

***Assessment of Gunnison Prairie Dog
and Burrowing Owl Populations
On San Luis Valley Solar Energy Zone Proposed Areas***

Melissa Garcia & Loree' A. Harvey

San Luis Valley Public Lands Center
1803 West Hwy 160
Monte Vista, Colorado 81144

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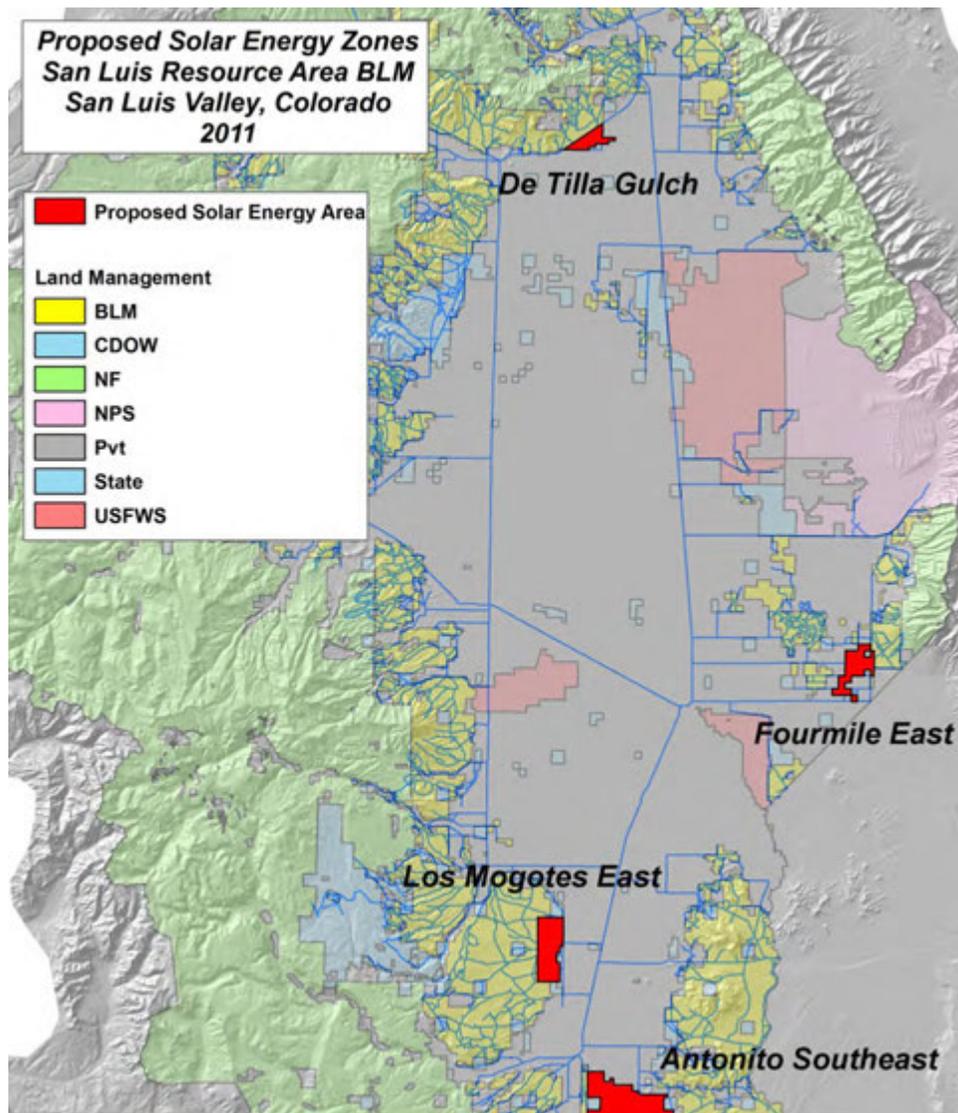


Introduction

Four sites (Figure 1) on San Luis Valley BLM lands have been identified as being potential areas for the development of solar energy fields. These sites are located in Saguache, Alamosa, and Conejos counties in arid, scrub/shortgrass habitat dominated by plants such as blue gramma, prickly gilia, winterfat, and various rabbitbrush species. These areas serve as habitat for a suite of fauna that survive in connection with Gunnison prairie dog (GuPD) colony activity, and include other species of concern such as the ferruginous hawk, mountain plover, and the burrowing owl (a Colorado threatened species).

The wildlife assessment of these four proposed solar energy sites occurred during the summer and fall of 2011, and focused on locating and mapping active and inactive GuPD colonies, and noting the presence of other species of concern that may utilize the area. These surveys were conducted by Loree' A. Harvey, Keven Suellentrop, Casey Day, and Tayler Rocha.

Figure 1. Locations of Proposed Solar Energy Zones within the San Luis Valley.



Initial Assessments

Each site was ground-truthed for GuPD activity using a combination of foot travel and road observations, glassing all areas with binoculars and visually inspecting burrows. An area was considered to have GuPD activity if prairie dogs were observed; scat, tracks, or recent signs of digging were observed; or burrow mounds with functional holes were present, with or without recent signs of use. Burrows with cobwebs or minor residual vegetation blown in from winds were included in colony maps as long as they were structurally functional. If burrows were partially or completely collapsed with no signs of GuPD use (footprints, scat, signs of digging), they were not considered to represent recent GuPD activity, and were not included in the colony perimeter. In addition to quantifying the use of each area by GuPD, the areas were monitored for use by other species of concern, including ferruginous hawks, mountain plovers, and burrowing owls, as well as other non-threatened vertebrate species.

Transects and GuPD activity

Areas that were identified as having GuPD activity were further assessed for current prairie dog use with the establishment and monitoring of foot transects, generally placed in a north/south direction and spaced at 200 m intervals within the mapped polygon. The purpose of the transects was to create a systematic and reproducible method of gauging the current level of GuPD activity within the polygon, and to establish a baseline data set to help indicate future population trends of GuPD use in the area. The focus of the information collected during a transect walk was the number of burrows that show signs of current activity (fresh scat, prints, digging, or a visual of a prairie dog) versus the number of burrows that are inactive (lacking the above signs, or having cobwebs or residual vegetation blocking the burrow). Technicians conducting the transect walk counted burrows of either type that were within 2 meters of either side of the transect line.

Since GuPD are frequently targeted by sport hunters, animals will often seek cover in their burrows when approached by humans. This can make accurate counts of individuals difficult. To negate this affect, the number of GuPDs was noted with binoculars at a safe distance from the transect, as well as upon approach in a vehicle or on foot during the transect walk. Other details of the colony were also noted, such as the presence of ground squirrel activity, and whether GuPD alarm calls were heard while walking the transects.

Fourmile East

The Fourmile East solar field site (Figure 2) was initially assessed on 7/14/11 for approximately 9 hours. All available roads were driven, and the area was glassed extensively for any signs of GuPD activity. Areas that were inaccessible by vehicle were walked by foot, and were also glassed with binoculars.

Gunnison Prairie Dog Use:

No Gunnison Prairie Dog activity was noted in any portion of the Fourmile East solar field site.

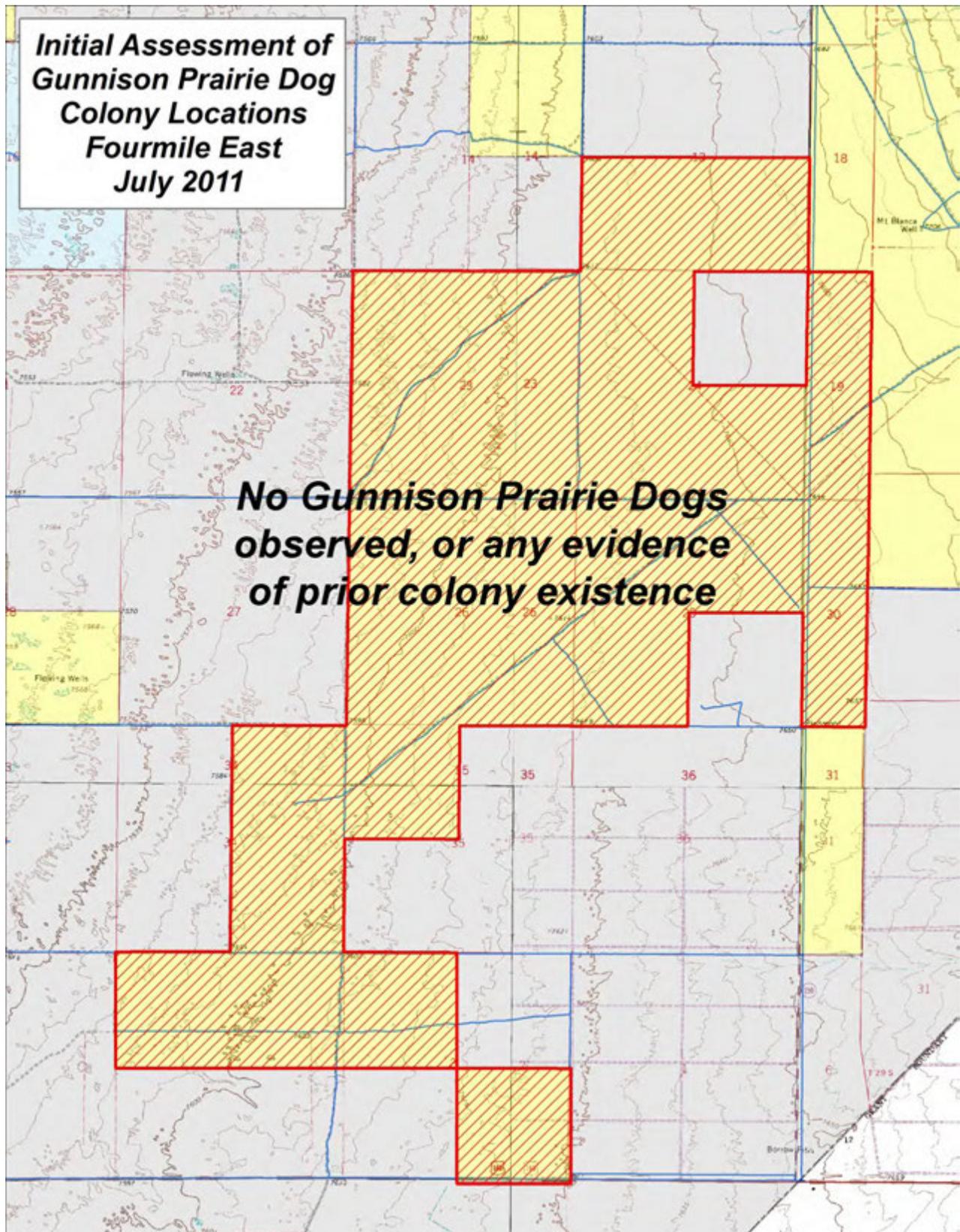
Burrowing Owl Use:

Burrowing owls were not seen in the vicinity of the Fourmile East solar field site during the assessment on 7/14/11. However, more extensive early summer surveys will need to be conducted to further define the use of this area by burrowing owls for hunting and the dispersal of young from other areas. There are established GuPD colonies 10 miles north of the Fourmile East site on Lane 6N, a few hundred meters from its intersection with Colorado Highway 150 (just south of Great Sand Dunes National Park & Preserve). There is also a great deal of unsurveyed private land surrounding this solar site on all sides. It is entirely possible that the Fourmile East site is within the home range of nearby nesting burrowing owls.

Other species seen in the area are as follows:

- Approximately 20 Pronghorn Antelope (some with calves)
- Dozens of Horned Larks
- One Sage Thrasher
- Ground Squirrels (thirteen-lined)
- 2 Short-horned Lizards

Figure 2. Initial Assessment of the Fourmile East Solar Field Site.



Los Mogotes East

The Los Mogotes East solar field site (Figure 3) was initially assessed on 7/26/11 from approximately 8 hours. All available roads were driven, and the area was glassed extensively for any signs of GuPD activity. Areas that were inaccessible by vehicle were walked by foot, and were also glassed with binoculars.

Gunnison Prairie Dog Use:

No Gunnison Prairie Dog activity was noted in any portion of the Los Mogotes East solar field site.

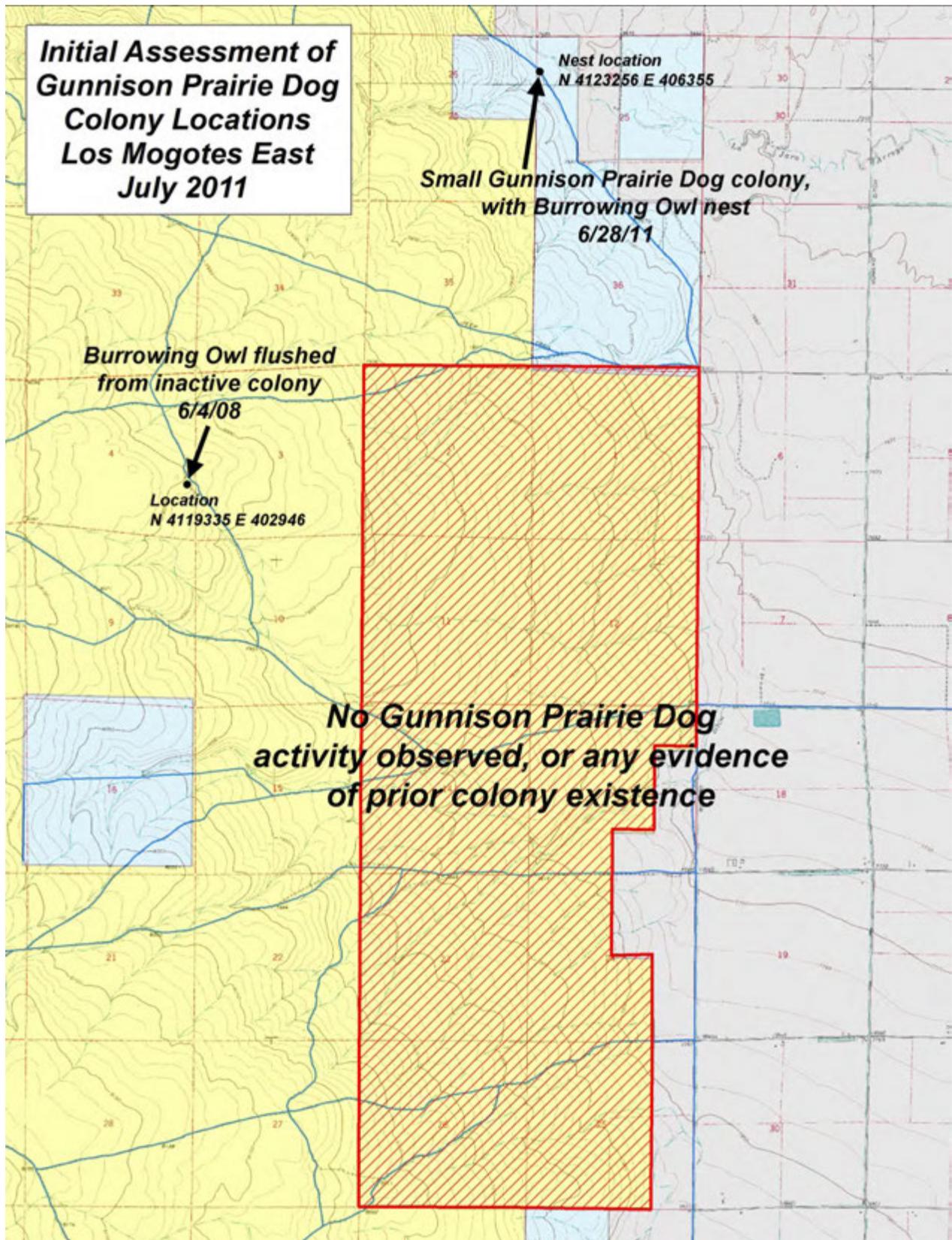
Burrowing Owl Use:

Burrowing owls were not seen in the immediate vicinity of the Los Mogotes East solar field site during the assessment on 7/26/11. However, on 6/28/11, a burrowing owl nest was found approximately 1.8 miles north of the site (NAD 1983, N 4123256 E 406355), in a GuPD colony populated with several prairie dogs on Colorado state lands. At least two owls were seen near this nest, vocalizing to one another. On 6/4/08, a burrowing owl was flushed from an inactive GuPD colony site (NAD 1983, N 4119335 E 402946) approximately one mile west of the proposed solar site. At an old corral with a large, established GuPD colony (NAD 1983, N 4114368 E 400888), burrowing owls have been documented to annually nest at this location since at least 2006. A ferruginous hawk also annually nests in an isolated tree stand within 400 meters of the GuPD corral colony. This site is approximately 3.5 miles west of the solar site. With such consistent use of the habitat surrounding the Los Mogotes East solar field site by nesting burrowing owls and ferruginous hawks, it is reasonable to speculate that the birds may utilize the proposed solar field site for hunting or loafing during the summer nesting season.

Other species seen in the area are as follows:

- Dozens of Horned Larks
- Small groups of Pronghorn antelope
- One Swainson's Hawk
- Some ground squirrel activity
- 1 Short-horned Lizard

Figure 3. Initial Assessment of the Los Mogotes East Solar Field Site.



De Tilla Gulch

The De Tilla Gulch solar field site (Figure 4) was initially assessed on 6/6/11 and 7/18/11 for a combined total of about 10 hours. All available roads were driven, and the area was glassed extensively for any signs of GuPD activity. Areas that were inaccessible by vehicle were walked by foot, and were also glassed with binoculars.

Gunnison Prairie Dog Use:

Gunnison Prairie Dog activity was noted in western portions of the De Tilla Gulch solar field site (Table 1 and Figures 4, 5, and 6). Three areas were identified to have GuPD activity (De Tilla Gulch polygons A, B, and C) and polygons outlining their perimeter were established. De Tilla Gulch polygons A and B are small areas that parallel US Highway 285 to the south, and have fairly recent burrowing activity. Because of their size, a single transect was placed along the long axis of each polygon. Polygon C is a large, mostly abandoned colony site that peaked a few seasons prior to 2011. There are still active, occupied burrows on the south slope of the Highway 285 roadbed just outside of the proposed solar field boundary, but GuPD activity declines rapidly as you travel south away from the highway.

Table 1. Summary of active versus inactive burrows along transect lines, and number of GuPD seen (on approach and during transects) in De Tilla Gulch Solar Area polygons (September 22, 2011).

Name of Polygon	Acres	Number of Transects	Combined Transect Length (m)	Inactive Burrows	Active Burrows	Total Burrows	% Active	Number of GuPD Seen
De Tilla Gulch A	2.5	1	260 m	4	6	10	60.0 %	1
De Tilla Gulch B	0.6	1	140 m	0	0	0	0 %	0
De Tilla Gulch C	101.2	6	1866 m	75	43	118	36.4%	0

Burrowing Owl Use:

Burrowing owls were not seen in the vicinity of the De Tilla Gulch solar field site during either assessment on 6/6/11, 7/18/11, or during transect walks on 9/22/11. However, more extensive early summer surveys will need to be conducted to further define the use of this area by burrowing owls for hunting and the dispersal of young from other areas. There are small, scattered GuPD colonies to the west (1.5 miles, near Rattlesnake Hill, and 7 miles near the Saguache Municipal Airstrip) and northeast (5 miles, at the intersection of Highway 285 and GG road). There is also a great deal of unsurveyed private land surrounding this solar site to the east and south. It is possible that the De Tilla Gulch site is within the home range of nearby nesting burrowing owls, and may be forage grounds for adult birds.

Other species seen in the area are as follows:

- Dozens of Horned Larks
- Some ground squirrel activity
- A few cottontail rabbits

Figure 4. Initial Assessment of the De Tilla Gulch Solar Field Site.

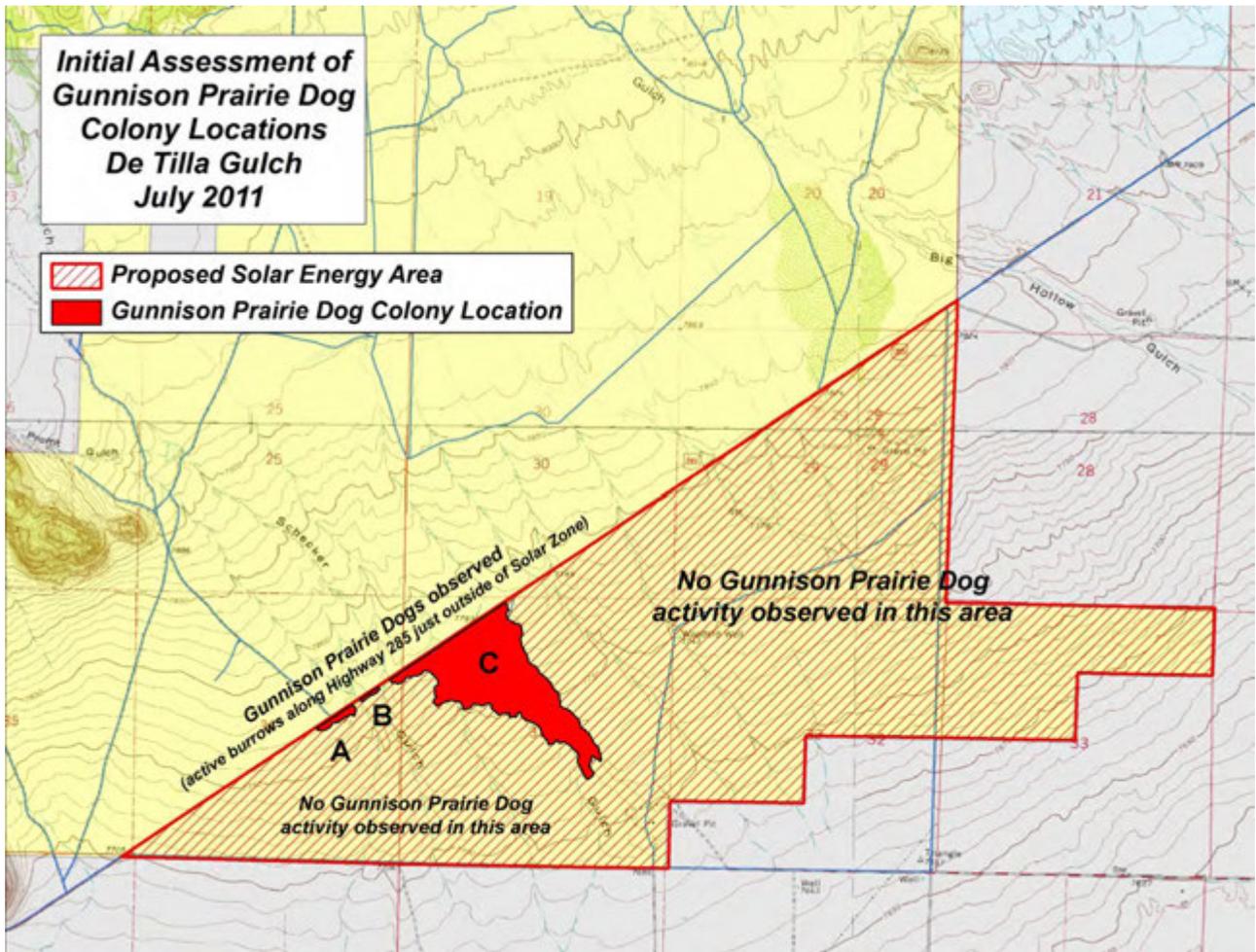


Figure 5. Transect locations for De Tilla Gulch Polygons A & B.

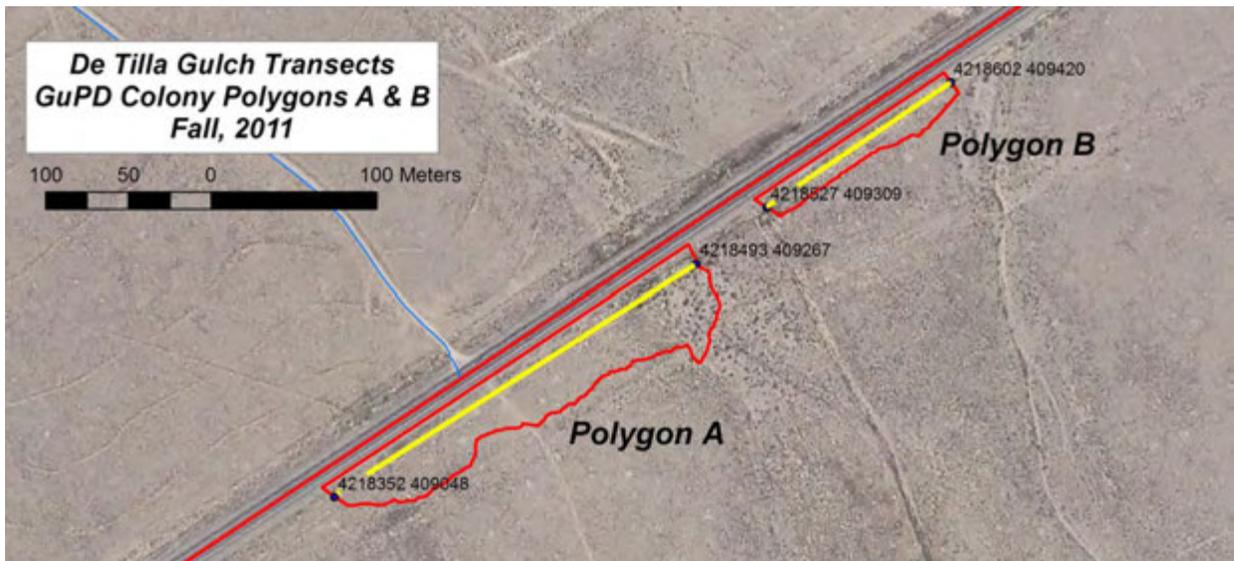
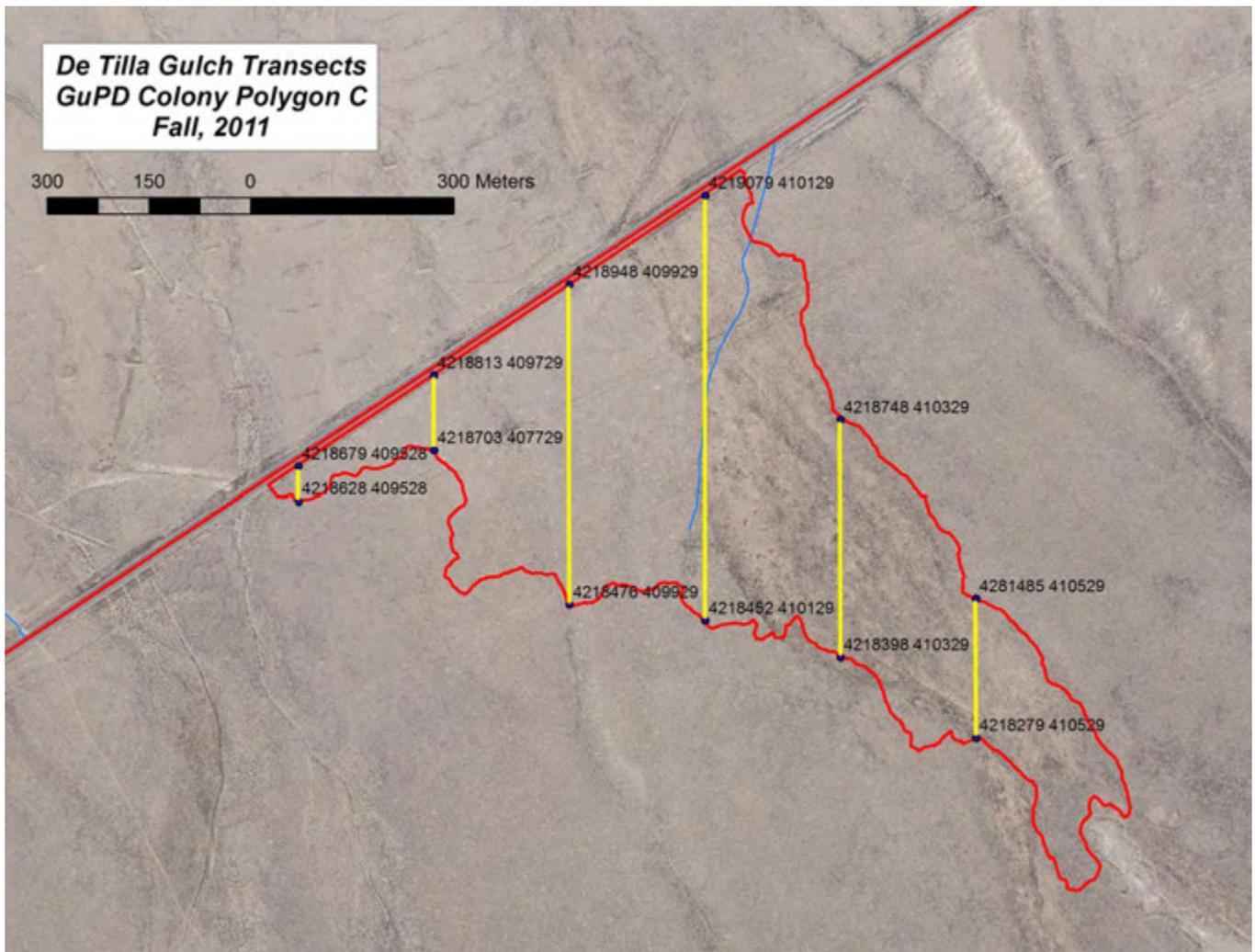


Figure 6. Transect locations for De Tilla Gulch Polygon C



Antonito Southeast

The Antonito Southeast solar field site (Figure 7) was initially assessed on 7/25/11 and 7/27/11 for a combined total of about 15 hours. All available roads were driven, and the area was glassed extensively for any signs of GuPD activity. Areas that were inaccessible by vehicle were walked by foot, and were also glassed with binoculars.

Gunnison Prairie Dog Use:

Gunnison Prairie Dog activity was noted in western and northern portions of the Antonito Southeast solar field site (Table 2 and Figures 7, 8, 9, 10, and 11). Five areas were identified to have GuPD activity (Antonito Southeast polygon North, and West A, West B, West C, and West D) and polygons outlining their perimeter were established. Antonito Southeast polygons West A through D are associated with a large colony that borders the solar field along its western flank, following the roadbed of US Highway 285. Polygon North appears to be a remnant of a larger colony connected to the foothills of Saritas Peak in the South Pinion Hills.

Table 2. Summary of active versus inactive burrows along transect lines, and number of GuPD seen (on approach and during transects) in Antonito Southeast Solar Area polygons (September 13-19, 2011).

Name of Polygon	Acres	Number of Transects	Combined Transect Length (m)	Inactive Burrows	Active Burrows	Total Burrows	% Active	Number of GuPD Seen
Antonito Southeast North	43.3	4	873 m	38	13	51	25.4%	2
Antonito Southeast West A	327.7	7	6351 m	100	25	125	20.0%	0
Antonito Southeast West B	62.4	4	1360 m	32	4	36	11.1%	0
Antonito Southeast West C	118.3	4	2582 m	33	6	39	15.3%	1
Antonito Southeast West D	40.7	2	935 m	22	1	23	4.3%	0

Burrowing Owl Use:

Burrowing owls were not seen in the vicinity of the Antonito Southeast solar field site during either assessment on 6/6/11 or 7/18/11, or during transect walks from 9/13 to 9/19/11. However, more extensive early summer surveys will need to be conducted to further define the use of this area by burrowing owls. There is an extensive GuPD colony immediately to the west of the solar field along US Highway 285 which serves as the dispersal nucleus for the West A – D colonies. A burrowing owl was seen on the ground (likely near a nest site) approximately 5 miles east of the solar site on 6/21/11 (NAD 1983 N 4097919 E 428934). There is also a great deal of unsurveyed private land surrounding this solar

site to the north and east. It is very possible that the Antonito Southeast solar field site (particularly the western portions) are utilized by nesting and/or foraging burrowing owls.

Other species seen in the area are as follows:

- Dozens of Horned Larks
- Ravens
- American Kestrels
- Ground squirrels
- Pronghorn Antelope

Figure 7. Initial Assessment of the Antonito Southeast Solar Field Site.

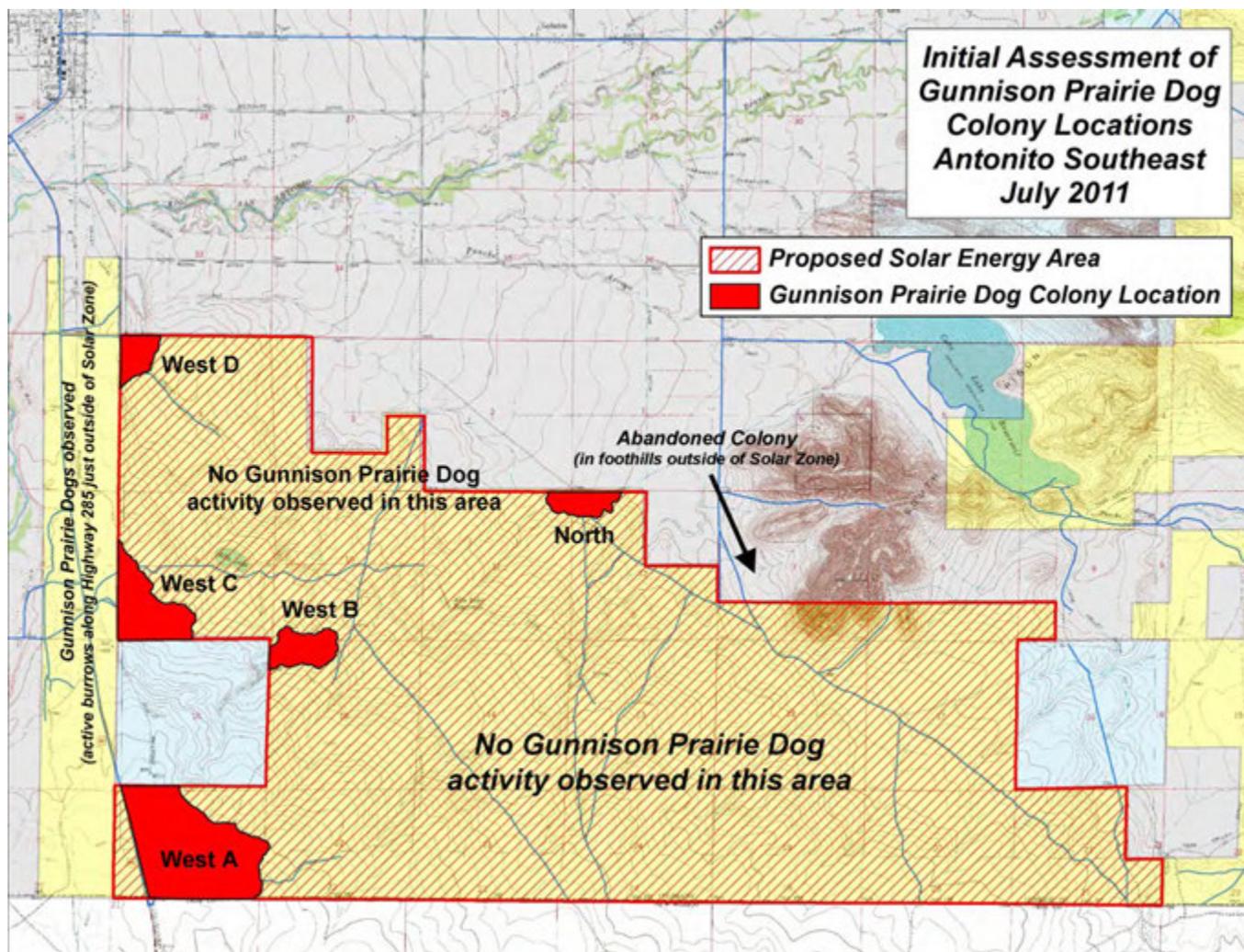


Figure 8. Transect locations for Antonito Southeast Polygon North

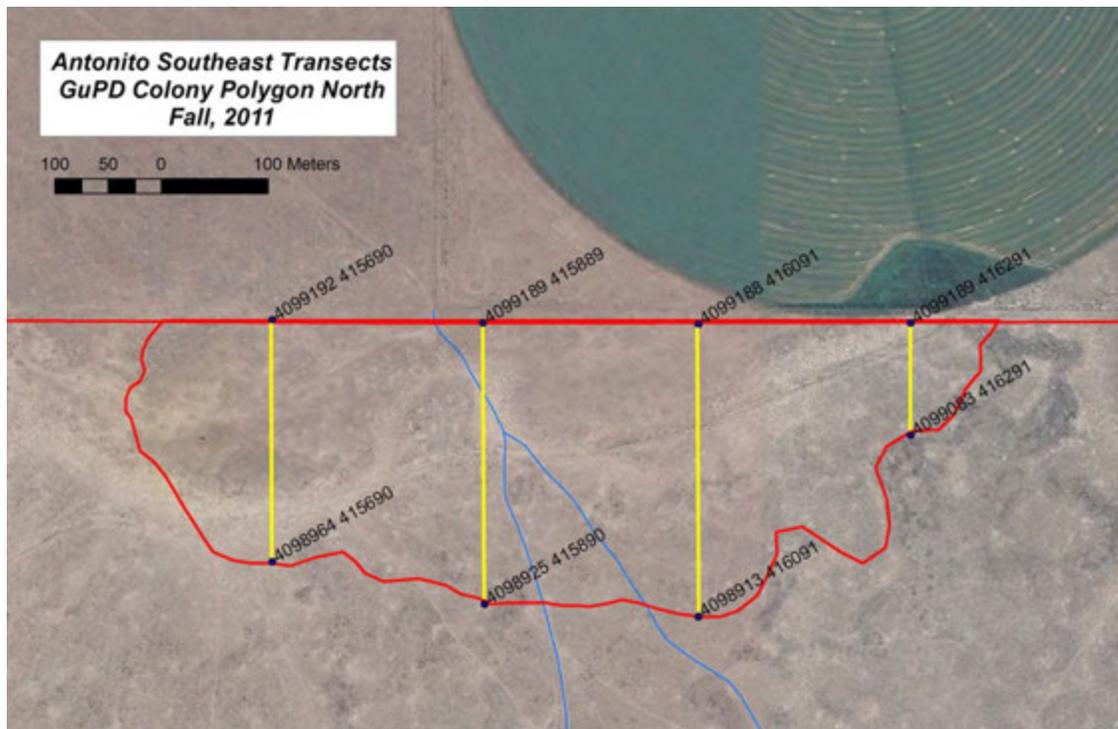


Figure 9. Transect locations for Antonito Southeast Polygon West A

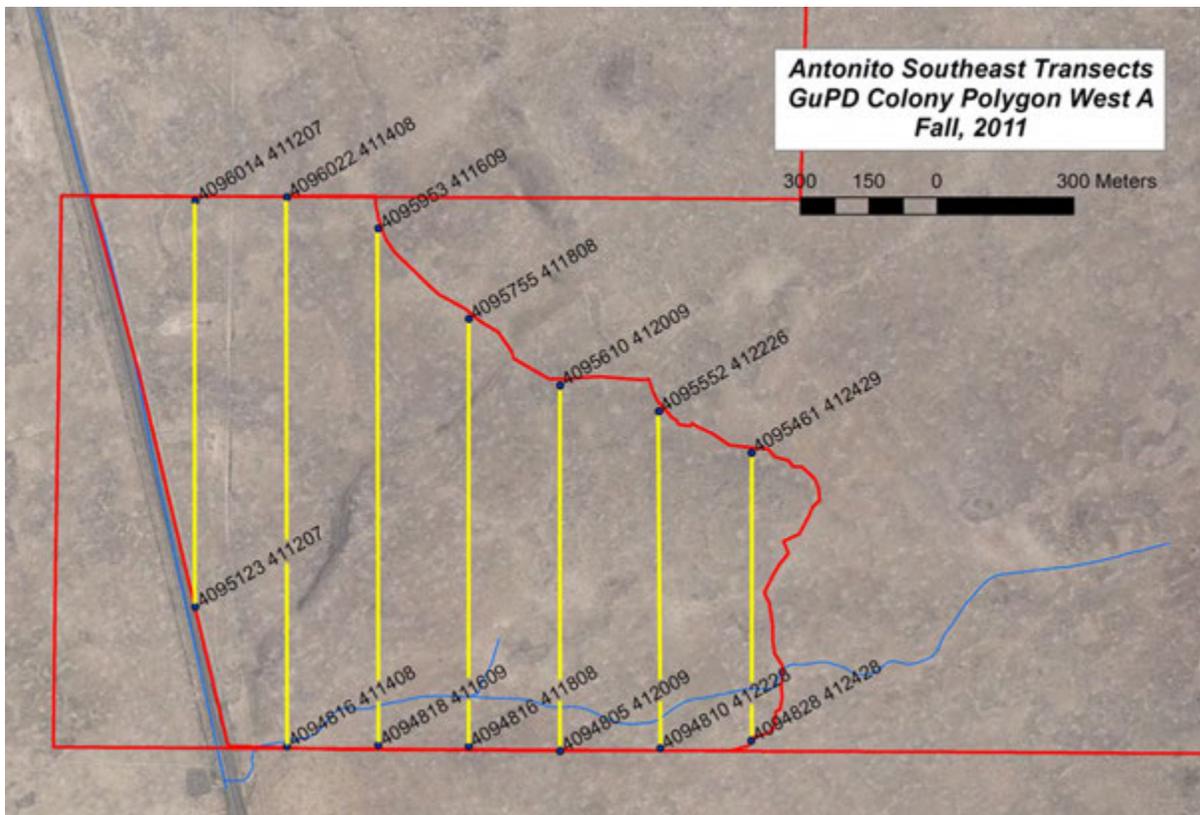


Figure 10. Transect locations for Antonito Southeast Polygon West B & C

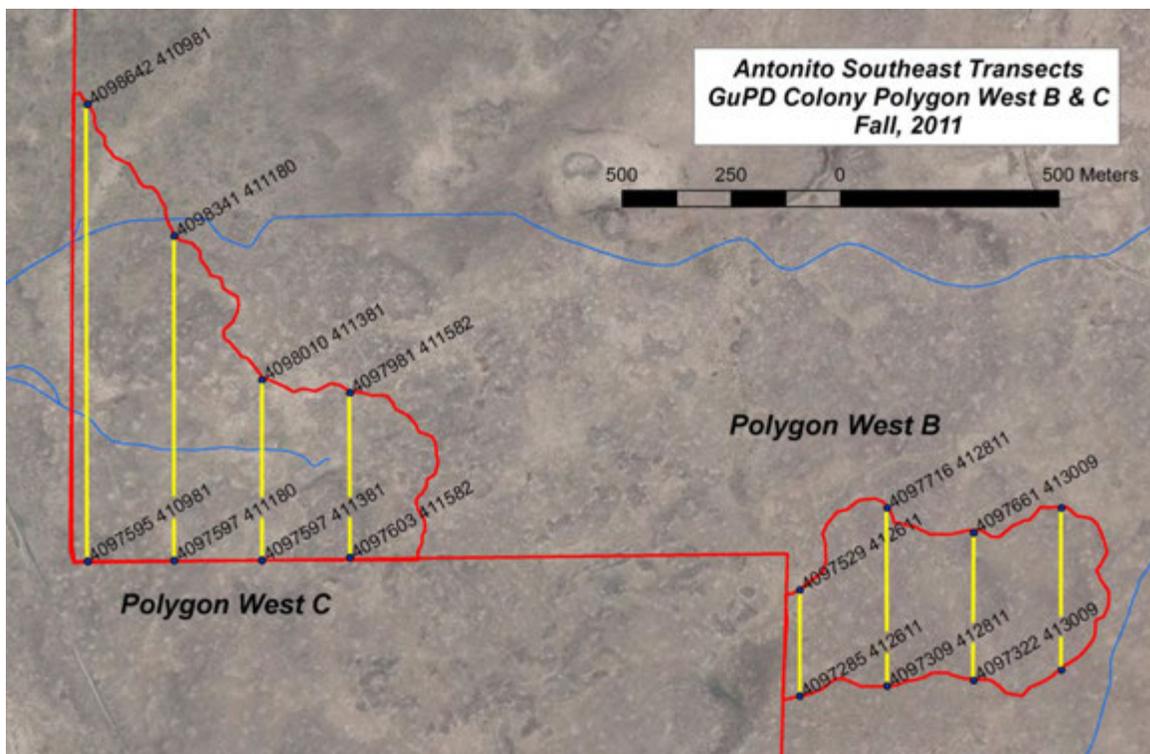
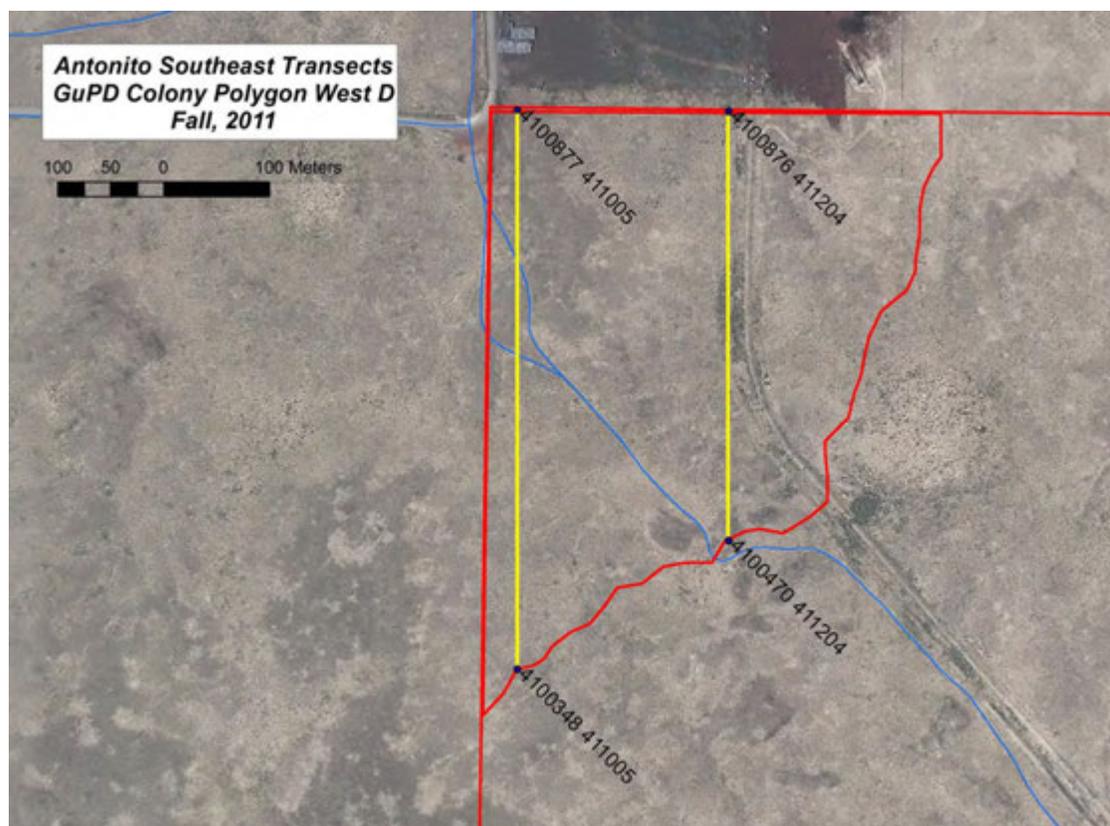


Figure 11. Transect locations for Antonito Southeast Polygon West D



Conclusion

Of the four proposed Solar Field sites located on San Luis Valley BLM lands, two are currently occupied by GuPD (Antonito Southeast, and De Tilla Gulch). Although Los Mogotes East doesn't have current occupation by GuPD, several critical colonies are in close proximity to this site. With its current management prescription, it serves as an important buffer from human development on the valley floor, and may serve as important foraging grounds for burrowing owls and ferruginous hawks which are known to nest nearby.

Fourmile East was not found to harbor GuPD colonies, and use by species of concern such as mountain plover, burrowing owls, or ferruginous hawks has not been recently documented. However, based on the scope of this limited survey, periodic use of this site by these species cannot be ruled out, and additional monitoring efforts will be needed to describe the full utilization of this habitat by these species. Another issue that must be considered with this site is the close proximity of Blanca Wetlands, a critically important migratory and nesting site for waterfowl and shorebirds, including the snowy plover (species of concern in Colorado).

Photos



Typical habitat – Fourmile East Solar Field Site



Short-horned Lizard – Fourmile East
Solar Field Site



Old Colorado/New Mexico state line marker, and habitat near West A – Antonito Southeast Solar Field Site.



Typical habitat – Antonito Southeast Solar Field Site