PLANT INVENTORY REPORT
FOR
CERTAIN LANDS IN PORTIONS OF T1S, R6W, SECTIONS 20 AND 22; T1S, R6W, SECTION 26; AND T1S, R5W, SECTIONS 31 AND 32

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and

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Summary

Arlington Valley Solar Energy (AVSE) and Arlington Valley Solar Energy II (AVSE II) are developing two solar energy projects in western Maricopa County. Portions of each Project may be located on Arizona State Trust Lands (ASTL) that would be leased. In addition, rights-of-way (ROWs) would be required for each Project - a portion of the proposed gen-tie line for the AVSE facility and the proposed access road for the AVSE II site (**Figure 1**).

The Arizona State Land Department (ASLD) requires compensation for the loss of native plants from activities on ASTL. Surveys on the ASTL lands potentially affected by the AVSE Projects were completed in January 2010 to estimate the number of native trees, shrubs, sub-shrubs, and cactus that will be removed. These estimates were then used to determine monetary compensation for the loss of native plants based on guidance from the ASLD (Witte 2010b).

Vegetation communities and approximate acreages of ASTL that may be impacted by the projects are shown in **Table S-1**.

Table S-1 Vegetation Communities and Approximate Acreages on ASTL

Vegetation Community	AVSE	AVSE Gen-Tie[1]	AVSE II	AVSE II Access Road[2]
Creosote bush scrub	116.00	0.54	29.82	5.78
Desert saltbush scrub	33.47	0	70.73	2.58
Mesquite	11.90	0.18	0	1.00
Desert Pavement	53.96	0	0	0
Tamarisk	7.50	0	0	0
Disturbed/barren	9.99	0	46.16	0
Total	**232.82**	**0.72**	**146.71**	**9.36**

[1] Based on a 50-foot radius of disturbance around each of 4 transmission structures.
[2] Based on a 60-foot wide corridor.

Estimated compensation for the four project components on ASTL lands based on these acreages and species estimates are shown in **Table S-2**.

Table S-2 Estimated Native Plant Compensation

Project Component	Estimated Compensation
AVSE Site	$72,343
AVSE Gen-tie Line	$567
AVSE Subtotal	**$72,910**
AVSE II Site	$52,749
AVSE II Access Road	$3,488
AVSE II Subtotal	**$56,237**

Introduction

The Arizona State Land Department (ASLD) requires compensation for the loss of native plants from ASTL. Many projects are too large to require a 100 percent inventory; therefore, a sampling protocol was developed by ASLD to provide a reasonable estimate of the number of native trees, shrubs, sub-shrubs, and cactus that will be removed.

An inventory of the plants occurring was conducted on the ASTL for the potential state leases and ROWs associated with the AVSE and AVSE II projects to determine monetary compensation for the loss of native plants.

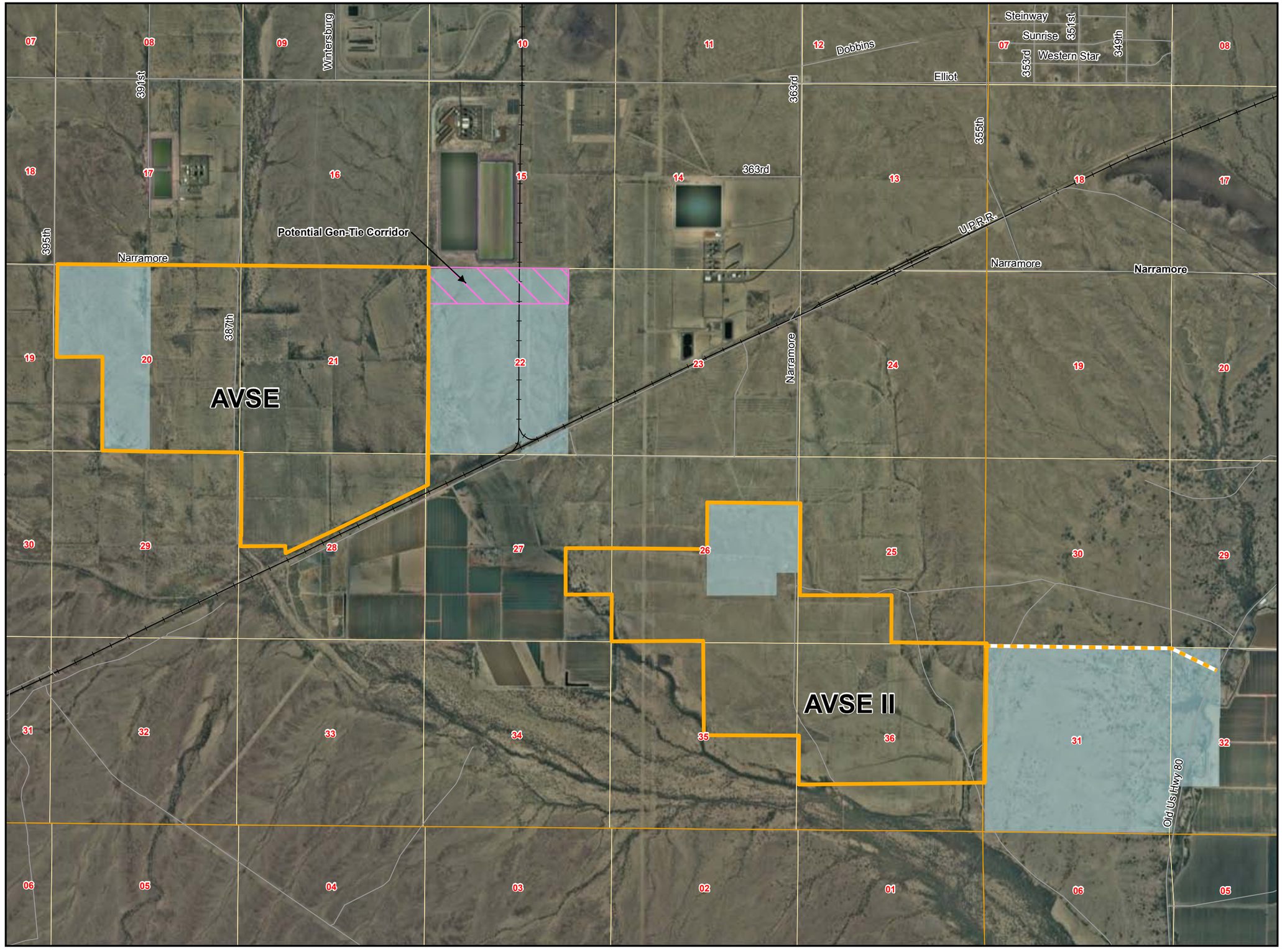
Survey Methods

A survey of the portions of the AVSE and AVSE II project sites that are ASTL under the jurisdiction of the ASLD was conducted on January 16-18, 2010. We prepared a sampling protocol and methodology based on the Suggested ASLD Native Plant Survey Protocol (2009) and consultation with the ASLD (Russell 2009 and Witte 2010a and 2010b). This protocol and methodology was approved by the ASLD.

Sample Points were randomly located using a grid system over the sites and assigning the location by randomly generating coordinates. A stratified sampling approach was taken to insure that sample points adequately represented differences in the vegetation (based on Brown 1994) and soils within the different vegetation communities at the sites. A minimum of 2 sample points for each soil type/soil slope combination within a vegetative community were randomly placed within the survey areas. A total of 20 sample points were taken. The survey direction was designated as that direction that allowed the farthest walk from the random point that stayed in the soil type/slope combination.

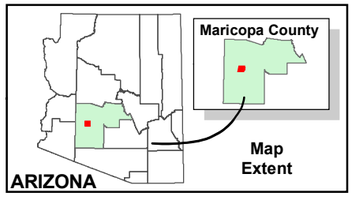
At each sample point, native trees, shrubs, subshrubs, and cactus were inventoried (complete count) for a distance beyond which no new species were added to the inventory. A species accumulation curve was plotted in the field for each inventory (modified Relevé) to verify the distance for each transect.

A species list was gathered as biologists walked in the designated direction from the start point. The point at which an asymptote was reached was the endpoint for the plant inventory and was flagged and marked with a GPS.



Legend

- Major Road
- Road
- AVSE II Access Road
- Railroad
- AVSE / AVSE II Project Areas
- AVSE Gen-Tie Option
- State Lands Surveyed
- Township / Range Boundary
- Section Boundary



0 0.5 1
Miles

0 1,000 2,000 3,000 4,000 5,000
Feet

State Plane Coordinate System
North American Datum 1983
Arizona Central
Linear Unit: Foot US

AVSE & AVSE II

Project Locations

Map Extent: Maricopa County, Arizona

Date: 10.13.10	Figure 1	Author: sjw

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Plants were individually identified, measured and categorized by health and the ability to be transplanted. The size of shrubs and subshrubs was obtained by visual estimate or a tape measure, and calipers were used to measure tree bases where possible; all cacti were measured. Photographs of the transects were taken from the start point of the transect and from the endpoint back to the starting point. Photos are included on the enclosed CD – **Appendix 1**.

The distance of each sample point varied with the diversity of species. The width was constant at approximately 2 meters. All trees, shrubs, subshrubs and cacti within the 2-meter wide survey area were inventoried, measured, and assessed for their health, although the plants on the project sites will be destroyed and not salvaged or transplanted. All individuals whose main stem or crown was within the limits of the 2-meter wide survey area were inventoried. These data are provided in Excel format on the enclosed CD – **Appendix 2**.

Because of the extremely low diversity of shrubs and trees in this area, which is typical for the Lower Colorado Valley Subdivision, sample point lengths were relatively short (see **Table 1**). Each end point reflected the location where the last new species was added to the inventory. In each instance, the investigators continued beyond this point for some distance (usually over 30 meters) to look for additional species but decided on the end point when no new species were located.

Sampling for certain species, especially multi-branched species such as creosote bush (*Larrea tridentata*) and pencil cholla (*Cylindropuntia ramosissima*), was challenging because of their growth habits. It is difficult to count individual creosote bushes because they reproduce vegetatively by crown splitting and soil accumulates at the base giving the appearance of multiple individuals. Pencil cholla has multiple decumbent stems that also accumulate soil making assessment difficult. For many individuals of these species, width of the entire clump of stems was measured and one individual was assumed.

Some of the species encountered are drought deciduous and had not leafed out or were just starting to. Assessment of the health of these individuals was then based upon such factors as live stems, previous years' dieback, etc.

Sample point transect data was entered into an Excel spreadsheet format and used to estimate the population size of each species within the polygon or vegetation type it represented. This was done by calculating the density of a particular species along a sample point/transect and extrapolating the population size over the entire polygon or vegetation community. Average density was calculated for multiple transects within a particular polygon or vegetation community. Included in the Excel file are individual data sheets for each of the 20 sample points; a summary sheet which calculates the density of each species within each sample point; and a summary sheet that estimates the total number of each species for each of the vegetation polygons on the ASTL, and the associated costs.

The population size was then multiplied by the cost multiplier (stumpage value) for each species to derive the cost for the plants on the ASTL. The multiplier was obtained from the *Arizona State Land Department's Instructional Memo No. 14 Forestry and Fire Management Section 14.02 Plant Price List* (ASLD 1996), which states "stumpage values can be used for incidental use permits and right-of-way clearances". For those species not addressed on this memo a fixed rate of $2/shrub and $0.25/sub-shrub was used pursuant to direction from ASLD (Witte 2010a and 2010b).

It is assumed that for purposes of this analysis that all plants within the lease areas and the AVSE II road ROW would be removed. It is assumed that only plants within a 50-foot radius of each structure associated with the AVSE gen-tie line ROW would be removed; plants would not be preserved or sold.

The timing of the survey may have limited the ability to observe noxious weeds, although no noxious weeds on the Arizona Department of Agriculture's *Prohibited Noxious Weeds List PSD Rules and Regulations (A.A.C.) R-3-4-245* were observed. However, the project proponent would implement a noxious weed control policy, if necessary, that at a minimum would remove and destroy seed heads of any noxious weeds and follow up with appropriate chemical controls for all infested areas on ASTL.

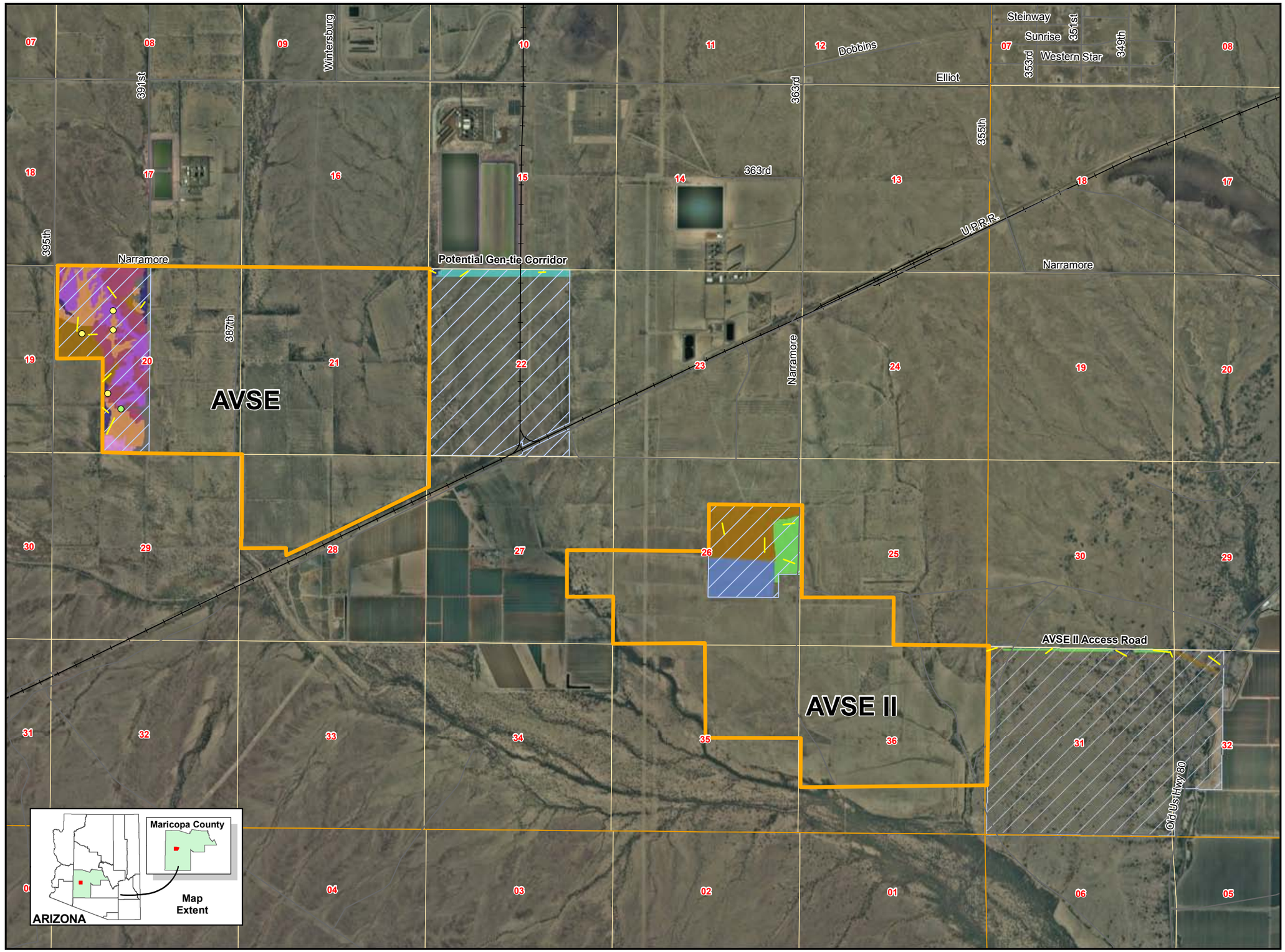
Scientific nomenclature and common names follows that of Baldwin et al. (2002), Kearney and Peebles (1951), Epple (1995) and Bowers (1993).

Results

All sites are within and components of the Lower Colorado Valley Subdivision of the Sonoran Desert. This subdivision is the most xeric of the Sonoran Desert and is characterized by simple species composition and lack of structural complexity (Turner and Brown 1994; MacMahon 1988). The ASTL associated with the AVSE and AVSE II Projects supported a low diversity of tree and shrub species as evidenced by the transect data. For all sites combined, only 13 species were encountered within the sample point transects. Few species had high frequency values, with salt bush (*Atriplex polycarpa*), creosote bush (*Larrea tridentata*), pencil cholla (*Cylindropuntia ramosissima*) and mesquite (*Prosopis glandulosa* var. *torreyana*) being the most common shrub and tree species. All sites appear to have been historically and recently grazed.

<u>AVSE Site</u>

The ASTL on the AVSE site is dominated by Harqua complex and Casa Grande loam soils. Vegetation communities on the AVSE were desert saltbush scrub, creosote bush scrub, desert pavement, mesquite, tamarisk scrub and disturbed/barren areas. **Table 1** provides the acreages of each community on the AVSE site, and **Figure 2** shows the distribution of these communities along with the sample points. These communities are located in Section 20 in the AVSE Project Area.



Legend

- Fishhook Barrel Cactus
- Englemann's Hedgehog Cactus
- Sample Point Transects
- Road
- Railroad
- AVSE / AVSE II Project Areas
- State Lands Surveyed
- Township / Range Boundary
- Section Boundary

Vegetation Communities

- Barren Agriculture
- Creosote Bush Scrub
- Creosote Bush Scrub - Sparse
- Creosote Bush Scrub - Dense
- Creosotebush Scrub
- Desert Pavement
- Desert Saltbush Scrub
- Disturbed
- Mesquite
- Tamarisk

0 1,000 2,000 3,000 4,000 5,000

Feet
State Plane Coordinate System
North American Datum 1983
Arizona Central
Linear Unit: Foot US

AVSE & AVSE II

Vegetation

Map Extent: Maricopa County, Arizona

Date: 10.13.10	Figure 2	Author: sjw

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Desert saltbush scrub occupies habitats that are generally moist with a sandy loam soil. Desert saltbush was a sole dominant for large areas. Four-wing saltbush (*Atriplex canescens* ssp. *linearis*) was locally common within this community. Transitional areas between the desert saltbush scrub and creosote bush scrub contained an intermixing of species from both communities.

Creosote bush is usually limited to fairly well aerated soils. Creosote bush was the second most dominant species over much of the ASTL. Pencil cholla and burro bush (*Ambrosia dumosa*) were locally abundant within some of the stands of creosote bush. Scattered individuals of mesquite (*Prosopis glandulosa* var. *torreyana*) were also present.

Large areas of the AVSE contained desert pavement habitat where shrub occurrence and diversity was extremely low. Components of creosote bush scrub occurred in rills or cracks of the pavements. Several individuals of spineflower (*Chorizanthe rigida*), an indicator species for this community, were observed in this community as well.

Mesquite was dominant in either the washes or in areas where irrigation ditches, which are no longer functioning, had been constructed. Mesquite was also abundant with creosote bush and saltbush in some of the more mixed stands. Other species observed included goldenbush (*Isocoma acradenia*), desert boxthorn (*Lycium* sp.). Much of the mesquite habitat appeared to have previously been heavily infested with tamarisk (*Tamarix chinensis*) but most individuals appeared to be dead. It is unknown if these individuals had been treated with herbicide as an adaptive management method or if mortality may have been caused by other factors, such as lack of irrigation water resulting from the fallowing of the adjacent agricultural fields. Areas mapped as tamarisk, were typically monospecific stands with very few other species present.

A total of seven transects were surveyed on the AVSE site (Transects 1 through 7)(**Appendices 1** and **2**).

AVSE Gen-Tie Line ROW

The ASTL on the gen-tie line ROW is dominated by Laveen loam saline-alkali, Laveen loam, Casa Grande - Laveen loam – alkali, and Harqua complex soils. Creosote bush scrub and a small patch of mesquite are present on this ROW (**Table 1**). Species composition was similar to the communities on the AVSE Site. These communities are located in Section 22 east of the AVSE Project Area (**Figure 2**).

A total of three transects were surveyed on the AVSE Gen-Tie Line ROW (Transects 8 through 10)(**Appendices 1** and **2**).

AVSE II Site

The ASTL on the AVSE II site is dominated by Harqua complex, Casa Grande sandy loam and Laveen loam soils. Vegetation communities include creosote bush scrub and

desert saltbush scrub. These communities are located in Section 26 in the AVSE II Project Area (**Figure 2**). Please refer to the AVSE Site description for or a description of these communities. The one major difference in species composition was the presence of seep weed (*Suaeda nigra*) in the more saline areas of AVSE II desert saltbush communities. This species was lacking on the AVSE site.

The lower third of the AVSE II site was very disturbed and bare of vegetation. Most of the soils exhibited large cracks, characteristic of clay soils that undergo shrinking and swelling due to periodic episodes of wetting and drying. These types of soils typically are absent of shrub species as the shrinking and swelling events typically damage shrub and tree roots. This portion of the site was also extremely flat, having the appearance of historically being plowed for agriculture which would also explain its disturbed appearance. Though this area was devoid of vegetation it is anticipated that this area would support herbaceous flora (most likely non-natives) in late winter through late spring.

A total of four transects were surveyed on the AVSE II site (Transects 11 through 14)(**Appendices 1** and **2**).

AVSE II Access Road ROW

The ASTL along the proposed access road ROW is dominated by Harqua-Gunsight complex, Harqua complex and Gilman – Antho association soils. Vegetation communities include small areas of creosote bush scrub, desert saltbush scrub and mesquite are present on this site. The mesquite community is located in the washes while the creosote bush and desert saltbush habitats are in the upland areas. These communities are located in Sections 31 and 32, east of the AVSE II Project Area (**Figure 2**). Species composition is similar to the other sites with the exception of Crucifixion thorn (*Castela emoryi*), which was common in the mesquite wash on this site (**Table 1**).

A total of six transects were surveyed on the AVSE II access road ROW (Transects 15 through 20)(**Appendices 1** and **2**). Transect 20 was selected as the area most representative of the conditions for that portion of the proposed access road ROW in Section 32. The ROW has been realigned slightly south of the transect location since the survey was completed. However, since the transect is representative of the habitat present in the general ROW area, the data are also representative of that habitat, and no follow up survey is required.

Table 1 - Vegetation Communities and Acreages on ASTL				
Vegetation Community	**AVSE**	**AVSE Gen-Tie[1]**	**AVSE II**	**AVSE II Access Road[2]**
Creosote bush scrub	116.00	0.54	29.82	5.78
Desert saltbush scrub	33.47	0	70.73	2.58
Mesquite	11.90	0.18	0	1.00
Desert Pavement	53.96	0	0	0
Tamarisk	7.50	0	0	0
Disturbed/barren	9.99	0	46.16	0
Total	**232.82**	**0.72**	**146.71**	**9.36**

[1] Based on a 50-foot radius of disturbance around each of 4 transmission structures.
[2] Based on a 60-foot wide corridor.

Table 2 shows the fees associated with the removal of the various native plant species (ASLD 1996). **Table 3** breaks down the population sizes and costs by project component (i.e. AVSE, AVSE Gen-tie line, AVSE II, and AVSE II access road. The breakdown of population estimates for each individual species by sample point for each of the project components on ASTL and the fee for their removal are included in the Excel file. Arizona barrel cactus (*Ferocactus wislizenii*) was only observed on the AVSE site and did not occur along any of the sample points. Individuals of Arizona barrel cactus encountered during the survey were hand counted.

Doug Witte, Arizona State Land Department, stated that the ASLD would waive stumpage fees for these projects for creosote bush, saltbush, burrobush, desert goldenbush, and other plants growing in the form of shrubs or subshrubs (Witte 2010b).

TABLE 2 - PLANT COMPENSATION REQUIREMENTS FOR REMOVAL OF VEGETATION ON ASTL FOR AVSE AND AVSE II SOLAR PROJECTS		
Scientific Name	**Common Name**	**Stumpage Fee**
Prosopis glandulosa var. *torreyana*	Mesquite	$5/individual
Atriplex polycarpa	Desert saltbush	$2/individual
Larrea tridentata	Creosote bush	$2/individual
Atriplex canescens ssp. *linearis*	Four-wing saltbush	$2/individual
Cylindropuntia ramosissima	Pencil cholla	$2/individual
Cylindropuntia ramosissima	Pencil cholla (skeleton)	$1/individual
Ambrosia dumosa	Burro bush	$2/individual
Castela emoryi	Crucifixion thorn	$5/individual
Isocoma acradenia	Desert goldenbush	$0.25/individual
Lycium sp.	Desert boxthorn	$2/individual
Echinocereus engelmannii	Hedgehog cactus	$2/individual
Cylindropuntia acanthocarpa	Buckhorn cholla	$2/individual
Ferocactus wislizenii	Arizona barrel cactus	$2/individual
Mammillaria tetrancistra	Pincushion cactus	$2/individual
Suaeda nigra	Seepweed	$0.25/individual
Acacia greggii	Cat's claw	$10/individual
Krameria grayi	White ratany	$2/individual

Source: ASLD 1996

TABLE 3 - PLANT COMPENSATION REQUIREMENTS FOR REMOVAL OF VEGETATION ON ASTL ASSOCIATED WITH AVSE AND AVSE II SOLAR PROJECTS								
Scientific Name	**AVSE Site**		**AVSE Gen-Tie ROW**		**AVSE II Site**		**AVSE II Access Road ROW**	
	Number	Cost	Number	Cost	Number	Cost	Number	Cost
Prosopis glandulosa var. *torreyana*	12,583	$62,915	49	$245	0	$0	308	$1,540
*Atriplex polycarpa**	0	$0	0	$0	0	$0	0	$0
*Larrea tridentata**	0	$0	0	$0	0	$0	0	$0
Atriplex canescens ssp. *Linearis**	0	$0	0	$0	0	$0	0	$0
Cylindropuntia ramosissima	1,071	$2,142	73	$146	12,213	$24,426	0	$0
Cylindropuntia ramosissima (dead)	0	$0	36	$36	0	$0	0	$0
*Ambrosia dumosa**	0	$0	0	$0	0	$0	0	$0
Castela emoryi	0	$0	24	$120	0	$0	68	$340
*Isocoma acradenia**	0	$0	0	$0	0	$0	0	$0
Lycium sp.	3,633	$7,266	0	$0	6,512	$13,024	464	$928
Echinocereus engelmannii	0	$0	0	$0	3,749	$7,498	0	$0
Cylindropuntia acanthocarpa	0	$0	0	$0	2,405	$4,810	0	$0
Ferocactus wislizenii	10	$20	0	$0	0	$0	0	$0
Mammillaria tetrancistra	0	$0	1	$2	0	$0	0	$0
Suaeda nigra	0	$0	0	$0	11,965	$2,991	0	$0
Acacia greggii	0	$0	0	$0	0	$0	68	$680
Krameria grayi	0	$0	9	$18	0	$0	0	$0
TOTAL		**$72,343**		**$567**		**$52,749**		**$3,488**

* Species not included in stumpage fee calculations per ASLD (Witte 2010b)

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Witte, D. 2010b. Personal communication [*March 25* telephone conversation with P. Golden, ENValue, Denver, Colorado. *RE:* Stumpage fees to be applied and preferred calculation for the Gen-tie line impacts]. Right-of-Way Administrator, ASLD, Phoenix, Arizona.

Appendix 1 – Photographs

AVSE Site (West ½ of Section 20)

Transect 1 Start

Transect 1 End

Transect 2 Start

Transect 2 End

Transect 3 Start

Transect 3 End

Transect 4 Start

Transect 4 End

Transect 5 Start

Transect 5 End

Transect 6 Start

Transect 6 End

Transect 7 Start

Transect 7 End

AVSE Gen-Tie Corridor (Northern Portion of Section 22)

Transect 8 Start

Transect 8 End

Transect 9 Start

Transect 9 End

Transect 10 Start

Transect 10 End

AVSE II Site (Portion of Section 26)

Transect 11 Start

Transect 11 End

Transect 12 Start

Transect 12 End

Transect 13 Start

Transect 13 End

Transect 14 Start

Transect 14 End

AVSE II Access Road Corridor (Portions of Section 31 and 32)

Transect 15 Start

Transect 15 End

Transect 16 Start

Transect 16 End

Transect 17 Start

Transect 17 End

Transect 18 Start

Transect 18 End

Transect 19 Start

Transect 19 End

Transect 20 Start

Transect 20 End

Appendix 2 - Data

Sample Point 1 Creosote Bush Scrub
January 16, 2010 Sparse (poly 4) 63.54 acres
Length:120 meters Sample Point end: 85 meters
Bearing: 325 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Larrea tridentata	3.0	2.0	Good	High	
Larrea tridentata	3.0	0.6	Moderate	High	Multiple stems
Larrea tridentata	4.5	1.1	Moderate	High	
Larrea tridentata	4.0	1.2	Good	High	Multiple stems
Ambrosia dumosa	1.0	1.3	Good	High	
Ambrosia dumosa	1.0	0.8	Good	High	
Ambrosia dumosa	1.0	1.0	Good	High	
Atriplex polycarpa	1.0		Good	High	Multiple stems
Larrea tridentata	2.0	1.9	Moderate	High	
Atriplex polycarpa	2.5	0.8	Good	High	
Atriplex polycarpa	3.0	1.5	Good	Low	Multiple stems
Lycium sp.	2.5	3.0	Good	High	
Larrea tridentata	4.0	0.7	Poor	Low	Multiple stems
Larrea tridentata	4.0	1.4	Poor	Low	Multiple stems
Larrea tridentata	4.0	0.9	Moderate	Moderate	Multiple stems
Larrea tridentata	4.0	2.2	Poor	Low	Multiple stems
Larrea tridentata	4.0	0.7	Good	High	Multiple stems
Ambrosia dumosa	1.5	0.8	Good	High	Multiple stems
Ambrosia dumosa	2.0	0.8	Good	High	Multiple stems
Larrea tridentata	5.0	0.6	Good	High	Multiple stems
Cylindropuntia ramosissima	2.0	1.0	Moderate	Low	Multiple stems
Atriplex polycarpa	1.5		Good	High	Multiple stems
Larrea tridentata	3.0	0.4	Good	High	
Ambrosia dumosa	1.0		Moderate	High	Multiple stems
Ambrosia dumosa	1.0		Moderate	High	

Total sample area	240	square meters			New Polygon Data	
Larrea tridentata	0.05	per square meter	202	individuals per acre	12856.763	Individuals in polygon
Ambrosia dumosa	0.029166667	per square meter	118	individuals per acre	7499.7784	Individuals in polygon
Atriplex polycarpa	0.016666667	per square meter	67	individuals per acre	4285.5877	Individuals in polygon
Lycium sp.	0.004166667	per square meter	17	individuals per acre	1071.3969	Individuals in polygon
Cylindropuntia ramosissima	0.004166667	per square meter	17	individuals per acre	1071.3969	Individuals in polygon

4046.825 sq. meters per acre

Sample Point 2 Creosote Bush Scrub
January 16, 2010 Dense (poly 2a) 30.85 acres
Length:120 meters Sample Point end: 20 meters
Bearing: 190 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Atriplex polycarpa	2.5	1.4	Good	High	Multiple stems
Larrea tridentata	6.0	1.1	Good	High	Multiple stems
Prosopis glandulosa var. torreyana	5.0	2.0	Moderate	Low	Multiple stems
Larrea tridentata	5.0	3.5	Good	High	Multiple stems

Total sample area	40	square meters				New Polygon Data	
Atriplex polycarpa	0.025	per square meter	101	Individuals per acre		3121.1138	Individuals in polygon
Larrea tridentata	0.05	per square meter	202	Individuals per acre		6242.2276	Individuals in polygon
Prosopis glandulosa var. torreyana	0.025	per square meter	101	Individuals per acre		3121.1138	Individuals in polygon

4046.825 sq. meters per acre

Sample Point 3 Creosote Bush Scrub
January 17, 2010 Dense (poly 2) 21.61 acres
Length:150 meters Sample Point end: 120 meters
Bearing: 210 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Larrea tridentata	4.0	10.0	Poor	Low	Multiple stems cumulative measurement
Larrea tridentata	4.0	24.0	Poor	Low	Multiple stems cumulative measurement
Larrea tridentata	4.0	7.0	Moderate	Low	Multiple stems cumulative measurement
Larrea tridentata	6.0	9.0	Moderate	Low	Multiple stems cumulative measurement
Larrea tridentata	4.0	18.0	Moderate	Low	Multiple stems cumulative measurement
Larrea tridentata	8.0	15.0	Good	High	Multiple stems cumulative measurement
Larrea tridentata	6.0	7.5	Moderate	High	Multiple stems cumulative measurement
Isocoma acradenia	2.5	1.2	Poor	Low	
Isocoma acradenia	1.0	0.7	Poor	Low	
Isocoma acradenia	1.5	0.6	Good	High	
Isocoma acradenia	3.5	2.2	Moderate	High	
Larrea tridentata	1.0	0.1	Good	High	Multiple stems
Isocoma acradenia	2.5	0.3	Good	High	
Prosopis glandulosa var. torreyana	15.0	15.0	Good	Low	
Isocoma acradenia	1.5	0.5	Good	High	
Isocoma acradenia	2.0	0.8	Moderate	High	
Isocoma acradenia	3.0	0.8	Good	High	
Isocoma acradenia	2.0	1.6	Moderate	High	
Isocoma acradenia	1.5	1.3	Good	High	
Isocoma acradenia	1.5	0.2	Poor	Low	
Larrea tridentata	3.0	0.3	Good	High	Multiple stems
Isocoma acradenia	1.0	0.1	Poor	Low	Multiple stems
Isocoma acradenia	1.0	0.2	Moderate	High	Multiple stems

Total sample area	240	square meters				New Polygon Data	
Larrea tridentata	0.0375	per square meter	152	Individuals per acre		3279.4458	Individuals in polygon
Isocoma acradenia	0.054166667	per square meter	219	Individuals per acre		4736.9773	Individuals in polygon
Prosopis glandulosa var. torreyana	0.004166667	per square meter	17	Individuals per acre		364.38287	Individuals in polygon

4046.825 sq. meters per acre

Sample Point 4
January 17, 2010
Length: 40 meters
Bearing: 130 degrees

Mesquite
(poly 5)
Sample point end: 40 meters

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Isocoma acradenia	1.0	0.8	Poor	Low	
Prosopis glandulosa var. torreyana	13.0	8.0	Good	High	
Prosopis glandulosa var. torreyana	12.0	5.0	Good	High	
Prosopis glandulosa var. torreyana	10.0	4.0	Good	High	
Lycium sp.	2.0	1.0	Moderate	Low	
Tamarisk chinensis	6.0	2.0	Poor	N/A	
Tamarisk chinensis	10.0	11.0	Poor	N/A	
Prosopis glandulosa var. torreyana	13.0	14.0	Good	Low	
Prosopis glandulosa var. torreyana	12.0	14.0	Moderate	Low	
Prosopis glandulosa var. torreyana	13.0	12.0	Good	Low	
Tamarisk chinensis	6.0	1.5	Poor	N/A	
Tamarisk chinensis	5.0	1.0	Poor	N/A	
Tamarisk chinensis	2.0	1.0	Poor	N/A	
Prosopis glandulosa var. torreyana	13.0	6.0	Good	Moderate	
Prosopis glandulosa var. torreyana	15.0	10.0	Good	Low	
Prosopis glandulosa var. torreyana	6.0	1.4	Good	High	
Prosopis glandulosa var. torreyana	11.0	4.0	Good	High	
Tamarisk chinensis	2.0	3.0	Poor	N/A	
Prosopis glandulosa var. torreyana	3.0	0.2	Moderate	High	
Tamarisk chinensis	2.0	1.0	Poor	N/A	
Larrea tridentata	6.0	7.0	Good	High	Multiple stems cumulative measurement
Larrea tridentata	8.0	18.0	Moderate	Low	Multiple stems cumulative measurement

Total sample area	80	square meters		
Isocoma acradenia	0.0125	per square meter	51	Individuals per acre
Prosopis glandulosa var. torreyana	0.1375	per square meter	556	Individuals per acre
Lycium sp.	0.0125	per square meter	51	Individuals per acre
Tamarisk chinensis	0.0875	per square meter	354	Individuals per acre
Larrea tridentata	0.025	per square meter	101	Individuals per acre

New Polygon Data
See Sample Point 7 for polygon totals.

Sample Point 5
January 17, 2010
Length: 100 meters
Bearing: 230 degrees

Desert Saltbush Scrub
(poly 6)
Sample end point: 100 meters

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Atriplex polycarpa	3.0	2.0	Poor	Low	
Atriplex polycarpa	2.0	1.5	Poor	Low	
Atriplex polycarpa	2.5	2.0	Moderate	Low	
Atriplex polycarpa	3.0	3.0	Moderate	Low	
Atriplex canescens ssp. linearis	1.0	1.0	Poor	Low	
Atriplex canescens ssp. linearis	1.0	1.0	Moderate	Low	
Atriplex polycarpa	2.0	0.5	Moderate	Low	
Lycium sp.	3.5	3.0	Good	High	Multiple stems
Lycium sp.	5.0	4.0	Good	High	Multiple stems
Atriplex canescens ssp. linearis	0.5	3.0	Poor	Low	
Atriplex canescens ssp. linearis	0.5	3.0	Poor	Low	
Lycium sp.	3.0	2.0	Poor	Low	
Larrea tridentata	5.0	0.7	Poor	Low	
Atriplex canescens ssp. linearis	0.5	3.0	Moderate	Low	
Atriplex canescens ssp. linearis	1.0	2.0	Moderate	Low	
Atriplex canescens ssp. linearis	1.0	3.0	Moderate	Low	
Atriplex polycarpa	3.0	2.0	Moderate	Low	
Atriplex polycarpa	3.0	2.0	Moderate	Low	
Atriplex polycarpa	3.0	3.0	Moderate	Low	
Larrea tridentata	3.0	0.5	Poor	Low	
Atriplex polycarpa	3.0	4.0	Moderate	Low	
Atriplex polycarpa	3.0	4.0	Moderate	Low	
Atriplex polycarpa	2.0	4.0	Moderate	Low	
Atriplex polycarpa	4.0	5.0	Moderate	Low	
Atriplex polycarpa	1.0	2.0	Good	Moderate	
Atriplex polycarpa	2.0	4.0	Moderate	Low	
Atriplex polycarpa	2.0	6.0	Poor	Low	
Atriplex polycarpa	3.0	6.0	Moderate	Low	
Atriplex polycarpa	3.0	4.0	Moderate	Low	
Atriplex polycarpa	2.0	4.0	Moderate	Low	
Atriplex polycarpa	2.5	4.0	Moderate	Low	
Atriplex polycarpa	3.0	6.0	Moderate	Low	
Atriplex polycarpa	3.0	4.0	Poor	Low	
Atriplex polycarpa	1.5	2.7	Poor	Low	
Prosopis glandulosa var. torreyana	10.0	12.0	Moderate	Low	
Larrea tridentata	6.0	8.0	Poor	Low	
Atriplex canescens ssp. linearis	0.5	1.0	Poor	Low	
Atriplex polycarpa	3.0	2.0	Moderate	Low	
Atriplex canescens ssp. linearis	0.5	2.0	Poor	Low	
Atriplex polycarpa	4.0	9.0	Moderate	Low	
Atriplex polycarpa	3.0	4.0	Moderate	Low	
Prosopis glandulosa var. torreyana	4.0	1.0	Moderate	Low	
Prosopis glandulosa var. torreyana	10.0	7.0	Good	High	
Lycium sp.	6.0	2.0	Good	Low	
Atriplex polycarpa	4.0	3.0	Moderate	Low	
Atriplex polycarpa	1.5	3.0	Moderate	Low	
Larrea tridentata	6.0	7.0	Good	High	
Prosopis glandulosa var. torreyana	2.0	1.0	Poor	Low	
Atriplex polycarpa	1.0	0.8	Poor	Low	
Atriplex polycarpa	2.0	2.0	Good	High	
Atriplex polycarpa	2.0	4.0	Good	High	
Atriplex polycarpa	2.0	3.0	Good	High	
Atriplex polycarpa	1.5	2.0	Good	High	
Atriplex canescens ssp. linearis	0.5		Moderate	Low	
Atriplex polycarpa	2.0	3.5	Poor	Low	
Atriplex polycarpa	2.0	1.0	Poor	Low	
Atriplex polycarpa	1.0	2.0	Moderate	Low	
Atriplex canescens ssp. linearis	0.5		Poor	Low	
Prosopis glandulosa var. torreyana	3.0	0.9	Poor	Low	
Larrea tridentata	7.0	7.0	Good	High	
Larrea tridentata	7.0	10.0	Good	High	
Larrea tridentata	7.0	9.0	Good	High	
Larrea tridentata	4.0	3.0	Good	High	
Isocoma acradenia	2.0	2.0	Moderate	Moderate	
Prosopis glandulosa var. torreyana	9.0	8.0	Good	High	

New Polygon Data
See Sample Point 6 for polygon totals.

Total sample area	200	square meters		
Atriplex polycarpa	0.175	per square meter	708	Individuals per acre
Atriplex canescens ssp. linearis	0.055	per square meter	223	Individuals per acre
Lycium sp.	0.02	per square meter	81	Individuals per acre
Larrea tridentata	0.04	per square meter	162	Individuals per acre
Prosopis glandulosa var. torreyana	0.03	per square meter	121	Individuals per acre
Isocoma acradenia	0.005	per square meter	20	Individuals per acre

Sample Point 6
January 17, 2010
Length: 75 meters
Bearing: 80 degrees

Desert Saltbush Scrub
(poly 6)
Sample end point: 60 meters

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Atriplex polycarpa	3.0	3.0	Moderate	Low	
Atriplex polycarpa	3.0	2.0	Poor	Low	
Atriplex polycarpa	4.0	4.0	Good	High	
Atriplex polycarpa	4.0	2.0	Good	High	
Atriplex polycarpa	4.0	3.5	Moderate	Low	
Atriplex polycarpa	3.0	4.0	Moderate	Low	
Prosopis glandulosa var. torreyana	6.0	4.0	Moderate	Moderate	
Atriplex polycarpa	1.5	2.0	Poor	Low	
Atriplex polycarpa	1.5	1.0	Poor	Low	
Atriplex polycarpa	1.5	1.5	Moderate	Low	
Atriplex polycarpa	3.0	3.0	Good	High	
Atriplex polycarpa	1.0	1.0	Moderate	Low	
Atriplex polycarpa	3.0	3.0	Good	High	
Atriplex polycarpa	1.0	1.0	Good	High	
Larrea tridentata	5.0	6.0	Moderate	Low	
Atriplex polycarpa	2.0	1.0	Poor	Low	
Prosopis glandulosa var. torreyana	10.0	12.0	Good	High	
Atriplex polycarpa	3.0	2.0	Good	High	
Prosopis glandulosa var. torreyana	3.0	1.0	Poor	Low	
Larrea tridentata	5.0	6.0	Moderate	Low	
Atriplex polycarpa	1.5	2.0	Moderate	Low	
Atriplex polycarpa	1.5	2.0	Moderate	Low	
Atriplex polycarpa	2.0	2.0	Poor	Low	
Atriplex polycarpa	1.5	2.0	Moderate	Low	
Atriplex polycarpa	1.0	1.5	Moderate	Low	
Lycium sp.	4.0	3.0	Good	High	
Lycium sp.	4.0	4.0	Good	High	

Total sample area	150	square meters		
Atriplex polycarpa	0.133333333	per square meter	540	Individuals per acre
Prosopis glandulosa var. torreyana	0.02	per square meter	81	Individuals per acre
Larrea tridentata	0.013333333	per square meter	54	Individuals per acre
Lycium sp.	0.013333333	per square meter	54	Individuals per acre

New Polygon Data

Total for Points 5 and 6 (Desert Saltbush polygons 6)

Atriplex polycarpa	20885	Individuals in polygon
Atriplex canescens ssp. linearis	3732	Individuals in polygon
Lycium sp.	2259	Individuals in polygon
Larrea tridentata	3615	Individuals in polygon
Prosopis glandulosa var. torreyana	3380	Individuals in polygon
Isocoma acradenia	335	Individuals in polygon

Sample Point 7
January 17, 2010
Length: 60 meters
Bearing: 210 degrees

Mesquite
(poly 5)
Sample point end: 45 meters

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Prosopis glandulosa var. torreyana	6.0	2.0	Moderate	Moderate	
Prosopis glandulosa var. torreyana	5.0	1.5	Poor	Low	
Prosopis glandulosa var. torreyana	8.0	5.0	Good	High	
Prosopis glandulosa var. torreyana	8.0	3.0	Good	High	
Prosopis glandulosa var. torreyana	5.0	4.0	Good	High	
Prosopis glandulosa var. torreyana	5.0	1.0	Good	High	
Tamarisk chinensis	8.0	13.0	Poor		
Tamarisk chinensis	6.0	7.0	Poor		
Prosopis glandulosa var. torreyana	15.0	17.0	Good	Low	
Prosopis glandulosa var. torreyana	4.0	4.0	Moderate	Low	
Larrea tridentata	6.0	4.0	Poor	Low	
Prosopis glandulosa var. torreyana	4.0	5.0	Moderate	Low	
Larrea tridentata	6.0	12.0	Moderate	Low	

Total sample area	90	square meters		
Prosopis glandulosa var. torreyana	0.1	per square meter	405	Individuals per acre
Tamarisk chinensis	0.022222222		90	Individuals per acre
Larrea tridentata	0.022222222		90	Individuals per acre

New Polygon Data	Total for Points 4 and 7 (mesquite polygons 5)	
Isocoma acradenia	303	Individuals in polygon
Prosopis glandulosa var. torreyana	5718	Individuals in polygon
Lycium sp.	303	Individuals in polygon
Tamarisk chinensis	2642	Individuals in polygon
Larrea tridentata	1136	Individuals in polygon

Sample Point 8 Creosote Bush Scrub
January 17, 2010
Length: 60 meters Sample point end: 60 meters
Bearing: 265 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Cylindropuntia ramosissima			Dead		
Ambrosia dumosa	1.0	2.0	Good	High	
Cylindropuntia ramosissima			Dead		
Cylindropuntia ramosissima	1.0	0.5	Moderate	Low	Multiple stems >25)
Ambrosia dumosa	1.0	3.0	Moderate	Low	
Ambrosia dumosa	1.0	2.0	Poor	Low	
Ambrosia dumosa	2.0	3.0	Good	High	
Cylindropuntia ramosissima			Dead		
Ambrosia dumosa	1.0	3.0	Poor	Low	
Ambrosia dumosa	1.0	4.0	Good	High	
Ambrosia dumosa	1.5	4.0	Good	High	
Cylindropuntia ramosissima	1.0	1.0	Poor	Low	Multiple stems
Larrea tridentata	6.0	1.0	Moderate	Low	
Larrea tridentata	5.0	8.0	Moderate	Low	
Ambrosia dumosa	1.0	1.0	Moderate	Low	
Krameria grayi	1.5	2.0	Moderate	Low	
Ambrosia dumosa	1.0	3.0	Moderate	Low	
Larrea tridentata	4.0	4.0	Moderate	Low	
Larrea tridentata	4.5	4.0	Poor	Low	
Ambrosia dumosa	0.5	2.0	Poor	Low	
Ambrosia dumosa	1.0	3.0	Poor	Low	
Cylindropuntia ramosissima			Dead		
Larrea tridentata	3.5	6.0	Poor	Low	
Larrea tridentata	4.0	6.0	Poor	Low	

Total sample area	120	square meters		
Cylindropuntia ramosissima	0.016666667	per square meter	67	Individuals per acre
Ambrosia dumosa	0.091666667	per square meter	371	Individuals per acre
Larrea tridentata	0.05	per square meter	202	Individuals per acre
Krameria grayi	0.008333333	per square meter	34	Individuals per acre
Cylindropuntia ramosissima (dead)	0.033333333	per square meter	135	Individuals per acre

Sample Point 9 Creosote Bush Scrub
January 17, 2010
Length: 80 meters
Bearing: 250 degrees Sample point end: 20 meters

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Cylindropuntia ramosissima	1.5	5.5	Poor	Low	
Ambrosia dumosa	1.0	1.5	Poor	Low	
Ambrosia dumosa	1.0	1.5	Poor	Low	
Ambrosia dumosa	1.0	1.5	Poor	Low	Multiple stems >25)
Ambrosia dumosa	1.5	2.5	Poor	Low	
Ambrosia dumosa	1.0	2.0	Poor	Low	
Ambrosia dumosa	1.5	3.0	Poor	Low	
Ambrosia dumosa	0.5	1.5	Poor	Low	
Ambrosia dumosa	0.5	4.0	Poor	Low	
Cylindropuntia ramosissima	1.5	11.0	Moderate	Low	Multiple stems
Larrea tridentata	6.0	5.0	Moderate	Low	

Total sample area	40	square meters		
Cylindropuntia ramosissima	0.05	per square meter	202	Individuals per acre
Ambrosia dumosa	0.2	per square meter	809	Individuals per acre
Larrea tridentata	0.025	per square meter	101	Individuals per acre

Sample Point 10 Mesquite
January 17, 2010
Length: 50 meters
Bearing: 290 degrees Sample point end: 15 meters

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Prosopis glandulosa var. torreyana	3.0	5.0	Moderate	Low	
Larrea tridentata	3.5	2.0	Moderate	Low	
Larrea tridentata	3.0	1.5	Poor	Low	
Prosopis glandulosa var. torreyana	10.0	8.0	Poor	Low	
Castela emoryi	5.0	3.5	Moderate	Moderate	

Total sample area	30	square meters		
Larrea tridentata	0.066666667	per square meter	270	Individuals per acre
Prosopis glandulosa var. torreyana	0.066666667	per square meter	270	Individuals per acre
Castela emoryi	0.033333333	per square meter	135	Individuals per acre

Sample Point 11 Desert Saltbush Scrub
January 18, 2010
Length: 100 meters
Bearing: 170 degrees Sample point end: 50 meters

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Suaeda nigra	1.5		Good	High	
Suaeda nigra	1.0	0.8	Good	High	
Suaeda nigra	1.5	1.0	Good	High	
Atriplex polycarpa	2.0	2.5	Good	High	
Atriplex polycarpa	3.0	3.5	Good	High	
Suaeda nigra	1.0	0.2	Moderate	High	
Suaeda nigra	1.0	0.2	Moderate	High	
Atriplex polycarpa	3.0	3.0	Good	High	
Suaeda nigra	0.5	0.5	Good	High	
Atriplex polycarpa	1.5	1.0	Good	High	
Suaeda nigra	1.0	0.8	Good	High	
Suaeda nigra	1.0	0.5	Good	High	
Atriplex polycarpa	1.5	2.5	Good	High	
Atriplex polycarpa	1.0	1.5	Good	High	
Lycium sp.	3.0	3.5	Good	High	
Atriplex polycarpa	2.0	1.5	Good	High	
Atriplex polycarpa	3.0	2.0	Good	High	
Atriplex polycarpa	3.0	2.0	Good	High	
Echinocereus engelmannii	1.5	24.0	Moderate	High	width dimension of entire clump
Larrea tridentata	3.0	2.0	Moderate	Moderate	

Total sample area	100	square meters		
Suaeda nigra	0.08	per square meter	324	Individuals per acre
Atriplex polycarpa	0.09	per square meter	364	Individuals per acre
Lycium sp.	0.01	per square meter	40	Individuals per acre
Echinocereus engelmannii	0.01	per square meter	40	Individuals per acre
Larrea tridentata	0.01	per square meter	40	Individuals per acre

Sample Point 12 Desert Saltbush Scrub
January 18, 2010
Length: 120 meters Sample point end: 30 meters
Bearing: 180 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Atriplex polycarpa	1.5	0.7	Good	High	
Atriplex polycarpa	1.5	0.9	Good	High	
Atriplex polycarpa	1.5	0.9	Good	High	
Atriplex polycarpa	1.0	0.2	Good	High	
Atriplex canescens ssp. linearis	0.5	0.3	Poor	Low	
Atriplex canescens ssp. linearis	0.5	0.4	Good	High	
Atriplex polycarpa	1.5	0.8	Good	Moderate	
Atriplex polycarpa	1.5	1.2	Good	High	
Atriplex polycarpa	1.5	8.0	Moderate	High	
Atriplex polycarpa	1.5	1.0	Poor	Low	
Cylindropuntia ramosissima	1.5	20.0	Good	High	Multiple stems, measured clump width
Cylindropuntia ramosissima	2.5	24.0	Good	High	Multiple stems, measured clump width
Lycium sp.	2.5	1.3	Moderate	High	
Cylindropuntia ramosissima	1.0	36.0	Moderate	High	
Echinocereus engelmannii	1.0	18.0	Good	High	Multiple stems, measured clump width
Atriplex canescens ssp. linearis	1.0	0.5	Good	High	
Atriplex canescens ssp. linearis	1.0	0.5	Poor	Low	
Cylindropuntia acanthocarpa	6.0	5.0	Good	High	
Lycium sp.	4.0	4.0	Moderate	High	

Total sample area	60	square meters		
Atriplex polycarpa	0.133333333	per square meter	540	Individuals per acre
Atriplex canescens ssp. linearis	0.066666667	per square meter	270	Individuals per acre
Cylindropuntia ramosissima	0.05	per square meter	202	Individuals per acre
Lycium sp.	0.033333333	per square meter	135	Individuals per acre
Echinocereus engelmannii	0.016666667	per square meter	67	Individuals per acre
Cylindropuntia acanthocarpa	0.016666667	per square meter	67	Individuals per acre

Sample Point 13 Creosote Bush Scrub
January 18, 2010
Length: 100 meters Sample point end: 80 meters
Bearing: 85 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Ambrosia dumosa	1.0	0.3	Low	Low	
Cylindropuntia ramosissima	1.0	0.8	Moderate	Moderate	
Larrea tridentata	5.0	4.0	Good	High	
Cylindropuntia ramosissima	2.5	1.3	Good	High	
Suaeda nigra	0.5	0.3	Good	High	
Atriplex polycarpa	1.5	0.3	Good	High	
Ambrosia dumosa	1.5	0.3	Moderate	Moderate	
Ambrosia dumosa	2.0	1.2	Good	Low	
Ambrosia dumosa	1.0	0.4	Good	Low	
Ambrosia dumosa	1.0	2.0	Good	Low	
Cylindropuntia ramosissima	2.0	1.0	Good	Low	Multiple stems, measured clump width
Ambrosia dumosa	1.5	0.3	Good	Low	Multiple stems, measured clump width
Atriplex polycarpa	1.0	0.3	Good	Low	
Cylindropuntia ramosissima	1.0	0.5	Poor	Low	
Cylindropuntia ramosissima	0.5	0.6	Poor	Low	Multiple stems, measured clump width
Atriplex polycarpa	1.5	0.3	Good	High	
Ambrosia dumosa	1.5	0.4	Good	High	
Larrea tridentata	4.0	2.2	Good	High	
Atriplex polycarpa	1.5	0.6	Good	High	
Atriplex polycarpa	1.5	0.7	Moderate	High	
Atriplex polycarpa	0.5	0.5	Poor	Low	
Atriplex polycarpa	2.0	0.9	Good	High	
Atriplex polycarpa	1.5	0.6	Good	High	
Atriplex polycarpa	1.0	0.4	Poor	Low	
Atriplex polycarpa	1.5	0.3	Moderate	Low	
Larrea tridentata	3.5	1.5	Good	High	
Atriplex polycarpa	3.0	1.2	Good	High	
Atriplex polycarpa	1.5	0.4	Moderate	High	
Lycium sp.	3.0	2.5	Good	High	

Total sample area	160	square meters		
Ambrosia dumosa	0.04375	per square meter	177	Individuals per acre
Cylindropuntia ramosissima	0.03125	per square meter	126	Individuals per acre
Larrea tridentata	0.01875	per square meter	76	Individuals per acre
Suaeda nigra	0.00625	per square meter	25	Individuals per acre
Atriplex polycarpa	0.075	per square meter	304	Individuals per acre
Lycium sp.	0.00625	per square meter	25	Individuals per acre

Sample Point 14 Creosote Bush Scrub
January 18, 2010
Length: 100 meters Sample point end: 85 meters
Bearing: 115 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Larrea tridentata	2.5	0.9	Good	High	
Atriplex polycarpa	2.0	1.2	Good	High	
Ambrosia dumosa	1.0	0.5	Moderate	Low	
Ambrosia dumosa	1.5	1.0	Good	High	
Cylindropuntia ramosissima	1.0	1.0	Poor	Low	
Cylindropuntia ramosissima	1.0	1.0	Poor	Low	
Cylindropuntia ramosissima	1.0	1.0	Poor	Low	
Atriplex polycarpa	3.0	2.5	Good	High	
Cylindropuntia ramosissima	0.5	0.3	Poor	Low	
Cylindropuntia ramosissima	1.5	0.8	Poor	Low	
Larrea tridentata	4.0	2.5	Good	High	
Cylindropuntia ramosissima	1.0	2.5	Poor	Low	Multiple stems, measured clump width
Cylindropuntia ramosissima	0.5	1.5	Moderate	Moderate	Multiple stems, measured clump width
Cylindropuntia ramosissima	0.5	0.3	Poor	Low	
Atriplex polycarpa	1.0	0.6	Good	High	
Ambrosia dumosa	1.0	0.4	Moderate	High	
Atriplex polycarpa	2.0	2.2	Good	High	
Cylindropuntia ramosissima	1.0	0.8	Poor	Low	
Atriplex polycarpa	3.0	2.5	Good	High	
Atriplex canescens ssp. linearis	1.0	1.0	Good	High	

Total sample area	170	square meters		
Larrea tridentata	0.011764706	per square meter	48	Individuals per acre
Atriplex polycarpa	0.029411765	per square meter	119	Individuals per acre
Ambrosia dumosa	0.017647059	per square meter	71	Individuals per acre
Cylindropuntia ramosissima	0.052941176	per square meter	214	Individuals per acre
Atriplex canescens ssp. linearis	0.005882353	per square meter	24	Individuals per acre

Sample Point 15 Desert Saltbush Scrub
January 18, 2010
Length: 90 meters Sample point end: 25 meters
Bearing: 260 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Lycium sp.	3.5	1.2	Good	High	
Atriplex polycarpa	4.0	6.0	Good	High	
Lycium sp.	3.0	0.8	Good	High	
Atriplex canescens ssp. linearis	0.5	0.4	Good	High	
Atriplex canescens ssp. linearis	1.0	1.0	Good	High	
Atriplex canescens ssp. linearis	2.0	1.2	Good	High	
Atriplex polycarpa	3.0	2.2	Good	High	
Atriplex polycarpa	2.0	2.5	Good	High	
Prosopis glandulosa ssp. torreyana	6.0	6.0	Good	High	
Atriplex polycarpa	2.0	2.3	Poor	Low	
Atriplex polycarpa	2.5	1.5	Good	High	
Atriplex polycarpa	2.5	2.0	Good	High	
Atriplex polycarpa	2.5	2.0	Good	High	
Atriplex polycarpa	1.5	2.5	Moderate	Low	
Atriplex polycarpa	4.0	4.0	Good	High	
Atriplex polycarpa	3.5	3.5	Good	High	
Atriplex polycarpa	1.5	0.5	Poor	Low	

Total sample area	50	square meters		
Lycium sp.	0.04	per square meter	162	Individuals per acre
Atriplex polycarpa	0.22	per square meter	890	Individuals per acre
Atriplex canescens ssp. linearis	0.06	per square meter	243	Individuals per acre
Prosopis glandulosa ssp. torreyana	0.02	per square meter	81	Individuals per acre

New Polygon Data
See Sample Point 20 for polygon totals.

Sample Point 16 Creosote Bush Scrub
January 18, 2010
Length: 72 meters Sample point end: 70 meters
Bearing: 60 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Lycium sp.	3.5	2.0	Good	High	
Ambrosia dumosa	1.0	2.0	Good	High	
Ambrosia dumosa	1.0	1.5	Moderate	Low	
Larrea tridentata	2.5	1.5	Good	High	
Ambrosia dumosa	1.0	0.9	Good	High	
Ambrosia dumosa	1.5	1.8	Good	High	
Larrea tridentata	5.0	2.5	Good	High	
Ambrosia dumosa	1.5	2.0	Good	High	
Ambrosia dumosa	1.5	2.5	Good	High	
Ambrosia dumosa	0.5	0.3	Moderate	Low	
Ambrosia dumosa	0.5	0.2	Poor	Low	
Ambrosia dumosa	1.0	0.8	Moderate	High	
Ambrosia dumosa	1.0	0.5	Poor	Low	
Ambrosia dumosa	0.5	0.3	Moderate	Low	
Ambrosia dumosa	1.5	1.0	Good	High	
Larrea tridentata	2.5	8.0	Good	High	
Larrea tridentata	4.0	10.0	Good	High	
Ambrosia dumosa	1.5	1.5	Moderate	Moderate	
Larrea tridentata	3.0	1.5	Good	High	
Ambrosia dumosa	1.5	2.0	Good	High	
Ambrosia dumosa	1.0	2.0	Poor	Low	
Ambrosia dumosa	1.0	2.0	Good	High	
Ambrosia dumosa	1.5	2.2	Good	High	
Ambrosia dumosa	0.5	0.5	Poor	Low	
Ambrosia dumosa	0.5	0.5	Moderate	Moderate	
Ambrosia dumosa	1.5	1.8	Poor	Low	
Larrea tridentata	1.5	1.3	Poor	Low	
Larrea tridentata	2.5	5.0	Poor	Low	
Larrea tridentata	2.5	7.0	Good	High	
Larrea tridentata	2.5	6.0	Good	High	
Larrea tridentata	3.0	10.0	Good	High	
Larrea tridentata	2.5	12.0	Moderate	Moderate	

Total sample area	140	square meters			New Polygon Data
Lycium sp.	0.007142857	per square meter	29	Individuals per acre	See Sample Point 18 for polygon totals.
Ambrosia dumosa	0.142857143	per square meter	578	Individuals per acre	
Larrea tridentata	0.078571429	per square meter	318	Individuals per acre	

Sample Point 17 Mesquite
January 18, 2010
Length: 100 meters Sample point end: 75 meters
Bearing:120 degrees

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Lycium sp.	3.5	5.0	Good	High	
Larrea tridentata	5.0	1.5	Moderate	Poor	
Prosopis glandulosa ssp. torreyana	8.0	12.0	Moderate	Low	
Atriplex polycarpa	5.0	2.5	Good	High	
Atriplex polycarpa	2.0	2.0	Good	High	
Larrea tridentata	4.5	2.5	Poor	Low	
Prosopis glandulosa ssp. torreyana	7.0	15.0	Good	Poor	
Larrea tridentata	4.0	7.0	Good	High	
Larrea tridentata	4.0	7.0	Good	High	
Larrea tridentata	3.5	4.5	Moderate	Moderate	
Larrea tridentata	4.0	7.0	Good	High	
Castela emoryi	4.5	2.5	Moderate	Moderate	
Larrea tridentata	4.5	2.5	Moderate	Moderate	
Atriplex polycarpa	2.5	3.5	Moderate	Low	
Prosopis glandulosa ssp. torreyana	7.0	6.5	Good	Moderate	
Castela emoryi	6.5	3.5	Good	Moderate	
Larrea tridentata	3.0	1.5	Poor	Low	
Larrea tridentata	4.0	11.0	Moderate	Moderate	
Larrea tridentata	3.5	8.0	Good	High	
Larrea tridentata	4.5	3.0	Good	Poor	clump of 4
Larrea tridentata	5.0	9.0	Good	High	
Castela emoryi	4.5	4.0	Moderate	Moderate	
Larrea tridentata	5.0	7.0	Good	High	
Castela emoryi	2.0	1.0	Poor	Low	
Prosopis glandulosa ssp. torreyana	8.5	14.0	Good	Moderate	
Prosopis glandulosa ssp. torreyana	10.0	27.0	Good	Low	
Larrea tridentata	3.5	9.0	Good	High	
Castela emoryi	7.0	5.5	Good	High	

Total sample area	150	square meters			New Polygon Data
Lycium sp.	0.006666667	per square meter	27	Individuals per acre	See Sample Point 19 for polygon totals.
Larrea tridentata	0.093333333	per square meter	378	Individuals per acre	
Prosopis glandulosa ssp. torreyana	0.033333333	per square meter	135	Individuals per acre	
Atriplex polycarpa	0.02	per square meter	81	Individuals per acre	
Castela emoryi	0.033333333	per square meter	135	Individuals per acre	

Sample Point 18 Creosote Bush Scrub
January 18, 2010
Length: 100 meters Sample point end: 57 meters
Bearing:140 degrees

Species	Height (feet)	Width (inches	Health	Transplantability	Notes
Larrea tridentata	6.0	8.0	Good	High	
Ambrosia dumosa	1.5	1.0	Moderate	Moderate	
Larrea tridentata	2.0	2.0	Moderate	Moderate	
Ambrosia dumosa	1.5	1.5	Moderate	Moderate	
Ambrosia dumosa	1.0	0.5	Poor	Low	
Larrea tridentata	4.0	4.5	Good	High	
Ambrosia dumosa	1.0	1.0	Good	High	
Ambrosia dumosa	1.5	1.3	Good	High	
Ambrosia dumosa	1.5	1.5	Good	High	
Ambrosia dumosa	1.5	2.0	Moderate	Moderate	
Larrea tridentata	4.0	3.5	Moderate	Moderate	
Ambrosia dumosa	1.5	3.5	Good	High	
Ambrosia dumosa	1.0	2.5	Good	High	
Ambrosia dumosa	1.5	4.0	Good	High	
Ambrosia dumosa	1.5	4.5	Good	High	
Larrea tridentata	5.0	7.0	Good	High	
Larrea tridentata	6.0	1.0	Good	High	
Ambrosia dumosa	2.0	3.5	Moderate	Moderate	
Ambrosia dumosa	2.0	2.5	Moderate	Moderate	
Larrea tridentata	5.0	2.5	Good	High	
Ambrosia dumosa	1.5	2.0	Poor	Low	
Ambrosia dumosa	1.5	4.0	Moderate	Moderate	
Ambrosia dumosa	1.0	0.8	Moderate	Low	
Larrea tridentata	6.0	2.0	Good	High	
Larrea tridentata	4.0	2.0	Good	High	

Total sample area	114	square meters		
Larrea tridentata	0.07894737	per square meter	319	Individuals per acre
Ambrosia dumosa	0.14035088	per square meter	568	Individuals per acre

New Polygon Data	Total for Points 16 and 18	
Lycium sp.	84	Individuals in polygon
Ambrosia dumosa	3312	Individuals in polygon
Larrea tridentata	1841	Individuals in polygon

Sample Point 19 Mesquite
January 18, 2010
Length: 50 meters Sample point end: 15 meters
Bearing:145 degrees

Species	Height (feet)	Width (inches)	Health	Transplantabilit	Notes
Prosopis glandulosa ssp. torreyana	15.0	18.0	Good	Low	
Prosopis glandulosa ssp. torreyana	10.0	16.5	Good	Low	
Larrea tridentata	6.0	3.5	Moderate	Low	
Lycium sp.	4.5	15.0	Good	Moderate	
Larrea tridentata	6.5	15.0	Good	High	
Larrea tridentata	4.0	3.0	Good	High	
Lycium sp.	6.0	8.0	Poor	Low	
Acacia greggi	9.0	10.0	Good	Poor	
Larrea tridentata	4.0	0.5	Poor	Low	

Total sample area	30	square meters		
Prosopis glandulosa ssp. torreyana	0.066666667	per square meter	270	Individuals per acre
Larrea tridentata	0.133333333	per square meter	540	Individuals per acre
Lycium sp.	0.066666667	per square meter	270	Individuals per acre
Acacia greggi	0.033333333	per square meter	135	Individuals per acre

New Polygon Data	Total for Points 17 and 19	
Lycium sp.	149	Individuals in polygon
Larrea tridentata	459	Individuals in polygon
Prosopis glandulosa ssp. torreyana	203	Individuals in polygon
Atriplex polycarpa	41	Individuals in polygon
Castela emoryi	68	Individuals in polygon
Acacia greggi	68	Individuals in polygon

Sample Point 20
January 18, 2010
Length: 120 meters
Bearing:120 degrees

Desert Saltbush Scrub

Sample point end: 120 meters

Species	Height (feet)	Width (inches)	Health	Transplantability	Notes
Larrea tridentata	6.0	6.0	Good	High	
Atriplex polycarpa	4.0	3.5	Good	High	
Atriplex polycarpa	4.0	3.0	Good	High	
Atriplex polycarpa	3.0	2.5	Good	High	
Atriplex polycarpa	3.0	3.0	Good	High	
Atriplex polycarpa	3.5	4.0	Good	High	
Atriplex polycarpa	3.0	4.0	Good	High	
Atriplex polycarpa	4.0	4.0	Good	High	
Atriplex polycarpa	3.0	2.5	Good	High	
Atriplex polycarpa	3.0	2.5	Good	High	
Atriplex polycarpa	4.0	4.0	Good	High	
Atriplex polycarpa	2.5	2.0	Good	High	
Atriplex polycarpa	2.5	1.5	Good	High	
Atriplex polycarpa	2.5	2.0	Good	High	
Atriplex polycarpa	3.0	3.0	Good	High	
Atriplex polycarpa	3.5	3.5	Good	High	
Atriplex polycarpa	2.5	2.0	Good	High	
Atriplex polycarpa	2.5	2.8	Good	High	
Atriplex polycarpa	2.5	1.5	Good	High	
Atriplex polycarpa	3.5	2.5	Good	High	
Atriplex polycarpa	2.0	2.0	Good	High	
Atriplex polycarpa	2.0	2.5	Good	High	
Atriplex polycarpa	4.5	7.5	Good	Low	
Atriplex polycarpa	3.0	3.0	Good	High	
Atriplex polycarpa	3.0	4.0	Good	High	
Atriplex polycarpa	3.0	3.0	Good	High	
Atriplex polycarpa	3.0	2.5	Good	High	
Atriplex polycarpa	2.5	3.0	Good	High	
Atriplex polycarpa	3.0	4.0	Good	High	
Atriplex polycarpa	4.0	2.8	Good	High	
Atriplex polycarpa	2.0	1.0	Good	High	
Atriplex polycarpa	3.5	5.0	Good	High	
Atriplex polycarpa	3.5	3.5	Good	High	
Atriplex polycarpa	2.5	3.0	Good	High	
Atriplex polycarpa	3.0	4.0	Good	High	
Atriplex polycarpa	4.0	7.0	Good	Moderate	
Lycium sp.	6.5	14.0	Good	Moderate	
Atriplex polycarpa	3.5		Good	Low	
Atriplex polycarpa	4.0	5.0	Good	Low	

Total sample area	240	square meters		
Larrea tridentata	0.004166667	per square meter	17	Individuals per acre
Atriplex polycarpa	0.154166667	per square meter	624	Individuals per acre
Lycium sp.	0.004166667	per square meter	17	Individuals per acre

New Polygon Data Total for Points 15 and 20

Lycium sp.	231	Individuals in polygon
Atriplex polycarpa	1953	Individuals in polygon
Atriplex canescens ssp. linearis	314	Individuals in polygon
Prosopis glandulosa ssp. torreyana	105	Individuals in polygon
Larrea tridentata	22	Individuals in polygon

	SPECIES DENSITY BY SAMPLE POINT																			
	AVSE							Gen-Tie Line			AVSE II				Access Road					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Species	240 sq m	40 sq m	240 sq m	80 sq m	200 sq m	150 sq m	90 sq m	120 sq m	40 sq m	30 sq m	100 sq m	60 sq m	160 sq m	170 sq m	50 sq m	140 sq m	150 sq m	114 sq m	30 sq m	240 sq m
Larrea tridentata	12	2	9	2	8	2	2	6	1	2	1	0	3	2	0	11	14	9	4	1
Ambrosia dumosa	7	0	0	0	0	0	0	11	8	0	0	0	7	3	0	20	0	16	0	0
Atriplex polycarpa	4	1	0	0	35	20	0	0	0	0	9	8	12	5	11	0	3	0	0	37
Lycium sp.	1	0	0	1	4	2	0	0	0	0	1	2	1	0	2	1	1	0	2	1
Cylindropuntia ramosissima	0	0	0	0	0	0	0	2	2	0	0	3	5	9	0	0	0	0	0	0
Cylindropuntia ramosissima (dead)	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
Castela emoryi	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5	0	0	0
Prosopis glandulosa ssp. torreyana	0	1	1	11	6	3	8	0	0	2	0	0	0	0	1	0	5	0	2	0
Atriplex canescens ssp. linearis	0	0	0	0	11	0	0	0	0	0	0	4	0	1	3	0	0	0	0	0
Suaeda nigra	0	0	0	0	0	0	0	0	0	0	8	0	1	0	0	0	0	0	0	0
Echinocereus engelmannii	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Cylindropuntia acanthocarpa	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Acacia greggii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Isocoma acradenia	0	0	13	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Krameria grayi	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

	AVSE										**AVSE II**					**Gen-Tie**					**Access Road**								
Species	CBS Dense (2)	CBS Dense (2a)	CBS Sparse (4)	D. Pavement (3)	Saltbush (6)	Mesquite (5)	Disturbed (1)	**Total**	**Multiplier**	**Cost**	Saltbush	CBS	**Total**	**Multiplier**	**Cost**	CBS	Mesquite	**Total**	**Multiplier**	**Cost**	CBS	Saltbush	Mesquite	**Total**	**Multiplier**	**Cost**	Grand Total	Multiplier	Total Cost
Larrea tridentata	0	0	0	0	0	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	0	**0**	$2.00	**$0.00**	**0**	$2.00	**$0.00**
Ambrosia dumosa	0	0	0	0	0	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	0	**0**	$2.00	**$0.00**	**0**	$2.00	**$0.00**
Atriplex polycarpa	0	0	0	0	0	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	0	**0**	$2.00	**$0.00**	**0**	$2.00	**$0.00**
Lycium sp.	0	0	1071	0	2259	303	0	**3633**	$2.00	**$7,266.00**	6154	358	**6512**	$2.00	**$13,024.00**	0	0	**0**	$2.00	**$0.00**	84	231	149	**464**	$2.00	**$928.00**	**10609**	$2.00	**$21,218.00**
Cylindropuntia ramosissima	0	0	1071	0	0	0	0	**1071**	$2.00	**$2,142.00**	7144	5069	**12213**	$2.00	**$24,426.00**	73	0	**73**	$2.00	**$146.00**	0	0	0	**0**	$2.00	**$0.00**	**13357**	$2.00	**$26,714.00**
Cylindropuntia ramosissima (dead)	0	0	0	0	0	0	0	**0**	$1.00	**$0.00**	0	0	**0**	$1.00	**$0.00**	36	0	**36**	$1.00	**$36.00**	0	0	0	**0**	$1.00	**$0.00**	**36**	$1.00	**$36.00**
Castela emoryi	0	0	0	0	0	0	0	**0**	$5.00	**$0.00**	0	0	**0**	$5.00	**$0.00**	0	24	**24**	$5.00	**$120.00**	0	0	68	**68**	$5.00	**$340.00**	**92**	$5.00	**$460.00**
Prosopis glandulosa ssp. torreyana	364	3121	0	0	3380	5718	0	**12583**	$5.00	**$62,915.00**	0	0	**0**	$5.00	**$0.00**	0	49	**49**	$5.00	**$245.00**	0	105	203	**308**	$5.00	**$1,540.00**	**12940**	$5.00	**$64,700.00**
Atriplex canescens ssp. linearis	0	0	0	0	0	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	0	**0**	$2.00	**$0.00**	**0**	$2.00	**$0.00**
Suaeda nigra	0	0	0	0	0	0	0	**0**	$0.25	**$0.00**	11458	507	**11965**	$0.25	**$2,991.25**	0	0	**0**	$0.25	**$0.00**	0	0	0	**0**	$0.25	**$0.00**	**11965**	$0.25	**$2,991.25**
Echinocereus engelmannii	0	0	0	0	0	0	0	**0**	$2.00	**$0.00**	3749	0	**3749**	$2.00	**$7,498.00**	0	0	**0**	$2.00	**$0.00**	0	0	0	**0**	$2.00	**$0.00**	**3749**	$2.00	**$7,498.00**
Cylindropuntia acanthocarpa	0	0	0	0	0	0	0	**0**	$2.00	**$0.00**	2405	0	**2405**	$2.00	**$4,810.00**	0	0	**0**	$2.00	**$0.00**	0	0	0	**0**	$2.00	**$0.00**	**2405**	$2.00	**$4,810.00**
Acacia greggii	0	0	0	0	0	0	0	**0**	$10.00	**$0.00**	0	0	**0**	$10.00	**$0.00**	0	0	**0**	$10.00	**$0.00**	0	0	68	**68**	$10.00	**$680.00**	**68**	$10.00	**$680.00**
Isocoma acradenia	0	0	0	0	0	0	0	**0**	$0.25	**$0.00**	0	0	**0**	$0.25	**$0.00**	0	0	**0**	$0.25	**$0.00**	0	0	0	**0**	$0.25	**$0.00**	**0**	$0.25	**$0.00**
Krameria grayi	0	0	0	0	0	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	9	0	**9**	$2.00	**$18.00**	0	0	0	**0**	$2.00	**$0.00**	**9**	$2.00	**$18.00**
Ferocactus wislizenii	0	0	0	0	0	0	0	**10**	$2.00	**$20.00**	0	0	**0**	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	0	**0**	$2.00	**$0.00**	**10**	$2.00	**$20.00**
Mammillaria tetrancistra	0	0	0	0	0	0	0	0	$2.00	**$0.00**	0	0	**0**	$2.00	**$0.00**	0	0	**1**	$2.00	**$2.00**	0	0	0	**0**	$2.00	**$0.00**	**1**	$2.00	**$2.00**
TOTAL										**$72,343.00**					**$52,749.25**					**$567.00**						**$3,488.00**			**$129,147.25**