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July 6, 2007

Ms. Cathy Wolff-White
U.S. Department of the Interior
Bureau of Land Management
2610 Sweetwater Avenue
Lake Havasu City, AZ 86406

Subject: Desert Tortoise Presence/Absence Surveys for the PG&E Topock Compressor Station

Dear Ms. Wolff-White:

This letter transmits the *Desert Tortoise Presence/Absence Surveys for the PG&E Topock Compressor Station*. This report was prepared in conformance with the Programmatic Biological Assessment, general project management measure 25, includes information on the annual (Spring 2007) field survey for the desert tortoise on lands surrounding the PG&E Topock Compressor Station. The survey was conducted by Garcia and Associates (GANDA), and followed the *United States Fish and Wildlife Service Field Survey Protocol for Any Federal Action that May Occur in the Range of the Desert Tortoise* (USFWS 1992). The survey results were similar to the past with no recent evidence of desert tortoise presence.

If you have any questions, please do not hesitate to contact me at (805) 546-5243.

Sincerely,

Cc: Jim Priest/BLM
John Earle/USFWS
Lesley Fitzpatrick/USFWS
Aaron Yue/DTSC
Canh Nguyen/CDFG
Rob Knutson/PG&E

DESERT TORTOISE PRESENCE/ABSENCE SURVEYS FOR THE PG&E TOPOCK COMPRESSOR STATION



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Introduction

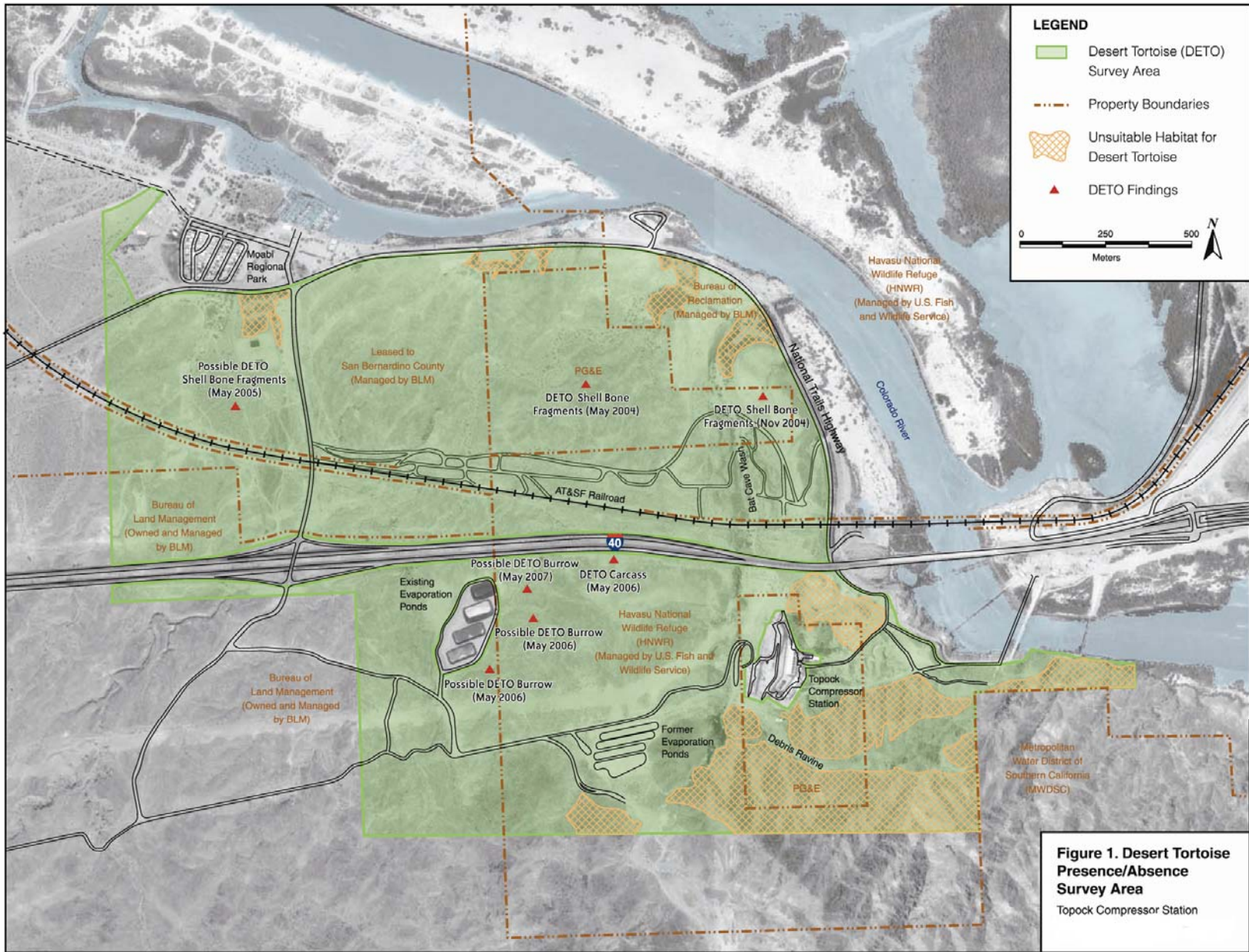
Garcia and Associates (GANDA) conducted a 2007 yearly spring field survey for desert tortoise (*Gopherus agassizii*) on the lands surrounding Pacific Gas and Electric Company's (PG&E's) Topock Compressor Station near Needles, California (Figure 1). These annual surveys are required up to the year 2012 by the *Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions* (CM2M HILL 2007). The purpose was to determine the presence or absence of the federally and state-threatened desert tortoise by following the guidelines published in the United States Fish and Wildlife Service (USFWS) *Field Survey Protocol for any Federal Action that May Occur Within the Range of the Desert Tortoise* (protocol) (USFWS 1992).

Similar desert tortoise surveys were conducted in May 2005 and 2006. Although no live tortoises were observed within the survey area, those surveys resulted in the discovery of one tortoise carcass and three sets of tortoise shell bone fragments (Figure 1; Appendix A, photos 1-4). A more detailed description of them is included in the *Desert Tortoise Presence/Absence Survey* reports for 2005 and 2006 (GANDA 2005; GANDA 2006). This report describes the survey methods, findings, and conclusions of the 2007 desert tortoise survey.

Site Description

The survey area comprises approximately 960 acres surrounding the Topock Compressor Station, which is in the Mojave Desert approximately 24 kilometers (km) southeast of Needles, California in San Bernardino County (Figure 1). The predetermined boundaries of the survey area that were established three years ago include the National Trails Highway to the north and northeast and the Chemehuevi Mountains to the south and southeast. The Colorado River flows adjacent to the site to the north and east. The terrain includes sparsely vegetated desert, unvegetated desert pavement, numerous shallow to deep ephemeral washes, gently rolling hills, and the base of the Chemehuevi Mountains in the southeastern portion of the survey area. Manmade facilities within the survey area include the compressor station, IM3 Treatment Plant, paved and unpaved access roads, four existing evaporation ponds, a rock quarry, two water tanks, historic Route 66, numerous groundwater wells, and six natural gas pipelines that run partially above and partially below ground. Four former (closed) evaporation ponds are located southeast of the existing evaporation ponds. Interstate 40 and the Burlington Northern Santa Fe (BNSF) Railroad pass through the survey area in an east-west direction. The elevation within the survey area ranges from approximately 61 to 305 meters above sea level. Representative photos of the survey area are provided in Appendix A, photos 1-4.

Most of the survey area is on land managed by the Bureau of Land Management (BLM); however, other portions are owned by PG&E, or are part of the Havasu National Wildlife Refuge, managed by the USFWS.



Vegetation and Wildlife Habitat

There are two distinct habitat types within the survey area. They are the creosote bush (*Larrea tridentata*)-dominated areas and dry washes. Creosote bushes dominate the upland and alluvial areas. Other perennial shrubs in these areas include bursage (*Ambrosia dumosa*), white ratany (*Krameria grayi*) and brittlebush (*Encelia farinosa*). Annuals included desert indianwheat (*Plantago ovata*) interspersed with little desert buckwheat (*Eriogonum trichopes*) and Arabian schismus (*Schismus arabicus*) covered the ground in much of these areas. A list of plant species that were incidentally observed during the desert tortoise survey is presented in Appendix B. This list is identical to the plant list provided in the 2005 and 2006 desert tortoise survey report (GANDA 2006; GANDA 2006) because the past three annual surveys have taken place in May, when many plants cannot be identified due to very dry conditions.

The dry washes were predominantly vegetated with desert lavender (*Hyptis emoryi*), sweetbush (*Bebbia juncea*), cat-claw acacia (*Acacia greggii*), palo verde (*Cercidium microphyllum*), and tamarisk (*Tamarix ramosissima*).

The survey area provides habitat for a variety of arid-adapted wildlife species. Common vertebrates found in this community include the desert iguana (*Dipsosaurus dorsalis*), western whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), desert horned lizard (*Phrynosoma platyrhinos*), western diamond-backed rattlesnake (*Crotalus atrox*), sidewinder (*Crotalus cerastes*), turkey vulture (*Cathartes aura*), common raven (*Corvus corax*), black-throated sparrow (*Amphispiza bilineata*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), desert kangaroo rat (*Dipodomys deserti*), antelope ground squirrel (*Ammospermophilus leucurus*), and coyote (*Canis latrans*).

Survey Methods

GANDA wildlife biologists Robert Gilman, Chloe Scott, Jason Brooks, and Jacqueline Finck conducted desert tortoise presence/absence surveys from May 2 to 5 and May 7 to 11, 2007, which is during the active season for this species, in accordance with the protocol (USFWS 1992). The weather during the survey was hot and sunny with calm winds in the afternoons, ranging from five to ten miles per hour. Air temperatures ranged from approximately 18 to 40° C (65 and 104° F). The surveys were performed between 0700 and 1530 hours.

Linear transects were walked systematically to search for desert tortoises, desert tortoise burrows, and sign (scat, tracks, burrows, shells, bones, etc.). Particular emphasis was placed on searching around the bases of creosote bushes and along the banks of the numerous washes. The survey area was surveyed at 100 percent coverage by spacing transects 10 meters apart. A zone of influence around the survey area was not surveyed due to the natural and artificial barriers that surround the majority of the survey area. These barriers constitute unsuitable habitat for desert tortoise and would likely prevent

individuals from entering the survey area. The boundaries of the survey area are described further in the site description section of this report.

Aerial photographs, topographic maps, and global positioning system (GPS) units were used to navigate and assist in determining the boundaries of the survey area, suitable desert tortoise habitat, and the extent and location of the natural and artificial barriers. A majority of the upland habitat was considered suitable for the desert tortoise (Figure 1). The Colorado River floodplain was considered unsuitable habitat. A Trimble GeoExplorer 3 GPS unit was used in conjunction with flagging, a Garmin V GPS unit, and a compass to ensure that the entire survey area was covered and to maintain proper orientation and spacing between transects. On relatively level terrain, the group of four surveyors walked parallel transects aligned east-west or north-south in the UTM coordinate system. A surveyor at one end of the group served as the navigator and used the UTM readout of the GPS unit to maintain a constant northing or easting for the transects. At the end of each transect, the transect starting point was shifted 40 meters (10 meters x 4 surveyors) using the UTM readout. In areas where obstacles such as mountains, compressor station facilities, and canyons prevented the surveyors from walking linear transects, the 10-meter spacing was maintained by using the navigation feature on the map-screen of the Garmin V GPS unit. This feature plotted the survey transect curves as the surveyors walked and allowed the navigator to determine which areas had already been surveyed and to maintain the appropriate ten-meter spacing between transect centerlines. Due to safety concerns and a lack of desert tortoise habitat, the steep slopes of the Chemehuevi Mountains that surround the Debris Ravine in the southeast corner of the survey area were excluded from the survey (Figure 1). The heavily disturbed staging area immediately east and adjacent to the compressor station (also adjacent to the Transwestern Meter Station) was also not surveyed because it had almost no vegetation and consisted of loose spoil piles and stored equipment. Portions of the survey area containing drainages that were densely vegetated with tamarisk were also not surveyed.

During the surveys, any burrows with a large enough entrance to accommodate a desert tortoise were inspected using a mirror to reflect sunlight into their far ends. A Peeperscope 2000 fiber optic scope was used instead of the mirror when the far end was not visible from the entrance.

Results

No live desert tortoises were detected within the survey area and there were no signs of recent presence. The *Keys and Figures for Estimating Time Since Death for Shell-skeletal Remains of Desert Tortoises* (Berry and Woodman 1984) was used to determine the approximate time since death for bone remains found in previous years; however, these keys could only confirm that the tortoise remains were at least four years old. A summary of desert tortoise sign found between 2005 and 2007 is provided in Table 1.

Table 1. Summary of Desert Tortoise Survey Results

Type of Find		Class ^{1,2}	Size: (centimeters)	End visible? Depth (D) (centimeters)	Entrance Direction	Latitude (UTM N) ³	Longitude (UTM E)	Photo #	Comments
Shell Remains	2005	5	W = 0.5 – 4	Not Applicable	Not Applicable	3845091	0727776	5	13 bone fragments found in shallow wash. Appear to be bones under scutes. Edges are serrated. Surfaces on top and bottom are peeling. Coloration is white and bones are completely ossified.
Burrow	2005	6	H = 10 W = 18	Yes; D = 61 cm	NW	3844621	0729382	7	No sign of desert tortoise in or around burrow.
Burrow	2005	6	H = 15 W = 25	Yes; D = 30 cm	E	3844900	0727670	8	No sign of desert tortoise in or around burrow.
Shell Remains	2006	5	W = 2.5 – 15	Not Applicable	Not Applicable	3844533	729001	6	This adult male DETO carcass consisted of 14 scattered plastron and carapace bone fragments. The edges of these pieces were serrated and the coloration was white. The external scutes had peeled off and were not present.
Burrow	2006	6	H = 30 W = 58	Yes; D = 79	NW	3844178	728603	9	No sign of desert tortoise in or around burrow.
Burrow	2006	6	H = 20 W = 41	Yes; D = 178	NW	3844342	728741	10	No sign of desert tortoise in or around burrow.
Burrow	2007	6	H = 15 W = 25	Yes; D = 25 cm	SW	3844377	728700	NA	No sign of desert tortoise in or around burrow.

1. Burrow Class:

- 1 = currently active, with tortoise or recent tortoise sign
- 2 = good condition, definitely tortoise, no evidence of recent use
- 3 = fair condition, definitely tortoise
- 4 = deteriorated, definitely tortoise
- 5 = deteriorated, possibly tortoise
- 6 = good condition, possibly tortoise

2. Shell Remains Class:

- 1 = fresh or putrid
- 2 = normal color; scutes adhere to bone
- 3 = scutes peeling off bone
- 4 = shell bone is falling apart; growth rings on scutes are peeling
- 5 = disarticulated and scattered

3. UTM Zone 11, NAD 83

A burrow with an entrance large enough to accommodate a desert tortoise was found during the 2007 survey and four similar burrows were found in the previous surveys (Appendix A, photos 7-10), all of which were still present and in good condition. These burrows were categorized as Class 6 (possible desert tortoise burrows in good condition) using the index for desert tortoise sign provided in the protocol (USFWS 1992). However, due to the absence of scats or any other sign of recent tortoise presence in the survey area, it is likely that they are being used by other animals such as coyotes or foxes. Scat from various mammals was observed throughout the survey area. Using a GPS unit, the biologists searched for the four previously observed desert tortoise remains, but found only the carcass that was first observed in May 2006 (Figure 1). Although it was still at the same location 12 months later, the relatively intact plastron had broken into several pieces. The lack of rain during the winter of 2006-2007 probably prevented it from washing away.

Incidental Plant and Wildlife Observations

A variety of plant and wildlife species was observed during the desert tortoise survey. A list of the common plant species observed during the survey is provided in Appendix B and a list of animals is provided in Appendix C. No new plant species were observed during the 2007 survey. Therefore, the plant list is identical to past survey reports. Wildlife species included numerous birds, reptiles, such as a coach-whip snake (*Masticophis flagellum*) (Appendix A, Photo 11), and small burrowing mammals, including desert cottontail, black-tailed jackrabbit, kit fox, and antelope ground squirrel. Signs of wildlife species observed included lesser nighthawk (*Chordeiles acutipennis*) eggs and bat guano and insect remains in Bat Cave Wash (Appendix A, Photo 12).

Conclusions

Similar to those of the 2005 and 2006 surveys, the results of the 2007 survey indicate desert tortoises are absent in the survey area. The desert tortoise carcass and three sets of highly deteriorated bone shell fragments (Figure 1) found in previous surveys may indicate historical use of the survey area; however, no desert tortoise scats, tracks, or other evidence of live tortoises or recent tortoise use was observed anywhere within the survey area.

References

- Berry, K. H. and A. P. Woodman. 1984. Keys and Figures for Estimating Time Since Death for Shell-skeletal Remains of Desert Tortoises.
- CH2M HILL. 2007. Programmatic Biological Assessment for Pacific Gas and Electric Topock Compressor Station Remedial and Investigative Actions. January.
- Garcia and Associates (GANDA). 2005. Desert Tortoise Presence/Absence Surveys for the PG&E Compressor Station Expanded Groundwater Extraction and Treatment System, Topock, California. June.

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USFWS (United States Fish and Wildlife Service). 1992. Field Survey Protocol for any Federal Action that May Occur Within the Range of the Desert Tortoise. January 1992.