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Gradsect and Field Sampling Plan for Big Bend National Park/Rio Grande National Wild and Scenic River

Natural Resource Report NPS/CHDN/NRR—2011/300

ON THE COVER
Photograph within Big Bend National Park/Rio Grande Wild and Scenic River
Image provided by Cogan Technology, Inc.

Gradsect and Field Sampling Plan for Big Bend National Park/Rio Grande National Wild and Scenic River

Natural Resource Report NPS/CHDN/NRR—2011/300

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Executive Summary

Big Bend National Park (BIBE) and Rio Grande National Wild and Scenic River (RIGR) encompass approximately 1-million acres of diverse, steep terrain in south Texas. In 2009 the park began a vegetation mapping project under the National Park Service (NPS) Vegetation Inventory Program (NVIP) by preparing a detailed Study Plan. One of the first items in the study plan is the development of a field-based sampling approach using a gradient oriented transect consisting of two components (biophysical units -BPUs and cost estimates). The purpose of this effort is to create spatial databases and supporting materials that can assist field crews in economically accessing and sampling representative stands of vegetation in BIBE/RIGR.

In 2010 Cogan Technology, Inc. (CTI) was contracted to create the gradsect and sampling approach using existing data layers. After careful examination and review by NPS staff, CTI created a BPU layer based on four parameters, these included:

1) General Vegetation (simplified spatial polygons from existing vegetation layers):
   - Bare,
   - Closed Canopy Woodland,
   - Creosote Scrub,
   - High Desert Grassland,
   - Lechugilla Scrub,
   - Open Canopy Woodland,
   - Riverine Riparian,
   - Scrub Woodland,
   - Upland Riparian

2) Hydrology (derived riparian and floodplain zones)

3) Aspect (derived from a 10 meter Digital Elevation Model -DEM):

North (Mesic)	NW, N, NE	292.5° – 360 and 0 -67.5°
East (Intermediate)	E, SE	67.5° – 157.5°
South and West (Dry)	S, SW, and W	157.5° – 292.5°

4) Management Use Area (Park-specific management sub-units)

In addition to the BPU layer a cost estimate for travel to each unique site (BPU centroids) was created based on slope and distance from roads and trails. Together, the BPUs and the cost to travel to the center of each BPU were summarized by BIBE/RIGR management zones and these findings were incorporated into field maps and manuals. This report summarizes the gradsect concept, describes the variables used to model the vegetation distribution at BIBE/RIGR, summarizes the methods, and presents the results.

Introduction

The National Vegetation Inventory Program (NVIP) consists of multi-stage project for all NPS natural resource sites that uses vegetation plot data to create plant association and alliance lists based on parameters specified by the National Vegetation Classification System (NVCS). The alliance list and supporting descriptions are then ultimately used in the preparation of a vegetation geo-database (i.e. map) using geographic information system (GIS) software. Accessing and sampling classification plots is a time-consuming and therefore expensive task and field crews benefit from previous analysis of the landscape to be sampled. An effective way to analyze a large and diverse landscape (such as BIBE/RIGR) is to prepare a gradient-oriented transect (gradsect) using environmental drivers to define biophysical unit (BPU) polygons. The BPU polygons can then be overlaid with roads, trails and slope layers to determine a cost estimate for accessing each by the field crews. Using the BPU and cost estimate data provides an effective field sampling plan that helps insure all unique vegetation stands are sampled in an economical manner.

A gradsect was originally designed as a simple, large transect (up to one-kilometer-wide) that runs across a landscape and is designed to cross many environmental gradients. By walking along the gradsect it is assumed that most of the vegetation diversity can be sampled within a reasonable time frame and with low expense (Austin and Heyligers 1989). Recently this approach has been modified by the NVIP and others due in part to the availability of powerful GIS and spatial analysis software. As a result, the new, modified gradsects are commonly a GIS-derived, non-linear model that documents the distribution of vegetation patterns along many environmental gradients. The results of this analysis are polygons called BPUs. The BPUs are discreet, spatial polygons that have a unique suite of biotic and abiotic conditions that influence the vegetation. These polygons can be used as guides to help field crews visit and collect classification plot data throughout large, diverse areas.

By combining BPUs with cost estimates (distance from roads, slope accessibility, and general accessibility), a powerful tool is created enabling field crews to sample the full range of vegetation diversity in an efficient manner. This observation is based on the premise that if the field crews visit the full spectrum of physical environments at easy to moderately difficult access sites, then most of the vegetation types will be sampled. Derivatives of these methods have been statistically shown to capture more information than standard designs based on systematic grids or random points (Gillison and Brewer 1985, Gillison and Anderson 1981, Helman 1983, and Austin and Heyligers 1989, 1991).

Following NVIP Study Plan preparation in June 2010 (Von Loh and Cogan 2010), Cogan Technology, Inc. (CTI) was tasked under separate contract to create a digital gradsect analysis covering the BIBE/RIGR project area. Funding for the Gradsect Analysis and Field Sampling Plan was provided through an interagency agreement between the NPS and the Bureau of Reclamation and then sub-contracted to CTI through a standing contract with Northwinds Corporation in July 2010.

Big Bend National Park / Rio Grande National Wild and Scenic River

BIBE and RIGR are continuous National Park Units located in the Chihuahuan Desert along the Rio Grande River. Both units are located in Texas along the border with Mexico. BIBE includes approximately 801,863 acres and includes representative examples of the Chihuahuan Desert ecosystem with riverine, floodplain, limestone plains, canyon, hill, high desert, and mountain landscapes. RIGR includes an additional 196 river miles (~31,360 acres) and forms a portion of the southern BIBE boundary. The topography is diverse, ranging between 1,700 ft (Rio Grande) and 7,832 ft (Mt. Emory in the Chisos Mountains). It is estimated that 98% of the BIBE is represented by desert plant communities and unvegetated geologic exposures and 2% supports woodland and forest vegetation. Much of the forested vegetation occurs in the Chisos Mountains and along the Rio Grande, including RIGR.

Gradsect and Biophysical Units

Gradsect development for this project was addressed in the BIBE/RIGR Final Study Plan (Von Loh and Cogan 2010) and was subsequently revisited by Chris Lea, NVIP Plant Ecologist, who suggested finding the floristic gradient as efficiently as possible using existing vegetation maps, physical location of legacy vegetation plots, and environmental variables. One of the challenges to this approach is recognizing when the spatial and taxonomic resolution of the environmental data is good, where it is lacking, and where it is superfluous (Lea 2006). For example, because blackbrush (*Coleogyne ramosissima*) occurs on different geologic substrates at Arches National Park, the gradsect approach there based on geology led field crews to sample 65 classification plots when a much smaller number, perhaps 10–15 classification plots would have been sufficient (Von Loh, et al. 2009).

With a working understanding of all the challenges at BIBE/RIGR, CTI began the gradsect development by reviewing the existing spatial datasets provided by the park and the NPS Chihuahuan Desert Inventory and Monitoring Network (CHDN). After a careful review CTI identified the Plumb vegetation layer (1993), the vegetation layer for the Rosillos area, hydrology (rivers and streams), management use areas, and aspect as four important elements for the gradsect development. These findings were presented to Phil Wilson, Chief of Natural Resources Management, BIBE staff, and Dr. Hildy Reiser (Ecologist and Science Advisor, CHDN) during a planning meeting in December 2009.

Following preparation of the gradsect, a cost distance analysis was used to estimate the expense in accessing every BPU from the nearest road or trail as well as the overall cost for sampling in each of the 39 management areas in BIBE/RIGR, excluding private in-holdings. Cost estimates were included to help inform the field coordinator and crew members of the most efficient approach to a specific area. By thoroughly reviewing all of the gradsect and cost estimates it is assumed that experienced field teams can create informed daily, week-long, and season-wide sampling plans.

Methods and Results

To guide vegetation sampling in BIBE/RIGR, the gradsect methodology of Austin and Heyligers (1989) was modified to identify BPUs that relate to the vegetation. BPU polygons were created based on a combination of existing data provided to CTI on an external hard drive. Boundary layers for the entire park along with the management areas were supplied and (Figure 1) and all analyses were conducted within the BIBE/RIGR boundary (excluding private in-holding). All general gradsect methods were based on, and adapted from similar strategies created for Zion and Grand Canyon National Parks and other NPS vegetation mapping projects (Cogan et al. 2004).

Vegetation

Based on the 1993 Plumb vegetation map, nine general vegetation polygons were created for BIBE/RIGR (Figure 2) consisting of the following classes: 1) Bare, 2) Closed Canopy Woodland, 3) Creosote Scrub, 4) High Desert Grassland, 5) Lechuguilla Scrub, 6) Open Canopy Woodland, 7) Riverine Riparian, 8) Scrub Woodland, and 9) Upland Riparian. Vegetation polygons were created by first converting the original raster product to vectors, cleaning and editing out all polygons below 25 acres. To create a general vegetation layer for the entire park Plumb's polygons were the combined with existing vegetation polygons located in the northwest corner of the park (Rosillos Area). Since moisture availability is a critical in this arid landscape the upland riparian class was modified to include additional areas within 50 meters of major, perennial streams and the riverine riparian was supplemented with additional areas within 250 meters of the Rio Grande. The following is a brief description of each vegetation type:

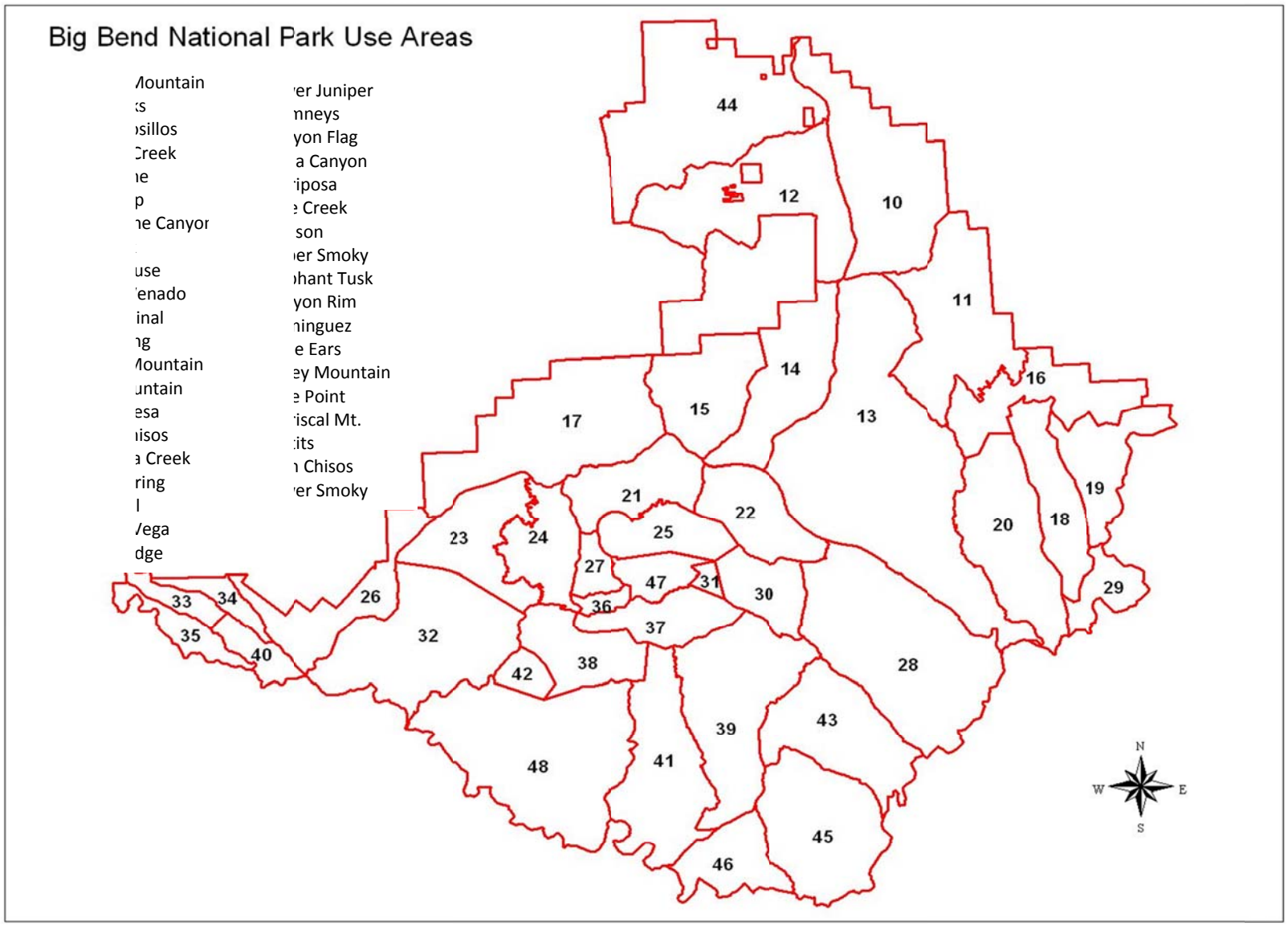
1) Bare: Consists of primarily bare rock and talus with some small pockets of vegetation occurring in cracks and along the base of cliffs.

2) Closed Canopy Woodland: Consists of thick stands of primarily Pinyon-Talus and Oak-Ponderosa Pine-Cypress. This type occurs above ~6,000 ft and often form mosaics with conifer stands and grassy woodlands.

3) Creosote Scrub: Includes large expanses of Creosotebush with various associated species including prickly pear, lechuguilla, and false-agave. Various grasses are common in the understory.

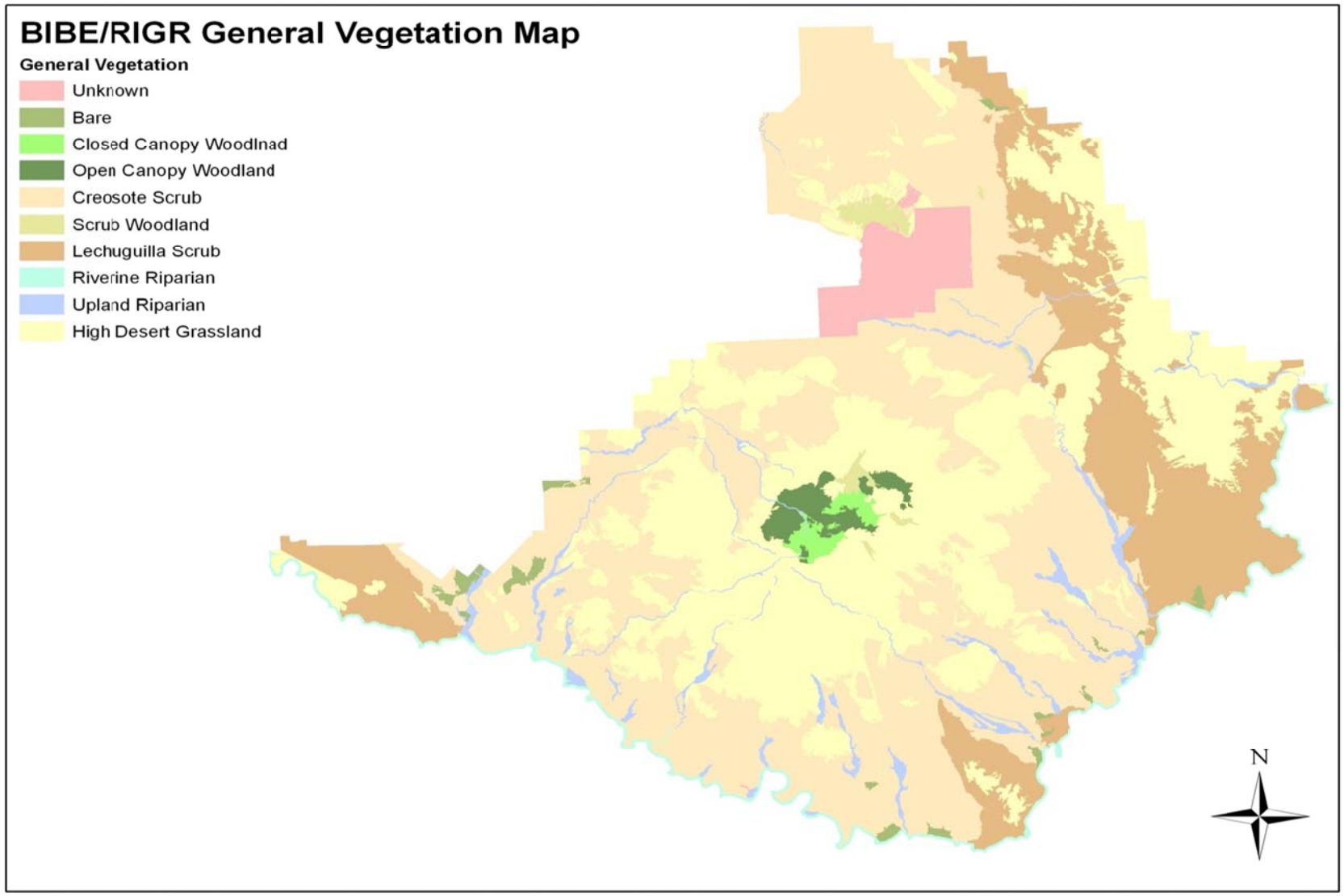
4) High Desert Grassland: Represent the most diverse plant communities exhibiting the highest species per unit area. High desert grasslands cover about 40% of BIBE ranging from ~3,000 ft to ~5,000 ft elevation with scattered plants occurring at higher elevations of the Chisos Mountains. High Desert Grasslands support some shrubs, low-growing trees, and cacti that are largely confined to drainages (supporting little grass cover) and to areas of rocky and shallow soils.

5) Lechuguilla Scrub: This type is similar to the Creosote Scrub type but is dominated by Lechuguilla. Grasses are common in the understory. The Scrub Desert classes combined cover over 50% of the park between the low-lying floodplains (~1,700 ft) to mid-elevation desert grasslands (~3,000 ft).



(Source: NPS Data)

Figure 1. Management Use Area and Park Boundaries for Big Bend National Park



(Source: Plumb 1993 and NPS Rosillos Vegetation Mapping Project)

Figure 2. General Vegetation Map for BIBE/RIGR

6) Open Canopy Woodland: Include sparse stands of Pinyon-Juniper-Grass, Pinyon-Oak-Juniper, and Forest-Meadow. Elevation ranges from ~5,500 ft to ~7,200 ft.

7) Riverine Riparian: Consists of mixed stands of cottonwoods and willow along the Rio Grande and associated floodplain. Salt-cedar is also prevalent but is being actively controlled.

8) Scrub Woodland: This vegetation structure includes three cover-mapping categories: Mixed Scrub, Oak Scrub, and Mixed Oak-Shrub Woodlands. Shrubby woodlands include many that are scattered on the foothills and slopes of the Chisos and Dead Horse (Sierra del Caballo Muerto) mountains. Elevation range typically occupied by this type varies from ~4,500 ft at Green Gulch to ~5,500 ft near Chisos Basin.

9) Upland Riparian: Consists of upland springs, seeps, tinajas, and small floodplains along perennial streams. Vegetation is often in pockets and may include sedges, rushes, cat-tails, willows and small cottonwood stands.

Aspect

Using a 10-meter DEM for BIBE/RIGR, an aspect grid was created. The aspect grid was subsequently re-classified into three general classes (Table 1).

Table 1. Aspect Classes used in Gradsect Development at BIBE/RIGR.

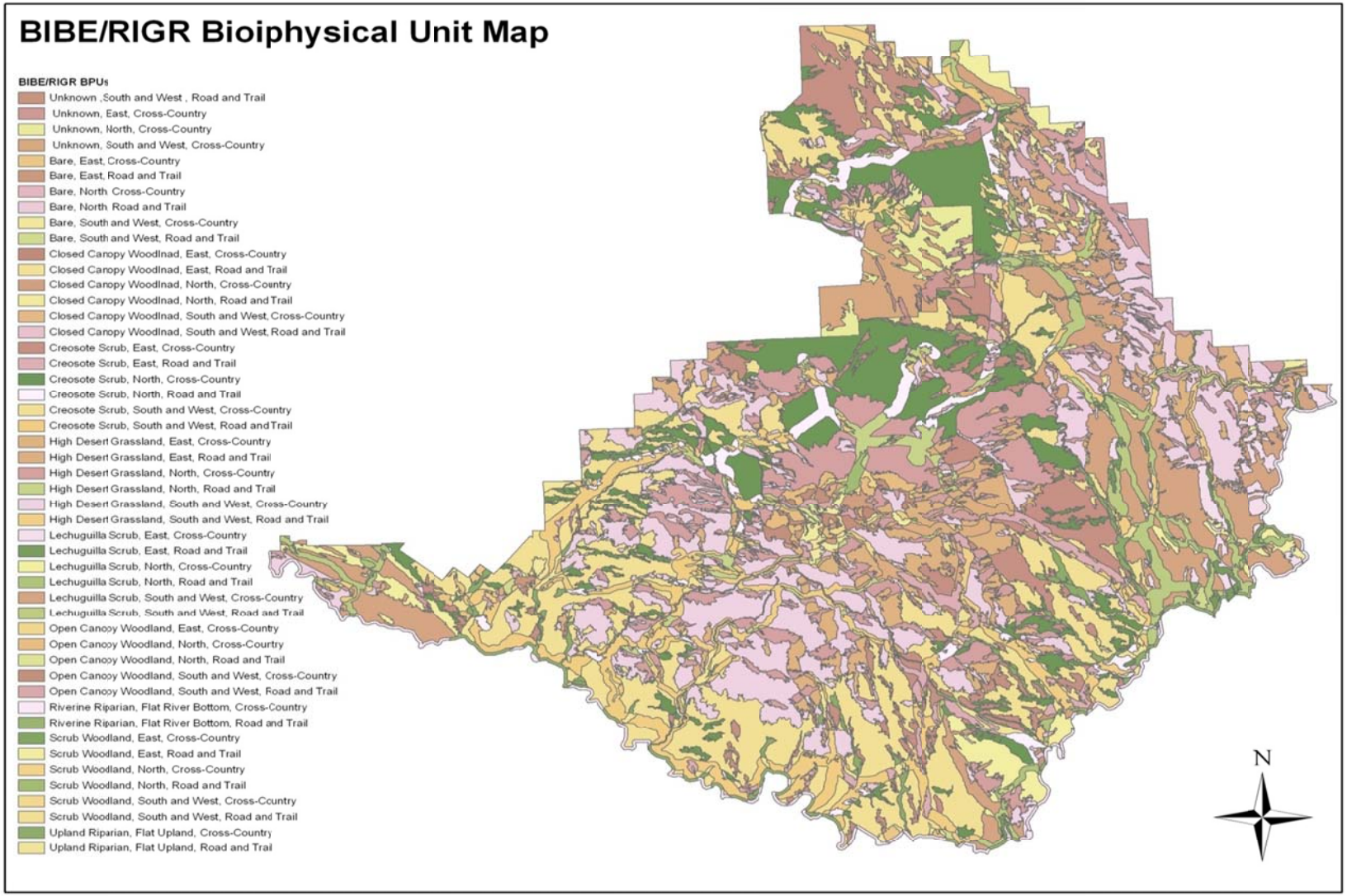
Aspect Class	Range	Values
North (Mesic)	NW, N, NE	292.5° – 360 and 0 -67.5°
East (Intermediate)	E, SE	67.5° – 157.5°
South and West (Dry)	S, SW, W	157.5° – 292.5°

Access

To account for access issues an access layer was created using the locations of known roads and trails. The roads and trails layers provided by the park were merged into one layer and then buffered to create polygons. The roads were buffered 1 km from the center and the trails were buffered ½ km. The resulting polygons were added to the aspect and vegetation layer to create the final biophysical units for BIBE/RIGR (Figure 3).

Potential Sampling Target Sites

After merging the aspect and general vegetation layers, centroids were created for all of the polygons. The centroids were then attributed with various site-specific data including slope, aspect, management considerations, distance from roads, distance from trails, BPU size and UTM coordinates. Table 2 contains the list of attributes for each potential sampling target. Points that were found to be on impassible slopes or occurring on private lands were removed. All of the resulting centroids were considered potential sampling target sites or rallying points that could aid in navigation. A shapefile of these points was created and a summary of these points can be found in Appendix 1.



(Source: Plumb 1993, NPS Data, USGS DEM and Hydrology Maps)

Figure 3. BPU Map for BIBE/RIGR

Table 2. Sampling Target Site Attributes and Values.

Attribute	Description	Values
Target ID	Unique Point Identifier	1 - 1833
Vegetation	Plumb's General Vegetation Type	(See Vegetation Section)
Slope	General Slope at Point Vicinity	Flat/Rolling = 1 - 10° Moderate = 11 - 20° Steep = 21 - 30° Impassible = > 31°
Aspect	General Aspect at Point Vicinity	East (E, SE) North (NW, N, NE) South and West (S, SW, W) Flat River Bottom (Rio Grande) Flat Upland (Stream Banks)
Management	Park Management Designation	Primitive Threshold Undesignated Wild
Access	Likely Access Route to Point	Cross-Country (> 2 km from Roads or ½ km from Trails Roads and Trails (within 2 km of a Road or ½ km from Trail)
Road Dist.	Actual Distance of Target from Nearest Road	< 0.5 km, 0.5 - 1 km, 1 - 2 km, 2 - 3 km 3 - 4 km, 4 - 5 km, 5 - 10 km
Trail Dist.	Actual Distance of Target from Nearest Trail	< 0.5 km, 0.5 - 1 km, 1 - 2 km, 2 - 3 km 3 - 4 km, 4 - 5 km, 5 - 10 km
Camping	Back-country Camping	No Camping (Prohibited) Open (Permitted)
Acres	Area of Sample Site Surrounding Target Point	
X	UTM X Coordinate (NAD83, Zone 13N, Units Meters)	
Y	UTM Y Coordinate (NAD83, Zone 13N, Units Meters)	

Cost

To facilitate sampling of the vegetation at BIBE/RIGR the park was split into work zones based on the 39 management or use areas (private in-holdings were not considered). These work zones were then weighted based on the percentage of steepness, average distance from major roads, and amount of access (roads and trails). Table 3 contains a list of the use areas and their relative cost to sample. Once the gradsect layer was created, a cost-distance model was used to estimate the cost of traveling to the centroid of every BPU from the nearest road or trail. First, the slope for each of the BPU centroids was calculated and assigned a broader value (Table 2). Next, the distance from a road or trail was calculated for each centroid and grouped into seven classes (Table 2). All points were included in the analysis even if they contained a high cost value.

Table 3. Cost Values for BIBE/RIGR Use Areas.

Use Area Code and Name	Remoteness	Roads and Trails	Distance	Cost
10 – Dagger Mountain	Very Remote, Steep	No Trails, Roads on Perimeter	< 5 km	High
11 – Sue Peaks	Very Remote, Very Steep	No Trails, Roads on Perimeter	> 5 km	Very High
12 – North Rosillos	Moderate, Flat to Rolling	No Trails, One Through Road	< 4 km	Moderate
13 – Tornilla Creek	Very Remote, Very Steep	No Trails, Roads on Perimeter	> 5 km	Very High
14 – Grapevine	Moderate, Flat to Rolling	1 Short Trail, Roads on Perimeter	< 3 km	Moderate
15 – Paint Gap	Remote, Flat to Rolling	No Trails, Roads on Perimeter	> 5 km	High
16 – Telephone Canyon	Very Remote, Steep	1 Center Trail, No Roads	> 8 km	Very High
17 – Slickrock	Remote, Very Steep	No Trails, Roads on Perimeter	> 8 km	Very High
18 – Strawhouse	Very Remote, Steep	1 Center Trail, No Roads	> 8 km	Very High
19 – Arroyo Venado	Very Remote, Very Steep, Rugged	No Trails, No Roads	> 10 km	Very High
20 – Ore Teminal	Remote, Very Steep	Many Trails, Road on Perimeter	< 5 km	High
21 – Ash Spring	Moderate, Steep	No Trails, Roads on Perimeter	< 5 km	Moderate
22 – Wright Mountain	Moderate, Steep	No Trails, Roads on Perimeter	< 5 km	Moderate
23 – Tule Mountain	Remote, Steep	Small Trails, Roads on Perimeter	< 6 km	High
24 – Burro Mesa	Moderate, Flat on Top	Small Trails, Roads on Perimeter	< 6 km	Moderate
25 – North Chisos	Remote, Very Steep	One Road, Many Trails	< 3 km (from trails)	Moderate
26 – Terlingua Creek	Moderate, Steep	No Trails, Roads on Perimeter	< 5 km	Moderate
27 – Ward Spring	Moderate, Steep	1 Trail, Road on W. Perimeter	< 3 km	Moderate
28 – Chilicotal	Very Remote, Steep	No Trails, Perimeter Roads	< 6 km	Very High
29 – Marufo Vega	Remote, Steep	Trails, Park Road, River Access	< 4km	High
30 – Hayes Ridge	Moderate, Steep	No Trails, Roads on Perimeter	< 3 km	Moderate
31 – Lower Juniper	Accessible from Trail	No Roads, 1 Major Trail	< 1 km (from trail)	Easy-Moderate
32 – Chimneys	Remote, Very Steep	Many Roads, Trails	< 8 km	High
33 – Canyon Flag	Accessible, Steep	No Roads, Many Trails	< 2 km (from trails)	Moderate
34 – Bruja Canyon	Accessible, Very Steep	No Roads, Many Trails	< 2 km (from trails)	Moderate
35 – Mariposa	Accessible, Very Steep	No Roads, Many Trails	< 2 km (from trails)	Moderate
36 – Blue Creek	Accessible, Steep to Rolling	Perimeter Road, Trails	< 4 km	Moderate
37 – Dodson	Accessible, Steep to Rolling	Perimeter Road, Trails	< 4 km	Moderate
38 – Upper Smoky	Accessible, Steep	No Roads, Trail	< 4 km (from trails)	High

39 – Elephant Tusk	Very Steep to Rolling	Perimeter Road, Trails	< 6 km	High
40 – Canyon Rim	Rolling	No Roads, 1 Trail	< 2 km	Moderate
41 – Dominguez	Accessible, Steep to Rolling	Perimeter Road, 1 Trail	<2 km (from trail)	Moderate
42 – Mule Ears	Accessible, Steep	Perimeter Road, 2 Trail	<2 km (from trail)	Easy-Moderate
43 – Talley Mountain	Very Steep, Remote	Perimeter Roads, No Trails	< 4 km	High
44 – Nine Point	Accessible, Flat To Rolling	Roads	< 6km	Moderate
45 – Mariscal Mountain	Very Steep, Remote	Perimeter Roads, Trails	< 8 km	Very High
46 – Pettits	Moderate to Steep	Perimeter Roads, No Trails, River	< 4 km	Moderate
47 – High Chisos	Remote, Very Steep	No Roads, Many Trails	< 2 km (from trails)	Moderate
48 – Lower Smoky	Remote, Steep	Roads, Many Trails	< 8 km (from trails)	High

Discussion

Shapefiles containing the general vegetation, BPU polygons and potential target points were electronically distributed to NVIP, CHDN and BIBE/RIGR staff. The general vegetation and target point shapefiles were also used to create field maps containing both aerial photography and digital topographic layers as backgrounds (Figure 4). Copies of the field forms, field manuals (based on the data presented here) and hard-copy field maps were delivered to BIBE prior to the start of the 2010 field season. In addition to the maps the following were supplied to the field crews as hardcopy reports: 1) tables that contain *x y* coordinates for each target site (Appendix 1), 2) a plot instruction manual (Appendix 2), 3) a list of potential plant associations based on legacy data review (Appendix 3), and a list of known plant species that occur in BIBE/RIGR (Appendix 4).

It is important to understand that the target locations and vegetation polygons are only meant as guides or act as orienteering or rallying points. The actual determination of where to place the classification plot is solely dependent on the field crew's judgment. The purpose of this sampling strategy is to guide the field crews into diverse environments that might contain representative and/or unique plant associations.

Most of the actual decisions on how to use the gradsect and BPU data are left up to the field crews and their team leaders. However based on similar studies, it is anticipated that BIBE/RIGR sampling will be approached in a systematic, step-wise fashion. It is recommended that all of the use areas be evaluated based on access and diversity of vegetation. This evaluation can be accomplished in part by reviewing the data presented in this report, examining the field maps for natural corridors (mesa tops, streams, arroyos, canyon bottoms, and ridges), using man-made access points (service roads, utility corridors, etc.) and by referencing the target point attributes.

The following example might be an applicable approach to sample the vegetation at BIBE/RIGR:

Step	Description	Method
1	Evaluate and Rank Use Areas	Based on accessibility from trails, roads, river, backcountry, or N/A
2	Pick Potential Target Points	Evaluate targets in use area for accessibility and diversity
3	Determine Sampling Route	String points based on elevation, distance from one another, etc.
4	Navigate Through Use Areas	Work through area collecting data in representative stands
5	Tally Points and Use Areas	Cross-off vegetation types and use areas after sampling
6	Repeat as Necessary	----
7	Select Unique Areas to Sample	After sampling the common types focus on rare stands (e.g., riparian)

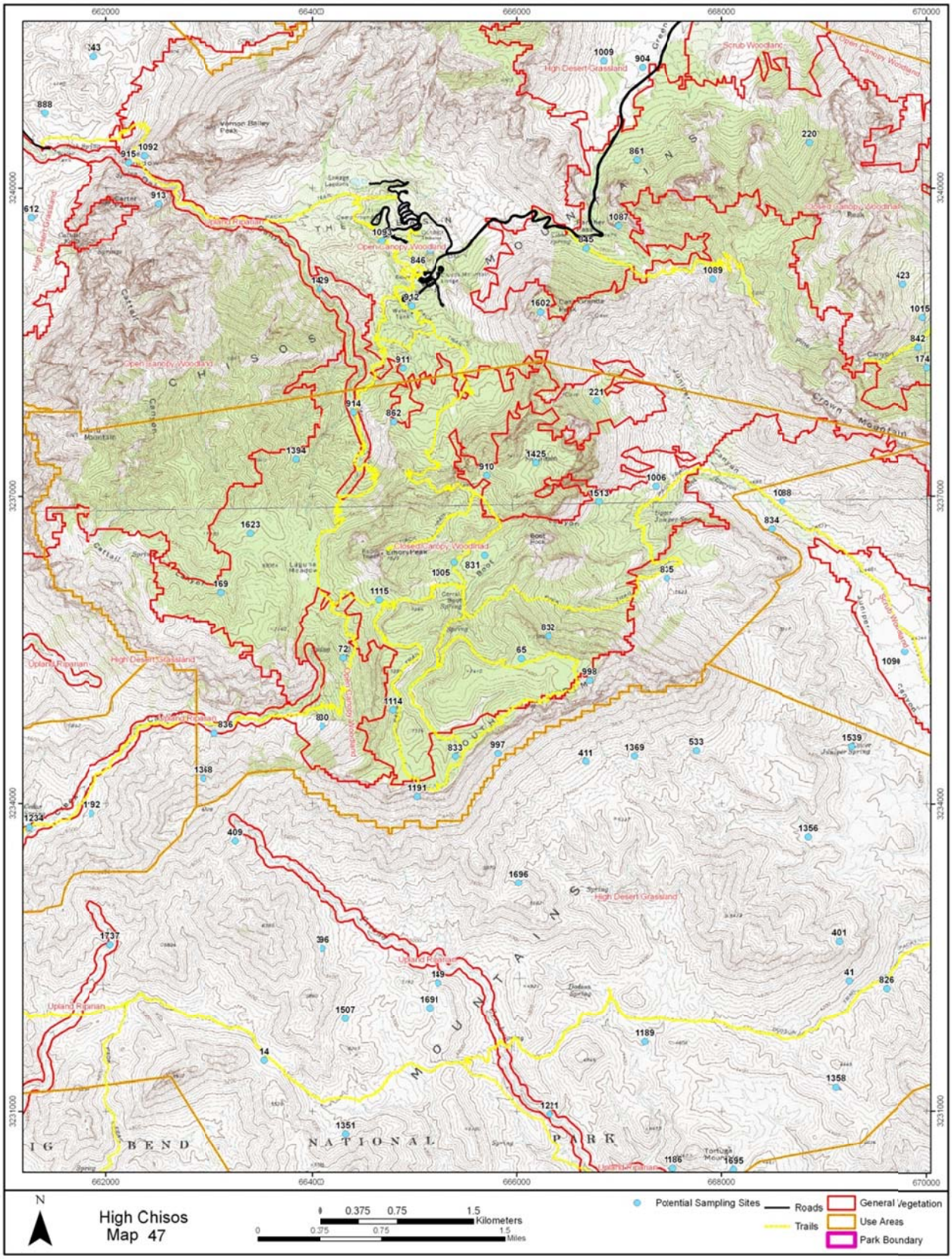


Figure 4. Field Map Example for BIBE/RIGR

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Appendix 1: Potential Sampling Target Points by Use Area

Arroyo Venado									
Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
193	Lechuguilla Scrub	Moderate	North	Wild	Cross-Country	Open	99	702586	3247303
195	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	219	700567	3249146
416	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	218	703927	3239804
417	Lechuguilla Scrub	Moderate	East	Wild	Cross-Country	Open	466	702881	3241459
421	Lechuguilla Scrub	Steep	East	Wild	Cross-Country	Open	945	703286	3244648
449	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	61	703515	3246872
450	Lechuguilla Scrub	Moderate	East	Wild	Cross-Country	Open	269	702347	3246629
452	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	229	700045	3247138
457	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	860	701687	3249737
458	Lechuguilla Scrub	Steep	East	Wild	Cross-Country	Open	285	701989	3249428
459	Lechuguilla Scrub	Moderate	East	Wild	Cross-Country	Open	304	702121	3247921
460	Riverine Riparian	Moderate	Flat River Bottom	Wild	Cross-Country	Open	258	708898	3250377
461	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	198	708254	3251153
462	Lechuguilla Scrub	Moderate	East	Wild	Cross-Country	Open	693	708108	3250484
468	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	652	705784	3251041
469	Lechuguilla Scrub	Steep	East	Wild	Cross-Country	Open	387	705435	3250011
650	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	157	707105	3249105
652	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	653	707224	3251021
653	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	219	706530	3250938
683	Riverine Riparian	Moderate	Flat River Bottom	Wild	Cross-Country	Open	376	704830	3243204
702	High Desert Grassland	Steep	South and West	Wild	Cross-Country	Open	1155	703797	3248241
703	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	238	702370	3250734
725	Lechuguilla Scrub	Steep	South and West	Wild	Cross-Country	Open	271	702654	3249112
734	Lechuguilla Scrub	Steep	South and West	Wild	Cross-Country	Open	1990	702890	3243400
735	Lechuguilla Scrub	Steep	South and West	Wild	Cross-Country	Open	1272	704314	3245587

Ash Spring									
Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
24	Scrub Woodland	Flat/Rolling	North	Wild	Road and Trail	Open	936	668356	3243157
223	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	60	661281	3244498
224	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	83	661077	3245408
225	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	82	662250	3245470
230	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	90	660914	3244417
231	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	68	660903	3243673

252	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	88	660389	3245083
256	Upland Riparian	Moderate	Flat Upland	Wild	Cross-Country	Open	54	663255	3243264
555	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	112	660920	3243900
556	High Desert Grassland	Steep	South and West	Wild	Cross-Country	Open	249	662148	3243025
557	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	316	659859	3244985
558	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	367	667689	3245735
657	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	107	661928	3244282
658	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	265	663879	3244832
865	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	59	661601	3246007
879	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	259	658253	3241526
880	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	1103	657045	3244295
905	High Desert Grassland	Impassible	North	Wild	Road and Trail	Open	92	659391	3245762
918	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	194	659772	3245791
1095	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	90	657704	3242370
1119	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	545	659129	3240291
1237	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	78	662978	3246411
1395	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	1728	665365	3246820
1403	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	2632	659050	3242767
1415	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	6425	664652	3244296
1426	Scrub Woodland	Moderate	North	Wild	Cross-Country	Open	108	667790	3242538
1430	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	149	660690	3243117
1431	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	68	661063	3244668
1748	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	268	661314	3245110
1749	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	120	662636	3245521

Blue Creek

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
824	High Desert Grassland	Steep	North	Primitive	Road and Trail	Open	31	661059	3233404
1192	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	70	661856	3233904
1234	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	177	661244	3233771
1701	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	1020	660092	3234397

Target ID	Vegetation	Slope	Aspect	Bruja Canyon Management	Access	Camping	Acres	X	Y
166	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	200	631400	3230571
546	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	210	624125	3235426
767	Lechuguilla Scrub	Moderate	North	Wild	Road and Trail	Open	255	627958	3235367
771	Lechuguilla Scrub	Steep	South and West	Wild	Road and Trail	Open	331	627297	3234435
772	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	46	628193	3235200
1362	Lechuguilla Scrub	Steep	North	Wild	Cross-Country	Open	536	629827	3233791
1366	Lechuguilla Scrub	Moderate	North	Wild	Cross-Country	Open	1223	625327	3235021
1593	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	1142	629602	3232937
1594	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	734	626457	3235295

Target ID	Vegetation	Slope	Aspect	Burro Mesa Management	Access	Camping	Acres	X	Y
180	High Desert Grassland	Moderate	North	Primitive	Cross-Country	No Camping	1789	653650	3237961
414	High Desert Grassland	Steep	East	Primitive	Cross-Country	No Camping	142	653259	3236380
415	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	No Camping	255	655473	3236611
827	High Desert Grassland	Moderate	North	Primitive	Road and Trail	No Camping	32	657132	3233849
828	High Desert Grassland	Moderate	North	Primitive	Road and Trail	No Camping	503	657606	3234301
875	Creosote Scrub	Moderate	North	Primitive	Road and Trail	No Camping	349	655983	3244055
897	High Desert Grassland	Steep	North	Primitive	Road and Trail	No Camping	85	658030	3237370
899	High Desert Grassland	Moderate	North	Primitive	Road and Trail	No Camping	83	658045	3239703
901	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	No Camping	27	657773	3240813
902	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	No Camping	89	657401	3242001
903	High Desert Grassland	Moderate	North	Primitive	Road and Trail	No Camping	372	654546	3244681
916	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	No Camping	171	658240	3239895
917	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	No Camping	65	656581	3244038
1007	High Desert Grassland	Steep	East	Primitive	Road and Trail	No Camping	180	658168	3238603
1195	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	No Camping	79	655631	3233664
1196	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	No Camping	1079	656481	3233753
1197	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	No Camping	616	654532	3235189
1199	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	No Camping	353	657617	3235959
1201	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	No Camping	36	657911	3237511
1203	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	No Camping	52	654391	3244386
1360	High Desert Grassland	Moderate	North	Primitive	Cross-Country	No Camping	109	656583	3234505
1401	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	No Camping	117	656240	3243316

1419	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	No Camping	100	657049	3237275
1699	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	No Camping	33	656859	3234352
1700	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	No Camping	215	656003	3234503
1705	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	No Camping	4893	656835	3238164

Canyon Flag									
Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
1	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	167	620045	3236412
768	Lechuguilla Scrub	Impassible	North	Primitive	Road and Trail	Open	382	627464	3233422
769	Lechuguilla Scrub	Moderate	North	Primitive	Road and Trail	Open	88	620565	3235663
775	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	91	626910	3231884
780	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	45	627086	3233532
781	Lechuguilla Scrub	Moderate	South and West	Primitive	Road and Trail	Open	1383	625292	3232601
1363	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	35	626434	3233203
1365	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	104	619917	3235751
1595	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	35	619800	3236255
1596	Lechuguilla Scrub	Steep	South and West	Primitive	Cross-Country	Open	102	621141	3236260
1597	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	31	620224	3236678
1724	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1248	625261	3234031
1725	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	892	622235	3234279

Canyon Rim									
Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
165	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	133	627736	3232257
168	Lechuguilla Scrub	Steep	North	Wild	Cross-Country	Open	842	633148	3229130
393	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	115	627951	3231867
633	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	64	628428	3232183
1364	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	1407	629695	3231538
1723	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	5815	629986	3229157

Target ID	Vegetation	Slope	Aspect	Chilicotal Management	Access	Camping	Acres	X	Y
10	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	133	692298	3226079
12	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	90	693792	3228080
33	Bare	Flat/Rolling	East	Wild	Road and Trail	Open	123	688355	3221720
34	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	116	688925	3223970
64	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Road and Trail	Open	77	687940	3219899
80	Bare	Flat/Rolling	South and West	Wild	Road and Trail	Open	70	693196	3227539
82	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	150	693425	3226813
106	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	175	690185	3221866
109	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	193	686956	3225157
110	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	66	685392	3225610
121	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	563	691015	3226969
131	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	986	684779	3228374
132	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	52	684159	3229898
133	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	86	684636	3230476
134	Creosote Scrub	Moderate	North	Wild	Cross-Country	Open	72	683611	3230261
135	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	86	683433	3229671
136	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	455	682645	3228851
137	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	458	685066	3227722
138	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	183	683464	3226753
139	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	661	690092	3230414
144	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	483	680837	3231589
152	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	402	679733	3233147
158	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	246	678860	3234204
159	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	291	679273	3235190
339	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	72	688886	3221136
343	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	65	688361	3224291
346	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	94	691239	3222871
369	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	276	683229	3227765
370	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	256	688660	3227815
373	Lechuguilla Scrub	Moderate	East	Wild	Cross-Country	Open	53	694513	3227828
378	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	168	687330	3229450
390	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	234	682534	3230441
391	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	1378	681734	3229850
394	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	171	686410	3231610

395	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	563	687435	3231574
424	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	179	686091	3227907
425	Creosote Scrub	Moderate	East	Wild	Cross-Country	Open	64	684780	3228896
430	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	155	685220	3233703
431	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	3420	682403	3232690
432	Creosote Scrub	Moderate	East	Wild	Cross-Country	Open	142	682346	3236251
433	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	58	684529	3229443
434	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	123	679703	3234485
440	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	94	684520	3232966
441	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	139	685493	3232869
442	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	278	685440	3228875
530	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	496	680861	3229444
531	Creosote Scrub	Steep	South and West	Wild	Cross-Country	Open	1203	682756	3231563
534	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	88	681859	3228612
537	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	120	684073	3225833
684	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	154	689426	3226474
687	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	54	692438	3226954
688	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	1449	689817	3229168
689	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	4987	688364	3228668
709	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	916	684828	3226398
710	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	118	681533	3237259
712	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	178	688813	3230992
713	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	311	687751	3230587
737	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	235	690537	3228676
738	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	646	686157	3233993
739	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	323	687915	3226561
806	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	361	690579	3223741
807	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	59	683560	3224932
814	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	482	691077	3224711
815	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	166	691794	3225515
816	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	26	690044	3224812
822	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	235	681242	3227321
966	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	559	687940	3221542
967	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	120	685265	3222922
971	Creosote Scrub	Moderate	East	Wild	Road and Trail	Open	60	692374	3224271
972	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	175	692894	3225937

973	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	103	692516	3223908
988	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Road and Trail	Open	27	694756	3229274
989	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Road and Trail	Open	61	694313	3226624
990	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	34	694315	3228271
991	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	148	679703	3228726
1018	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	2787	686784	3235661
1019	Creosote Scrub	Moderate	East	Wild	Road and Trail	Open	356	692895	3230432
1020	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	25	677528	3231037
1032	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	105	693667	3230227
1068	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	41	687745	3221150
1069	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	389	688797	3222817
1072	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	32	679830	3229210
1075	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	36	677783	3231797
1076	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	220	682699	3226310
1077	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	47	679911	3228603
1078	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	908	677895	3232487
1109	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Road and Trail	Open	25	693637	3225856
1245	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Road and Trail	Open	42	693759	3226168
1249	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	433	690817	3224203
1250	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	39	692786	3226380
1251	Creosote Scrub	Moderate	South and West	Wild	Road and Trail	Open	502	692607	3230058
1252	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	65	687014	3235108
1253	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	74	688734	3233897
1254	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	270	690404	3232723
1255	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	50	684886	3236462
1256	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	130	683450	3237765
1285	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	316	693957	3227238
1286	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	148	694205	3228719
1308	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	33	691714	3223607
1309	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	81	692971	3226751
1311	Upland Riparian	Moderate	Flat Upland	Wild	Road and Trail	Open	47	694246	3229304
1336	Creosote Scrub	Moderate	North	Wild	Cross-Country	Open	161	690833	3223464
1337	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	1141	686609	3224535
1342	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	108	692011	3224692
1343	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	39	691643	3225877
1348	Creosote Scrub	Steep	North	Wild	Cross-Country	Open	479	691652	3228602

1350	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	397	681818	3227800
1477	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	52	688718	3220546
1478	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	640	686799	3222756
1483	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	315	692986	3223947
1484	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	81	691855	3223003
1485	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	195	692845	3225025
1486	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	351	684612	3226209
1506	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	135	694653	3227865
1517	Creosote Scrub	Moderate	East	Wild	Cross-Country	Open	98	678649	3236062
1522	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	66	686364	3235349
1523	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	692	683422	3237310
1529	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	1804	680091	3236722
1581	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	379	691308	3221062
1582	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	283	687451	3221942
1583	Creosote Scrub	Moderate	South and West	Wild	Cross-Country	Open	1224	689784	3222114
1584	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	73	684625	3224328
1585	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	816	686852	3223766
1586	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	59	684059	3225454
1590	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	1368	679060	3231371
1591	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	34	678962	3234747
1758	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	1049	687710	3226056
1759	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	71	690625	3231958
1760	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	29	683306	3237575
1761	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	4764	684310	3234552
1779	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	573	691403	3230710
1815	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	91	690720	3225389

Chimneys									
Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
15	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	257	644561	3231572
16	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	154	653636	3232428
36	High Desert Grassland	Moderate	East	Primitive	Road and Trail	Open	70	651120	3227596
71	High Desert Grassland	Impassible	South and West	Primitive	Road and Trail	Open	170	642064	3232294
123	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	542	650664	3228415
125	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	179	651216	3229468
127	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	187	639561	3229904

129	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	137	648454	3230072
130	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	473	646216	3230356
146	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	276	650445	3231876
151	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	215	644528	3233434
153	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	188	647652	3233550
154	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	236	646776	3233079
162	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	368	646981	3235387
374	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	99	643805	3227752
375	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	220	643501	3228612
377	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	136	647648	3229651
381	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	195	641133	3227586
382	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	108	640716	3229695
383	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	107	641175	3229684
384	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	77	641596	3227747
387	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	50	648922	3228404
388	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	129	649562	3229920
404	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	99	640179	3231562
583	Creosote Scrub	Steep	South and West	Primitive	Cross-Country	Open	108	651110	3229162
584	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	50	643923	3229386
585	Creosote Scrub	Steep	South and West	Primitive	Cross-Country	Open	673	648300	3228916
586	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	270	645156	3235225
595	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	686	644419	3236155
597	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	176	644349	3225938
608	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	113	649962	3228712
617	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	353	646641	3232545
618	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	225	652060	3233112
622	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	762	651075	3230587
624	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	142	643923	3229977
625	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	82	643103	3228207
628	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	394	639216	3228641
630	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	2765	646410	3228316
644	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	205	641497	3228290
820	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	350	636719	3228559
823	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	105	650495	3232370
993	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	110	638237	3231137
994	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	35	641078	3232333

995	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	50	640042	3232127
1004	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	54	642975	3236737
1110	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	584	643073	3224551
1111	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	443	635842	3226552
1144	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	49	644833	3225606
1145	Creosote Scrub	Steep	South and West	Primitive	Road and Trail	Open	242	645985	3226223
1146	Creosote Scrub	Moderate	South and West	Primitive	Road and Trail	Open	198	651789	3228170
1147	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	1448	639593	3227227
1150	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	99	639186	3231518
1156	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	535	641887	3225561
1157	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	38	652417	3229353
1158	Creosote Scrub	Moderate	South and West	Primitive	Road and Trail	Open	32	644532	3231382
1159	Creosote Scrub	Moderate	South and West	Primitive	Road and Trail	Open	75	642245	3232137
1160	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	548	648298	3231940
1162	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	281	643775	3232507
1163	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	128	643120	3234037
1175	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	265	650567	3226547
1181	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	157	649310	3226728
1187	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	301	653278	3230145
1209	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	80	649981	3232519
1210	High Desert Grassland	Impassible	South and West	Primitive	Road and Trail	Open	64	653032	3230091
1232	Upland Riparian	Steep	Flat Upland	Primitive	Road and Trail	Open	157	647529	3226177
1233	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	91	653189	3230186
1352	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	218	645380	3232176
1353	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	28	652844	3232538
1618	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	104	641079	3225175
1619	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	79	639521	3226021
1649	Creosote Scrub	Steep	South and West	Primitive	Cross-Country	Open	740	644414	3227050
1650	Creosote Scrub	Moderate	South and West	Primitive	Cross-Country	Open	87	646969	3226276
1651	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	210	647799	3227242
1653	Creosote Scrub	Moderate	South and West	Primitive	Cross-Country	Open	3829	640711	3229123
1667	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	220	652062	3231343
1669	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	73	646158	3232100
1670	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	5971	642517	3229024
1673	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	7032	647271	3235712
1679	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	51	644040	3225077

1709	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	97	649621	3232942
1712	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	711	644591	3234603
1728	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	326	644032	3227316
1731	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	128	643341	3231472
1738	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	162	641250	3230953
1739	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	89	643991	3233911
1745	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	172	649048	3228161

Dagger Mountain

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
62	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	119	680070	3277388
267	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	212	685221	3266200
268	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	144	683677	3265871
269	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	384	686102	3266865
274	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	4475	687147	3269932
284	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	89	688317	3267782
285	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	315	687041	3269004
286	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	585	686463	3268862
287	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	108	681286	3273578
288	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	67	680881	3275084
289	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	473	681631	3275528
295	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	66	683222	3276158
296	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	126	683015	3275393
297	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	462	684361	3274328
298	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	86	682475	3275845
299	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	103	681634	3277034
306	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	2067	689305	3273065
307	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	1280	686409	3275406
308	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	338	682764	3279451
309	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	436	688831	3274397
310	Lechuguilla Scrub	Steep	North	Primitive	Cross-Country	Open	54	685269	3275168
311	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	1582	684348	3277166
509	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	198	683111	3269876
510	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	585	684478	3271201
511	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	301	686215	3272557
512	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	123	685509	3272616

516	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	233	683715	3273728
517	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	374	687143	3273601
518	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	60	686948	3275754
519	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	112	687668	3276640
669	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	137	688275	3268566
670	Lechuguilla Scrub	Steep	South and West	Primitive	Cross-Country	Open	79	687559	3269503
679	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	268	687465	3269992
680	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	119	689122	3268490
681	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	87	688787	3269018
682	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	212	688437	3273070
704	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	277	685523	3269818
705	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	978	682718	3272323
719	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	292	684145	3267064
720	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	216	682837	3267448
721	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	217	688066	3266731
727	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	68	683017	3264245
728	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	220	683196	3265681
730	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	235	681336	3272368
731	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	143	681200	3273945
732	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	339	681392	3274936
748	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	417	683198	3274033
749	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	496	682124	3275934
762	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	218	685490	3273627
921	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	43	681888	3264116
922	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	45	683655	3264260
927	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	873	680664	3273834
935	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	80	681394	3263161
937	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	51	681471	3264006
938	Lechuguilla Scrub	Moderate	North	Primitive	Road and Trail	Open	141	688890	3267740
939	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	118	681908	3269220
940	Lechuguilla Scrub	Moderate	North	Primitive	Road and Trail	Open	28	681072	3271935
941	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	41	681183	3272590
942	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	279	677318	3284185
943	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	42	682180	3278342
1265	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	37	681535	3270426
1266	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	244	680890	3271316

1267	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	29	680578	3272853
1268	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	88	680516	3273406
1269	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	50	680616	3274788
1284	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	491	686490	3263782
1288	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	40	683866	3263825
1290	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	32	685396	3263992
1293	Lechuguilla Scrub	Moderate	South and West	Primitive	Road and Trail	Open	736	688571	3265375
1294	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	433	682317	3267185
1295	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	28	681978	3269477
1296	Lechuguilla Scrub	Moderate	South and West	Primitive	Road and Trail	Open	25	681043	3271859
1318	Bare	Flat/Rolling	South and West	Primitive	Road and Trail	Open	253	680152	3278645
1320	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	143	677051	3283213
1321	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	127	681644	3278546
1322	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	60	679525	3279479
1323	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	606	677202	3281497
1446	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	152	680510	3276235
1450	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	47	683376	3264233
1452	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	37	682342	3263953
1453	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	45	682596	3268964
1454	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	721	683994	3268411
1455	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	25	682224	3269633
1456	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	224	681115	3277581
1458	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	2498	679928	3281997
1567	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	35	680765	3277482
1766	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	667	683581	3264853
1786	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	764	686467	3265210
1791	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	54	688264	3266434
1792	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	647	687340	3265860
1793	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	33	688563	3268662
1794	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	4087	685549	3267891
1823	Bare	Flat/Rolling	South and West	Primitive	Cross-Country	Open	52	680343	3278956
1826	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1117	683498	3276272
1827	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	1754	679202	3280553

Dodson

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
13	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	57	659315	3231754
14	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	164	663537	3231496
41	High Desert Grassland	Steep	East	Primitive	Road and Trail	Open	100	669246	3232274
143	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	290	659647	3231289
149	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	120	665234	3232253
396	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	139	664110	3232586
401	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	268	669152	3232653
409	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	132	663258	3233636
411	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	735	666682	3234414
533	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	234	667760	3234521
826	High Desert Grassland	Steep	North	Primitive	Road and Trail	Open	297	669606	3232199
1186	High Desert Grassland	Impassible	South and West	Primitive	Road and Trail	Open	70	667526	3230441
1189	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	403	667248	3231680
1190	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	524	658696	3232349
1221	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	95	666323	3230973
1351	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	178	664338	3230778
1356	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	669	668851	3233678
1357	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	842	670972	3231779
1358	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	105	669118	3231236
1369	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	70	667146	3234467
1507	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	168	664336	3231907
1537	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	47	671528	3232766
1539	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	1103	669269	3234563
1691	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	118	665150	3232008
1695	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	1179	668117	3230429
1696	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	1663	666018	3233227
1737	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	27	662041	3232622
1747	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	65	657977	3231852

Dominguez

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
30	Creosote Scrub	Steep	East	Primitive	Road and Trail	Open	206	664809	3213929
31	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	147	668122	3214191

32	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	82	662873	3214485
108	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	210	663537	3223578
119	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	623	665734	3225724
126	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	220	665575	3229291
321	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	107	663393	3211566
322	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	68	663089	3211531
323	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	55	668527	3214195
324	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	129	668963	3215576
333	Creosote Scrub	Moderate	East	Primitive	Cross-Country	Open	69	668051	3218621
334	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	173	665966	3217481
335	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	148	668208	3217624
341	Creosote Scrub	Moderate	East	Primitive	Cross-Country	Open	106	664976	3219348
342	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	339	664077	3220439
344	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	602	667029	3224314
356	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	935	663581	3225450
376	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	1015	666076	3228032
385	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	380	664684	3229505
527	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	135	664657	3220880
579	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	272	668239	3215080
580	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	91	667307	3218727
581	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	61	665342	3219243
600	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	139	664090	3219877
601	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	121	665272	3220372
634	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	239	660855	3216468
635	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	108	664969	3210152
639	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	295	668726	3215676
640	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	61	667602	3218966
641	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	191	666856	3220956
789	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	47	669303	3212860
946	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	34	663548	3212262
952	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	333	667690	3214017
960	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	93	666376	3219298
961	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	43	666188	3220368
968	High Desert Grassland	Impassible	East	Primitive	Road and Trail	Open	115	664813	3223144
969	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	98	665291	3222735
1100	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	96	664689	3211080

1102	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	110	662469	3212393
1126	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	43	665136	3214042
1127	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	35	668009	3214555
1128	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	272	661979	3214770
1130	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	3467	666521	3213312
1132	Creosote Scrub	Moderate	South and West	Primitive	Road and Trail	Open	59	666381	3218765
1133	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	53	666635	3219102
1139	Creosote Scrub	Steep	South and West	Primitive	Road and Trail	Open	111	665952	3221767
1178	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	32	664640	3223662
1206	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	71	664683	3215876
1207	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	587	666555	3216744
1224	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	230	665832	3221049
1463	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	56	664432	3212581
1464	Creosote Scrub	Moderate	East	Primitive	Cross-Country	Open	27	667666	3215383
1465	Creosote Scrub	Moderate	East	Primitive	Cross-Country	Open	29	668083	3212884
1468	Creosote Scrub	Steep	East	Primitive	Cross-Country	Open	174	663679	3216495
1471	Creosote Scrub	Moderate	East	Primitive	Cross-Country	Open	66	666145	3218719
1472	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	391	666789	3219531
1479	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	366	665136	3221140
1480	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	456	664281	3222818
1608	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	155	664311	3210090
1609	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	92	664900	3211922
1610	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	139	661821	3211606
1612	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	49	662964	3213225
1630	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	81	662614	3211572
1632	Creosote Scrub	Moderate	South and West	Primitive	Cross-Country	Open	54	663904	3212184
1635	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	873	667193	3212021
1636	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	59	663475	3213419
1641	Creosote Scrub	Moderate	South and West	Primitive	Cross-Country	Open	809	665396	3213241
1648	Creosote Scrub	Steep	South and West	Primitive	Cross-Country	Open	11393	668212	3220330
1707	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	871	667511	3216921
1708	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1223	665221	3217321
1730	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	181	665799	3219953

Target ID	Vegetation	Slope	Aspect	Elephant Tusk Management	Access	Camping	Acres	X	Y
104	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	269	669586	3220819
114	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	152	668094	3225820
122	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	519	673522	3227808
325	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	62	672079	3215633
326	Creosote Scrub	Steep	East	Primitive	Cross-Country	Open	67	671441	3216050
331	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	216	670954	3218487
336	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	162	672231	3219921
338	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	163	671580	3222321
340	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	158	669775	3222659
355	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	78	670663	3225765
362	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	335	673234	3225215
364	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	115	672200	3226032
365	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	92	671645	3226642
368	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	343	675870	3227404
389	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	137	669789	3230051
426	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	150	673568	3230563
535	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	143	674117	3230566
536	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	294	677977	3229297
538	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	90	674058	3228135
539	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	53	673517	3231249
540	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	114	672310	3232255
541	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	414	675136	3229966
594	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	636	669451	3222457
602	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	1021	668575	3221246
603	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	51	669641	3223659
604	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	168	668957	3224241
609	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1862	670767	3228793
636	Upland Riparian	Moderate	Flat Upland	Primitive	Cross-Country	Open	82	671308	3227919
813	High Desert Grassland	Impassible	North	Primitive	Road and Trail	Open	102	668930	3227494
821	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	68	667560	3229458
957	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	393	674034	3216790
959	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	43	673211	3215672
976	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	775	673283	3223860
984	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	28	677107	3227316

1016	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	309	678696	3228975
1030	High Desert Grassland	Moderate	East	Primitive	Road and Trail	Open	48	678474	3228628
1031	High Desert Grassland	Steep	East	Primitive	Road and Trail	Open	45	677982	3229837
1073	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	91	678217	3230178
1079	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	48	675361	3230389
1080	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	88	677910	3228425
1138	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	37	673640	3221311
1141	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	33	672190	3224412
1142	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	38	671835	3225618
1143	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	126	670242	3226696
1185	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	659	670001	3227122
1214	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	44	673623	3220718
1215	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	25	673435	3221150
1220	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	167	672073	3214418
1338	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	74	675519	3225901
1340	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	147	675927	3226425
1341	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	257	668297	3227212
1349	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	476	669165	3229153
1467	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	129	671797	3215710
1469	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	732	673340	3217489
1487	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	413	669747	3224799
1492	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	272	673048	3223087
1493	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	324	673076	3224606
1501	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	113	671851	3226098
1502	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	46	676462	3226523
1504	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	45	676564	3227178
1519	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	228	677053	3229352
1520	Creosote Scrub	Moderate	East	Primitive	Cross-Country	Open	197	673952	3231451
1536	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	300	672963	3231943
1589	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	2711	673468	3229468
1592	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	78	677326	3228983
1629	Creosote Scrub	Steep	South and West	Primitive	Cross-Country	Open	847	674587	3226042
1643	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	89	673139	3216919
1687	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	300	670951	3225241
1688	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	925	669751	3228016
1689	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	31	667972	3229826

1690	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	1858	667349	3227265
1714	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	118	672858	3220799
1727	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	44	668067	3229801

Target ID	Vegetation	Slope	Aspect	Grapevine Management	Access	Camping	Acres	X	Y
216	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	199	678068	3257909
253	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	65	675574	3250642
254	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	96	674953	3252527
259	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	51	675528	3256853
261	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	165	676242	3260172
464	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	160	675980	3250912
476	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	161	674093	3251707
477	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	75	673979	3252684
478	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	72	674497	3252821
482	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	112	674972	3253939
485	Creosote Scrub	Moderate	East	Primitive	Cross-Country	Open	394	677848	3253779
496	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	282	677141	3254922
500	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	108	679260	3255659
501	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	268	678025	3256110
503	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	66	677535	3257180
505	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	122	678423	3258814
559	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	95	673619	3246790
649	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	55	673608	3251873
662	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	789	678269	3256981
663	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	139	677831	3260344
672	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1615	675058	3258193
869	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	193	679788	3252655
871	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	82	679777	3253971
873	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	424	675444	3254819
874	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	245	680001	3255025
892	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	46	672039	3246546
894	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	2115	669525	3246493
906	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	44	677246	3250526
907	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	313	679168	3251800
908	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	182	673155	3253868

1041	High Desert Grassland	Moderate	East	Primitive	Road and Trail	Open	257	678332	3250955
1044	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	120	680326	3254458
1050	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	658	680600	3259159
1051	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	633	680509	3262070
1239	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	40	673452	3254253
1240	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	153	674346	3254087
1241	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	132	673213	3253159
1397	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	3041	674221	3249787
1398	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	95	678998	3252490
1414	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	38	674120	3246657
1417	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	1317	671769	3247513
1423	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	1479	677024	3252052
1551	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	208	678862	3252966
1556	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	339	679229	3257392
1558	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	35	680018	3261951
1559	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	3134	677902	3259764
1561	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	315	678804	3256263
1753	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	529	674661	3252793
1754	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	34	674566	3254272
1764	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	112	679845	3261663

Hayes Ridge

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
50	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	339	677585	3236502
51	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	119	677684	3234783
52	Scrub Woodland	Flat/Rolling	East	Wild	Road and Trail	Open	321	672071	3238636
173	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	119	671716	3237816
427	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	172	676899	3233793
428	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	66	676238	3235478
435	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	80	677027	3236016
548	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	225	676594	3235746
549	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	98	676504	3236708
1017	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	1760	675941	3231184
1021	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	43	674362	3232709
1022	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	278	677454	3233167
1023	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	809	671423	3233985

1024	High Desert Grassland	Moderate	East	Wild	Road and Trail	Open	121	677527	3235852
1025	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	1988	676239	3237636
1067	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	104	673519	3233047
1074	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	35	675302	3231013
1370	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	254	673761	3236632
1518	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	58	676947	3236658
1521	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	1325	675486	3232750
1526	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	27	676668	3236883
1527	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	50	676126	3236921
1528	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	659	672615	3237152
1538	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	38	672229	3233863
1540	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	2958	673983	3234534
1579	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	98	672470	3233970
1601	High Desert Grassland	Steep	South and West	Wild	Cross-Country	Open	2796	671549	3235981

				High Chisos					
Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
65	Closed Canopy Woodland	Flat/Rolling	South and West	Threshold	Road and Trail	Open	156	666048	3235412
72	Open Canopy Woodland	Steep	South and West	Threshold	Road and Trail	Open	175	664316	3235419
169	Closed Canopy Woodland	Steep	North	Threshold	Cross-Country	Open	146	663120	3236060
221	Closed Canopy Woodland	Steep	North	Threshold	Cross-Country	Open	108	666783	3237926
830	Closed Canopy Woodland	Moderate	North	Threshold	Road and Trail	Open	37	664106	3234759
831	Closed Canopy Woodland	Flat/Rolling	North	Threshold	Road and Trail	Open	25	665691	3236421
832	Closed Canopy Woodland	Impassible	North	Threshold	Road and Trail	Open	638	666314	3235630
833	High Desert Grassland	Moderate	North	Threshold	Road and Trail	Open	58	665409	3234465
835	High Desert Grassland	Steep	North	Threshold	Road and Trail	Open	101	667467	3236199
836	High Desert Grassland	Impassible	North	Threshold	Road and Trail	Open	112	663056	3234691
862	Closed Canopy Woodland	Moderate	North	Threshold	Road and Trail	Open	609	664803	3237720
910	Open Canopy Woodland	Steep	North	Threshold	Road and Trail	Open	52	665711	3237203
914	Upland Riparian	Moderate	Flat Upland	Threshold	Road and Trail	Open	44	664418	3237813
997	High Desert Grassland	Impassible	East	Threshold	Road and Trail	Open	111	665820	3234492
998	High Desert Grassland	Impassible	East	Threshold	Road and Trail	Open	25	666718	3235199
1005	Closed Canopy Woodland	Steep	East	Threshold	Road and Trail	Open	246	665399	3236351
1006	Closed Canopy Woodland	Moderate	East	Threshold	Road and Trail	Open	81	667355	3237099
1114	Closed Canopy Woodland	Steep	South and West	Threshold	Road and Trail	Open	35	664795	3234917
1115	Closed Canopy Woodland	Moderate	South and West	Threshold	Road and Trail	Open	185	664662	3235989

1191	High Desert Grassland	Impassible	South and West	Threshold	Road and Trail	Open	41	665025	3234067
1368	High Desert Grassland	Steep	North	Threshold	Cross-Country	Open	182	662944	3234244
1394	Closed Canopy Woodland	Steep	North	Threshold	Cross-Country	Open	174	663842	3237360
1425	Open Canopy Woodland	Moderate	North	Threshold	Cross-Country	Open	163	666186	3237326
1513	Closed Canopy Woodland	Moderate	East	Threshold	Cross-Country	Open	48	666808	3236948
1623	Closed Canopy Woodland	Moderate	South and West	Threshold	Cross-Country	Open	109	663405	3236635

Lower Juniper

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
834	High Desert Grassland	Steep	North	Primitive	Road and Trail	Open	98	668488	3236676
1088	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	162	668594	3236949
1090	Scrub Woodland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	207	669791	3235483

Lower Smoky

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
8	High Desert Grassland	Steep	North	Primitive	Road and Trail	Open	50	655284	3222635
63	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	230	651313	3224501
69	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	114	653646	3220717
73	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	113	660981	3214997
74	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	63	656080	3214403
75	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	215	648301	3222558
76	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	178	649277	3219382
90	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	71	660020	3212294
91	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	105	657886	3213802
92	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	382	654882	3215933
93	Creosote Scrub	Steep	North	Primitive	Cross-Country	Open	247	656417	3217559
98	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	224	655883	3218739
111	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	169	652353	3225359
112	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	56	651049	3223018
113	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	192	651410	3225040
116	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	78	653858	3225423
118	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	191	654404	3224690
327	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	461	657504	3215372
330	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	271	658280	3218164
332	Creosote Scrub	Moderate	East	Primitive	Cross-Country	Open	106	652834	3219053
345	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	166	655649	3224968

354	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	159	661018	3226169
525	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	123	658113	3215624
575	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	88	653780	3220847
591	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	74	654593	3225072
593	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	156	648736	3224017
605	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	880	653897	3223726
606	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	206	655243	3224728
607	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	1242	649287	3224303
637	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	71	655546	3213829
638	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	82	644967	3222525
791	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	53	657316	3213901
805	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	57	653443	3219892
808	Creosote Scrub	Steep	North	Primitive	Road and Trail	Open	288	646310	3225330
809	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	160	650292	3225874
810	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	87	650763	3224940
811	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	189	649351	3225895
947	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	71	659851	3212755
948	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	94	659049	3212401
949	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	31	659321	3212908
950	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	64	659436	3212439
951	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	206	654936	3214638
970	High Desert Grassland	Flat/Rolling	East	Primitive	Road and Trail	Open	61	651872	3223289
1101	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	110	658486	3211635
1103	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	90	656993	3212804
1104	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	98	654068	3213551
1106	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	275	660721	3213606
1107	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	323	651017	3216571
1108	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	130	647517	3219603
1129	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	623	660243	3214018
1134	Creosote Scrub	Steep	South and West	Primitive	Road and Trail	Open	2702	652546	3215682
1166	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	306	657301	3224385
1167	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	45	656099	3224481
1168	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	79	653656	3219007
1169	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	1260	651966	3218313
1170	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	426	652797	3221781

1171	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	760	644687	3224541
1172	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	2343	647858	3223154
1176	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	102	654262	3222587
1177	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	105	656237	3223227
1179	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	76	658156	3224929
1180	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	84	655688	3224466
1222	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	227	644371	3223559
1223	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	29	644043	3222703
1226	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	754	655642	3223604
1324		Flat/Rolling		Primitive	Road and Trail	Open	64	659436	3212439
1333	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	116	654891	3219118
1334	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	48	655919	3222572
1335	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	96	644891	3222756
1460	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	50	659191	3213536
1461	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	93	659697	3211985
1481	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	85	652052	3223931
1482	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	210	654995	3223870
1577	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	41	651340	3223503
1578	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	26	651642	3224169
1611	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	103	657155	3212047
1613	Riverine Riparian	Moderate	Flat River Bottom	Primitive	Cross-Country	Open	133	655505	3213075
1614	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	172	660505	3212480
1615	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	128	653261	3213931
1616	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	442	648991	3217602
1617	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	372	645674	3221318
1631	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	27	657457	3212241
1633	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	97	658208	3213075
1637	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	192	656026	3213396
1638	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	87	655243	3213952
1639	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	91	653398	3214143
1646	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	15213	658718	3217692
1674	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	556	657163	3225217
1675	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	107	657317	3223846
1676	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1079	650178	3217720
1677	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	3448	650858	3221134

1678	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1820	646368	3222723
1680	Creosote Scrub	Moderate	South and West	Primitive	Cross-Country	Open	29	648137	3225262
1681	Creosote Scrub	Steep	South and West	Primitive	Cross-Country	Open	1622	653363	3224315
1686	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	10244	660048	3222981
1729	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	82	644924	3223072
1732	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	89	649687	3220525
1734	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	73	656378	3223901
1735	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	103	654039	3220986

Target ID	**Vegetation**	**Slope**	**Aspect**	**Mariposa Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
124	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	172	628384	3228937
141	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	123	623347	3231280
167	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	177	619259	3235122
386	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	61	624842	3230129
392	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	51	625501	3231545
764	High Desert Grassland	Impassible	North	Primitive	Road and Trail	Open	109	623216	3232156
765	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	118	624040	3232344
770	High Desert Grassland	Moderate	East	Primitive	Road and Trail	Open	108	625851	3231593
773	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	39	625594	3229249
774	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	39	622432	3232724
776	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	123	625106	3231083
777	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	113	624974	3232240
778	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	208	623602	3232297
779	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	40	623093	3232072
1354	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	48	622791	3232076
1355	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	38	623857	3232585
1620	Riverine Riparian	Moderate	Flat River Bottom	Primitive	Cross-Country	Open	1125	625996	3229324
1621	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	652	619883	3234219
1710	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	641	624046	3230750
1711	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	990	621695	3233884
1722	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	121	624917	3229577

Mariscal Mountain									
Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
28	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	362	674812	3211229
86	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	290	678057	3208482
88	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	178	676077	3212331
94	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	128	680742	3217364
95	Creosote Scrub	Moderate	North	Primitive	Cross-Country	Open	281	679594	3217750
96	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	894	679888	3213157
97	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	134	678914	3214598
99	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	86	678409	3218578
100	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	550	677328	3218836
319	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	208	675740	3211089
328	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	139	675015	3216551
363	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	76	678799	3218107
367	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	81	678082	3217403
623	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	203	678551	3213993
629	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	368	682306	3209901
631	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	298	682497	3208793
632	Lechuguilla Scrub	Steep	South and West	Primitive	Cross-Country	Open	111	679650	3214786
788	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	67	677369	3208207
793	Bare	Flat/Rolling	North	Primitive	Road and Trail	Open	49	683777	3216386
794	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	31	681173	3217718
795	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	927	683309	3216412
796	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	46	679627	3218233
797	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	150	681118	3212507
798	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	94	681273	3211069
799	Lechuguilla Scrub	Moderate	North	Primitive	Road and Trail	Open	95	681162	3212069
800	Lechuguilla Scrub	Moderate	North	Primitive	Road and Trail	Open	528	682768	3213727
944	Lechuguilla Scrub	Steep	East	Primitive	Road and Trail	Open	42	681270	3209858
945	Lechuguilla Scrub	Moderate	East	Primitive	Road and Trail	Open	266	681118	3208771
958	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	112	673943	3214668
977	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	679	677853	3219815
978	Creosote Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	58	680379	3217961
979	Lechuguilla Scrub	Moderate	East	Primitive	Road and Trail	Open	136	676521	3220151
980	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	28	678924	3218602
1096	Riverine Riparian	Impassible	Flat River Bottom	Primitive	Road and Trail	Open	115	681012	3207236

1097	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	105	677234	3207370
1098	Riverine Riparian	Impassible	Flat River Bottom	Primitive	Road and Trail	Open	53	682171	3207688
1105	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	30	684313	3214151
1123	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	1050	677023	3208944
1135	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	944	674501	3218377
1137	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	120	675806	3220063
1211	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	44	681609	3209608
1216	Lechuguilla Scrub	Impassible	South and West	Primitive	Road and Trail	Open	163	682030	3208595
1217	Lechuguilla Scrub	Moderate	South and West	Primitive	Road and Trail	Open	583	680841	3208818
1218	Lechuguilla Scrub	Moderate	South and West	Primitive	Road and Trail	Open	138	676079	3220204
1326	Riverine Riparian	Moderate	Flat River Bottom	Primitive	Cross-Country	Open	258	685041	3212348
1328	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	854	682276	3216227
1330	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	752	682435	3211598
1331	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	42	682072	3212363
1332	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	4482	680229	3214563
1459	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	81	681437	3208554
1470	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	171	674428	3215083
1488	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	243	675294	3217392
1494	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	29	680315	3217540
1495	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	49	680203	3217797
1496	Creosote Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	81	678203	3219036
1604	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Cross-Country	Open	247	678703	3206836
1606	Riverine Riparian	Moderate	Flat River Bottom	Primitive	Cross-Country	Open	172	683433	3208054
1642	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	34	674344	3214891
1644	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	67	675272	3218300
1645	Creosote Scrub	Moderate	South and West	Primitive	Cross-Country	Open	6786	677157	3213568
1715	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	191	679147	3207085
1716	Lechuguilla Scrub	Steep	South and West	Primitive	Cross-Country	Open	948	680184	3208840
1717	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	105	681807	3210247
1718	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	26	681661	3211298
1719	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	2583	677551	3214942

Marufo Vega									
Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
17	Lechuguilla Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	103	701322	3234197
44	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	79	701824	3235066
45	Lechuguilla Scrub	Steep	East	Wild	Road and Trail	Open	193	703079	3237162
66	Riverine Riparian	Moderate	Flat River Bottom	Wild	Road and Trail	Open	196	702318	3231688
157	Lechuguilla Scrub	Steep	North	Wild	Cross-Country	Open	174	702055	3233605
160	Riverine Riparian	Steep	Flat River Bottom	Wild	Cross-Country	Open	105	707222	3234912
161	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	214	706391	3235260
413	Lechuguilla Scrub	Moderate	East	Wild	Cross-Country	Open	359	705980	3234891
547	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	124	706362	3236138
838	Riverine Riparian	Impassible	Flat River Bottom	Wild	Road and Trail	Open	185	704571	3237562
839	Lechuguilla Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	59	702817	3235788
840	Lechuguilla Scrub	Impassible	North	Wild	Road and Trail	Open	512	704138	3236916
1000	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	184	700564	3231360
1001	Lechuguilla Scrub	Moderate	East	Wild	Road and Trail	Open	536	700732	3232968
1082	Lechuguilla Scrub	Steep	South and West	Wild	Road and Trail	Open	37	700607	3232378
1083	Lechuguilla Scrub	Moderate	South and West	Wild	Road and Trail	Open	934	701010	3233793
1298	Lechuguilla Scrub	Impassible	South and West	Wild	Road and Trail	Open	277	702218	3235656
1373	Lechuguilla Scrub	Moderate	North	Wild	Cross-Country	Open	430	704842	3235908
1374	Lechuguilla Scrub	Steep	North	Wild	Cross-Country	Open	267	704139	3237091
1375	Lechuguilla Scrub	Moderate	North	Wild	Cross-Country	Open	166	703305	3235435
1509	Lechuguilla Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	70	700816	3232531
1512	Lechuguilla Scrub	Steep	East	Wild	Cross-Country	Open	114	702778	3237414
1795	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	1639	703961	3234535
1796	Lechuguilla Scrub	Steep	South and West	Wild	Cross-Country	Open	76	704188	3235862

Mule Ears									
Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
9	Creosote Scrub	Flat/Rolling	North	Threshold	Road and Trail	Open	103	654096	3226960
11	High Desert Grassland	Moderate	North	Threshold	Road and Trail	Open	239	652730	3228666
115	Creosote Scrub	Moderate	North	Threshold	Cross-Country	Open	91	654460	3226108
117	High Desert Grassland	Steep	North	Threshold	Cross-Country	Open	138	654757	3225743
592	Creosote Scrub	Flat/Rolling	South and West	Threshold	Cross-Country	Open	61	654031	3227561
1173	Creosote Scrub	Flat/Rolling	South and West	Threshold	Road and Trail	Open	381	652423	3226410
1174	Creosote Scrub	Flat/Rolling	South and West	Threshold	Road and Trail	Open	28	654251	3227134

1182	High Desert Grassland	Moderate	South and West	Threshold	Road and Trail	Open	629	651255	3226897
1346	High Desert Grassland	Flat/Rolling	North	Threshold	Cross-Country	Open	223	653750	3228549
1505	High Desert Grassland	Steep	East	Threshold	Cross-Country	Open	153	653558	3227944
1682	Creosote Scrub	Moderate	South and West	Threshold	Cross-Country	Open	98	651929	3226486
1683	High Desert Grassland	Moderate	South and West	Threshold	Cross-Country	Open	123	651538	3226457
1684	High Desert Grassland	Steep	South and West	Threshold	Cross-Country	Open	169	653043	3227706

Target ID	**Vegetation**	**Slope**	**Aspect**	**Nine Point Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
2	High Desert Grassland	Flat/Rolling	East	Undesignated	Road and Trail	Open	75	673425	3282773
3	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	145	671719	3284021
27	Creosote Scrub	Flat/Rolling	North	Undesignated	Road and Trail	Open	194	668245	3275083
61	High Desert Grassland	Flat/Rolling	East	Undesignated	Road and Trail	Open	61	664047	3271733
79	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	165	666144	3271551
294	Creosote Scrub	Moderate	North	Undesignated	Cross-Country	Open	192	666022	3277122
300	Creosote Scrub	Moderate	North	Undesignated	Cross-Country	Open	1429	662978	3277260
301	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	144	677258	3279664
302	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	290	676845	3279476
303	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	663	673732	3279718
304	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	210	675146	3279758
305	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	355	664957	3281616
507	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	174	661694	3268895
513	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	442	663505	3272660
514	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	711	661797	3272811
515	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	183	671089	3274253
520	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	175	671798	3276742
522	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	172	676694	3277620
523	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	139	674003	3278703
524	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	752	678194	3278627
676	High Desert Grassland	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	378	665097	3270035
750	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	995	661143	3274840
751	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	5529	662566	3275161
752	High Desert Grassland	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	167	665539	3275014
753	High Desert Grassland	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	165	664794	3274894
754	Upland Riparian	Flat/Rolling	Flat Upland	Undesignated	Cross-Country	Open	165	661114	3275214
755	High Desert Grassland	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	71	672000	3276456

756	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	421	668730	3279039
757	High Desert Grassland	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	197	674468	3281739
758	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	119	666595	3282731
759	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	102	677016	3278080
760	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	990	675541	3278470
761	High Desert Grassland	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	875	676106	3279798
763	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	181	665624	3283366
782	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	56	674860	3282409
783	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	326	674346	3282387
784	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	118	671272	3284083
786	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	191	670885	3284415
787	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	1061	668152	3285085
926	Creosote Scrub	Flat/Rolling	North	Undesignated	Road and Trail	Open	108	671391	3274889
928	High Desert Grassland	Flat/Rolling	North	Undesignated	Road and Trail	Open	83	670306	3273814
929	High Desert Grassland	Flat/Rolling	North	Undesignated	Road and Trail	Open	53	671385	3273703
1054	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	29	663925	3271421
1055	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	37	664421	3271857
1056	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	46	674570	3275715
1057	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	594	673381	3275100
1058	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	262	675914	3275944
1060	High Desert Grassland	Flat/Rolling	East	Undesignated	Road and Trail	Open	93	672368	3275233
1063	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	62	668026	3273521
1064	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	980	669512	3275330
1315	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	161	674346	3275696
1316	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	234	671630	3275005
1317	High Desert Grassland	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	117	672053	3275281
1319	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	1108	678057	3280190
1434	Creosote Scrub	Moderate	North	Undesignated	Cross-Country	Open	448	666327	3275860
1440	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	1421	662334	3270002
1441	Creosote Scrub	Moderate	North	Undesignated	Cross-Country	Open	183	666782	3272616
1442	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	35	666784	3273441
1443	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	342	665425	3272950
1444	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	706	670228	3274433
1447	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	86	671201	3274050
1449	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	228	666152	3272864
1457	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	1478	675553	3277366

1563	High Desert Grassland	Flat/Rolling	East	Undesignated	Cross-Country	Open	67	663467	3271935
1565	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	52	672027	3275948
1566	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	382	672399	3276684
1569	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	305	668519	3274364
1570	Creosote Scrub	Moderate	East	Undesignated	Cross-Country	Open	51	667251	3275152
1571	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	14149	666382	3280857
1572	High Desert Grassland	Flat/Rolling	East	Undesignated	Cross-Country	Open	616	674100	3281629
1573	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	29	670369	3283877
1574	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	145	669798	3285745
1757	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	209	665834	3272219
1821	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	128	669408	3276885
1822	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	1581	672369	3276989
1824	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	43	678626	3279147
1825	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	337	676704	3280582
1828	Lechuguilla Scrub	Moderate	South and West	Undesignated	Cross-Country	Open	33	676080	3282862
1829	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	540	672561	3282266
1830	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	309	670888	3283047
1831	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	40	670016	3285321
1832	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	2939	669001	3282363
1833	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	202	669108	3285787

North Chisos

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
174	Closed Canopy Woodland	Steep	North	Threshold	Cross-Country	No Camping	112	670006	3238255
181	High Desert Grassland	Steep	North	Threshold	Cross-Country	No Camping	366	660685	3238895
220	Closed Canopy Woodland	Steep	North	Threshold	Cross-Country	No Camping	959	668864	3240440
242	High Desert Grassland	Steep	North	Threshold	Cross-Country	No Camping	546	670398	3240453
243	High Desert Grassland	Moderate	North	Threshold	Cross-Country	No Camping	355	661882	3241286
419	Open Canopy Woodland	Steep	East	Threshold	Cross-Country	No Camping	135	666312	3242063
423	Closed Canopy Woodland	Steep	East	Threshold	Cross-Country	No Camping	243	669773	3239062
550	High Desert Grassland	Moderate	South and West	Threshold	Cross-Country	No Camping	263	661097	3241795
612	High Desert Grassland	Steep	South and West	Threshold	Cross-Country	No Camping	152	661267	3239712
842	Closed Canopy Woodland	Steep	North	Threshold	Road and Trail	No Camping	93	669922	3238450
845	Closed Canopy Woodland	Moderate	North	Threshold	Road and Trail	No Camping	209	666685	3239408
846	Open Canopy Woodland	Impassible	North	Threshold	Road and Trail	No Camping	237	665152	3239387
861	Closed Canopy Woodland	Steep	North	Threshold	Road and Trail	No Camping	214	667172	3240273

878	Creosote Scrub	Flat/Rolling	North	Threshold	Road and Trail	No Camping	185	660098	3240544
888	High Desert Grassland	Flat/Rolling	North	Threshold	Road and Trail	No Camping	116	661396	3240734
900	High Desert Grassland	Moderate	North	Threshold	Road and Trail	No Camping	227	660901	3240152
904	High Desert Grassland	Flat/Rolling	North	Threshold	Road and Trail	No Camping	158	667226	3241177
911	Open Canopy Woodland	Moderate	North	Threshold	Road and Trail	No Camping	93	664891	3238244
912	Open Canopy Woodland	Moderate	North	Threshold	Road and Trail	No Camping	205	664973	3238848
913	Open Canopy Woodland	Impassible	North	Threshold	Road and Trail	No Camping	97	662508	3239847
915	Upland Riparian	Impassible	Flat Upland	Threshold	Road and Trail	No Camping	114	662221	3240242
1009	High Desert Grassland	Moderate	East	Threshold	Road and Trail	No Camping	168	666854	3241242
1015	Closed Canopy Woodland	Steep	East	Threshold	Road and Trail	No Camping	130	669960	3238740
1026	High Desert Grassland	Flat/Rolling	East	Threshold	Road and Trail	No Camping	125	671342	3238947
1087	Closed Canopy Woodland	Impassible	South and West	Threshold	Road and Trail	No Camping	63	666997	3239631
1089	Open Canopy Woodland	Steep	South and West	Threshold	Road and Trail	No Camping	195	667917	3239107
1091	High Desert Grassland	Moderate	South and West	Threshold	Road and Trail	No Camping	55	661139	3240665
1092	Open Canopy Woodland	Impassible	South and West	Threshold	Road and Trail	No Camping	152	662374	3240313
1093	Open Canopy Woodland	Flat/Rolling	South and West	Threshold	Road and Trail	No Camping	501	664687	3239482
1202	High Desert Grassland	Flat/Rolling	South and West	Threshold	Road and Trail	No Camping	33	660580	3240181
1429	Upland Riparian	Steep	Flat Upland	Threshold	Cross-Country	No Camping	51	664080	3239012
1602	Open Canopy Woodland	Steep	South and West	Threshold	Cross-Country	No Camping	308	666230	3238790

North Rosillos

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
85	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	200	677033	3276075
270	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	139	673728	3266485
271	Creosote Scrub	Steep	North	Undesignated	Cross-Country	Open	105	672345	3269389
272	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	119	680186	3269796
273	High Desert Grassland	Steep	North	Undesignated	Cross-Country	Open	203	673518	3267328
275	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	574	670646	3270731
276	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	205	668046	3266083
277	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	702	673323	3269810
278	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	279	672648	3270439
279	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	310	674688	3269299
280	High Desert Grassland	Moderate	North	Undesignated	Cross-Country	Open	391	671898	3270994
281	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	256	668759	3270142
282	High Desert Grassland	Moderate	North	Undesignated	Cross-Country	Open	121	669101	3269990
283	High Desert Grassland	Moderate	North	Undesignated	Cross-Country	Open	122	667968	3269806

290	Scrub Woodland	Steep	North	Undesignated	Cross-Country	Open	104	671763	3266728
291	Scrub Woodland	Steep	North	Undesignated	Cross-Country	Open	212	672597	3267475
292	Scrub Woodland	Flat/Rolling	North	Undesignated	Cross-Country	Open	116	679516	3270119
293		Flat/Rolling	North	Undesignated	Cross-Country	Open	714	673323	3269809
504	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	199	679401	3264014
506	Scrub Woodland	Steep	East	Undesignated	Cross-Country	Open	365	671041	3267629
508	Scrub Woodland	Steep	East	Undesignated	Cross-Country	Open	133	670362	3269094
521	High Desert Grassland	Flat/Rolling	East	Undesignated	Cross-Country	Open	409	675920	3275042
664	Scrub Woodland	Steep	South and West	Undesignated	Cross-Country	Open	541	672176	3267246
665	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	136	664089	3267873
666	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	114	665657	3268023
667	High Desert Grassland	Moderate	South and West	Undesignated	Cross-Country	Open	77	666143	3267857
668	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	137	680271	3268185
673	Creosote Scrub	Steep	South and West	Undesignated	Cross-Country	Open	128	667245	3267634
674	High Desert Grassland	Moderate	South and West	Undesignated	Cross-Country	Open	207	668888	3266452
675	High Desert Grassland	Moderate	South and West	Undesignated	Cross-Country	Open	100	665995	3269265
677	Scrub Woodland	Moderate	South and West	Undesignated	Cross-Country	Open	613	669343	3267590
699	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	104	680855	3266686
919	Creosote Scrub	Flat/Rolling	North	Undesignated	Road and Trail	Open	33	678904	3263046
920	Creosote Scrub	Flat/Rolling	North	Undesignated	Road and Trail	Open	66	680724	3263387
923	Creosote Scrub	Flat/Rolling	North	Undesignated	Road and Trail	Open	110	681582	3266972
924	Creosote Scrub	Flat/Rolling	North	Undesignated	Road and Trail	Open	370	681112	3270001
925	Creosote Scrub	Flat/Rolling	North	Undesignated	Road and Trail	Open	3379	667793	3271185
931	High Desert Grassland	Flat/Rolling	North	Undesignated	Road and Trail	Open	56	665774	3270892
932	High Desert Grassland	Moderate	North	Undesignated	Road and Trail	Open	69	665192	3271099
933	High Desert Grassland	Moderate	North	Undesignated	Road and Trail	Open	109	664362	3271000
934	High Desert Grassland	Moderate	North	Undesignated	Road and Trail	Open	28	663877	3270467
1059	Creosote Scrub	Flat/Rolling	East	Undesignated	Road and Trail	Open	705	679290	3276713
1061	High Desert Grassland	Flat/Rolling	East	Undesignated	Road and Trail	Open	137	676150	3275641
1062	High Desert Grassland	Flat/Rolling	East	Undesignated	Road and Trail	Open	25	674788	3275600
1243	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	88	663637	3269783
1244	High Desert Grassland	Steep	South and West	Undesignated	Road and Trail	Open	25	663801	3270239
1262	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	453	681762	3265028
1263	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	112	681846	3266911
1264	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Road and Trail	Open	200	681476	3268485
1435	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	35	663535	3267881

1436	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	1176	665161	3267642
1437	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	25	680746	3269700
1438	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	43	664302	3270168
1439	Creosote Scrub	Steep	North	Undesignated	Cross-Country	Open	519	667198	3269801
1445	Creosote Scrub	Flat/Rolling	North	Undesignated	Cross-Country	Open	16510	677524	3269106
1448	High Desert Grassland	Flat/Rolling	North	Undesignated	Cross-Country	Open	680	667605	3269720
1560	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	53	679978	3263478
1564	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	441	674996	3274601
1568	Creosote Scrub	Flat/Rolling	East	Undesignated	Cross-Country	Open	600	678013	3275530
1756	Creosote Scrub	Moderate	South and West	Undesignated	Cross-Country	Open	162	664862	3269493
1767	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	407	680839	3265319
1768	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	37	681062	3267998
1769	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	471	680358	3269831
1770	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	65	679877	3271407
1820	Creosote Scrub	Flat/Rolling	South and West	Undesignated	Cross-Country	Open	92	677654	3275427

Target ID	**Vegetation**	**Slope**	**Aspect**	**Ore Terminal Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
18	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	158	697582	3235965
39	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	102	699461	3230095
42	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	122	697537	3231922
54	Lechuguilla Scrub	Impassible	East	Primitive	Road and Trail	Open	137	693343	3246048
81	Bare	Flat/Rolling	South and West	Primitive	Road and Trail	Open	463	698071	3231018
170	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	67	697544	3235651
403	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	202	697566	3233141
405	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Cross-Country	Open	77	696824	3233306
410	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	155	698406	3233939
418	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	109	693862	3241376
837	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	147	695557	3236604
843	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	68	695337	3238719
992	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	229	699223	3230807
996	Lechuguilla Scrub	Steep	East	Primitive	Road and Trail	Open	103	698777	3233918
1002	Lechuguilla Scrub	Moderate	East	Primitive	Road and Trail	Open	28	699357	3235289
1008	Lechuguilla Scrub	Impassible	East	Primitive	Road and Trail	Open	60	693275	3239841
1247	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	217	697873	3229794
1248	Riverine Riparian	Flat/Rolling	Flat River Bottom	Primitive	Road and Trail	Open	65	699851	3230935

1283	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	491	694054	3241542
1297	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	73	699727	3231382
1299	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	5895	694354	3234379
1300	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	53	694309	3240052
1302	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	40	694392	3241944
1304	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	4929	692038	3244633
1371	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	532	695089	3236599
1372	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	27	696289	3236567
1378	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	88	696901	3238587
1510	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	294	699996	3232299
1763	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	30	692059	3238628
1772	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	1108	696530	3244918
1783	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	35	694513	3241012
1784	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	35	693870	3240230
1801	Lechuguilla Scrub	Steep	South and West	Primitive	Cross-Country	Open	326	699528	3232640
1803	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	3176	696120	3234918
1804	Lechuguilla Scrub	Steep	South and West	Primitive	Cross-Country	Open	450	695949	3237385
1805	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	130	694419	3238318
1806	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	77	696281	3238680
1807	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	26	693632	3238906
1808	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1658	692308	3240750
1809	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	8009	696445	3242249
1811	Lechuguilla Scrub	Moderate	South and West	Primitive	Cross-Country	Open	2737	692545	3244605

Target ID	**Vegetation**	**Slope**	**Aspect**	**Paint Gap Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
67	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	227	667706	3247791
78	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	144	665160	3251951
237	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	60	667038	3251185
260	Upland Riparian	Moderate	Flat Upland	Wild	Cross-Country	Open	236	671888	3257331
483	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	229	667682	3253115
484	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	311	666540	3252292
486	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	199	669266	3253826
498	Creosote Scrub	Moderate	East	Wild	Cross-Country	Open	181	669100	3255792
499	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	162	672807	3257723
671	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	116	671757	3257744

678	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	68	671642	3257617
870	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	1532	672279	3251112
886	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	174	664409	3253648
895	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	86	667117	3248919
909	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	395	673533	3254586
1238	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	342	664815	3252564
1400	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	19443	670629	3253483
1409	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	670	665853	3253577
1418	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	2435	668960	3249008
1424	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	452	672271	3255118
1752	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	302	665538	3252482

				Pettits					
Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
4	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	201	666843	3210309
5	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	113	667763	3211337
6	Bare	Flat/Rolling	North	Wild	Road and Trail	Open	149	670036	3212707
29	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	168	671569	3213970
68	Bare	Flat/Rolling	South and West	Wild	Road and Trail	Open	148	676599	3208303
87	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	91	667860	3210090
89	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	384	670536	3211961
312	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	118	675445	3208273
313	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	133	668276	3208059
314	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	90	668321	3208954
315	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	111	668009	3207978
316	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	120	672116	3207933
317	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	369	671600	3208260
318	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	238	670686	3209493
320	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	308	673468	3210679
563	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	263	669944	3208064
567	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	81	675987	3208242
568	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	78	675164	3208721
569	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	68	672144	3208789
570	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	111	670760	3207840
790	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	139	669364	3212231
956	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	77	672582	3214566

1099	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Road and Trail	Open	167	666978	3209359
1122	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	206	667398	3209358
1124	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	30	672059	3213866
1125	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	1347	668573	3212246
1131	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	1321	674391	3213212
1219	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	42	672827	3214592
1325	Creosote Scrub	Moderate	North	Wild	Cross-Country	Open	70	668697	3211163
1462	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	119	671793	3212899
1605	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	314	674447	3208044
1607	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	208	667532	3207626
1634	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	4156	670120	3210342
1640	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	2418	672781	3211149
1726	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	562	672321	3211139

Target ID	**Vegetation**	**Slope**	**Aspect**	**Slickrock Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
20	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	109	659935	3246538
57	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	135	664611	3251740
77	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	173	661621	3246539
188	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	274	646957	3244643
189	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	138	647033	3245105
192	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	229	654362	3247230
194	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	256	659802	3248192
198	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	183	656597	3250196
199	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	123	658295	3250319
200	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	231	656280	3250868
210	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	533	656702	3253151
227	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	198	659019	3252163
228	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	224	657814	3255405
232	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	274	652224	3246294
238	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	2710	661377	3251557
239	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	214	656656	3255223
240	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	259	655262	3248419
241	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	62	653676	3248992
250	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	102	655335	3245838

422	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	99	655488	3245609
451	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	297	649626	3246923
454	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	61	660590	3247547
455	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	120	660141	3247794
463	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	147	657526	3250803
466	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	1005	652617	3250618
467	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	128	656498	3251482
471	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	214	661582	3250124
472	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	136	663901	3251276
475	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	237	655880	3252269
480	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	436	654267	3252345
493	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	1101	658142	3253482
494	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	196	658202	3252220
495	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	456	656690	3254555
497	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	469	659477	3255237
572	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	57	645750	3242356
576	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	1120	651226	3248107
578	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	1396	646998	3246152
590	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	659	652760	3247623
598	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	1724	651575	3249861
599	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	569	655274	3247695
619	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	126	645521	3244238
620	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	319	645488	3246427
621	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	1032	648850	3246311
642	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	428	650532	3246151
643	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	239	652496	3248123
645	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	188	661834	3250852
646	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	73	659365	3251553
647	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	63	658764	3251766
648	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	102	660503	3251837
654	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	701	654740	3250747
655	High Desert Grassland	Steep	South and West	Wild	Cross-Country	Open	560	654962	3252687
656	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	913	653686	3252220
659	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	71	661666	3246955
660	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	69	654668	3252097
661	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	361	659774	3253365

848	Creosote Scrub	Moderate	North	Wild	Road and Trail	Open	180	646726	3242069
849	Creosote Scrub	Moderate	North	Wild	Road and Trail	Open	42	648600	3244334
850	Creosote Scrub	Moderate	North	Wild	Road and Trail	Open	149	649975	3244493
851	Creosote Scrub	Moderate	North	Wild	Road and Trail	Open	100	650877	3244800
867	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	2003	665123	3248812
868	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	28	664108	3252069
872	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	197	664119	3254081
881	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	81	652560	3245406
882	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	97	651775	3245220
883	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	69	653728	3245811
884	High Desert Grassland	Steep	North	Wild	Road and Trail	Open	34	664237	3252450
885	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	34	664057	3253031
1113	Bare	Flat/Rolling	South and West	Wild	Road and Trail	Open	91	645485	3242202
1120	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	124	658060	3245425
1152	Creosote Scrub	Moderate	South and West	Wild	Road and Trail	Open	81	646250	3242180
1154	Creosote Scrub	Moderate	South and West	Wild	Road and Trail	Open	124	652975	3245534
1155	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	101	654534	3245391
1205	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	102	655161	3244914
1235	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	249	662421	3246450
1236	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	570	658714	3246460
1382	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	272	646285	3242878
1383	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	155	648542	3244633
1384	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	77	649837	3244927
1396	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	1966	663689	3249073
1402	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	152	655837	3245377
1404	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	228	656508	3245663
1405	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	826	656677	3247166
1406	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	208	651018	3245531
1407	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	28	652314	3245777
1408	Creosote Scrub	Moderate	North	Wild	Cross-Country	Open	766	654139	3246413
1428	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	73	655933	3245806
1432	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	160	656658	3247958
1549	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	409	663463	3250573
1627	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	378	656345	3246488
1663	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	877	646632	3243633

1664	Creosote Scrub	Moderate	South and West	Wild	Cross-Country	Open	73	650473	3245238
1665	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	255	651460	3245904
1666	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	308	651094	3246489
1750	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	2145	657152	3248301
1751	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	1292	661621	3248594

Target ID	Vegetation	Slope	Aspect	Strawhouse Management	Access	Camping	Acres	X	Y
49	High Desert Grassland	Moderate	East	Primitive	Road and Trail	Open	100	698899	3243064
191	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	476	697571	3245566
197	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	192	698465	3249627
420	Lechuguilla Scrub	Steep	East	Primitive	Cross-Country	Open	1696	698502	3240668
473	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	1697	696267	3249042
701	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	55	696316	3248343
841	Lechuguilla Scrub	Impassible	North	Primitive	Road and Trail	Open	112	700703	3236736
857	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	251	698659	3251928
1010	Lechuguilla Scrub	Flat/Rolling	East	Primitive	Road and Trail	Open	83	700404	3237829
1011	Lechuguilla Scrub	Steep	East	Primitive	Road and Trail	Open	230	698846	3242284
1012	High Desert Grassland	Moderate	East	Primitive	Road and Trail	Open	62	698372	3245112
1042	High Desert Grassland	Flat/Rolling	East	Primitive	Road and Trail	Open	323	696875	3248914
1270	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	74	699172	3242359
1273	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	827	697672	3247638
1301	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	630	700082	3239127
1376	Lechuguilla Scrub	Steep	North	Primitive	Cross-Country	Open	476	699050	3237429
1377	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	133	701584	3236364
1387	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	156	698685	3251650
1511	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	457	699963	3235371
1598	Lechuguilla Scrub	Steep	South and West	Primitive	Cross-Country	Open	532	700550	3235496
1599	Lechuguilla Scrub	Steep	South and West	Primitive	Cross-Country	Open	138	701340	3235687
1771	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	184	700774	3241693
1773	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	83	697827	3245983
1774	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	6940	699047	3246611
1775	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	323	697368	3251840
1797	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	102	699615	3239595
1798	Lechuguilla Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	3356	701292	3239120

Target ID	Vegetation	Slope	Aspect	Sue Peaks Management	Access	Camping	Acres	X	Y
25	Lechuguilla Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	79	687478	3259776
84	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	55	687900	3263639
206	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	306	689126	3252239
207	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	119	689872	3251980
213	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	76	691673	3256475
214	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	175	691008	3256827
215	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	116	689002	3257887
217	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	306	693289	3257934
219	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	103	693169	3259073
262	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	265	694027	3259780
263	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	88	689103	3261036
264	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	215	688262	3262268
265	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	282	693219	3262618
266	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	114	689434	3264083
479	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	145	692726	3253038
706	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	149	688982	3260841
707	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	135	689755	3261489
708	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	148	687234	3261801
716	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	138	688832	3254936
718	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	363	690571	3256357
722	Lechuguilla Scrub	Steep	South and West	Wild	Cross-Country	Open	75	695791	3253456
723	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	316	691092	3263378
724	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	185	691921	3259973
729	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	876	690211	3265808
733	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	320	690696	3260670
860	Lechuguilla Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	112	685430	3254626
930	High Desert Grassland	Moderate	North	Wild	Road and Trail	Open	28	689626	3268041
936	Lechuguilla Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	378	684908	3263281
1039	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	172	689681	3249704
1261	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	212	685172	3263571
1278	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	335	689054	3266004
1279	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	70	689357	3267790
1282	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	1248	687346	3252262
1291	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	38	689158	3265300

1292	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	40	689337	3266288
1307	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	37	687400	3260154
1314	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	36	687124	3260220
1392	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	943	690056	3254270
1393	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	119	686913	3255177
1451	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	58	686535	3262928
1777	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	10887	692578	3260462
1782	High Desert Grassland	Steep	South and West	Wild	Cross-Country	Open	1853	687747	3252656
1785	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	101	688232	3263238
1787	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	29	686767	3261768
1789	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	2442	687440	3262063
1790	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	132	689373	3264176
1812	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	47	689612	3251121
1814	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	7566	690736	3254599
1819	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	208	690286	3261078

Talley Mountain

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
7	Lechuguilla Scrub	Moderate	North	Wild	Road and Trail	Open	101	687672	3220155
35	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	171	679891	3218977
101	Bare	Flat/Rolling	North	Wild	Cross-Country	Open	60	685378	3218012
102	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	1191	686044	3218305
103	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	221	680324	3220281
105	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	307	681056	3221064
107	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	408	682756	3221517
329	Riverine Riparian	Steep	Flat River Bottom	Wild	Cross-Country	Open	213	686107	3216959
337	Creosote Scrub	Steep	East	Wild	Cross-Country	Open	219	684214	3222174
347	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	796	680665	3223165
348	Creosote Scrub	Moderate	East	Wild	Cross-Country	Open	341	682425	3223042
349	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	113	681009	3226114
350	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	772	679695	3223883
351	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	54	679816	3225332
352	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	240	681279	3224745
353	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	144	683049	3222339
357	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	416	681324	3218889
358	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	374	680736	3219582

359	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	112	676450	3221817
360	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	776	678816	3221180
361	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	68	675273	3222754
366	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	343	678398	3223154
526	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	178	685780	3216211
528	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	103	679557	3223133
529	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	230	678692	3223716
542	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	117	686719	3219813
543	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	55	682684	3223364
544	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	76	682061	3224378
545	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	96	679769	3226547
792	Bare	Flat/Rolling	North	Wild	Road and Trail	Open	83	684289	3215798
801	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	41	684027	3217316
802	Bare	Steep	North	Wild	Road and Trail	Open	58	684795	3217896
803	Lechuguilla Scrub	Moderate	North	Wild	Road and Trail	Open	264	684953	3218819
804	Lechuguilla Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	65	684756	3217176
812	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	485	676522	3225579
953	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Road and Trail	Open	69	684546	3214933
954	Bare	Flat/Rolling	East	Wild	Road and Trail	Open	106	684401	3215084
955	Bare	Flat/Rolling	East	Wild	Road and Trail	Open	75	684128	3216146
962	Bare	Flat/Rolling	East	Wild	Road and Trail	Open	154	684428	3219270
963	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	35	686021	3220757
964	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	218	685206	3220238
965	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	137	685804	3220563
974	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	246	675555	3219889
975	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	531	674349	3220733
981	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	781	678970	3219388
982	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	57	674592	3223938
983	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	103	677594	3226380
985	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	125	677863	3227121
986	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	47	677649	3227403
987	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	98	677452	3226740
1065	Creosote Scrub	Moderate	South and West	Wild	Road and Trail	Open	30	684810	3216844
1066	Creosote Scrub	Steep	South and West	Wild	Road and Trail	Open	227	684374	3217830
1070	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	285	677966	3227613
1071	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	2415	683067	3224771

1081	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	44	687154	3220360
1121	Creosote Scrub	Moderate	South and West	Wild	Road and Trail	Open	414	675577	3224429
1136	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	39	674301	3220304
1140	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	84	674165	3222188
1212	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	51	675092	3224371
1213	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	36	674062	3220805
1327	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	35	684577	3216236
1329	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	31	683555	3217713
1339	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	154	677716	3225883
1466	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	131	684797	3215713
1473	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	71	684291	3219584
1474	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	397	683717	3219190
1475	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	148	684650	3222067
1476	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	58	686068	3219920
1489	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	62	674560	3220694
1490	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	92	674586	3221898
1491	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	391	675492	3221601
1497	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	27	676625	3221187
1498	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	55	683221	3218088
1499	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	317	680276	3219538
1500	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	179	675643	3221989
1503	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	161	678644	3226745
1575	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	2844	682023	3221186
1576	Upland Riparian	Moderate	Flat Upland	Wild	Cross-Country	Open	62	683287	3218352
1580	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Cross-Country	Open	56	687175	3219608
1587	Creosote Scrub	Steep	South and West	Wild	Cross-Country	Open	1525	683217	3223925
1588	Creosote Scrub	Moderate	South and West	Wild	Cross-Country	Open	522	679539	3227063
1628	Creosote Scrub	Moderate	South and West	Wild	Cross-Country	Open	773	676049	3222461
1647	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	380	674846	3221095
1713	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	1368	677224	3222940

Telephone Canyon

Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
21	High Desert Grassland	Impassible	North	Primitive	Road and Trail	Open	120	700558	3251505
22	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	266	696661	3252821
56	High Desert Grassland	Moderate	East	Primitive	Road and Trail	Open	60	693908	3251928

58	High Desert Grassland	Flat/Rolling	East	Primitive	Road and Trail	Open	161	706310	3253040
59	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	366	701365	3252073
60	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	197	696693	3253056
83	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	222	698512	3252438
201	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	200	700585	3251022
202	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	59	702203	3251138
203	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	738	704075	3250526
204	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	116	705329	3252223
205	Lechuguilla Scrub	Moderate	North	Primitive	Cross-Country	Open	128	703378	3250973
209	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	459	704986	3253287
211	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	238	699433	3254852
481	High Desert Grassland	Steep	East	Primitive	Cross-Country	Open	118	702368	3253274
487	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	58	702701	3252121
488	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	1406	700514	3253558
489	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	86	706709	3252616
562	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	200	704625	3250362
651	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	92	706444	3251714
700	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1726	698796	3254273
717	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	236	692103	3251632
740	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	182	697481	3255126
854	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	169	691661	3249568
855	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	83	694090	3251551
858	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	33	705173	3252320
859	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	73	704807	3251988
1045	High Desert Grassland	Flat/Rolling	East	Primitive	Road and Trail	Open	28	702875	3251816
1046	High Desert Grassland	Steep	East	Primitive	Road and Trail	Open	67	700464	3251809
1047	Lechuguilla Scrub	Steep	East	Primitive	Road and Trail	Open	145	704819	3252484
1242	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	39	703412	3251715
1271	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	321	694041	3250053
1272	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	30	694240	3251521
1274	High Desert Grassland	Impassible	South and West	Primitive	Road and Trail	Open	63	699725	3251671
1275	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	30	697959	3252689
1276	High Desert Grassland	Impassible	South and West	Primitive	Road and Trail	Open	117	694110	3252680
1277	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	35	695545	3253047
1310	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	106	699570	3252393
1388	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	45	703081	3251326

1389	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	30	697516	3252830
1390	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	334	695970	3252303
1391	Lechuguilla Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	313	706151	3253447
1548	High Desert Grassland	Moderate	East	Primitive	Cross-Country	Open	70	693363	3252097
1552	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	120	704503	3252328
1553	Lechuguilla Scrub	Moderate	East	Primitive	Cross-Country	Open	30	706885	3253457
1554	Lechuguilla Scrub	Steep	East	Primitive	Cross-Country	Open	114	696534	3253586
1755	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	1610	702603	3253430
1776	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	240	692881	3250789

Terlingua Creek

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
37	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	134	637148	3230573
40	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	95	638295	3231685
43	Bare	Flat/Rolling	East	Wild	Road and Trail	Open	317	640293	3232687
70	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	89	635346	3230741
142	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	76	634761	3231041
145	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	167	637560	3232191
155	Bare	Flat/Rolling	North	Wild	Cross-Country	Open	127	639634	3233330
156	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	103	638439	3233769
164	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	431	633163	3230039
184	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	295	643229	3240481
372	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	172	634707	3228801
379	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	152	635234	3229205
380	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	93	635655	3229633
397	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	410	633225	3231175
398	Creosote Scrub	Moderate	East	Wild	Cross-Country	Open	207	633916	3230044
399	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	444	632370	3231963
402	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	187	634771	3232355
406	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	166	636066	3232912
407	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	151	636528	3233602
408	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	184	637030	3233269
532	Creosote Scrub	Moderate	South and West	Wild	Cross-Country	Open	1365	632651	3232805
564	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	56	640879	3233351
565	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	91	639989	3233542
566	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	404	641484	3233919

573	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	112	634523	3231129
574	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	418	635118	3232494
577	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	67	634105	3233475
582	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	717	638024	3233059
766	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	33	628605	3235829
1112	Bare	Flat/Rolling	South and West	Wild	Road and Trail	Open	259	639019	3232050
1148	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	568	637421	3229847
1149	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	391	636323	3231034
1151	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	129	644637	3242024
1153	Creosote Scrub	Moderate	South and West	Wild	Road and Trail	Open	4184	642976	3238690
1208	High Desert Grassland	Flat/Rolling	South and West	Wild	Road and Trail	Open	161	637398	3231111
1229	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	448	642745	3233577
1230	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	395	635464	3227840
1231	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	91	635527	3230855
1347	Creosote Scrub	Moderate	North	Wild	Cross-Country	Open	26	636395	3229220
1361	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	938	630218	3234197
1381	Creosote Scrub	Moderate	North	Wild	Cross-Country	Open	241	643733	3241351
1508	Bare	Flat/Rolling	East	Wild	Cross-Country	Open	48	641077	3233431
1622	Bare	Flat/Rolling	South and West	Wild	Cross-Country	Open	413	643049	3241720
1625	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	297	634884	3230382
1652	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	273	636549	3230024
1654	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	186	636983	3231974
1655	Creosote Scrub	Moderate	South and West	Wild	Cross-Country	Open	2391	640251	3235080
1657	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	751	643144	3239423
1660	Creosote Scrub	Steep	South and West	Wild	Cross-Country	Open	475	642633	3241354
1720	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	55	634708	3228076
1721	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	32	634856	3227816
1742	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	72	634759	3229313
1743	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	118	635952	3229527
1744	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	249	636320	3232281

Tornillo Creek									
Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
23	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	146	685137	3254746
26	Lechuguilla Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	137	682760	3263093
38	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	102	697159	3231039

47	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	122	676394	3242611
48	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	239	690547	3242373
55	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	189	676031	3248953
175	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	749	687370	3238236
176	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	286	686260	3239303
185	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	139	679872	3240849
190	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	214	687955	3246396
196	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	174	687053	3249714
208	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	107	684947	3253256
212	Creosote Scrub	Steep	North	Wild	Cross-Country	Open	203	684574	3256545
218	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	124	684622	3258854
222	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	307	680788	3243661
226	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	77	682499	3250818
234	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	80	685879	3242546
235	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	1962	685275	3245056
236	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	1151	684402	3247883
244	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	4092	682517	3244034
245	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	132	681999	3247829
246	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	7082	681887	3248880
251	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	132	685571	3250723
257	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	51	686662	3245166
258	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	51	681334	3255259
400	Lechuguilla Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	137	693900	3232556
412	Lechuguilla Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	70	693570	3234315
429	Creosote Scrub	Steep	East	Wild	Cross-Country	Open	85	692494	3231928
436	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	222	683049	3240009
437	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	240	682534	3241486
438	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	138	688270	3245868
439	Lechuguilla Scrub	Moderate	East	Wild	Cross-Country	Open	61	688461	3244873
443	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	262	690338	3238953
444	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	66	689018	3241438
445	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	121	688313	3242886
446	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	98	679815	3244012
447	Creosote Scrub	Moderate	East	Wild	Cross-Country	Open	100	679939	3243162
448	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	327	676134	3245602
453	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	865	681715	3247041

456	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	224	680287	3248925
465	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	276	682356	3251401
470	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	97	680589	3251895
474	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	131	685532	3252165
490	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	400	682752	3253840
491	Scrub Woodland	Flat/Rolling	East	Wild	Cross-Country	Open	178	683245	3254232
492	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	102	683558	3254300
502	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	61	681388	3256728
553	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	1018	682661	3241142
554	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	217	686563	3243207
560	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	111	680003	3244620
561	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	869	679639	3245233
685	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	328	689356	3241762
686	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	152	683226	3252713
690	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	111	692250	3232151
691	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	99	691404	3233344
692	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	253	690325	3235403
693	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	115	689010	3240210
694	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	277	687799	3241864
695	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	818	684425	3246544
696	Creosote Scrub	Moderate	South and West	Wild	Cross-Country	Open	607	692684	3233142
697	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	3392	683008	3256243
698	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	112	681317	3256411
711	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	51	685256	3249255
714	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	722	687357	3244774
715	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	299	685312	3251795
726	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	375	686122	3250612
736	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	582	684488	3252558
741	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	83	692246	3233158
742	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	175	690157	3239903
743	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	113	688747	3242347
744	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	80	687495	3244214
745	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	166	686546	3247539
746	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	198	683690	3253255
747	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	52	681876	3255628

847	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	147	676822	3241594
852	Lechuguilla Scrub	Moderate	North	Wild	Road and Trail	Open	48	690533	3248361
853	Lechuguilla Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	70	689756	3249246
856	High Desert Grassland	Steep	North	Wild	Road and Trail	Open	477	688185	3251140
863	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	74	676471	3243169
864	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	25	675884	3243882
866	Creosote Scrub	Flat/Rolling	North	Wild	Road and Trail	Open	1311	676738	3249312
890	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	192	677034	3242530
999	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	74	693714	3234900
1013	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	187	690907	3244291
1014	Lechuguilla Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	107	691285	3245951
1027	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	1223	679682	3239881
1033	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	242	677641	3243735
1034	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	143	676335	3243652
1035	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	48	676041	3244234
1036	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	292	677641	3243371
1037	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	143	675242	3245197
1040	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	53	679791	3251618
1043	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	258	680101	3253510
1048	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	45	680518	3255053
1049	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	455	680526	3256595
1052	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	83	680424	3255524
1053	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	31	680613	3257468
1084	Creosote Scrub	Moderate	South and West	Wild	Road and Trail	Open	163	685569	3236878
1085	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	83	688352	3235146
1246	Riverine Riparian	Flat/Rolling	Flat River Bottom	Wild	Road and Trail	Open	132	695341	3229901
1257	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	440	691467	3238051
1258	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	234	685854	3256154
1259	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	88	680610	3256982
1260	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	630	680772	3260843
1280	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	272	691949	3231699
1281	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	127	687328	3251501
1287	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	63	683302	3263035
1289	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	1503	685868	3262048
1303	Lechuguilla Scrub	Steep	South and West	Wild	Road and Trail	Open	44	689056	3250056

1305	Lechuguilla Scrub	Moderate	South and West	Wild	Road and Trail	Open	32	684931	3254137
1306	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	1361	686922	3257392
1312	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	220	692059	3237307
1313	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	67	691078	3237817
1380	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	38	677589	3241842
1385	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	45	688367	3250004
1386	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	26	687760	3250675
1399	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	3464	680102	3251002
1411	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	516	678558	3241706
1412	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	63	676578	3245164
1416	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	361	676042	3246662
1422	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	29	680572	3252393
1433	Lechuguilla Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	37	685966	3259746
1516	Lechuguilla Scrub	Moderate	East	Wild	Cross-Country	Open	338	690690	3245250
1524	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	48	682271	3239495
1525	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	10068	687469	3238441
1532	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	37	678229	3241033
1534	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	253	677884	3241776
1535	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	2010	680383	3241240
1542	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	414	692121	3233266
1543	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	1628	677746	3245359
1544	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	779	678857	3243433
1547	Lechuguilla Scrub	Steep	East	Wild	Cross-Country	Open	52	689222	3248843
1550	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	332	681235	3253905
1555	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	37	681415	3255833
1557	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	171	681158	3257571
1562	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	40	681250	3255490
1600	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	251	687486	3235900
1762	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	38	690634	3239176
1765	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	3542	683019	3259357
1778	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	62	691861	3232373
1780	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	3109	687939	3249678
1781	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	31	685201	3253583
1788	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	2216	683965	3261410
1799	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	398	695341	3230767
1800	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	116	693068	3232290

1802	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	1303	693120	3234238
1810	Lechuguilla Scrub	Moderate	South and West	Wild	Cross-Country	Open	3760	689601	3244221
1813	Lechuguilla Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	749	686077	3258628
1816	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	477	691358	3235649
1817	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	34	690911	3237959
1818	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	238	683247	3258034

Tule Mountain

Target ID	Vegetation	Slope	Aspect	Management	Access	Camping	Acres	X	Y
46	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	91	644422	3239371
163	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	686	650955	3235237
171	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	168	645388	3237391
172	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	368	649434	3237291
177	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	79	646766	3239568
178	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	89	649655	3238468
179	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	215	649728	3239452
182	Creosote Scrub	Moderate	North	Wild	Cross-Country	Open	164	647613	3240346
187	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	623	649555	3240533
233	Creosote Scrub	Flat/Rolling	North	Wild	Cross-Country	Open	57	652789	3242274
587	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	1014	649792	3237888
588	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	173	650736	3240326
589	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	3038	649556	3241217
596	High Desert Grassland	Steep	South and West	Wild	Cross-Country	Open	85	646185	3237666
610	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	81	650312	3243575
613	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	59	652003	3241177
614	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	79	652061	3242008
615	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	306	650932	3241912
616	High Desert Grassland	Steep	South and West	Wild	Cross-Country	Open	976	654086	3241967
626	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	1505	648479	3237022
627	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	61	647731	3239655
1003	Creosote Scrub	Flat/Rolling	East	Wild	Road and Trail	Open	92	643156	3238012
1164	Creosote Scrub	Flat/Rolling	South and West	Wild	Road and Trail	Open	1035	654271	3233709
1204	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	50	653746	3245312
1227	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	25	652229	3244643
1228	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Road and Trail	Open	28	647980	3242362
1420	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	3763	653208	3241796

1421	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	69	653286	3244818
1514	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	124	644797	3238382
1515	Creosote Scrub	Flat/Rolling	East	Wild	Cross-Country	Open	74	644218	3238083
1656	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	860	644036	3237436
1658	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	354	645416	3239756
1659	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	26	647217	3241537
1661	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	176	649201	3243297
1662	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	79	651069	3243920
1672	Creosote Scrub	Flat/Rolling	South and West	Wild	Cross-Country	Open	108	655224	3234356
1703	High Desert Grassland	Moderate	South and West	Wild	Cross-Country	Open	1855	651874	3236758
1706	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	1544	653438	3243456
1740	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	324	645026	3238417
1741	Upland Riparian	Flat/Rolling	Flat Upland	Wild	Cross-Country	Open	127	650753	3243534

Target ID	**Vegetation**	**Slope**	**Aspect**	**Upper Smoky Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
120	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	243	658814	3226388
128	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	168	662985	3230358
140	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	811	655951	3230954
147	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	62	654876	3231981
148	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	51	655820	3231840
150	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	101	656904	3232495
371	High Desert Grassland	Flat/Rolling	East	Primitive	Cross-Country	Open	246	655901	3227576
817	High Desert Grassland	Steep	North	Primitive	Road and Trail	Open	64	657948	3228371
818	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	96	659737	3227790
819	High Desert Grassland	Moderate	North	Primitive	Road and Trail	Open	52	660610	3228089
825	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	391	656954	3233459
1161	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	782	653304	3231500
1165	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	82	656881	3226025
1183	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	489	658191	3227622
1184	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	564	656358	3227326
1188	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	1432	661727	3229855
1193	High Desert Grassland	Moderate	South and West	Primitive	Road and Trail	Open	27	655679	3233230
1194	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	61	654788	3233352
1344	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	426	659059	3228404
1345	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	1072	661982	3227323

1668	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	102	654235	3231735
1671	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	281	654994	3232559
1685	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	80	658842	3227760
1692	High Desert Grassland	Flat/Rolling	South and West	Primitive	Cross-Country	Open	560	660891	3230069
1693	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	3585	663623	3228778
1694	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	5304	657483	3229157
1697	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	686	656469	3232194
1698	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	119	656047	3232891
1736	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	112	660824	3230219
1746	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Cross-Country	Open	44	655388	3231483

Target ID	Vegetation	Slope	Aspect	Ward Spring Management	Access	Camping	Acres	X	Y
229	Creosote Scrub	Flat/Rolling	North	Primitive	Cross-Country	Open	165	659524	3238856
247	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	53	659137	3237017
248	High Desert Grassland	Moderate	North	Primitive	Cross-Country	Open	250	659796	3237625
249	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	161	659823	3238549
611	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	53	659862	3235577
829	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	59	657896	3235169
876	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	176	658632	3237773
877	Creosote Scrub	Flat/Rolling	North	Primitive	Road and Trail	Open	42	658607	3239013
896	High Desert Grassland	Steep	North	Primitive	Road and Trail	Open	27	658434	3237116
898	High Desert Grassland	Flat/Rolling	North	Primitive	Road and Trail	Open	25	658498	3238589
1116	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	252	658456	3235845
1117	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	49	658804	3238719
1118	Creosote Scrub	Flat/Rolling	South and West	Primitive	Road and Trail	Open	34	659278	3239206
1198	High Desert Grassland	Steep	South and West	Primitive	Road and Trail	Open	41	660139	3236335
1200	High Desert Grassland	Flat/Rolling	South and West	Primitive	Road and Trail	Open	49	658798	3236802
1225	Upland Riparian	Flat/Rolling	Flat Upland	Primitive	Road and Trail	Open	65	659479	3236459
1359	High Desert Grassland	Flat/Rolling	North	Primitive	Cross-Country	Open	116	658329	3234758
1367	High Desert Grassland	Steep	North	Primitive	Cross-Country	Open	710	660307	3235260
1624	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	123	659013	3235907
1626	Creosote Scrub	Flat/Rolling	South and West	Primitive	Cross-Country	Open	33	659674	3239279
1702	High Desert Grassland	Steep	South and West	Primitive	Cross-Country	Open	110	660296	3235641
1704	High Desert Grassland	Moderate	South and West	Primitive	Cross-Country	Open	1586	660299	3237388
1733	Upland Riparian	Moderate	Flat Upland	Primitive	Cross-Country	Open	56	661025	3235631

Wright Mountain									
Target ID	**Vegetation**	**Slope**	**Aspect**	**Management**	**Access**	**Camping**	**Acres**	**X**	**Y**
53	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	147	671562	3246134
183	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	106	674144	3240590
186	High Desert Grassland	Steep	North	Wild	Cross-Country	Open	337	675778	3240438
255	Open Canopy Woodland	Steep	North	Wild	Cross-Country	Open	1028	671791	3242276
551	Open Canopy Woodland	Steep	South and West	Wild	Cross-Country	Open	73	672751	3239776
552	Open Canopy Woodland	Steep	South and West	Wild	Cross-Country	Open	217	670801	3241951
844	High Desert Grassland	Impassible	North	Wild	Road and Trail	Open	38	679503	3238808
887	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	51	677340	3240659
889	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	64	676073	3242868
891	High Desert Grassland	Steep	North	Wild	Road and Trail	Open	151	669338	3244249
893	High Desert Grassland	Flat/Rolling	North	Wild	Road and Trail	Open	2412	673428	3245651
1028	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	207	677192	3241009
1029	High Desert Grassland	Flat/Rolling	East	Wild	Road and Trail	Open	102	676203	3241897
1038	High Desert Grassland	Moderate	East	Wild	Road and Trail	Open	53	675744	3243322
1086	High Desert Grassland	Moderate	South and West	Wild	Road and Trail	Open	119	677095	3237818
1094	High Desert Grassland	Steep	South and West	Wild	Road and Trail	Open	141	672500	3238909
1379	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	1089	676575	3239104
1410	High Desert Grassland	Flat/Rolling	North	Wild	Cross-Country	Open	29	677048	3240293
1413	High Desert Grassland	Moderate	North	Wild	Cross-Country	Open	4281	672705	3243413
1427	Scrub Woodland	Flat/Rolling	North	Wild	Cross-Country	Open	310	669887	3242372
1530	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	210	678395	3238265
1531	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	137	678323	3239336
1533	High Desert Grassland	Steep	East	Wild	Cross-Country	Open	2292	675334	3240004
1541	Scrub Woodland	Flat/Rolling	East	Wild	Cross-Country	Open	42	673411	3238510
1545	High Desert Grassland	Moderate	East	Wild	Cross-Country	Open	41	675353	3243076
1546	High Desert Grassland	Flat/Rolling	East	Wild	Cross-Country	Open	32	674993	3243414
1603	High Desert Grassland	Flat/Rolling	South and West	Wild	Cross-Country	Open	695	671756	3240221

Appendix 2: 2010 Field Sampling Instructions

This document is intended to assist you in conducting vegetation inventory to produce an accurate map for Big Bend National Park (BIBE) and Rio Grande National Wild and Scenic River (RIGR) during the 2010-2012 field seasons. Detailed, field-by-field instructions for data collection are provided for standard classification plot and observation point forms. The instructions are abbreviated on a 'cheat sheet' at the end of this document. This project is being directed by the Chihuahuan Desert Network (CHDN) Inventory and Monitoring Program with assistance from Cogan Technology, Inc. (CTI).

VEGETATION DATA COLLECTION INSTRUCTIONS

Contents:

NAVIGATING TO CLASSIFICATION PLOT

You will navigate towards each selected Biophysical Unit (BPU) using a combination of aids that may include: BPU maps, park maps, topographic maps, handheld GPS receivers, and aerial photos. In general:

- BPU maps will identify the location, size and shape, and centroid of the polygon.
- Topographic (Topo) maps are useful in identifying the landscape through which you will be navigating, and in determining the elevation of a plot. You will find them useful with the BPU maps in providing the names of landscape features, as well.
- GPS receivers indicate the direction and the distance (as the crow flies) to the centroid, the center of the BPU. The centroid is the center of the measured area of a given BPU, but that center does not always land in what appears to be the center of oddly shaped polygons. Regardless of where the centroid is within the polygon, it is an important navigational guide to locate the vegetative stand you need to sample. ***Note***: *In very homogenous terrain, you may want to obtain UTM coordinates for the location of your vehicle or track your route using your GPS receiver, which allows you to locate your parking site and is also useful in writing the directions to your plot.*
- Aerial photos aid in navigating through the landscape, and are essential in determining where to establish a plot (this use will be explained below in more detail). **Please** record

the vegetation (and its condition), that you walk through and sample on the photo. Feel free to write comments regarding unique features, as well.

Along the way...look around. Context is everything – you will have a much better sense of how your classification plots represent the landscape if you are always in analysis mode. Keep in mind that the goal of this field work is to sample **all** the different vegetation types that occur at the park. If, on the way to a BPU or plot, you see an assemblage of plants that seems unique and that is not included on the list of vegetation types, **please** sample if time allows, or at least complete an observation form. With these instructions a list of potential vegetation alliances and plant associations for the parks are provided. As the season progresses, this list will be updated if necessary and you will be better able to recognize new (unsampled) alliances and associations more easily.

Park Special Features…in the process of navigating to plots you will encounter unique features or vegetative stands too small to sample, obtain UTM coordinates using your GPS receiver and note them on aerial photos and maps. These UTM coordinates will be added to the final production map as "Park Special Features" (examples include springs, seeps, hanging gardens, a small patch of trees, shrubs, cattails, etc). It is possible that we may be asked to help document Archeological sites for the park. In particular, field crews are requested to document locations (UTM coordinates) of springs, seeps and hanging gardens and record very general descriptive information on the Park Special Features Form. In addition the park may request that general locations of significant weed occurrences (highly invasive species that pose a big threat) and large areas of infestation also be documented (sample these with classification plots). Finally all CHDN parks are working on documenting with specimen vouchers all vascular plants in each park. Field crews are supplied with a working vascular plant species list for each park with this instruction manual. Another list provided by the parks will indicate which plants are presently vouchered. Field crews are requested to collect herbarium quality specimens of vascular plant species presently not represented in the collection. Please be careful not to collect extremely rare plants. In this case a photographic voucher would be in order.

ESTABLISHING A CLASSIFICATION PLOT

1. PLACEMENT OF PLOT

Figuring out where to place your classification plot is a subjective process. You should place your plots in areas that seem to be both relatively **homogenous** and **representative** of the vegetation of the polygon as a whole. In other words, avoid areas where the vegetation appears to be transitioning from one type to another (ecotones) and areas with anomalous or heterogeneous structure or species composition. The aerial photos will help you identify the different vegetation types available in each BPU to sample – similar color, pattern and texture usually indicate similar vegetation. Take some time and perform this step, because some of the plots you set up may be re-sampled over time in order to determine responses to management and other useful information. Look at *all* the vegetation layers to determine if the area is structurally and floristically uniform and generally try to place your plots **at least** 30 m (100 feet) from what you see as the 'boundary' between this vegetation type and neighboring, different types. The exception to this rule is when you are sampling a unique type that is always going to occur in

small patches and usually has sharp boundaries, such as a spring or seep. ***Note***: In cases where a polygon is very heterogeneous, more than one plot may be needed. Again, look around; use your acquired knowledge and judgment.

2. SIZE AND SHAPE OF PLOT

The chart below indicates what size classification plots should be for each vegetation type. Circular plots are the standard plot shape employed in this project, but check with the parks staff to verify. In very limited circumstances where vegetation occurs in linear patterns, a rectangular plot may be required. For example, rectangles are ideal for ridgelines, hillsides, and riparian zones, or communities where the vegetation has a patchy or irregular distribution. Circles are well suited to very large, homogenous vegetative stands. Selecting the shape of the plot to fit it into a given sample area is fine, but please try not to make a plot smaller than the sizes listed below. **Make sure the type you are describing occupies an area of <u>at least</u> 0.5 hectare** (a circle approximately 80m in diameter!!). This area is necessary because the standard plot is about the size of a pencil point to the photo interpreter – even 0.5 hectare is only the size of a pea. Vegetative communities too small for a plot should be sampled as an Observation Point (instructions for points are after plots in this packet).

If you're in a ...	**Circular Plot, Homogenous Vegetation**	**Rectangular Plot, Heterogenous Vegetation**
Forest (i.e., trees have their crowns overlapping, usually 60-100% total cover)	400 m^2 22.6 m diameter	400 m^2 10 x 40 m 5 x 80 m, etc.
Woodland (i.e., stands of trees with crowns usually not touching. Canopy tree cover is 10-60% **or** exceeds total shrub, dwarf-shrub, herb, and nonvascular cover).	400 m^2 22.6 m diameter	400 m^2 10 x 40 m 5 x 80 m, etc.
Shrubland (i.e., shrubs greater than 0.5 m tall are dominant, usually with more than 25% cover **or** exceeding tree, dwarf-shrub, herb, and nonvascular cover).	400 m^2 22.6 m diameter	400 m^2 10 x 40 m 5 x 80 m, etc.
Dwarf-shrubland (i.e., shrubs less than 0.5 m tall are dominant, usually with more than 25% cover OR exceeding tree, shrub, herb, and nonvascular cover).	100 m^2 11.3 m diameter	100 m^2 5 x 20 m 2 x 50 m, etc.
Shrub Herbaceous (i.e., forb and/or grass cover roughly equal to shrubs or dwarf shrubs).	100 m^2 11.3 m diameter	100 m^2 5 x 20 m 2 x 50 m, etc.
Herbaceous (i.e., herbs or grasses dominant, usually forming more than 25 percent cover).	100 m^2 11.3 m diameter	100 m^2 5 x 20 m 2 x 50 m, etc.
Nonvascular (i.e., lichen or moss cover dominant, usually forming more than 10% cover).	25 m^2 5.65 m diameter	25 m^2 1 x 25 m 2.5 x 10 m, etc
Sparsely Vegetated (i.e. less than 10% cover).	1000 m^2	400 or 1000 m^2

VEGETATION PLOT SURVEY FORM INSTRUCTIONS - 2010

These instructions discuss the 2010 version of the plot data sheet, field by field. please note that these data must be recorded for later entry into the plots v3 ms access database prepared for all nps - national vegetation inventory program projects.

Please note that the chDN is in the process of developing a GPS Data Dictionary for recording several fields associated with the Vegetation Plot Survey Form. Also note that all data entered into the GPS receiver will also be entered manually on the paper forms.

- **IDENTIFIERS/LOCATORS SECTION**

Plot Code

This is a unique identifier you give each sample plot using the format “PARK.XXX”. Each field crew will be assigned a set of numbers to use (e.g., 100-299, 300-499, etc.). Circle the appropriate park acronym, and write the plot number on the blank line. The same numbering convention will be used for observation points, except that the number of the observation point is four digits, the first of which is always "9". For example, the crew using the numbers 101 through 199 would call their first plot "AMIS.0101 or BIBE.0101" and their first observation point "AMIS.9101 or BIBE.9101". **Please record the plot code on every side of every form in the provided field.**

BPU CODE

The biophysical unit identified is the polygon identifier on the DRG map. If you have encountered a unique or new vegetation community that is not in a designated BPU, enter "None". Find the BPU number on your BPU list and write the number of the plot or observation point in the "Comments" box.

COUNTY

Enter name of the Texas County where the plot or observation point occurs.

STATE

This field is already completed as ‘TX’ on all data sheets.

SITE NAME

This name is best determined from a topo map. Select a nearby feature that an obvious waypoint, such as the name of a canyon, hill, road, or drainage (e.g., Pummel Peak). This name does not need to be unique. If you sample a number of plots in a small area, you can use the same site name for all of them.

LOCATION

This field identifies whether or not the plot is within the park boundary or in the environs. Circle the appropriate location.

QUAD NAME

Record the **full name** of the 7.5-minute quadrangle, such as "Mariscal Mountain". Locate your plot on the map, and mark your location with a dot in a circle and the plot number.

AERIAL PHOTO OR ORTHOPHOTO NUMBER

The photo or orthophoto number is in the upper right hand corner of the image in the format FLIGHTLINE-FRAME # or the orthophoto number. Record this number on the form. Locate your plot on the photo/orthophoto, and mark your location with a dot in a circle and the plot number. Again, please draw and comment on the photo/orthophoto regarding the vegetation of the plot and the surroundings.

GPS FILE NAME

This is the name you give to the waypoint when you mark the plot location in your GPS receiver. The GPS receiver reading should be taken from the center of the classification plot. Please give the waypoint the same number as the plot, and the prefix "BP" for a Big Bend plot (e.g., BP241 for classification plot #241). If sampling an observation point, the file name would be "BO" and the number (e.g., BO9101 for point #101). Mark the plot location on the BPU map using the same method that you marked the aerial photo/orthophoto (a dot with a circle around it and the plot number, "BP241"). Replace the "B" above with an "A" when working in Amistad and an "R" when working in Rio Grande.

GPS RECEIVER:

Record the name and model of the GPS receiver being used to record data for the classification plot. If a GPS receiver was not used to determine UTM coordinates record 'none' here and be sure to complete the 'GPS Comments' field below.

DATUM

ALWAYS check this field on your GPS receiver. It should **always** be NAD83. Datum information is **CRITICAL** for correctly applying your waypoints to the final vegetation map. If it is anything other than NAD83, **please, please, please** record this change on the form; this step will keep your work from being wasted.

UTM ZONE

This value is already entered on the datasheet and will remain the same throughout the project.

GPS COMMENTS:

VERY IMPORTANT: If you resorted to estimating the plot location UTMs on the topo map (see below), note that in this field. If your usual GPS receiver croaked and you had to borrow an old Garmin from a friend, note that. Also, if you left the plot to obtain a reading from a high point, record that here, along with the compass bearing and distance of the UTM coordinate location from the plot center.

FIELD UTM X, FIELD UTM Y

Record the UTM easting and northing you saved as a waypoint in your GPS receiver. Please double-check to make sure that the easting is six digits and the northing is seven digits. If recorded incorrectly, your plot will show up in Venezuela or the middle of the Caribbean.

In deep canyon country it is sometimes difficult to obtain UTM coordinates from a GPS receiver (your unit must acquire at least three or four satellites). If you are unable to obtain UTM coordinates in the plot, or if the EPE is greater than ±50m, first try to acquire a signal from a higher point outside (but still close to) the classification plot. If that fails, you will need to estimate the UTM coordinates from the topo map, and manually enter them into the GPS receiver.

However, the topo maps you have use the NAD27 datum, while the project standard is (and your GPS units are in) the NAD83 datum. The difference is that the NAD83 grid is shifted about 60m west and 200m north of NAD27. To ensure that all your plots show up in the right place, please use this procedure when estimating UTM coordinates from the topo map:

1. Locate your plot as accurately as possible on the topo map, using triangulation or climbing to a high point.
2. Use the topo map, straightedge, pencil and a transparent overlay grid to obtain UTM coordinates in NAD27 (performed carefully, you should be able to record to the nearest 10m). Write these coordinates in the GPS Comments Field with the note "UTM coordinates derived from topo map". DO NOT enter these in the UTM X and UTM Y fields.
3. Update the settings in your GPS receiver to the NAD27 datum.
4. Create a new waypoint, give it the name of your plot, and enter the UTM coordinates you wrote down.
5. Update the settings in your GPS receiver back to the NAD83 datum. This action will convert the NAD27 coordinates to NAD83 without screwing up the coordinates you already had in your machine (there may be rounding error). Enter the converted coordinates (now in NAD 83) into the UTM X and UTM Y fields.
6. Try to perform this conversion only once per field trip, because the more often you do it, the more likely it is that the rounding error will change the coordinates of your other (non-topo-derived) classification plots. You can perform this conversion in the office during datasheet cleanup and entry time.

GPS RECEIVER ERROR

Note the "Estimated Position Error" (EPE) displayed on your GPS receiver. The longer you wait to mark the waypoint, the longer the GPS receiver has to gather satellite information and determine your location more accurately (using the antenna will also help acquire more accurate readings). The lower the EPE number - the more accurate your reading; also, 3D Differential is the most accurate level of reading - you may have to resort to 3D GPS or 2D GPS in canyons or other landforms. If that is the case, please note "3D GPS" or "2D GPS" in the GPS Comments field.

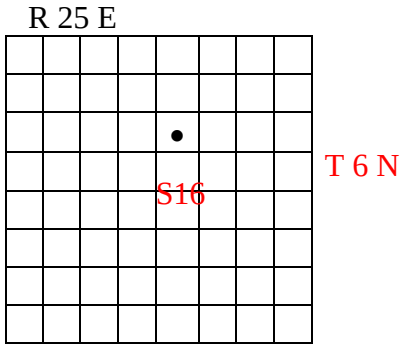
3D DIFFERENTIAL?

Circle Y or N accordingly. 3D differential is obtained when your GPS receiver can acquire a satellite that does nothing but correct the tiny errors in the positioning or clocks of other GPS satellites. This satellite broadcasts a real-time differential correction so that your location coordinates are as accurate as possible. It is in geosynchronous orbit in the southern sky, so if

you can see the southern sky, you will generally be able to acquire 3D differential. This system is known as the Wide-Area Augmentation System, or WAAS. The Garmin and Trimble GPS receivers have a field in their setup pages for turning WAAS on or off. Please make sure that WAAS is **always** on.

DIRECTIONS TO PLOT

Give precise directions to the classification plot beginning with a landmark (e.g., a named point on the topo map, a major highway, marked trailhead, etc.) readily locatable on a 7.5 minute topo map as the starting point. Use clear sentences that will be understandable to someone who is unfamiliar with the area and has only your directions to follow. Give distances and use compass directions. Be aware of the ambiguity of words like "above", "near", beyond", "on the back side of", "past". Again, using the GPS receiver to give distances can be very helpful. If classification plot locations lack major landmark features as guides, use township, range and sections (TRS) from the topo maps. If there are no features within a reasonable distance of your classification plot and writing directions is taking an inordinately long time, you can use a TRS description to the nearest quarter-quarter-quarter section. TRS directions are extremely error prone, so please have your field partner check it before you leave the plot. The TRS for the plot in the section below is "NW4SW4NE4 Sec. 16, T 6 N, R 25 E".



Note: Although the classification plots will not be permanently marked, park staff would very much like to relocate them for long-term vegetation monitoring purposes. Careful documentation of the stand characteristics, access route, obvious landmarks and vegetation is therefore extremely important. DO NOT use one classification plot to reference the location of another; TRS is preferable to this form of reference.

SURVEY DATE

Date the classification plot was sampled. Please use this format: Month - Day - Year.

SURVEYORS

List the last names of the field team members present.

PLOT DIAMETER, LENGTH, WIDTH AND AZIMUTH,

Enter diameter for circular plots (5.65m, 11.3m or 22.6m etc.) OR width and length dimensions for rectangular plots. Record the azimuth for the long side of rectangular plots.

PHOTOS TAKEN?

Circle Y or N accordingly for classification plot digital photographs and for landscape or other photographs.

CAMERA NAME AND MODEL

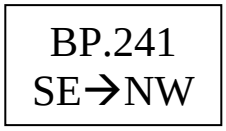
Record name and model of camera.

PHOTOS: TYPE/ROLL NUMBER/FRAME NUMBER/PHOTOGRAPHER/DIRECTION AND COMMENTS

For each digital photograph taken at the classification plot record the following: *Photo type:* indicate whether photo is a 'plot', 'landscape' or 'other' photo. *Number*: record digital photograph number from camera. *Photographer*: record last name of person taking photograph. *Directions/Comments*: record the direction the photographs were taken from and towards (e.g. SE→NW) and any other comments to clarify the contents of the photograph (especially landscape/scenery photos). Also, representativeness of the biological crust photograph can be commented on here.

TAKING PHOTOGRAPHS

Take a minimum of two digital photographs of each classification plot. The purpose is to obtain good representation of the vegetation within the classification plot, not individual species. Try to include a little sky (approximately 10%) for perspective. For circular plots, please take the two photographs from adjacent cardinal points around the plot (e.g., south and east or north and west). Photographs obtained at rectangular plots should be taken from opposite ends of the long side. Use a chalkboard to record the plot number and the direction the photo is taken. Thus, for BIBE rectangular plot 241, the board in the photograph taken from the SE edge of the plot, facing NW will read "BP.241, SE→NW". Take the photograph looking across the contour if plot is on a steep slope. In addition, you may want to keep a photograph log for all photographs, most importantly for scenic photographs not taken at classification plots.



If you are in a particularly nice, rare or representative stand of vegetation, please take a third digital photograph without the signboard in it and from any position as long as it illustrates the plant community well.

PLOT REPRESENTATIVENESS

***Representativeness of plot in stand**:* Does this sample represent the vegetation community within the surrounding area or polygon? If not, were additional classification plots sampled? Note additional species occurring outside the classification plot but characteristic of the stand.

1. An example could be: "This BPU is relatively large and very homogenous in species composition, although species density varies slightly. Alligator junipers are sparsely scattered throughout BPU but none are located inside the plot."
2. Another example: "This polygon encompasses a variety of elevations and aspects, but similar slopes. Multiple classification plots were sampled in this stand. This plot represents a predominantly herbaceous community on a northern aspect."

***Note**: Sometimes variation within a polygon is not large enough to sample, in which case you would describe surrounding communities in the "Other Comments" field on the back of the first data sheet.*

- *ENVIRONMENTAL DESCRIPTION SECTION*

ELEVATION

Elevation of the classification plot: record this measurement from the GPS receiver typically using the meters scale. Specify whether elevation is recorded in feet or meters.

SLOPE

Measure the slope in degrees using a clinometer. The degree scale is the left-hand scale as you look through the clinometer.

ASPECT

Measure the classification plot aspect in degrees using a compass (set for local magnetic declination).

TOPOGRAPHIC POSITION

This is the position of the classification plot on its related landform. Determining topographic position requires you to think of the landform in cross-section, which is roughly diagramed on the back of your cheat sheet. You **must** use the terms listed below:

Interfluve (crest, summit, ridge): linear top of ridge, hill, or mountain; the elevated area between two drainages that sheds water to the drainages.
High slope (shoulder slope, upper slope, convex creep slope): the uppermost inclined surface at the top of a slope; includes the transition zone from backslope to summit. Surface is dominantly convex in profile and erosional in origin.
High level (mesa, summit): level top of a plateau.
Midslope (transportational midslope): intermediate slope position.
Backslope (dipslope): subset of midslopes that are steep, linear, and may include cliff segments.
Step in slope (ledge, terracette): nearly level shelf interrupting a steep slope, rock wall, or cliff face.
Lowslope (lower slope, foot slope, colluvial footslope): inner gently inclined surface at the base of a slope; surface profile is generally concave and a transition between midslope or backslope, and toeslope.
Toeslope (alluvial toeslope): outermost gently inclined surface at base of a slope; in profile, usually gentle, linear and characterized by alluvial deposition.
Low level (terrace): valley floor or shoreline representing the former position of an alluvial plain, lake, or shore.

LANDFORM

Enter the landform(s) that describe(s) the site where the classification plot was sampled. Referring to the topographic map for the landscape context may help you decide what landform(s) to choose. Note that the landform choices may describe different scales, or that a landform feature can be described by more than one term. For example, your classification plot may be located on a ledge on the rim of a canyon. A suggested list of landforms and definitions is provided in **APPENDIX 1.**

Note: *The topographic position selected above should relate to the scale of the landform chosen here.*

SURFICIAL GEOLOGY

Note the geologic substrate where plant community occurs. The geology map should help, but if you can't tell the geology at all or you do not have the geology map with you at the classification plot, write a general description (e.g., coarse sandstone, green shale, aeolian sands, or obscured by soils).

Cowardin System

The majority of the classification plots you will be sampling will be "Uplands" in AMIS and BIBE and "Riparian" in RIGR. In the Texas parks, most wetland plots will be classified in the Riverine and Palustrine categories. This classification includes riparian, hanging garden, and vernal pool wetlands. They are all fed by surface and/or groundwater and support vascular plant communities.

HYDROLOGY

This field will mostly be completed if you are sampling a wetland, however, some areas considered uplands may be subject to intermittent flooding. Select from the following definitions (from Cowardin et al. 1979):

Permanently flooded: water covers the land surface at all times of the year in all years.

Semipermanently flooded: the **s**urface water persists throughout the growing season in most years except during periods of drought. Land surface is normally saturated when water level drops below the soil surface.

Seasonally flooded: Surface water is present for extended periods during the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is very variable, extending from saturated to a water table well below the ground surface.

Saturated: Surface water is seldom present, but substrate is saturated to surface for extended periods during the growing season.

Temporarily flooded: the surface water is present for brief periods during the growing season but the water table usually lies well below soil surface; it often characterizes flood-plain wetlands.

Intermittently flooded: the substrate is usually exposed but surface water can be present for variable periods without detectable seasonal periodicity. Inundation is not predictable to a given season and is dependent upon highly localized rain storms. This modifier was developed for use in the arid West for water regimes of playa lakes, intermittent streams, and dry washes but can be used in other parts of the U.S. where appropriate. This modifier can be applied to both wetland and non-wetland situations.

Unknown: The water regime of the area is not known. The unit is labeled a non-tidal wetland.

ENVIRONMENTAL COMMENTS

Enter any additional noteworthy comments on the environmental setting and its effect on the vegetation. Examples include: "stunted trees due to shallow soils", "vegetation only where pockets of soil occur", or "large colluvial boulders and small rocks litter surface of soil". This field can also be used to describe site history such as fire events. This is an extremely important

field for crews to document so please take the time to respond thoroughly. Information from this field will be used to prepare local descriptions of the plant community and for imagery interpretation.

GROUND COVER

Estimate the approximate percentage of the *total* surface area covered by each category. A helpful hint in making ocular estimates is that in a 100 square meter plot, one square meter is equal to 1%. The sum of the cover values should equal 100%. *Notes*: For estimating live litter and live wood, visualize cutting the vegetation off at ground level. The percent ground cover is how much space the stems take up. Estimating lichens, dark cyanobacteria and moss also take an extra step in visualization. Also note that it is possible to have bare soil and sand in a plot if sand has blown in, or to have sand on the surface of the plot but the soil test results in a texture other than sand because you are sampling below the surface. If a category is present but covers less than 1% of the ground, enter a "T" on the line next to it.

SOIL TEXTURE

Use a trowel to dig a hole a few inches deep (depth will vary with soil depth, of course) to expose the soil at root level, from where you will take a small handful of soil to key. **APPENDIX 2** is a key to use when sampling soil texture and an abbreviated version is presented on the cheat sheet.

SOIL DRAINAGE

Soil drainage classes are defined in terms of: (1) actual moisture content in excess of field moisture capacity and (2) the extent of the period during which excess water is present in the plant-root zone. Permeability, level of groundwater, and seepage are factors affecting moisture status. However, because these factors are not easily observed or measured in the field, they cannot generally be used as criteria of moisture status. Use the following definitions to determine soil drainage at your classification plot:

Rapidly drained: the soil moisture content seldom exceeds field capacity in any horizon except immediately after precipitation. Nearly all of the soils outside of wetlands, springs, and floodplains will fall into this category. Rapidly drained soils are commonly coarse textured or soils on steep slopes located well above the water table. ***These soils are characterized by strictly upland species.***

Well drained: the soil moisture content does not normally exceed field capacity in any horizon (except possibly the C) for a significant part of the year. Soils are usually free from mottling in the upper 3 feet, but may be mottled below this depth. B horizons, if present, are reddish, brownish, or yellowish. ***Look for plant species that indicate periodic saturation.***

Moderately well drained: the soil moisture in excess of field capacity remains for a small but significant period of the year. Soils are commonly mottled (chroma < 2) in the lower B and C horizons or below a depth of 2 feet. The Ae horizon, if present, may be faintly mottled in fine-textured soils and in medium-textured soils that have a slowly permeable layer below the solum. In grassland soils the B and C horizons may be only faintly mottled and the A horizon may be relatively thick and dark. ***Soils in this category and the next three will typically support wetland plants.***

Somewhat poorly drained: the soil moisture in excess of field capacity remains in subsurface horizons for moderately long periods during the year. Soils are commonly mottled in the B and C horizons; the Ae horizon, if present, may be mottled. The matrix generally has a lower chroma than in the well-drained soil on similar parent material.

Poorly drained: the soil moisture in excess of field capacity remains in all horizons for a large part of the year. The soils are usually very strongly gleyed. Except in high-chroma parent materials the B, if present, and upper C horizons usually have matrix colors of low chroma. Faint mottling may occur throughout.

Very poorly drained: free water remains at or within 12 inches of the surface most of the year. The soils are usually very strongly gleyed. Subsurface horizons usually are of low chroma and yellowish to bluish hues. Mottling may be present but at the depth in the profile. Very poorly drained soils usually have a mucky or peaty surface horizon.

Animal Use Evidence
Comment on any evidence of use of the classification plot and BPU by non-domestic animals (i.e., tracks, scat, burrows, etc.). Notes on domestic animals should be made in the next field.

Natural and Anthropogenic Disturbance
Comment on any evidence of natural or anthropogenic disturbance and specify the source, severity and effects on the vegetation. Common disturbances in Big Bend, Rio Grande, and Amistad classification plots are gullies carved by water, colluvial deposition of rocks on slopes, flash flooding, and sometimes old tin cans left by cowboys or miners. Other disturbances you may encounter include off-road vehicle use, fire, or mass-wasting among others.

OTHER COMMENTS
Record any other comments. What is the extent of the community you sampled? Describe the landscape context of the community. Describe the adjacent plant communities and their relationship to the classification plot. Are there any other landscape features or processes influencing this community? Is there an important species that occurs in the BPU but is not within your classification plot? Is there a large amount of a dead plant material present?

- *VEGETATION DESCRIPTION SECTION*

Leaf Phenology
Select the best description for the leaf phenology of the **dominant** stratum. The dominant stratum is the tallest stratum that contains at least 10% cover. Leave blank for non-vascular plots.

Evergreen. Greater than 75% of the total woody cover is never without green foliage.
Cold deciduous. Greater than 75% of the total woody cover sheds its foliage in connection with an unfavorable season mainly characterized by winter frost.
Mixed evergreen - cold deciduous. Evergreen and deciduous species are mixed within the type and generally contribute 25-75% of the total woody cover.

Perennial. Herbaceous vegetation composed of more than 50% perennial species.

Annual. Herbaceous vegetation composed of more than 50% annual species.

Leaf Type
Select the best description for the leaf form of the dominant stratum. The dominant stratum is the uppermost stratum that contains at least 10% total plot coverage. Within that dominant stratum, the species that makes up greater than 50% of cover defines the leaf type.

Broad-leaved. Woody vegetation that is primarily broad-leaved (creosotebush, cenizo, oak).
Needle-leaved. Woody vegetation that is primarily needle-leaved (Juniper).

Microphyllous. Woody cover that is primarily microphyllous (Mormon-tea).

Graminoid. Herbaceous vegetation composed of more than 50 percent graminoid species (grasses, sedges, rushes, etc).
Forb (broad-leaf-herbaceous). Herbaceous vegetation composed of more than 50% broad-leaf forb species (American water-willow, smartweed, bladderpod, etc).
Pteridophyte. Herbaceous vegetation composed of more than 50 percent ferns or fern allies (scouring rushes, southern maidenhair fern, etc.).
Non-vascular. Dominated by lichens or mosses.
Mixed. As with leaf phenology, the dominant stratum may be composed approximately equally of species with several different leaf types. Describe the mix briefly or circle leaf types that apply.

Physiognomic Class

This category represents what you see when you are standing in the classification plot looking across at the vegetation. The following definitions can be used as guidelines, but may not always apply in desert locales. For example, areas with scattered alligator juniper, oaks, or mesquite may not fit the cover classes below but they would best be described as a woodland.

Forest: trees with crowns overlapping (generally forming 60-100% cover).
Woodland: open stands of trees with crowns not usually touching (generally forming 25-60% cover). Canopy tree cover may be less than 25% in cases where it exceeds shrub, dwarf-shrub, herb, and nonvascular cover, respectively.
Shrubland: shrubs generally greater than 0.5 m tall with individuals or clumps overlapping to not touching (generally forming more than 25% cover, trees generally less than 10% cover). Shrub cover may be less than 25% where it exceeds tree, dwarf-shrub, herb, and nonvascular cover, respectively. Vegetation composed of woody vines is included in this class.
Dwarf-shrubland: low-growing shrubs usually under 0.5 m tall. Individuals or clumps overlapping to not touching (generally forming more than 25% cover, trees and tall shrubs generally less than 10% cover). Dwarf-shrub cover may be less than 25% where it exceeds tree, shrub, herb, and nonvascular cover, respectively.
Shrub Herbaceous: low or taller shrubs forming approximately equal cover with a grass or forb component. Individuals or clumps of shrubs generally not touching and usually forming more than 25% cover; trees less than 10% cover. Spaces between shrubs are generally mostly occupied by grasses and/or forbs.
Herbaceous: perennial herbs (graminoids or forbs) dominant (generally forming at least 25% cover; trees, shrubs, and dwarf-shrubs generally with less than 10% cover). Herb cover may be less than 25% where it exceeds tree, shrub, dwarf-shrub, and nonvascular cover, respectively.
Nonvascular: nonvascular cover (bryophytes, lichens, and algae) dominant (generally forming at least 25% cover). Nonvascular perennial vegetation cover may be less than 25%, as long as it exceeds tree, shrub, dwarf-shrub, and herb cover.
Sparsely Vegetated: abiotic substrate features dominant. Perennial vegetation is scattered to nearly absent and generally restricted to areas of concentrated resources. Total vegetation cover is typically less than 5% and greater than 0%. Badlands or sand dunes supporting communities of annual plants should be included in this category, regardless of cover.

PROVISIONAL COMMUNITY NAME

You have been provided a list of potential vegetation alliances and plant associations for AMIS and BIBE/RIGR, based on what has been classified in legacy studies, field observations, and from the NatureServe database. Find the name of the alliance and/or association which most closely resembles your classification plot. It is very likely that some of your plots will not resemble types on the list – as some to many plant communities are not yet described and classified. If so, devise a name based on: (1) the dominant species of the dominant strata (including nonvascular) and (2) indicate the physiognomic class (the class must match the physiognomic class checked on the backside of the datasheet). For example, if you are in an oak – alligator juniper woodland with only scattered shrubs but a really nice mountain muhly layer, you would use a provisional name like "*Juniperus depeanna – Quercus grisea / Muhlenbergia montana* Woodland." The 'provisional community name' will be used in tallying how many of each plant community has been sampled as the field season progresses. The provisional name is also a great help to the ecologists who will be using your work to construct a classification. Note: this field should be completed only after the entire classification plot form is completed.

- # PLANT SPECIES LIST AND STRATA FORM

PLOT CODE

Circle the correct acronym for the park in which you are working (e.g., AMIS, BIBE, RIGR). Write the plot number on the blank line. This field is a **must** so that in the event that the two data sheets become separated, they can be paired up later. **Please record the plot code on every side of every form in the provided field.**

Species/Strata Data. A two-page dual purpose form has been developed for recording information on *species* composition and cover and *strata* cover and height. Data representing trees and shrubs are to be entered on the front page and herbaceous and non-vascular data are entered on the back of the page. Species lists and cover estimates should be completed first; then cover class and height class estimates for strata should be recorded.

The main body of the table is dedicated to recording species names and associated cover estimates. To begin this process, the observer needs to make a complete species list for the classification plot and assign each species to the appropriate stratum. The next section provides a brief discussion on assigning species to the appropriate strata, followed by instructions for completing the species level information.

Stratum: Species names will be recorded within the appropriate stratum. It is important that all crew members are consistent in assignment of species to strata throughout this project. Following are some guidelines to use in determining strata. The 'working draft' plant list for AMIS and BIBE/RIGR will be used as guides for assigning species to the appropriate stratum. Field crew members are expected to help 'improve' this list and associated categorization as the field season progresses.

Begin by assessing the strata at your classification plot. Trees are defined as single-stemmed woody plants, generally 5m in height or greater at maturity and under optimal growing conditions. Shrubs are defined as multiple-stemmed woody plants generally less than 5m in

height at maturity and under optimal growing conditions. The exceptions are mature pinyon pine and junipers, which are considered trees regardless of their height.

T1 Emergent, T2 Canopy, T3 Subcanopy. Oak and pine make up the majority of the BIBE "canopy", but where they are absent field crews begin with the shrubs or herbaceous species if no shrubs are present. If the tree crowns in your classification plot are mostly touching and similar in height, but a given tree species (ponderosa pine) is much taller that species would be an "emergent", which is not typical of vegetative communities in this area of Texas. Occasionally, you will sample an area where there may be several tall, scattered Fremont cottonwoods and then shorter scattered velvet ash. In this case, the Fremont cottonwoods would be your "canopy" and the velvet ash would be the "subcanopy".

The remaining vegetative strata are (remember to check with plant list for consistency):
S1 Tall Shrub. >2 meters tall. For example, *Chilopsis linearis* and *Salix exigua.*
S2 Short Shrub. <2 meters tall. For example, *Larrea tridentate* and *Ziziphus obtusifolia.*
S3 Dwarf Shrub. <0.5 meters tall. For example, *Opuntia phaeacantha* and *Gutierrezia microcephala.*
H1 Graminoid. All grass species. For example, *Aristida purpurea, Bouteloua eriopoda*, and including sedges, flat sedges, and rushes.
H2 Forb. All forbs.
H3 Fern or Fern Ally. All ferns. For example, *Adiantum capillus-veneris* and including *Equisetum laevigatum.*
H4 Tree Seedlings. Seedlings are trees with vertical stems less than 1.5 m tall, but that may vary by species.
N Nonvascular. This class is mainly dark cyanobacteria, mosses and lichens.
V Vine/liana. All vine species.
E Epiphyte. All epiphytic species.

Height can be used to define strata, but is not how species should be placed in strata. Species characteristically belong to one stratum or another (e.g., juniper and pines are canopy (T2), Sandbar willow is a tall shrub (S1), creostebush and cenizo are short shrubs (S2), snakeweed is a dwarf-shrub (S3), etc.), EVEN when unusual environmental circumstances dictate that the plants have an unusually tall or unusually short growth form. So even if the junipers growing in cracks are only 1.5 m tall, as long as they are mature trees, they are recorded in the T2 category, and are measured. About the only rule regarding height should be that the tree layer is (usually) higher than the tall shrub layer, is taller than the short shrub layer, etc.

The second thing is to avoid splitting species between strata. If a few mountain mahogany have been browsed to <1m tall, but most are 2m tall, they all are estimated into the tall shrub stratum. There are two exceptions: (1) each height class covers more than 10% of plot, or (2) there is a reproductive layer of seedling/sapling shrubs or young trees.

The third thing is how to define some of the “borderline” species. What we want to avoid is some crews calling snakeweed a forb and some calling it a dwarf-shrub.

Species / Percent Cover Estimates. Once you have identified your strata, list all plant species in that strata and complete cover estimates per the following instructions. Be thorough in looking for plant species in your classification plot, but do not spend excessive amounts of time looking for new or different plants. Remember that these plot data are to be used to classify the vegetation of the park, not to make a complete species list for it. If you had to spend much more than 20 minutes to *find* a species, it probably isn't going to be important in characterizing the vegetation type.

1. **Species Name:** Refer to the plant list you have been provided for plant names used in this area of Texas. Always record the full scientific name for each species. Please note that columns on both sides of the table may be used to record species within each stratum.
2. '*' **–** Complete this shaded column in the strata assessment (see below).
3. **Cover Class:** Estimate the aerial / crown cover of **each** plant listed, using the cover class codes listed in the bottom of the page.
4. **% Cover:** Record continuous cover value used to make cover class estimates.
5. **Specimen:** Place a check mark in this column when a specimen has been collected for a given taxon. Keep complete set of notes in a field notebook with required information for processing herbarium specimens. (See handout provided by BIBE Botanist).

Unknowns. If you cannot identify or easily key the plant to species at the classification plot, assign a name to it to be recorded on your data sheet. For example, if you know its family affiliation or its genus, label it "unknown Asteraceae sp." or "Unk. Erigeron sp.". If there are more than one unknowns in a family, add a number to the name you assign. If you do not know the family, label the plant "Unknown 1", using consecutive numbers for additional unknowns. Record the cover class and other data for the unknown as you would for any other species. Then, take a sample of the species with as much of the plant as possible, especially intact sexual parts, if present. Place the sample in a plastic baggie, and either label the plant (if you are putting more than one plant in the baggie) or label the baggie with the plot code, the date and the name you assigned on the data form. Plant samples in baggies can be stored in coolers or refrigerators for short periods. If you are not able to key the plant soon after collecting it, or you intend to keep the sample for the park collection, press the plant and include a label stating the plot or location of its collection (include UTM coordinates if the sample is not from a classification plot), date, collector's name, and name you assigned the plant. Also, thoroughly label any plant specimens collected as proof of plant occurrence for plants not listed on the park species list.

Strata / Height Class, Cover Class, and Diagnostic Species. Once the species list and associated cover data have been completed, the observer should then complete the following fields as specified below. Data for stratum characterization are all shaded in grey on the field form.

1. Indicate the average height class of the stratum in the first column, using the Height Scale at the bottom of the form.
2. Enter the average percent cover class of the whole stratum in the second column, using the Cover Scale at the bottom of the form.
3. '*' **–** This Column is used to indicate whether a particular species has been identified as a 'diagnostic' species for defining a particular stratum.

ALWAYS fill in the Height Class and Cover Class for "Ht Herbaceous", which represents total cover of species in the classification plot ground layer (H1, H2, H3, and H4). This field is located at the top of the back page and is labeled as **'Ht Herbaceous'**. It is easy for field crews to overlook this field – so please make an extra effort to complete it for each classification plot.

- ## TREE STEM AND ROOT CROWN DIAMETERS

This portion of the form is used to record information on the size (biomass) of trees in a given plot. Record the scientific name of the species on the form and check whether the measurement is DBH or DRC. It is acceptable to use 6-digit alpha codes for the species name in this part of the form. Please see instructions below to determine which measure should be used.

Diameter Breast Height (DBH) - all tree species except Oak/Pinyon Pine/Juniper
In plots containing single bole trees such as ponderosa pine and Fremont cottonwood, record the species name and diameter (in cm) of the tree stem/trunk at breast height (4.5 ft.) using a DBH tape. Often this measurement will involve only a single tree trunk, however on some occasions there may be multiple stems. In this case record all diameters associated with a given individual on the same line, separated by a comma or commas. Given the propensity of oak, pinyon pine, and juniper to grow in large multi-stemmed clumps we have decided to measure diameter of the root crown in these situations (see section below). If there are more than about 25 trees more than 4.5 feet tall, divide the plot into quarters and measure the DRC of trees in the southeast quarter/quadrant. **Please note** on the form that this is the procedure you have selected.

Diameter Root Crown (DRC) – Oak/Pinyon Pine/Juniper

In plots containing oak, pinyon pine, and/or juniper trees, record the species and diameter at root crown (ground level) of all stems belonging to trees taller than 4.5 feet. This measurement typically requires crawling under the low tree branches to hook the DBH/DRC measuring tape and wrap it around the trunk to read the diameter. Record this value, in centimeters on an individual line on the field form that is labeled with the appropriate tree species. Should multiple stems emerge from the ground level, measure the DRC of each stem and record the diameters on the same line of the field form, separated by a comma or commas. If there are more than about 25 trees more than 4.5 feet tall, divide the plot into quarters and measure the DRC of trees in the southeast quarter/quadrant. **Please note** on the form that this is the procedure you have selected. Use caution when performing this measurement, as there may be pinyon pine pitch, sharp needles, sharp branch tips, cacti, and/or poisonous animals (spiders, scorpions, snakes, etc.) under these short-stature tree species or under the bark covering the lower portion of the tree. Always look up prior to standing to avoid collision with overhead branches. Juniper branch scratches tend to become infected, so be sure to clean and disinfect them thoroughly.

Pinyon pine-juniper Age Class. If you are in a plot that contains pinyon pine and/or juniper trees (whether or not you have placed the plot in a P-J alliance/association), check the box that best describes the age class of the stand based on these criteria:

Old-growth (>500 years). Ancient trees with flat crowns, much dead wood, dead trees on ground, some younger trees occupying canopy gaps. "You know it when you're in it". Generally occurs only in locations protected from fire.

Mature (350–500 years). Large old trees with flat crowns, some with gnarled trunks, lightning scars and dead wood, others without. Tends not to have much understory, depending on soils.

Young (100–500 years). Developed canopy of large trees, but some or all junipers have pointed crowns. Generally there tends to be a well-developed understory of shrubs and sometimes forbs and grasses.

Invasive (<80 years). Scattered smaller trees, all with pointed crowns, in a community clearly dominated by shrubs or grasses.

OBSERVATION POINT FORM INSTRUCTIONS - 2010

These instructions correspond to the 2010 version of the Observation Point Forms.
Many fields are identical to fields on the Plot Survey Forms and will not be re-defined here.

Observation Point Forms are to be used when: (1) you find a unique vegetation stand or patch too small to establish a classification plot; (2) you are unable to access a BPU but can view it well enough with binoculars to collect some data; (3) enough classification plots have been conducted for a given community type and the project supervisor instructs you to place Observation Points for BPUs encompassing that community; (4) you do not have time to conduct a plot and the area you are in is time consuming to access at a later date; or (5) to record information on park specials (e.g. springs, hanging gardens, etc.). You will notice that these forms are not as extensive as Plot Survey Forms. The primary role of Observation Point forms is to further aid in aerial image interpretation; a secondary role is to help fill out plant association descriptions.

Please note that the CHDN is in the process of developing a GPS Data Dictionary for recording several fields associated with the Observation Point Survey Form. Please note that all data entered into the GPS receiver will also be entered manually on the paper forms.

- ## IDENTIFIERS / LOCATORS SECTION

Most fields in this section are the same as the classification plot form. Please refer to the Plot Survey Form instructions for this section. As with the procedures for Plots, you must mark the location of the Observation Point on the corresponding topographic map, aerial image or photograph and BPU map.

Please indicate the type of observation point you are conducting (e.g. vegetation observation point, spring/seep/hanging garden point, other special feature).

You will not need to measure the area you are surveying for this form, although it is helpful to provide the size of the area described by the point. In terms of photographing this sample area, you are asked to take one digital photograph that accurately captures the vegetative stand. Use the chalkboard as you would at a classification plot.

Observation Points should be assigned a code similar to Plot Survey codes to be used as a file name and on the chalkboard in the photo. Observation point numbers will be assigned in the 9000 series.

- ## ENVIRONMENTAL DESCRIPTION SECTION

The majority of this section is the same as the Plot Survey Form for which the instructions are provided above. These fields include: Elevation, Slope, Aspect, Topographic Position, Landform, Geology, Cowardin Wetland Classification System, and Hydrologic Regime.

Environmental Comments
This field is also on the Plot Survey Form. However, it is the only comments field on the Observation Point Form. Please use this space to record comments like you would have made at classification plots, as well as any comments you would have made in the "Animal Use Evidence," "Natural and Anthropogenic Disturbance Comments" and "Other Comments" fields on the Plot Survey Form. Also note why an Observation Point was sampled instead of a Plot Survey.

Unvegetated Surface
This field is an ocular estimate of ground cover, so plants should be visualized as being cut off at ground level. Because there is no designated sample size for areas surveyed as Observation Points, you will have to estimate percent covers for the evaluated area. For this estimation, you must use the cover classes listed in the bottom right hand corner of the data sheet. If an unvegetated surface category is not present in your observation point area (e.g., water is very uncommon in the sampling units), leave the corresponding line blank. The cover class "01" represents occurrences greater than 0% but less than 10%.

> ***Note:*** *These cover classes are very broad, especially for desert species occurrences. If a species is not accurately represented by these cover classes, note this in the comments field.*

- ## VEGETATION DESCRIPTION SECTION

These fields: Leaf Phenology; Leaf Type; and Physiognomic Class are the same as those on the Plot Survey Form. Please refer to the previously listed instructions for these fields.

PROVISIONAL COMMUNITY NAME
You have been provided a list of potential vegetation alliances and plant associations for AMIS and BIBE/RIGR, based on what has been determined from legacy research, the plant species list, and the NatureServe Website. Find the name of the plant association which most closely resembles your vegetation stand. It is very likely that some of your vegetation stands and patches will not resemble anything on the list – as many types are not yet described and classified. If so, devise a name based on: (1) the dominant species of the dominant strata (including nonvascular) and (2) indicate the physiognomic class (this must match the physiognomic class checked on the back side of the datasheet). For example, if you are in an Oak – Alligator juniper woodland with only scattered shrubs but a really nice purple threeawn layer, you would use a provisional name like "*Quercus grisea – Juniperus depeanna / Aristida purpurea* Woodland." The 'provisional community name' will be used in tallying how many of each plant community have been sampled. The provisional name is also a great help to the ecologists who will be using your work to construct a classification. Note: this field should be completed only after the entire observation point is completed.

- ## DOMINANT PLANT SPECIES LIST

Record information on ***dominant species only***. There are four columns that correspond to the "Stratum" column in this table. The strata have been discussed in the Plot Survey Form instructions, which you should refer to for this form. As for the blank columns:

1. **Height.** Use the number code that best describes the heights of all plant species within a given stratum. The number codes are listed in the bottom left hand corner of the data sheet.
2. **Cover Class.** For this ocular estimation you are viewing the aerial cover of **all** plants within a given stratum. Use the cover class codes listed in the bottom right hand corner of the data sheet (note: these are broader cover classes than used on the plot form).
3. **Dominant Species (Mark species that characterize the stand with a *).** List the plant species using the full scientific name. You may find that there are not enough lines, in which case you can write in the blank area under the stratum name and number codes.
4. **% Cover.** Estimate the percent aerial cover for each plant species. Again, use the cover class codes listed in the bottom right hand corner of the data sheet.

EXTRA CURRICULAR INSTRUCTIONS - 2010

The CHDN I&M Program is engaged in a wide suite of inventory activities designed to improve the information basis for developing a long-term natural resource monitoring program. Since field crews will be visiting most areas of each park and especially remote portions – we are requesting assistance with documenting information on the following features as they are encountered and as time allows.

Springs/Seeps/Hanging Gardens (Use Observation Point Form)

These areas are considered significant ecosystems throughout the Chihuahuan Desert and have been identified as a high priority vital sign for inclusion in the long-term monitoring program. Little information has been documented on the location and characteristics of these areas within the parks.

Use the 'Observation Point' form to record basic data on springs, seeps and hanging gardens and circle 'spring/hanging garden' in the Type of Observation field. It is important to take one or more photos to document the site and UTM coordinates or other location reading. Please complete basic environmental and vegetation description fields as you are able. Completion of the comments field would be most appreciated.

If the spring community is sizeable enough please consider placing/conducting a regular vegetation plot, as we need this information to characterize the full suite of vegetation types. Keep in mind that BPUs will typically overlook springs and seeps.

INVASIVE PLANT SPECIES

Invasions of aggressive non-native species are one of the largest threats to ecosystem integrity of terrestrial and aquatic systems. Field crews are requested to document 'noteworthy' populations of invasive plants and take photos as feasible and appropriate. We are not requesting a comprehensive inventory of all invasive plants, as that would be another full project. However, the parks would appreciate help in documenting populations of invasive plants that are of especially high concern. Early detection of species populations that are small provides the park a chance for control or eradication.

In addition to looking for established invasive plant species in the park, field crews should take care to ensure that they are not contributing to the spread of weeds. If you are working in an infested area, please make sure that you are not carrying seeds or other propagules with you to new locations. Also for field workers coming from other areas, please make sure vehicles and clothing are free of weed seed.

GENERAL FLORISTIC INVENTORY – AMIS AND BIBE/RIGR

An important part of the CHDN I & M Program is to assist parks with the documentation of all vascular plants and vertebrate species occurring within each park. As part of the vegetation mapping project, field crews are requested to assist in the collecting of vascular plant vouchers (herbarium specimens). The AMIS and BIBE/RIGR plant list provided to field crews indicates whether or not a voucher has been collected for a given species. If a voucher has not been collected, field crews are to look for opportunities to make collections of these taxa. Field crews will receive training in how to collect, document and process vouchers. Specimens should contain appropriate flowering and/or fruiting material to assure correct identification. Additionally specimens should contain all appropriate plant parts (roots, leaves, stems, flowers etc.) and as possible show the habit of the plant using digital photographs. Enough material should be collected to fill a herbarium sheet when possible.

OFFICE DATA ENTRY AND TRACKING – 2010

- **DATA ENTRY**

CHDN has developed a park-specific vegetation mapping database application for this project. This database application houses all associated data with the project including vegetation classification plots, observation points, photographic documentation, and herbarium label information. Data will be entered at regular intervals as the field season progresses. Data will be entered both electronically (from the data dictionarys on the GPS receivers/data loggers) and manually from the field forms. NPS field crews or a data entry specialist will enter all data collected during the project. The CHDN staff is developing quality assessment and control procedures to help ensure that data collected are consistent, accurate, and complete.

- **SPECIES LIST MANAGEMENT**

As previously discussed, CHDN is working with each network park to prepare vouchered vascular plant species lists. An important ancillary activity of the vegetation inventory project is to contribute to the collection of voucher specimens for additional species. To aid in this effort CHDN will provide field crews with a ‘working copy’ of the vascular plant species list for AMIS and BIBE/RIGR as appropriate to the field crews. This list will include information on taxonomic number, family, genus, species, common name, life form, nativity and whether or not the taxon is documented with a specimen voucher. Field crews are requested to look for opportunities to collect vouchers where none exist. Field crews are requested to work with the CHDN Science Advisor and Data Manager to regularly update the ‘working’ species lists.

- **TRACKING PLANT ASSOCIATIONS**

At the beginning of the field season crews will be provided with a working list of ‘potential’ plant associations for AMIS and BIBE/RIGR. This list will represent the ‘best-guess’ of what is present in the parks and is based on recent vegetation alliance and plant association classification work on-park and nearby. As the field season progresses the field team leader will revise this list

as needed. In addition, the field team lead will assign each plot to preliminary plant associations and maintain a ‘tracking list’ throughout the field season (after each field session). This list will be used to adjust sampling priorities in the field. For example, once an adequate number of classification plots are collected for a certain type, it may be determined that only observation points are needed for subsequent BPUs. The list will also serve as a guide in knowing when something new is encountered and when to sample additional areas.

- **HERBARIUM SPECIMENS**

Field crews will be instructed on how to collect voucher specimens and associated label data. Specimens will be processed at regular intervals throughout the field season. Processing includes entering all appropriate information into the vegetation mapping database in order to generate herbarium labels, identification, mounting and labeling specimens. Each field crew member is required to record all specimen documentation in a field notebook.

Landform Glossary

(http://soils.usda.gov/technical/handbook/contents/part629glossary1.html)

alluvial cone - A semi-conical type of alluvial fan with very steep slopes; it is higher, narrower, and steeper (e.g., > 40% slopes) than a fan, and composed of coarser, and thicker layers of material deposited by a combination of alluvial episodes and to a much lesser degree, landslides (e.g., debris flow). Compare - alluvial fan, talus cone.

alluvial fan - A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes, shaped like an open fan or a segment of a cone, deposited by a stream (best expressed in semiarid regions) at the place where it issues from a narrow mountain or upland valley; or where a tributary stream is near or at its junction with the main stream. It is steepest near its apex which points upstream and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

alluvial flat (a) (colloquial: western US) A nearly level, graded, alluvial surface in bolsons and semi-bolsons which commonly does not manifest traceable channels, terraces or floodplain levels. Compare - flood-plain step, terrace, valley flat. (b) (**not preferred**) A general term for a small flood plain bordering a river, on which alluvium is deposited during floods.

alluvial plain - (a) A large assemblage of fluvial landforms (braided streams, terraces, etc.,) that form low gradient, regional ramps along the flanks of mountains and extend great distances from their sources (e.g., High Plains of North America. SW (b) (not recommended, use flood plain.) An general, informal term for a broad flood plain or a low-gradient delta. Compare - alluvial flat.

alluvial plain remnant - An erosional remnant of an alluvial plain which retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to a present-day stream or drainage network. Compare - alluvial plain, erosional remnant, paleoterrace.

alluvial terrace - (not preferred) refer to stream terrace.

alluvium - Unconsolidated, clastic material subaerially deposited by running water, including gravel, sand, silt, clay, and various mixtures of these. Compare - colluvium, slope alluvium.

anticline - (a) A unit of folded strata that is convex upward and whose core contains the stratigraphically oldest rocks, and occurs at the earth's surface. In a single anticline, beds forming the opposing limbs of the fold dip away from its axial plane. Compare - monocline, syncline, fold. (b) A fold, at any depth, generally convex upward whose core contains the stratigraphically older rocks.

arroyo - (colloquial: southwest A.) The channel of a flat-floored, ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material; sometimes called a wash. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed. Where arroyos intersect zones of ground-water discharge, they are more properly classed as intermittent stream channels.

artificial levee - An artificial embankment constructed along the bank of a watercourse or an arm of the sea, to protect land from inundation or to confine streamflow to its channel.

backslope - The hillslope profile position that forms the steepest and generally linear, middle portion of the slope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below. They may or may not include cliff segments (i.e. free faces). Backslopes are commonly erosional forms produced by mass movement, colluvial action, and running water. Compare - summit, shoulder, footslope, toeslope.

backswamp - A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces. Compare - valley flat.

badlands - A landscape which is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes with narrow interfluves. Badlands develop on surfaces with little or no vegetative cover, overlying unconsolidated or poorly cemented materials (clays, silts, or in some cases sandstones) sometimes with soluble minerals such as gypsum or halite.

bajada - (colloquial: southwestern US.) A broad, gently inclined, alluvial piedmont slope extending from the base of a mountain range out into a basin and formed by the lateral coalescence of a series of alluvial fans. Typically it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins. Synonym - coalescent fan piedmont. Compare - colluvial apron.

ballena - (colloquial: western US.) A fan remnant having a distinctively-rounded surface of fan alluvium. The ballena's broadly-rounded shoulders meet from either side to form a narrow summit and merge smoothly with concave sideslopes and then concave, short pediments which form smoothly-rounded drainageways between adjacent ballenas. A partial ballena is a fan remnant large enough to retain some relict fan surface on a remnant summit. Compare - fan remnant.

ballon - (colloquial: western US). A rounded, dome-shaped hill, formed by erosion or uplift.
bar - A general term for a ridge-like accumulation of sand, gravel, or other alluvial material formed in the channel, along the banks, or at the mouth of a stream where a decrease in velocity induces deposition; e.g. a channel bar or a meander bar. A generic term for any of various elongate offshore ridges, banks, or mounds of sand, gravel, or other unconsolidated material submerged at least at high tide, and built up by the action of waves or currents, especially at the mouth of a river or estuary, or at a slight distance offshore from the beach.
barchan dune - A crescent-shaped dune with tips extending leeward (downwind), making this side concave and the windward (upwind) side convex. Barchan dunes tend to be arranged in chains extending in the dominant wind direction. Compare - parabolic dune.
base slope - A geomorphic component of hills consisting of the concave to linear slope (perpendicular to the contour) which, regardless of the lateral shape is an area that forms an apron or wedge at the bottom of a hillside dominated by colluvial and slope wash processes and sediments (e.g., colluvium and slope alluvium). Distal base slope sediments commonly grade to, or interfinger with, alluvial fills, or gradually thin to form pedisediment over residuum. Compare - head slope, side slope, nose slope, interfluve, free face.
basin - (a) Drainage basin; (b) A low area in the Earth's crust, of tectonic origin, in which sediments have accumulated. (c) (colloquial: western US) A general term for the nearly level to gently sloping, bottom surface of an intermontane basin (bolson). Landforms include playas, broad alluvial flats containing ephemeral drainageways, and relict alluvial and lacustrine surfaces that rarely, if ever, are subject to flooding. Where through-drainage systems are well developed, flood plains are dominant and lake plains are absent or of limited extent. Basin floors grade mountainward to distal parts of piedmont slopes.
basin floor - A general term for the nearly level, lower-most part of intermontane basins (i.e. bolsons, semi-bolsons). The floor includes all of the alluvial, eolian, and erosional landforms below the piedmont slope. Compare - basin, piedmont slope.
basin-floor remnant - (colloquial: western US) A flat erosional remnant of any former landform of a basin floor that has been dissected following the incision of an axial stream.
bench - (not preferred) refer to structural bench.
beveled base - The lower portion of a canyon wall or escarpment marked by a sharp reduction in slope gradient from the precipitous cliff above, and characteristically composed of thinly mantled colluvium (e.g. < 1 m) and / or carapaced with a thin surficial mantle of large rock fragments from above, which overly residuum of less resistant rock (e.g., shale) whose thin strata intermittently outcrop at the surface; a zone of erosion and transport common in the canyonlands of the semi-arid, southwestern US. Compare - talus slope.
blowout - A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand, loose soil, or where protective vegetation is disturbed or destroyed; the adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Commonly small, some blowouts may be large (kilometers in diameter). Compare - deflation basin.
bluff - (a) A high bank or bold headland, with a broad, precipitous, sometimes rounded cliff face overlooking a plain or body of water, especially on the outside of a stream meander; ex. a river bluff. (b) (not preferred) use cliff. Any cliff with a steep, broad face.
bolson - (colloquial: western US.) A landscape term for an internally drained (closed) intermontane basin into which drainages from surrounding mountains converge inward toward a central depression. Bolsons are often tectonically depressed areas and, according to Peterson, include alluvial flat, alluvial plain, beach plain, barrier beach, lake plain, sand sheets, dunes, and playa. The piedmont slope includes slopes of erosional origin adjoining the mountain front (pediments) and complex construction surfaces (fans). A semi-bolson is an externally drained (open) bolson. Synonym - intermontane basin.
borrow pit - An excavated area from which earthy material has been removed typically for construction purposes offsite; also called barrow pit.
bottomland - (not recommended) use flood plain. An obsolete, informal term loosely applied to varying portions of a flood plain.
box canyon - a) A narrow gorge or canyon containing an intermittent stream following a zigzag course, characterized by high, steep rock walls and typically closed upstream by a similar wall, giving the impression, as viewed from its bottom, of being surrounded or “boxed in” by almost vertical walls. b) A steep-walled canyon heading against a cliff a dead-end canyon.
braided stream - A channel or stream with multiple channels that interweave as a result of repeated bifurcation and convergence of flow around inter-channel bars, resembling (in plain view) the strands of a complex braid. Braiding is generally confined to broad, shallow streams of low sinuosity, high bedload, non-cohesive bank material, and a

steep gradient. At bank-full discharge, braided streams have steeper slopes and shallower, broader, and less stable channel cross sections than meandering streams. Compare - meandering channel, flood-plain landforms.
break - (slopes) An abrupt change or inflection in a slope or profile. Compare - knickpoint, shoulder, escarpment. (geomorphology) A marked variation of topography, or a tract of land distinct from adjacent land, or an irregular or rough piece of ground. Compare - breaks.
breaks - (colloquial: western US) A landscape or large tract of steep, rough or broken land dissected by ravines and gullies and marks a sudden change in topography as from an elevated plain to lower hilly terrain, or a line of irregular cliffs at the edge of a mesa or a river (e.g., the Missouri River breaks).
butte - An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments, commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks. Compare - mesa, plateau, cuesta.
caldera - A large, more or less circular depression, formed by explosion and/or collapse, which surrounds a volcanic vent or vents, and whose diameter is many times greater than that of the included vent, or vents. Compare - crater.
canyon - A long, deep, narrow, very steep-sided valley cut primarily in bedrock with high and precipitous walls in an area of high local relief (e.g., mountain or high plateau terrain), often with a perennial stream at the bottom; similar to but larger than a gorge. Compare - gorge, box canyon, slot canyon.
canyon bench - One of a series of relatively narrow, flat landforms occurring along a canyon wall and caused by differential erosion of alternating strong and weak horizontal strata; a type of structural bench.
canyonlands - A deeply and extensively dissected landscape composed predominantly of relatively narrow, steep-walled valleys with small flood plains or valley floors; commonly with considerable outcrops of hard bedrock on steep slopes, ledges, or cliffs, and with broader summits or interfluves than found in badlands. Sideslopes exhibit extensive erosion, active back-wearing, and relatively sparse vegetation.
channel - (a) The hollow bed where a natural body of surface water flows or may flow. The deepest or central part of the bed of a stream, containing the main current and occupied more or less continuously by water. (b) (colloquial: western US.) The bed of a single or braided watercourse that commonly is barren of vegetation and is formed of modern alluvium. Channels may be enclosed by banks or splayed across and slightly mounded above a fan surface and include bars and mounds of cobbles and stones. (c) Small, trough-like, arcuate or sinuous channels separated by small bars or ridges, caused by fluvial processes; common to flood plains and young alluvial terraces; a constituent part of **bar and channel** topography.
cinder cone - A conical hill formed by the accumulation of cinders and other pyroclastics, normally basaltic or andesitic composition. Slopes generally exceed 20 percent.
cliff - Any high, very steep to perpendicular or overhanging face of rock or earth; a precipice. Compare - bluff.
climbing dune - A dune formed by the piling-up of sand by wind against a cliff or mountain slope; very common in arid regions with substantial local relief and strong winds. Compare - sand ramp.
closed depression - A generic name for an enclosed area that has no surface drainage outlet and from which water escapes only by evaporation or subsurface drainage; an area of low ground indicated on a topographic map by a hachured contour line forming a closed loop. Compare - open basin.
collapse sinkhole - A type of sinkhole that is formed by collapse of a cave within the underlying soluble bedrock (e.g., limestone, gypsum, salt). Compare - solution sinkhole.
colluvium - Unconsolidated, unsorted material being transported or deposited on sideslopes and/or at the base of slopes by mass movement (e.g. direct gravitational action) and by local, unconcentrated runoff. Compare - alluvium, slope alluvium, scree, talus, mass movement.
complex landslide - A category of mass movement processes, associated sediments (complex landslide deposit) or resultant landforms characterized by a composite of several mass movement processes none of which dominates or leaves a prevailing landform. Numerous types of complex landslides can be specified by naming the constituent processes evident (e.g. a complex earth spread - earth flow landslide). Compare - fall, topple, slide, lateral spread, flow, landslide.
crest - (a) The commonly linear, narrow top of a ridge, hill, or mountain. It is appropriately applied to elevated areas where retreating backslopes are converging such that these high areas are almost exclusively composed of convex shoulders; (b) (not preferred) Sometimes used as an alternative for the hillslope component **summit**. Compare - summit (**part b**), saddle.
cuesta - An asymmetric, homoclinal ridge capped by resistant rock layers of slight to moderate dip (commonly less than 15 percent); produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope), that roughly parallels the inclined beds, and on the other side has a relatively

short and steep or cliff-like slope (scarp) that cuts through the tilted rocks. Compare - hogback, mesa, dipslope, scarp slope, cuesta valley.

cuesta valley - A low relief, low angle, asymmetrical depression which lies parallel to the strike of underlying strata; a type of strike valley. It's formed by the differential erosion of weaker strata interbedded with more resistant bedrock. It may or may not contain a local drainage network and commonly lies above and is not connected to the regional drainage system. Compare - cuesta, valley, trough, hanging valley.

debris fall - The process, associated sediments (debris fall deposit) or resultant landform characterized by a rapid type of **fall** involving the relatively free, downslope movement or collapse of detached, unconsolidated material which falls freely through the air (lacks an underlying slip face); sediments have substantial proportions of both fine earth and coarse fragments; common along undercut stream banks. Compare - rock fall, soil fall, landslide.

debris flow - The process, associated sediments (debris flow deposit) or landform resulting from a very rapid type of **flow** dominated by a sudden downslope movement of a mass of rock, soil, and mud (more than 50% of the particles are > 2mm), and whether saturated or comparatively dry, behaves much as a viscous fluid when moving. Compare - lahar, mudflow, landslide.

deflation basin - A topographic basin excavated and maintained by wind erosion which removes unconsolidated material and commonly leaves a rim of resistant material surrounding the depression. Unlike a blowout, a deflation basin does not include adjacent deposits derived from the basin. Compare - blowout.

depression - Any relatively sunken part of the Earth's surface; especially a low-lying area surrounded by higher ground. A closed depression has no natural outlet for surface drainage (e.g. a sinkhole). An open depression has a natural outlet for surface drainage. Compare - closed depression, open depression.

desert pavement - A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments, mantling a desert surface. It is formed where wind action and sheetwash have removed all smaller particles or where coarse fragments have migrated upward through sediments to the surface. It usually protects the underlying, finer-grained material from further deflation. The coarse fragments commonly are cemented by mineral matter. Compare - erosion pavement, stone line.

dike - A tabular igneous intrusion that cuts across the bedding or foliation of the country rock. Compare – sill.

dip - A geomorphic component (characteristic piece) of flat plains (e.g., lake plain, low coastal plain, low-relief till plain) consisting of a shallow and typically closed depression that tends to be an area of focused groundwater recharge but not a permanent water body and that lies slightly lower and is wetter than the adjacent talf, and favors the accumulation of fine sediments and organic materials.

ditch - An open and usually unpaved (unlined), channel or trench excavated to convey water for drainage (removal) or irrigation (addition) to or from a landscape; smaller than a canal; some ditches are modified natural waterways.

divide - (a) The line of separation; (b) The summit area, or narrow tract of higher ground that constitutes the watershed boundary between two adjacent drainage basins; it divides the surface waters that flow naturally in one direction from those that flow in the opposite direction. Compare – interfluve.

dome - (a) An uplift or anticlinal structure, either circular or elliptical in outline, in which the rocks dip gently away in all directions. A dome may be small (e.g. a salt dome) or many kilometers in diameter. (b) A smoothly rounded landform of rock mass such as a rock-capped mountain summit, that roughly resembles the dome of a building. (e.g. the rounded granite peaks of Yosemite, CA).

drainageway - (a) A general term for a course or channel along which water moves in draining an area. (b) a term restricted to relatively small, roughly linear or arcuate depressions that move concentrated water at some time, and either lack a defined channel (e.g. head slope, swale) or have a small, defined channel (e.g. low order streams).

draw - A small, natural watercourse cut in unconsolidated materials, generally more open with a broader floor and more gently sloping sides than an arroyo, ravine or gulch, and whose present stream channel may appear inadequate to have cut the drainageway that it occupies.

dune - A low mound, ridge, bank or hill of loose, windblown, subaerially deposited granular material (generally sand), either barren and capable of movement from place to place, or covered and stabilized with vegetation, but retaining its characteristic shape. (See barchan dune, parabolic dune, parna dune, shrub-coppice dune, seif dune, transverse dune).

dune field - An assemblage of moving and/or stabilized dunes, together with sand plains, interdune areas, and the ponds, lakes, or swamps produced by the blocking of steams by the sand. See dune lake.

earthflow - The process, associated sediments (earthflow deposit) or resultant landforms characterized by slow to rapid types of flow dominated by downslope movement of soil, rock, and mud (more than 50% of the particles are < 2 mm), and whether saturated or comparatively dry, behaves as a viscous fluid when moving. Compare - debris flow (coarser, less fluid), mudflow (finer, more fluid).

eolian deposit - Sand, silt or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess. Conventionally, primary volcanic deposits (e.g. tephra) are handled separately. Compare - loess, parna, beach sands.
eolian sands - Sand-sized, clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sand sheet. Compare - beach sands.
ephemeral stream - Generally a small stream, or upper reach of a stream, that flows only in direct response to precipitation. It receives no protracted water supply from melting snow or other sources and its channel is above the water table at all times. Compare - arroyo, intermittent stream, perennial stream.
eroded fan remnant - All, or a portion of an alluvial fan that is much more extensively eroded and dissected than a fan remnant; sometimes called an **erosional fan remnant**. It consists primarily of a) eroded and highly dissected sides (**eroded fan-remnant sideslopes**) dominated by hillslope positions (shoulder, backslope, etc.), and b) to a lesser extent an intact, relatively planar, relict alluvial fan "summit" area best described as a tread.
eroded fan-remnant sideslope - A rough or broken margin of an **eroded fan remnant** highly dissected by ravines and gullies that can be just a fringe or make up a large part of an eroded alluvial fan; its bounding escarpments (risers), originally formed by inset channels, have become highly dissected and irregular such that terrace components (tread and riser) have been consumed or modified and replaced by hillslope positions and components (shoulder, backslope, footslope, etc.); sometimes referred to as **fan remnant sideslopes**. Compare - eroded fan remnant.
escarpment - A continuous, steep slope or cliff produced by erosion or faulting and that topographically interrupts or breaks the general continuity of more gently sloping land surfaces . The term is most commonly applied to cliffs produced by differential erosion. Synonym = scarp.
falling dune - An accumulation of sand that is formed as sand is blown off a mesa top or over a cliff face or steep slope, forming a solid wall, sloping at the angle of repose of dry sand, or a fan extending downward from a re-entrant in the mesa wall. Compare - climbing dune, sand ramp.
fan - (a) A gently sloping, fan-shaped mass of detritus forming a section of a low-angle cone commonly at a place where there is a notable decrease in gradient; specifically an alluvial fan (not preferred – use alluvial fan). Compare - alluvial fan, alluvial cone. (b) A fan-shaped mass of congealed lava that formed on a steep slope by the continually changing direction of flow.
fan apron - A sheet-like mantle of relatively young alluvium and soils covering part of an older fan piedmont (and occasionally alluvial fan) surface, commonly thicker and further down slope (e.g., mid-fan or mid-fan piedmont) than a fan collar. It somewhere buries an older soil that can be traced to the edge of the fan apron where the older soil emerges as the land surface, or relict soil. No buried soils should occur within a fan-apron mantle itself. Compare - fan collar.
fan collar - A landform comprised of a thin, short, relatively young mantle of alluvium along the very upper margin (near the proximal end or apex) of a major alluvial fan. The young mantle somewhere buries an older soil that can be traced to the edge of the collar where the older soil emerges at the land surface as a relict soil. Compare - fan apron.
fan remnant - A general term for landforms that are the remaining parts of older fan-landforms, such as alluvial fans, fan aprons, inset fans, and fan skirts, that either have been dissected (erosional fan-remnants) or partially buried (nonburied fan-remnants). An erosional fan remnant must have a relatively flat summit that is a relict fan-surface. A nonburied fan-remnant is a relict surface in its entirety. Compare - eroded fan remnant, ballena.
fan skirt - The zone of smooth, laterally-coalescing, small alluvial fans that issue from gullies cut into the fan piedmont of a basin or that are coalescing extensions of the inset fans of the fan piedmont, and that merge with the basin floor at their toeslopes. These are generally younger fans which onlap older fan surfaces.
fault-line scarp - (a) A steep slope or cliff formed by differential erosion along a fault line, as by the more rapid erosion of soft rock on the side of a fault as compared to that of more resistant rock on the other side; e.g. the east face of the Sierra Nevada in California. (b) (not recommended) A fault scarp that has been modified by erosion. This usage is not recommended because the scarp is usually not located on the fault line.
fen - Waterlogged, spongy ground containing alkaline decaying vegetation, characterized by reeds, that develops into peat. It sometimes occurs in sinkholes of karst regions. Compare - bog, marsh, swamp.
finger ridge - One in a group of small, tertiary spur ridges that form crudely palmate extensions of erosional remnants along the flanks or nose of larger ridges. Compare - ballena, rib.
flat - (a) (adjective) Said of an area characterized by a continuous surface or stretch of land that is smooth, even, or horizontal, or nearly so, and that lacks any significant curvature, slope, elevations, or depressions. (b) (noun) An informal, generic term for a level or nearly level surface or small area of land marked by little or no local relief.

Compare - mud flat. (c) (not recommended) A nearly level region that visibly displays less relief than its surroundings.
floodplain - The nearly level plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is usually a constructional landform built of sediment deposited during overflow and lateral migration of the streams.
foothills - A steeply sloping upland composed of hills with relief of 30 up to 300 meters and fringes a mountain range or high-plateau escarpment. Compare - hill, mountain, plateau. SW &
footslope - The hillslope profile position that forms the concave surface at the base of a hillslope. It is a transition zone between upslope sites of erosion and transport (shoulder, backslope) and downslope sites of deposition (toeslope). Compare - summit, shoulder, backslope, and toeslope.
free face - A geomorphic component of hills and mountains consisting of an outcrop of bare rock that sheds rock fragments and other sediments to, and commonly stands more steeply than the angle of repose of, the colluvial slope immediately below; most commonly found on shoulder and backslope positions, and can comprise part or all of a nose slope or side slope. Compare - interfluve, crest, nose slope, side slope, head slope, base slope.
gorge - (a) A narrow, deep valley with nearly vertical, rocky walls, smaller than a canyon, and more steep-sided than a ravine; especially a restricted, steep-walled part of a canyon. (b) A narrow defile or passage between hills or mountains.
graben - An elongate trough or basin bounded on both sides by high-angle, normal faults that dip towards the interior of the trough. It is a structural form that may or may not be geomorphically expressed as a rift valley. Compare - horst.
gravel pit - A depression, ditch or pit excavated to furnish gravel for roads or other construction purposes; a type of borrow pit.
ground soil - Any soil at the present-day land surface and actively undergoing pedogenesis,
gulch - (colloquial: western US.; not preferred - refer to ravine) A small stream channel, narrow and steep-sided in cross section, and larger than a gully, cut in unconsolidated materials. General synonym - ravine. Compare - arroyo, draw, gully, wash.
gully - A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water usually during and immediately following heavy rains or ice / snow melt. A gully generally is an obstacle to wheeled vehicles and too deep (e.g., > 0.5 m) to be obliterated by ordinary tillage; (a rill is of lesser depth and can be smoothed over by ordinary tillage). Compare - rill, ravine, arroyo, swale, draw.
hanging valley - A tributary valley whose floor at the lower end is notably higher than the floor of the main valley in the area of junction.
head slope - A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway, resulting in converging overland water flow (e.g. sheet wash); head slopes are dominated by colluvium and slope wash sediments (e.g., slope alluvium); contour lines form concave curves. Slope complexity (downslope shape) can range from simple to complex. Headslopes are comparatively moister portions of hillslopes and tend to accumulate sediments (e.g., cummulic profiles) where they are not directly contributing materials to channel flow. Compare - side slope, nose slope, free face, interfluve, crest, base slope.
headwall - A steep slope at the head of a valley; e.g. the rock cliff at the back of a cirque. Compare - cirque headwall.
high hill - A generic name for an elevated, generally rounded land surface with high local relief, rising between 90 meters (approx. 300 ft.) to as much as 300 m (approx. 1000 ft.) above surrounding lowlands. Compare - low hill, hill, hillock.
hill - A generic term for an elevated area of the land surface, rising at least 30 m (100 ft.) to as much as 300 meters (approx. 1000 ft.) above surrounding lowlands, usually with a nominal summit area relative to bounding slopes, a well-defined, rounded outline and slopes that generally exceed 15 percent. A hill can occur as a single, isolated mass or in a group. A hill can be further specified based on the magnitude of local relief: **low hill** (30 - 90 m) or **high hill** (90 - 300 m). Informal distinctions between a hill and a mountain are often arbitrary and dependent on local convention. Compare - hillock, plateau, mountain, foothills, hills.
hillock - A generic name for a small, low hill, generally between 3 - 30 m in height and slopes between 5 and 50% (e.g., bigger than a mound but smaller than a hill); commonly considered a microfeature. Compare - mound, hill.
hillslope - A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of the hill. Compare - mountain slope.
hogback - A sharp-crested, symmetric (homoclinal) ridge formed by highly tilted resistant rock layers; produced by differential erosion of interlayered resistant and weak rocks with dips greater than about 25 degrees (45 percent). Compare - cuesta.

hoodoo - A bizarrely shaped column, pinnacle, or pillar of rock produced by differential weathering or erosion in a region of sporadically heavy rainfall. Formation is facilitated by joints and layers of varying hardness. Compare - earth pillar.
horst - An elongate block that is bounded on both sides by normal faults that dip away from the interior of the horst. It is a structural form and may or may not be expressed geomorphically.
hummock - (a) (not preferred - see hillock). An imprecise, general term for a rounded or conical mound or other small elevation. (b) (not preferred) A slight rise of ground above a level surface.
impact crater - a) A generally circular or elliptical depression formed by hypervelocity impact of an experimental projectile or ordinance into earthy or rock material. Compare - caldera, crater, meteorite crater. SW; b) (not recommended - use meteorite crater) A generally circular crater formed by the impact of an interplanetary body (projectile) on a planetary surface.
inset fan - (colloquial; western US) The flood plain of an ephemeral stream that is confined between fan remnants, ballenas, basin-floor remnants, or closely-opposed fan toeslopes of a basin.
interdune - The relatively flat surface, whether sand-free or sand-covered, between dunes. GG
interfluve - A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways. Compare - divide.
intermittent stream - A stream, or reach of a stream, that does not flow year-round (commonly dry for 3 or more months out of 12) and whose channel is generally below the local water table; it flows only when it receives a) base flow (i.e. solely during wet periods), or b) ground-water discharge or protracted contributions from melting snow or other erratic surface and shallow subsurface sources. Compare - ephemeral stream.
island - (a) Land completely surrounded by water; (b) An elevated area of land surrounded by swamp, or marsh, or isolated at high water or during floods. Compare - barrier island.
knob - (a) A rounded eminence, a small hill or mountain; especially a prominent or isolated hill with steep sides, commonly found in the Southern United States. (b) A peak or other projection from the top of a hill or mountain. Also, a boulder or group of boulders or an area of resistant rocks protruding from the side of a hill or mountain. Compare - stack.
knoll - A small, low, rounded hill rising above adjacent landforms.
lake - An inland body of permanent standing water, fresh or saline, occupying a depression, generally of appreciable size (larger than a pond) and too deep to permit vegetation (excluding subaqueous vegetation) to take not completely across the expanse of water.
lakebed - (a) The flat to gently undulating ground underlain or composed of fine-grained sediments deposited in a former lake. (b) The bottom of a lake; a lake basin.
lakeshore - The narrow strip of land in contact with or bordering a lake; especially a beach.
landslide - A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials, caused by gravitational forces and which may or may not involve saturated materials. Names of landslide types generally reflect the dominant process and/or the resultant landform. The main operational categories of mass movement are **fall** (rockfall, soil fall, topple), **slide** (rotational landslide, block glide, debris slide, lateral spread), **flow** [rock fragment flow (especially rockfall avalanche), debris avalanche, debris flow (e.g., lahar), earthflow, (creep, mudflow)], and **complex landslides**. Compare - solifluction.
ledge - (a) A narrow shelf or projection of rock, much longer than wide, formed on a rock wall or cliff face, as along a coast by differential wave action on softer rocks; erosion is by combined biological and chemical weathering. (b) A rocky outcrop; solid rock. (c) A shelf-like quarry exposure or natural rock outcrop. Compare - structural bench.
levee - An artificial or natural embankment built along the margin of a watercourse or an arm of the sea, to protect land from inundation or to confine streamflow to its channel. Compare artificial levee, natural levee.
longitudinal dune - A long, narrow sand dune, usually symmetrical in cross profile, oriented parallel to the prevailing wind direction ; it is wider and steeper on the windward side but tapers to a point on the lee side. It commonly forms behind an obstacle in an area where sand is abundant and the wind is strong and constant. Such dunes can be a few meters high and up to 100 km long. Compare - seif dune, transverse dune.
low hill - A generic name for an elevated, generally rounded land surface with low local relief, rising between 30 meters (100 ft.) to as much as 90 m (approx. 300 ft.) above surrounding lowlands. Compare - high hill, hill, hillock.
lowland - (a) A generic, imprecise term for low-lying land or an extensive region of low-lying land, especially near a coast and including the extended plains or country lying not far above tide level. (b) (not preferred) A generic, imprecise term for a landscape of low, comparatively level ground of a region or local area, in contrast with the

adjacent higher country. (c) (not recommended - use valley, bolson, etc.) A generic term for a large valley. Compare - upland.
marsh - Periodically wet or continually flooded areas with the surface not deeply submerged. Covered dominantly with sedges, cattails, rushes, or other hydrophytic plants. Compare - salt marsh, swamp, bog, fen.
meander belt - The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops. Landform components of the meander-belt surface are produced by a combination of gradual (lateral and down-valley) migration of meander loops and avulsive channel shifts causing abrupt cut-offs of loop segments. Landforms flanking the sinuous stream channel include: point bars, abandoned meanders, meander scrolls, oxbow lakes, natural levees, and flood-plain splays. Meander belts may not exhibit prominent natural levee or splay forms. Flood plains of broad valleys may contain one or more abandoned meander belts in addition to the zone flanking the active stream channel.
meander scar - (a) A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream which impinged upon and undercut the bluff; if it's no longer adjacent to the modern stream channel it indicates an abandoned route of the stream; (b) (not recommended - refer to oxbow) An abandoned meander, commonly filled in by deposition and vegetation, but still discernable.
meander scroll - (a) One of a series of long, parallel, close fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank. Compare - meander belt, point bar. (b) (not recommended; refer to oxbow lake) - A small, elongate lake on a flood plain in a well-defined part of an abandoned stream channel.
mesa - A broad, nearly flat-topped, and usually isolated landmass bounded by steep slopes or precipitous cliff and capped by layers of resistant, nearly horizontal, rocky summit width greater than the height of bounding escarpments. (Colloquial: western US; not preferred) Also used to designate broad structural benches and alluvial terraces that occupy intermediate levels in stepped sequences of platforms bordering canyons and valleys. Compare - butte, plateau, cuesta.
monocline - (a) A unit of folded strata that dips from the horizontal in one direction only, is not part of an anticline or syncline, and occurs at the earth's surface.. This structure is typically present in plateau areas where nearly flat strata locally assume steep dips caused by differential vertical movements without faulting. Compare - anticline, syncline, fold. (b) - A local steepening in an otherwise uniform gentle dip.
mountain - A generic term for an elevated area of the land surface, rising more than 300 meters above surrounding lowlands, usually with a nominal summit area relative to bounding slopes and generally with steep sides (greater than 25 percent slope) with or without considerable bare-rock exposed. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are primarily formed by tectonic activity and/or volcanic action and secondarily by differential erosion. Compare - hill, hillock, plateau, foothills, mountains.
natural levee - A long, broad low ridge or embankment of sand and coarse silt, built by a stream on its flood plain and along both sides of its channel, especially in time of flood when water overflowing the normal banks is forced to deposit the coarsest part of its load. It has a gentle slope away from the river and toward the surrounding floodplain, and its highest elevation is closest to the river bank. Compare - levee, artificial levee, meander belt.
open depression - A generic name for any enclosed or low area that has a surface drainage outlet whereby surface water can leave the enclosure; an area of lower ground indicated on a topographic map by contour lines forming an incomplete loop or basin indicating at least one surface exit. Compare - closed basin.
overbank deposit - Fine-grained sediments (silt and clay) deposited from suspension on a flood plain by floodwaters that cannot be contained within the stream channel.
overflow stream channel - A watercourse that is generally dry but conducts flood waters that have overflowed the banks of a river, commonly from large storms or annual meltwater.
oxbow - A closely looping stream meander having an extreme curvature such that only a neck of land is left between the two parts of the stream. (colloquial: northeastern A.) the land enclosed, or partly enclosed, within an oxbow. Compare - meander belt, oxbow lake, bayou.
oxbow lake - The crescent-shaped, often ephemeral body of standing water situated by the side of a stream in the abandoned channel (oxbow) of a meander after the stream formed a neck cutoff and the ends of the original bend were silted up. Compare - meander belt, oxbow.
parabolic dune - A sand dune with a long, scoop-shaped form, convex in the downwind direction so that its horns point upwind, whose ground plan, when perfectly developed, approximates the form of a parabola.
peak - Sharp or rugged upward extension of a ridge chain, usually at the junction of two or more ridges; the prominent highest point of a summit area.
pediment - A gently sloping erosional surface at the foot of a receding hill or mountain slope. The surface may be essentially bare, exposing earth material that extends beneath adjacent uplands; or it may be thinly mantled with

alluvium and colluvium, ultimately in transit from upland front to basin or valley lowland. In hill-foot slope terrain the mantle is designated “pedisediment.” The term has been used in several geomorphic contexts: Pediments may be classed with respect to (a) landscape positions, for example, intermontane-basin piedmont or valley-border footslope surfaces (respectively, apron and terrace pediments); (b) type of material eroded, bedrock or regolith; or (c) combinations of the above. Compare - Piedmont slope.

perennial stream - A stream or reach of a stream that flows continuously throughout the year and whose surface is generally lower than the water table adjacent to the region adjoining the stream. Compare - Ephemeral stream, Intermittent stream.

piedmont - (adjective) Lying or formed at the base of a mountain or mountain range; e.g., a piedmont terrace or a piedmont pediment. (noun) An area, plain, slope, glacier, or other feature at the base of a mountain; e.g., a foothill or a bajada. In the United States, the Piedmont is a low plateau extending from New Jersey to Alabama and lying east of the Appalachian Mountains.

piedmont slope - (colloquial - western US) The dominant gentle slope at the foot of a mountain; generally used in terms of intermontane-basin terrain in arid to subhumid regions. Main components include: (a) An erosional surface on bedrock adjacent to the receding mountain front (pediment, rock pediment); (b) A constructional surface comprising individual alluvial fans and interfan valleys, also near the mountain front; and (c) A distal complex of coalescent fans (bajada), and alluvial slopes without fan form. Piedmont slopes grade to basin-floor depressions with alluvial and temporary lake plains or to surfaces associated with through drainage (e.g., axial streams). Compare - bolson, fan piedmont.

plain - A general term referring to any flat, lowland area, large or small, at a low elevation. Specifically, any extensive region of comparatively smooth and level gently undulating land. A plain has few or no prominent hills or valleys but sometimes has considerable slope, and usually occurs at low elevation relative to surrounding areas. Where dissected, remnants of a plain can form the local uplands. A plain may be forested or bare of trees and may be formed by deposition or erosion. Compare - lowland, plateau.

plateau - A comparatively flat area of great extent and elevation; specifically an extensive land region considerably elevated (more than 100 meters) above adjacent lower-lying terrain, and is commonly limited on at least one side by an abrupt descent, has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level. Compare - hill, foothill, mountain, mesa, plain.

playa - The usually dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those occurring on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation-runoff events. Playa deposits are fine grained and may or may not have high water table and saline conditions.

point bar - One of a series of low, arcuate ridges of sand and gravel developed on the inside of a growing meander by the slow addition of individual accretions accompanying migration of the channel toward the outer bank. Compare - meander scroll.

pond - (a) A natural body of standing fresh water occupying a small surface depression, usually smaller than a lake and larger than a pool. (b) A small artificial body of water, used as a source of water. Compare - salt pond.

pool - A small, natural body of standing water, usually fresh; e.g. a stagnant body of water in a marsh, or a transient puddle in a depression following a rain.

quarry - Excavation areas, open to the sky, usually for the extraction of stone.

ravine - A small stream channel; narrow, steep-sided, commonly V-shaped in cross section and larger than a gully, cut in unconsolidated materials. General synonym (not preferred) - gulch. Compare - arroyo, draw, gully.

reef - (a) A ridge-like or mound-like structure, layered or massive, built by sedentary calcareous organisms, especially corals, and consisting mostly of their remains; it is wave-resistant and stands above the surrounding contemporaneously deposited sediment. Also, such a structure built in the geologic past and now enclosed in rock, commonly of differing lithology. (b) A mass or ridge of rocks, especially coral and sometimes sand, gravel, or shells, rising above the surrounding sea or lake bottom to or nearly to the surface, and dangerous to navigation; specifically such a feature at 10 fathoms (18.3 m) or less, formerly 6 fathoms (11 m).

ridge - A long, narrow elevation of the land, usually sharp crested with steep sides and forming an extended upland between valleys. The term is used in areas of both hill and mountain relief.

rill - A very small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water, usually during and immediately following moderate rains or after ice/snow melt. Generally, a rill is not an obstacle to wheeled vehicles and is shallow enough to be obliterated by ordinary tillage. Compare - gully.

rim - The border, margin, edge, or face of a landform, such as the curved brim surrounding the top part of a crater or caldera; specifically the rimrock of a plateau or canyon.

rise - (refer to lake plain) (a) A general term for a slight increase in slope and elevation of the land surface, usually with a broad summit and gently sloping sides. (b) same as (a) but the term is restricted to microfeatures in areas of very low relief such as lake plains or coastal plains.
river - (a) A general term for a natural, freshwater surface stream of considerable volume and generally with a permanent base flow, moving in a defined channel toward a larger river, lake, or sea. (b) (not recommended: colloquial - New England, US) A small watercourse which elsewhere in the US is known as a **creek**. Compare - stream.
river valley - an elongate depression of the Earth's surface; carved by a river during the course of it's development. Compare - valley side, valley floor.
rockfall - The process, associated sediments (rockfall deposit) or resultant landform characterized by a very rapid type of **fall** dominated by downslope movement of detached rock bodies which fall freely through the air or by leaps and bounds (lacks an underlying slip face); also spelled rock fall. Compare - debris fall, soil fall, landslide.
rock pediment - An erosion surface of low relief, cut directly into and across bedrock and composed of either bare rock or thinly veneered pedisediment or residuum (e.g. < 1.5 m) over bedrock; it occurs along the flanks of mountain fronts, or at the base of mountains or high hills. Its surface grades to the backwearing mountain slopes or hillslopes above, and generally grades down to and merges with a lower-lying alluvial plain, piedmont slope or valley floor below.
rotational slide - The process, associated sediments (rotational landslide deposit) or resultant landforms characterized by an extremely slow to moderately rapid type of slide, composed of comparatively dry and largely soil-rock materials, portions of which remain largely intact and in which movement occurs along a well-defined, concave shear surface and resulting in a backward rotation of the displaced mass. The landform may be single, successive (repeated up and down slope), or multiple (as the number of slide components increase). Compare - rotational debris slide, rotational earth slide, rotational rock slide, translational slide, lateral spread, landslide.
rubble - An accumulation of loose angular rock fragments, commonly overlying outcropping rock; the unconsolidated equivalent of a breccia. Compare - scree, talus.
saddle - A low point on a ridge or interfluve, generally a divide (pass, col) between the heads of streams flowing in opposite directions. Compare - summit, crest.
sandhills - A region of semi-stabilized sand dunes or sandy hills, either covered with vegetation or bare, as in north-central Nebraska and the midlands of the Carolinas.
sand plain - (a) A sand-covered plain which may originate by deflation of sand dunes, and who's lower limit of erosion is governed by the ground-water level. Also spelled **sandplain**. (b) (not preferred - refer to **sandy** outwash plain) A small outwash plain composed chiefly of sand deposited by meltwater streams flowing from a glacier.
sand ramp - A sand sheet blown up onto the lower slopes of a bedrock hill or mountain and forming an inclined plane, sometimes filling small mountain-side valleys and even crossing low passes. Compare - climbing dune, sand sheet.
sand sheet - A large, irregularly shaped, commonly thin, surficial mantle of eolian sand, lacking the discernible slip faces that are common on dunes.
scarp - An escarpment, cliff, or steep slope of some extent along the margin of a plateau, mesa, terrace, or structural bench. A scarp may be of any height. Compare - escarpment.
scarp slope - The relatively steeper face of a cuesta, facing in a direction opposite to the dip of the strata. Compare - dip slope.
scree - A collective term for an accumulation of coarse rock debris or a sheet of coarse debris mantling a slope. Scree is not a synonym of talus, as scree includes loose, coarse fragment material on slopes without cliffs. Compare - talus, colluvium, mass movement.
scree slope - A portion of a hillside or mountainslope mantled by scree and lacking an up-slope rockfall source (i.e. cliff). Compare - talus slope, scree, talus.
seep - (noun) An area, generally small, where water or oil percolates slowly to the land surface. For water, it may be considered as a seepage spring, but it is used by some for flows too small to be considered as springs.
shoulder - The hillslope profile position that forms the convex, erosional surface near the top of a hillslope. If present, it comprises the transition zone from summit to backslope. Compare - summit, crest, backslope, footslope, and toeslope.
shrub-coppice dune - A small, streamlined dune that forms around brush and clump vegetation.
side slope - A laterally planar area of a hillside, resulting in predominantly parallel overland water flow (e.g., sheet wash); contour lines generally form straight lines. Side slopes are dominated by colluvium and slope wash sediments. Slope complexity (downslope shape) can range from simple to complex. Compare - head slope, nose

slope, free face, interfluve, crest, base slope. The slope bounding a drainageway and lying between the drainageway and the adjacent interfluve. It is generally linear along the slope width.
slide - (a) Mass movement processes, associated sediments (slide deposit) or resultant landforms (e.g., rotational, translational, and snow slide) characterized by a failure of earth, snow, or rock under shear stress along one or several surfaces that are either visible or may reasonably be inferred. The moving mass may or may not be greatly deformed, and movement may be rotational (rotational slide) or planar (translational slide). A slide can result from lateral erosion, lateral pressure, weight of overlying material, accumulation of moisture, earthquakes, expansion owing to freeze-thaw of water in cracks, regional tilting, undermining, fire, and human agencies. Compare -fall, topple, lateral spread, flow, complex landslide. (b) The track of bare rock or furrowed earth left by a slide. (c) The mass of material moved by or deposited by a slide.
slip face - The steeply sloping surface of a dune, standing at or near the angle of repose of loose sand, and advancing downwind by a succession of slides wherever that angle is exceeded.
slope - (also called slope gradient or gradient) The inclination of the land surface from the horizontal. Percent slope is the vertical distance divided by the horizontal distance, then multiplied by 100.
slope alluvium - Sediment gradually transported down mountain or hill slopes primarily by non-channel alluvial processes (i.e., slope wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of coarse fragments and may be separated by stone lines. Sorting of pebbles or cobbles and burnished peds distinguish these materials from unsorted colluvial deposits. Compare - colluvium, slope wash.
slope wash - A collective term for non-fluvial, incipient alluvial **processes** (e.g. overland flow, minor rills) that detach, transport, and deposit sediments down hill and mountain slopes. Related sediments (**slope alluvium**) exhibit nominal sorting or rounding of particles, peds, etc., and lateral sorting downslope on long slopes; stratification is crude and intermittent and readily destroyed by pedoturbation and frost action. Also called **slope wash processes**. Compare - slope alluvium, colluvium, valley-side alluvium.
slot canyon - A long, narrow, deep and tortuous channel or drainageway with sheer rock walls eroded into sandstone or other sedimentary rocks, especially in the semi-arid western US (e.g. Colorado Plateau); subject to flash flood events; depth to width ratios exceed 10:1 over most of its length and can approach 100:1; commonly containing unique ecological communities distinct from the adjacent, drier uplands.
strath terrace - A type of stream terrace, formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).
stream - (a) A body of running water that moves under gravity to progressively lower levels, in a relatively narrow but clearly defined channel on the ground surface, in a subterranean cavern, or beneath or in a glacier. It is a mixture of water and dissolved, suspended, or entrained matter. (b) A term used in quantitative geomorphology interchangeably with channel. Compare - river.
stream terrace - One or a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream, and representing the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition (i.e., currently very rarely or never floods; inactive cut and fill and/or scour and fill processes). Erosional surfaces cut into bedrock and thinly mantled with stream deposits (alluvium) are called “strath terraces.” Remnants of constructional valley floors thickly mantled with alluvium are called alluvial terraces. Compare - alluvial terrace, flood-plain step, strath terrace, terrace.
strike valley - A subsequent valley eroded in, and developed parallel to the strike of, underlying weak strata; such as a cuesta; a valley that often, but not necessarily contains a strike valley.
structural bench - A platform-like, nearly level to gently inclined erosional surface developed on resistant strata in areas where valleys are cut in alternating strong and weak layers with an essentially horizontal attitude. Structural benches are bedrock controlled, and in contrast to stream terraces, have no geomorphic implication of former, partial erosion cycles and base-level controls, nor do they represent a stage of flood-plain development following an episode of valley trenching. Compare - pediment, ledge; see scarp.
summit - (a) The topographically highest position of a hillslope profile with a nearly level (planar or only slightly convex) surface. Compare - shoulder, backslope, footslope, and toeslope, crest. (b) A general term for the top, or highest area of a landform such as a hill, mountain, or tableland. It usually refers to a high interfluve area of relatively gentle slope that is flanked by steeper slopes, e.g., mountain fronts or tableland escarpments.
swale - (a) A shallow, open depression in unconsolidated materials which lacks a defined channel but can funnel overland or subsurface flow into a drainageway. Soils in swales tend to be more moist and thicker (cummulic) compared to surrounding soils. (b) A small, shallow, typically closed depression in an undulating ground moraine formed by uneven glacial deposition; Compare - swell-and-swale topography. (c) (not preferred; refer to interdune)

A long, narrow, generally shallow, trough-like depression between two beach ridges, and aligned roughly parallel to the coastline.

syncline - (a) A unit of folded strata that is concave upward whose core contains the stratigraphically younger rocks, and occurs at the earth's surface. In a single syncline, beds forming the opposing limbs of the fold dip toward its axial plane. Compare - monocline, syncline, fold. (b) A fold, at any depth, generally concave upward whose core contains the stratigraphically younger rocks.

tableland - A term for a broad upland with an extensive, nearly level or undulating summit area and steep side slopes descending to surrounding lowlands. Compare - plateau, mesa, cuesta.

talus - Rock fragments of any size or shape (usually coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of loose broken rock formed chiefly by falling, rolling, or sliding. Compare - talus slope, colluvium, mass movement, scree.

talus cone - A small, steep, cone-shaped landform at the base of a cliff or escarpment, that heads in a relatively small declivity or ravine, and composed of poorly sorted rock and soil debris that has accumulated primarily by episodic rockfall or, to a lesser degree, by slope wash. Not to be confused with an **alluvial cone**; a similar feature but of fluvial origin, composed of better stratified and more sorted material, and that tapers up into a more extensive drainageway. Compare - alluvial cone, beveled base, talus slope.

talus slope - a portion of a hillslope or mountainslope mantled by talus and lying below a rockfall source (e.g. cliff). Compare - scree slope, scree, talus. Compare - beveled base.

tank - (colloquial: southwestern US) A natural depression or cavity in impervious rocks in which water collects and remains for the greater part of the year.

terrace - A step-like surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, or lake or sea shore. The term is usually applied to both the relatively flat summit surface (tread), cut or built by stream or wave action, and the steeper slope (scarp, riser), descending to a lower base level. Compare - stream terrace, flood-plain step. Practically, terraces are considered to be generally flat alluvial areas above the 100 yr. flood stage.

terracettes - Small, irregular step-like forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock such as sheep or cattle. Synonyms (not preferred) - catstep, sheep or cattle track.

toeslope - The hillslope position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear, and are constructional surfaces forming the lower part of a hill-slope continuum that grades to valley or closed-depression floors. Compare - summit, shoulder, backslope, footslope, valley floor.

translational slide - A category of mass movement processes, associated sediments (translational slide deposit) or resultant landforms characterized by the extremely slow to moderately rapid downslope displacement of comparatively dry soil-rock material on a surface (slip face) that is roughly parallel to the general ground surface, in contrast to falls, topples, and rotational slides. The term includes such diverse **slide** types as translational debris slides, translational earth slide, translational rock slide, block glides, and slab or flake slides. Compare - rotational slide, slide, landslide.

transverse dune - A very asymmetric sand dune elongated perpendicular to the prevailing wind direction, having a gentle windward slope and a steep leeward slope standing at or near the angle of repose of sand; it generally forms in areas of sparse vegetation. Compare - longitudinal dune.

valley - An elongate, relatively large, externally drained depression of the Earth's surface that is primarily developed by stream erosion or glacial activity. Compare - basin.

valley floor - A general term for the nearly level to gently sloping, lowest surface of a valley. Landforms include axial stream channels, the flood plain, flood-plain steps, and, in some areas, low terrace surfaces. Compare - flood-plain landforms, meander, braided channel, valley side.

valley side - The sloping to very steep surfaces between the valley floor and summits of adjacent uplands. Well-defined, steep valley sides have been termed valley walls (not recommended). Note: Scale, relief, and perspective may require use of closely related terms such as hill slope or mountain slope.

wash (dry wash) - (colloquial: western US.) The broad, flat- floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium. Note: When channels reach intersect zones of ground-water discharge they are more properly classed as “intermittent stream” channels. Synonym - arroyo. Compare - gully.

zibar - A small, low-relief sand dune that lacks discernible slip faces and commonly occurs on sand sheets, in interdune areas, or in corridors between larger dunes. Zibar spacing can range from 50-400 m with local relief < 10 m. Unlike coppice dunes, zibars are unrelated to deposition around vegetation. Generally dominated by coarser sands. Compare - dune, coppice dune.

SOIL TEXTURE KEY

(Modified from Brewer and McCann 1982)

Soil primarily organic:

0a. Soil is black, is saturated with water, and often smells of rotten eggs ...……..**muck**
0b. Soil is dark brown, usually saturated, and consists of clearly identifiable plant parts …...**peat**

Soil primarily mineral:

1a. Soil does not remain in a ball when squeezed, leaves your fingers clean ..…….....**sand**
1b. Soil remains in a ball when squeezed ……..…….....2

Squeeze the ball between your thumb and forefinger, attempting to make a ribbon that you push up over your finger.

2a. Soil makes no ribbon but leaves your fingers dirty…..…...l**oamy sand**
2b. Soil makes at least a very short ribbon.....……...3

3a. Ribbon extends less than 1 inch before breaking ….…….....4
3b. Ribbon extends 1 inch or more before breaking ….……..…….....5

4a. Add excess water to small amount of soil. Soil feels slightly gritty……..…**loam**
4b. Soil fees very gritty…..……..…….**sandy loam**
4c. Soil feels smooth...…….…..... **silt loam**

5a. Soil makes a ribbon that breaks when 1-2 inches long; cracks if bent into a ring 6
5b. Soil makes a ribbon 2+ inches long; does not crack when bent into a ring ……..…7

6a. Add excess water to small amount of soil; soil feels slightly gritty…… **clay loam**
6b. Soil feels very gritty and slightly sticky.……..**sandy clay loam**
6c. Soil feels very smooth but not at all sticky….…….... **silt**
6d. Soil feels slightly gritty and slightly sticky…….……**silty clay loam**

7a. Add excess water to a small amount of soil; soil feels gritty..….……... **sandy clay**
7b. Soil feels smooth and sometimes sticky……..…….8

8a. Soil feels smooth but leaves a gritty taste in the mouth……..…**silty clay**
8b. Soil leaves a smooth taste in the mouth, not at all gritty……....**clay**

CONSIDERATIONS FOR PLANNING

Planning for the day:

1. Safety and sustenance: Plenty of food, water, first-aid kit, raingear, sunscreen.
2. Field communications:
    a. Develop a plan with other team(s) for radio check-in time.
    b. Do you have a radio and are batteries charged? If you have a walkie talkie, do you have extra batteries for it? Does park staff know the area in which you will be working?
3. Make sure you have the right maps and photos.
4. Check your GPS (Datum set to NAD83? WAAS on? Needs new batteries?).
5. Plan the day's mission before departing using a) USGS quads, b) aerial photos, c) BLM maps.
6. Considerations for mission planning:
    a. Plan travel based on topography, best access routes, density and complexity of vegetation (more time for forest and woodland plots, less for herbaceous and scrub).
    b. Plan data collection based on priority needs; new types get higher priority.
    c. Communicate with the other team(s) to make sure you aren't duplicating effort.

Planning for the Week (do this on the first day of the trip)

1. Do you have all appropriate maps, photos?
2. Develop a reasonable estimate of the number of plots for each team broken up by day and based on an estimate of individual team's travel logistics for the week.
3. Develop plan of attack for the week to capture all essential associations in the work area.
4. Balance points two and three above with the expected work schedule of the teams and ensure adequate time-off and reduce over-time concerns.
5. Do you have all necessary information and backups for the week's planning? e.g., blank field forms, film, plenty of batteries.

Wrapup (Do this on the last day of the trip, after you have returned to base)

1. Clean, recharge and repair equipment.
2. Hold brief meeting to discuss data collection issues, things that came up during the work week, and plan for next work hitch.
3. Edit field forms and file them systematically. File observation points separately.
4. Re-file the aerial photos and maps.
5. Download digital photographs.
6. Key unknown plants.
7. Enter edited data into database.

Communicate among teams / Topics for wrap-up meetings.

1. What were your questions about the polygons visited during the week?
2. Do you have any questions about the forms or fields?
3. What was accomplished, what was not accomplished?
4. Pass on developments and questions after every trip. Don't let them build up. For example, should we sample the new types we saw? Were there problems with interpreting the aerial photos, or are there personnel issues, problems in consistency in interpreting the forms, or with park-related logistics?

Materials Checklist

- Park research permit
- Topographic maps
- Park maps for general navigation
- Maps of BPU locations
- Geology map
- Aerial images or photographs
- DBH tape and 2 tape measure(s)
- Trowel or U-dig-it, soil water bottle
- Compass with adjustable declination
- Clinometer
- GPS receiver
- Plenty of AA batteries for GPS receiver and walkie talkie
- Radio or walkie talkie and/or cell phone or satellite phone
- Digital camera & SD cards (allow at least 3 exposures per plot plus general and scenic photographs)
- Baggies for temporary storage of unknown plants, and masking tape for labeling
- Plant press & paper
- Plant Keys / Flora(s)
- Pens / sharpies
- Forms: plot survey (both pages) and observation point
- Clipboard/forms holder
- Pens, pencils, pencil lead, slate board, chalk, and chalkboard eraser or supply of clean rags
- Stapler and extra staples
- Most recent version of provisional classification of the park, with the number of plots still needed per type (updated approx. every 2 weeks)
- All ancillary information (cheat sheet, species list, floras, sampling priority list for zone, main sampling protocol).
- First aid kit, personal gear (food, water, rain gear, etc.)

LANDFORM

alluvial fan
alluvial flat
alluvial plain
remnant
alluvial terrace
alluvium
artificial levee
backslope
badlands
bajada
ballena
ballon
basin
basin floor
bench
blowout
bluff
bolson
borrow pit
bottomland
box canyon
braided stream
break
butte
canyon
channel
cliff
climbing dune
closed depression
colluvium
crest
cuesta
debris flow
deflation basin
depression
desert pavement
dike
dip
ditch
divide
dome
drainageway
draw
dune
dune field
earthflow
eolian deposit
eolian sands
ephemeral stream
escarpment
falling dune
finger ridge
flat
flood plain
foothills
gorge
gravel pit
gulch
gully
hanging valley
hill
hillslope
hogback
hummock
interdune
interfluve
intermittent stream
island
knob
knoll
lakebed
lakeshore
landslide
ledge
levee
meander belt
mesa
mountain
natural levee
overflow channel
oxbow
pediment
perennial stream
plain
plateau
playa
point bar
pool
quarry
ravine
reef
ridge
rise
rim
rockfall
saddle
sand ramp
sand sheet
scarp
scree slope
shoulder
side slope
slope
slope alluvium
slope wash
slot canyon
stream terrace
summit
swale
talus slope
tank
terrace
terracettes
toeslope
valley
valley floor
valley side
wash (dry wash)
zibar

TOPOGRAPHIC POSITION

SEE THE DIAGRAM ON OTHER SIDE

VEGETATIVE STRATA

T1 = EMERGENT TREE
T2 = TREE CANOPY
T3 = TREE SUB-CANOPY.
S1 = TALL SHRUB, > 2M
S2 = SHORT SHRUB, < 2M
S3 = DWARF SHRUB. < 0.5M
H1 = GRAMINOID
H2 = FORB
H3 = FERN OR FERN ALLY
H4 = TREE SEEDLINGS
N = NONVASCULAR OTHER THAN FERNS
V = VINE/LIANA
E = EPIPHYTE

PARK SPECIALS (keep an eye out for)

Rare plants
Upland springs and seeps
Hanging Gardens
Invasive weeds (ignore cheatgrass, dandelions)

PHYSIOGNOMIC CLASS

Forest: Crowns touching
Woodland: Trees>10%, crowns not touching
Shrubland: Shrubs> grass, forbs or trees
Dwarf Shrubland: Shrubland <0.5 m tall
Shrub Herbaceous: Shrubs = Forbs/grasses
Herbaceous: Grass/forbs > trees or shrubs

SOIL TEXTURE

Sand: clean, no ball
Loamy sand: ball, no ribbon
Sandy loam: v. gritty weak ribbon
Silt loam: smooth weak ribbon
Loam: slightly gritty weak ribbon
Clay loam: long ribbon, no ring, slightly gritty
Sandy clay loam: long ribbon, no ring, very gritty
Silt: long ribbon, no ring, smooth
Silty clay loam: long ribbon, no ring, slightly gritty and sticky.
Clay: smooth ribbon/ring, edible
Sandy Clay; gritty ribbon & ring
Silty Clay: smooth ribbon/ring
Peat: still has plant parts
Muck: smelly black ooze

ASPECT

Flat
Azimuth (deg.)
Variable

SURFICIAL GEOLOGY

Obscured by soil
Aeolian sands
New Alluvium (Holocene)
Older Alluvium (pre Holocene)
Talus / Colluvium / Landslides
Fingers Formation
Estufa Canyon Formation
Delaho Formation
South Rim Formation
Chisos Formation
Canoe Formation
Hannald Hill Formation
Black Peaks Formation
Javelina Formation
Aquja Sandstone Formation
Pen Formation
Austin Chalk Formation
Boquillas Formation
Buda Limestone
Del Rio Clay
Salmon Peak Formation
McKnight Formation
Edwards Plateau Limestone
Santa Elena Limestone
Sue Peaks Formation
Del Carmen Limestone
Telephone Canyon Formation
Glen Rose Limestone
Late Paleozoic Sedimentary

DISTURBANCE

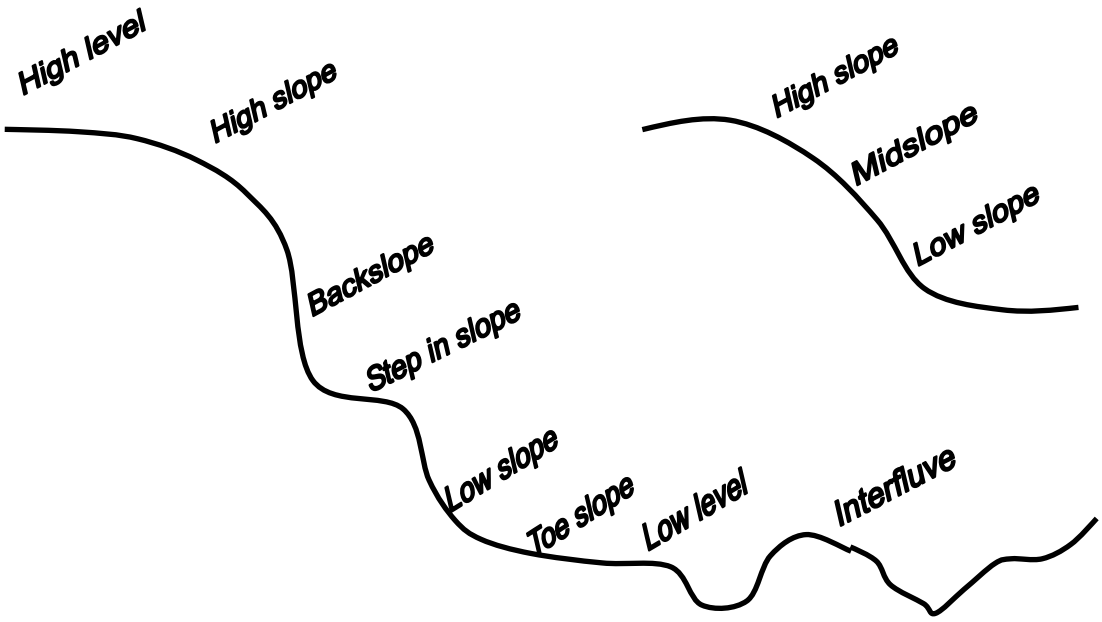
Water gullies
Mass wasting
Mountain pine beetle damage
Flash flooding
Grazing evidence
Development, historic structures
Agriculture
ORV use or Recreation
Wildlife concentration
Fire
Drought

PLOT SIZE

400m^2 (22.6m d): Forests, Woodlands, Shrublands
100m^2 (11.3m d): Dwarf-shrublands, Shrub-Herbaceous, Herbaceous
25m^2 (5.65m d): Non vascular

*You may adapt plot size and shape to fit the situation; but never choose a plot size **smaller** than listed here.

TOPOGRAPHIC POSITION - CHEAT SHEET



Appendix 3: List of Preliminary Plant Associations and Alliances at BIBE/RIGR

Based on existing data and literature for Big Bend National Park and its surrounding area **123** potential vegetation alliances and **192** potential plant associations were documented by Cogan Technology, Inc in 2010 (Tables 1-A – 1-C). These types likely occur within the park and represent unique vegetation assemblages that could be sampled during subsequent field work. Vegetation alliances and plant associations listed in Table 1 and having an element code (A. or CEGL, respectively) have been previously classified and described on the NatureServe Explorer Web site (www.natureserve.org/explorer/servlet/NatureServe?init=Ecol).

The list of plant communities presented herein is alphabetized and separated by physiognomic or structural types to be easily and efficiently accessed by field crews. **Table 1A** includes the forest and woodland types which number 34 vegetation alliances and 63 plant associations; **Table 1B** includes the shrubland, dwarf-shrubland, and shrub herbaceous types which number 42 vegetation alliances and 80 plant associations; and **Table 1C** includes the herbaceous and sparse types which number 47 vegetation alliances and 49 plant associations.

Three important uses of this preliminary BIBE/RIGR classification include: 1) Documenting the vegetation through new plot and observation point collection and periodically tallying these new data against the list to avoid wasteful oversampling. 2) Similarly this list should be used as a guide to help insure all types are adequately sampled across the entire project area. Rare types may be sampled as little as one time while common types may receive 10 to 15 classification plots to document regional diversity. 3) Finally, this list will help the field crews to apply the correct provisional plant community name and avoid confusion in the naming conventions.

Table 1-A. NVC Forest and Woodland Vegetation Alliances and Plant Association Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
Acacia farnesiana - Parkinsonia aculeata Temporarily Flooded Forest Alliance	Huisache - Retama Temporarily Flooded Forest Alliance	A.1908
- *Acacia farnesiana - Parkinsonia aculeata* Temporarily Flooded Forest	- Huisache - Retama Temporarily Flooded Forest	CEGL007755
Acacia farnesiana Woodland Alliance	Huisache Woodland Alliance	A.660
- *Acacia farnesiana - (Prosopis glandulosa)* Woodland	- Huisache - (Honey Mesquite) Woodland	CEGL002131
Acer grandidentatum Montane Forest Alliance	Bigtooth Maple Montane Forest Alliance	A.265
- *Acer grandidentatum - Quercus gravesii* Forest	- Bigtooth Maple - Chisos Red Oak Forest	CEGL004548
- *Acer grandidentatum - Quercus muehlenbergii* Forest	- Bigtooth Maple - Chinkapin Oak Forest	CEGL004547
Arbutus xalapensis - Acer grandidentatum - Quercus spp. Forest Alliance	Texas Madrone - Bigtooth Maple - Oak species Forest Alliance	A.368
- *Arbutus xalapensis - Quercus grisea - Juniperus deppeana - Acer grandidentatum - Quercus muehlenbergii* Forest	- Texas Madrone - Gray Oak - Alligator Juniper - Bigtooth Maple - Chinkapin Oak Forest	CEGL004504
- *Arbutus xalapensis - Quercus grisea - Juniperus flaccida - Acer grandidentatum - Quercus gravesii* Forest	- Texas Madrone - Gray Oak - Weeping Juniper - Bigtooth Maple - Chisos Red Oak Forest	CEGL004553
Carya illinoinensis – (Celtis laevigata) Temporarily Flooded Forest Alliance	Pecan – (Sugarberry) Temporarily Flooded Forest Alliance	A.282
- *Carya illinoinensis - Celtis laevigata* Forest	- Pecan - Sugarberry Forest	CEGL002087
Cupressus arizonica Forest Alliance	Arizona Cypress Forest Alliance	A.163
Juniperus ashei Woodland Alliance	Ashe's Juniper Woodland Alliance	A.501
- *Juniperus ashei - Quercus buckleyi* Woodland	- Ashe's Juniper - Buckley Oak Woodland	CEGL004172
- *Juniperus ashei - Quercus sinuata* var. *breviloba* Woodland	- Ashe's Juniper - White Shin Oak Woodland	CEGL004170
Juniperus coahuilensis Woodland Alliance	Redberry Juniper Woodland Alliance	A.503
- *Juniperus coahuilensis / Bouteloua curtipendula - Bouteloua gracilis* Woodland	- Redberry Juniper / Sideoats Grama - Blue Grama Woodland	CEGL004584
- *Juniperus coahuilensis / Quercus turbinella* Woodland	- Redberry Juniper / Turbinella Live Oak Woodland	CEGL000702
Juniperus depeanna Woodland Alliance	Alligator Juniper Woodland Alliance	A.534
- *Juniperus deppeana / Bouteloua gracilis* Woodland	- Alligator Juniper / Blue Grama Woodland	CEGL000693
- *Juniperus deppeana / Bouteloua hirsuta* Woodland	- Alligator Juniper / Hairy Grama Woodland	CEGL000694
- *Juniperus deppeana - Juniperus monosperma - Quercus grisea / Rhus trilobata* Woodland	- Alligator Juniper - One-seed Juniper - Gray Oak / Skunkbush Sumac Woodland	CEGL000696
- *Juniperus deppeana / Muhlenbergia emersleyi* Woodland	- Alligator Juniper / Bull Muhly Woodland	CEGL000697
Juniperus monosperma Woodland Alliance	One-seed Juniper Woodland Alliance	A.504
- *Juniperus monosperma / Bouteloua curtipendula* Woodland	- One-seed Juniper / Sideoats Grama Woodland	CEGL000708
- *Juniperus monosperma / Bouteloua hirsuta* Woodland	- One-seed Juniper / Hairy Grama Woodland	CEGL000711
- *Juniperus monosperma - Quercus mohriana* Woodland	- One-seed Juniper - Mohr Oak Woodland	CEGL002120
Juniperus pinchotii Woodland Alliance	Pinchot's Juniper Woodland Alliance	A.505
- *Juniperus pinchotii / Bouteloua curtipendula - Bouteloua hirsuta* Woodland	- Pinchot's Juniper / Sideoats Grama - Hairy Grama Woodland	CEGL004940
- *Juniperus pinchotii / Bouteloua gracilis* Woodland	- Pinchot's Juniper / Blue Grama Woodland	CEGL002122

Table 1-A. NVC Forest and Woodland Vegetation Alliances and Plant Association Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
Pinus cembroides – Quercus gravesii Forest Alliance	Mexican Pinyon Pine – Chisos Red Oak Forest Alliance	A.392
- *Pinus cembroides - Quercus gravesii - Juniperus flaccida / Salvia regla / Piptochaetium fimbriatum* Forest	- Mexican Pinyon - Chisos Red Oak - Weeping Juniper / Royal Sage / Pinyon Speargrass Forest	CEGL004600
- *Pinus cembroides - Quercus grsea / Agave lechuguilla / Bouteloua curtipendula* Woodland	- Mexican Pinyon – Gray Oak / Lechuguilla / Sideoats Grama Woodland	CEGL003551
- *Pinus cembroides - Quercus grisea - Juniperus flaccida / Salvia regla / Muhlenbergia emersleyi* Woodland	- Mexican Pinyon - Gray Oak - Weeping Juniper / Royal Sage / Bull Muhly Woodland	CEGL004596
- *Pinus cembroides - Quercus grisea / Muhlenbergia montana - Piptochaetium pringlei* Woodland	- Mexican Pinyon - Gray Oak / Mountain Muhly - Pringle's Speargrass Woodland	CEGL004599
- *Pinus cembroides - Quercus grisea - Quercus emoryi - Juniperus flaccida / Salvia regla / Boutelcua curtipendula* Woodland	- Mexican Pinyon - Gray Oak - Emory Oak - Weeping Juniper / Royal Sage / Sideoats Grama Woodland	CEGL004597
- *Pinus cembroides - Quercus grisea - Quercus emoryi / Mimosa dysocarpa / Bouteloua gracilis* Woodland	- Mexican Pinyon - Gray Oak - Emory Oak / Velvetpod Mimosa / Blue Grama Woodland	CEGL004598
Pinus cembroides Woodland Alliance	Mexican Pinyon Woodland Alliance	A.510
Pinus edulis - (Juniperus spp.) Woodland Alliance	Two-needle Pinyon – (Juniper species) Woodland Alliance	A.516
- *Pinus edulis - (Juniperus monosperma) / Bouteloua gracilis* Woodland	- Two-needle Pinyon - (One-seed Juniper) / Blue Grama Woodland	CEGL002151
Pinus ponderosa Forest Alliance	Ponderosa Pine Forest Alliance	A.124
- *Pinus ponderosa – Pinus strobiformis* Forest	- Ponderosa Pine – Southwestern White Pine Forest	CEGL007091
Pinus ponderosa Woodland Alliance	Ponderosa Pine Woodland Alliance	A.530
- *Pinus ponderosa / Bouteloua gracilis* Woodland	- Ponderosa Pine / Blue Grama Woodland	CEGL000848
- *Pinus ponderosa / Festuca arizonica* Woodland	- Ponderosa Pine / Arizona Fescue Woodland	CEGL000856
- *Pinus ponderosa / Muhlenbergia montana* Woodland	- Ponderosa Pine / Mountain Muhly Woodland	CEGL000862
- *Pinus ponderosa / Quercus emoryi* Woodland	- Ponderosa Pine / Emory Oak Woodland	CEGL000869
- *Pinus ponderosa / Quercus gambelii* Woodland	- Ponderosa Pine / Gambel Oak Woodland	CEGL000870
- *Pinus ponderosa / Quercus grisea* Woodland	- Ponderosa Pine / Gray Oak Woodland	CEGL000871
- *Pinus ponderosa / Quercus hypoleucoides* Woodland	- Ponderosa Pine / Silverleaf Oak Woodland	CEGL000872
Pinus remota Woodland Alliance	Papershell Pinyon Woodland Alliance	A.523
- *Pinus remota - Juniperus ashei - Quercus* spp. Woodland	- Papershell Pinyon - Ashe's Juniper - Oak species Woodland	CEGL002124
- *Pinus remota / Juniperus pinchotii - Quercus mohriana* Woodland	- Papershell Pinyon / Pinchot's Juniper - Mohr Oak Woodland	CEGL004585
Populus deltoides Temporarily Flooded Forest Alliance	Eastern Cottonwood Temporarily Flooded Forest Alliance	A.290
- *Populus deltoides - Celtis laevigata / Sapindus saponaria* Woodland	- Eastern Cottonwood - Sugarberry / Wingleaf Soapberry Woodland	CEGL005025
- *Populus deltoides - Salix nigra* Woodland	- Eastern Cottonwood / Black Willow Woodland	CEGL004919
- *Populus deltoides* ssp. *wislizeni / Schizachyrium scoparium* Woodland	- Rio Grande Cottonwood / Little Bluestem Woodland	CEGL005973
- *Populus deltoides* (ssp. *wislizeni*, ssp. *monilifera*) / *Salix exigua* Woodland	- (Rio Grande Cottonwood, Plains Cottonwood) / Coyote Willow Woodland	CEGL002685
Populus fremontii Temporarily Flooded Woodland Alliance	Fremont Cottonwood Temporarily Flooded Woodland Alliance	A.644
- *Populus fremontii - Fraxinus velutina* Woodland	- Fremont Cottonwood - Velvet Ash Woodland	CEGL000942
- *Populus fremontii - Salix gooddingii* Woodland	- Fremont Cottonwood - Goodding's Willow Woodland	CEGL000944

Table 1-A. NVC Forest and Woodland Vegetation Alliances and Plant Association Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
Populus tremuloides Forest Alliance	Quaking Aspen Forest Alliance	A.274
Prosopis glandulosa Temporarily Flooded Woodland Alliance	Honey Mesquite Temporarily Flooded Woodland Alliance	A.637
- *Prosopis glandulosa* Temporarily Flooded Woodland	- Honey Mesquite Temporarily Flooded Woodland	CEGL004934
Prosopis glandulosa Woodland Alliance	Honey Mesquite Woodland Alliance	A.611
Pseudotsuga menziesii Forest Alliance	Douglas-fir Forest Alliance	A.157
- *Pseudotsuga menziesii / Festuca arizonica* Forest	- Douglas-fir / Arizona Fescue Forest	CEGL000433
- *Pseudotsuga menziesii / Muhlenbergia montana* Forest	- Douglas-fir / Mountain Muhly Forest	CEGL000443
- *Pseudotsuga menziesii / Quercus gambelii* Forest	- Douglas-fir / Gambel Oak Forest	CEGL000452
- *Pseudotsuga menziesii / Quercus rugosa* Forest	- Douglas-fir / Netleaf Oak Forest	CEGL000454
Quercus arizonica Woodland Alliance	Arizona White Oak Woodland Alliance	A.482
- *Quercus arizonica / Bouteloua curtipendula* Woodland	- Arizona White Oak / Sideoats Grama Woodland	CEGL000680
Quercus emoryi Woodland Alliance	Emory Oak Woodland Alliance	A.483
- *Quercus emoryi / Bouteloua curtipendula* Woodland	- Emory Oak / Sideoats Grama Woodland	CEGL000683
- *Quercus emoryi / Muhlenbergia emersleyi* Woodland	- Emory Oak / Bull Muhly Woodland	CEGL000685
Quercus fusiformis Woodland Alliance	Plateau Oak Woodland Alliance	A.477
- *Quercus fusiformis - Quercus buckleyi / Quercus sinuata - (Juniperus ashei)* Woodland	- Plateau Oak - Buckley Oak / Bastard Oak - (Ashe's Juniper) Woodland	CEGL004215
- *Quercus fusiformis / Schizachyrium scoparium* Woodland	- Plateau Oak / Little Bluestem Woodland	CEGL002115
Quercus fusiformis – Celtis laevigata var. *reticulata* Woodland Alliance	Plateau Oak – Netleaf Hackberry Woodland Alliance	A.663
- *Quercus fusiformis - (Celtis laevigata* var. *reticulata, Ulmus crassifolia)* Woodland	- Plateau Oak - (Netleaf Hackberry, Cedar Elm) Woodland	CEGL002153
Quercus grisea Woodland Alliance	Gray Oak Woodland Alliance	A.478
- *Quercus grisea / Bouteloua curtipendula* Woodland	- Gray Oak / Sideoats Grama Woodland	CEGL000689
- *Quercus grisea / Juniperus deppeana* Woodland	- Gray Oak / Alligator Juniper Woodland	CEGL003521
Quercus laceyi Woodland Alliance	Lacey Oak Woodland Alliance	A.616
- *Quercus laceyi - Juniperus ashei* Woodland	- Lacey Oak - Ashe's Juniper Woodland	CEGL002136
Salix exigua Seasonally Flooded Woodland Alliance	Coyote Willow Seasonally Flooded Woodland Alliance	A.649
Salix gooddingii Temporarily Flooded Woodland Alliance	Goodding's Willow Temporarily Flooded Woodland Alliance	A.640
- *Salix gooddingii* Woodland	- Goodding's Willow Woodland	CEGL002743
- *Salix gooddingii - Fraxinus velutina* Temporarily Flooded Woodland	- Goodding's Willow - Velvet Ash Temporarily Flooded Woodland	CEGL003729
Salix nigra Seasonally Flooded Forest Alliance	Black Willow Seasonally Flooded Forest Alliance	A.334
- *Salix nigra / (Cephalanthus occidentalis)* Forest	- Black Willow / (Common Buttonbush) Forest	CEGL004773
- *Salix nigra - (Fraxinus pennsylvanica, Acacia farnesiana)* Forest	- Black Willow - (Green Ash, Huisache) Forest	CEGL008481
Salix nigra Temporarily Flooded Forest Alliance	Black Willow Temporarily Flooded Forest Alliance	A.297
- *Salix nigra* Forest	- Black Willow Forest	CEGL002103
Sapindus saponaria Woodland Alliance	Wingleaf Soapberry Woodland Alliance	A.627
Sapindus saponaria var. *drummondii* Woodland	Western Soapberry Woodland	CEGL004535

Table 1-B. NVC Shrubland, Dwarf-shrubland, and Shrub Herbaceous Vegetation Alliances and Plant Associations Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
- *Acacia berlandieri* South Texas Plains Shrubland	- Guajillo South Texas Plains Shrubland	CEGL002181
Acacia greggii Shrubland Alliance	Catclaw Acacia Shrubland Alliance	A.1036
Acacia neovernicosa Shrubland Alliance	Viscid Acacia Shrubland Alliance	A.1037
- *Acacia neovernicosa / Bouteloua hirsuta - Bouteloua gracilis - Bouteloua eriopoda* Shrub Herbaceous Vegetation	- Viscid Acacia / Hairy Grama - Blue Grama - Black Grama Shrub Herbaceous Vegetation	CEGL004244
- *Acacia neovernicosa / Muhlenbergia porteri* Shrubland	- Viscid Acacia / Bush Muhly Shrubland	CEGL001342
- *Acacia rigidula* Shrubland	- Chaparro-Prieto Shrubland	CEGL003874
Acacia rigidula – Leucophyllum frutescens – Acacia berlandieri Shrubland Alliance	Chaparro-Prieto – Cenizo – Guajillo Shrubland Alliance	A.1909
- *Acacia rigidula - Leucophyllum frutescens - Hechtia glomerata* Shrubland	- Chaparro-Prieto - Cenizo - Guapilla Shrubland	CEGL007760
Allenrolfea occidentalis Shrubland Alliance	Iodinebush Shrubland Alliance	A.866
- *Allenrolfea occidentalis* Shrubland	- Iodinebush Shrubland	CEGL000988
Aloysia wrightii Shrubland Alliance	Wright's Beebrush Shrubland Alliance	A.1035
Arundinaria gigantea Temporarily Flooded Shrubland Alliance	Giant Cane Temporarily Flooded Shrubland Alliance	A.795
- *Arundinaria gigantea* ssp. *gigantea* Shrubland	- Giant Cane Shrubland	CEGL003836
Atriplex canescens Shrubland Alliance	Fourwing Saltbush Shrubland Alliance	A.869
- *Atriplex canescens / Bouteloua gracilis* Shrubland	- Fourwing Saltbush / Blue Grama Shrubland	CEGL001283
- *Atriplex canescens / Sporobolus airoides* Shrubland	- Fourwing Saltbush / Alkali Sacaton Shrubland	CEGL001291
Atriplex obovata Dwarf-shrubland Alliance	New Mexico Saltbush Dwarf-shrubland Alliance	A.1108
- *Atriplex obovata / Tidestromia carnosa* Dwarf-shrubland	- New Mexico Saltbush / Fleshy Honeysweet Dwarf-shrubland	CEGL004575
Baccharis salicifolia Intermittently Flooded Shrubland Alliance	Mule's-fat Intermittently Flooded Shrubland Alliance	A.933
Baccharis salicifolia – Baccharis neglecta Seasonally Flooded Shrubland Alliance	Mule's-fat – Rooseveltweed Seasonally Flooded Shrubland Alliance	A.987
- *Baccharis salicifolia / Muhlenbergia rigens* Shrubland	- Mule's-fat / Deergrass Shrubland	CEGL004572
Baccharis salicina Temporarily Flooded Shrubland Alliance	Great Plains False Willow Shrubland Alliance	A.3567
- *Baccharis salicina* Shrubland	- Great Plains False Willow Shrubland	CEGL005007
Bouteloua eriopoda Xeromorphic Shrub Herbaceous Alliance	Black Grama Xeromorphic Shrub Herbaceous Alliance	A.1553
Bouteloua hirsuta – Bouteloua gracilis – Bouteloua eriopoda Shrub Herbaceous Alliance	Hairy Grama – Blue Grama – Black Grama Shrub Herbaceous Alliance	A.1548
Brickellia laciniata Intermittently Flooded Shrubland Alliance	Splitleaf Brickelbush Intermittently Flooded Shrubland Alliance	A.940
- *Brickellia laciniata - Hymenoclea monogyra* Shrubland	- Splitleaf Brickellbush - Single-whorl Cheesebush Shrubland	CEGL001953
- *Celtis laevigata* var. *reticulata - Juglans microcarpa / Leptochloa dubia* Shrubland	- Netleaf Hackberry - Little Walnut / Green Sprangletop Shrubland	CEGL002166
Cephalanthus occidentalis Semipermanently Flooded Shrubland Alliance	Common Buttonbush Semipermanently Flooded Shrubland Alliance	A.1011
- *Cephalanthus occidentalis / Carex* spp. - *Lemna* spp. Southern Shrubland	- Common Buttonbush / Sedge species - Duckweed species Southern Shrubland	CEGL002191

Table 1-B. NVC Shrubland, Dwarf-shrubland, and Shrub Herbaceous Vegetation Alliances and Plant Associations Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
Cercocarpus montanus Shrubland Alliance	Alderleaf Mountain Mahogany Shrubland	A.896
- *Cercocarpus montanus / Bouteloua curtipendula* Shrubland	- Alderleaf Mountain-mahogany / Sideoats Grama Shrubland	CEGL001086
- *Cercocarpus montanus / Muhlenbergia pauciflora* Shrubland	- Alderleaf Mountain-mahogany / New Mexico Muhly Shrubland	CEGL001089
Chilopsis linearis Intermittently Flooded Shrubland Alliance	Desert-willow Intermittently Flooded Shrubland Alliance	A.1044
- *Chilopsis linearis / Brickellia laciniata* Shrubland	- Desert-willow / Splitleaf Brickellbush Shrubland	CEGL004933
Dalea formosa – Mimosa borealis Dwarf-shrubland Alliance	Featherplume – Pink Mimosa Dwarf-shrubland Alliance	A.3568
- *Dalea formosa - Mimosa borealis* Dwarf-shrubland	- Featherplume - Pink Mimosa Dwarf-shrubland	CEGL005009
Dasylirion leiophyllum - (Agave lechuguilla, Viguiera stenoloba) Shrubland Alliance	Green Sotol - (Lechuguilla, Skeletonleaf Goldeneye) Shrubland Alliance	A.850
- *Dasylirion leiophyllum - Agave lechuguilla / Bouteloua hirsuta - Bouteloua gracilis - Bouteloua eriopoda* Shrubland	- Green Sotol - Lechuguilla / Hairy Grama - Blue Grama - Black Grama Shrubland	CEGL004245
- *Dasylirion leiophyllum - Viguiera stenoloba - Agave lechuguilla / Bouteloua ramosa* Shrubland	- Green Sotol - Skeletonleaf Goldeneye - Lechuguilla / Chino Grama Shrubland	CEGL004604
- *Ephedra torreyana / Bouteloua eriopoda* Shrub Herbaceous Vegetation	- Torrey's Joint-fir / Black Grama Shrub Herbaceous Vegetation	CEGL001731
Fallugia paradoxa Intermittently Flooded Shrubland Alliance	Apache Plume Intermittently Flooded Shrubland Alliance	A.934
- *Fallugia paradoxa* Shrubland	- Apache Plume Shrubland	CEGL003875
Flourensia cernua Shrubland Alliance	Tarbush Shrubland Alliance	A.861
- *Flourensia cernua / Bouteloua curtipendula* Shrubland	- Tarbush / Sideoats Grama Shrubland	CEGL001336
- *Flourensia cernua / Pleuraphis mutica* Shrubland	- Tarbush / Tobosa Grass Shrubland	CEGL001541
Fouquieria splendens Shrubland Alliance	Ocotillo Shrubland Alliance	A.863
- *Fouquieria splendens / Bouteloua curtipendula* Shrubland	- Ocotillo / Sideoats Grama Shrubland	CEGL001376
- *Fouquieria splendens / Bouteloua hirsuta* Shrubland	- Ocotillo / Hairy Grama Shrubland	CEGL001377
- *Fouquieria splendens / Parthenium incanum* Shrubland	- Ocotillo / Mariola Shrubland	CEGL001378
- *Fouquieria splendens* Shrubland	- Ocotillo Shrubland	CEGL004452
Gutierrezia sarothrae Dwarf-shrubland Alliance	Broom Snakeweed Dwarf-shrubland Alliance	A.2528
Juglans microcarpa Temporarily Flooded Shrubland Alliance	Little Walnut Temporarily Flooded Shrubland Alliance	A.945
- *Juglans microcarpa - Brickellia laciniata / Indigofera lindheimeriana* Edwards Plateau Shrubland	- Little Walnut - Splitleaf Brickellbush / Creek Indigo Edwards Plateau Shrubland	CEGL004932
- *Juglans microcarpa / Cladium mariscus* ssp. *jamaicense* Shrubland	- Little Walnut / Jamaica Swamp Sawgrass Shrubland	CEGL004593
- *Juglans microcarpa / Sorghastrum nutans* Shrubland	- Little Walnut / Yellow Indiangrass Shrubland	CEGL004594
- *Juglans microcarpa* Shrubland	- Little Walnut Shrubland	CEGL001103
Krascheninnikovia lanata Dwarf-shrubland Alliance	Winterfat Dwarf-shrubland Alliance	A.1104
- *Krascheninnikovia lanata* Dwarf-shrubland	- Winterfat Dwarf-shrubland	CEGL001320
Larrea tridentata Shrubland Alliance	Creosotebush Shrubland Alliance	A.851
- *Larrea tridentata - Agave lechuguilla* Shrubland	- Creosotebush - Lechuguilla Shrubland	CEGL004562
- *Larrea tridentata / Bouteloua eriopoda* Shrubland	- Creosotebush / Black Grama Shrubland	CEGL001265
- *Larrea tridentata / Bouteloua hirsuta - Bouteloua gracilis - Bouteloua eriopoda* Shrub Herbaceous Vegetation	- Creosotebush / Hairy Grama - Blue Grama - Black Grama Shrub Herbaceous Vegetation	CEGL004246
- *Larrea tridentata / Bouteloua ramosa* Shrubland	- Creosotebush / Chino Grama Shrubland	CEGL004563

Table 1-B. NVC Shrubland, Dwarf-shrubland, and Shrub Herbaceous Vegetation Alliances and Plant Associations Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
- *Larrea tridentata / Dasychloa pulchella* Shrubland	- Creosotebush / Low Woolly Grass Shrubland	CEGL001269
- *Larrea tridentata - Euphorbia antisyphilitica* Shrubland	- Creosotebush - Candelilla Shrubland	CEGL004564
- *Larrea tridentata - Flourensia cernua* Shrubland	- Creosotebush - Tarbush Shrubland	CEGL001270
- *Larrea tridentata - Hechtia texensis* Shrubland	- Creosotebush - Texas False Agave Shrubland	CEGL004565
- *Larrea tridentata - Jatropha dioica* var. *graminea* Shrubland	- Creosotebush - Leatherstem Shrubland	CEGL004566
- *Larrea tridentata / Muhlenbergia porteri* Shrubland	- Creosotebush / Bush Muhly Shrubland	CEGL001272
- *Larrea tridentata - Opuntia schottii* Shrubland	- Creosotebush - Dog Cholla Shrubland	CEGL004567
- *Larrea tridentata - Parthenium incanum* Shrubland	- Creosotebush - Mariola Shrubland	CEGL001274
- *Larrea tridentata - Prosopis glandulosa* Shrubland	- Creosotebush - Honey Mesquite Shrubland	CEGL001275
- *Larrea tridentata / Scleropogon brevifolius* Shrubland	- Creosotebush / Burrograss Shrubland	CEGL004568
- *Larrea tridentata* / Sparse Understory Shrubland	- Creosotebush / Sparse Understory Shrubland	CEGL001276
- *Larrea tridentata / Sporobolus airoides* Shrubland	- Creosotebush / Alkali Sacaton Shrubland	CEGL001277
- *Larrea tridentata / Tiquilia canescens* Shrubland	- Creosotebush / Gray Tiquilia Shrubland	CEGL004569
- *Larrea tridentata - Tiquilia greggii* Shrubland	- Creosotebush - Plume Tiquilia Shrubland	CEGL004570
- *Larrea tridentata / Tiquilia hispidissima* Shrubland	- Creosotebush / Rough Tiquilia Shrubland	CEGL001267
- *Leucophyllum frutescens* Shrubland	- Cenizo Shrubland	CEGL002168
- *Parthenium incanum / Bouteloua eriopoda* Shrub Herbaceous Vegetation	- Mariola / Black Grama Shrub Herbaceous Vegetation	CEGL001734
Pleuraphis mutica Shrub Herbaceous Alliance	Tobosa Grass Shrub Herbaceous Alliance	A.1551
Poliomintha incana Shrubland Alliance	Hoary Rosemarymint Shrubland Alliance	A.862
Prosopis glandulosa Shrubland Alliance	Honey Mesquite Shrubland Alliance	A.1031
- *Prosopis glandulosa / Atriplex canescens* Shrubland	- Honey Mesquite / Fourwing Saltbush Shrubland	CEGL001382
- *Prosopis glandulosa - Atriplex* spp. Shrubland	- Honey Mesquite - Saltbush species Shrubland	CEGL002193
- *Prosopis glandulosa / Bouteloua curtipendula* Shrubland	- Honey Mesquite / Sideoats Grama Shrubland	CEGL002194
- *Prosopis glandulosa / Bouteloua gracilis* Shrubland	- Honey Mesquite / Blue Grama Shrubland	CEGL001383
- *Prosopis glandulosa / Cynodon dactylon* Shrubland	- Honey Mesquite / Bermudagrass Shrubland	CEGL00xxxx
- *Prosopis glandulosa / Muhlenbergia porteri* Shrubland	- Honey Mesquite / Bush Muhly Shrubland	CEGL001511
- *Prosopis glandulosa / Pleuraphis mutica* Shrub Herbaceous Vegetation	- Honey Mesquite / Tobosa Grass Shrub Herbaceous Vegetation	CEGL001641
- *Prosopis glandulosa / Sporobolus airoides* Shrubland	- Honey Mesquite / Alkali Sacaton Shrubland	CEGL001385
- *Prosopis glandulosa / Sporobolus flexuosus* Shrubland	- Honey Mesquite / Mesa Dropseed Shrubland	CEGL001386
- *Prosopis glandulosa - Ziziphus obtusifolia* Shrubland	- Honey Mesquite - Lotebush Shrubland	CEGL004939
- *Prosopis glandulosa* var. *torreyana* Shrubland	- Western Honey Mesquite Shrubland	CEGL001381
Prosopis pubescens Shrubland Alliance	American Screwbean Shrubland Alliance	A.1042
Quercus gambelii Shrubland Alliance	Gambel Oak Shrubland Alliance	A.920
Quercus intricata Shrubland Alliance	Dwarf Oak Shrubland Alliance	A.781
- *Quercus intricata - Dasylirion leiophyllum* Shrubland	- Dwarf Oak - Green Sotol Shrubland	CEGL004530
Quercus mohriana Shrubland Alliance	Mohr Oak Shrubland Alliance	A.782
- *Quercus mohriana - Juniperus pinchotii / Bouteloua curtipendula* Shrubland	- Mohr Oak - Pinchot's Juniper / Sideoats Grama Shrubland	CEGL002173

Table 1-B. NVC Shrubland, Dwarf-shrubland, and Shrub Herbaceous Vegetation Alliances and Plant Associations Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
Quercus pungens Shrubland Alliance	Sandpaper Oak Shrubland Alliance	A.783
- *Quercus pungens - Cercocarpus montanus* Shrubland	- Sandpaper Oak - Alderleaf Mountain-mahogany Shrubland	CEGL003832
Quercus sinuata var. *breviloba* Shrubland Alliance	White Shin Oak Shrubland Alliance	A.907
- *Quercus sinuata* var. *breviloba* Shrubland	- White Shin Oak Shrubland	CEGL004453
Quercus turbinella Shrubland Alliance	Turbinella Live Oak Shrubland Alliance	A.793
- *Quercus turbinella / Bouteloua eriopoda* Shrubland	- Turbinella Live Oak / Black Grama Shrubland	CEGL000978
- *Quercus turbinella - Cercocarpus montanus* Shrubland	- Turbinella Live Oak - Alderleaf Mountain-mahogany Shrubland	CEGL000979
Rhus trilobata Shrubland Alliance	Skunkbush Sumac Shrubland Alliance	A.3569
- *Rhus trilobata / Bouteloua curtipendula - Schizachyrium scoparium* Shrubland	- Skunkbush Sumac / Sideoats Grama - Little Bluestem Shrubland	CEGL005026
Rhus virens var. *choriophylla* Shrubland Alliance	Evergreen Sumac Shrubland Alliance	A.922
Salix (exigua, interior) Temporarily Flooded Shrubland Alliance	(Coyote Willow, Sandbar Willow) Temporarily Flooded Shrubland Alliance	A.947
- *Salix exigua* Temporarily Flooded Shrubland	- Coyote Willow Temporarily Flooded Shrubland	CEGL001197
- *Salix interior / Phragmites australis* Temporarily Flooded Shrubland	- Sandbar Willow / Common Reed Temporarily Flooded Shrubland	CEGL007753
Salix nigra Temporarily Flooded Shrubland Alliance	Black Willow Temporarily Flooded Shrubland Alliance	A.948
- *Salix nigra* Temporarily Flooded Shrubland	- Black Willow Temporarily Flooded Shrubland	CEGL003901
Tamarix spp. Semi-natural Temporarily Flooded Shrubland Alliance	Salt-cedar species Semi-natural Temporarily Flooded Shrubland Alliance	A.842
Tiquilia hispidissima Dwarf-shrubland Alliance	Rough Tiquilia Dwarf-shrubland Alliance	A.1101
- *Tiquilia hispidissima / Sporobolus airoides* Dwarf-shrubland	- Rough Tiquilia / Alkali Sacaton Dwarf-shrubland	CEGL004574
- *Viguiera stenoloba - Bernardia obovata / Chamaesyce* sp. Shrubland	Skeletonleaf Goldeneye - Desert Myrtle-croton / Sandmat species Shrubland	CEGL004603
- *Yucca elata / Bouteloua eriopoda* Shrub Herbaceous Vegetation	- Soaptree Yucca / Black Grama Shrub Herbaceous Vegetation	CEGL001735
- *Yucca faxoniana / Bouteloua hirsuta - Bouteloua gracilis - Bouteloua eriopoda* Shrub Herbaceous Vegetation	- Faxon's Yucca / Hairy Grama - Blue Grama - Black Grama Shrub Herbaceous Vegetation	CEGL004248

Table 1-C. NVC Herbaceous and Sparse Vegetation Alliances and Plant Associations Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
Adiantum capillus-veneris Saturated Herbaceous Alliance	Southern Maidenhair Saturated Herbaceous Alliance	A.1683
Aristida purpurea Herbaceous Alliance	Purple Threeawn Herbaceous Alliance	A.2570
Bothriochloa barbinodis Herbaceous Alliance - *Bothriochloa barbinodis* Herbaceous Vegetation	Cane Beardgrass Herbaceous Alliance - Cane Beardgrass Herbaceous Vegetation	A.1209 CEGL005323
Bouteloua breviseta Sparsely Vegetated Alliance - *Bouteloua breviseta* Sparse Vegetation	Gypsum Grama Sparsely Vegetated Alliance - Gypsum Grama Sparse Vegetation	A.1870 CEGL004609
Bouteloua curtipendula Herbaceous Alliance - *Bouteloua curtipendula - Bouteloua (eriopoda, gracilis)* Herbaceous Vegetation - *Bouteloua curtipendula - Hilaria belangeri - Bouteloua eriopoda* Herbaceous Vegetation	Sideoats Grama Herbaceous Alliance - Sideoats Grama – (Black Grama, Blue Grama) Herbaceous Vegetation - Sideoats Grama – Curly-mesquite – Black Grama Herbaceous Vegetation	A.1244 CEGL002250 CEGL001591
Bouteloua eriopoda Herbaceous Alliance - *Bouteloua eriopoda - Bouteloua gracilis* Herbaceous Vegetation - *Bouteloua eriopoda - Bouteloua hirsuta* Herbaceous Vegetation	Black Grama Herbaceous Alliance - Black Grama – Blue Grama Herbaceous Vegetation - Black Grama – Hairy Grama Herbaceous Vegetation	A.1284 CEGL001748 CEGL001749
Bouteloua gracilis Herbaceous Alliance - *Bouteloua gracilis - Bouteloua curtipendula* Herbaceous Vegetation - *Bouteloua gracilis - Bouteloua hirsuta* Herbaceous Vegetation	Blue Grama Herbaceous Alliance - Blue Grama – Sideoats Grama Herbaceous Vegetation - Blue Grama – Hairy Grama Herbaceous Vegetation	A.1282 CEGL001754 CEGL001755
Bouteloua hirsuta Herbaceous Alliance - *Bouteloua hirsuta - Bouteloua curtipendula* Herbaceous Vegetation	Hairy Grama Herbaceous Alliance - Hairy Grama – Sideoats Grama Herbaceous Vegetation	A.1285 CEGL001764
Bouteloua ramosa Herbaceous Alliance - *Bouteloua ramosa* Herbaceous Vegetation	Chino Grama Herbaceous Alliance - Chino Grama Herbaceous Vegetation	A.1275 CEGL004522
Cenchrus (Pennisetum) ciliaris(e) Herbaceous Alliance - *Cenchrus ciliaris* Semi-natural Herbaceous Vegetation	Buffelgrass Herbaceous Alliance - Buffelgrass Semi-natural Herbaceous Vegetation	A.1211 CEGL00xxxx
Cynodon dactylon Herbaceous Alliance	Bermudagrass Herbaceous Alliance	A.1279
Distichlis spicata – (Hordeum jubatum) Temporarily Flooded Herbaceous Alliance - *Distichlis spicata - (Hordeum jubatum, Poa arida, Sporobolus airoides)* Herbaceous Vegetation	Inland Saltgrass – (Foxtail Barley) Temporarily Flooded Herbaceous Alliance - Inland Saltgrass – (Foxtail Barley, Prairie Bluegrass, Alkali Sacaton) Herbaceous Vegetation	A.1341 CEGL002042
Eragrostis lehmanniana Semi-natural Herbaceous Alliance	Lehmann's Lovegrass Semi-natural Herbaceous Alliance	A.2687
Festuca arizonica Herbaceous Alliance - *Festuca arizonica - Blepharoneuron tricholepis* Herbaceous Vegetation - *Festuca arizonica - Muhlenbergia montana* Herbaceous Vegetation	Arizona Fescue Herbaceous Alliance - Arizona Fescue - Pine-dropseed Herbaceous Vegetation - Arizona Fescue - Mountain Muhly Herbaceous Vegetation	A.1245 CEGL004508 CEGL001606
Heliotropium racemosum Sparsely Vegetated Alliance	Dune Heliotrope Sparsely Vegetated Alliance	A.1854
Justicia americana Temporarily Flooded Herbaceous Alliance - *Justicia americana - Bacopa monnieri* Edwards Plateau Herbaceous Vegetation	American Water-willow Temporarily Flooded Herbaceous Alliance - American Water-willow - Coastal Water-hyssop Edwards Plateau Herbaceous Vegetation	A.1657 CEGL004926
Lemna spp. Permanently Flooded Herbaceous Alliance	Duckweed Species Permanently Flooded Herbaceous Alliance	A.1747

Table 1-C. NVC Herbaceous and Sparse Vegetation Alliances and Plant Associations Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
Lesquerella (gordonii, ovalifolia) Herbaceous Alliance	Gordon's Bladderpod, Oval-leaf Bladderpod) Herbaceous Alliance	A.1619
- *Lesquerella (gordonii, ovalifolia) - Schizachyrium scoparium* Herbaceous Vegetation	- (Gordon's Bladderpod, Oval-leaf Bladderpod) - Little Bluestem Herbaceous Vegetation	CEGL004917
Ludwigia peploides Semipermanently Flooded Herbaceous Alliance	Floating Water-primrose Semipermanently Flooded Herbaceous Alliance	A.1928
- *Ludwigia peploides* Herbaceous Vegetation	- Floating Water-primrose Herbaceous Vegetation	CEGL007835
- *Marrubium vulgare* Semi-natural Herbaceous Vegetation	- Horehound Semi-natural Herbaceous Vegetation	CEGL00xxxx
Muhlenbergia emersleyi Herbaceous Alliance	Bull Muhly Herbaceous Alliance	A.1259
- *Muhlenbergia emersleyi - Bouteloua curtipendula* Herbaceous Vegetation	- Bull Muhly – Sideoats Grama Herbaceous Vegetation	CEGL001644
Open Cliff Sparsely Vegetated Alliance	Open Cliff Sparsely Vegetated Alliance	A.1836
Panicum bulbosum Temporarily Flooded Herbaceous Alliance	Bulb Panicgrass Temporarily Flooded Herbaceous Alliance	A.1356
- *Panicum bulbosum - Lycurus phleoides* Herbaceous Vegetation	- Bulb Panicgrass - Common Wolf's-tail Herbaceous Vegetation	CEGL001654
Panicum obtusum Herbaceous Alliance	Vine-mesquite Herbaceous Alliance	A.1238
- *Panicum obtusum - Panicum hallii* Herbaceous Vegetation	- Vine-mesquite - Hall's Panicgrass Herbaceous Vegetation	CEGL001575
- *Panicum obtusum* Herbaceous Vegetation	- Vine-mesquite Herbaceous Vegetation	CEGL002708
Panicum virgatum Temporarily Flooded Herbaceous Alliance	Switchgrass Temporarily Flooded Herbaceous Alliance	A.1343
- *Panicum virgatum - Andropogon glomeratus – (Panicum hemitomon)* Herbaceous Vegetation	- Switchgrass - Bushy Bluestem – (Maidencane) Herbaceous Vegetation	CEGL004928
- *Panicum virgatum – Pascopyrum smithii* Southern Herbaceous Vegetation	- Switchgrass – Western Wheatgrass Southern Herbaceous Vegetation	CEGL005019
- *Panicum virgatum – Tripsacum dactyloides - Cladium mariscus* ssp. *jamaicense* Herbaceous Vegetation	- Switchgrass – Eastern Gammagrass - Jamaica Swamp Sawgrass Herbaceous Vegetation	CEGL007937
Pascopyrum smithii Herbaceous Alliance	Western Wheatgrass Herbaceous Alliance	A.1232
- *Pascopyrum smithii - Bouteloua gracilis* Herbaceous Vegetation	- Western Wheatgrass - Blue Grama Herbaceous Vegetation	CEGL001578
Pericome caudata Sparsely Vegetated Alliance	Mountain Tail-leaf Sparsely Vegetated Alliance	A.1848
- *Pericome caudata* Sparse Vegetation	- Mountain Tail-leaf Sparse Vegetation	CEGL004579
Phragmites australis Semipermanently Flooded Herbaceous Alliance	Common Reed Semipermanently Flooded Herbaceous Alliance	A.1431
Phragmites australis Temporarily Flooded Herbaceous Alliance	Common Reed Temporarily Flooded Herbaceous Alliance	A.1345
- *Phragmites australis* Western North America Temperate Semi-natural Herbaceous Vegetation	- Common Reed Western North America Temperate Semi-natural Herbaceous Vegetation	CEGL001475
- *Phragmites australis* Riverbank Herbaceous Vegetation	- Common Reed Riverbank Herbaceous Vegetation	CEGL004115
Pleuraphis mutica Herbaceous Alliance	Tobosa Grass Herbaceous Alliance	A.1249
Pleuraphis mutica Intermittently Flooded Herbaceous Alliance	Tobosa Grass Intermittently Flooded Herbaceous Alliance	A.1330
- *Pleuraphis mutica - Scleropogon brevifolius* Herbaceous Vegetation	- Tobosa Grass – Burrograss Herbaceous Vegetation	CEGL001640
- *Pleuraphis mutica - Panicum obtusum* Herbaceous Vegetation	- Tobosa Grass – Vine-mesquite Herbaceous Vegetation	CEGL001639
Polygonum spp. (section *Persicaria*) Seasonally Flooded Herbaceous Alliance	Smartweed species Seasonally Flooded Herbaceous Alliance	A.1881
- *Polygonum pensylvanicum - Polygonum lapathifolium* Herbaceous Vegetation	- Pennsylvania Smartweed - Pale Smartweed Herbaceous Vegetation	CEGL002277

Table 1-C. NVC Herbaceous and Sparse Vegetation Alliances and Plant Associations Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
- *Sagittaria cuneata - Sagittaria longiloba* Herbaceous Vegetation	- Arumleaf Arrowhead - Longbarb Arrowhead Herbaceous Vegetation	CEGL004525
Sagittaria latifolia Semipermanently Flooded Herbaceous Alliance	Broadleaf Arrowhead Semipermanently Flooded Herbaceous Alliance	A.1675
- *Salsola kali* Semi-natural Herbaceous Vegetation	- Russian-thistle Herbaceous Vegetation	CEGL00xxxx
Schizachyrium cirratum Herbaceous Alliance - *Schizachyrium cirratum* Herbaceous Vegetation	Texas Bluestem Herbaceous Alliance - Texas Bluestem Herbaceous Vegetation	A.1221 CEGL004055
Schizachyrium scoparium - Bouteloua curtipendula Herbaceous Alliance - *Schizachyrium scoparium - Bouteloua curtipendula* Western Great Plains Herbaceous Vegetation - *Schizachyrium scoparium - Lechea tenuifolia - Acalypha radians* Herbaceous Vegetation	Little Bluestem – Sideoats Grama Herbaceous Alliance - Little Bluestem – Sideoats Grama Western Great Plains Herbaceous Vegetation - Little Bluestem – Narrowleaf Pinweed – Round Copperleaf Herbaceous Vegetation	A.1225 CEGL001594 CEGL004913
Schoenoplectus americanus Semipermanently Flooded Herbaceous Alliance	Chairmaker's Bulrush Semipermanently Flooded Herbaceous Alliance	A.1432
Schoenoplectus pungens Semipermanently Flooded Herbaceous Alliance - *Schoenoplectus pungens - Distichlis spicata* Herbaceous Vegetation	Common Threesquare Semipermanently Flooded Herbaceous Alliance - Common Threesquare - Inland Saltgrass Herbaceous Vegetation	A.1433 CEGL005988
Sedum nuttallianum Sparsely Vegetated Alliance - *Sedum nuttallianum - Selaginella peruviana* Granitic Outcrop Sparse Vegetation	Nuttall's Stonecrop Sparsely Vegetated Alliance - Nuttall's Stonecrop - Peruvian Spike-moss Granitic Outcrop Sparse Vegetation	A.1846 CEGL004396
Sesuvium verrucosum Temporarily Flooded Sparsely Vegetated Alliance	Winged Sea-purslaneTemporarily Flooded Sparsely Vegetated Alliance	A.1865
Sorghum halepense Semi-natural Herbaceous Alliance - *Sorghum halepense - (Amaranthus palmeri)* Semi-natural Herbaceous Vegetation	Johnson Grass Semi-natural Herbaceous Alliance - Johnson Grass - (Palmer's Amaranth) Semi-natural Herbaceous Vegetation	A.2020 CEGL005324
Sporobolus airoides Herbaceous Alliance - *Sporobolus airoides - Distichlis spicata* Herbaceous Vegetation *Sporobolus airoides* Intermittently Flooded Herbaceous Alliance - *Sporobolus airoides* Southern Plains Herbaceous Vegetation	Alkali Sacaton Herbaceous Alliance - Alkali Sacaton - Inland Saltgrass Herbaceous Vegetation Alkali Sacaton Intermittently Flooded Herbaceous Alliance - Alkali Sacaton Southern Plains Herbaceous Vegetation	A.1267 CEGL001687 A.1331 CEGL001685
Sporobolus cryptandrus Herbaceous Alliance - *Sporobolus cryptandrus - Schizachyrium scoparium - Bouteloua curtipendula* Herbaceous Vegetation	Sand Dropseed Herbaceous Alliance - Sand Dropseed - Little Bluestem - Sideoats Grama Herbaceous Vegetation	A.1252 CEGL005031
Sporobolus flexuosus Herbaceous Alliance	Mesa Dropseed Herbaceous Alliance	A.1268
Sporobolus wrightii Saturated Herbaceous Alliance - *Sporobolus wrightii* Herbaceous Vegetation - *Sporobolus wrightii - Panicum obtusum* Herbaceous Vegetation	Big Alkali Sacaton Saturated Herbaceous Vegetation - Big Alkali Sacaton Herbaceous Vegetation - Big Alkali Sacaton - Vine-mesquite Herbaceous Vegetation	A.1435 CEGL002232 CEGL001486
Tidestromia carnosa Sparsely Vegetated Alliance - *Tidestromia carnosa - Kallstroemia grandiflora* Sparse Vegetation	Fleshy Honeysweet Sparsely Vegetated Alliance - Fleshy Honeysweet - Orange Caltrop Sparse Vegetation	A.1873 CEGL004580

Table 1-C. NVC Herbaceous and Sparse Vegetation Alliances and Plant Associations Identified as Potentially Occurring within the BIBE/RIGR Vegetation Inventory Project Area.

NVC Alliance and/or Association	Common Name	Element Code
Typha (angustifolia, latifolia) – *(Schoenoplectus* spp.) Semipermanently Flooded Herbaceous Alliance	Narrowleaf Cattail, Broadleaf Cattail) – (Clubrush species) Semipermanently Flooded Herbaceous Alliance	A.1436
- *Typha (angustifolia, domingensis, latifolia) - Schoenoplectus americanus* Herbaceous Vegetation	- (Narrowleaf Cattail, Southern Cattail, Broadleaf Cattail) - Chairmaker's Bulrush Herbaceous Vegetation	CEGL002032
- *Typha latifolia* Southern Herbaceous Vegetation	- Broadleaf Cattail Southern Herbaceous Vegetation	CEGL004150
Typha domingensis Seasonally Flooded Temperate Herbaceous Alliance	Southern Cattail Seasonally Flooded Temperate Herbaceous Alliance	A.1392
- *Typha domingensis* Tidal Herbaceous Vegetation	- Southern Cattail Tidal Herbaceous Vegetation	CEGL008456

Appendix 4: Plant Species List for BIBE/RIGR

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Acanthaceae	Acanthaceae
Anisacanthus linearis	Dwarf Anisacanth
Anisacanthus puberulus	Dwarf Anisacanth
Carlowrightia arizonica	Arizona Carlowright
Carlowrightia linearifolia	Heath Carlowright
Carlowrightia parviflora	Smallflower Wrightwort
Carlowrightia serpyllifolia	Trans-Pecos Wrightwort
Carlowrightia texana	NA
Carlowrightia torreyana	NA
Dyschoriste decumbens	Spreading Snakeherb, Dyschoriste
Dyschoriste linearis	Narrowleaf Dyschoriste
Justicia americana	NA
Justicia warnockii	Warnock Waterwillow
Justicia wrightii	Wright's Waterwillow
Ruellia parryi	Parry Ruellia, Parry's Wild Petunia
Siphonoglossa pilosella	Hairy Tube-tongue
Stenandrium barbatum	Shaggy Stenandrium
Tetramerium nervosum	NA
Aceraceae	Aceraceae
Acer grandidentatum	Bigtooth Maple, Canyon Maple
Agavaceae	Agavaceae
Agave glomeruliflora	Chisos Agave
Agave havardiana	Havard Agave
Agave lechuguilla	Lechuguilla
Yucca elata	Palmella, Soaptree Yucca
Yucca faxoniana	Spanish Bayonet, Giant Dagger
Yucca thompsoniana	Beaked Yucca
Yucca torreyi	Torrey Yucca
Dasylirion heteracanthum	Sotol
Dasylirion leiophyllum	Smooth Sotol
Nolina erumpens	Foothill Nolina, Sacahuiste
Aizoaceae	Aizoaceae
Sesuvium portulacastrum	NA
Trianthema portulacastrum	Horse Purslane
Alismataceae	Alismataceae
Sagittaria graminea	Grass Leaf Arrowhead
Sagittaria longiloba	Longlobe Arrowhead
Amaranthacee	Amaranthaceae
Alternanthera caracasana	Washerwoman
Alternanthera polygonoides	NA
Alternanthera sessilis	NA
Amaranthus albus	Prostrate Pigweed, Tumble Pigweed, White Pigweed
Amaranthus arenicola	Sandhill Amaranth, Torrey Amaranth
Amaranthus blitoides	Prostrate Pigweed
Amaranthus fimbriatus	Fringed Amaranth, Fringed Pigweed
Amaranthus hybridus	Green Amaranth

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Amaranthus palmeri	Palmer's Amaranth
Amaranthus polygonoides	NA
Amaranthus powellii	Powell Amaranth, Powell Pigweed
Amaranthus retroflexus	Careless Weed, Redroot Amaranth, Rough Pigweed
Amaranthus scleropoides	Bonebract Amaranth
Amaranthus spinosus	Spiny Amaranth
Amaranthus torreyi	Torrey Amaranth
Amaranthus wrightii	NA
Froelichia arizonica	Arizona Snakecotton
Froelichia drummondii	NA
Froelichia floridana	NA
Froelichia gracilis	Slender Snakecotton
Froelichia interrupta	Texas Snakecotton
Gomphrena decumbens	NA
Gomphrena haageana	NA
Gomphrena nitida	Pearly Globe Amaranth, Ball Clover
Guilleminea densa	Small Matweed
Guilleminea densa var. aggregata	Small Matweed
Guilleminea densa var. densa	Small Matweed
Iresine heterophylla	Standley's Bloodleaf
Iresine leptoclada	Texas Shrub
Tidestromia carnosa	Wolly Tidestromia, Honeymat
Tidestromia lanuginosa	Wolly Tidestromia, Honeymat
Tidestromia suffruticosa	Shrubby Honeysweet
Amaryllidaceae	Amaryllidaceae
Cooperia drummondii	Drummond's Rain Lily
Zephyranthes longifolia	Western Zephyr Lily, Copper Zephyrlily
Anacardiaceae	Anacardiaceae
Rhus aromatica	Fragrant Sumac
Rhus lanceolata	Prairie sumac
Rhus microphylla	Littleleaf Sumac
Rhus trilobata var. pilosissima	Fragrant Sumac, Skunkbush sumac
Rhus virens	Evergreen or Tobacco Sumac
Rhus virens var. choriophylla	Evergreen or tobacco sumac
Rhus virens var. virens	Evergreen Sumac
Toxicodendron radicans	Poison Ivy
Toxicodendron radicans ssp. eximium	Poison Ivy
Apiaceae	Apiaceae
Aletes acaulis	Stemless Aletes, Seamless Indian Parsley
Chaerophyllum tainturieri	Chervil
Ciclospermum leptophyllum	Marsh Parsley
Hydrocotyle umbellata	Manyflower Marsh Pennywort, Umbrella Pennyroyal
Hydrocotyle verticillata	Marsh Pennywort
Seseli hallii	Moon Carrot
Torilis arvensis	Hedge Parsley
Apocynaceae	Apocynaceae

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Amsonia longiflora	Tubular Bluestar
Amsonia longiflora var. longiflora	Tubular Bluestar
Amsonia palmeri	NA
Apocynum androsaemifolium	Bitterroot, Flytrap Dogbane, Spreading Dogbane
Apocynum cannabinum	Prarie dogbane, Hemp dogbane
Apocynum medium var. floribundum	NA
Haplophyton crooksii	Cockroach Plant
Macrosiphonia hypoleuca	Davis Mountain Rocktrumpet
Macrosiphonia hypoleuca	NA
Macrosiphonia lanuginosa	Plateau Rock Trumpet
Macrosiphonia lanuginosa var. macrosiphon	Rock Trumpet
Nerium oleander	Common oleander, laurel rosa
Arecaceae	Arecaceae
Phoenix dactylifera	Date Palm
Aristolochiaceae	Aristolochiaceae
Aristolochia coryi	Cory's Dutchman's Pipe
Aristolochia watsonii	NA
Aristolochia wrightii	Wright's Dutchman's Pipe
Asclepiadaceae	Asclepidaceae
Asclepias asperula ssp. asperula	Spider Antelope Horns
Asclepias brachystephana	Bract Milkweed, Shortcrown Milkweed
Asclepias glaucescens	Nodding Milkweed
Asclepias incarnata	NA
Asclepias nummularia	Tufted Milkweed
Asclepias oenotheroides	Zizotes Milkweed
Asclepias perennis	NA
Asclepias sperryi	Sperry's Milkweed
Asclepias subverticillata	Horsetail Milkweed, Whorled Milkweed, Poison Milkweed
Asclepias texana	Aquatic Milkweed
Cynanchum barbigerum	Bearded Swallowwort
Cynanchum pringlei	Bearded Swallow Wort
Cynanchum racemosum var. unifarium	Talayote
Funastrum crispum	Wavyleaf Twine-vine
Funastrum cynanchoides var. cynanchoides	Fringed Twinevine
Funastrum cynanchoides ssp. heterophyllum	Arroyo Twine-vine
Funastrum torreyi	Soft Twine-vine
Matelea parvifolia	Littleleaf Matelea, Smallleaf Anglepod, Spearleaf
Matelea producta	Texas Milkvine
Matalea reticulata	Netted Milkvine
Matelea sagittifolia	Arrowleaf Matelea, Arrowleaf Milkvine
Aspleniaceae	Aspleniaceae
Asplenium resiliens	Little Ebony Spleenwort, Blackstem Spleenwort
Asplenium septentrionale	Forked Spleenwort
Asteraceae	Asteraceae
Acourtia nana	Desert Holly
Acourtia runcinata	Peonia

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Acourtia wrightii	Brownfoot, Wright's Desertpeony
Ageratina herbacea	Fragrant Snakeroot, Herbaceous Joe-Pie-Weed
Ageratina rothrockii	Rothrock's Snakeroot
Ageratina wrightii	Wright's Snakeroot
Amblyolepis setigera	Huisache Daisy
Ambrosia acanthicarpa	NA
Ambrosia artemisiifolia	NA
Ambrosia confertiflora	Ragweed, Wealkeaf Burr Ragweed
Ambrosia psilostachya	Cuman Ragweed, Perennial Ragweed, Western Ragweed
Amphiachyris dracunculoides	Common Broomweed, Prairie Broomweed
Aphanostephus ramosissimus	Plains Dozedaisy
Aphanostephus ramosissimus var. humilis	Plains Dozedaisy
Artemisia carruthii	Carruth's Sagewort
Artemisia caudata	NA
Artemisia dracunculus	False Tarragon, Green Sagewort, Silky Wormwood
Artemisia ludoviciana	Louisiana Sagewort
Artemisia ludoviciana ssp. albula	Louisiana Sagewort
Artemisia ludoviciana ssp. ludoviciana	Cudweed Sagewort, Foothill Sagewort, Louisiana Sagewort
Aster hesperius	NA
Baccharis havardii	Havard's Falsewillow
Baccharis pteronioides	Yerba de Pasmo
Baccharis salicifolia	Seepwillow
Baccharis salicina	Willow Baccharis
Baccharis wrightii	Wright Baccharis
Bahia absinthifolia	Hairyseed Bahia
Bahia absinthifolia var. dealbata	Dealbata's Bahia
Bahia bigelovii	Bigelow's Bahia
Bahia biternata	NA
Bahia dissecta	Ragleaf Bahia
Bahia pedata	Blunt Scale Bahia
Baileya multiradiata	Desert Marigold, Desert Baileya
Barkleyanthus salicifolius	Willow Ragwort
Berlandiera lyrata	Greeneyes, Lyreleaf Greeneyes
Bidens bigelovii	Bigelow Beggarticks
Bidens laevis	NA
Bidens leptocephala	Few Flower Beggarticks
Brickellia brachyphylla var. terlinguensis	Terlingua Brickellia
Brickellia californica	California Brickellbush
Brickellia conduplicata	Southwestern Brickellbush
Brickellia coulteri	Coulter Brickellbush
Brickellia cylindracea	Gravelbar Brickellbush
Brickellia eupatorioides	False Boneset
Brickellia eupatorioides var. chlorolepis	False Boneset
Brickellia grandiflora	Mountain Brickellbush, Tasselflower Brickellbush
Brickellia laciniata	Splitleaf Brickellbush
Brickellia lemmonii	Lemmon Brickellbush

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Brickellia veronicifolia	Veronicaleaf Brickellbush
Brickellia veronicifolia var. petrophila	Veronicaleaf Brickellbush
Brickelliastrum fendleri	Fendler's Brickellbush
Calyptocarpus vialis	Straggler Daisy
Carminatia tenuiflora	Plumeweed
Carphochaete bigelovii	Bigelow's Bristlehead
Centaurea americana	Basketflower, American Star Flower
Centaurea melitensis	Malta Starthistle, Napa Thistle, Spotted Knapweed
Chaetopappa bellioides	Manyflower Leastdaisy
Chaetopappa ericoides	Roseheath, Smallflower Aster
Chaptalia texana	Silverpuff, Heal & Draw
Chloracantha spinosa	Devel Weed Aster, Mexican Devilweed, Spiny Aster
Chromolaena bigelovii	Bigelow's Thoroughwort
Chrysactinia mexicana	Damianita
Chrysothamnus baileyi	Bailey's Rabbitbush
Chrysothamnus spathulatus	Guadalupe Rabbitbush
Cirsium ochrocentrum	Yellowspine Thistle
Cirsium texanum	Texas Thistle
Cirsium turneri	Cliff Thistle
Cirsium undulatum	Wavyleaf Thistle, Gray Thistle
Cirsium undulatum var. undulatum	Wavyleaf Thistle, Gray Thistle
Conoclinium greggii	Palmleaf Thoroughwort
Conyza canadensis	Canada Horseweed, Mare's Tail
Cosmos parviflorus	Southwestern Cosmos
Dicranocarpus parviflorus	NA
Dyssodia papposa	Dogbane Dyssodia, Fetid Marigold, Prairie Dogweed
Eclipta prostrata	False daisy, Eclipta
Engelmannia peristenia	Engelmann's Daisy
Erigeron colomexicanus	Running Daisy, Running Fleabane
Erigeron flagellaris	Trailing Daisy
Erigeron modestus	Plains Fleabane
Erigeron versicolor	Changing Fleabane
Eupatorium betonicifolium	NA
Eupatorium havanense	NA
Eupatorium odoratum	NA
Eupatorium rugosum	NA
Evax verna	Spring Pygmy Cudweed
Evax verna var. verna	Spring Pygmy Cudweed
Flaveria trinervia	Clustered Yellowtops
Flourensia cernua	Tarbush, American Tarwort
Flyriella parryi	Chisos Mountain Brickellbush
Gaillardia coahuilensis	NA
Gaillardia pinnatifida	Blanketflower, Red Dome, Slender Gaillardia
Galinsoga parviflora	Gallant Soldier, Littleflower Quickweed
Grindelia arizonica	Arizona Gumweed
Grindelia havardii	Havard's Gumweed

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Gutierrezia glutinosa	NA
Gutierrezia microcephala	Threadleaf Snakeweed
Gutierrezia sarothrae	Broom Snakeweed, Broomweed, Stinkweed, Turpentineweed
Gutierrezia sphaerocephala	Roundleaf Snakeweed
Gymnosperma glutinosum	Gumhead, Sticky Selloa
Haploesthes greggii	Falsebroomweed
Haploesthes greggii var. texana	Texas Falsebroomweed
Helenium elegans	Pretty Sneezeweed
Helenium elegans var. amphilobum	Pretty Sneezeweed
Helenium microcephalum	Littlehead Tarweed, Smallhead Sneezeweed
Helenium microcephalum var. microcephalum	Smallhead Sneezeweed
Helenium microcephalum var. ooclinium	Smallhead Sneezeweed
Helenium quadridentatum	Longdisk Sneezeweed, Rosilla
Helianthus annuus	Annual Sunflower, Common Sunflower
Helianthus ciliaris	Blueweed
Helianthus niveus ssp. canescens	Showy Sunflower
Helianthus petiolaris	Prairie Sunflower
Heliomeris longifolia var. longifolia	Longleaf False Goldeneye
Heliopsis parvifolia	Mountain Oxeye
Heterosperma pinnatum	Wingpetal
Heterotheca canescens	NA
Heterotheca fulcrata	Mountain Camphorweed, Rockyscree False Goldenaster
Heterotheca fulcrata var. senilis	Rockyscree False Goldenaster)
Heterotheca subaxillaris	Camphorweed, Golden Aster
Heterotheca villosa	Hairy Goldenaster
Hieracium schultzii	Roughstem Hawkweed
Hieracium wrightii	Roughstem Hawkweed
Hymenoclea monogyra	Singlewhorl Burrobush, Cheeseweed Burrobrush
Hymenoxys odorata	Bitterweed, Poison Rubberweed, Western Bitterweed
Isocoma pluriflora	Rayless Goldenrod, Southern Jimmyweed
Iva ambrosiifolia	Rag Sumpweed, Ragged Marshelder
Jefea brevifolia	Shortleaf Jefea
Koanophyllon solidaginifolium	Shrubby Thoroughwort
Laennecia coulteri	Conyza, Coulter's Horseweed, Horsetail
Laennecia filaginoides	TransPecos Marshtail
Laennecia sophiifolia	Leafy Marshtail
Liatris punctata	Dotted Blazingstar, Dotted Gayfeather
Liatris punctata var. punctata	Dotted Blazingstar, Dotted Gayfeather
Machaeranthera blephariphylla	NA
Machaeranthera gracilis	NA
Machaeranthera pinnatifida	Cutleaf Goldenweed, Lacy Tansyaster, Spiny Goldenweed
Machaeranthera pinnatifida var. chihuahuana	Chihuahua Tansyaster
Machaeranthera pinnatifida var. pinnatifida	Lacy Tansyaster
Machaeranthera scabrella	Tansyaster
Machaeranthera tanacetifolia	Tanseyleaf Aster, Tanseyaster
Melampodium leucanthum	Plains Blackfoot Daisy

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Nicolletia edwardsii	Edward's Hole in the Sand Plant
Packera millelobata	Uinta Ragwort
Palafoxia riograndensis	Rio Grande Palafox
Palafoxia rosea var. macrolepis	Pink Palafoxia, Rosy Palafox
Parthenium argentatum	Guayule
Parthenium confertum	Gray Feverfew
Parthenium hysterophorus	NA
Parthenium incanum	Mariola
Pectis angustifolia	Lemonscent, Narrowleaf Pectis
Pectis angustifolia var. angustifolia	Lemonscent, Narrowleaf Pectis
Pectis angustifolia var. tenella	Lemonscent
Pectis cylindrica	Sonoran Cinchweed
Pectis filipes	Five Bract Cinchweed
Pectis filipes var. subnuda	Fivebract Cinchweed
Pectis papposa var. grandis	Manybristle Cinchweed
Pectis prostrata	Spreading Cinchweed
Pericome caudata	Tailleaf Pericome, Mountain Leaftail
Peritlye aglossa X Perityle bisotesa var. scalaris	Rockdaisy Hybrid
Perityle aglossa	Bluff Rockdaisy
Perityle bisotesa var. scalaris	Two Bristle Rockdaisy
Perityle dissecta	Dissected Rockdaisy, Slimlobe Rockdaisy
Perityle parryi	Heartleaf Rockdaisy
Perityle rupestris	Leafy Rockdaisy
Perityle rupestris var. albiflora	Leafy Rockdaisy
Perityle vaseyi	Margined Rockdaisy, Vasey's Perityle
Pinaropappus roseus	White Rocklettuce
Pluchea purpurascens	NA
Pluchea sericea	Arrowweed
Porophyllum ruderale ssp. macrocephalum	Yerba Porosa
Porophyllum scoparium	Shrubby Poreleaf, TransPecos Poreleaf
Psathyrotes scaposa	Naked Turtleback
Pseudoclappia arenaria	TransPecos False Clapdaisy
Pseudognaphalium arizonicum	Arizona Cudweed
Pseudognaphalium canescens	Wright's Cudweed
Pseudognaphalium cansecens ssp. microcephalum	Wright's Cudweed
Pseudognaphalium macounii	Macoun's Cudweed
Pseudognaphalium pringlei	Pringle's Cudweed
Pseudognaphalium stramineum	Annual Cudweed, Cotton Cudweed, Cottonbatting Plant
Pseudognaphalium viscosum	Winged Cudweed
Psilactis brevilingulata	TransPecos Tansyaster
Psilostrophe gnaphalioides	Cudweed Paperflower, Dudweed
Psilostrophe tagetina	Woolly Paperflower
Psilostrophe tagetina var. cerifera	Hairy Paperflower, Woolly Paperflower
Ratibida columnifera	Prairie coneflower, Redspike Mexican Hat
Sanvitalia ocymoides	NA
Sanvitalia procumbens	Mexican Creeping Zinnia

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Schkuhria anthemoidea	NA
Schkuhria multiflora	Manyflower False Threadleaf
Senecio flaccidus	Doublas Senecio, Threadleaf Groundsel, Threadleaf Ragwort
Senecio flaccidus var. flaccidus	Threadleaf Groundsel, Threadleaf Ragwort
Senecio parryi	Mountain Groundsel
Simsia calva	Awnless Bushsunflower
Solidago canadensis	Canada Goldenrod
Solidago canadensis var. scabra	Canada Goldenrod
Solidago juliae	Julia's Goldenrod
Solidago radula	NA
Solidago velutina	Sparse Goldenrod, Threenerve Goldenrod
Solidago wrightii	NA
Sonchus asper	Perennial Sowthistle, Spiny Sowthistle
Sonchus oleraceus	Sow thistle genus
Stephanomeria pauciflora	Brownplume Wirelettuce, Fewflower Wirelettuce
Stephanomeria wrightii	NA
Stevia ovata	Roundleaf Candyleaf
Stevia ovata var. texana	Texan Candyleaf
Stevia salicifolia	NA
Stevia serrata	Sawtooth Candyleaf
Stevia viscida	Viscid Candyleaf
Symphyotrichum divaricatum	Southern Saltbrush Aster
Symphyotrichum expansum	Southwestern Annual Saltmarsh Aster
Tagetes micrantha	Licorice Marigold
Tetragonotheca texana	NA
Tetraneuris scaposa	Plains Actinea, Atemmy Fournerve Daisy, Stemmy Hymenoxys
Tetroneuris scaposa var. scaposa	Stemmy Four-Nerve Daisy, Stemmy Hymenoxys
Thelesperma ambiguum	NA
Thelesperma filifolium var. intermedium	Plains Greenthread, Stiff Greenthread
Thelesperma longipes	Rayless Greenthread, Longstalk Greenthread
Thelesperma megapotamicium	Greenthread, Hopi Tea Greenthread
Thelesperma simplicifolium	Slender Greenthread
Thymophylla acerosa	Prickleleaf Dogweed, Texas Dogweed
Thymophylla aurea	Manyawn Pricklyleaf
Thymophylla aurea var. polychaeta	Manyawn Pricklyleaf
Thymophylla micropoides	Woolly Pricklyleaf
Thymophylla pentachaeta	Fiveneedle Pricklyleaf
Thymophylla pentachaeta var. pentachaeta	Common Dogweed, Fiveneedle Pricklyleaf
Townsendia exscapa	Seamless Townsend Daisy
Trixis californica	American Trixis, American Threefold
Verbesina encelioides	Cowpen Daisy, Golden Crownbeard
Verbesina oreophila	Mountain Crownbeard
Vernonia marginata	Plains Ironweed
Viguiera cordifolia	Heartleaf Goldeneye, Mountain Goldeneye
Viguiera dentata	Sunflower Goldeneye, Toothleaf Goldeneye
Viguiera multiflora	NA

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Viguiera stenoloba	Skeletonleaf Goldeneye
Viquiera stenoloba var. chihuahuensis	Chihuahua Resinbush
Wedelia texana	NA
Xanthium strumarium	Cocklebur
Xylorhiza wrightii	Big Bend Woodyaster
Xylothamia triantha	TransPecos Desert Goldenrod
Zinnia acerosa	Desert Zinnia, Spinyleaf Zinnia
Zinnia grandiflora	NA
Berberidaceae	Berberidaceae
Mahonia haematocarpa	Red Barberry, Red Mahonia
Mahonia trifoliata	Currant-of-Texas
Betulaceae	Betulaceae
Ostrya virginiana var. chisosensis	Chisos Hophornbeam
Bignoniaceae	Bignoniaceae
Chilopsis linearis	Desertwillow
Tecoma stans	Trumpetflower, Esperanza, Yellow Elder
Boraginaceae	Boraginaceae
Antiphytum heliotropioides	Mexican Saucerflower
Cryptantha albida	New Mexico Catseye, New Mexico Crypthantha
Cryptantha angustifolia	Bristlelobe Cryptantha, Penamint Catseye
Cryptantha crassipes	NA
Cryptantha crassisepala	Deertongue, Thicksepal Cryptantha
Cryptantha mexicana	Mexican Cryptanthe, Mexican Catseye
Cryptantha minima x	NA
Cryptantha palmeri	Palmer's Catseye, Palmer's Cryptanthe
Hackelia besseyi	NA
Hackelia pinetorum	Livermore Stickseed
Heliotropium confertifolium	Leafy Heliotrope
Heliotropium convolvulaceum	Bindweed Heliotrope, Phlox Heliotrope, Wideflower Heliotrope
Heliotropium curassavicum	Quail Plant, Salt Heliotrope, Seaside Heliotrope
Heliotropium glabriusculum	Greeneye Heliotrope
Heliotropium greggii	Fragrant Heliotrope
Heliotropium molle	Soft Heliotrope
Heliotropium procumbens	Fourspike Heliotrope
Heliotropium procumbens	NA
Heliotropium torreyi	Jerusalem Artichoke, Slimeleaf Heliotrope
Lappula occidentalis var. occidentails	Desert Stickseed, Flatspine Stickseed, Western Stickseed
Lithospermum incisum	Fringed Gromwell, Fringed Puccoon, Narrowleaf Gromwell
Lithospermum multiflorum	Manyflowered Stoneseed, Purple Puccoon
Lithospermum viride	Green Gromwell, Green Stoneseed
Omphalodes aliena	Mexican Navelwort
Tiquilia canescens	Ratear Coldenia, Woody Crinklemat
Tiquilia canescens var. canescens	Crinklemat, Gray Coldenia, Gray Tiquilia, Ratear Coldenia
Tiquilia gossypina	Texas Crinklemat
Tiquilia greggii	Gregg Coldenia, Plumed Crinklemat
Tiquilia hispidissima	Hairy Coldenia, Hairy Crinklemat

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Tiquilia mexicana	Mexican Coldenia, Mexican Crinklemat
Brassicaceae	Brassicaceae
Arabis fendleri	Fendler Rockcress
Brassica kaber	NA
Brassica rapa var. rapa	Bird rape, Common Mustard, Field Mustard
Cardamine macrocarpa	Largeseed Bittercress
Cardamine macrocarpa var. texana	Texas Bittercress
Descurainia pinnata	Green Tansymustard, Pinnate Tansymustard, Western Tansymustard
Descurainia richardsonii	NA
Descurainia sophia	Flaxweed Tansymustard, Flixweed Tansymustard
Dimprphocarpa wislizeni	Spectacle Pod, Touristplant
Draba cuneifolia	Wedgeleaf Draba, Wedgeleaf Whitlowgrass
Eruca vesicaria ssp. sativa	Arugula, Garden Rocket, Rocketsalad
Erysimum capitatum	Coast Wallflower, Sanddune Wallflower, Western Wallflower
Erysimum capitatum var. capitatum	Plains Wallflower, Prairie Rocket, Sanddune Wallflower
Erysimum capitatum var. purshii	Pursh's Wallflower
Halimolobos diffusa	Spreading Fissurewort
Lepidium alyssoides	Mesa Pepperwort, Southern Pepperweed
Lepidium alyssoides var. angustifolium	Mountain Pepperweed, Mesa Pepperwort
Lepidium austrinum	Southern Pepperweed
Lepidium lasiocarpum var. wrightii	Wright pepperweed
Lepidium oblongum	Veiny Pepperweed
Lepidium sordidum	Sordid Pepperweed
Lesquerella argyraea	NA
Lesquerella fendleri	Fendler Bladderpod
Lesquerella gordonii	Gordon Bladderpod
Lesquerella mcvaughiana	McVaugh's Bladderpod
Lesquerella purpurea	Purple Bladderpod, Rose Bladderpod
Mancoa pubens	TransPecos Cress
Nerisyrenia camporum	Bicolor Mustard, Mesa Greggia
Pennellia micrantha	Mountain Mock Thelypody
Rorippa nasturtium-aquaticum	Watercress
Rorippa ramosa	Durango Yellowcress
Rorippa sinuata	NA
Rorippa teres	Southern Marsh Yellowcress
Schoenocrambe linearifolia	Slimleaf Plains Mustard
Selenia dissecta	Texas Selenia
Sinapis arvensis	Charlock, Corn Mustard, Wild Mustard
Sisymbrium auriculatum	Eared Hedgemustard
Sisymbrium irio	London Rocket, Rocketmustard
Stanleya pinnata	NA
Streptanthus carinatus	Lyreleaf Twistflower
Streptanthus carinatus ssp. carinatus	Lyreleaf Jewelflower
Streptanthus cutleri	Cutler's Jewelflower
Streptanthus platycarpus	Broadpod Jewelflower
Synthlipsis greggii	Gregg's Keelpod

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Thelypodium texanum	Texas Thelypody
Thelypodium wrightii	Wright's Thelypody
Bromeliaceae	Bromeliaceae
Hechtia texensis	Texas False Agave
Tillandsia recurvata	Ball Moss
Buddlejaceae	Buddlejaceae
Buddleja marrubiifolia	Woolly Butterflybush
Buddleja scordioides	NA
Cactaceae	Cactaceae
Ariocarpus fissuratus	Living rock
Coryphantha chaffeyi	Chaffey's Foxtail Cactus
Coryphantha dasyacantha	Big Bend Foxtail Cactus
Coryphantha duncanii	Duncan's Foxtail Cactus
Coryphantha echinus	Sea Urchin Cactus, Rhinoceros Cactus
Coryphantha echinus var. echinus	Sea Urchin Cactus, Rhinoceros Cactus
Coryphantha echinus var. robusta	Clumped Sea Urchin Cactus
Coryphantha macromeris var. macromeris	Nipple Beehive Cactus, Big Needle Pincushion Cactus
Coryphantha ramillosa	Big Bend Cory Cactus, Bunched Cory Cactus
Coryphantha scheeri var. scheeri	Long-Tubercled Coryphantha
Coryphantha sneedii var. albicolumnaria	Silverlace Cactus
Coryphantha tuberculosa var. tuberculosa	Cob Cactus
Coryphantha tuberculosa var. varicolor	Cob Cactus
Echinocactus horizonthalonius	Turk's Cap Cactus, Devil's head, Eagle Claw
Echinocactus texensis	Horse Crippler, Devil's Pincushion
Echinocereus chisoensis	Chisos Hedgehog Cactus
Echinocereus coccineus var. paucispinus	Claret Cup Cactus, Scarlet Hedgehog Cactus
Echinocereus dasyacanthus	Rainbow Cactus, Yellow Pitaya
Echinocereus enneacanthus var. enneacanthus	Smallspine Pitaya, False Strawberry Pitaya
Echinocereus fendleri var. fendleri	Fendler's Hedgehog Cactus
Echinocereus pectinatus	NA
Echinocereus stramineus var. stramineus	Strawberry Pitaya, Strawberry Hedgehog Cactus
Echinocereus viridiflorus var. davisii	Davis' Green Pitaya, Davis' Hedgehog Cactus
Echinocereus viridiflorus var. russanthus	Brown-flowered cactus
Echinocereus viridiflorus var. weedinii	Weedin's Brownflowered Cactus
Echinocereus X neomexicanus	Triploid Hybrid Hedgehog Cactus
Echinomastus intertextus var. intertextus	Pineapple Cactus
Echinomastus mariposensis	Lloyd's Mariposa Cactus
Echinomastus warnockii	Warnock's Cactus
Epithelantha bokei	Boke's Button Cactus
Epithelantha micromeris var. micromeris	Pingpong Ball Cactus
Ferocactus hamatacanthus var. hamatacanthus	Giant Fishhook Cactus
Glandulicactus uncinatus var. wrightii	Fish-hook cactus
Mammillaria heyderi var. heyderi	Heyder's Nipple Cactus
Mammillaria lasiacantha	Golfball Cactus, Lacespine Nipple Cactus
Mammillaria meiacantha	Little Nipple Cactus
Mammillaria pottsii	Pott's Mammillaria

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Neolloydia conoidea	Chihuahuan Beehive
Opuntia aggeria	Big Bend Cholla
Opuntia aureispina X O. macrocentra	Opuntia Hybrid
Opuntia azurea var. aureispina	Rio Grande Prickly Pear
Opuntia azurea var. diplopurpurea	Big Bend Diploid Purple Prickly pear
Opuntia azurea var. parva	Big Bend Purplish Prickly Pear
Opuntia camanchica	Comanche Prickly Pear
Opuntia chisosensis	Chisos Prickly Pear
Opuntia densispina	Big Bend Dense Spined Dog Cholla
Opuntia dulcis	Sweet Prickly Pear
Opuntia engelmannii var. engelmannii	Engelmann's Prickly Pear
Opuntia engelmannii var. lindheimeri	Lindheimer's Prickly Pear
Opuntia engelmannii var. linguiformis	Cow Tongue Prickly Pear, Cactus Apple
Opuntia engelmannii X Opuntia phaeacantha	Opuntia Hybrid
Opuntia grahamii X Opuntia schottii	Opuntia Hybrid
Opuntia imbricata	Tree Cholla, Cane Cholla
Opuntia imbricata var. arborescens	Tree Cholla, Walkingstick Cholla, Cane Cholla
Opuntia imbricata var. argentea	Tree Cholla, Icicle Cholla
Opuntia kleiniae	Candle Cholla, Klein Cholla,
Opuntia leptocaulis	Christmas Cholla, Pencil Cholla, Tasajillo
Opuntia mackensenii var. minor	Short-Spined Purplish Prickly Pear
Opuntia macrocentra	Purple Prickly Pear
Opuntia phaeacantha	NA
Opuntia phaeacantha	Brownspine Prickly Pear
Opuntia pottsii	Potts' Prickly Pear
Opuntia rufida	Blind Prickly Pear
Opuntia santa-rita	NA
Opuntia schottii var. grahamii	Mounded Dwarf Cholla
Opuntia schottii var. schottii	Dog Cholla
Opuntia spinosibacca	Spiny Fruited Prickly Pear
Opuntia tortispina	NA
Opuntia moelleri	X
Peniocereus greggii	Nightblooming Cactus
Thelocactus bicolor var. bicolor	Glory of Texas
Campanulaceae	Campanulaceae
Campanula rotundifolia	NA
Lobelia berlandieri var. brachypoda	Berlandier's Lobelia
Lobelia cardinalis	Cardinal Flower
Lobelia fenestralis	NA
Capparaceae	Capparaceae
Cleomella longipes	Chiricahua Mountain Stinkweed
Koeberlinia spinosa	Allthorn, Crown of Thorns
Polanisia uniglandulosa	Mexican Clammyweed
Caprifoliaceae	Caprifoliaceae
Lonicera albiflora	Western White Honeysuckle, White Honeysuckle
Sambucus nigra ssp. cerulea	Blue Elderberry

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Symphoricarpos palmeri	Palmer Snowberry
Caryophyllaceae	Caryophyllaceae
Arenaria benthamii	NA
Arenaria lanuginosa	NA
Arenaria ludens	TransPecos Sandwort
Cerastium axillare	TransPecos Chickweed
Cerastium brachypodum	Bractpod Chickweed, Mouseear Chickweed
Cerastium glomeratum	Sticky Chickweed
Drymaria laxiflora	TransPecos Drymary
Drymaria leptophylla	Canyon Drymary
Drymaria pachyphylla	Thickleaf Drymary
Paronychia jamesii	James' Nailwort
Silene antirrhina	Sleepy Campion, Sleepy Catchfly
Silene laciniata	Mexican Campion, Mexican Catchfly, Cardinal Catchfly
Silene laciniata ssp. greggii	Cardinal Catchfly, Gregg's Campion
Stellaria cuspidata	Mexican Starwort
Stellaria prostrata	NA
Celastraceae	Celastraceae
Celastrus scandens	American Bitterweet, Staffvine, Waxwork
Forsellesia greggii	NA
Glossopetalon spinescens	Spiny Greasebush
Mortonia scabrella	Rio Grande Saddlebush
Mortonia sempervirens	Rio Grande Saddlebush
Schaefferia cuneifolia	Desert Yaupon
Chenopodiaceae	Chenopodiaceae
Atriplex acanthocarpa	Tubercled Saltbush
Atriplex canescens	Fourwing Saltbush
Atriplex elegans	Wheelscale Saltbush
Atriplex obovata	Mound Saltbush, Silver Saltbush
Atriplex rosea	Redscale Saltbush, Tumbling Saltweed
Chenopodium album	Common Lambsquarters, White Goosefoot
Chenopodium ambrosioides	NA
Chenopodium atrovirens	Dark Goosefoot, Pinyon Goosefoot
Chenopodium berlandieri	Netseed Lambsquarters, Pigseed Goosefoot
Chenopodium fremontii	Fremont's Goosefoot
Chenopodium graveolens	Fetid Goosefoot
Chenopodium incanum	Mealy Goosefoot
Chenopodium incanum var. elatum	Mealy Goosefoot
Chenopodium leptophyllum	Narrowleaf Goosefoot, Slimleaf Lambsquarters
Chenopodium murale	Nettleleaf Goosefoot
Chenopodium neomexicanum	NA
Chenopodium pratericola	Desert Goosefoot
Corispermum americanum	American Bugseed
Corispermum nitidum	NA
Cycloloma atriplicifolium	Tumble Ringwing, Winged Pigweed

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Monolepis nuttalliana	Nuttall's Povertyweed, Patata
Salsola tragus	Prickly Russian Thistle
Suaeda suffrutescens	Desert Seepweed
Cistaceae	Cistaceae
Helianthemum glomeratum	Clustered Frostweed
Lechea mensalis	Chisos Mountain Pinweed
Commelinaceae	Commelinaceae
Commelina dianthifolia	Birdbill Dayflower
Commelina elegans	NA
Commelina erecta	Erect Dayflower, Whitemouth Dayflower
Commelina erecta var. augustifolia	Whitemouth Dayflower
Setcreasea leiandra	NA
Tradescantia brevifolia	TransPecos Spiderwort
Tradescantia wrightii var. glandulopubescens	Wright's Spiderwort
Convolvulaceae	Convolvulaceae
Bonamia ovalifolia	Bigpod Lady's Nightcap
Bonamia repens	Creeping Lady's Nightcap
Convolvulus equitans	Gray Bindweed, Texas Bindweed
Dichondra argentea	Silver Ponyfoot
Dichondra brachypoda	New Mexico Ponyfoot
Evolvulus alsinoides	Slender Dwarf Morning Glory
Evolvulus alsinoides var. angustifolius	Dwarf Morning Glory
Evolvulus nuttalianus	Shaggy Dwarf Morning Glory
Heliotropium convolvulaceum	Bindweed Heliotrope, Phlox Heliotrope
Ipomoea barbatisepala	NA
Ipomoea capillacea	Purple Morning Glory
Ipomoea cardiophylla	Heartleaf Morning Glory
Ipomoea cordatotriloba	Cotton Morning Glory, Tievine
Ipomoea costellata	Crestrib Morning Glory
Ipomoea cristulata	TransPecos Morning Glory
Ipomoea hederifolia	NA
Ipomoea lindheimeri	Lindheimer's Morning Glory, Blue Morning Glory
Ipomoea pubescens	NA
Ipomoea purpurea	Common Morning Glory, Tall Morning Glory
Ipomoea rupicola	Cliff Morning Glory
Ipomoea tenuiloba	Spiderleaf
Merremia dissecta	Noyau Vine
Crassulaceae	Crassulaceae
Echeveria strictiflora	Desert Savior
Gormania havardii	NA
Sedum havardii	Havard's Stonecrop
Sedum moranense	NA
Sedum nanifolium	Dwarf Stonecrop
Sedum wrightii	Wright's Stonecrop
Villadia squamulosa	Rat's Tail Succulent
Cucurbitaceae	Cucurbitaceae

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Apodanthera undulata	Melon Loco
Cucurbita foetidissima	Buffalo Gourd, Wild Gourd, Wild Pumpkin
Ibervillea lindheimeri	Balsamgourd, Lindheimer Blobeberry, Rio Grande Globeberry
Ibervillea tenuisecta	Deer Apples, Slimlobe Globeberry
Sicyos glaber	Smooth Burr Cucumber
Sicyos laciniatus	NA
Sicyos microphyllus	Burr Cucumber
Sicyos parviflorus	NA
Cupressaceae	Cupressaceae
Cupressus arizonica	Arizona Cypress
Cupressus arizonica ssp. arizonica	Arizona Cypress
Juniperus coahuilensis	Redberry Juniper, Pinchot Juniper
Juniperus deppeana	Alligator Juniper, Checkerbark Juniper
Juniperus deppeana var. deppeana	Alligator Juniper
Juniperus flaccida	Drooping Juniper, Weeping Juniper
Juniperus monosperma	One Seed Juniper
Juniperus pinchotii	Redberry Juniper, Pinchot Juniper
Cuscutaceae	Cuscutaceae
Cuscuta indecora	Pretty Dodder, Largeseed Dodder
Cuscuta indecora var. indecora	Bigseed Alfalfa Dodder
Cuscuta indecora var. neuropetala	Bigseed Alfalfa Dodder
Cuscuta pentagona	Bush-clover Dodder, Field Dodder, Five Angled Dodder
Cuscuta umbellata	Flat Globe Dodder
Cyperaceae	Cyperaceae
Bulbostylis capillaris	Densetuft hairsedge, Threadleaf Beakseed
Bulbostylis juncoides	Rush Hairsedge
Carex agrostoides	Grassleaf Sedge
Carex geophila	White Mountain Sedge
Carex lativena	Broadvein Sedge
Carex microdonta	Littletooth Sedge
Carex muriculata	Schiede's Sedge
Carex planostachys	Cedar Sedge
Carex schiedeana	Schiede's Sedge
Carex schweinitzii	Schweinitz's Sedge
Cladium mariscus ssp. jamaicense	Jamaica Sawgrass
Cyperus acuminatus	NA
Cyperus elegans	Royal Flatsedge, Sticky Flatsedge
Cyperus esculentus	NA
Cyperus fendlerianus	Fendler's Flatsedge
Cyperus hermaphroditus	NA
Cyperus laevigatus	Smooth Flatsedge
Cyperus odoratus	Fragrant Flatsedge, Rusty Flatsedge
Cyperus retroflexus	Oneflower Flatsedge
Cyperus schweinitzii	NA
Cyperus seslerioides	Texas Flatsedge
Cyperus sphaerolepis	Rusby's Flatsedge

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Cyperus squarrosus	Awned Flatsedge, Bearded Nutgrass
Eleocharis geniculata	Canada Spikesedge
Eleocharis interstincta	NA
Eleocharis montevidensis	Sand Spikerush
Eleocharis palustris	Common Spikerush, Creeping Spikerush
Eleocharis parvula	Dwarf Spikerush, Littlehead Spikerush
Eleocharis rostellata	Beaked Spikerush, Beaked Spikesedge
Fimbristylis autumnalis	NA
Fimbristylis tomentosa	NA
Fuirena simplex	Western Umbrellasedge
Fuirena simplex var. aristulata	Western Umbrellasedge
Fuirena simplex var. simplex	Western Umbrellasedge
Fuirena squarrosa	Hairy Umbrellasedge
Lipocarpha aristulata	Awned Halfchaff Sedge
Schoenoplectus pungens var. longispicatus	Common Threesquare
Scirpus californicus	NA
Scirpus olneyi	NA
Dryopteridaceae	Dryopteridaceae
Pteridium aquilinum var. pubescens	Bracken Fern, Eagle Fern, Hairy Brackenfern, Western Bracken
Phanerophlebia umbonata	Bellybutton Veinfern
Woodsia mexicana	NA
Woodsia neomexicana	New Mexico Cliff Fern
Woodsia neomexicana X W. phillipsii	Hybrid
Woodsia phillippsii	Phillips' Cliff Fern
Ebenaceae	Ebenaceae
Diospyros texana	Texas Persimmon
Ephedraceae	Ephedraceae
Ephedra antisyphilitica	Erect Ephedra, Clapweed
Ephedra aspera	Mormon Tea, Rough Jointfir
Ephedra pedunculata	NA
Ephedra torreyana var. powelliorum	Torrey's Joitfir
Ephedra trifurca	Longleaf Ephedra
Equisetaceae	Equisetaceae
Equisetum laevigatum	Smooth Horsetail, Smooth Scouringrush
Ericaceae	Ericaceae
Arbutus xalapensis	Texas Madrone
Euphorbiaceae	Euphorbiaceae
Acalypha monostachya	Round Copperleaf
Acalypha neomexicana	New Mexico Copperleaf
Acalypha phleoides	Shrubby Copperleaf
Acalypha radians	NA
Argythamnia humilis var. humilis	Low Silverbush, Low Wildmercury
Argythamnia neomexicana	Common Silverbush, New Mexico Silverbush
Bernardia myricifolia	NA
Bernardia obovata	Desert Myrtlecroton
Chamaesyce acuta	Pointed Sandmat

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Chamaesyce albomarginata	Rattlesnake Weed, Whitemargin Sandmat
Chamaesyce arizonica	Arizona Sandmat
Chamaesyce capitellata	Head Sandmat
Chamaesyce chaetocalyx	Bristlecup Sandmat
Chamaesyce chaetocalyx var. chaetocalyx	Bristlecup Sandmat
Chamaesyce chaetocalyx var. triligulata	Bristlecup Sandmat
Chamaesyce cinerascens	Ashy Sandmat
Chamaesyce fendleri	Fendler's Sandmat
Chamaesyce glyptosperma	Ribseed Sandmat
Chamaesyce golondrina	Boquillas Sandmat
Chamaesyce hyssopifolia	Hyssop Spurge, Leafy Spurge
Chamaesyce melandenia	Squaw Sandmat
Chamaesyce micromera	Desert Spurge, Sonoran Sandmat
Chamaesyce nutans	Eyebane
Chamaesyce perennans	Perennial Sandmat
Chamaesyce prostrata	Prostrate Sandmat, Prostrate Spurge
Chamaesyce revoluta	Threadseam Sandmat
Chamaesyce serpens	Matted Sandmat, Serpent Spurge
Chamaesyce serpyllifolia	Thymeleaf Sandmat
Chamaesyce serpyllifolia ssp. serpyllifolia	Thymeleaf Spurge
Chamaesyce serrula	Sawtooth Sandmat
Chamaesyce setiloba	Yuma Sandmat, Yuma Spurge
Chamaesyce simulans	Smallseed Sandmat
Chamaesyce stictospora	Slimseed Sandmat
Chamaesyce theriaca	Terlingua Sandmat
Chamaesyce theriaca var. spurca	Terlingua Sandmat
Chamaesyce villifera	Hairy Sandmat
Croton bigbendensis	Big Bend Croton
Croton dioicus	Grassland Croton
Croton fruticulosus	Bush Croton, Shrubby Croton
Croton incanus	Torrey's Croton
Croton leucophyllus	Two Color Croton
Croton lindheimerianus	Threeseed Croton
Croton lindheimerianus var. tharpii	Tharp Croton
Croton pottsii	Leatherweed Croton
Croton pottsii var. thermophilus	Leatherweed Croton
Croton texensis	Doveweed
Euphorbia antisyphilitica	Candelilla
Euphorbia brachycera	Horned Spruge
Euphorbia davidii	David's Spurge, Poinsettia
Euphorbia dentata	Green Poinsettia, Toothed Euphorbia
Euphorbia eriantha	Beetle Spurge, Mexican Poinsettia
Euphorbia exstipulata	Squareseed Spurge
Euphorbia exstipulata var. exsipulata	Squareseed Spurge
Euphorbia heterophylla	NA
Euphorbia lata	NA

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Euphorbia missurica	NA
Euphorbia wrightii	NA
Jatropha dioica	Leatherstem
Jatropha dioica var. graminea	Leatherstem
Jatropha spathulata	Leatherstem
Leptopus phyllanthoides	Missouri Maidenbush
Phyllanthus polygonoides	Knotweed Leafflower, Smartweed Leafflower
Stillingia treculiana	NA
Tragia amblyodonta	Dogtooth Noseburn
Tragia ramosa	Branched Noseburn, Catnip Noseburn
Fabaceae	Fabaceae
Acacia angustissima	Prairie Acacia, Whiteball Acacia
Acacia angustissima var. chisosiana	Chisos Acacia
Acacia angustissima var. texensis	Prairie Wattle, Whiteball Acacia
Acacia berlandieri	Berlandier Acacia, Guajillo
Acacia constricta	Whitethorn Acacia
Acacia farnesiana	Huisache
Acacia greggii	Catclaw Acacia
Acacia greggii var. greggii	Arizona Acacia, Catclaw Mimosa
Acacia neovernicosa	Viscid Acacia
Acacia rigidula	Blackthorn Acacia
Acacia roemeriana	Roemer Acacia, Roundflower Catclaw
Acacia schottii	Schott Acacia
Astragalus emoryanus	Emory Milkvetch
Astragalus emoryanus var. terlinguensis	Emory's Milkvetch
Astragalus leptocarpus	NA
Astragalus mollissimus	Woolly Locoweed
Astragalus mollissimus var. earlei	Earle's Wolly Milkvetch, Woolly Locoweed
Astragalus nuttallianus	Nuttall Milkvetch, Smallflower Milkvetch
Astragalus nuttallianus var. austrinus	Smallflowered Milkvetch
Brongniartia minutifolia	Littleleaf Greentwig
Caesalpinia gilliesii	Bird of Paradise
Caesalpinia jamesii	NA
Caesalpinia parryi	Parry's Holdback
Caesalpinia wootonii	Wooton's Holdback
Calliandra herbacea	NA
Calliandra humilis	Dwarf Stickpea, Mountain Calliandra
Calliandra iselyi	Isely's Stickpea
Calliandra parryi	NA
Cercidium texanum	NA
Cercis canadensis var. mexicana	Mexican Redbud
Chamaecrista greggii	NA
Cologania angustifolia	Longleaf Cologania
Dalea aurea	Golden Dalea
Dalea formosa	Feather Dalea, Featherplume
Dalea frutescens	Black Dalea

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Dalea greggii	Gregg Dalea, Gregg Prairieclover
Dalea jamesii	James' Dalea
Dalea lachnostachys	Glandleaf Prairieclover
Dalea lanata var. terminalis	Wooly Dalea, Woolly Prairieclover
Dalea leporina	Foxtail Dalea
Dalea nana	Dwarf Dalea
Dalea nana var. carnescens	Dwarf Prairieclover
Dalea neomexicana	New Mexico Dalea, Downy Prairieclover
Dalea neomexicana var. longipila	Downy Prairieclover
Dalea pogonathera	Bearded Dalea
Dalea pogonathera var. pogonathera	Bearded Dalea, Bearded Prairieclover
Dalea polygonoides	Sixweeks Prairieclover
Dalea wrightii	Wright's Dalea
Desmanthus cooleyi	Cooley's Bundleflower, James Bundleflower
Desmanthus glandulosus	Glandular Bundleflower
Desmanthus obtusus	Bluntpod Bundleflower
Desmanthus velutinus	Velvet Bundleflower
Desmodium grahamii	Graham's Tick Trefoil
Desmodium psilophyllum	Simpleleaf Tick Trefoil
Eysenhardtia texana	Texas Kidneywood
Hoffmanseggia drepanocarpa	Rushpea
Hoffmanseggia glauca	Indian Rushpea
Indigofera lindheimeriana	NA
Leucaena retusa	Littleleaf Leadtree
Lotus oroboides	NA
Lotus plebeius	Common Birdsfoot Trefoil, Lonbrack Trefoil
Lupinus havardii	Big Bend Bluebonnet, Chisos Bluebonnet
Macroptilium atropurpureum	NA
Medicago polymorpha	California Burclover, Toothed Medick
Medicago sativa	Alfalfa
Melilotus alba	White Sweetclover
Melilotus indicus	Indian Sweetclover, Yellow Sweetclover
Melilotus officinalis	NA
Mimosa aculeaticarpa var. biuncifera	Catclaw Mimosa
Mimosa borealis	Fragrant Mimosa
Mimosa dysocarpa	Velvetpod Mimosa
Mimosa emoryana	Emory's Mimosa
Mimosa texana	Texas Mimosa
Mimosa turneri	Desert Mimosa
Mimosa warnockii	Warnock's Mimosa
Neptunia pubescens var. microcarpa	Tropical Puff
Nissolia platycalyx	Broadsepal Yellowhood
Parkinsonia aculeata	Jerusalem Thorn, Palo Verde, Retama
Peteria scoparia	Rush Peteria
Phaseolus acutifolius	Tepary Bean
Phaseolus angustissimus	Slimleaf Bushbean

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Phaseolus filiformis	Slimjim Bean
Phaseolus grayanus	Gray's Bean
Phaseolus pedicellatus	Sonoran Bean
Prosopis glandulosa	Honey Mesquite
Prosopis glandulosa var. glandulosa	Honey Mesquite
Prosopis glandulosa var. torreyana	Western Honey Mesquite
Prosopis pubescens	Screwbean Mesquite, Tornillo
Rhynchosia minima	NA
Rhynchosia senna	Texas Snoutbeen
Rhynchosia senna var. texana	Rosary Bean, Texas Snoutbean
Senna bauhinioides	Twinleaf Senna
Senna durangensis	Durango Senna
Senna lindheimeriana	Showy Senna, Velvet Leaf Senna
Senna orcuttii	Orcutt's Senna, Orcutt's Wild Sensitive Plant
Senna pilosior	TransPecos Senna, TransPecos Wild Sensitive Plant
Senna pumilio	NA
Senna ripleyana	Ripley's Senna, Ripley's Wild Sensitive Plant
Senna roemeriana	Roemer Senna, Twoleaf Senna, Twoleaf Wild Sensitive Plant
Sophora secundiflora	Mescalbean
Vicia ludoviciana var. occidentalis	Slim Vetch
Vicia ludoviciana ssp. ludoviciana	Slim Vetch, Lousiana Vetch
Fagaceae	Fagaceae
Quercus buckleyi	NA
Quercus carmenensis	Mexican Oak
Quercus emoryi	Emory Oak
Quercus emoryi X Q. graciliformis	Hybrid
Quercus emoryi X Q. gravesii	Hybrid
Quercus fusiformis	NA
Quercus gambelii	Gambel Oak
Quercus gambelii X Q. grisea	Hybrid
Quercus graciliformis	Chisos Oak
Quercus gravesii	Chisos Red Oak, Graves Oak
Quercus grisea	Gray Oak
Quercus grisea X Q. diversicolor	Hybrid
Quercus grisea X Q. rugosa	Hybrid
Quercus hinckleyi	NA
Quercus hypoleucoides	NA
Quercus intricata	Coahuila Scrub Oak
Quercus laceyi	Lacey Oak
Quercus mohriana	Mohr Oak, Mohr's Shinoak
Quercus muehlenbergii	Chinkapin Oak
Quercus pungens	Pungent Oak, Shin Oak
Quercus robusta	Robust Oak
Quercus rugosa	Netleaf Oak
Quercus rugosa X Q. grisea	Hybrid
Quercus sinuata	Bastard Oak, Wavyleaf Shinoak
Quercus tardifolia	Lateleaf Oak

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Quercus undulata	NA
Quercus vaseyana	Sandpaper Oak
Fouquieriaceae	Fouquieriaceae
Fouquieria splendens	Ocotillo
Fumariaceae	Fumariaceae
Corydalis aurea ssp. aurea	Scrambled Eggs
Corydalis curvisiliqua ssp. curvisiliqua	Curvepod Fumewort
Garryaceae	Garryaceae
Garrya ovata	Eggleaf Silktassel
Garrya ovata ssp. goldmanii	Goldman's Silktassel
Garrya wrightii	NA
Gentianaceae	Gentianaceae
Centaurium arizonicum	Arizona Centuary
Centaurium calycosum	Rosita, Arizona Centuary
Centaurium calycosum var. calycosum	Rosita, Arizona Centuary
Eustoma exaltatum	Catchfly Prairie Gentian, Alkali Chalice
Eustoma exaltatum ssp. russellianum	Showy Prairie Gentian
Geraniaceae	Geraniaceae
Erodium cicutarium	Alfilaree, California Filaree, Cutleaf Filaree, Redstem Filaree
Erodium texanum	Texas Storkbill, Texas Filaree
Geranium caespitosum	Pineywoods Geranium, Purple Cluster Geranium
Grossulariaceae	Grossulariaceae
Ribes aureum	Golden Currant
Hydrangeaceae	Hydrangeaceae
Fendlera rigida	Stiff Fendlerbush
Fendlera rupicola	Cliff Fendlerbush
Philadelphus microphyllus	Littleleaf Mockorange
Philadelphus microphyllus var. microphyllus	Littleleaf Mockorange
Philadelphus serpyllifolius	NA
Hydrocharitaceae	Hydrocharitaceae
Vallisneria americana	Water Celery, American Eelgrass
Hydrophyllaceae	Hydrophyllaceae
Nama dichotomum	Wishbone Fiddleleaf
Nama havardii	Havard's Fiddleleaf
Nama hispidum	Bristly Nama, Purple Mat
Nama torynophyllum	Matted Fiddleleaf
Nama undulatum	NA
Phacelia caerulea	Skyblue Phacelia
Phacelia congesta	Blue Curls, Spike Phacelia
Phacelia infundibuliformis	Rio Grande Phacelia, Rio Grande Scorpionweed
Phacelia integrifolia	Gypsum Phacelia, Scorpionweed
Phacelia integrifolia var. texana	Gyp Phacelia, Scoipion Weed, Texan Phacelia
Phacelia pallida	Pale Phacelia, Pale scorpionweed
Phacelia popei	Pope's Phacelia, Pope's Scorpionweed
Phacelia robusta	Stout Phacelia
Phacelia rupestris	Rock Phacelia
Juglandaceae	Juglandaceae

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Carya illinoinensis	Pecan
Juglans major	Arizona Black Walnut, New Mexico Walnut
Juglans microcarpa	River Walnut, Little Walnut
Juglans microcarpa var. stewartii	Stewart's Little Walnut
Juncaceae	Juncaceae
Juncus acuminatus	Sharp Fruit Rush, Tapertip Rush
Juncus balticus	Baltic rush
Juncus bufonius	Toadrush
Juncus dudleyi	Dudley Rush
Juncus ensifolius	Swordleaf Rush, Three-Stamened Rush
Juncus interior	Inland Rush
Juncus interior var. arizonicus	Arizona Rush
Juncus marginatus	Grassleaf Rush
Juncus nodosus	Jointed Rush, Knotted Rush
Juncus saximontanus	Rocky Mountain Rush
Juncus scirpoides	Needlepod Rush
Juncus tenuis var. tenuis	Poverty Rush
Juncus torreyi	Torrey Rush
Krameriaceae	Krameriaceae
Krameria erecta	Littleleaf Ratany, Range Ratany
Krameria grayi	White Ratany
Lamiaceae	Lamiaceae
Agastache micrantha	White Giant Hyssop
Agastache pallidiflora	Bill William's Mountain Giant Hyssop
Agastache pallidiflora ssp. neomexicana	Bill William's Mountain Giant Hyssop, New Mexcian Giant Hyssop
Agastache pallidiflora var. havardii	Bill William's Mountain Giant Hyssop
Hedeoma costata	False Pennyroyal, Ribbed False Pennyroyal
Hedeoma drummondii	Drummond Falsepennyroyal
Hedeoma mollis	Falsepennyroyal, Mock Pennyroyal
Hedeoma nana	Dwarf Falsepennyroyal
Hedeoma plicata	Veiny Falsepennyroyal
Hedeoma reverchonii var. serpyllifolia	Reverchon's Falsepennyroyal
Marrubium vulgare	White Horehound
Mentha arvensis	Field Mint, Wild Mint
Mentha piperita	NA
Mentha spicata	Spearmint
Poliomintha glabrescens	Leafy Rosemarymint
Salazaria mexicana	Mexican Bladdersage
Salvia arizonica	Arizona Sage, Desert Indigo Sage
Salvia ballotaeflora	NA
Salvia greggii	Autumn Sage
Salvia lycioides	Canyon Sage
Salvia reflexa	Rocky Mountain Sage, Blue Sage
Salvia regla	Mountain Sage
Salvia roemeriana	Cedar Sage
Scutellaria drummondii	NA

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Scutellaria microphylla	Littleleaf Skullcap
Scutellaria potosina	Mexican Skullcap
Scutellaria potosina var. tesselata	Mexican Skullcap
Scutellaria wrightii	Resinous Skullcap, Wright's Skullcap
Stachys bigelovii	Rock Hedgenettle
Stachys coccinea	Scarlet Hedgenettle, Texas Betony
Teucrium coahuilanum	NA
Teucrium cubense	Small Coastal Germander
Teucrium cubense var. densum	Small Coastal Germander
Teucrium laciniatum	Lacy Germander
Liliaceae	Liliaceae
Allium cernuum	Nodding Onion
Allium drummondii	Drummond's Onion
Allium glandulosum	Gland Onion
Allium kunthii	Kunth's Onion
Allium perdulce var. sperryi	Sperry's Onion
Asparagus officinalis	Garden Asparagus
Nothoscordum bivalve	Crow Poison
Nothoscordum texanum	NA
Linaceae	Linaceae
Linum aristatum	NA
Linum australe	Southern Flax
Linum berlandieri	Berlandier's Yellow Flax
Linum berlandieri var. filifolium	Berlandier's Yellow Flax
Linum hudsonioides	Texas Flax
Linum imbricatum	Tufted Flax, Toothed Flax
Linum lewisii	Blue Flax, Lewis Flax, Prairie Flax
Linum rupestre	Rock Flax
Linum schiedeanum	Schied's Flax
Linum sulcatum	Grooved Yellow Flax
Linum vernale	Chihuahuan Flax
Loasaceae	Loasaceae
Cevallia sinuata	Stinging Cevallia
Eucnide bartonioides	Warnock's Rock Nettle, Stinging Rock Nettle, Yellow Stingbush
Mentzelia asperula	Mountain Stickleaf, Organ Mountain Blazingstar
Mentzelia lindheimeri	Lindheimer's Stickleaf
Mentzelia mexicana	Mexican Blazingstar
Mentzelia multiflora	Adonis Blazinstar, Adonis Stickleaf, Desert Blazingstar
Mentzelia oligosperma	Chickenthief
Mentzelia pachyrhiza	Coahuila Blazingstar
Mentzelia pumila	NA
Mentzelia texana	NA
Lythraceae	Lythraceae
Lythrum californicum	California Loosestrife
Nesaea longipes	Stalkflower Nesaea
Malpighiaceae	Malpighiaceae

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Janusia gracilis	Propellerbush, Slender Janusia
Malvaceae	Malvaceae
Abutilon fruticosum	Texas Indian Mallow
Abutilon malacum	Yellow Indian Mallow
Abutilon parvulum	Dwarf Indian Mallow
Abutilon wrightii	Wright Abutilon, Wright Indian Mallow
Allowissadula holosericea	Chisos Mountian False Indian Mallow
Batesimalva violacea	Purple Gaymallow
Herissantia crispa	Bladdermallow
Hibiscus coulteri	Desert Rosemallow
Hibiscus coulteri X H. denudatus	Hybrid
Hibiscus denudatus	Paleface Rosemallow
Hibiscus martianus	Heartleaf Rosemallow
Malva parviflora	Cheeseweed, Small-whorl Mallow
Malvella lepidota	Scurfy Mallow
Malvella leprosa	Alkali Mallow
Malvella sagittifolia	Arrowleaf Mallow
Rhynchosida physocalyx	Buffpetal
Sida abutifloia	Procumbent Sida, Prostrate Sida
Sida lindheimeri	NA
Sida longipes	Stalkflower Fanpetals
Sida neomexicana	New Mexico Sida
Sida tragiifolia	Catnip Noseburn, Earleaf Fanpetals, Tuberous Sida
Sphaeralcea angustifolia	Copper Globemallow, Narrowleaf Desertmallow
Sphaeralcea hastulata	Spear Globemallow, Spreading Globemallow
Sphaeralcea incana	Gray Globemallow, Soft Globemallow
Menispermiaceae	Menispermiaceae
Cocculus carolinus	Redberry Moonseed, Carolina Snailseed, Coralbead
Moraceae	Moraceae
Ficus carica	Common Fig, Higuera
Maclura pomifera	Osage Orange
Morus alba	White Mulberry
Morus celtidifolia	Mulberry
Morus microphylla	Texas Mulberry
Morus rubra	NA
Najadaceae	Najadaceae
Najas guadalupensis	NA
Nyctaginaceae	Nyctaginaceae
Abronia augustifolia	Purple Sand Verbena
Abronia fragrans	NA
Acleisanthes acutifolia	NA
Acleisanthes longiflora	Angel Trumpets
Allionia incarnata	Trailing Windmills, Trailing Four 'O Clock, Umbrellawort
Ammocodon chenopodioides	Goosefoot Moonpod
Anulocaulis eriosolenus	Big Bend Ringstem
Boerhavia anisophylla	Wineflower

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Boerhavia bracteosa	NA
Boerhavia coccinea	Scarlet Spiderling
Boerhavia diffusa	Red Spiderling
Boerhavia erecta	Erect Spiderling
Boerhavia gracillima	Slimstalk Spiderling
Boerhavia intermedia	Fivewing Spiderling, Jone's Boerhavia
Boerhavia linearifolia	Narrowleaf Spiderling
Boerhavia scandens	Climbing Spiderling, Wishbone Vine
Boerhavia spicata	Creeping Spiderling
Boerhavia wrightii	Largebract Spiderling, Wright's Boerhavia
Cyphomeris gypsophiloides	Red Cyphomeris
Mirabilis aggregata	Aggregated Four O'Clock
Mirabilis albida	White Four O'Clock, Mountain Four O'Clock
Mirabilis glabra	Smooth Four O'Clock
Mirabilis glabrifolia	NA
Mirabilis linearis	Linearleaf Four O'Clock, Narrowleaf Four O'Clock
Mirabilis oxybaphoides	Smooth Spreading Four O'Clock
Mirabilis texensis	Texas Four O'Clock
Nyctaginia capitata	Scarlet Musk-flower, Devil's Bouquet
Selinocarpus angustifolius	Narrowleaf Moonpod
Selinocarpus capitata	Littleleaf Moonpod
Selinocarpus parvifolius	Narrowleaf Foresteria, Texas Swampprivet
Oleaceae	Oleaceae
Forestiera angustifolia	Narrowleaf Foresteria, Texas Swampprivet
Forestiera pubescens	Desert Olive, Downy Forestiera, Elbowbush
Forestiera pubescens var. pubescens	New Mexico Forestiera
Forestiera reticulata	NA
Fraxinus berlandieriana	Mexican Ash
Fraxinus cuspidata	Fragrant Ash
Fraxinus greggii	Littleleaf Ash, Gregg's Ash
Fraxinus velutina	Velvet Ash
Menodora decemfida var. longifolia	Tenfinger Menodora
Menodora heterophylla	NA
Menodora longiflora	Showy Menodora
Menodora scabra	Rough Menodora
Onagraceae	Onagraceae
Calylophus hartwegii	Hartweg's Sundrops
Calylophus hartwegii ssp. hartwegii	Hartweg's Sundrops
Calylophus hartwegii ssp. pubescens	Hairy Calylophus
Calylophus tubicula	Texas Sundrops
Calylophus greggii	NA
Camissonia chamaenerioides	Long Capsule Suncup, Willowherb Suncup
Epilobium ciliatum	NA
Gaura boquillensis	Rio Grande Beeblossom, Boquillas Gaura
Gaura calcicola	Texas Beeblossom
Gaura coccinea	Scarlet Gaura

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Gaura macrocarpa	TransPecos Beeblossom
Gaura mollis	Velvetweed
Gaura suffulta	NA
Ludwigia peploides	Floating Primrose, Floating Primrosewillow
Ludwigia peploides ssp. glabrescens	Floating Primrose, Floating Primrosewillow
Ludwigia peploides ssp. peploides	Floating Primrose, Floating Primrosewillow
Oenothera albicaulis	NA
Oenothera brachycarpa	Shortfruit Evening Primrose
Oenothera kunthiana	Kunth's Eveningprimrose
Oenothera laciniata	Cutleaf Eveningprimrose
Oenothera primiveris	Desert Eveningprimrose
Oenothera rosea	Rose Eveningprimrose
Oenothera speciosa	NA
Oenothera triloba	Stemless Eveningprimrose
Orchidaceae	Orchidaceae
Deiregyne confusa	Confused Ladies Tresses
Dichromanthus cinnabarinus	Scarlet Ladies' Tresses
Epipactis gigantea	Giant Helleborine, Stream Orchid
Hexalectris grandiflora	Largeflower Crested Coralroot
Hexalectris nitida	Glass Mountain Crested Coralroot
Hexalectris revoluta	Chisos Mountain Crested Coralroot
Hexalectris spicata	Crested Coralroot
Hexalectris spicata var. arizonica	Spiked Crested Coralroot
Hexalectris spicata var. spicata	Spiked Crested Coralroot
Hexalectris warnockii	Warnock's Cockscomb, Texas Crested Coralroot
Malaxis ehrenbergii	NA
Malaxis soulei	NA
Malaxis wendtii	Wendt's Adder's-Mouth Orchid
Stenorrhynchos michuacanus	Michuacan Ladies'-Tresses
Orobanchaceae	Orobanchaceae
Conopholis alpina	Alpine Squawroot
Conopholis alpina var. mexicana	Mexican Squawroot
Orobanche cooperi	NA
Orobanche ludoviciana	Louisiana Broomrape
Orobanche ludoviciana ssp. ludoviciana	Louisiana Broomrape
Orobanche ludoviciana ssp. multiflora	Louisiana Broomrape, Manyflowered Broomrape
Orobanche multicaulis	Spiked Broomrape
Oxalidaceae	Oxalidaceae
Oxalis albicans ssp. albicans	Radishroot Woodsorrel
Oxalis drummondii	Chevron Sorrel, Drummond Woodsorrel
Oxalis stricta	Common Yellow Oxalis, Erect Woodsorrel, Sheep Sorrel
Oxalis violacea	NA
Papaveraceae	Papaveraceae
Argemone chisosensis	Chisos Mountain Pricklypoppy
Argemone mexicana	Mexican Pricklypoppy
Argemone polyanthemos	Annual Pricklypoppy, White Pricklypoppy

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Argemone sanguinea	Red Pricklypoppy, Spiny Pricklypoppy
Hunnemannia fumariifolia	Mexican Tulip Poppy
Passifloraceae	Passifloraceae
Passiflora tenuiloba	Birdwing Passionflower
Pedaliaceae	Pedaliaceae
Proboscidea louisianica ssp. fragrans	Aphid Trap, Devil's Claw, Ram's Horn, Unicornplant
Proboscidea parviflora	Red Devil's Claw, Doubleclaw
Phytolaccaceae	Phytolacaceae
Rivina humilis	Pigeonberry, Redberry Rougeplant
Pinaceae	Pinaceae
Pinus arizonica	Arizona Pine
Pinus arizonica var. stormiae	Arizona Pine
Pinus cembriodes	Mexican Pinyon Pine
Pinus edulis	NA
Pinus nelsonii	NA
Pinus ponderosa	NA
Pinus remota	Papershell Pinyon
Pseudotsuga menziesii	Douglas-fir
Pseudotsuga menziesii var. glauca	Douglas-fir
Plantaginaceae	Plantaginaceae
Plantago helleri	Heller's Plantain
Plantago hookeriana	California Plantain
Plantago ovata	Desert Indianwheat
Plantago patagonica	Woolly Plantain, Woolly Indianwheat
Plantago rhodosperma	Redseed Plantain
Plantago virginica	NA
Plantago wrightiana	Wright's Plantain
Poaceae	Poaceae
Achnatherum curvifolium	Gradalupe Needlegrass, Gradalupe Ricegrass
Achnatherum eminens	Southwestern Needlegrass
Achnatherum lobatum	Littleawn Needlegrass
Agropyron inerme	NA
Agrostis exarata	Spike Bentgrass
Agrostis hyemalis	Winter Bentgrass
Agrostis scabra	NA
Agrostis stolonifera	Carpet Bentgrass, Creeping Bentgrass, Redtop Bent, Seaside Bentgrass, Spreading Bent
Allolepis texana	Texas Salt
Andropogon gerardii	Big Bluestem, Bluejoint Grass, Turkeyfoot
Andropogon glomeratus	Bushy Bluestem
Andropogon hallii	NA
Andropogon spadiceus	NA
Aristida adscensionis	Six-Weeks Threeawn Grass
Aristida arizonica	Arizona Threeawn
Aristida divaricata	Poverty Threeawn
Aristida havardii	Havard Threeawn
Aristida longiseta	NA

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Aristida pansa	Wooton's Threeawn
Aristida purpurea	Purple Threeawn Grass
Aristida purpurea var. nealleyi	Blue Threeawn
Aristida purpurea var. pupurea	Purple Threeawn Grass
Aristida purpurea var. wrightii	Wright Threeawn Grass
Aristida scheideana	Single Threeawn
Aristida scheideana var. orcuttiana	Orcutt's Threeawn
Aristida ternipes	Spider Threeawn Grass
Aristida ternipes var. ternipes	Spider Threeawn Grass
Arundo donax	Giant Reed, River cane
Blepharidachne bigelovii	Bigelow's Desertgrass
Blepharoneuron tricholepis	Pine Dropseed
Bothriochloa barbinodis	Cane bluestem
Bothriochloa barbinodis var. barbinodis	Cane bluestem
Bothriochloa ischaemum	Turkestan Beardgrass, Yellow Bluestem
Bothriochloa laguroides	Silver Beardgrass
Bothriochloa laguroides ssp. torreyana	Silver Bluestem
Bothriochloa springfieldii	Springfield's Beardgrass
Bouteloua aristidoides	Needle Grama
Bouteloua barbata	Sixweeks Grama
Bouteloua breviseta	Chino Grama, Gypsum Grama
Bouteloua chondrosioides	Sprucetop Grama
Bouteloua curtipendula	Sideoats Grama
Bouteloua curtipendula var. caespitosa	Sideoats Grama
Bouteloua curtipendula var. curtipendula	Sideoats Grama
Bouteloua eriopoda	Black Grama
Bouteloua gracilis	Blue Grama
Bouteloua hirsuta	Hairy Grama
Bouteloua kayi	Kay's Grama
Bouteloua ramosa	Chino Grama
Bouteloua simplex	Mat Grama
Bouteloua trifida	Red Grama
Bouteloua uniflora	Neally Grama, Oneflower Grama
Bromus anomalus	Nodding Brome
Bromus arizonicus	Arizona Brome
Bromus carinatus	California Brome, Mountain Brome
Bromus catharticus	Rescue Brome
Bromus lanatipes	Woolly Brome
Bromus polyanthus	Great Basin Brome
Bromus tectorum var. glabratus	Cheatgrass
Cathestecum erectum	False Grama
Cenchrus ciliaris	Buffelgrass
Cenchrus incertus	Grassbur, Coast sandbur
Cenchrus myosuroides	Big Sandbur
Cenchrus spinifex	Coastal Sandbur
Chloris andropogonoides	NA

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Chloris crinita	False Rhodesgrass, Twoflower Crinita
Chloris latisquamea	NA
Chloris virgata	Feather Fingergrass, Feather Windmillgrass, Showy Chloris
Cottea pappophoroides	Cotta Grass
Cynodon dactylon	Bermudagrass
Dasyochloa pulchella	Fluffgrass
Dichanthelium acuminatum	Hotsprings Panicum, Tapered Rosette Grass
Dichanthelium acuminatum var. lindheimeri	Lindheimer Panicgrass
Digitaria californica	Arizona Cottontop
Digitaria ciliaris	Fingergrass, Henry's Crabgrass, Smooth Crabgrass, Southern Crabgrass
Digitaria cognata	Fall Witchgrass, Carolina Cottontop, Carolina Crabgrass
Digitaria cognata var. cognata	Fall Witchgrass
Digitaria cognata var. pubiflora	Carolina Crabgrass
Digitaria sanguinalis	Hairy Crabgrass, Purple Crabgrass
Distichlis spicata	Desert Saltgrass, Inland Saltgrass, Marsh Spikegrass, Seashore Saltgrass
Echinochloa colona	Jungle rice
Echinochloa crus-galli	Barnyard Grass, Cockspur, Japanese Millet, Watergrass
Echinochloa crusgalli var. zelayensis	NA
Echinochloa cruspavonis var. macera	NA
Echinochloa muricata	Rough Barnyard Grass
Elionurus barbiculmis	Woolspike Balsamscale, WoolySpike Bunchgrass
Elymus arizonicus	Arizona Wheatgrass
Elymus canadensis	Canada Wildrye
Elymus elymoides	Squirreltail, Bottlebrush
Elymus trachycaulus	Slender Wheatgrass, Slender Wildrye
Elyonurus barbiculmis	NA
Enneapogon desvauxii	Feather Pappusgrass, Nineawn Pappusgrass, Spike Pappusgrass
Eragrostis barrelieri	Mediterranean Lovegrass
Eragrostis cilianensis	Candy Grass, Lovegrass, Stinkgrass
Eragrostis erosa	NA
Eragrostis intermedia	Plains Lovegrass
Eragrostis lehmanniana	Lehmann Lovegrass
Eragrostis lugens	NA
Eragrostis mexicana	Mexican Lovegrass
Eragrostis pectinacea	Spreading Lovegrass, Purple Lovegrass
Eragrostis pectinacea var. pectinacea	Spreading Lovegrass, Purple Lovegrass
Erioneuron avenaceum	Shortleaf Woollygrass
Erioneuron nealleyi	Nealley's Woollygrass
Erioneuron pilosum	Hairy Tridens, Hairy Wollygrass
Erioneuron pulchellum	NA
Festuca arizonica	Arizona Fescue
Festuca ligulata	Guadalupe Fescue
Hemarthria altissima	African Jointgrass
Hesperostipa neomexicana	New Mexican Feathergrass
Heteropogon contortus	Tanglehead

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Hilaria mutica	Tobosa
Imperata brevifolia	California Satintail
Koeleria macrantha	Junegrass
Leptochloa dubia	Green Sprangletop
Leptochloa fusca ssp. fasicularis	Bearded Sprangletop
Leptochloa fusca ssp. uninervia	Mexican Sprangletop
Leptochloa panicea ssp. brachiata	Red Sprangletop
Leptochloa panicea ssp. mucronata	Mucronate Sprangletop
Lolium perenne	Italian Ryegrass, Perennial Ryegrass
Lycurus phleoides	Common Wolfstail
Lycurus setosus	Bristly Wolfstail
Melica montezumae	Montexuma Melicgrass
Muhlenbergia arenacea	Ear Muhly, Eared Muhly
Muhlenbergia arenicola	Sand Muhly
Muhlenbergia depauperata	Sixweeks Muhly
Muhlenbergia dubia	Cane Muhly, Pine Muhly
Muhlenbergia eludens	Gravelbar Muhly, Little Muhly
Muhlenbergia emersleyi	Bullgrass, Bully Muhly
Muhlenbergia glauca	Desert Muhly
Muhlenbergia minutissima	Annual Muhly
Muhlenbergia montana	Mountain Muhly
Muhlenbergia parviglumis	Longawn Muhly
Muhlenbergia pauciflora	New Mexico Muhly
Muhlenbergia polycaulis	Cliff Muhly
Muhlenbergia porteri	Bush Muhly
Muhlenbergia repens	Creeping Muhly, Red Muhly
Muhlenbergia rigens	Deer Muhly, Deergrass
Muhlenbergia rigida	Purple Muhly
Muhlenbergia setifolia	Curlyleaf Muhly
Muhlenbergia tenuifolia	Mesa Muhly, Slimflower Muhly
Muhlenbergia utilis	Aparejo Muhly
Nassella tenuissima	Finestem Tussockgrass
Oplismenus hirtellus	NA
Panicum antidotale	Blue Panicgrass
Panicum arizonicum	Arizona Panicgrass
Panicum bulbosum	Bulb Panicgrass
Panicum capillare	Annual Witchgrass, Common Panic Grass, Tumble Panic Grass
Panicum ghiesbreghtii	Gheisbreght Panicgrass
Panicum hallii	Hall Panicgrass
Panicum hirticaule	Mexican Panicgrass, Roughstalk Witchgrass
Panicum lanuginosum	Woolly Panicgrass
Panicum obtusum	Vine Mesquite
Panicum oligosanthes	NA
Pappophorum bicolor	Pink Pappusgrass
Pappophorum vaginatum	Pima Pappusgrass, Whiplash Pappusgrass
Pascopyrum smithii	Western Wheatgrass

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Paspalum dilatatum	Dallas Grass, Dallis Grass, Water Grass
Paspalum pubiflorum	Hairyseed Paspalum
Pennisetum ciliare	Buffelgrass
Phragmites austrails	Common Reed
Piptochaetium fimbriatum	Pinyon Ricegrass
Pleuraphis mutica	Tobosa Grass
Poa bigeovii	Bigelow Bluegrass
Poa fendleriana	Mutton Grass
Poa strictiramea	Chisos Bluegrass, Big Bend Bluegrass
Polypogon monspeliensis	Rabbitsfoot Beardgrass
Polypogon viridis	Water Bentgrass, Beardless Rabbitsfoot Grass
Schizachyrium cirratum	Texas Bluestem
Schizachyrium sanguineum	Crimson Bluestem
Schizachyrium sanguineum var. hirtiflorum	Crimson Bluestem
Schizachryium scoparium	Litte Bluestem
Schizachyrium scoparium var. scoparium	Little Bluestem
Scleropogon brevifolius	Burro Grass
Setaria adhaerens	NA
Setaria grisebachii	Grisebach Bristlegrass
Setaria italica	Foxtail Bristlegrass, Foxtail Millet, Italian Foxtail
Setaria leucopila	Plains Bristlegrass
Setaria macrostachya	NA
Setaria parviflora	Marsh Bristlegrass, Yellow Bristlegrass
Setaria ramiseta	Bristle panicum, Rio Grande Bristlegrass
Setaria reverchonii	Reverchon Bristlegrass
Setaria scheelei	Southwestern Bristlegrass
Setaria viridis	Bottlegrass, Green Bristlegrass, Milletgrass
Sitanion longifolium	NA
Sorghastrum nutans	Indiangrass
Sorghum bicolor	Broomcorn, Shattercane, Wild Cane
Sorghum halepense	Johnsongrass
Sphenopholis obtusata	Prarie Wedgescale
Sporobolus airoides	Alkali Sacaton
Sporobolus contractus	Spike Dropseed
Sporobolus cryptandrus	Sand Dropseed
Sporobolus flexuosus	Mesa Dropseed
Sporobolus pyramidatus	Pyramid Dropseed
Sporobolus wrightii	Giant Sacaton
Stipa pringlei	NA
Tragus berteronianus	Spiked Burrgrass
Trichachne hitchcockii	NA
Trichachne insularis	NA
Trichloris pluriflora	NA
Tridens albescens	White Tridens
Tridens eragrostoides	Lovegrass Tridens
Tridens muticus	Slim Tridens

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Tridens muticus var. muticus	Slim Tridens
Tripsacum dactyloides	Eastern Gamagrass
Urochloa arizonica	Arizona Signalgrass
Urochloa fasciculata	Browntop Signalgrass
Vulpia octoflora	Eight-Flower Six-Weeks Grass, Sixweeks Fescue, Pullout Grass
Polemoniaceae	Polemoniaceae
Gilia incisa	Splitleaf Gilia
Gilia insignis	Marked Gilia
Gilia rigidula ssp. acerosa	Bluebowls
Gilia rigidula ssp. rigidula	Bluebowls
Gilia stewartii	Stewart Gilia
Ipomopsis aggregata	Desert Trumpet, Scarlet Gilia, Skyrocket Gilia
Ipomopsis arizonica	Arizona Iopmopsis, Arizona Skyrocket
Ipomopsis havardii	Havard Ipomopsis, Havard Skyrocket
Ipomopsis laxiflora	Iron Ipomopsis, Iron Skyrocket
Ipomopsis longiflora	Flaxflowered Gilia, Whiteflower Skyrocket
Ipomopsis pumila	NA
Ipomopsis longiflora var. neomexicana	NA
Loeselia greggii	Chisos Mountain False Calico
Loeselia mexicana	NA
Phlox mesoleuca	Threadleaf Phlox
Phlox nana	Santa Fe Phlox
Phlox triovulata	NA
Polygalaceae	Polygalaceae
Polygala alba	White Milkwort
Polygala barbeyana	Blue Milkwort
Polygala lindheimeri	Shrubby Milkwort
Polygala lindheimeri var. lindheimeri	Shrubby Milkwort
Polygala lindheimeri var. parvifolia	Shrubby Milkwort
Polygala macradenia	Glandleaf Milkwort, Purple Milkwort
Polygala maravillasensis	Maravillas Milkwort
Polygala nudata	Smallflower Milkwort
Polygala obscura	Velvetseed Milkwort
Polygala scoparioides	Broom Milkwort
Polygonaceae	Polygonaceae
Eriogonum abertianum	Abert Buckwheat
Eriogonum havardii	Havard's Buckwheat
Eriogonum hemipterum	Chisos Mountain Buckwheat
Eriogonum hieracifolium	NA
Eriogonum jamesii	Antelope Sage, James Buckwheat
Eriogonum jamesii var. undulatum	Antelope Sage, James Buckwheat
Eriogonum lachnogynum	NA
Eriogonum polycladon	Sorrel Buckwheat
Eriogonum rotundifolium	Roundleaf Buckwheat
Eriogonum tenellum	Matted Buckwheat
Eriogonum tenellum var. platyphullum	Tall Buckwheat

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Eriogonum tenellum var. tenellum	Tall Buckwheat
Eriogonum wrightii	Bastardsage, Shrubby Buckwheat
Eriogonum wrightii var. wrightii	Bastardsage, Shrubby Buckwheat
Polygonum convolvulus	Black Bindweed, Climbing Buckwheat, Dullseed Cornbind, Pink Smartweed
Polygonum hydropiperoides	Swamp Smartweed
Polygonum lapathifolium	Curltop Ladysthumb, Curlytop Knotweed, Dockleaf Smartweed, Pale Smartweed
Polygonum pennsylvanicum	Pennsylvania Knotweed, Smartweed
Polygonum persicaria	Ladysthumb Smartweed, Spotted Knotweed, Spotted Smartweed
Rumex altissimus	Pale Dock, Smooth Dock
Rumex chrysocarpus	NA
Rumex crispus	Curly Dock, Yellow Dock
Rumex maritimus	Bristle Dock, Golden Dock
Rumex salicifolius var. mexicanus	Mexican Dock, Trianglevalve Dock
Rumex violascens	Violet Dock
Polypodiaceae	Polypodiaceae
Pleopeltis polylepsis var.erythrolepsis	NA
Pleopeltis riograndensis	Rio Grande Scaly Polypody
Pleopeltis thyssanolepis	Arizona Scaly Polypody
Portulacaceae	Portulacaceae
Portulaca oleracea	Common Purslane, Duckweed, Little Hogweed
Portulaca pilosa	Chisme, Kiss Me Quick
Portulaca suffrutescens	Common Purslane, Duckweed, Little Hogweed
Talinopsis frutescens	Arroyo Flameflower
Talinum aurantiacum	Orange Flameflower
Talinum brevicaule	Dwarf Flameflower
Talinum longipes	Pink Flameflower
Talinum paniculatum	Big Talinum, Jewels of Opar
Talinum parviflorum	Prairie Flameflower, Sunbright
Talinum pulchellum	NA
Potamogetonaceae	Potamogetonaceae
Potamogeton clystocarpus	NA
Potamogeton diversifolius	Waterthread Pondweed
Stuckenia pectinata	Sago Pondweed
Primulaceae	Primulaceae
Anagallis arvensis	Scarlet Pimpernel
Androsace occidentalis	Western Rock Jasmine
Samolus ebracteatus	Bractless Brookweed, Limewater Brookweed
Samolus ebracteatus ssp. cuneatus	Limewater Brookweed
Samolus valerandi ssp. parviflorus	Seaside Brookweed, Smallflower Water Pimpernel
Pteridaceae	Pteridaceae
Adiantum capillus-veneris	Common Maidenhair Fern
Argyrochosma limitanea	Southwestern False Cloakfern
Argyrochosma limitanea ssp. mexicana	Southwestern False Cloakfern
Argyrochosma microphylla	Cloakfern genus
Astrolepis cochisensis	Cochise Scaly Cloakfern
Astrolepis integerrima	Hybrid Cloakfern, Hybrid Lipfern

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Astrolepis sinuata	Wavy Scaly Cloakfern
Astrolepis sinuata ssp. sinuata	Wavy Scaly Cloakfern
Astrolepis windhamii	Windham's Scaly Cloakfern
Bommeria hispida	Copper Fern
Cheilanthes alabamensis	Alabama Lipfern
Cheilanthes bonariensis	Golden Lipfern
Cheilanthes cochisensis	NA
Cheilanthes eatonii	Eaton Lipfern
Cheilanthes feei	Fee Lipfern
Cheilanthes horridula	Rough Lipfern
Cheilanthes integerrima	NA
Cheilanthes kaulfussii	Kalfuss Lipfern
Cheilanthes lendigera	Nitbearing Lipfern
Cheilanthes lindheimeri	Fairy Swords, Lindheimer Lipfern
Cheilanthes tomentosa	Woolly Lipfern
Cheilanthes villosa	Villous Lipfern
Cheilanthes wrightii	Wright Lipfern
Notholaena aliena	NA
Notholaena candida var. copelandii	NA
Notholaena grayi	Gray's Cloakfern
Notholaena greggii	Gregg Cloakfern
Notholaena nealleyi	Nealley's Cloakfern
Notholaena neglecta	Maxon's Cloakfern
Notholaena parvifolia	NA
Notholaena standleyi	Star Cloakfern
Pellaea atropurpurea	Purple Cliffbreak
Pellaea cordifolia	Heartleaf Cliffbreak
Pellaea intermedia	Intermediate Cliffbreak
Pellaea ovata	Ovateleaf Cliffbreak
Pellaea ternifolia	Trans Pecos Cliffbreak
Pellaea ternifolia ssp. arizonica X P. wrightiana	Hybrid
Pellaea ternifolia ssp. ternifolia	TransPecos Cliffbreak
Pellaea wrightiana	Wright Cliffbreak
Pteridium aquilinum var.pubscens	NA
Rafflesiaceae	Rafflesiaceae
Pilostyles thurberi	Thurber's Stemsucker
Ranunculaceae	Ranunculaceae
Anemone heterophylla	NA
Anemone tuberosa var. texana	Tuber Anemone
Aquilegia longissima	Longspur Columbine
Clematis drummondii	Texas Virgin's Bower, Drummond Clematis, Old Man's Beard
Clematis pitcheri	Bluebill, Pitcher Clematis
Clematis pitcheri var. dictoya	Bluebill, Pitcher Clematis
Clematis pitcheri var. pitcheri	Bluebill Pitcher's Clematis
Delphinium corolinianum	Blue Larkspur, Carolina Larkspur
Delphinium wootonii	Organ Mountain Larkspur

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Myosurus minimus	Tiny Mousetail
Ranunculus sceleratus	Celeryleaf Buttercup, Cursed Buttercup
Resedaceae	Resedaceae
Oligomeris linifolia	Linearleaf Combess, Lineleaf Whitepuff, Oligomeris
Rhamnaceae	Rhamnaceae
Adolphia infesta	Texas Adolphia
Ceanothus fendleri	Fendler's Ceanothus
Ceanothus greggii	Desert Ceanothus
Colubrina texensis	NA
Condalia ericoides	Javalina Bush
Condalia viridis	Green Condalia, Green Snakewood
Condalia warnockii	Squawbush, Warnock Snakewood
Frangula betulifolia	Beechleaf Buckthorn, Birchleaf Frangula
Karwinskia humboldtiana	Coyotillo
Rhamnus serrata	Sawleaf Buckthorn
Ziziphus obtusifolia	Lotebush, Graythorn
Ziziphus obtusifolia var. obtusifolia	Lotebush, Graythorn
Rosaceae	Rosaceae
Cercocarpus glaberoides	NA
Cercocarpus glaberoides var. glaber	NA
Cercocarpus montanus	Mountain Mahogany
Cercocarpus montanus var. glaber	Birchleaf Mountain Mahogany
Cercocarpus montanus var. paucidentatus	Hairy Mountain Mahogany
Fallugia paradoxa	Apacheplume
Holodiscus discolor	Creambush Oceanspray
Holodiscus dumosus	Bush Oceanspray, Bush Rockspires
Malacomeles denticulata	Big Bend Serviceberry
Petrophyton caespitosum	Mat Rockspirea, Tufted Rockmat
Prunus havardii	Havard Plum
Prunus minutiflora	NA
Prunus persica var. persica	Peach
Prunus serotina	Black Cherry
Prunus serotina var. virens	Black Cherry
Purshia ericifolia	Heath Cliffrose
Rubus persistens	Persistent Blackberry
Rubus trivialis	NA
Vauquelinia corymbosa	Slimleaf Rosewood
Vauquelinia corymbosa ssp. angustifolia	Slimleaf Rosewood
Rubiaceae	Rubiaceae
Bouvardia ternifolia	Scarlet Bouvardia, Firecracker Bush
Cephalanthus occidentalis	Buttonbush
Cephalanthus salicifolius	NA
Galium aparine	NA
Galium mexicanum ssp. flexicum	Mexican Bedstraw
Galium mexicanum var. asperulum	NA
Galium microphyllum	Bracted Bedstraw

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Galium proliferum	Limestone Bedstraw
Galium texense	NA
Galium uncinulatum	Bristly Bedstraw
Galium virgatum	Southwestern Bedstraw
Galium wrightii	Slenderbranch Bedstraw, Wright Bedstraw
Hedyotis acerosa	NA
Hedyotis butterwickiae	Butterwick's Starviolet
Hedyotis intricata	Cluster Bluet, Tangled Starviolet
Hedyotis mullerae	NA
Hedyotis nigricans var. nigricans	Diamond Flowers, Prairie Bluets
Hedyotis pooleana	Poole's Starviolet, Jackie's Bluet
Houstonia acerosa	Needleleaf Bluet
Rutaceae	Rutaceae
Ptelea trifoliata	Hoptree, Skunkbush
Ptelea trifoliata var. angustifolia	Common Hoptree
Thamnosma texana	Texas Desertrue, Dutchman's Britches
Thamnosma texanum var. purpureum	NA
Salicaceae	Salicaceae
Populus angustifolia	Narrowleaf Cottonwood
Populus deltoides	Common Cottonwood, Eastern Cottonwood, Plains Cottonwood
Populus deltoides ssp. wislizeni	Rio Grande Cottonwood
Populus fremontii	Fremont Cottonwood
Populus fremontii ssp. fremontii	Fremont Cottonwood
Populus fremontii ssp. mesetae	Fremont Cottonwood, Arizona Cottonwood
Populus tremuloides	Quaking Aspen
Populus X acuminata	Lanceleaf Cottonwood
Salix exigua	Coyote Willow, Sandbar Willow
Salix exilifolia	NA
Salix gooddingii	Goodding Black Willow
Salix interior	Sandbar Willow
Salix lasiolepis	Arroyo Willow
Salix nigra	Black Willow
Salix taxifolia	Yewleaf Willow
Sapindaceae	Sapindaceae
Sapindus saponaria	Western Soapberry, Wingleaf Soapberry
Sapindus saponaria var. drummondii	Western Soapberry
Ungnadia speciosa	Mexican Buckeye
Sapotaceae	Sapotaceae
Sideroxylon lanuginosum ssp. rigidum	Gum Bully
Saxifragaceae	Saxifragaceae
Heuchera rubescens	Pink Alumroot, Jack of the Rocks
Scrophulariaceae	Scrophulariaceae
Bacopa monnieri	Coastal Waterhyssop, Herb of Grace
Castilleja elongata	NA
Castilleja integra	Wholeleaf Indian Paintbrush, Squawfeather
Castilleja integra var. integra	Wholeleaf India Paintbrush

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Castilleja lanata	Sierra Woolly Indian Paintbrush
Castilleja rigida	Rigid Indian Paintbrush
Castilleja sessiliflora	Downy Paintedcup, Grat Plains Indian Paintbrush
Chilopsis linearis	Desertwillow
Collinsia violacea	NA
Leucophyllum candidum	Boquillas Silverleaf
Leucophyllum frutescens	Ceniza, Purple Sage
Leucophyllum minus	Big Bend Silverleaf
Linaria texana	NA
Maurandella antirrhiniflora	Climbing Snapdragon, Roving Sailor
Maurandya wislizenii	Balloonbush
Mecardonia procumbens	Baby Jumpup
Mecardonia vandellioides	NA
Mimulus glabratus	Roundleaf Monkeyflower, Smooth Monkeyflower
Mimulus guttatus	Common Monkeyflower, Seep Monkeyflower
Nuttallanthus texanus	Texas Toadflax
Penstemon baccharifolius	Baccharisleaf Beardtongue
Penstemon barbatus	Beardlip Penstemon
Penstemon barbatus ssp. torreyi	Torrey Penstemon
Penstemon dasyphyllus	Purple Penstemon, Cochise Beardtongue
Penstemon fendleri	Fendler Penstemon, Fendler Beardtongue
Penstemon havardii	Big Bend Beardtongue
Penstemon ramosus	Lanceleaf Beardtongue, Lanceleaf Penstemon
Penstemon superbus	NA
Penstemon wrightii	Wright's Beardtongue
Seymeria falcata var. falcata	Blacksenna
Seymeria scabra	Limpia Blacksenna
Veronica peregrina	Neckweed, Purselane Speedwell
Selaginellaceae	Selaginellaceae
Selaginella arizonica	Arizona Clubmoss, Arizona Spikemoss
Selaginella densa var. scopulorum	NA
Selaginella densa var. scopulorum	Rocky Mountain Clubmoss, Rocky Mountain Spikemoss
Selaginella lepidophylla	Resurrection Fern, Flower of Stone
Selaginella mutica	Bluntleaf Spikemoss
Selaginella mutica var. limitanea	Bluntleaf Spikemoss
Selaginella peruviana	Peruvian Spikemoss
Selaginella pilifera	Resurrection Plant
Selaginella rupincola	Rockloving Spikemoss
Selaginella underwoodii	Underwood Spikemoss
Selaginella viridissima	Green Spikemoss
Selaginella wrightii	Wright's Spikemoss
Selaginella X neomexicana	New Mexican Spikemoss, New Mexico Selaginella
Simaroubaceae	Simaroubaceae
Castela erecta ssp. texana	Allthorn Goatbush, Texan Goatbush
Holacantha stewartii	Crucifixion Thorn
Solanaceae	Solanaceae

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Calibrachoa parviflora	Seaside Petunia
Chamaesaracha coniodes	Gray False Nightshade, Gray Five-eyes
Chamaesaracha coronopus	Green False Nightshade, Greenleaf Five-Eyes
Chamaesaracha crenata	NA
Chamaesaracha pallida	Pale Five Eyes
Chamaesaracha sordida	Hairy Five Eyes
Chamaesaracha villosa	TransPecos Five Eyes
Datura innoxia	Angel's Trumpet, Desert Thornapple, Sacred Datura
Datura quercifolia	Chinese Thornapple
Datura wrightii	Sacred Datura, Sacred Thornapple
Lycium berlandieri	Berlandieri Wolfberry
Lycium berlandieri var. parviflorum	Small Berlandieri Wolfberry
Lycium pallidum	Pale Wolfberry
Lycium puberulum var. berberioides	Down Desertthorn
Lycium torreyi	Squawthorn, Torrey Wolfberry
Margaranthus solanaceus	Netted Globecherry
Nectouxia formosa	Trans Pecos Stinkleaf
Nicotiana glauca	Tree Tobacco
Nicotiana obtusifolia var. obtusifolia	Desert Tobacco
Nicotiana repanda	NA
Physalis cinerascens	Smallflower Groundcherry
Physalis cinerascens var. cinerascens	Smallflower Groundcherry
Physalis hederifolia	Ivyleaf Groundcherry
Physalis hederifolia var. comata	Ivyleaf Groundcherry
Physalis hederifolia var. fendleri	Fendler Groundcherry
Physalis hederifolia var. hederifolia	Ivyleaf Groundcherry
Physalis philadelphica	Mexican Groundcherry
Physalis philadelphica var. immaculata	Tomatillo, Mexican Groundcherry
Quincula lobata	Purple Ground Cherry
Solanum americanum	American Nightshade, Purple Nightshade
Solanum citrullifolium	NA
Solanum davisense	Davis Horsenettle
Solanum douglasii	Green Spot Nightshade
Solanum elaeagnifolium	Silverleaf Nightshade
Solanum fendleri	NA
Solanum ptychanthum	American Nightshade, Purple Nightshade
Solanum rostratum	Buffalobur Nightshade, Mexican Thistle, Texas Thistle
Solanum sarrachoides	NA
Solanum sisymbriifolium	NA
Solanum triquetrum	Texas Nightshade
Solanum villosum	Hairy Nightshade
Solanum stoloniferum	NA
Sterculiaceae	Sterculiaceae
Ayenia filiformis	Trans Pecos Ayenia
Ayenia microphylla	Dense Ayenia, Shrubby Ayenia
Ayenia pilosa	Hairy Ayenia

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Tamaricaceae	Tamaricaceae
Tamarix aphylla	Tamarisk, Saltcedar, Athel Tamarisk
Tamarix chinensis	Chinese Saltcedar, Fivestamen Tamarisk, Tamarix
Tamarix gallica	Tamarisk, Saltcedar
Tamarix ramosissima	Saltcedar, Tamarisk
Thelypteridaceae	Thelypteridaceae
Thelypteris ovata var. lindheimeri	Lindheimer Marsh Fern
Typhaceae	Typhaceae
Typha angustifolia	Southern Cattail
Typha domingensis	Southern Cattail
Typha latifolia	Broadleaf Cattail
Ulmaceae	Ulmaceae
Celtis laevigata var. reticulata	Netleaf Hackberry
Celtis pallida	Spiny Hackberry
Ulmus pumila	Chinese Elm, Siberian Elm
Urticaceae	Urticaceae
Parietaria pensylvanica	Pensylvania Pellitory
Verbenaceae	Verbenaceae
Aloysia gratissima	Whitebrush, Beebrush
Aloysia gratissima var. gratissima	Whitebrush
Aloysia wrightii	Wright Beebrush, Lemon Verbena
Bouchea linifolia	Groovestem Bouchea
Bouchea spathulata	Spoonleaf
Glandularia bipinnatifida var. bipinnatifida	Dakota Mock Vervain
Glandularia pumila	Pink Mock Vervain
Glandularia quadrangulata	Beaked Mock Vervain
Glandularia racemosa	Pale Mock Vervain
Glandularia verecunda	Chihuahuan Mock Vervain
Glandularia wrightii	Davis Mountain Mock Vervain
Lantana achyranthifolia	Brushland Shrubverbena, Veinleaf Lantana
Lippia graveolens	Scented Lippia, Mexican Oregano
Phyla nodiflora	Sawtooth Frogfruit, Turkey Tangle
Tetraclea coulteri	Coulter Wrinklefruit
Verbena brasiliensis	Brazilian Vervain
Verbena canescens	Gray Vervain
Verbena halei	Texas Verbena
Verbena neomexicana	Hillside Vervain, New Mexico Verbena
Verbena neomexicana var. hirtella	Hillside Vervain, New Mexico Verbena
Verbena perennis	Perennial Verbena, Pinleaf Vervain
Verbena plicata	NA
Verbena quadrangulata	NA
Verbena scabra	Sandpaper Vervain
Verbena livermorensis	NA
Violaceae	Violaceae
Hybanthus verticillatus	Baby Slippers, Whorled Nodding Violet
Viscaceae	Viscaceae

Plant Species List for BIBE/RIGR	
Scientific Name	**Common Name**
Phoradendron bolleanum	Bollean Mistletoe
Phoradendron coryae	Cory Mistletoe
Phoradendron hawksworthii	Rough Mistletoe, Hawksworth Mistletoe
Phoradendron juniperinum	Juniper Mistletoe
Phoradendron macrophyllum	Colorado Desert Mistletoe
Phoradendron tomentosum	Christmas Mistletoe
Phoradendron villosum	Pacific Mistletoe
Vitaceae	Vitaceae
Cissus trifoliata	Sorrelvine
Vitis arizonica	Canyon Grape
Vitis palmata	NA
Vitis rupestris	Sand Grape
Zygophyllaceae	Zygophyllaceae
Guaiacum angustifolium	Guayacan
Kallstroemia californica	NA
Kallstroemia grandiflora	Arizona Poppy, Orange Caltrop
Kallstroemia hirsutissima	Hairy Caltrop, Carpetweed
Kallstroemia parviflora	Warty Caltrop
Larrea tridentata	Creosotebush
Larrea tridentata var. tridentata	Creosotebush
Tribulus terrestris	Bullhead Caltrop, Puncturevine, Texas Sandbur

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resurces; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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