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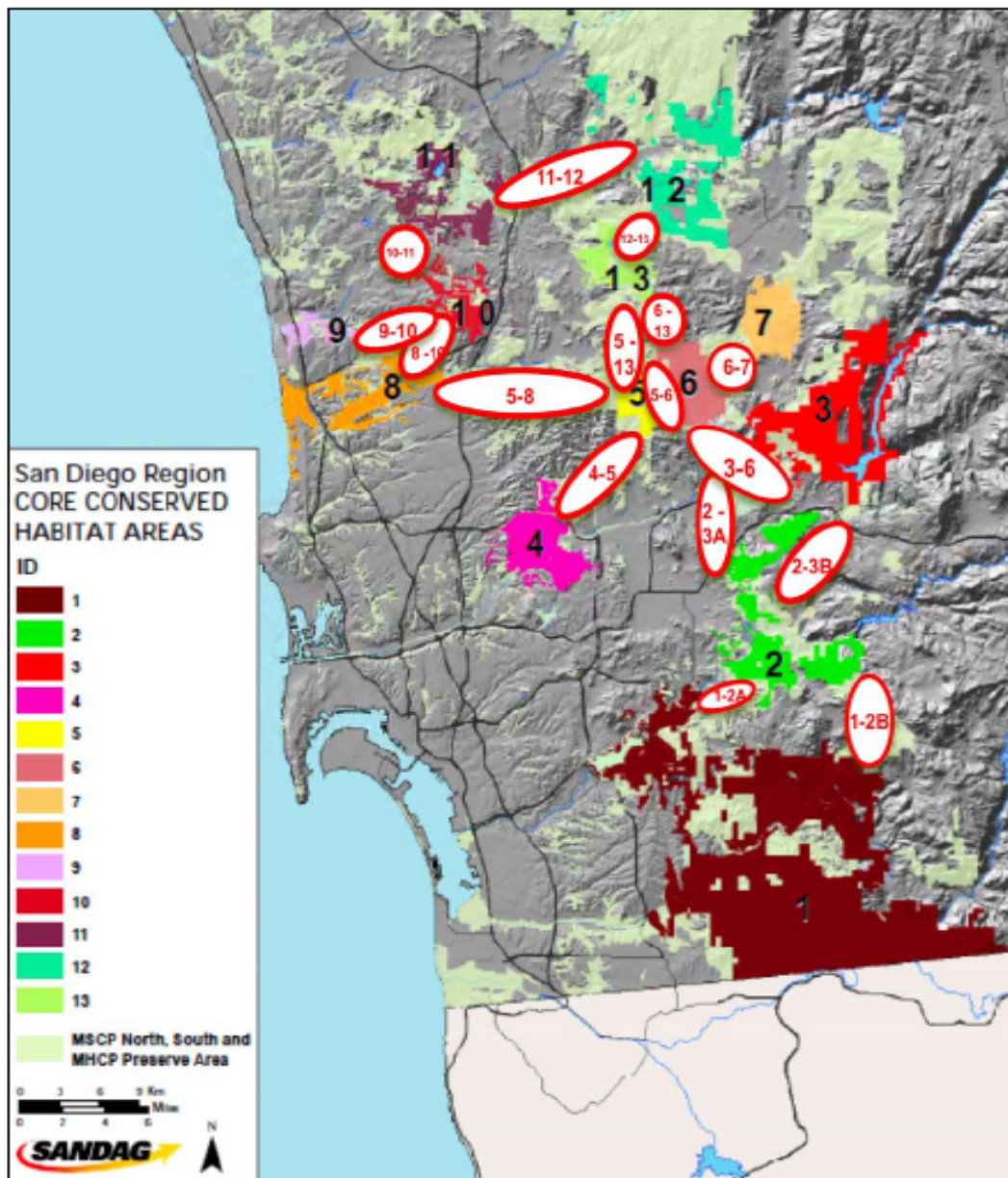
Re: SANDAG contract UCD 12-00606 – Mountain Lion Connectivity Study
Report prepared by T. Winston Vickers, DVM, MPVM
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U.C. Davis Wildlife Health Center Southern California Mountain Lion Study

As prescribed in the above listed contract with the San Diego County Association of Governments (SANDAG), personnel from the UC Davis Wildlife Health Center (UCD-WHC) and Western Tracking Institute (WTI) (collectively UC Davis Team) have initiated field activities relating to the study of connectivity of conserved lands in portions of San Diego County for mountain lions. The aforementioned contract was finalized in May, 2012 and field activities began almost immediately. Some pre-contract field scouting and trail camera placement and monitoring was conducted in the fall of 2011 and early 2012. The results from trail cameras placed originally during that time and subsequently incorporated in this field effort are also reported here.

Study area:

The study area (SANDAG study area) is depicted in Figure 1 below. Broadly speaking, the study area extends from the Ramona grasslands in the north to the U.S. – Mexico border in the south, and east to the Cuyamaca Mountains region. Some camera monitoring has been instituted immediately north of the Ramona grasslands as well. Due to the wide ranging nature of mountain lions and their large home ranges the UC Davis team expects mountain lions to utilize multiple conserved cores and corridors that may include areas outside the primary study area. Thus, mountain lions captured adjacent to the primary study area, especially to the north and east, may inform connectivity in the study region.

Figure 1 – SANDAG study area with core conserved habitat areas and designated corridor areas.



From the scope of work / task list:

Task 1 - Determine the locations within the study area for baiting and potential trapping

To optimize the capture of mountain lions in potential linkages or adjacent core areas, UCD WHC will place trail cameras in 30+ locations along likely mountain lion travel paths. GPS locations of these camera / potential bait stations will be recorded. These stations will be utilized for attempted mountain lion captures in Task 2 if camera monitoring indicates regular mountain lion activity in the area. Monitoring of these stations will continue during Task 2 activities (mountain lion baiting and trapping) and those costs will be incorporated into the Task 2 budget.

A short summary report (1 hard copy and a PDF) on the selected locations, including a map with GPS coordinates of the camera/potential bait stations will be provided to SANDAG every 6 months beginning November 1, 2012 and will also be included in the final report of the project. No GIS analysis of the site characteristics is included in this task. The GPS location of the stations will be included in the appendix and provided in an Excel spreadsheet to SANDAG, along with the number of photos of each wildlife species that are captured by each camera station. Photos will be imprinted with date and time information, and photo archives will be made available to SANDAG-SDMMP for downloading if desired.

Activity to date:

During the period August 2011 – November 2011 (prior to initiation of this contract), the UC Davis Team conducted initial scouting of various locations in the study area where mountain lion activity had been reported historically or where GPS data from mountain lions captured outside the current study area suggested mountain lion movement might be occurring. Trail cameras were placed in some locations in order to get information about whether mountain lion movement was ongoing in those areas. Mountain lion activity was detected during that period at the south end and on the west side of El Capitan Reservoir.

During this same time frame one mountain lion was captured to the east of the current study area in Carrizo Gorge in the southeast corner of the county in a separate project evaluating mountain lion movement in the U.S.-Mexico border region. That mountain lion did not enter the SANDAG study area, and after approximately 4 months was found to have died of disease. Additionally, 1 mountain lion was captured at the far northern portion of the county on the Santa Margarita River Reserve, and 1 mountain lion that was captured originally in Orange County dispersed into northern San Diego County, also in the area of the Santa Margarita River drainage. However, neither of these mountain lions crossed I-15 or entered the SANDAG study area.

Once work under this contract was authorized in mid-May, 2012, an array of sites were identified where mountain lion activity might be expected based on historical and current evidence of tracks, sightings, road kills of mountain lions, etc. Camera placement and monitoring began almost immediately, and by early July most trail cameras were in place in locations scattered over the study area. Since that time, there has been some fluctuation in the number of cameras that were active at any point in time due to scattered loss of cameras to theft or mechanical failure. Currently, 31 cameras are active and being monitored in the study area, with the expectation of additional cameras being placed in the next few weeks. Camera coverage is somewhat heavier north of I-8 than south of I-8 due to more initial evidence of mountain lion landscape use in that area. Additional cameras are going to be placed in areas south of I-8 where additional monitoring coverage may be needed.

The UC Davis team is also communicating with USGS personnel, and Megan Jennings of USFS / UCSD / UC Davis, who have camera stations operating in the study area. Megan Jennings has forwarded sites to our project team where she has detected mountain lion photos and those sites are included on maps accompanying this report.

To date, mountain lions have been detected 25 times at 9 of the 31 UC Davis team's camera sites. These sites are in 4 general areas:

1. Boulder Oaks County Park
2. Canada de San Vicente property belonging to California Dept. of Fish and Game
3. Cleveland National Forest near the San Diego Country Estates area west of El Capitan Reservoir
4. Chocolate Canyon at the south end of El Capitan Reservoir

Mountain lions have also been captured on camera 18 times at 5 sites that Megan Jennings has been monitoring in Pauma Valley north of Ramona, in Boulder Oaks County Park, and in the San Vicente highlands (M. Jennings personal communication).

A database file (excel format) is attached that details the locations where mountain lions have been detected on camera to date, as well as what other species have been detected by the UC Davis Team's cameras (Addendum 1). The file also contains the locations where cameras being monitored by Megan Jennings have detected mountain lion movement.

A PDF of maps showing camera locations that have and have not detected mountain lion movement is also attached (Addendum 2)

Task 2 - Place bait, trap, and GPS-collar captured mountain lions

The project will capture mountain lions in the study area using road-killed deer placed at selected camera/bait stations where mountain lion activity has been detected. Bait stations will be monitored daily once bait is placed, and if mountain lion feeding is noted, cage traps will be set at the site and monitored constantly via radio transmitters and/or cameras. Mountain lions captured will be anesthetized and fitted with GPS collars. GPS collars will be Lotek 4400S remotely-downloadable collars or Lotek satellite-communicating collars. Each collar will be equipped with 2 timed dropoff mechanisms. This redundancy will increase the likelihood that all data collected by the collars is retrieved, and reduce the likelihood that the animals will wear collars indefinitely if not recaptured. Programming of the time-till-dropoff will vary dependent on various factors such as expected collar battery life with a given program (frequency and timing of GPS acquisitions).

Activity to date:

Mountain lion baiting and capture activity was scheduled to commence November 1, 2012 but has been delayed due to administrative delays at the Department of Fish and Game (CDFG) relating to necessary permits. Renewal of the UC Davis Team's permits was delayed due to legal and administrative processes at CDFG that involve all mountain lion research projects in California. It is the UC Davis Team's understanding that CDFG is attempting to resolve these issues and take action on the necessary permits as soon as possible so that field capture activities may commence.

As soon as permits are received, the UC Davis Team will institute baiting and capture efforts at those sites where camera monitoring has indicated regular mountain lion activity.