



Monitoring Terrestrial Reptiles and Amphibians in the Mediterranean Coast Network

Cabrillo National Monument 2013 Annual Report

Natural Resource Data Series NPS/MEDN/NRDS—2014/726



ON THE COVER

Juvenile Southern Pacific rattlesnake, *Crotalus oreganus helleri* in pitfall bucket during 2013 herpetofauna monitoring efforts
Photograph by: Stephanie Root, Cabrillo National Monument

Monitoring Terrestrial Reptiles and Amphibians in the Mediterranean Coast Network

Cabrillo National Monument 2013 Annual Report

Natural Resource Data Series NPS/MEDN/NRDS—2014/726

Stephanie Root

National Park Service
Cabrillo National Monument
1800 Cabrillo Memorial Drive
San Diego, California 92106

October 2014

U.S. Department of the Interior
National Park Service
Natural Resource Stewardship and Science
Fort Collins, Colorado

The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado, publishes a range of reports that address natural resource topics. These reports are of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

The Natural Resource Data Series is intended for the timely release of basic data sets and data summaries. Care has been taken to assure accuracy of raw data values, but a thorough analysis and interpretation of the data has not been completed. Consequently, the initial analyses of data in this report are provisional and subject to change.

All manuscripts in the series receive the appropriate level of peer review to ensure that the information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner.

Data in this report were collected and analyzed using methods based on established, peer-reviewed protocols and were analyzed and interpreted within the guidelines of the protocols.

Views, statements, findings, conclusions, recommendations, and data in this report do not necessarily reflect views and policies of the National Park Service, U.S. Department of the Interior. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. Government.

This report is available from <http://science.nature.nps.gov/im/units/medn/> or the Natural Resource Publications Management website (<http://www.nature.nps.gov/publications/nrpm/>). To receive this report in a format optimized for screen readers, please email irma@nps.gov.

Please cite this publication as:

Root, S. 2014. Monitoring terrestrial reptiles and amphibians in the Mediterranean Cost Network: Cabrillo National Monument 2013 Annual Report. Natural Resource Data Series NPS/MEDN/NRDS—2014/726. National Park Service, Fort Collins, Colorado.

Contents

	Page
Tables.....	Error! Bookmark not defined.
Abstract	v
Acknowledgments.....	vi
List of Terms.....	vi
Introduction.....	1
Methods.....	3
Results.....	5
Table 3. Date and start times for trapping sessions in 2013.	6
Literature Cited	13
MSS: maritime succulent scrub, DIS: disturbed, SMC: southern maritime chaparral.	14
Precipitation data from Western Regional Climate Center (http://www.wrcc.dri.edu/).....	15

Figures

	Page
Figure 1. Map of the location of the herpetofauna arrays within the study area.	2
Figure 2. Capture status of 4 lizard species during the 2013 herpetofauna surveys.	7
Figure 3. Lizard species captures by array in 2013.....	7
Figure 4. <i>S. occidentalis</i> captures by array in 2013	8
Figure 5. <i>U. stansburiana</i> captures by array in 2013.....	8
Figure 6. <i>E. multicaudata</i> captures by array in 2013	9
Figure 7. <i>B. major</i> captures by array in 2013.....	10

Tables

	Page
Table 1. Minimum measurement cut-off lengths for adult age class determination.....	4
Table 2. Herptile and small mammal captures in 2013.....	5
Table 3. Date and start times for trapping sessions in 2013.....	6

Appendices

	Page
Appendix A. Array Locations.....	14
Appendix B: 2013 Precipitation Data	15

Abstract

The use of pitfall traps and drift fencing has been an effective method for monitoring many small animal species. This method has been used at Cabrillo National Monument in San Diego, California since 1995 to monitor trends in reptile and amphibian species within the park as part of the National Park Service Mediterranean Coast Network Inventory and Monitoring Program. The park is located at the southern tip of the Point Loma peninsula near downtown San Diego and is surrounded by water and developed land, essentially creating an island of native coastal sage scrub habitat. There are twelve species of herptiles that are currently found within the 163 acre park and nearby Navy land; species diversity has declined according to historical records. Due to staffing turnover in 2013, monitoring was only conducted for five trapping sessions for a total of 20 trap nights, well below the minimum of 40 trap nights needed to detect changes in species richness and abundance. Continuous monitoring efforts are important to detect any significant changes in the herptile populations within an urban “island” park and to manage our parks for future generations to enjoy.

Acknowledgments

Many thanks go to the NPS Volunteers in Parks (VIPs) who dedicated their time and efforts in assisting with this project. Specifically, B. Sharp, D. Endicott A. Bray, T. Nickel, S. Kramer, B. Greenberg, K. Lion, M. Sampson, S. Rice and others offered great assistance during the 2013 herpetofauna survey. I would like to thank the US Navy for their partnership with this study by allowing NPS to conduct work on military property. Much appreciation also goes to all NPS staff who educate the public of the flora and fauna of Cabrillo National Monument.

List of Terms

CABR: Cabrillo National Monument, 163 acres managed by the National Park Service

CSS: Coastal sage scrub vegetation type

DIS: Disturbed habitat

MSS: Maritime succulent scrub vegetation type

NPS: National Park Service, U.S.

PLECA: Point Loma Ecological Conservation Area, 650 acres of land on the Point Loma Peninsula with multi-agency management designated for conservation of native species.

SMC: Southern maritime chaparral vegetation

USGS: U.S. Geological Survey

Contacts

Carlton Rochester: US Geological Survey, San Diego Western Region Division Project Office; crochester@usgs.gov

Robert Fisher, PhD: US Geological Survey, San Diego Western Region Division Project Office; rfisher@usgs.gov

Bradford Hollingsworth, PhD.: San Diego Natural History Museum, Curator of Herpetology Department; bhollingsworth@sdnhm.org

Stacey Ostermann-Kelm, PhD: National Park Service Inventory and Monitoring Program, Mediterranean Coast Network Program Manager; stacey_ostermann-kelm@nps.gov

Lena Lee: National Park Service Inventory and Monitoring Program, Mediterranean Coast Network Database Manager; lena_lee@nps.gov

Keith Lombardo, PhD.: National Park Service, Cabrillo National Monument, Natural and Cultural Resource Management Division Chief; keith_lombardo@nps.gov

Tom Philippi, PhD: National Park Service, Inventory and Monitoring Program;
tom_phillippi@nps.gov

Introduction

Cabrillo National Monument (CABR) is located at the southern tip of the Point Loma peninsula in San Diego, California USA (Fig. 1). The National Park Service (NPS) manages 163 acres of land that is dominated by the coastal sage scrub vegetation community. The park is surrounded by a US Navy base, City of San Diego wastewater treatment plant and residential housing. The surrounding development and habitat fragmentation can negatively affect wildlife and the biodiversity of native reptile species by restricting natural movements of individuals as well as gene flow with adjacent populations (Busteed 2003). The herpetofauna monitoring program was initiated in 1995 to inventory and monitor herptile species within and around the park including some areas on US Navy property. Cabrillo National Monument is part of the Point Loma Ecological Conservation Area (PLECA) which is made up of 650 acres of land on Point Loma that is owned and managed by federal and local agencies. The PLECA was designed to protect the cultural and biological resources that can be found on the Point Loma peninsula.

There are currently twelve species of herptiles found within Cabrillo National Monument that are monitored regularly using these methods. Several species of snakes and lizards are thought to be extirpated from the peninsula according to historical records possibly due to landscape changes and habitat fragmentation on and around the Point Loma peninsula. The monitoring efforts are important for detecting changes in the herptile population dynamics and species composition.

The herpetofauna monitoring program on Point Loma was initiated using pitfall traps. There were originally 17 arrays, which included seven pitfall traps and three funnel traps at each array, constructed on Point Loma that were operated by USGS July 1995 until December 2001 for sampling periods of 11 days/10 nights every other month. After Dec 2001, NPS took over the management of the herpetofauna surveys and at this time, herpetofauna was designated as a “vital sign” for the Mediterranean Coast Network (MEDN) Inventory and Monitoring Program (I&M). The vital signs are ecological parameters that are monitored to provide the park natural resource managers and the greater scientific community with scientific information to assist with natural resource management. Beginning in 2002, NPS conducted surveys on a five-day/four-night sampling period once a month for 11 months of the year. Atkinson et al. (2003) determined that a minimum of 40 trap nights per year are needed to detect changes in species richness and abundance of certain target herptile species. In July 2005 and March 2006, arrays six and seven were permanently closed respectively. This report summarizes trapping efforts for 2013.



Figure 1. Map of the location of the herpetofauna arrays within the study area.

Methods

The approved monitoring protocol (Busteed et al. 2006) was followed during 2013. This protocol was based on the initial monitoring and methods used by Fisher and Case (Fisher and Case 2000, Stokes et al. 2008).

Sixteen arrays were operated during the herpetofauna surveys in 2013, nine of these were within Cabrillo National Monument, and the remaining seven arrays were on US Navy property north of CABR (Appendix A). Each array consists of seven pitfall traps and three funnel traps in a “Y” configuration. The pitfall traps are five gallon buckets that are recessed so the tops of the buckets are flush with the surrounding ground. Cylindrical funnel traps are made from hardware fabric with plastic funnels attached at each end. Drift fencing between traps direct animals along the fencing and into the traps. Plywood coverboard measuring 24” x 48” was placed near each array to increase detection rates of cryptic or fossorial animals that may otherwise be difficult to observe as they are not easily captured in the pitfall or funnel traps.

Within each pitfall trap, there were two plastic PVC pipes of different sizes to serve as hides for captured animals. Cotton or polyester stuffing was used in the traps to offer bedding material for the small mammals in order to reduce hypothermia. A nine-ounce plastic cup was placed in the traps with the stuffing inside to provide cover for small mammals. Mealworms were placed in the cup under the stuffing in order to provide food for shrew captures. Moist sponges were also placed in the bottom of each trap to reduce desiccation of salamander captures. Sponges and polyester bedding were used in the traps year-round.

From January to December 2013, the arrays were scheduled to be opened every month for a 4-day sampling period. Traps were closed or never opened if heavy precipitation was in the forecast in order to reduce morbidity and mortality of captures. Heavy infestation of Argentine ant (*Linepithema humile*) precluded closure of traps to minimize mortality of potential captures. A negative correlation has been shown between the density of *L. humile* and lizard capture rates (Atkinson et al 2003). Several traps at Array 10 were closed often due to *L. humile* infestation around the array. Traps were also not opened if there was flooding in the bottom of the trap or if the ground was saturated with water which caused flooding from the drainage holes in the bottom of the trap. This usually occurred after heavy rains for only some of the traps depending on the soil and the slope at the site.

Data collected from captures included weight, snout/vent length (SVL), age class, and gender if possible. SVL measurement cut-off lengths were utilized to categorize lizards by age class (Table 1). Body condition was also noted if any abnormalities were observed. Each individual lizard was marked using toe clip numbers to assign it a unique number. The toe clips along with a small clip of the tail tissue samples were preserved in 95% ethanol for genetic studies. All animals were released in the area of capture after processing. If an animal was found dead in a trap, escaped or died during processing, it was noted. All data collected were entered into an Apple iPod Touch PDA.

Table 1. Minimum measurement cut-off lengths for adult age class determination

Species	Minimum SVL for adult classification, in millimeters
<i>Sceloporus occidentalis</i>	50
<i>Cnemidophorus hyperythrus</i>	50
<i>Uta stansburiana</i>	40
<i>Elgaria multicarinata</i>	Determined by collector
<i>Anniella pulchra</i>	Determined by collector

Snake species were weighed and measured before release. Scale clipping was not performed due to extremely low capture rate for snakes. Rattlesnakes were not handled for personnel safety. When captured, the total length of the rattlesnake was estimated and the number of rattles was noted.

Notiosorex crawfordi (NOCR) captures were processed as quickly as possible in order to reduce stress and facilitate quick release. Captures were noted as adult and were not sexed. The shrews were also offered a mealworm during processing.

Other small mammals such as rodents were identified to species. Gender, age estimation, tail length, body length, hind foot length, and ear length were also recorded.

The data were transferred from the PDA to an Access database and then exported to Excel for analysis. The capture rate of each species was calculated by the number of captures per trap day for each trapping session. The number of captures per trap type (pitfall vs. funnel trap) was also determined for the species that were captured in both trap types. Captures of each species per array was also determined and graphed. Recapture rate was calculated for each of the marked species. When age could be determined for *Sceloporus occidentalis* (SCOC), *Uta stansburiana* (UTST), *Elgaria multicarinata* (ELMU), *Cnemidophorus hyperythrus* (*Aspidoscelis hyperythra*) (CNHY), the number of juveniles and adults were calculated as well as recruitment by dividing the number of unique juveniles of a species captured in 2013 by the number of unique adults of that species captured in 2013.

Weather data were also recorded for the surveys. Weather conditions including temperature, humidity, wind speed, wind direction and gust speed were recorded at the start and end of each survey day from the CABR Visitor's Center weather station located at -117.239493, 32.674827 decimal degrees. Monthly total precipitation data were obtained from the Western Regional Climate Center at the San Diego Airport station (Appendix B).

Results

The 2013 herpetofauna monitoring results yielded 176 captures of 19 species including herptiles ($n=90$), small mammals ($n=24$), and invertebrates ($n=62$) (Table 2). Surveys were run from January to March, and in November and December. Captures only include pitfall traps or funnel traps of the 16 arrays, and do not include observations or animals under coverboards. Coverboard data were included separately as incidental sightings at or near arrays.

Table 2. Herptile and small mammal captures in 2013.

Scientific Name	Species Code	Common Name	Number of Captures
Amphibian			
<i>Batrachoseps major</i>	BAPA	Pacific Garden slender salamander	7
Reptiles			
<i>Anniella pulchra</i>	ANPU	Legless lizard	0
<i>Cnemidophorus hyperythrus</i>	CNHY	Orange-throated whiptail	2
<i>Elgaria multicarinata</i>	ELMU	Southern alligator lizard	9
<i>Sceloporus occidentalis</i>	SCOC	Western fence lizard	34
<i>Uta stansburiana</i>	UTST	Side-blotched lizard	37
<i>Crotalus viridis</i>	CRVI	Southern Pacific rattlesnake	1
<i>Diadophis punctatus</i>	DIPU	Ring-necked snake	0
<i>Hypsiglena torquata</i>	HYTO	Night snake	0
<i>Lampropeltis getula</i>	LAGE	California kingsnake	0
<i>Masticophis lateralis</i>	MALA	Striped racer	0
<i>Pituophis catenifer</i>	PIME	Gopher snake	0
Mammals			
<i>Notiurusorex crawfordi</i>	NOCR	Desert shrew	13
<i>Chaetodipus fallax</i>	CHFA	San Diego pocketmouse	0
<i>Microtus californicus</i>	MICA	California vole	0
<i>Mus musculus</i>	MUMU	House Mouse	1
<i>Peromyscus californicus</i>	PECA	California mouse	2
<i>Peromyscus eremicus</i>	PEER	Cactus mouse	1
<i>Peromyscus maniculatus</i>	PEMA	Deer mouse	0
<i>Peromyscus species</i>	PESP	<i>Peromyscus species</i>	1
<i>Reithrodontomys megalotis</i>	REME	Western harvest mouse	6
<i>Neotoma lepida</i>	NELE	Desert woodrat	0
<i>Neotoma fuscipes</i>	NEFU	Dusky-footed woodrat	0

This year, there were only a total of five trapping sessions with a total of 20 trapping nights, well below the 40 trap nights required to detect changes in species richness and abundance (Table 2). Recruitment was not calculated this year due to lack of data during neonate emergence.

Table 3. Date and start times for trapping sessions in 2013.

Trapping Session	Date Opened	Date Closed	Survey Start Time	Trap Nights
1 (Jan)	1/15/13	1/18/13	7:30	4
2 (Feb)	2/12/13	2/15/13	7:30	4
3 (Mar)	3/11/13	3/15/13	7:30	4
4 (Apr)	Traps were not opened during this time due to staffing turnover.			
5 (May)				
6 (Jun)				
7 (Jul)				
8 (Aug)				
9 (Sep)				
10 (Oct)				
11 (Nov)	11/18/13	11/22/13	7:00	4
12 (Dec)	12/9/13	12/13/13	7:00	4
Total # Trap Nights				20

Lizards

There were four species of lizards captured in the traps during the 2013 herpetofauna surveys: *Sceloporus occidentalis* (SCOC), *Uta stansburiana* (UTST), *Elgaria multicarinata* (ELMU), and *Cnemidophorus hyperythrus* (CNHY). *U. stansburiana* and *S. occidentalis* accounted for the most captures with 37 and 34, respectively (Fig. 2) and were present at all but three arrays (Fig. 3).

***S. occidentalis* (SCOC):** There were 34 SCOC captured in 2013. SCOC was not captured at arrays 1, 5, and 18 (Fig. 4). Twenty-five SCOC (73.51%) were captured in pitfall traps while 9 SCOC (26.47%) were captured in the funnel traps. In 2013, 27 SCOC were new captures (79.41%), 7 SCOC (20.59%) had previously been captured and marked. The juvenile/adult measurement cut-off lengths were determined using 50 mm or greater as adult and SCOC less than 50 mm as juveniles. There were 22 (64.71%) juvenile captures and 12 (35.29%) adult captures in 2013.

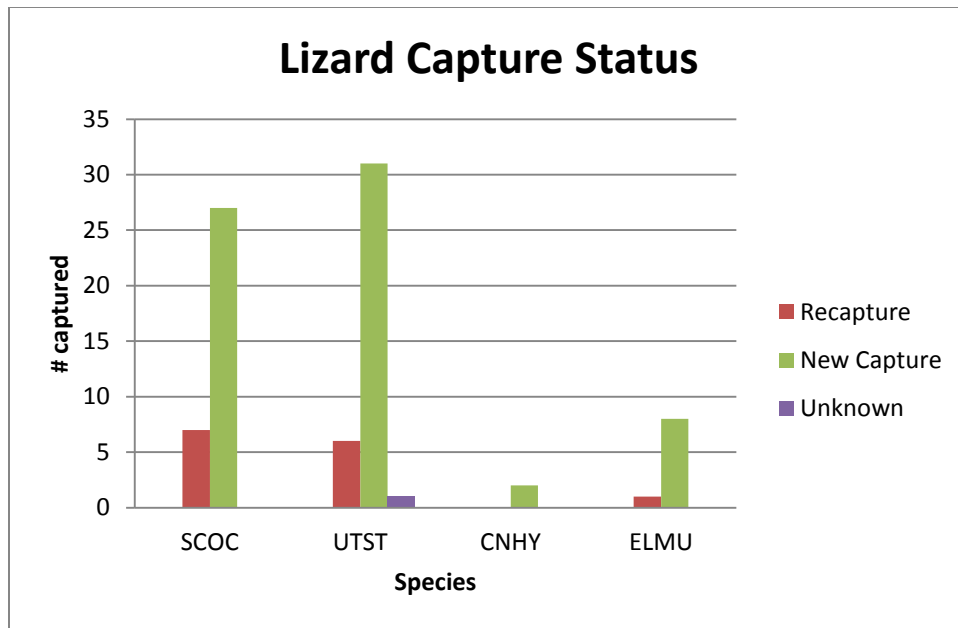


Figure 2. Capture status of 4 lizard species during the 2013 herpetofauna surveys.

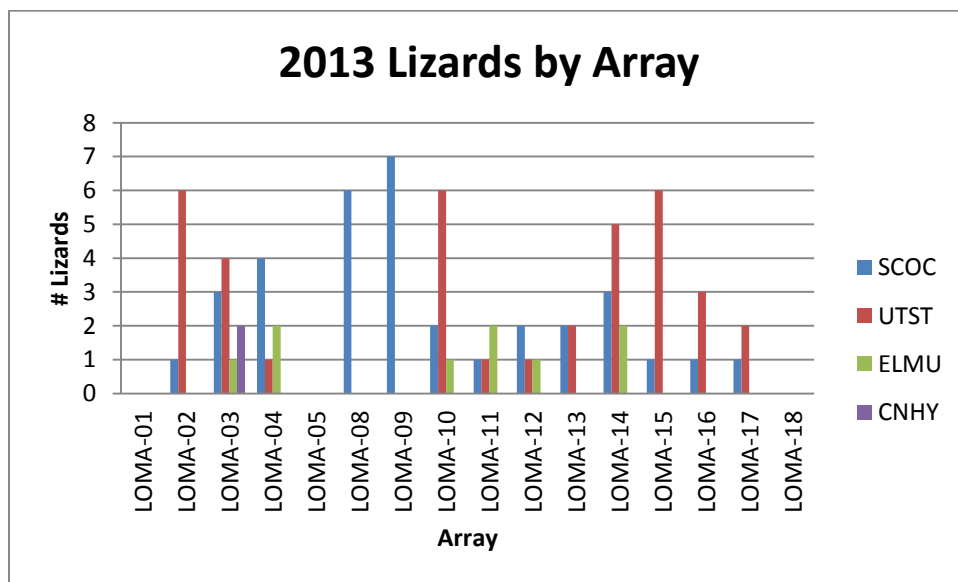


Figure 3. Lizard species captures by array in 2013.

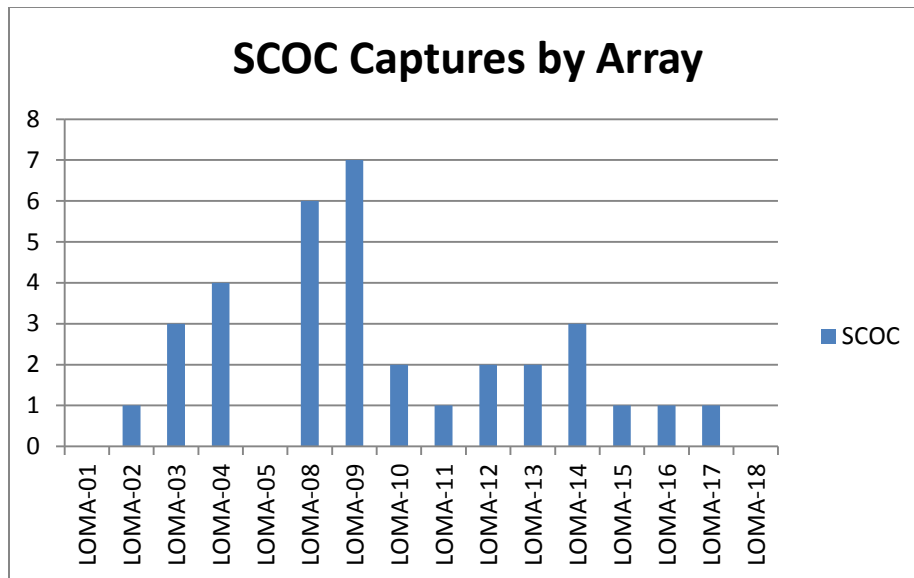


Figure 4. *S. occidentalis* captures by array in 2013

***U. stansburiana* (UTST):** There were 37 UTST captured in 2013. UTST was captured at 13 of the arrays and were not detected at Arrays 1, 5, or 18 (Fig 5). The greatest number of captures was at Array 8 and 9 with 13 total captures. Thirty-one UTST (83.78%) were captured in the pitfall traps while 6 (16.22%) were captured in the funnel traps. Of the 37 captures, 30 (81.08%) were new captures, 6 were recaptures (16.22%) and unknown status for one of the UTST. This year, there were 11 (29.73%) known juvenile UTST (SVL < 40 mm) and 26 (70.27%) known adult UTST.

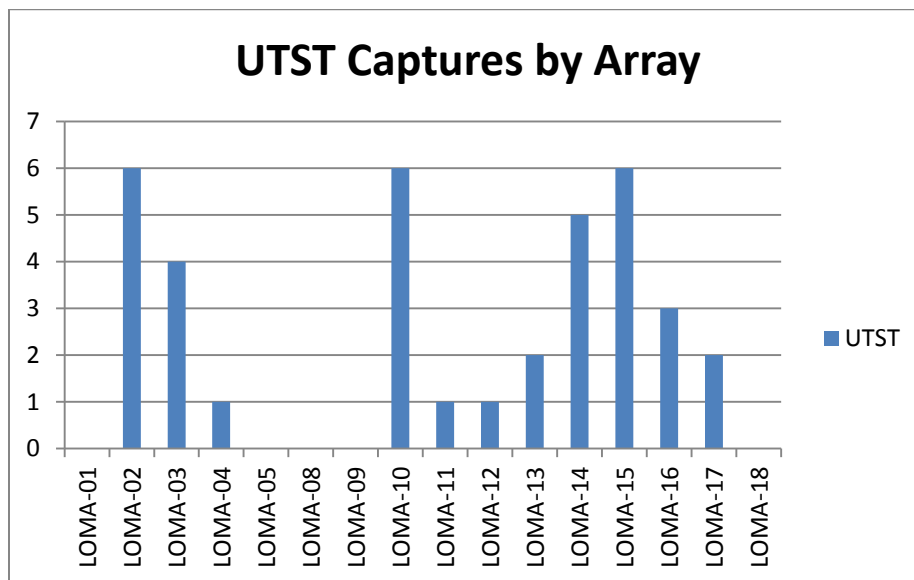


Figure 5. *U. stansburiana* captures by array in 2013.

***C. (Aspidoscelis) hyperythrus* (CNHY):** There were two CNHY captured in 2013. Both were captured at array 3. Neither were recaptures, and both were classified as juvenile (< 50 mm SVL) males.

***E. multicarinata* (ELMU):** There were nine ELMU captured in 2013. This species was present at six arrays (Fig. 6). Of the nine ELMU that were captured, eight were found in pitfall traps and one was in a funnel trap. All ELMU captures were classified as adult except for one, which was a neonate. Age was determined in the field by the discretion of the collector, as there is no formal classification protocol in place. Only one ELMU was a recapture this year.

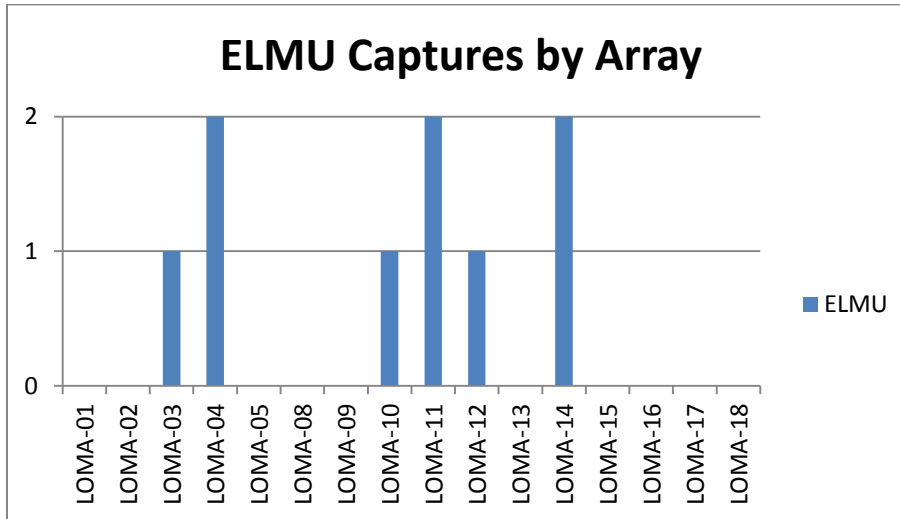


Figure 6. *E. multicarinata* captures by array in 2013

Snakes

Only one snake was captured this year, a juvenile *Crotalus oreganus helleri* (CRVI). This particular individual was captured in November in a pitfall trap at array 3, and was processed by a herpetologist for a landscape genetics study for the species. A gopher snake (*Pituophis catenifer*, PIME) was observed near array 10 in December.

Amphibians

***B. major (pacificus)* (BAPA):** There were seven salamanders captured in 2013. The majority ($n=4$) were captured in March. The location of the arrays including the surrounding vegetation and soils may play a role in salamander captures by array. All of the salamander captures were at arrays associated with maritime succulent scrub. BAPA was captured at arrays 9, 11, 12, and 17 (Fig. 7).

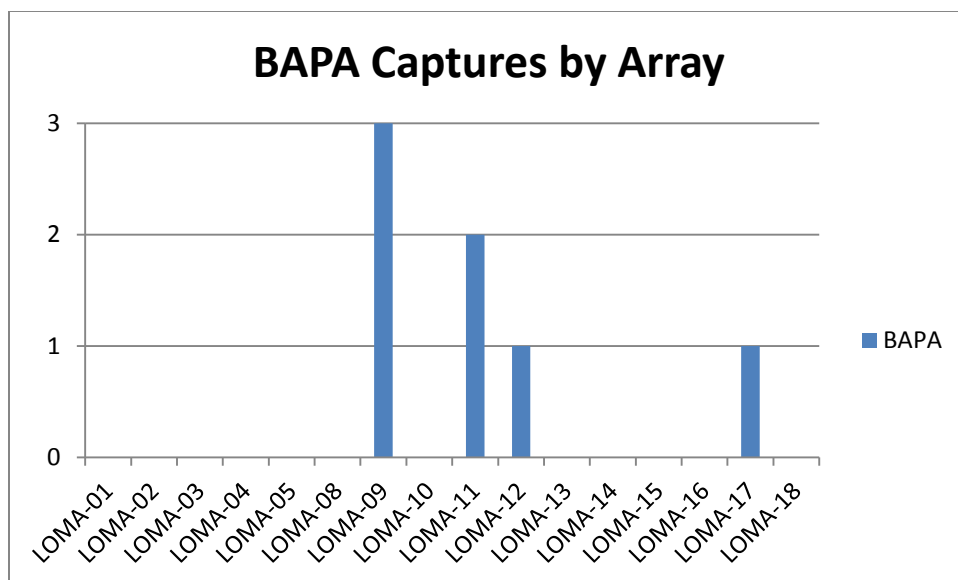


Figure 7. *B. major* captures by array in 2013.

OTHER CAPTURES

Small mammals:

***N. crawfordi* (NOCR):** There were 13 NOCR captured in the traps in 2013. November had a 100% mortality rate, though only four total NOCR were captured that month (Fig 8). Though mealworms were placed in pitfall traps, the mortality rate was high this year with 69.2% ($n=9$). Consultation with C. Rochester of the USGS concluded that to avoid high mortality rates, more mealworms ($n=4$ to 5) should be placed in the traps in the future.

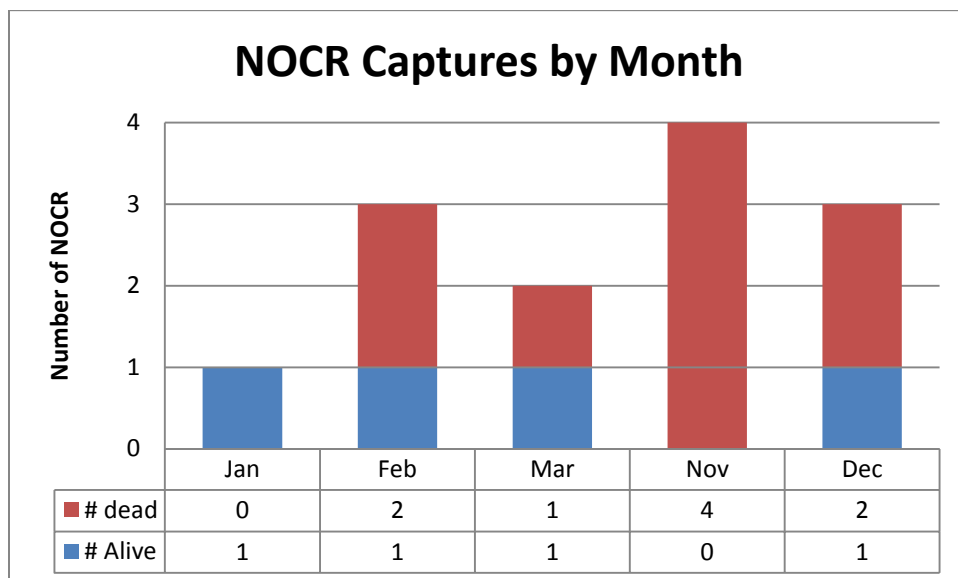


Figure 8. *N. crawfordi* condition at capture in 2013.

Rodents: The small mammals that were captured in the traps were: *Sylvilagus audubonii*, ($n=2$), *Reithrodontomys megalotis* ($n=6$), *Peromyscus eremicus* ($n=1$), *P. maniculatus* ($n=1$), *P.*

californicus ($n=2$), *Peromyscus* spp. ($n=1$), and *Mus musculus* ($n=1$). The unidentified *Peromyscus* species was found dead in a pitfall bucket in November. None of the rodents were marked therefore recaptures were not identified and recapture rates could not be determined.

Other captures: Arthropods captured in the traps included caterpillars, millipedes, trapdoor spiders, scorpions, tarantulas, and wind scorpions.

Temperature: Mean low temperatures were lowest in January, at 47.10 ° F, and highest mean temps occurred in September, at 77.27 ° F. The highest maximum temperature occurred in August with 89° F, while lowest was recorded in January at 47° F (WRCC n.d.).

Precipitation: The annual rainfall as reported from the Western Regional Climate Center was 4.28 inches of rain for 2013 at Lindbergh Field, approximately six miles away from Point Loma. Mean precipitation for Lindbergh Field is reported as 10.13 inches from 1914-2013. Zero precipitation was recorded June-August 2013, and September only recorded 0.01 inches. The greatest amount of precipitation occurred in January with 1.07 inches (WRCC n.d) (Appendix A).

Discussion

The 2013 herpetofauna surveys at Cabrillo National Monument and PLECA yielded captures of six out of 12 known herptile species of the Point Loma Peninsula. Monitoring was not done for much of the year, including months of high herptile activity.

Precipitation recorded for 2013 was much less than average. Again, due to lack of data, conclusions cannot be drawn for this year. Nevertheless, continuous monitoring of herptile populations in Point Loma is necessary to document any change, whether attributed to climate change or additional habitat loss.

Literature Cited

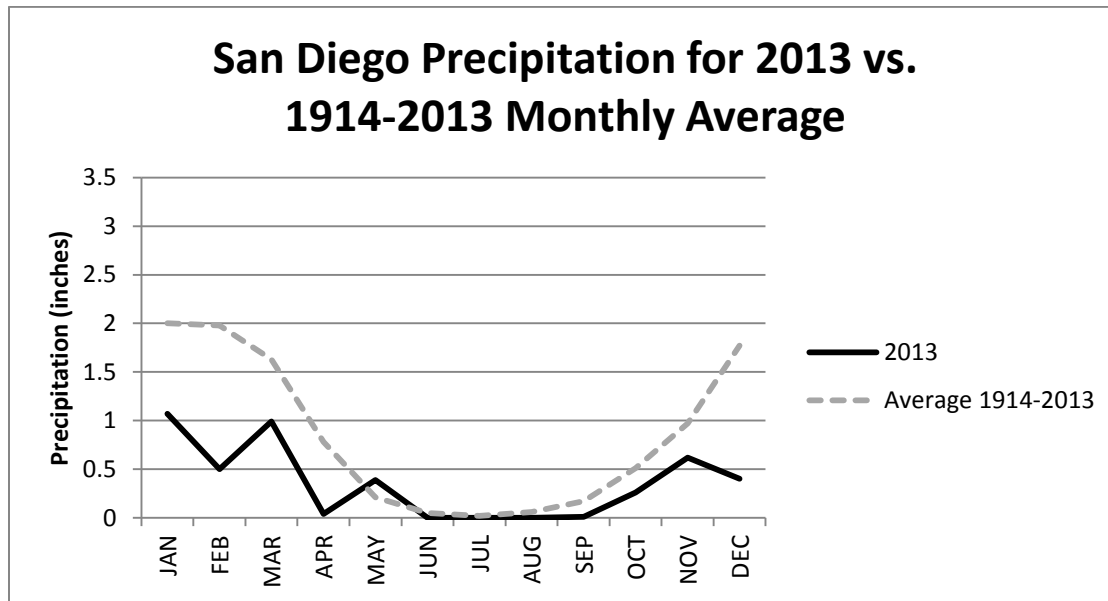
- Atkinson, A. J., R. N. Fisher, C. J. Rochester, and C. W. Brown. 2003. Sampling design optimization and establishment of baselines for herpetofauna arrays at the Point Loma Ecological Reserve. Page 44 in W. E. R. Center, editor.
- Busteed, G., J. L. Cameron, M. Robertson, S. P. D. Riley, L. Lee, A. Compton, E. Berbeo, and T. Duffield. 2006. Monitoring of Terrestrial Reptiles & Amphibians in the Mediterranean Coast Network: Santa Monica Mountains & Cabrillo National Monument, Version 1.0.
- Busteed, G. T. 2003. Effects of habitat fragmentation on reptiles and amphibians in coastal sage scrub and grassland communities. California State University, Northridge, CA.
- Fisher, R. N., and T. J. Case. 2000b. Southern California herpetofauna research and monitoring: 1995-1999 data summation report in S. California Fish & Game, and C. U.S. Fish & Wildlife Service, editors.
- Stokes, D. C., C. J. Rochester, R. N. Fisher, and T. J. Case. 2008. Herpetological monitoring using pitfall trapping design in southern California. Page 54. USGS.
- Western Regional Climate Center (WRCC). N.d. "Annual Precipitation Summary." Website. <http://www.wrcc.dri.edu/htmlfiles/citycomppt.html> (accessed 30 July 2014)

Appendix A. Array Locations

Site Name	Habitat	UTM Easting	UTM Northing	Elevation (m)
LOMA-01	MSS	476784	3616177	26
LOMA-02	MSS	477081	3614952	22
LOMA-03	MSS	477296	3614404	22
LOMA-04	MSS	477280	3614528	33
LOMA-05	SMC	477224	3617604	83
LOMA-08	MSS	476247	3618441	33
LOMA-09	MSS	477117	3615177	42
LOMA-10	DIS	476221	3618694	35
LOMA-11	MSS	476808	3616292	37
LOMA-12	MSS	476769	3616260	31
LOMA-13	MSS	477389	3614716	109
LOMA-14	MSS	477375	3614750	113
LOMA-15	MSS	477677	3614610	54
LOMA-16	MSS	477682	3614669	55
LOMA-17	MSS	477735	3615295	37
LOMA-18	SMC	477241	3617695	75

MSS: maritime succulent scrub, DIS: disturbed, SMC: southern maritime chaparral.

Appendix B: 2013 Precipitation Data



Precipitation data from Western Regional Climate Center (<http://www.wrcc.dri.edu/>).

San Diego WSO Airport weather station data was utilized, located at lat 32°44', long 117°10' at the elevation of three feet above sea level.

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS 342/126843, October 2014

National Park Service
U.S. Department of the Interior



Natural Resource Stewardship and Science

1201 Oakridge Drive, Suite 150
Fort Collins, CO 80525

www.nature.nps.gov

EXPERIENCE YOUR AMERICA™