

**Results of Surveys for Kuenzler's Hedgehog Cactus (*Echinocereus fendleri*
var. kuenzleri) in the Brokeoff Mountains and western slopes of the
Guadalupe Mountains, 2009.**

**Negative Surveys on three Bureau of Land Management sites
selected by the Las Cruces District Office .**

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for:

**Bureau of Land Management
Las Cruces District Office
Las Cruces, NM**

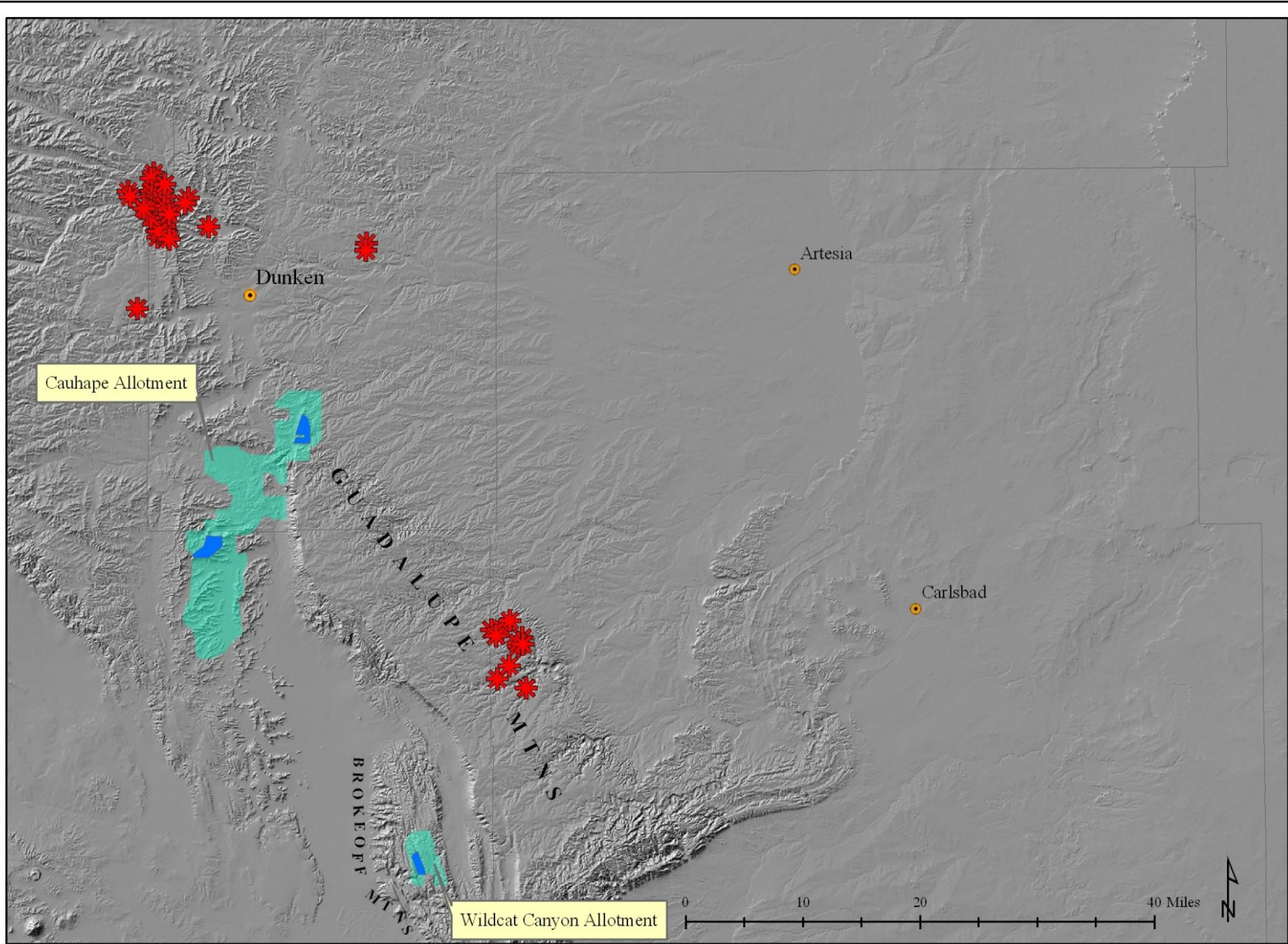
Introduction:

Natural Heritage New Mexico conducted surveys for *Echinocereus fendleri* var. *kuenzleri* for the BLM, Las Cruces District Office, on three sites in the Guadalupe and Brokeoff Mountains of Southeastern New Mexico. We conducted surveys in the spring of 2009 on two sites within the Cauhape Allotment (Guadalupe Mountains) and one site in the Wildcat Canyon Allotment (Brokeoff Mountains). The Spring of 2009 was extremely dry in this part of New Mexico and it was unclear whether the target species, if present, would bloom on time, late, or not at all. This species is most readily detected when in flower so it was our hope that the timing of the surveys would coincide with or slightly precede the flowering period of the Kuenzler's hedgehog cactus.

Kuenzler's cactus has been found on the east side of the Guadalupe Mountains but has not been located on the west side (Map 1). It has been found in the Sacramento Mountains, NW of the study areas. The Wildcat Canyon Allotment is 16 miles SSW of the nearest known occurrence of this cactus in Rawhide Canyon, and along Powers Ridge above Indian Creek (Lincoln National Forest). The southern Cauhape search area is midway between the Angel Canyon population to the north (20 miles North, near Dunken, NM) and the Texas Hill population 24 miles to the ESE. The northern Cauhape study area is located 17 miles SE of the Dunken population and 16 miles SSW of the Singer Lake Kuenzler's cactus population (West of Hope, NM).

Methods:

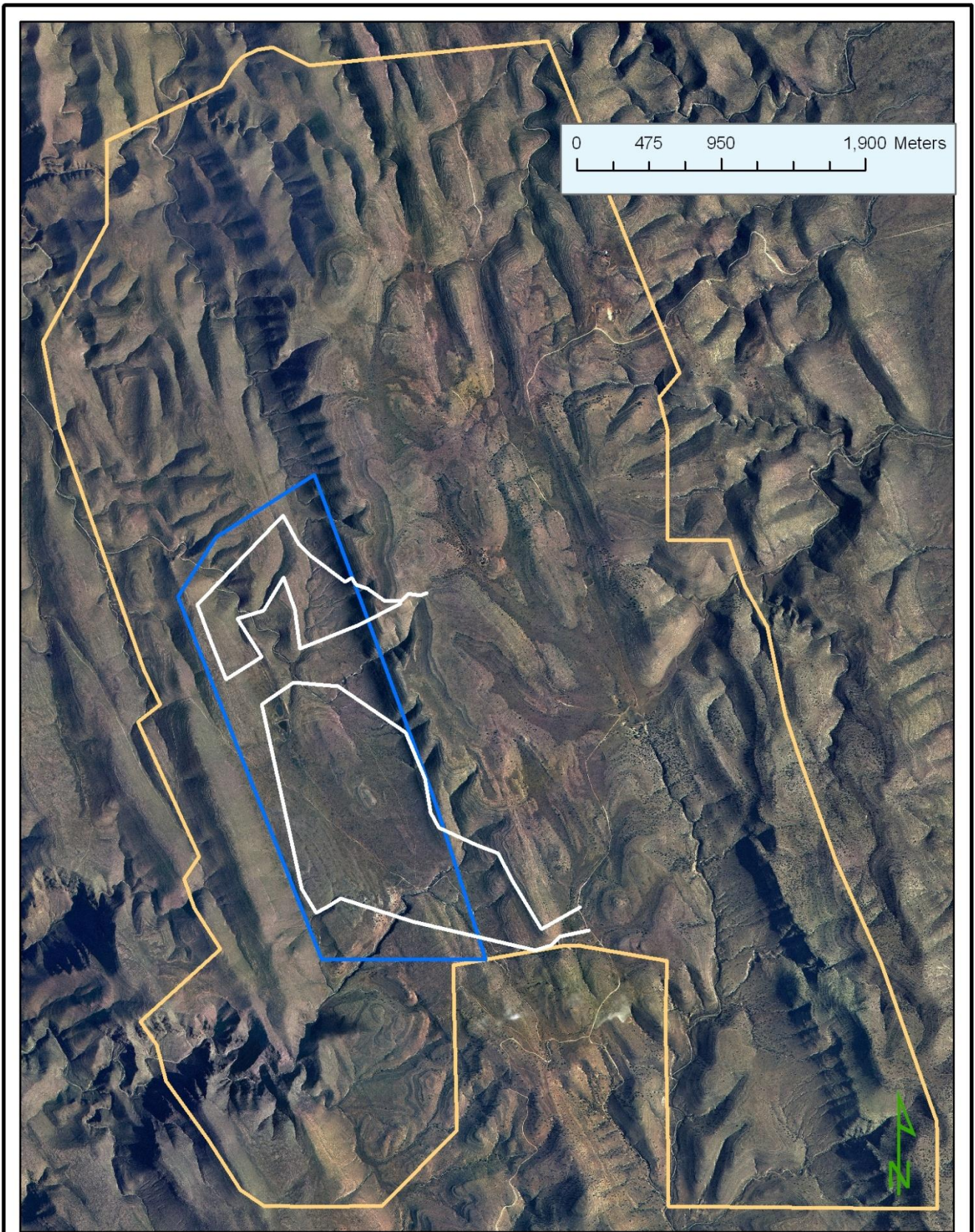
Habitat within these sites appeared atypical for this endangered cactus so I completed transects through a variety of plant communities and terrain (Maps 2-4). These maps capture the general route taken but don't incorporate side trips and spot checks conducted in each of the three study sites. *Echinocereus fendleri* var. *kuenzleri* has often been found along ridgelines in Pinyon/Juniper habitat so we designed the transects to coincide with likely habitat when present and to emphasize ridgelines and a varied elevation gradient to encounter a range of plant communities. Establishing the general footprint of the transects was done with the aid of GIS-viewed aerial photography. Searches were conducted in May 2009 with the intention of returning when and if plants were located to map them during peak flowering. The BLM wanted us to cover the search areas as thoroughly as possible with the time we had available. The Wildcat Canyon Population was their primary area of interest followed by the northern Cauhape site, and then the southern Cauhape site. When I had surveyed a good portion of the priority one site without finding cacti, I moved on to site two and then site 3. If I had found plants at the highest priority site we would have returned with a crew to conduct thorough surveys and mapping of the area. After searching site one sufficiently to hit most of the habitat variation present within the study area I moved on to site two and then three.



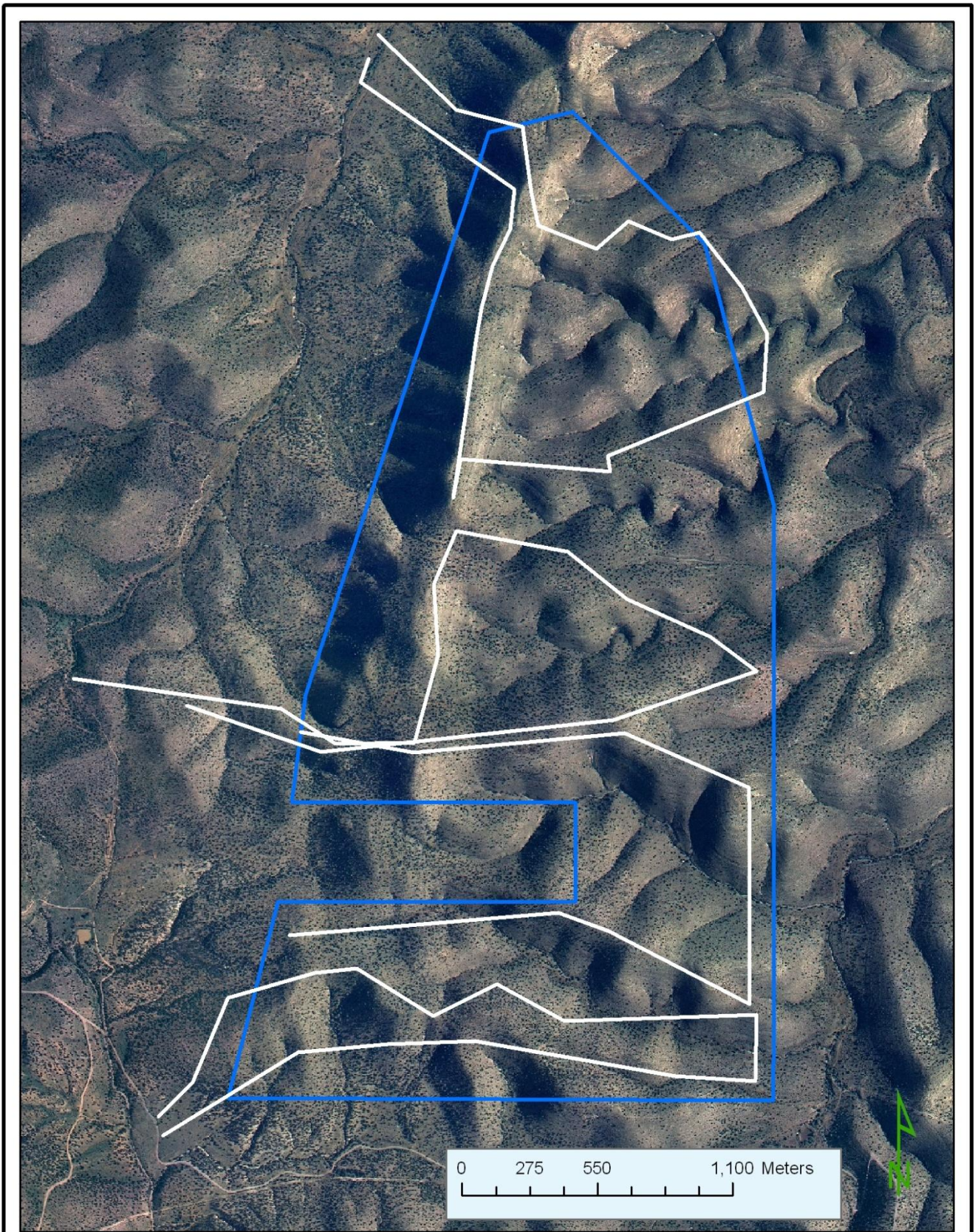
Map 1. Map of areas surveyed for Kuenzler's Hedgehog Cactus - Spring 2009.

 Survey Sites

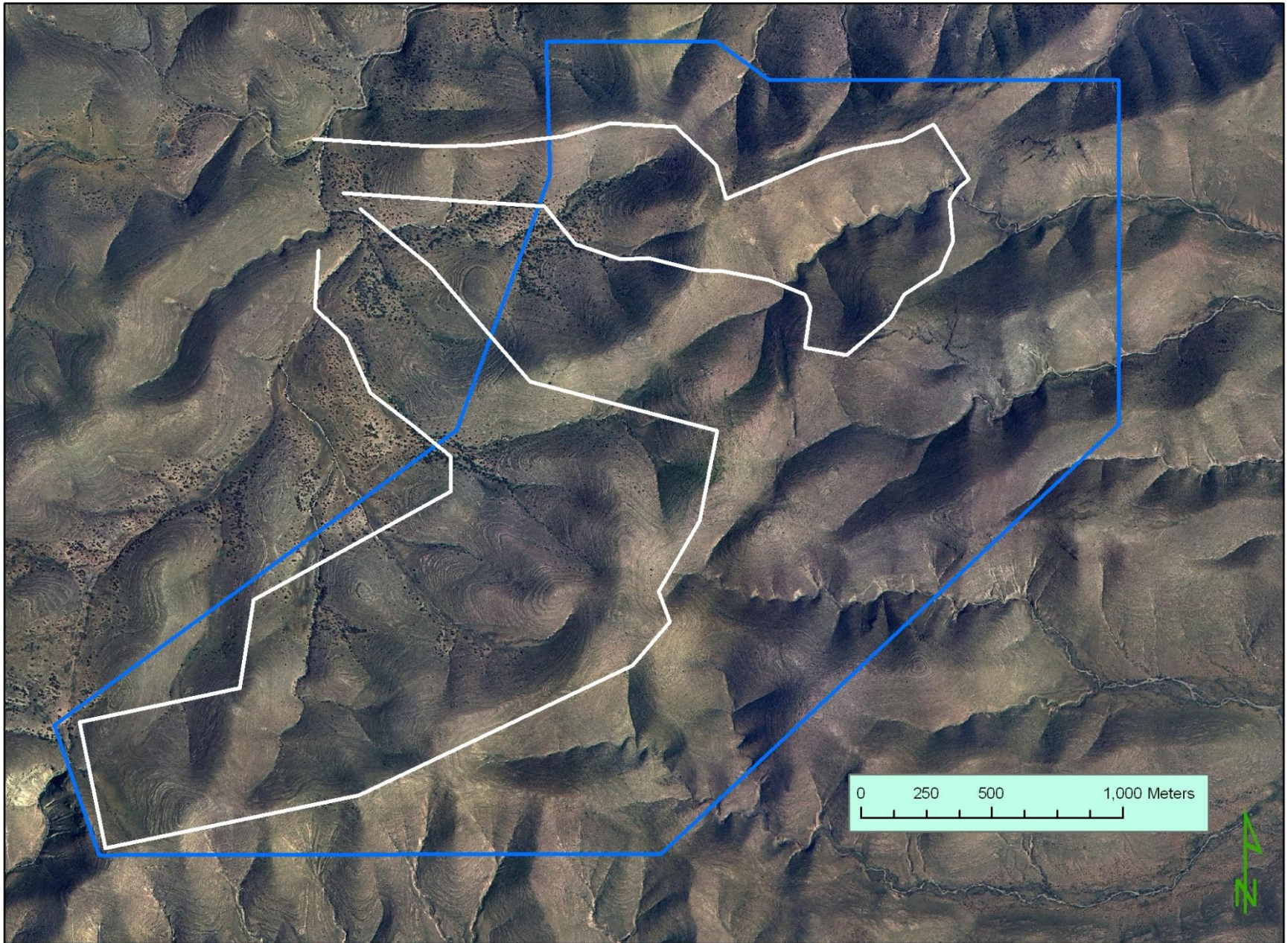
 Known occurrences of *Echinocereus fendleri* var. *kuenzleri*.



Map 2. Wildcat Canyon Allotment. Study area outline in blue. Primary transects walked in white. Allotment border; beige.



Map 3. Cauhape Allotment; northern study area outline in blue.
Primary transects walked in white.



Map 4. Cauhape Allotment; southern study area outline in blue. Primary transects walked in white.

Results:

No target plants were encountered at any of the three study sites, photos 1-3. The northern Cauhape allotment study area appeared to have habitat most similar to occupied habitat. However, no plants were found at any of the search areas.



Photo 1. Wildcat Canyon Allotment, Brokeoff Mountains.



Photo 2. Cauhape Allotment North, Guadalupe Mountains.



Photo 3. Cauhape Allotment South, Guadalupe Mountains.

Discussion:

No Kuenzler's cactus was found during this year's surveys. While it is unclear exactly what habitat would be occupied if Kuenzler's cactus were here I visited a good portion of each study area and took the time to explore anything that looked promising or slightly different. Southern New Mexico was extremely dry in the spring of 2009 and very few plants of any kind flowered in the study sites. While some small cacti were observed there was little reproductive effort in the taxa observed. *Echinocereus triglochidiatus* was observed with aborted flowers at the two southern sites and flowering was limited at the northern site. *Echinocereus viridiflorus* was observed in bud at one site but was vegetative (displaying no reproductive effort) at all other times it was encountered. A single *Mammillaria heyderi* was found with fruit on it; otherwise the reproductive effort of all cacti encountered appeared quite reduced due to drought conditions. Despite the drought and the unlikely flowering of *Echinocereus fendleri* var. *kuenzleri* this year it appears clear that this target plant, if present at all, is in very low abundance and was not encountered during surveys. For the most part these three sites do not have promising habitat for this species. The northern Cahape allotment site was most promising and the least removed from known occurrences. I spent more time at this site than either of the others and could not locate any Kuenzler's cactus.

These searches were conducted in areas that had no documented occurrences of Kuenzler's cactus. It was our hope that we could find this endangered species in intermediate habitats between known occurrences. For now we haven't been able to document it in this area. The two southern sites appear more xeric than occupied habitat I've observed. The northern site is characterized by more mesic Pinon/Juniper associations and may fall within the right relative moisture range; for whatever reason it does not appear to occur here.