V. Mata-Silva, M. Montoya, A. Rocha [Video].

Euphagus cyanocephalus (Wagler) **Brewer's Blackbird**

Records: S.Cutler (UTEP) observed it during May 1995 at IMRS HQ, there 15 April 2013 by G.H. Wiseman (UTEP), during 2–3 May 1992 on IMRS by T. Hibbits, and during March 1995 by UTEP Field Biology class.

Icteria virens (Linnaeus) **Yellow-breasted Chat**

Records: 22 May 2021 at the Rio Grande [The Box] by V. Mata-Silva and A. Rocha (UTEP) (Photos).

Icterus bullockii (Swainson) **Bullock's Oriole**

Records: it was observed 10 September 2011 at Mesquite Tank by G.H. Wiseman (UTEP).

Icterus cucullatus Swainson **Hooded Oriole**

Records: it was observed 7 June 2008 at IMRS HQ by S. Dash (UTEP).

Icterus parisorum Bonaparte **Scott's Oriole**

Records: it was observed during May 1995 and July 2000 at Echo Spring by S.Cutler (UTEP), during March through April 1991 and March 1995 at IMRS HQ by UTEP Field Biology classes, and 2–3 May 1992 on IMRS by T. Hibbits.

Note: it is common around IMRS HQ (J.D. Johnson, UTEP).

Icterus spurius (Linnaeus) **Orchard Oriole**

Records: it was observed 28 July 2014 at Pirtle Tank by G.H. Wiseman (UTEP).

Molothrus ater (Boddaert) **Brown-headed Cowbird**

Records: it was observed during July 2000 at IMRS HQ by S. Cutler (UTEP), and 2–3 May 1992 on IMRS by T. Hibbits.

Note: it is common around IMRS HQ during summer months (J.D. Johnson, UTEP).

Molothrus aeneus (Wagler) **Bronzed Cowbird**

Records: it was observed 6 June 2009 at IMRS HQ by G.W. Johnson (UTEP) and J.D. Johnson (UTEP), and during summer 2010 and on 4 August 2011 at IMRS HQ by J.D. Johnson (UTEP).

Note: it is common around HQ during summer months (J.D. Johnson, UTEP).

Quiscalus mexicanus (Gmelin) **Great-tailed Grackle**

Records: it was observed 18 April 2010, 7 April 2011, and 16 March 2013 at IMRS HQ by J.D. Johnson (UTEP).

- Sturnella neglecta* Audubon **Western Meadowlark**
Records: it was observed during October 2010 and on 7 April 2011 at IMRS HQ by J.D. Johnson (UTEP).
- Xanthocephalus xanthocephalus* (Bonaparte) **Yellow-headed Blackbird**
Records: it was observed during summers of 2004, 2006, 2008, 2010, 2011, 2013, and 2015 through 2021 at IMRS HQ by J.D. Johnson (UTEP).
- LANIIDAE (Shrike Family)**
- Lanius ludovicianus* Linnaeus **Loggerhead Shrike**
 [Gardea and Mena, 1992]
Records: it was observed during April 1990 and March 1992 at IMRS HQ by UTEP Field Biology classes.
Note: it is commonly observed around IMRS HQ (J.D. Johnson, UTEP).
- MIMIDAE (Thrasher and Mockingbird Family)**
- Mimus polyglottos* (Linnaeus) **Northern Mockingbird**
Records: it was observed during May 1995 at Double Tank Corral, during May 1995 at Echo Spring, and during May 1995 at IMRS HQ by S. Cutler (UTEP).
Note: it is common around IMRS HQ during breeding season (J.D. Johnson, UTEP).
- Oreoscoptes montanus* (Townsend) **Sage Thrasher**
Records: it was observed 23 September 2011 at Pirtle Tank by G.H. Wiseman (UTEP).
- Toxostoma crissale* (Henry) **Crissal Thrasher**
Records: it was observed during May 1995 at Echo Spring and during May 1995 at Double Tank Corral by S. Cutler (UTEP), and reported during March 1992 at IMRS HQ by Gardea and Mena, 1992; 7 November 2023 at the Rio Grande (The Box) by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) (Videos).
- Toxostoma curvirostre* (Swainson) **Curve-billed Thrasher**
Records: it was observed 12 March 2010 at IMRS HQ by J.D. Johnson (UTEP).
- Toxostoma rufum* (Linnaeus) **Brown Thrasher**
Records: 18 October 2023 at the Rio Grande (The Box) by V. Mata-Silva, M. Montoya, and A. Rocha [Video].
- MOTACILLIDAE (Pipit Family)**
- Anthus rubescens* (Tunstall) **Buff-bellied Pipit**
Records: it was observed 4 April 1991 on IMRS by UTEP Field Biology class, and on 21 June 2012 at Road Tank by G.H. Wiseman (UTEP). 21 January 2012 at Corral Tank by V. Mata-Silva (UTEP) (Photos).
- ODONTOPHORIDAE (Quail Family)**
- Callipepla gambelii* (Gambel) **Gambel's Quail**
Records: it was confirmed during summer of 2015 on IMRS in areas near Prospect Pits and between IMRS HQ and Echo Spring by V. Mata-Silva (UTEP) [Photo], and on Green River Road and near Box Canyon on Rio Grande by J.D. Johnson (UTEP).
- Callipepla squamata* (Vigors) **Scaled Quail**
Records: it was observed during July 2000 near IMRS HQ area by S. Cutler (UTEP), 2–3 May 1992 on IMRS by T. Hibbits, and during April 1995 on IMRS by UTEP Field Biology class.
- PARULIDAE (Warbler Family)**
- Cardellina pusilla* (Wilson) **Wilson's Warbler**
Records: it was observed 2–3 May 1992 at IMRS HQ by T. Hibbits, during August and September 2011, and on 10 September 2011 at Peccary Tank, Pirtle Tank, Rattlesnake Tank, and Red Tank by G.H. Wiseman (UTEP); 10 September 2011, at Rattlesnake Tank by V. Mata-Silva (UTEP) (Photos); 26 September 2023 at the Rio grande [The Box] by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) (Video).
- Dendroica petechia* (Linnaeus) **Yellow Warbler**
Records: it was observed 27 August 2011 at Rattlesnake Tank by G.H. Wiseman (UTEP); 2 May 2014 at Headquarters by V. Mata-Silva (UTEP) (Photos).
- Geothlypis trichas* (Linnaeus) **Common Yellowthroat**
Records: 26 April 2024 at the Rio Grande (The Box) by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP), (video).

- Leiothlypis celata* (Say) **Orange-crowned Warbler**
Records: 13 October 2011, at Purple Sage area by V. Mata-Silva (UTEP) (Photos).
- Leiothlypis luciae* (Cooper) **Lucy's Warbler**
Records: 30 April 2022, at the Rio Grande (The Box) by O. Johnson (UTEP) (Photo); 12 May 2024 at the Rio Grande (The Box) by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP), (video).
- Oporornis tolmiei* (Townsend) **MacGillivray's Warbler**
Records: it was observed during May 1995 at Echo Spring by S. Cutler (UTEP).
- Oreothlypis ruficapilla* (Wilson) **Nashville Warbler**
Records: it was observed 12 April 2014 at Rattlesnake Tank by G.H. Wiseman (UTEP).
- Seiurus noveboracensis* (Gmelin) **Northern Waterthrush**
Records: it was observed 13 August 2011 at Road Tank by G.H. Wiseman (UTEP).
- Setophaga americana* (Linnaeus) **Northern Parula**
Records: it was observed 15 October 2011 at PirtleTank by G.H. Wiseman (UTEP).
- Setophaga coronata* (Linnaeus) **Yellow-rumped Warbler**
Records: it was observed during May 1995 at Echo Spring by S. Cutler (UTEP) and 7 April and 14 May 2011 at IMRS HQ by J.D. Johnson (UTEP). 2 May 2014, at IMRS headquarters by V. Mata-Silva (UTEP) (Photos).
- Setophaga townsendi* (Townsend) **Townsend's Warbler**
[Wiseman (UTEP)]
Records: G.H. Wiseman (UTEP) observed it 8 October 2012 at Mesquite Tank.
Note: it was bserved at all ephemeral tanks and Echo Spring.
- Vermivora virginiae* (Baird) **Virginia's Warbler**
Records: it was observed during May 1995 on IMRS by UTEP Herpetology field trip, and 7 June 2008 was found dead on ground at Red Tank by J.D. Johnson (UTEP).
- PHALACROCORACIDAE (Cormorant and Shag Family)**
- Nannopterum brasilianum* (Gmelin) **Neotropic Cormorant**
Records: 18 August 2023 at the Rio Grande [The Box], by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) [Video].
- PICIDAE (Woodpecker Family)**
- Colaptes auratus* (Linnaeus) **Northern Flicker**
Records: it is common near IMRS HQ (J.D. Johnson, UTEP).
- Picoides scalaris* (Wagler) **Ladder-backed Woodpecker**
Records: it was observed during July 2000 on road from IMRS HQ to Echo Spring by S. Cutler (UTEP), and 7 June 2008 at IMRS HQ by J.D. Johnson (UTEP).
- Sphyrapicus varius* (Linnaeus) **Yellow-bellied Sapsucker**
Records: Rio Grande [The Box], 3 December 2023, V. Mata-Silva, M. Montoya, A. Rocha [Video].
- PODICIPEDIDAE (Grebes)**
- Tachybaptus dominicus* (Linnaeus) **Least Grebe**
Records: 11 February 2024 at the Rio Grande (The Box) by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) (Videos).
- PTILOGONATIDAE (Phainopepla Family)**
- Phainopepla nitens* (Swainson) **Phainopepla**
Records: it was observed during May 1995 at Echo Spring by S.Cutler (UTEP), during June 2006 and 2014 at IMRS HQ by J.D. Johnson (UTEP), and during March 2013 at Mesquite Tank by G.H.Wiseman (UTEP).
- RALLIDAE (Coot and Rail Family)**
- Fulica americana* Gmelin **American Coot**
Records: Rio Grande [The Box], 20 November 2020, V. Mata-Silva [Photos].
- Porzana carolina* (Linnaeus) **Sora**
Records: it was observed 17 July 2016 at Rattlesnake Tank being eaten by a *C. atrox*, and 16 August 2016 at Pecary Tank by D.L. DeSantis (UTEP). Rio Grande [The Box], 20 September 2023, V. Mata-Silva, M. Montoya, A. Rcoha [Videos].
- Rallus limicola* Vieillot **Virginia Rail**
Records: it was observed 27 April 2013 at Pirtle Tank by G.H. Wiseman (UTEP).
- RECURVIROSTRIDAE (Stilt and Avocet Family)**

- Himantopus mexicanus* (Muller) **Black-necked Stilt**
Records: 27 April 2024, V. Mata-Silva, M. Montoya, A. Rocha (UTEP) [Video].
- Recurvirostris americana* Gmelin **American Avocet**
Records: Road Tank, 13 April 2013, G.H. Wiseman (UTEP); IMRS HQ, June 2014, J.D. Johnson (UTEP); IMRS HQ, 16 September 2023, V. Mata-Silva, A. Rocha, M. Montoya [Photos].
- REGULIDAE (Kinglet Family)**
- Regulus calendula* (Linnaeus) **Ruby-crowned Kinglet**
Records: it was observed 20 January 2012 at Echo Spring by G.H. Wiseman (UTEP).
- REMIZIDAE (Verdin Family)**
- Auriparus flaviceps* Sundevall **Verdin**
Records: it was observed during April 1990 and during March through April 1995 on IMRS by UTEP Field Biology classes, during June 2000 at IMRS HQ by J.D. Johnson (UTEP) and there during August 2011 by G.H. Wiseman (UTEP).
- SCOLOPACIDAE (Sandpiper, Snipe, and Phalarope Family)**
- Actitis macularius* (Linnaeus) **Spotted Sandpiper**
Records: 14 May 2021 at the Rio Grande [The Box] by V. Mata-Silva (UTEP) (Photos).
- Gallinago gallinago* (Linnaeus) **Common Snipe**
Records: it was observed 2–3 May 1992 on IMRS by T. Hibbits; 15 October 2011 at Corral Tank by V. Mata-Silva (UTEP) (Photos).
- Phalaropus fulicarius* (Linnaeus) **Red Phalarope**
Records: 15 October 2011 at Corral Tank by V. Mata-Silva (UTEP) (Photos).
- Phalaropus tricolor* (Vieillot) **Wilson's Phalarope**
Records: it was observed 15 October 2011 at Road Tank by G.H. Wiseman (UTEP).
- Tringa solitaria* (Wilson) **Solitary Sandpiper**
Records: it was observed April 1991 on IMRS by UTEP Field Biology class, and there during July 2013 by G.H. Wiseman (UTEP); 15 August 2014 at Corral Tank by V. Mata-Silva (UTEP) (Photos).
- STRIGIDAE (Owl Family)**
- Athene cunicularia* (Molina) **Burrowing Owl**
Records: this species needs to be documented on IMRS.
- Bubo virginianus* (Gmelin) **Great Horned Owl**
Records: it is commonly heard and observed around IMRS HQ (J.D. Johnson, UTEP).
- Micranthene whitneyi* (Cooper) **Elf Owl**
Records: it was observed 25 May 2010, 13 and 27 April 2012 at IMRS HQ by J.D. Johnson (UTEP) and G.H. Wiseman (UTEP) [Photo], and 2 October 2016 at Juniper Grove by K. Garza (UTEP) [Photo].
Note: there was a nesting pair of Elf Owls in a woodpecker hole in wooden IMRS HQ kitchen water tower legs; young fledged week of 27 June 2012. The owls return in April and were gone by October every year since 2010 through the present (J.D. Johnson, UTEP).
- Megascops kennicottii* (Elliot) **Western Screech-owl**
Records: it was observed 19 June 2015 near IMRS HQ by J.D. Emerson (UTEP).
- Tyto alba* (Scopoli) **Barn Owl**
Records: it was observed during August 2016 around IMRS HQ by K. Garza (UTEP).
- SYLVIIDAE (Gnatcatcher Family)**
- Poliophtila melanura* Lawrence **Black-tailed Gnatcatcher**
Records: it was observed during May 1995 at Echo Spring and at IMRS HQ area by S. Cutler (UTEP), and reported there March 1992 by Gardea and Mena, 1992, and observed during July 2009 by J.D. Johnson (UTEP).
- Poliophtila caerulea* (Linnaeus) **Blue-gray Gnatcatcher**
Records: it was observed 10 September 2011 at Mesquite Tank by G.H. Wiseman (UTEP); 6 September 2013 at Corral Tank by V. Mata-Silva (UTEP) (Photos).
- THRAUPIDAE (Tanager Family)**
- Piranga ludoviciana* (Wilson) **Western Tanager**
Records: it was observed during May 1995 at Echo Spring by S. Cutler (UTEP), and 17 July 2010 at the Box on the Rio Grande by J.D. Johnson (UTEP); 8 May 2022 at the headquarters by V. Mata-Silva (UTEP) (Photos).

- Piranga rubra* (Linnaeus) **Summer Tanager**
Records: S. Cutler (UTEP) observed it during May 1995 at Echo Spring; 1 September 2023 at the Rio Grande [The Box] by V. Mata-Silva, M. Montoya, A. Rocha (Videos).
- THRESKIORNITIDAE (Ibis Family)**
- Plegades chihi* (Vieillot) **White-faced Ibis**
Records: it was observed 10 April 2021 near Box Canyon on Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].
- TROCHILIDAE (Hummingbird Family)**
 Thanks to M. Harvey (UTEP) for indentifications listed below.
- Archilochus alexandri* (Bourcier and Mulant) **Black-chinned Hummingbird**
Records: it was observed during May 1995 at Echo Spring by S. Cutler (UTEP), during April 1990 on IMRS by UTEP Field Biology class, on 23 May 1992 on IMRS by T. Hibbits, and on 7 June 2008, 16 June 2009, 27 August 2011, and during May 2013 through 2016 on IMRS HQ by J.D. Johnson (UTEP).
- Salasphorus calliope* (Gould) **Calliope Hummingbird**
Records: it was observed during August 2016 in Oak Arroyo by K. Garza (UTEP).
- Selasphorus rufus* (Gmelin) **Rufous Hummingbird**
Records: it was observed 4 August 2011 at IMRS HQ by G.H. Wiseman (UTEP) and there 27 August 2011 by J.D. Johnson (UTEP), on 8 August 2011 at Corral Tank by V. Mata-Silva (UTEP) (Photos), and on 8 October 2011 at Mesquite Tank by G.H. Wiseman (UTEP).
- Selasphorus platycercus* (Swainson) **Broad-tailed Hummingbird**
Records: it was observed 27 August at Juniper Grove by K. Garza (UTEP) [Photo], there during April 1990 by S. Cutler (UTEP), and on 7 June 2008 at IMRS HQ by J.D. Johnson (UTEP).
- TROGLODYTIDAE (Wren Family)**
- Campylorhynchus brunneicapillus* (Lafresnaye) **Cactus Wren**
Records: it was heard calling during May 1995 at Echo Spring by J.D. Johnson (UTEP), observed during July 2000 and April 1990 along road to Echo Spring by S. Cutler (UTEP), on IMRS 2–3 May 1992 by T. Hibbits, during March 1990 by UTEP Field Biology class, and during June 2007 at IMRS HQ by J.D. Johnson (UTEP); 7 July 2020 at the headquarters by V. Mata-Silva (UTEP) (Videos).
- Catherpes mexicanus* (Swainson) **Canyon Wren**
Records: it was observed 16 July 2011 at Echo Spring by G.H. Wiseman (UTEP), and during 2013 at IMRS HQ by J.D. Johnson (UTEP).
- Salpinctes obsoletus* (Say) **Rock Wren**
Records: it was reported during March 1992 from IMRS HQ by Gardea and Mena, 1992, observed on 2 and 3 May 1992 on IMRS HQ by T. Hibbits, and 18 February 2012 at Echo Spring by G.H. Wiseman (UTEP).
- Thryomanes bewickii* (Audubon) **Bewick's Wren**
Records: it was observation during July 2000 at Echo Spring by S. Cutler (UTEP), reported during March 1992 from IMRS HQ by Gardea and Mena, 1992, observed during April 1992 from IMRS by UTEP Field Biology class, and 24 September 2011 from Mesquite Tank by G.H. Wseman (UTEP).
- Troglodytes aedon* (Vieillot) **House Wren**
Records: it was observed 27 August 2016 in Oak Wash by K. Garza (UTEP).
- TURDIDAE (Thrush, Robin, Solitaire, and Bluebird Family)**
- Catharus guttatus* (Pallas) **Hermit Thrush**
Records: it was observed during May 1995 on IMRS by UTEP Herpetology classs field trip. 21 February 2024 at the Rio Grande (The Box) by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP), (Videos).
- Myadestes townsendi* (Audubon) **Townsend's Solitaire**
Records: it was observed 28 September 2013 at Echo Spring and on 19 October 2013 at Pirtle Tank by G.H. Wiseman (UTEP).

- Sialia currucoides* (Bechstein) **Mountain Bluebird**
Records: it was observed 5 November 2011 at Red Tank by G.H. Wiseman (UTEP), and V. Mata-Silva (UTEP) (Photos); 10 November 2022 at the IMRS headquarters, by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) (Videos).
- Sialia mexicana* Swainson **Western Bluebird**
Records: it was observed 23 May 2010 at IMRS HQ by G.W. Johnson (UTEP).
- Turdus migratorius* (Linnaeus) **American Robin**
Records: it was observed 12 March 2010 at IMRS HQ by J.D. Johnson (UTEP); 12 October 2020 at the spring, by V. Mata-Silva (UTEP) (Photos).
- TYRANNIDAE (Flycatcher, Kingbird and Phoebe Family)**
- Contopus cooperi* (Swainson) **Olive-sided Flycatcher**
Records: S. Cutler (UTEP) observed it during May 1995 at Echo Spring.
Note: it is called *C. borealis* in some books.
- Contopus sordidulus* (Sclater) **Western Wood Pewee**
Records: it was observed 20 August 2011 at Rattlesnake Tank by G.H. Wiseman (UTEP).
- Empidonax minimus* (Baird) **Least Flycatcher**
Records: it was observed 10 September 2011 at Rattlesnake Tank by G.H. Wiseman (UTEP).
- Empidonax oberholseri* Phillips **Dusky Flycatcher**
Records: it was observed 14 May 2012 at Mesquite Tank and Rattlesnake Tank by G.H. Wiseman (UTEP).
- Empidonax occidentalis* Nelson **Cordilleran Flycatcher**
Records: it was observed 17 May 2013 at Pirtle Tank by G.H. Wiseman (UTEP).
- Myiarchus cinerascens* (Lawrence) **Ash-throated Flycatcher**
Records: it was observed during May 1995 at Double Tank Corral, during May 1995 at Echo Spring, and during May 1995 at IMRS HQ by S. Cutler (UTEP), and there during May 1992 by T. Hibbits, and during April 2012 by J.D. Johnson (UTEP).
Note: it is common around IMRS HQ (J.D. Johnson, UTEP).
- Pyrocephalus obscurus* (Gould) **Vermillion Flycatcher**
Records: it was observed 18 April 2010 at IMRS HQ by J.D. Johnson (UTEP), and on 20 March 2021 at Box Canyon of Rio Grande by A. Rocha (UTEP) and V. Mata-Silva (UTEP) [Photo].
- Sayornis nigricans* (Swainson) **Black Phoebe**
Records: it was observed 24 September 2011 at Pirtle Tank by G.H. Wiseman (UTEP), and 22 October 2017 at Echo Spring by V. Mata-Silva (UTEP) [Photo].
- Sayornis saya* (Bonaparte) **Say's Phoebe**
Records: it nests annually on buildings at IMRS HQ (J.D. Johnson, UTEP).
- Tyrannus verticalis* Say **Western Kingbird**
 [Gardea and Mena, 1992]
Records: it was observed during March and May 1992 at IMRS HQ by T. Hibbits; 12 May 2020 at the Headquarters by V. Mata-Silva (UTEP) (Photos).
- VIREONIDAE (Vireo Family)**
- Vireo gilvus* (Vieillot) **Warbling Vireo**
Records: it was observed 25 August 2012 at Echo Spring, during 2012 at Rattlesnake Tank, and during 2013 at PirtleTank by G.H. Wiseman (UTEP).
- Vireo griseus* (Vieillot) **White-eyed Vireo**
Records: it was observed 22 May 2013 at PirtleTank by G.H. Wiseman (UTEP).
- Vireo solitarius* (Wilson) **Blue-headed Vireo**
Note: this species needs documentation on IMRS.
- Vireo vicinior* Coues **Gray Vireo**
Records: it was observed during March 1995 on IMRS by UTEP Field Biology class.

Class: MAMMALIA (Mammals)

Compiled by H. Brewer, J.D. Johnson, and C.S. Lieb. Schmidly, 1977, 1991 (bats), 2004, cover IMRS species.

Order: DIDELPHIMORPHIA (Opossums)

DIDELPHIDAE (Opossum Family)

Didelphis virginiana Kerr

[Brewer, 2004, 2007]

Records: a photo in Brewer, 2004, shows tail only.

Virginia Opossum

Order: INSECTIVORA (Shrews and Moles)

SORICIDAE (Shrew Family)

Notiosorex crawfordi (Coues)

Records: it was captured once in 1996 from a pit-fall trap near IMRS HQ by J.D. Johnson (UTEP).

Desert Shrew

Order: CHIROPTERA (Bats)

MOLOSSIDAE (Free-tailed Bat Family)

Tadarida brasiliensis (Geoffroy St. Hilaire)

Records: it was observed during May 2009 at Road Tank by R. Todorovich (UTEP) [Photo].

Brazilian Free-tailed Bat

VESPERTILIONIDAE (Vespertilionid Bat Family)

Antrozous pallidus (Le Conte)

[Brewer, 2007, Lenhart et al., 2010, Mata-Silva et al., 2011a, b]

Records: it was observed during 2007 at Echo Spring and IMRS HQ by H. Brewer, and in 2001 at Echo Spring by J. Mueller.

Note: the night roost in entrance to IMRS HQ bathrooms normally have up to 40 individuals at one time. For unknown reason, there were low numbers during summer of 2011 (only eight or nine per night). Pallid Bats usually arrive during middle of April (J.D. Johnson, UTEP).

Pallid Bat

Corynorhinus townsendii (Cooper)

Records: it was observed 7 April 2011, and during 2004 and 2007 on IMRS HQ by J.D. Johnson (UTEP), and 17 May 2005 at Prospect Pits by V. Mata-Silva (UTEP) [Photo].

Townsend's Big-eared Bat

Myotis californicus (Audubon and Bachman)

Records: it was netted during 2001 at Echo Spring by J. Mueller.

California Myotis

Myotis thysanodes Miller

Records: it was netted during 2001 at Echo Spring by J. Mueller.

Fringed Myotis

Parastrellus hesperus (Allen)

Records: it was observed in 2001 within a mineshaft in Prospect Pits area by J.D. Johnson (UTEP), netted during 2001 at Echo Spring by J. Mueller, and observed there on 1 May 2015 by V. Mata-Silva UTEP) [Photo].

Western Pipistrelle

Note: the species was removed from *Pipistrellus* and placed into the monotypic genus *Parastrellus* by Hooper et al., 2006.

Order: LAGOMORPHA (Rabbits and Hares)

LEPORIDAE (Rabbit and Hare Family)

Lepus californicus Gray

[Brewer, 2004, 2007 (Photo)]

Records: it was commonly observed around IMRS HQ during 2008 through present by J.D. Johnson (UTEP).

Black-tailed Jackrabbit

Sylvilagus audubonii (Baird)

Records: it was commonly observed around IMRS HQ during 2008 through present by J.D. Johnson (UTEP).

Desert Cottontail

Order: RODENTIA (Rodents)

CASTORIDAE (Beaver Family)

Castor canadensis Kuhl

American Beaver

[Mata-Silva (UTEP), A. Rocha (UTEP)]

Records: it was observed at 20:51 h on 11 February 2022 in Box Canyon of Rio Grande by V. Mata-Silva (UTEP) [Videos].

Note: American Beavers seem to be uncommon at the Box Canyon on Rio Grande.

CRICETIDAE (Mouse and Rat Family)

The resurrection of family name Cricetidae from Muridae follows Wilson and Reeder (2005).

Neotoma leucodon Merriam

Eastern White-throated Woodrat

[Brewer, 2004, 2007]

Records: it is continuously observed in IMRS HQ area by J.D. Johnson (UTEP).

Note: the species commonly nests in Prickly Pear Cactus clumps and in rock crevices.

Peromyscus eremicus (Baird)

Cactus Mouse

[Brewer, 2004, 2007]

Records: it is observed continually at IMRS HQ, Campo Bonito, Echo Spring, and Red Tank by UTEP personnel (J.D. Johnson, UTEP).

Peromyscus leucopus (Rafinesque)

White-footed Mouse

[Brewer, 2004, 2007]

Records: it was observed at Peccary Tank by H. Brewer (UTEP).

Note: this questionable record needs verification.

Peromyscus maniculatus (Wagner)

Deer Mouse

[Brewer, 2004, 2007]

Records: it was observed at Red Tank by H. Brewer (UTEP), and continuously seen at IMRS HQ area by UTEP personnel (J.D. Johnson, UTEP).

Reithrodontomys megalotus (Baird)

Western Harvest Mouse

[Brewer, 2004, 2007]

Records: it was observed at Red Tank by H. Brewer (UTEP).

Sigmodon hispidus Say and Ord

Hispid Cotton Rat

[Brewer, 2004, 2007]

Records: it was observed at Red Tank by H. Brewer (UTEP); 12 November 2023 at the Rio Grande [The Box] by V. Mata-Silva, M. Montoya, and A. Rocha (UTEP) (Video).

ERETHIZONTIDAE (New World Porcupine Family)

Erethizon dorsatum Linnaeus

Porcupine

[Brewer 2004, 2007]

Records: it was observed 5 October 2020 near Box Canyon of Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].

GEOMYIDAE (Pocket Gopher Family)

Thomomys bottae (Eydoux and Gervais)

Botta's Pocket Gopher

[Brewer, 2004, 2007]

Records: May 2005 in HQ pitfall trap by V. Mata-Silva (photos); observed at Red Tank by Brewer (UTEP), and on 8 May 2010, 7 April 2011, and 14 April 2012 at IMRS HQ (J.D. Johnson, UTEP); 19 September 2020 in HQ pitfall trap by V. Mata-Silva (Photos).

Note: Pocket Gopher mounds, presumably of this species, are observed throughout IMRS.

HETEROMYIDAE (Pocket Mouse and Kangaroo Rat Family)

Chaetodipus intermedius Merriam

Rock Pocket Mouse

[Brewer, 2004, 2007]

Records: it was trapped at Red Tank, IMRS HQ, and Echo Spring by H. Brewer (UTEP).

Note: it is the most common mouse on IMRS (J.D. Johnson, UTEP).

Dipodomys merriami Mearns

Merriam's Kangaroo Rat

[Brewer, 2004, 2007].

Records: it was trapped at Echo Spring, Red Tank, and IMRS HQ (J.D. Johnson, UTEP).

SCIURIDAE (Squirrel, Chipmunk, and Prairie Dog Family)

- Ammospermophilus interpres* (Merriam) **Texas Antelope Squirrel**
 [Brewer, 2004, 2007]
Records: it was trapped at Campo Bonito by Brewer (UTEP), and observed continuously around IMRS HQ from April 2011 through present (J.D. Johnson, UTEP).
Note: it is commonly seen throughout IMRS in rocky areas (J.D. Johnson, UTEP).
- Otospermophilus variegatus* (Erxleben) **Rock Squirrel**
 [Brewer, 2004, 2007]
Records: it was observed 17 September 2011 at IMRS HQ by J.D. Johnson (UTEP).
Note: genus name was changed from *Spermophilus* by Helgen et al., 2009. It is common in rocky canyons throughout IMRS (J.D. Johnson, UTEP).
- Xerospermophilus spilosoma* **Spotted Ground Squirrel**
Records: it was observed 4 June 2011 at IMRS HQ by J.D. Johnson (UTEP), on 11 July 2020 at Mesquite Tank in pit-fall trap by G. Alvarez (UTEP) [Video], and on 11 November 2010 at Rattlesnake Tank by V. Mata-Silva (UTEP) [Photo].
Note: the genus name was changed from *Spermophilus* by Helgen et al., 2009.

Order: CARNIVORA (Carnivores)

CANIDAE (Dog Family)

- Canis latrans* Say **Coyote**
Records: it was observed at Echo Canyon Overlook by UTEP personnel, observed 28 October 2008 at Red Tank [Video] and 11 November 2010 at Rattlesnake Tank by V. Mata-Silva (UTEP) [Photo], and on 6 October 2020 at the Box Canyon of Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].
Note: it is often heard vocalizing near IMRS HQ, but rarely seen (J.D. Johnson, UTEP).
- Urocyon cinereoargenteus* (Schreber) **Gray Fox**
Records: it was observed at Eagle Canyon Narrows by UTEP personnel, observed in Echo Canyon and MRS HQ by J.D. Johnson (UTEP), observed on 15 August 2020 at Echo Spring [Photo] and 6 October 2020 and 10 August 2022 at the Box Canyon of Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Videos].
Note: two Gray Fox pups were born near IMRS HQ during June 2012 (J.D. Johnson, UTEP). It is the most common canid on IMRS (J.D. Johnson, UTEP).

- Vulpes macrotis* (Say) **Kit Fox**
Records: it was observed during 2007 at Prospect Pits by H. Brewer (UTEP), April 2018 at East Well, 16 July 2016, 18 February 2017 and April 2018 at IMRS HQ by J.D. Johnson (UTEP).
Note: Mercure et al., 1993, using mDNA concluded the Kit Fox was a full species independent from *V. velox*.

MEPHITIDAE (Skunk Family)

Dragoo and Honeycutt, 1999, removed Skunks from Family Mustelidae.

- Mephitis mephitis* (Schreber) **Striped Skunk**
Records: it was observed 3 October 2020 and 9 August 2022 at the Box Canyon on Rio Grande by V. Mata-Silva and A. Rocha [Videos].
- Spilogale gracilis* Merriam **Western Spotted Skunk**
Records: it was reported from Prospect Pits by H. Brewer, 2004, 2007, and observed 22 August 2021, at the Box Canyon on Rio Grande by V. Mata-Silva and A. Rocha [Video].
- Conepatus leuconotus* **Hog-nosed Skunk**
Records: it was observed during April 2012 at Rattlesnake Tank by J. Alva (UTEP) [Photo], and July 2016 at Prospect Pits area by V. Mata-Silva (UTEP), and 14 November 2020 at the Box Canyon on Rio Grande by V. Mata-Silva (UTEP) and R. Rocha (UTEP) [Video].

MUSTELIDAE (Weasel, Ferret, Mink, Badger, and Otter Family)

Taxidea taxus (Schreber)

Badger

Records: it was reported from Prospect Pits by Brewer, 2004, 2007 [photo], observed during May 2008 at IMRS HQ by L. Miranda (UTEP), during June 2016 by D.L. DeSantis (UTEP), 11 November 2020 at IMRS HQ by V. Mata-Silva (UTEP) [Video], and 18 December 2020 at Box Canyon of Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].

FELIDAE (Cat Family)

Puma concolor (Linnaeus)

Mountain Lion

Records: it is known from tracks near IMRS HQ and in Clay Bluffs Draw (J.D. Johnson, UTEP), observed during July 2001 at Cougar Cave by G.W. Johnson and H. Riveroll, Jr. (UTEP), during March 2012 at Echo Spring Spring by A.S. Davis (UTEP), during March 2012 by J. Alva (UTEP) [Photo], during 2021 west of Double Tank Corral by J.D. Johnson (UTEP), 4 October 2020, 6 January 2022, and 31 July 2022 near Box Canyon of Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Videos].

Note: using generic name *Puma* instead of *Felis* follows Wilson and Reeder, 2005.

Lynx rufus (Schreber)

Bobcat

[Brewer, 2007]

Records: it was reported at IMRS HQ by Brewer, 2007, at Palmas Well by UTEP personnel, observed 10 November 2020 by V. Mata-Silva (UTEP) [Video], and 22 December 2020 at the Box Canyon of Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].

PROCYONIDAE (Raccoon and Ringtail Family).

Bassariscus astutus Lichtenstein

Ringtail

Records: it was observed in Eagle Canyon by UTEP personnel, reported during July 2017 near IMRS HQ, Prospect Pits, and Oak Wash by Brewer, 2007 [Photo], on 9 February 2008 at IMRS HQ by V. Mata-Silva [photo], and on 8 December 2020 at the Box Canyon of Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].

Note: occasionally it was observed living in and under old Ranch House building at IMRS HQ (J.D. Johnson, UTEP).

Procyon lotor Linnaeus

Raccoon

Records: 23 September 2020 at Box Canyon of Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video]; 22 October 2023 at Oak Arroyo by V. Mata-Silva, M. Montoya, and A. Rocha [Video]. 9 February 2024 at Headquarters by V. Mata-Silva, M. Montoya, and A. Rocha [Videos].

URSIDAE (Bear Family)

Ursus americanus Pallis

American Black Bear

Records: a young individual was observed during November 2011 in Echo Canyon by D. Shoemake.

Note: this was the first record since UTEP took control of IMRS in the 1980s. The individual probably came from populations in the Big Bend area or from Mexico.

Order: ARTIODACTYLA (Even-toed Ungulates)

BOVIDAE (Bovid Family)

**Ammotragus lervia* (Pallas)

Barbary Sheep

Records: observed at Echo Spring, Echo Canyon, Road Tank, and South Gate by J.D. Johnson (UTEP).

Note: this exotic species is well established on IMRS (J.D. Johnson, UTEP).

Ovis canadensis Shaw

Bighorn Sheep

Records: it was observed near Purple Sage Mine by B. Nix, on Flattop Mountain by the 2014 UTEP Geology class, during December 2015 near Red Tank by D. Shoemake, 20 October 2006 on road to southern windmill, a piece of horn was found 6 September 2013 of an adult male in Echo Canyon by V. Mata-Silva (UTEP) [Photo], 18 August 2020 at Echo Spring of an adult male by V. Mata-Silva (UTEP) [Video], and 21 July 2021 at Echo Spring of seven females by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].

CERVIDAE (Deer Family)

Cervus elaphus Erxleben

Elk

Records: it was observed during November 2006 in Echo Canyon by B. Nix.

Note: Elk probably occasionally wander onto IMRS from the Eagle Mountains.

Odocoileus hemionus (Rafinesque)

Mule Deer

Records: it was reported by Brewer Brewer, 2007 [Photo], observed on Echo Canyon Overlook, Red Tank, IMRS HQ, and Echo Spring by J.D. Johnson (UTEP).

Note: it is commonly observed throughout IMRS (J.D. Johnson, UTEP)

Odocoileus virginianus (Boddaert)

White-tailed Deer

Records: it is suspected to have occasionally been on IMRS from an antler found at Red Tank, although its actual occurrence is questionable (J.D. Johnson, UTEP).

SUIDAE (Pig Family)

**Sus scrofa* Linnaeus

Feral Pig

Records: it was observed 6 November 2020 near the Box Canyon of the Rio Grande by V. Mata-Silva (UTEP) and A. Rocha (UTEP) [Video].

TAYASSUIDAE (Peccary Family)

Dicotyles tajacu (Linnaeus)

Collared Peccary

[Brewer, 2007].

Records: Collared Peccaries are ubiquitous on IMRS and are especially active during fall and summer (April through October). They have been specifically observed at Red Tank, Echo Spring, Cougar Cave, IMRS HQ, Echo Canyon, Peccary Tank, Rattlesnake Tank, near Box Canyon of Rio Grande, and Pirtle Tank (J.D. Johnson, UTEP).

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IMRS GAZETTEER

Compiled by C.S. Lieb (UTEP) and J.D. Johnson (UTEP)

Modified from the 1996 version. Most elevations and coordinates are extrapolated from USGS 7.5' topographic maps (Bramlett Ranch, Mesquite Spring, Eagle Mts. SE, and Lobo NE) or GPS devices. Origins of place names are reference by numbers in brackets and most refer by number to the following:

1. Wynn Anderson (informal designations).
2. Carl Lieb (informal designations).
3. USGS 15' geological map of the area.
4. Jack Bristol (informal designations).
5. USGS geological map loaned from Betsy Julian.
6. UTEP Field Biology Class (informal designations).
7. Jerry D. Johnson (informal designation).

8. J. D. Johnson's Graduate Students (informal designations).
9. V. Mata-Silva and Graduate Students (informal designations).

Access Road. (= IMRS Access Road): see Main Road).

Agate Hill: Small hill composed of igneous rock along River Road, west of Flat Top Mountain (30.74028°N, 105.00278°W), 1,235 m elev. [2].

Bailey Evens Arroyo: The arroyo eaving Bailey Evens Canyon that leads to the Rio Grande [8].

Bailey Evens Canyon: The canyon and arroyo directly north of dormitory and bathroom building at IMRS HQ [8]. Arroyo eventually terminates at the Rio Grande near The Box.

Bailey Evans Peak: Highest mountain peak located east-northeast of Indio Ranch House (30.781661°N, 105.004167°W), 1,461.6 m elev. [2]. Also called Mount Everest [8].

Black Diamond Mine: Abandoned mine, ca. 1.75 airline km southeast of IMRS HQ. Developed by Walter Rossman in the late 1940s consisting of a 30.5 m deep vertical shaft (30.76806°N, 105.001°W), 1,281 m elev. [1].

Bramlett Ranch: Principal land holdings to the southwest, west, and northwest of IMRS boundary.

Campo Bonito: Abandoned partially dismantled windmill on the River Road, ca. 3.22 road km north of South Gate at junction with Eagle Canyon Road (30.70778°N, 104.969°W), 1,140 m elev. [6].

Carpenter Mine: Abandoned mine and mining company headquarters (ruins only) on Purple Sage Mine Road, ca. 2 airline km south-southwest of IMRS HQ; ruins and mine (30.76056°N, 105.023°W), 1,220 m elev. It yielded a small amount of ore containing 2.5% copper [1].

Clay Bluffs Draw: Large arroyo system with high vertical banks just east of River Road and draining into Green River. Principal access (by foot) is about .5 km east of Campo Bonito [3].

Corral Tank: Northernmost of two seasonally dry impoundments near Double Tank Corral, at head of jeep trail leading to upper Echo Spring Canyon. It often has water early and/or late in the year (30.78729°N, 104.986°W), 1,339 m elev. Also called Road Tank [8]. There is a pit-fall trap array north of tank dam.

Cottonwood Canyon Tank: Cattle tank just off northwest corner of IMRS boundary, ca. 1,287.1 m elev. [2].

Cougar Cave: Found in arroyo that crosses road to Echo Spring (before road splits) about .80 km north of IMRS HQ [8].

Double Tank: see Pirtle Tank and Road Tank.

Double Tank Corral: Abandoned cattle corral along Main Road, just west of East Gate and near Pirtle and Road Tanks (30.78585°N, 104.985°W), 1,287 m elev. [3].

Eagle Canyon: Rugged canyon system on east side of IMRS south of Double Tank Corral, draining southward into the Rio Grande west of The Box; contains Palmas Well and The Narrows [1]. Replaces Snake Canyon of [4].

Eagle Canyon Road: Bulldozed track/gravel road running northeast to southwest of Double Tank Corral over Eagle Pass and down through upper Eagle Canyon to junction with River Road [3]. Presently it is impassable.

Eagle Pass: Top of Eagle Canyon, ca. 1.75 airline km south-southwest of East Gate (30.769444°N, 104.979167°W), ca. 1,418.3 m elev. [3].

East Gate: Principal access gate to IMRS on Main Road, 5.15 road km west of junction with Green River Road, and east of Double Tanks Corral (30.78545°N, 104.979°W), 1,342 m elev. [2].

East Well: Defunct well and metal tank on east slope of Indio Mountains, ca. 3.3 arline km southeast of East Gate (30.7681°N, 104.953°W), 1,242.9 m elev. [2 and 3].

East Well Arroyo: East-draining arroyo immediately north of East Well, washes out East Well Road ca. 2.41 km south of junction with Main Road [2 and 3].

East Well Road: Primitive road extending from Main Road (junction is 4.4 km west of Green River Road) south Through Grassy Tank, past Lost Well, to East Well. Road is impassable at East Well Draw ca. 2.41 km south of Main Road [2 and 3].

Echo Canyon: Southwest draining canyon along Main Road on east slope of Indio Mountains below Indio Pass [1].

Echo Canyon Overlook: Westward-looking observation point along Main Road just west of the top of Indio Pass, ca. 1.21 road km west of Double Tank Corral (30.78333°N, 104.99444°W), 1,596 m elev. [3].

Echo Canyon Tank: Tank on Jeep road to Echo Spring below Echo Canyon Overlook [8].

Echo Canyon TwinTanks: Two adjacent seasonally dry impoundments along main road in Echo Canyon, northeast of junction with road to Black Diamond Mine (30.77384°N, 105.001°W), ca. 1,189.5 m elev. [8]. Also called North Twin Tanks [8].

Echo Creek: See Echo Creek Canyon.

Echo Creek Canyon: Major arroyo draining southwest to the Rio Grande. The head is ca. 3 airline km north-northwest of Double Tank Corral area. It contains Echo Spring [1, modified by 3]. This usage is preferred over Echo Creek or Echo Spring Canyon.

Echo Pass: Pass through Echo Ridge located 0.75 airline km west-northwest of Echo Peak (30.825°N, 105.006667°W), 1,418.3 m elev. [1].

Echo Peak: Highest and somewhat isolated peak in the Indio Mountains (ca. 1,600 m elev.) located several km north of Echo Spring near the northcentral boundary of IMRS (30.81852°N, 105.015°W), ca. 1,600 m elev. It can be seen from Van Horn.

Echo Ridge: Ridgeline extending east-southeast and west-northwest from Echo Peak [4].

Echo Spring: Permanent spring in Echo Creek Canyon ca. 2.5 airline km north of IMRS HQ (30.7972°N, 105.011°W), 1,263 m elev. [1]. It has pit-fall trap array.

Echo Spring Canyon: See Echo Creek Canyon.

Flat Top Mountain: Mesa and ridge system north-northeast of Red Tank; maximum elevation is 1,359 m at south end of mountain (30.74805°N, 104.997°W) [4].

Glenn Creek: see Green River.

Green Peak: Summit of ridge SSE of Indio Pass, ca. 2 airline km S of Double Tank Corral and 0.5 km W of Eagle Pass (30.76944°N, 104.8175°W), 5,130 m elev. [4]

Green River: Large normally dry wash forming east boundary of Indio Mountains [1]. Preferred over Glenn Creek listed on the USGS 1:250,000 topo map.

Green River Road: Gravel road forming main access to IMRS from the east. It passes through Wolf

Creek Ranch south of Scott's Crossing and extends into O'Connor Ranch (through locked gate). It follows bed of Green River to vicinity of The Box.

Grassy Tank: Dry impoundment 4.34 km by Main Road west of junction with Green River Road. East Well Road Passes through its bed ca. 0.16 km south of its junction with Main Road (30.78587°N, 104.971°W), 1,305.4 m elev. [2 and 3].

Horizon Tank: Located on SW boundary of IMRS, ca. 5 km east of the The Box on the Rio Grande (30.77194°N, 105.04805°W), 1,174 m elev. [10].

Indio Fault: A long northwest to southeast fault that divides the Indio Mountains into a higher eastern block and a lower western block. The fault is crossed 50 m northeast of the junction of Main Road with River Road located east of IMRS HQ.

Indio Mountains: Southern spur of Eagle Mountains, Hudspeth County, Texas; bounded by Oxford Canyon (on north), Rio Grande (on south), Red Light Draw (on west), and Green River (on east) [4].

Indio Pass: Pass over Indio Mountains traversed by Main Road; summit is just east of Echo Canyon Overlook [6].

Indio Ranch House [IMRS HQ complex]: Old Bailey Evans Ranch House and central facilities of IMRS HQ, 5.79 km west and northwest of East Gate (30.77667°N, 105.01583°W), ca. 1,230 m elev. [1]. Facilities at HQ include two dorms and bathrooms building; an old Ranch House Lab; a Computer Lab, a new clean Surgery Building, a small Directors Bedroom Building, the Multipurpose Jerry Johnson Assembly Hall containing kitchen and classroom, and a storage shed holding ATVs. Most facilities are NSF funded. All buildings and the water sources are powered by solar generated electricity [8]. The area contains pit-fall trap arrays.

IMRS: Abbreviation for UTEP's Indio Mountains Research Station.

Juniper Grove: North of Double Tank Corral on road to Echo Spring (30.79537°N, 104.994°W [9]).

Lonely Tank: Tank on Jeep road heading east off River Road above where it crosses Eagle Canyon Arroyo on way to South Gate (30.72787°N, 104.972°W), 1,190 m elev. It has a pit-fall trap array.

Lost Tank: Abandoned tank and adobe retaining wall, along East Well Road, ca. 0.40 km south of junction with Main Road [2 and 3].

Main Road: Gravel road from Green River Road, through East Gate, Echo Canyon, to IMRS HQ, and then north-northwest toward North Gate, Oxford Canyon, and Echo Spring.

Mesquite Tank: Tank near Bailey Evens Arroyo located ca. 2.78 km west-southwest of IMRS HQ (30.76153°N, 105.031°W), 1,167 m elev.

Monroe's Nose: Angular prominence .75 km south and ca. 1.5 airline km northwest of Echo Spring. It is visible from Echo Canyon Overlook (30.33333°N, 105.00833°W), 1,415.2 m elev. [2].

Oak Wash: On Main Road about .40 km west of Double Tank Corral (30.78511°N, 104.98961°W [9]).

North Gate: Gate across Main Road north of Woodpecker Well on the way to Oxford Canyon at fence separating IMRS from Bramlet Ranch to the north.

Oak Arroyo: First arroyo inside East Gate (30.78601°N, 104.981°W), 1,327 m. elev. [9]. It has pit-fall traps.

O'Connor Ranch: Previous Lado Ranch holdings off southeastern and southern boundary of IMRS property including terminus of the River Road and the mouth of Green River. Access by locked gate across Green River Road just south of junction with Main Road, or by IMRS South Gate. Lado

Ranch was sold to Louise O'Connor of Victoria, Texas in 2005 [8]. Also referred to as Ballinamona II, limited partnership.

Oxford Canyon: Draw at north end of the Indio Mountains It separates the Indio Mountains from the Eagle Mountains; most is on the Bramlet Ranch.

Oxford Spring: Permanent spring in Oxford Canyon north of Woodpecker Well (30.84023°N, 105.041°W) [Horne 9]. It is just outside IMRS property.

Painted Cliffs: Eroded ash formation on north-facing arroyo slope ca. 1.75 airline km south-southwest of junction of Green River and Main Roads; not on IMRS property (30.78056°N, 104.94583°W) [5].

Palmas Well: A once solar-powered water well and wreckage of older abandoned well and holding tank on west-facing slope of Eagle Canyon (30.74555°N, 104.972°W), 1,266 m elev. [1].

Peccary Tank: Seasonally dry impoundment along River Road, ca. 2.90 km southeast of IMRS HQ (30.75592°N, 105.004°W), 1,213 m elev. [3].

Pirtle Tank: Southeastern-most of the two seasonally dry impoundments in the Double Tank Corral area adjacent to the Main Road near junction with Eagle Canyon Road (30.7852°N, 104.984°W), 1,336 m elev. [6]. Also called Bull Tank [8].

Prospect Pits Arroyo: Large arroyo draining Echo Canyon and Ranch House Draw at the bottom of hill past the Y on the main road to IMRS HQ [8].

Prospect Pits: A complex of prospect digs and partially finished mineshafts northwest of Echo Canyon, ca. 1 airline km southwest of IMRS HQ (30.76792°N, 105.01018°W), 1,281 m elev. [3]. It has pit-fall trap arrays.

Purple Sage Mine: Abandoned mine ca. 3 airline km south of IMRS HQ. It has a 53.4 m deep vertical mineshaft dug in the 1950s (30.7495°N, 105.026°W), 1,688 m elev. [1].

Purple Sage Mine Road: Gravel road extending south-southwest from Main Road south of IMRS HQ to Carpenter and Purple Sage Mines [3].

Ranch House Draw: The depression positioned south to north alongside the Main Road leading to IMRS HQ from intersection of the “Y” on the Main Road and River Road. It is drained by arroyo leaving Echo Canyon and the arroyo leaving Baily Evens Canyon (8).

Rattlesnake Tank: Seasonally dry impoundment at head of small east draining canyon ca. 1 airline km east-northeast of summit of Red Mountain, and 0.25 km west of River Road (30.74678°N, 105.008°W), 1,198 m elev. Also called Trap Tank [6] and Oh Shit Tank [9].

Redetzke's Knob: South-facing ridge at summit of Flat Top Mountain [3].

Red Mountain: Isolated ridge and peak ca. 3.5 airline km south of IMRS HQ, and 1 km west of Agate Hill (30.73°N, 104.988°W), 1,335.3 m elev. [4].

Red Tank: Large seasonally dry impoundment along River Road just west of Eagle Canyon (30.73067°N, 104.988°W), 1,195.6 m elev. [1]. It has pit-fall trap array.

River Road: Gravel road running from Green River near The Box north via South Gate, Campo Bonito, The Narrows, Agate Hill, and finally junctions with Main Road at the Y located ca. 1.45 airline km southeast of IMRS HQ [3].

Road Tank: See Corral Tank.

Scott's Crossing: Where Green River Road crosses the Southern Pacific Railroad tracks 12.07 road km south-southeast of junction of Laurel Street and I-10 in Van Horn [1].

South Gate: Gate across River Road south of Campo Bonito and north of The Box at a fence separating IMRS from O'Connor Ranch (30.69022°N, 104.967°W), ca. 1,228.5 m elev.

South Well: See Campo Bonito.

Snake Canyon: See Eagle Canyon.

Sunflower Tank: 1.7 km east of Horizon Tank (30.76667°N, 105.06528°W) 1,072 m elev. [10].

The Box: Eastern opening of canyon of the Rio Grande near South end of IMRS (section 6) (30.66716°N, 104.993°W), 960.8 m elev. [1, 8, 9].

The Narrows: Narrow declivity of Eagle Canyon through which River Road passes, just east of Red Tank and west of junction with Eagle Canyon Road (30.73359°N, 104.984°W), 1,415.2 m elev. [3].

The Narrows Twin Tanks: Two seasonally dry impoundments ca. 0.25 airline km north of River Road just past the east end of The Narrows in Eagle Canyon Arroyo (30.73611°N, 104.98433°W), 1,204.8 m elev. [3]. Also called South Twin Tanks [8].

Trap Tank: See Rattlesnake Tank.

Tres Amigos: A group of three hills at west entrance to Oxford Canyon on the Bramlet Ranch. Southern peak (30.82222°N, 104.06861°W), 1,359 m elev.; northeastern peak (30.83194°N, 104.06806°W), 1,349 m elev.; northwestern peak (30.73611°N, 104.98333°W), 1,348.1 m elev. [3].

Twin Tanks: See Echo Canyon Twin Tanks and The Narrows Twin Tanks.

Viejo Seep: Natural spring on Wolf Creek Ranch ca. 1.75 airline km west-northwest of junction of Green River and Main Road (30.79306°N, 104.95°W), 1,226.1 m elev. [2].

Willoughby Creek: Dry arroyo north-northwest of Echo Ridge that drains into the Green River; creek head is ca. 1 airline km north of Echo Peak [4].

Woodpecker Well: Dysfunctional water well on Main Road that is southwest of Yucca Ridge and 5.75 airline km northwest of IMRS HQ (30.81784°N, 105.054°W), 1,246.2 m elev. [2]. It has pit-fall trap array.

Wolf Creek Ranch: Ranch holdings north and northeast of IMRS; principal access to IMRS is through these lands via the Green River Road and Main Road.

Wrong Red Tank: See Echo Canyon Twin Tanks.

Wynn Anderson Leaning Center: Room attached to original Indio Ranch House, enlarged and screened in 2003 [3, 5, 7]. Named after Wynn Anderson, former Assistant to UTEP Presidents and former Director of the UTEP Chihuahuan Desert Gardens at the Centennial Museum.

Yucca Ridge: Ridge running northwest to southeast between Oxford Canyon and Echo Creek Canyon, ca. 1.5 km south and Parallel to Echo Ridge [2].

Enclosures

Enclosure 1. IMRS Field Safety Guidelines.

Rule Number 1: Safety to you and your team is the highest priority during fieldwork!

There is inherent risk in fieldwork. Mistakes and/or incidents can occur, which can lead to injuries and/or emergencies. This chain of events from inherent risk to emergency situations is catalyzed by the nature of remote fieldwork at the Indio Mountain Research Station (IMRS). However, it is possible to prevent this sequence from occurring and conduct safe operations despite inherent risk. Thorough risk assessment and mitigation practices reduce mistakes and incidents. Utilization of safety gear in tandem with training and experience minimizes injury and prevents emergency situations arising from mistakes and incidents.

A summary of recommendations and measures to ensure your safety and that of others is provided below, but please keep the following priorities in mind:

- Solo field excursions are strongly unrecommended.
- All individuals must be trained and comfortable to operate any vehicle in which they are riding, including UTEP requirements for driving vehicles for the UTEP motorpool (see requirements at this web [link](#)).
- Operation of vehicles is a shared responsibility that is critical to the safety of all personnel when in use in the field.
- A GPS and/or communications device (e.g., satellite phone, iPhone with cell phone service at the field location, walkie talkies with connection to field station) is required to be carried by at least one person on all field excursions, and the person carrying the device must be trained and comfortable operating them.
- While working at IMRS embark on fieldwork with necessary gear anticipating changes to conditions. This is especially true during summer/winter months where appropriate clothing and sufficient water is required.
- Bring food, water, and flashlight, and take breaks to eat and drink.

Risk Assessment and Mitigation

- Properly plan your field work
 - Safety always comes first; assess risks throughout field excursion.
 - Solo field excursions are strongly unrecommended.
 - Bring relevant safety gear, communication devices, emergency contact information, adequate clothing, and sufficient food and water for the day. See Appendix A for a packing list. Outline the roles of team members, and plan excursion timelines.
 - Be sure all vehicles have more than enough fuel for planned activities.
- Know how to use the safety gear, navigational equipment, and communication devices you bring into the field.
 - Ensure electronic devices are charged prior to departure.

- Ensure GPS or other communication devices are preloaded in electronic navigation devices.
- Bring emergency numbers with you into the field and make sure all members have at least the number of the personnel responsible for the trip.
- Familiarize yourself with the contents of the first aid kits
- Reduce the likelihood of slips, trips, and falls by wearing appropriate footwear.
- Bring prescription medications from home as pharmacies are not easily accessible once at the IMRS and inform team members of any necessary emergency medical care such as epipens.

Safety Gear and Training

- IMRS researchers are encouraged to conduct training in the use of ATVs, UTVS, or any other vehicle being used at the IMRS.
- Harassment of any form is not tolerated at the IMRS. The IMRS has implemented strategies to prevent and respond to harassment and induce culture change, which are covered in detail in Enclosure 3. Sexual Harassment Policy.
- As detailed in the Enclosure 2. Code of Conduct, all fieldwork participants have stop work authority; if you feel unsafe or observe a situation that could be unsafe for others, attempt to stop the work and resolve the concern; use the word “STOP” and everyone will stop work immediately to discuss and remedy the situation before resuming work.
- Laboratory safety procedures and PPE that are used at home campuses should also be observed in IMRS labs.
- A list of emergency numbers for each node will be updated and posted at the beginning of each trip. Familiarize yourself with where it is posted, add numbers to your cell phone and/or bring a written copy of numbers with you in the field. Store a copy of these in the satellite phone case.

When working in high migrant trafficked area

- In the event of encountering migrants at IMRS stay away from them and call border patrol. If border patrol does not answer, then call UTEP police.

Important Phone Numbers

- Local Border Patrol – (915) 369-4000
- IMRS Director (915) 637-3163
- 911
- UTEP Police – (915) 747-5611

Further reading:

INTERACT Practical Field Guide (<https://eu-interact.org/publication/interact-practical-field-guide/>).

NGEE Field Safety Manual (<https://utexas.box.com/s/n3bvz4c4fa1voajt3kjo109hojt6pntt>).

Workshop to Promote Safety in Field Sciences (<https://oceanleadership.org/field-science-safety-workshop/>).

Appendix A

Packing List

- Layers for changing weather conditions (temperatures can drop 20-40 degrees at night)
 - December - March temperatures: 20 to 70 °F.
 - Thermals, wool socks, winter jacket
 - April – May, October - November temperatures: 40 to 90 °F.
 - Light jacket, heavier jacket or thermals for evening
 - June – September temperatures: 70 to 110 °F.
 - Sun shirt and hat to protect from sun exposure, can still cool off at night
- Pants, long-sleeve but light sunshirt, and hiking boots are needed even in hot weather conditions for field work
- Headlamp/Flashlight.
- Sleeping bag.
- Sunglasses.
- Baseball cap or wide brimmed hat.
- Gloves/work gloves
- Chap Stick.
- Hand lotion.
- Sunscreen.
- Compression socks.
- Field duffel bag.
- Water bottle.
- Thermos/travel mug.
- Bring extra lab gloves.
- Crocs/hotel shoes.

- Extra tennis shoes (lab shoes).
- Pocket knife.
- Electronics/chargers.
- Hygiene items.
- Watch, Phone, GPS.
- Field station clothes (shorts, t-shirts) and lab clothes (pants, closed-toe shoes).

Enclosure 2. IMRS Program Code of Conduct

The Indio Mountains Research Station (IMRS) Field Program of Conduct seeks to explicitly address conduct in the remote field environment, including on vehicles of any size, and at the field station. It does not replace but complements the institutional Code of Conduct of UTEP, or other universities that participate in the IMRS. The IMRS administration seeks to provide a productive, safe, and respectful environment for all participants regardless of gender, sexual orientation, gender identity, race, ethnicity, religion, disability, physical appearance, or career level. All participants including staff, faculty, researchers, students, contractors, technicians, visiting classes, interns, guests, volunteers, and others are expected to abide by this Field Code of Conduct. All individuals conducting approved research at IMRS should sign Enclosure 4. and return to the IMRS Director every calendar year after reviewing the handbook, including Enclosure 1 through 4.

Expected Behavior

- Participants will contribute effectively by exercising the highest level of professional and ethical behavior.
- All participants are treated with respect and consideration.
- Participants are considerate and respectful of participants, local community members, and workers.
- Be aware of your surroundings and of your fellow participants. Look out for one another!
- Carry out work as safely as possible. Any participant may voice their concern upon noticing or anticipating an unsafe situation. Concerns will be taken seriously and, if necessary, appropriate adjustments will be made. If any participant feels uncomfortable, they may opt out of any activity without rebuke.

Unacceptable Behavior

- Harassment, intimidation, or discrimination in any form, will not be tolerated.
- Examples of unacceptable behavior include, but are not limited to, verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, national origin, inappropriate use of nudity and/or sexual images in public spaces or in presentations or threatening or stalking any participant.
- Disorderly conduct, including, but not limited to, behavior that interferes with IMRS operations or actions that endanger oneself or others.
- Failure to comply with requests of IMRS staff or any other personnel.

Reporting and Consequences of Unacceptable Behavior

- It is the responsibility of project leaders/PIs to respond first if the behavior of a member of their group is inappropriate or is creating problems. It is their responsibility to remove any group member whose behavior creates a serious problem for the community. Persons must be asked to leave immediately if they engage in physical or verbal abuse or assault, intimidation, coercion, threats, sexual harassment, or behavior that endangers the health and safety of oneself or others.
- Please see the Sexual Misconduct Policy for the reporting requirements and process regarding Title IX/sexual misconduct concerns. All UTEP employees are mandatory reporters.

Pre-cautions working in past the field station in remote field conditions and near border

- Pre-cautions to take when conducting fieldwork.
 - Buddy-system (please do not do fieldwork alone at IMRS).

- Log location and field work schedule at field station.
- Carry Border Patrol Station contact when leaving ranch house.
 - Always carry walkie-talkie or satellite phone for contact with field station or emergency contact.
- What to do in the event of contact with migrants or non-IMRS associated persons.
 - Do not provide rides to any non-UTEP or IMRS associated person.
 - Keep vehicles locked and keys on person.
 - Call the Border Patrol Station for help if an emergency arises (e.g. hospitalization, conflict, etc.).
 - Report incident to IMRS Director.
- Border Patrol Sierra Blanca Station contact and reporting requirements.
 - Sierra Blanca Station: (915) 369-4000; Sierra Blanca, Texas 79851

Contacts for Questions, Concerns, and Reporting

Dr. Vicente Mata-Silva, IMRS Director, The University of Texas at El Paso (UTEP).

Nearest Medical Contact: Culberson Hospital, 2185 Eisenhower-Farm Market Road, Van Horn, Texas 79855, 432-283-2760, culbersonhospital.org.

Institutional Deputy Title IX Coordinators for UTEP Graduate Students: Beatriz Tapia, 915-747-5839, betapia@utep.edu; <https://www.utep.edu/titleix/>; <https://www.utep.edu/titleix/Title-IX-Coordinators.html>

Resources used to create this document:

<https://serc.carleton.edu/advancegeo/resources/index.html>

https://toolik.alaska.edu/user_guide/policies.php

<https://aslo.org/page/events-code-of-conduct>

<http://www.erf.org/code-of-conduct>

<https://vimeo.com/261529397>

<https://policies.utexas.edu/policies/prohibition-sexual-discrimination-sexual-harassment-sexual-assault-sexual-misconduct#responsibilities-procedures>

<https://policies.utexas.edu/policies/nondiscrimination-policy>

<http://exploreice.org/field-team-leadership>

Enclosure 3. IMRS Sexual Misconduct Policy

Expectations:

Participants at the Indio Mountain Research Station (IMRS) have the right to be free from discrimination, unlawful harassment, sexual misconduct, and violence. Title IX is a federal law that gives everyone the right to equal access to education and employment in the absence of sexual harassment and gender discrimination. IMRS personnel, whether working in the field or lab, are expected to follow the law, as well as specific guidelines laid out in IMRS policies and the Code of Conduct. Participants are expected to conduct themselves in a manner that does not infringe upon the rights of others. Violations will result in serious sanctions.

Unacceptable Behaviors:

The following behaviors are considered violations of the Enclosure 2. IMRS Code of Conduct:

Sexual Harassment includes unwelcome sexual advances, requests for sexual favors, other verbal or physical conduct of a sexual nature, and offensive comments related to gender, gender identity and expression, sexual orientation, physical appearance, race/ethnicity and body size.

Sexual Misconduct includes rape, sexual assault, inappropriate touching, sexual battery, sexual exploitation, coercion, and other forms of non-consensual sexual activity.

Stalking is repeatedly following, harassing, threatening, or intimidating including by telephone, mail, electronic communication, or social media.

Patterns of Inappropriate Social Contact, such as requesting/assuming inappropriate levels of intimacy with others.

Dating Violence and Domestic Violence includes emotional, verbal, and economic abuse with or without the presence of physical abuse.

Retaliation is adverse employment, academic or other actions against anyone reporting a violation of this policy (including reporting to any IMRS staff, PI, police, or Title IX office).

Title IX Violation is the collective term used for incidents involving discrimination, harassment, sexual harassment, sexual misconduct, stalking, dating violence, domestic violence, and/or retaliation.

Power-based Personal Violence occurs when an individual asserts power, control, or intimidation in order to harm another. This includes relationship/partner violence, sexual assault, and stalking.

Deliberately Mis-characterizing a Person's Gender Identity, including through the use of a name or pronoun that the person has rejected.

Gratuitous or Off-topic Sexual Images or Behavior in spaces where they are not appropriate at the field station.

Violating the Ask Once Policy (defined below)

Ask Once Policy - it is generally appropriate to ask someone out once, but no more than once. The IMRS follows Ask Once as a behavioral guideline. The Ask Once guideline means that you can ask someone out once, and if they do not say yes, you cannot ask them out again. Asking out includes hitting on, expressing interest, and making advances. If someone brushes off the advance, does not reciprocate in a positive way, or turns down the advance in any way, it must still be considered a "no". This guideline is

intended to inform the behavior of someone interested in another IMRS participant, give people a simple way to judge when they are being harassed, and give IMRS management a tool in which to evaluate a resident's behavior.

Reporting Options:

Individuals at IMRS have multiple reporting avenues. No matter your home institution or affiliation, you can report an incident that you experienced, observed, or were told about, in the following ways (contact information listed under Important Contacts below):

Disclosure to any IMRS Principal Investigator.

Disclosure to either of the Program Managers.

Disclosure to the University of Texas at El Paso (UTEP) Title IX Office (titleix@utep.edu).

Institutional Deputy Title IX Coordinators for UTEP Graduate Students:

Beatriz Tapia, 915-747-5839, betapia@utep.edu

<https://www.utep.edu/titleix/>

<https://www.utep.edu/titleix/Title-IX-Coordinators.html>

Disclosure to law enforcement (911).

Confidential reporting and support resources are listed elsewhere under important contacts.

What Happens After a Report is Made?

Reporting to any of the listed options above will result in disclosure to the IMRS affiliated manager and the UTEP's Title IX office, who will work together alongside the individual who was harmed to determine a course of action. It is important to note that all IMRS PIs and UTEP employees are "responsible employees." This means they are required to report anything they experience, see, or hear about to UTEP's Title IX office. The next step in the UTEP Title IX office process is that an investigator from their office will conduct outreach to the target of the inappropriate behavior, which includes providing resources for support. They will then ask this individual if they want the office to move forward with an investigation. The target is in control of the process at this point. If they do not want an investigation to move forward, it will not. The only way that an investigation will move forward without the support of the targeted individual is if:

- 1) The incident was part of a larger pattern at IMRS (one example is if multiple individuals reported the same person for comments that constituted sexual harassment or discrimination);
- 2) The accused individual has a history of violence, sexual violence, arrest, or the incident was committed by multiple perpetrators;
- 3) The incident was perpetrated with a weapon, included physical violence (such as hitting, restraint, pushing, or kicking), or the threat of violence;
- 4) The affected individual is a minor;

IMRS is a grantee institution of the National Science Foundation (NSF). As such, information about any findings of sexual or other type of harassment and actions taken by UTEP will be provided to the NSF.

See NSF Important Notice No. 144 (<https://www.nsf.gov/pubs/issuances/in144.jsp>) for additional information.

The target will always be included and informed of the results of their disclosure, any action that is taken, and the results of an investigation.

Potential Actions

IMRS management can take immediate and long-term actions to ensure the safety of IMRS participants. Immediate action could include changes in housing or lab assignments and other options up to removal from the field of any participant. Long-term actions occur once an investigation is completed. Dependent on the finding, IMRS management may choose to change the immediate action that was taken, and/or implement longer-term actions and sanctions.

After an incident is brought to our attention, IMRS management will include the target in their discussion about how to make the environment safe again. Multiple options are available. For example, if the target needs support in talking with someone about inappropriate behaviors, IMRS management will either directly mediate, or find resources to support the mediation of the conversation. If the target says they do not feel safe being at a IMRS field site with another person, then management will work with the target to find an acceptable arrangement (such as housing or laboratory changes, mediation, up to removal from the field). It is important to the personal and professional growth of all IMRS participants that you feel safe while in the field. If you do not feel safe and need an accommodation, please let us know. There are options.

What to do if Someone Discloses to You (and you are not a UTEP-affiliated mandatory reporter).

If a friend discloses that they have been targeted by sexual misconduct, there are several ways in which you can support them:

- Tell them that you believe them, that you support them, that it is not their fault, and that no one deserves to be targeted by such behavior.
- Provide them with the list of contact information and resources included in this document.
- Ask if they want your help in examining their options.
- Ask what else you can do to help.
- Respect their decision not to talk with you if they decline.

It is common for survivors of sexual assault not to initially name what happened to them as rape or abuse although they may recognize harmful behavior. Over time, as they feel safer, they may try to understand the experience through talking about it. The support of a friend can be extremely beneficial in the healing process. Remember that the well-being of the person who was harmed must be prioritized. Reporting an incident to police or others without the support or knowledge of the person who was harmed could be more traumatic than helpful. If you are UTEP staff or a PI, you are a "responsible employee" and must report to the UTEP Title IX office. As described above, this means that the office will conduct outreach to the person harmed, and then it is still their decision whether to have an investigation move forward, or not. The individual who was harmed has the right to make the decision to have an investigation move forward or not. Questioning their decision or pressuring them to change their decision can add additional trauma to their experience.

What to Do if You Have Been Sexually Assaulted, or Targeted by Sexual Misconduct:

We support you. You have the right to:

- Talk to anyone about your experience.
- To not talk to anyone about your experience (silence can make the healing process more difficult, and we encourage you to reach out to a trusted friend or one of the resources listed below).

- Change your mind about talking to anyone about your experience at any time.
- Report to an IMRS manager, the police, or any of the other reporting options listed above.
- Bring someone with you to provide support during reporting or any resulting discussions.
- To seek reasonable accommodations to minimize the impact of the experience on the success of your work at the IMRS.
- To seek medical assistance, including medical care and a medical forensic exam.

This is not intended to be a comprehensive list.

What to Do if You See Something Inappropriate:

The most effective way we can prevent harm to any member of our community is by looking out for each other. All participants are expected to share in the responsibility of creating a safe environment and to act when they witness behavior that could be harmful to others. In any potentially harmful situation, there are often other individuals along the way who recognize there is a problem and can step in and help the targeted individual. Bystander intervention training programs provide tools to help bystanders act effectively in the way that works best for them. *Active bystanders* are individuals who take the responsibility to act when they see something or hear something that makes them uncomfortable.

Here are some suggestions to take an active role in the safety of our community:

- Be aware of your surroundings and social situations.
- If a situation makes you or others uncomfortable, or it looks like someone is being targeted, recognize that this is a problem and that you can be part of the solution to help.
- Take action to diffuse the situation while staying safe; some ideas include checking in with the targeted individual, telling a Program Manager what is happening, recruiting help from friends, diffusing the situation by distracting those involved (look at that neat thing over there!).
- If you are uncertain if there is a problem, check in with the individuals involved to see if they are okay or need help.
- Look out for your friends and lab mates, but never put yourself at risk

Enclosure 4: IMRS Statement of Acknowledgment Form



STATEMENT OF ACKNOWLEDGMENT FORM

I, _____, have received a copy (hard copy or access to a digital version) of the **IMRS Safety Guidelines, Code of Conduct, and Sexual Misconduct Documents**. I acknowledge that I have read these documents thoroughly and know its contents. By signing this form, I am agreeing to abide by the procedures outlined in these documents, including policies on discrimination, sexual harassment, and bystander intervention. I am aware that if I violate the Code of Conduct and/or safety policies in the above-mentioned handbook, I could face disciplinary actions. IMRS staff has the right to remove any person that violates the Code of Conduct or safety policies from UTEP property and research programs affiliated with IMRS. Furthermore, I know that IMRS reserves the right to make changes to the **IMRS Safety Guidelines, Code of Conduct, and Sexual Misconduct Documents** without prior notice. An updated copy will be provided at all times at the field station and on the IMRS website.

I understand and agree to all of the above statements. I have read and understood the contents of the **IMRS Safety Guidelines, Code of Conduct, and Sexual Misconduct Documents**.

Name:

Signature:

Date:

EMERGENCY CONTACT INFORMATION

Sierra Blanca Border Patrol Station:
(915) 369-4000. Oversees IMRS property.

Van Horn Border Patrol Station:
(432) 283-3100. Oversees main roads from
Van Horn to IMRS east gate, including
Green River Road.

911

Van Horn Police: (432) 283-2060

Van Horn Hospital: (432) 283-2760

IMRS Director: (915) 637-3163

UTEP Police: (915) 747-5611

UTEP Biology Chair, Dr. Hirschi (832) 618-0166

UTEP Dean of Science, Dr. Kirken:
(713) 444-7821