
ARIZONA HEDGEHOG CACTUS DATABASE

Prepared for: Resolution Copper Mining
Prepared by: WestLand Resources, Inc.
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FIGURE

(follows text)

Figure 1. Survey Areas	
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1. INTRODUCTION

WestLand Resources Inc. (WestLand) has conducted surveys for Arizona Hedgehog Cactus (AHC; *Echinocereus triglochidiatus* var. *arizonicus*) in support of Resolution Copper Mining pre-feasibility and feasibility studies to develop an underground copper mine east of Superior, Arizona.

WestLand compiled an Access database (**Table 1; Attachment A**) incorporating all known AHC observed in surveys from 2010 through 2012. Surveys took place in and around the type locality of AHC, between Globe and Superior, Arizona, and in adjacent mountain ranges and canyons (**Figure 1**). The database contains records of 4,035 individual AHC. Following US Fish and Wildlife guidelines, all scarlet flowered hedgehog cactus observed in surveys around the type locality of AHC were designated as AHC; however, genetic analysis has not been performed on any of these AHC to date and genetic variation within this population is unknown.

2. DATABASE DESCRIPTION AND STRUCTURE

The database is comprised of five tables:

- The cactus ID location table lists all georeferenced AHC in the database.
- The cactus biological habitat table is composed of all AHC with records that identify the four nearest plants and their distance to those AHC.
- The cactus geological habitat table is composed of all AHC with records of slope, elevation, aspect and rock type.
- The individual cactus information table is composed of all AHC with records of stem number, stem length, central spine length, number of pups, plant location, plant slope, the soil depth at the immediate base of each AHC, and whether the AHC had black spines.
- The individual stem information table has records of all AHC with individual stem height, the number of reproductive structures per stem (buds, flowers, fruits) and the measurements taken using Baker (2011) methodology.

All the tables have associated metadata, and are linked by the Cactus ID number. Queries may be performed using this field. In addition the individual cactus information table and the individual stem information table are linked by cactus visit ID number.

In addition to the Access database, *Figure 1* is provided to show the areas surveyed for AHC and those areas in which AHC was present or absent. Accompanying shapefiles are provided (*Attachment A*) that delineate the areas surveyed for AHC, and where AHC was observed in those areas.

Table 1. Metadata for AHC Access Database

LEVEL 1	
Project Title	AHC Database
Dataset Title	Final_AHC
Creator (created by)	WestLand Resources, Inc. 4001 E Paradise Falls Drive Tucson, AZ 85716
Contact Details	Aaron Graham, Senior Environmental Scientist Jim Tress, Principal
Publication Date (mm/dd/yyyy)	08/07/2013
Intellectual rights	Resolution Copper Mining
Keywords	AHC, <i>Echinocereus triglochidiatus</i> var. <i>arizonicus</i> , locations
Taxonomic coverage:	<i>Echinocereus triglochidiatus</i> var. <i>arizonicus</i>

LEVEL 1	
Abstract	WestLand Resources Inc. (WestLand) has compiled an Access database incorporating all known Arizona Hedgehog Cactus (AHC; <i>Echinocereus triglochidiatus</i> var. <i>arizonicus</i>) observed in surveys conducted by WestLand from 2010 through 2012. The database contains records of 4,035 individual geo-referenced AHC. Included within the database are multiple tables regarding geological and biological habitat variables and individual cactus variables. Following US Fish and Wildlife guidelines, all scarlet flowered hedgehog cactus observed in surveys around the type locality of AHC were designated as AHC; however, genetic analysis has not been performed on any of these AHC to date and genetic variation within this population is unknown.
Project Description	Database
List of Data Tables	CactusID_LocationTbl CactusBioHabTbl CactusGeoHabTbl IndividualCactusInfo IndividualStemInfo
Geographic Coverage	Surveys took place in and around the type locality of AHC, between Globe and Superior, Arizona, and in adjacent mountain ranges and canyons.
East bounding coordinate (Long)	██████
West bounding coordinate (Long)	██████
North bounding coordinate (Lat)	██████
South bounding coordinate (Lat)	██████
Datum:	██████
Temporal Coverage:	From 2010 to 2012

3. REFERENCES

Baker, M. 2011. *A simplified stem morphology method for the identification of claret-cup cacti in the area of Superior, Miami, and Globe, Pinal and Gila Counties, Arizona.* Unpublished memo.




FIGURE 1
SURVEY AREAS

ATTACHMENT A

**AHC DATABASE
(ACCESS FILE)
AND SHAPEFILES
ON CD**