Western Riverside County
Multiple Species Habitat Conservation Plan (MSHCP)
Biological Monitoring Program

San Diego Banded Gecko (*Coleonyx variegatus abbotti*)
Survey Report 2010

23 March 2011

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NOTE TO READER:

This report is an account of survey activities conducted by the Biological Monitoring Program for the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP was permitted in June 2004. The Monitoring Program monitors the distribution and status of the 146 Covered Species within the Conservation Area to provide information to Permittees, land managers, the public, and the Wildlife Agencies (i.e., the California Department of Fish and Game and the U.S. Fish and Wildlife Service). Monitoring Program activities are guided by the MSHCP species objectives for each Covered Species, the information needs identified in MSHCP Section 5.3 or elsewhere in the document, and the information needs of the Permittees.

MSHCP reserve assembly is ongoing and it is expected to take 20 or more years to assemble the final Conservation Area. The Conservation Area includes lands acquired for conservation under the terms of the MSHCP and other lands that have conservation value in the Plan Area (called public or quasi-public lands in the MSHCP). In this report, the term "Conservation Area" refers to the Conservation Area as understood by the Monitoring Program at the time the surveys were planned and conducted.

We would like to thank and acknowledge the land managers in the MSHCP Plan Area, who in the interest of conservation and stewardship facilitate Monitoring Program activities on the lands for which they are responsible. A list of the lands where data collection activities were conducted in 2010 is included in Section 7.0 of the Western Riverside County Regional Conservation Authority (RCA) Annual Report to the Wildlife Agencies. Partnering organizations and individuals contributing data to our projects are acknowledged in the text of appropriate reports.

While we have made every effort to accurately represent our data and results, it should be recognized that data management and analysis are ongoing activities. Any reader wishing to make further use of the information or data provided in this report should contact the Monitoring Program to ensure that they have access to the best available or most current data.

The primary preparer of this report was the 2010 Herpetofauna Program Lead, Robert Packard. If there are any questions about the information provided in this report, please contact the Monitoring Program Administrator. If you have questions about the MSHCP, please contact the Executive Director of the RCA. Further information on the MSHCP and the RCA can be found at www.wrc-rca.org.

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INTRODUCTION

The species objectives for San Diego banded gecko (*Coleonyx variegatus abbotti*), as defined by the Western Riverside County MSHCP, require conservation of the following 7 Core Areas and their associated linkages: 1) San Jacinto foothills, 2) Lake Skinner-Diamond Valley Lake, 3) Lake Mathews-Estelle Mountain, 4) San Jacinto Wildlife Area-Lake Perris, 5) Badlands, 6) Santa Ana Mountains, and 7) Sage-Vail Lake. Species objectives also require continued use of at least 75 percent of the listed Core Areas, as documented at least once every 8 years (Dudek & Associates 2003).

San Diego banded gecko is a California species of special concern and is a microhabitat generalist that occurs in a wide variety of sage scrub and chaparral vegetation communities where suitable cover exists (e.g., rocks, organic debris, vegetation). Rock outcrops with some associated ground cover are cited as a preferred habitat (Stebbins 2003, Lemm 2006).

We conducted nocturnal-lizard surveys in the summer and fall of 2008 to document the presence of San Diego banded gecko and granite night lizard (*Xantusia henshawi*) in the MSHCP Conservation Area. These surveys were effective at locating granite night lizard (n = 129 records), but not at detecting San Diego banded gecko (n = 2). The 2008 surveys were area searches that specifically targeted rock outcrops, which is habitat known to be used by both species (Stebbins 2003, Lemm 2006). The 2 areas where banded geckos were found during these surveys were the Motte-Rimrock and Western Riverside County Multi-species Reserves, with the former being a non-core area. However, whether resulting from targeted surveys or incidental observations, we found more San Diego banded gecko diurnally (n = 7) in 2008 and 2009 than during nocturnal surveys (n = 2). Moreover, we observed San Diego banded gecko diurnally under cover at the Sage-Vail Lake Core Area, but did not detect the species at this location during nocturnal surveys. Our limited detections of San Diego banded gecko at night in rock outcrops has led us to attempt other methods for locating this species that can account for animals present but not detected.

Herp arrays consisting of pit-fall traps and drift fences are a useful tool for finding San Diego banded gecko (Fisher and Case 1999), but require a substantial investment in personnel and equipment. Pit-fall traps also involve semi-permanent structures that disturb the natural habitat. Using artificial cover may be a less labor-intensive and more cost-effective method of surveying for cryptic species. Artificial cover does not require digging, and cover can easily be transported among survey sites. Geckos utilize cover objects during the day to avoid high temperatures (Behler and King 1979), and use of artificial cover can be an effective means of detecting the species (Klauber 1945, Parker 1972).

In 2009 we surveyed for banded gecko using 3 different methods, each with limited or no success. We checked artificial-cover stations using 2 x 4-foot pieces of carpeting at both Lake Perris and Sage-Vail Lake Core Areas in summer and fall. We also walked 100-m-long diurnal transects, while checking natural cover, at Lake Perris in the summer. Finally, we walked 200-m-long nocturnal transects with the aid of headlamps and flashlights at Lake Perris, without turning over cover objects and only

checking the ground and rock crevices, in the summer. We detected only 1 banded gecko while using these methods, specifically during a nocturnal transect. We detected two additional banded geckos at Lake Perris while we were traveling to and from the nocturnal transects.

In 2010 we continued to check artificial-cover stations at Lake Perris-San Jacinto Wildlife Area (SJWA) and Sage-Vail Lake Core Areas. In addition, we walked randomly-distributed 200-m-long nocturnal transects, as well as 200-m-long nocturnal transects distributed on well-used hiking trails at Lake Perris, to detect San Diego banded gecko. We focused our 2010 efforts in suitable San Diego banded gecko habitat at Lake Perris-San Jacinto Wildlife Area and Sage-Vail Lake where the species is known to occur. Specifically, our survey goals in 2010 were as follows:

Goals and Objectives

1. Compare the effectiveness of artificial-cover stations vs. belt and trail transects to detect San Diego banded gecko.
    a. Estimate detection probability following an occupancy-design framework for each method.

2. Compare ability of surveyors to detect San Diego banded gecko during nocturnal surveys.
    a. Estimate detection probability following an occupancy-design framework.

3. Collaborate with USGS on an ongoing population study of reptiles in southern California.
    a. While conducting our surveys, retrieve tissue samples from USGS target species for genetic analysis.

METHODS

Personnel and Training

Crew members were trained by the Herpetofauna Program Lead and experienced staff on survey techniques and species identification. Training consisted of studying identification materials developed by the Biological Monitoring Program based on local and national field guides. All crew members also received in-field training on survey protocol and animal identification, and learned to take tissue samples according to USGS protocol (Appendix A). Collection of tissue samples was also practiced in the office on live specimens [(e.g., side-blotched lizard (*Uta stansburiana*)] when available. Lastly, field personnel were versed in safety precautions and procedures when dealing with venomous animals. All personnel were able to navigate using a GPS unit, and were trained in the identification of herpetofauna of southern California. Biological Monitoring Program staff were funded by either the Regional Conservation Authority or California Department of Fish and Game; volunteers are noted. Staff that conducted surveys for San Diego banded gecko in 2010 are listed below.

- Robert Packard (Project Lead, Biological Monitoring Program)
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- Samantha Treu (Biological Monitoring Program)
- Sloane Seferyn (Biological Monitoring Program)
- Tara Graham (Biological Monitoring Program)

Survey Design

In 2009 we used ArcGIS v. 9.3 (ESRI 2008) and a GIS-based vegetation map (CDFG et al. 2005) to identify coastal sage scrub and chaparral vegetation communities at Lake Perris-SJWA and Sage-Vail Lake Core Areas. We identified and removed from our area of inference all chaparral with cover density ≥40% and slopes >25 degrees, because these landscapes cannot be safely or practicably accessed by surveyors. We used Hawth's Tools extension (Beyer 2004) for ArcGIS to distribute regularly-spaced points across each Core Area, stratified by the habitat characteristics defined above. We spaced points 800 m apart at Lake Perris-SJWA and 850 m apart at Sage-Vail Lake to maintain a density among cores of approximately 1 point per 70 ha [Lake Perris-SJWA (n =16), Sage-Vail Lake (n =35); Figure 1].

We centered artificial-cover stations on each of the regularly-spaced points generated in the previous steps. Each artificial-cover station consisted of 4 pieces of indoor/outdoor carpeting (2 x 4-foot) arranged in a grid, spaced 1 m apart, and oriented along a north-south bearing. We also extended 100-m-long (diurnal surveys) or 200-m-long (nocturnal surveys) transects north of each artificial-cover station in the Lake Perris-SJWA Core Area.

In 2010 we discontinued diurnal transects due to the paucity of detections of banded gecko. We continued to walk the nocturnal 200-m-long transects at Lake Perris-SJWA, but did so earlier in the year (April/May) to coincide with banded gecko breeding season, when male banded geckos are actively looking for females (Parker 1972).

In May, after 2 rounds of nocturnal surveys at Lake Perris-SJWA with no detections of banded gecko, we switched to walking 200-m-long transects along well-used multi-use trails at Lake Perris-SJWA in the above modeled habitat. Using Hawth's

Tools extension, we distributed sixteen 200-m-long transects along trails that we located using Google Earth imagery. We used trails instead of random transects through sage scrub and chaparral because of the ease of visibility and walking on established trails, and anecdotal evidence that trails and roads are often where banded gecko are seen in the spring by State Parks staff at Lake Perris (*Ken Kietzer, California State Parks, personal communication*). Both nocturnal transects and trail surveys were done with a 14-day interval between surveys due to the difficulty of sampling multiple transects at night. We also did not check natural or artificial cover during nocturnal surveys, because we believed that the target species would be active and in the open at night.

We also opportunistically checked artificial-cover stations at Lake Perris-SJWA and Sage-Vail Lake Core Areas once in the spring (23 March to 28 April 2010) and twice in late summer–fall (30 August to 9 November 2010) as survey personnel became available, to gain insight into seasonal effects of artificial-cover use by San Diego banded gecko. All artificial cover at Lake Perris-SJWA and Sage-Vail Lake was removed during the final checks in the fall of 2010.

Field Methods

Artificial Cover

We established artificial-cover stations by first navigating to points with GPS units and laying down carpet pieces with the backing side facing up. All artificial cover was clearly marked with a "California Department of Fish and Game/MSHCP Research Material/Do Not Disturb" label affixed to the carpet. We also weighted down each piece of carpet with natural objects found nearby (e.g., rocks) to prevent them from being blown away. We installed artificial-cover stations at least 2 weeks before conducting surveys, and maintained a minimum interval of 7 days between visits to allow animals to reacclimatize to the cover (Grant et al. 1992, Monti et al. 2000).

We checked under each carpet piece during spring and fall surveys, and recorded every reptile, amphibian, and mammal species found. We captured and identified in-hand every animal whenever possible, and we collected the following information for each captured MSHCP Covered Species and USGS target species: weight (g), snout-to-vent length (mm), tail length (mm), sex (male, female, unknown), age (adult, juvenile, unknown), and any irregularities (e.g., regrown tail, scars, injuries, etc.). We marked each captured MSHCP Covered Species and USGS target species on the ventral surface, just anterior to the cloaca, with a black permanent marker, which allowed us to determine the number of individuals detected during surveys. We also collected tissue samples from each USGS target species captured by taking 3 ventral scale clips (~ 1 mm x ~ 3 mm) from the largest non-adjoining mid-body scales from each larger snake (Appendix A). We snipped the tip of the tail (~ 3 mm) of each lizard and small snake with scissors, and collected the sample in a centrifuge tube, except at California State Parks where snake tail tips were not collected due to concern by State Parks management about the permanence of the injury. We sterilized scissors with ethanol before and after collecting each sample. We only recorded the species code and number detected in each life stage for non-covered species and non-USGS target species. We released all animals at the cover station where they were found after data were collected. Processing time ranged between 30 sec and 5 min, depending on the species. Finally, we recorded sky condition

(0 = clear or few clouds, 1 = party cloudy or variable, 2 = cloudy or overcast, 3 = fog, 4 = mist or drizzle, 5 = showers or light rain, 6 = heavy rain, 7 = sleet or hail, 8 = snow), wind speed (km/hr), and temperature (°C) at each station before and after checking all cover. No surveys were conducted during heavy rain or when temperatures exceeded 38°C. Artificial-cover-station checks took from 1 to 35 min, with an average of 8 min, depending on the number of animals we detected and processed.

Nocturnal Transect Surveys

We flagged the centerline of a 200-m-long transect extending north from each artificial-cover station with reflective tape, and planted a wooden stake with reflective tape at the north end of each transect. Two observers surveyed each transect starting 30 min after sunset and finished no later than 2400 h. Surveyors used flashlights and headlamps to search all terrestrial surfaces and rock crevices within 10 m of the transect centerline. No artificial or natural cover was checked during nocturnal surveys, because we assumed nocturnal animals would not be under cover at night. We recorded the same environmental information as we did for diurnal surveys, with the addition of moon phase (new, ¼, ½, ¾, full). We did not conduct nocturnal surveys during any significant precipitation, or when the temperature was above 38°C or below 5°C. Nocturnal transect surveys lasted from 20 to 101 min, with an average of 56 min, depending on the number of animals we detected and the terrain traversed.

Nocturnal Trail Surveys

We generated GPS waypoints for each end of every 200-m-long trail transect. We then surveyed transects using the same methods as nocturnal transect surveys, surveying all terrestrial surfaces and rock crevices within 10 m of the centerline of the trail. Nocturnal trail surveys lasted from 6 to 52 min, with an average of 25 min, depending on the number of animals we detected and the terrain traversed.

Specimen Collection

We recorded and collected all skins and dead reptiles found under artificial or natural cover while conducting transect surveys or while traveling to or from survey locations. We placed specimens in a labeled plastic bag and brought them back to the office for identification and future training purposes. We also took digital photos of any unusual live animals (e.g., neonates, odd color morphs, etc.) and all Covered Species captured.

Data Analysis

We detected too few San Diego banded gecko to model estimates of detection probability regardless of method used. Overall detections of species at artificial-cover stations were also very few, and did not support statistical analysis.

RESULTS

We did not detect any banded gecko on any official survey in 2010. We did record 1 San Diego banded gecko during a mock survey of nocturnal 200-m-long trail transects on 17 May 2010. We recorded 2 other Covered Species, granite night lizard (n = 73), and granite spiny lizard (n = 10) during transect-based surveys, whether on- or off-

trail at Lake Perris State Park in 2010 (Appendix B). Almost all animals (97%) found during nocturnal transects and trail transects were found in rock crevices.

During artificial cover surveys we detected 1 granite night lizard and also recorded the following non-covered species: western fence lizard (n=1), side-blotched lizard (n=16), Gilbert's skink (n=1), and western skink (n=1) (Appendix C).

We have incidentally detected several San Diego banded gecko from 2008 to 2010, and the Santa Ana Watershed Association has captured 3 geckos in their herp arrays at Lake Perris in 2008 (Figure 1).

We collected tissue samples from 19 individuals of 5 species during San Diego banded gecko surveys in 2009 and 2010 and delivered these samples to USGS in support of their ongoing population genetics study of reptiles in southern California (Appendix A).

DISCUSSION

We did not detect any San Diego banded gecko during diurnal transects or artificial-cover surveys in 2009 or 2010. Artificial cover typically takes an extended period of time to mold to the ground, retain moisture, and attract invertebrates and rodents (Grant et al. 1992, Monti et al. 2000). We allowed cover to sit for 2 weeks before beginning surveys, and checked stations for 4 weeks in the summer and once in the fall. We detected few individuals of any reptile species under artificial cover, and it is plausible that our carpet pieces required more time to take on characteristics of cover that is attractive to reptiles. Checking natural cover along diurnal transects was also not productive, and the majority of animals detected were out in the open. During that time, banded geckos may have been underground in mammal burrows to avoid the typical daytime summer temperatures and aridity. Most of the cover objects we checked had a few various-sized burrows underneath them, and the few that did not generally lacked any space underneath to allow animals to enter.

We detected many granite night lizards during nocturnal survey efforts from 2008 to 2010, but only 6 San Diego banded geckos, and only 3 on official surveys. We may have detected so few geckos in 2008 because we limited our surveys to a single landscape feature; however, San Diego banded gecko is a small and cryptic species that is difficult to detect, regardless of the vegetation type in which it lives. Density of vegetation varied across our transects, with most containing at least some portion of high-density shrub cover. Thus, it is possible that we detected only one gecko on a nocturnal transect in 2009 because much of the area was shrub cover. However, trail transects would not have this problem, so our lack of detections during presumed peak activity is unexplained. Possibly this cryptic and secretive species has a population too low to effectively survey using the methods we have attempted thus far.

Seasonal activity may have also negatively impacted our 2009 survey results. We detected all 3 San Diego banded gecko as cooler temperatures (17–24°C) prevailed later in the season (14–29 September), in contrast to reported peak activity for the species occurring in a temperature range of 24–33°C (Vance 1973). Male San Diego banded geckos are also typically more active in the spring when they emerge from hibernation

and begin searching for females (Parker 1972). Staff at Lake Perris State Park has also reported that they often see gecko on roads and trails at night during the spring (*Ken Kietzer, California State Parks, personal communication*).

We have conducted either nocturnal-lizard or species-specific surveys in 6 of 7 San Diego banded gecko Core Areas, and have found the species in 3 cores (Lake Skinner-Diamond Valley Lake, Lake Perris-San Jacinto Wildlife Area, and Sage-Vail Lake) thus far. We need to find individuals in at least 3 additional Core Areas to meet the species objective of being present in at least 75% (n = 6) of MSHCP-defined cores. We have not yet surveyed the Santa Ana Mountains for San Diego banded gecko, due to the scarcity of suitable habitat and the difficulties associated with traveling in this area at night. Additionally, we have not adequately surveyed the northern portion of the San Jacinto Foothills (the Sage-Vail Lake Core is included within the larger San Jacinto Foothills Core Area). We installed artificial cover (2 x 4-foot sections of carpeting and plywood) in the Santa Ana Mountains, Agua Tibia area, portions of the San Jacinto Mountains and San Bernardino Mountains, the Santa Margarita Ecological Reserve, and the Iron Springs area in 2008 and 2009 as part of a survey for San Diego mountain kingsnake (*Lampropeltis zonata pulchra*), San Bernardino mountain kingsnake (*L. z. parvirubra*), southern rubber boa (*Charina umbratica*), and southern sagebrush lizard (*Sceloporus vandenbugianus*). We checked and removed all of the artificial cover in the San Jacinto and San Bernardino Mountains, and the Santa Margarita Ecological Reserve in the spring of 2010. The artificial cover remaining in the other 3 areas may yet prove useful in detecting San Diego banded gecko in these areas; however, we will remove all of that cover in the spring of 2011.

Recommendations for Future Surveys

Methods for detecting San Diego banded gecko should continue to be tested. Transect surveys should also be considered for other Covered Species when field personnel are available, but take into consideration appropriate habitat and factors that can impact animal activity (e.g., season, daily temperature, diurnal vs. nocturnal). Effort should also be made to keep field crew motivated, and emphasize the importance of carefully searching transects for difficult-to-detect species.

If artificial cover is used in the future it should be left in the environment for longer time periods to determine if time and weatherization is a significant factor in utilization of artificial cover by San Diego banded gecko. If so, a more durable cover type should be selected to withstand harsh weather conditions and the adverse impact of the sun. Herp arrays should be considered only if all other methods fail to effectively detect San Diego banded gecko, because the labor requirement associated with this method is high. Moreover, herp arrays are not completely applicable to our survey goals, as it would require many arrays to quantify detection and confirm species absence. Design of herp arrays should therefore maximize the area of suitable habitat that is sampled within Core Areas, possibly by arranging drift fences linearly in long transects with pit-fall traps spaced throughout.

Ultimately, there may be no truly efficient means to reliably detect San Diego banded geckos as they are highly secretive and not typically found in high numbers. We will continue to stress the importance of collecting incidental observations both from

Biological Monitoring Program biologists and from partnering agencies as conducting focused surveys for this species returns little data per unit effort.

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Appendix A. Western Riverside County MSHCP Biological Monitoring Program, Protocol for Reptile Tissue Sampling, March 2009

Tissue sampling has been shown to be a valuable component of scientific and genetic studies. Many genetic studies have revealed important results about local populations (Richmond and Jockusch 2007; Wood, Fisher, and Reeder 2007), and tissue sampling allows for analyses of population genetics to be conducted without killing individuals in the population. Reptiles generally recover quickly from injuries sustained during acquisition of a small tissue sample, and the resulting scars can be used to aid in recapture identification analysis. Scale clipping and taking tail tips rarely draws blood, and the application of a tissue adhesive (e.g., New Skin) will speed the healing process and stem any blood loss. The tissue adhesive should also help minimize the risk of bacterial infection, although this is a possible deleterious side-effect. Some species of lizards also readily shed their tails as a defense mechanism, and although care will be taken to process all animals as quickly and carefully as possible, it is likely that a small number of individuals will lose their tails during handling. Although there are some risks associated with tissue sampling, this method should have less impact on target populations than taking specimens for vouchering, and will still provide valuable monitoring data.

The protocol outlined below will be followed by Monitoring Program staff processing reptiles in the field. All current herpetological personnel were trained in taking tissue samples by a USGS biologist at the USGS office in San Diego on March 5, 2009, or trained by those who attended said training. All crew took tissue samples from dead specimens; however, we used a live specimen for demonstrating handling techniques while taking tissue samples. We will train future personnel on live specimens in the field. We will temporarily store all tissue samples in refrigeration at the MSHCP's Biological Monitoring Office at 4500 Glenwood Drive, Riverside, CA, and then transport them to the USGS Western Ecological Research Center's San Diego Field Office at 4165 Spruance Road, San Diego, CA for genetic analysis.

USGS TARGET SPECIES Processing Methods

Target Species include: Gilbert's skink (*Plestiodon gilberti*), western skink (*P. skiltonianus*), rosy boa (*Lichanura trivirgata*), southern rubber boa (*Charina umbratica*), glossy snake (*Arizona occidentalis*), shovel-nosed snake (*Chionactis occipitalis*), San Diego mountain kingsnake (*Lampropeltis zonata pulchra*), San Bernardino mountain kingsnake (*L. z. parvirubra*), red coachwhip (*Masticophis flagellum*), striped whipsnake (*M. lateralis*), red-sided garter snake (*Thamnophis sirtalis infernalis*), two-striped garter snake (*T. hammondii*), southwestern blind snake (*Leptotyphlops humilis humilis*) San Diego banded gecko (*Coleonyx variegatus abbotti*), western banded gecko (*C. v. variegatus*), granite night lizard (*Xantusia henshawi henshawi*), and sagebrush lizard (*Sceloporus vandenburgianus*).

The following information will be collected for each USGS Target Species.

1. Gender/Age
    - Male, female or unknown

2. Measurements
    - Using metric ruler
        i. Snout-Vent length (mm)
        ii. Tail length (mm)
    - Using pesola scale
        i. Weight (g): <u>tare scale first with sampling bag</u>, then place animal in bag.
            1. Use the smallest scale possible for the most accuracy.
3. Take tissue sample (y/n) (Do not take a sample if the animal is too small to safely do so)
        i. Label micro-centrifuge tubes with sample # [date, full board name(site#-board#), 4-letter species code, and individual sequential # (ex. 20091125_MS12-02_EUSK_1)]
    - Sterilize scissors with alcohol.
    - For larger snakes: Take three ventral scale clips from the largest midbody scales, the three samples not from adjoining scales. The clip should be ~1 mm x ~3 mm, but try to clip all the way across each scale, and try to get some of the pigmentation of each scale.
    - For small snakes and lizards: Snip ~3 mm of the tail tip with scissors into centrifuge tube.
        Place drop of tissue adhesive (New Skin) on cut, allow to air dry. Place micro-centrifuge tube in designated container in specimen freezer at the office.
4. Take photos (Optional except for Mt. Kingsnakes and Rubber Boa)
    - Minimum of 3 (1 dorsal, 1 ventral, 1 close-up of dorsal portion of head).
        i. Place, in each photo, ruler and tape with date and specimen # (corresponding to order entered on datasheet).
        ii. Label the photos with photo #s [date, photographer initials, and photo file number (ex. 20091125_SLP_362)].
5. Notes - Record unusual morphology
    - Take notes on any unusual characteristics of the animal (e.g. coloration, injuries, regrown tail, etc.).
6. Return animal to exact location where found.

Non-Target Species Processing Methods (DO NOT PROCESS ANY VENOMOUS REPTILES!)

1. Gender/Age
        Male, female or unknown
2. Measurements
    a. Using metric ruler
        i. Snout-Vent length (mm)
        ii. Tail length (mm)
    b. Using Pesola scale
        i. Weight (g): <u>tare scale first with bag</u>, then place animal in bag.
            1. Use the smallest scale possible for the most accuracy.

3. Take photos (optional)
    i. Record photo #s on datasheet.
    ii. Label the photos with photo #s [date, photographer initials, and photo file number (ex. 20091125_SLP_362)].
4. Return animal to exact location where found.

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Appendix B. Abundance (*n*) of species detected at transects and trail transects during nocturnal surveys at Lake Perris State Park in 2010.

Transect	*n*	Common Name	Scientific Name	Covered Species
LP01 Transect	3	Granite night lizard	*Xantusia henshawi*	Yes
LPO2 Transect	1	Granite spiny lizard	*Sceloporus orcutti*	Yes
	1	Granite night lizard	*Xantusia henshawi*	Yes
LP04 Transect	5	Granite night lizard	*Xantusia henshawi*	Yes
LP05 Transect	3	Granite night lizard	*Xantusia henshawi*	Yes
LP06 Transect	1	Granite spiny lizard	*Sceloporus orcutti*	Yes
	2	Granite night lizard	*Xantusia henshawi*	No
LP07 Transect	1	Granite night lizard	*Xantusia henshawi*	Yes
LP08 Transect	3	Granite night lizard	*Xantusia henshawi*	Yes
LP09 Transect	3	Granite night lizard	*Xantusia henshawi*	Yes
LP10 Transect	2	Granite spiny lizard	*Sceloporus orcutti*	Yes
LP11 Transect	1	Granite spiny lizard	*Sceloporus orcutti*	No
LP12 Transect	3	Granite night lizard	*Xantusia henshawi*	Yes
LP13 Transect	5	Granite spiny lizard	*Sceloporus orcutti*	Yes
	6	Granite night lizard	*Xantusia henshawi*	Yes
LP15 Transect	9	Granite night lizard	*Xantusia henshawi*	Yes
LP16 Transect	3	Granite night lizard	*Xantusia henshawi*	Yes
LP19 Trail	3	Granite night lizard	*Xantusia henshawi*	Yes
LP20 Trail	7	Granite night lizard	*Xantusia henshawi*	Yes
LP22 Trail	1	Granite night lizard	*Xantusia henshawi*	Yes
LP24 Trail	4	Granite night lizard	*Xantusia henshawi*	Yes
LP25 Trail	2	Granite night lizard	*Xantusia henshawi*	Yes
LP26 Trail	3	Granite night lizard	*Xantusia henshawi*	Yes
LP27 Trail	1	Granite night lizard	*Xantusia henshawi*	Yes
LP28 Trail	1	Granite night lizard	*Xantusia henshawi*	Yes
LP30 Trail	4	Granite night lizard	*Xantusia henshawi*	Yes
LP31 Trail	3	Granite night lizard	*Xantusia henshawi*	Yes
LP32 Trail	1	Granite night lizard	*Xantusia henshawi*	Yes
LP33 Trail	1	Granite night lizard	*Xantusia henshawi*	Yes

Appendix C. Abundance (*n*) of species detected at artificial cover stations at Lake Perris State Park, San Jacinto Wildlife Area (SJWA), and Sage-Vail Lake in 2010.

Artificial Cover Station	*n*	Common Name	Scientific Name	Covered Species
Lake Perris S.P.				
LP01	1	Gilbert's Skink	*Plestiodon gilberti*	No
LP03	1	Granite night lizard	*Xantusia henshawi*	Yes
LP05	1	Side-blotched Lizard	*Uta stansburiana*	No
LP08	2	Side-blotched Lizard	*Uta stansburiana*	No
LP11	1	Side-blotched Lizard	*Uta stansburiana*	No
LP12	1	Side-blotched Lizard	*Uta stansburiana*	No
LP14	1	Side-blotched Lizard	*Uta stansburiana*	No
SJWA				
LP03	1	Western Skink	*Plestiodon skiltonianus*	No
Sage-Vail Lake				
SV01	1	Side-blotched Lizard	*Uta stansburiana*	No
SV07	2	Side-blotched Lizard	*Uta stansburiana*	No
SV16	1	Side-blotched Lizard	*Uta stansburiana*	No
SV18	1	Western Fence Lizard	*Sceloporus occidentalis*	No
SV20	1	Side-blotched Lizard	*Uta stansburiana*	No
SV26	1	Side-blotched Lizard	*Uta stansburiana*	No
SV27	1	Side-blotched Lizard	*Uta stansburiana*	No
SV29	1	Side-blotched Lizard	*Uta stansburiana*	No
SV32	1	Side-blotched Lizard	*Uta stansburiana*	No
SV35	1	Side-blotched Lizard	*Uta stansburiana*	No