Final Bat Survey Report

144th Fighter Wing, Air National Guard
Fresno County, California

W9127820D0044, Task Order: W9127821F0454

Headquarters ANGB

NGB/A4AM

3501 Fetchet Avenue

Joint Base Andrews, Maryland 20762-5157

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ACRONYMS AND ABBREVIATIONS

144 FW	144th Fighter Wing
AOI	Area of Interest
AOR	Area of Review
CDFW	California Department of Fish and Wildlife
COTO	Townsend's Big-eared Bat (*Corynorhinus townsendii pallescens*)
ANPA	Pallid Bat (*Antrozous pallidus*)
EIS	Environmental Impact Statement
EPFU	Big Brown Bat (*Eptesicus fuscus*)
EUPE	Western Mastiff Bat (*Eumops perotis*)
FREQ	Frequency
LACI	Hoary Bat (*Lasiurus cinereus*)
LANO	Silver-haired Bat (*Lasionycteris noctivagans*)
LPA	Legacy Permit Amendment
MYCA	California Myotis (*Myotis californicus*)
MYEV	Long-eared Myotis (*Myotis evotis*)
MYLU	Little Brown Bat (*Myotis lucifugus*)
MYTH	Fringed Myotis (*Myotis thysanodes*)
MYYU	Yuma Myotis (*Myotis yumanensis*)
NAD	North American Datum
NGB/A4AM	National Guard Bureau, Asset Management Division, Plans and Requirements Branch
SAMP	Sample
SU	Sampling Units
SONOBATLive	Bat Call Identification Software
TABR	Mexican Free-tailed Bat (*Tadarida brasiliensis*)
T&E	Threatened and Endangered
U.S.	United States
USFWS	United States Fish and Wildlife Service
WNS	White-nose Syndrome

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1.0 INTRODUCTION

The 144th Fighter Wing (144 FW), Fresno Air National Guard Base, Fresno, California, located at the Fresno Yosemite International Airport (Area of Interest), is a proposed location of the F-15EX and F-35A Operational Beddowns (Figure 1). As part of this proposed project, a bat survey was conducted in support of the Environmental Impact Statement (EIS) for the National Guard Bureau, Asset Management Division, Plans and Requirements Branch (NGB/A4AM). This bat survey was used to determine presence/absence of all bat species, including federal, state, and/or territory threatened and endangered (T&E) bat species, within the Area of Interest (AOI) in accordance with survey protocols established by the United States (U.S.) Fish and Wildlife Service (USFWS) and/or the state and/or territory fish and wildlife agency. Sampling efforts included mist-net and acoustic surveys, as well as surveying for potential hibernaculum and maternity roost sites.

To evaluate which bat species are potentially located on the AOI, an acoustical and mist-net survey was conducted for bats during the summer of 2022. In addition to providing biological data for the aforementioned EIS, results of this survey will also be used to (a) provide baseline occurrence data to help inform natural resource management, (b) for planning purposes, (c) support future coordination with the California Department of Fish and Wildlife (CDFW) and the USFWS, and (d) support the protection and management of bat species and their habitats. If a specific action is proposed that may impact bats at the installation, a more in-depth protocol survey may be necessary for regulatory approval.

1.1 WHITE-NOSE SYNDROME

White-nose syndrome (WNS) was first discovered in 2006 near Albany, New York (Blehert et al. 2009), and has since spread to 35 states and seven Canadian provinces (U.S. Geological Survey [USGS] 2020). The disease, which is caused by the cold-loving fungus *Pseudogymnoascus destructans*, is named for the fuzzy white fungal growth that is sometimes observed on the muzzles of infected bats. The fungus invades the skin of hibernating bats and causes tissue damage to the wings as well as physiologic imbalances that can lead to disruption in hibernation, premature depletion of fat reserves, dehydration, and death (Cryan et al. 2010; Frick et al. 2016, USGS 2020). In North America, 12 species of bats, including the federally endangered Indiana bat (*Myotis sodalis*) and gray bat (*M. grisescens*) and federally threatened northern long-eared bat (*M. septentrionalis*) (currently under review to reclassify to endangered), have been confirmed with WNS (White-Nose Syndrome Response Team 2020).

In the Eastern/Midwestern U.S., WNS has spread as far south as Mississippi and westward to eastern Wyoming from its origins in New York. In March 2016, the disease was detected in King County, Washington (USGS 2020). WNS is now widespread across the Eastern U.S. and is thought to have killed more than five million bats hibernating in caves and mines (USFWS 2012). The USFWS listed the once common northern long-eared bat as a threatened species due to significant losses attributed to WNS (Frick et al. 2010). Significant declines in populations of tri-colored bats (*Perimyotis subflavus*), and little brown bats (*Myotis* lucifugus) because of WNS may lead to listings of these species in the near future (USFWS 2016; Center for Biological Diversity 2016; USFWS 2017; U.S. Department of Agriculture 2016). The tri-colored bat is currently under review to list as endangered, and the little brown bat is currently under review for listing under the Endangered Species Act. WNS was first detected in Plumas County, California in 2019, but has not yet been documented in Fresno County (USGS 2020). Regular monitoring of populations in California is necessary to track the effects of WNS in the local bat community.

Figure 1 Vicinity Map

1.2 REGULATORY CONCURRENCE

A survey plan was submitted to the USFWS on 15 July 2022. Concurrence to proceed with the survey was received from USFWS on 20 July 2022. The work plan was also submitted to CDFW on 13 July 2022 and concurrence was received on 14 July 2022. Surveys were conducted under the CDFW-Wildlife Branch Legacy Permit Amendment LPA-190350001-2672-001 (Appendix A).

2.0 DESCRIPTION OF THE AREA OF INTEREST

The AOI is the Fresno Yosemite International Airport, which is approximately 1,024 acres. However, the AOI is completely comprised of concrete and building structures, with no suitable habitat to sample. Therefore, in coordination with the Air National Guard, the adjoining 97-acre golf course provides the only available habitat in close proximity of the AOI and this golf course was selected to serve as the Area of Review (AOR) for the AOI.

Ecologically, the AOI and AOR are located within the Central California Valley Level IV (Griffith et al. 2016). Griffith describes this area as:

> *"Flat, intensively farmed plains with long, hot, dry summers and mild winters distinguish the Central California Valley ecoregion from its neighboring ecoregions that are either hilly or mountainous, covered with forest or shrub, and generally non-agricultural. Ecoregion 7 includes the flat valley basins of deep sediments adjacent to the Sacramento and San Joaquin Rivers, as well as the fans and terraces around the edge of the valley. The two major rivers flow from opposite ends of the Central California Valley, entering into the Sacramento–San Joaquin River Delta and San Pablo Bay. The region once contained extensive prairies, oak savannas, desert grasslands in the south, riparian woodlands, freshwater marshes, and vernal pools. More than one-half of the region is now in cropland, about three-fourths of which is irrigated. Environmental concerns in the region include salinity due to evaporation of irrigation water, groundwater contamination from heavy use of agricultural chemicals, loss of wildlife and flora habitats, and urban sprawl (Griffith et al. 2016)."*
>
> *"The Granitic Alluvial Fans and Terraces ecoregion is on nearly level to very gently sloping alluvial fans and basins that are below older fans or terraces on the eastern side of the San Joaquin Valley. Elevations range from 100 to 500 feet. The soil temperature regime is thermic and soil moisture regimes are xeric and aquic. Natural vegetation included grasslands and valley oak on the fans, cottonwood and willow along streams, and emergent wetland species in basins. Almost the entire region now is in cropland, hay and pastureland, and some urban and suburban uses (Griffith et.al, 2016)."*

Due to the Central Valley ecoregion characteristics stated in Section 2.0, it is home to a diverse group of bats. Based upon the CDFW bat species range maps (California Natural Diversity Database 2020), there are 17 possible bat species potentially occurring in Fresno County and have the potential to occur within the AOI given suitable habitat and previous known records in Fresno County, California (Table 1).

Table 1 Bat Species with Potential to Occur in Fresno County, California

Common Name	*Scientific Name*	STATUS	
		Federal	*State*
big brown bat	*Eptesicus fuscus*	-	-
California myotis	*Myotis californicus*	-	-
canyon bat	*Parastrellus hesperus*	-	-
fringed myotis	*Myotis thysanodes*	-	-
hoary bat	*Lasiurus cinereus*	-	-
little brown bat	*Myotis lucifugus*	-	-
long-eared myotis	*Myotis evotis*	-	-
long-legged myotis	*Myotis volans*	-	-
Mexican free-tailed bat	*Tadarida brasiliensis*	-	-
pallid bat	*Antrozous pallidus*	-	-
silver-haired bat	*Lasionycteris noctivagans*	-	-
small-footed myotis	*Myotis ciliolabrum*	-	-
spotted bat	*Euderma maculatum*	-	-
Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	-	-
western mastiff bat	*Eumops perotis*	-	-
western red bat	*Lasiurus frantzii*	-	-
Yuma myotis	*Myotis yumanensis*	-	-

Note: There are no federally or state listed Threatened & Endangered bat species in California.

3.0 METHODS

On and between 18 July and 21 July 2022 biologists Ryan Byrnes and Kathleen Slocum of Swaim Biological, Inc. conducted a general daytime bat roost survey, bat acoustic survey, and bat capture survey in the AOR.

3.1 HABITAT SURVEY

A pedestrian survey was conducted in the AOR looking for suitable bat roost habitat, signs of bat use (i.e., urine staining or guano pellets), and presence of bats. Each potential roost observed was inspected to the greatest extent practicable for bat presence and sign of bat use. Day roost habitat is defined as potential winter and/or maternity (April 15 to August 31) roost habitat, depending on the season. Night roost habitat is defined as potential bat roost habitat used for social bat interactions, resting, and digestion between foraging bouts at night.

3.2 SURVEY SITE LOCATIONS

The project area was divided into four (4) quadrants or sampling units (SU's) and an acoustical detector was placed in each quadrant and monitored for three (3) nights, totaling twelve (12) detector nights. In addition to the acoustical survey, a mist-net survey was conducted by sampling three (3) mist-net sites for one (1) night each.

Field reconnaissance was conducted, in addition to reviewing mapping of the AOR to select the most effective sites prior to deploying the acoustic monitoring equipment and/or mist net locations. Each monitoring site selected was based on site characteristics, including but not limited to: forest canopy openings, water sources (ponds, lakes, streams, wetlands); wooded fence lines adjacent to large openings or connect larger blocks of suitable habitat; forest edge adjacent to large openings, recently logged forest where some potential roost trees remain, road and/or stream corridors with open tree canopies and/or

canopy height of more than 33 feet. Coordinates for each survey site are provided in Table 2 and depicted in Figure 2. Photographs of each survey site are provided in Appendix B and Appendix C.

Table 2 Acoustic and Mist-net Survey Locations Sampled Between 18 July and 21 July 2022

Location Name	LATITUDE / LONGITUDE NAD 83		*Number of Detector Nights*
	N	*W*	
Detector Site 1	36° 46' 41"	119° 42' 26"	3
Detector Site 2	36° 46' 36"	119° 42' 36"	3
Detector Site 3	36° 46’ 37”	119° 42’ 19”	3
Detector Site 4	36° 46' 42"	119° 42' 7"	3
Total Detector Nights			**12**
Mist-net Site 1	36° 46' 40"	119° 42' 30"	1
Mist-net Site 2	36° 46' 42"	119° 42' 36"	1
Mist-net Site 3	36° 46' 33"	119° 42' 11"	1
Net Nights			**3**

3.3 ACOUSTIC SURVEYS

3.3.1 Detectors and Set-up

Acoustic bat detectors (Pettersson D500X and SonoBatLIVE) were deployed along bat commute routes, foraging areas, and capture locations within the AOR to identify bat species and monitor bat activity. The placement of bat detectors was based on recommendations and guidance from the North American Bat Monitoring Program Regional Protocol for Surveying with Stationary Deployments of Echolocation Recording Devices, Version 1.0, Pacific Northwestern U.S. (Rodriguez et al. 2019). Pettersson D500X detectors were operational from 8:00 p.m. (before sunset) to 6:00 a.m. (after sunrise). SonoBatLIVE were stationed near bat capture locations and were used to confirm bat species and monitor bat activity at the capture sites. SonoBatLIVE were operational during the capture efforts, approximately from 8:00 p.m. (before sunset) and until shut down manually when the capture survey was completed.

3.3.2 Software Analysis

Pettersson D500X detector microphones were elevated 3–4 meters above the ground to record activity within the AOR, sampling bats that passed within 10–30 meters of the microphone. The directional horn was left on to eliminate extraneous non-bat noise recordings like wind or crickets. The D500 profile settings were SAMP. FREQ = 500 kHz, PRETRIG = 0, REC. LEN = 4, HP-FILTER = OFF, T. SENSE = MEDIUM. Recording settings were INPUT GAIN: 40, TIG LEV = 120, Interval = 0.

3.4 MIST-NET SURVEYS

Avinet Research Supplies 12-meter and 9-meter four trammel mist nets were used to passively capture and identify bat species using the landscape. Mist nets were placed at three different locations over one (1) night. The Bat Conservation and Management triple high net system (i.e., three mist nets stacked on each other) was used to maximize the total area surveyed each night. Nets were placed in areas near suspected roost or foraging habitat and possible commuting routes.

Figure 2 Acoustic Detectors Survey Locations

4.0 RESULTS AND CONCLUSIONS

The results of the general bat habitat survey indicates that suitable bat day and night roost habitat is found throughout the AOR in the form of crevices and open roost habitat within the abandoned pool house, abandoned airport buildings adjacent to the golf course, and palm trees (*Washingtonia* spp.) found within and adjacent to the AOR. However, no bats or signs of bat roosting was observed during the survey. Photos are provided in Appendix B and Appendix C.

No bats were captured during the mist-net survey. Photos of each sampling location are provided in Appendix B and data sheets are provided in Appendix D.

Although no bats were captured, bats were acoustically detected each night of the survey. A total of 59 bat passes/calls were recorded during the three-night bat acoustic survey. Of the 59 calls, three species were confirmed, Mexican free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), and silver-haired bat (*Lasionycteris noctivagans*) (Table 3). Photographs of each sampling location are provided in Appendix C and example sonograms for each species detected are shown below in Appendix E. Acoustic log files of are provided in Appendix F and data sheets are provided in Appendix D.

With the 2018 delisting of the lesser long-nosed bat (*Leptonycteris yerbabuenae*) as a T&E species by the USFWS there are no federal or state T&E listed bat species are in California (CDFW 2022). Therefore, no T&E bat species or previously listed bat species captured or acoustically detected as part of this survey.

Table 3 SonoBatLIVE Acoustic Survey Summary Results

Site	*Date*	*HiF passes*	*LoF passes*	*Total Passes*	*Myyu*	*Myca*	*Mylu*	*Myev*	*Pahe*	*Labl*	*Anpa*	*Epfu*	*Lano*	*Coto*	*Myth*	*Tabr*	*Laci*	*Eupe*
1	7/18/2022	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0
1	7/19/2022	0	7	7	0	0	0	0	0	0	0	0	0	0	0	4	0	0
1	7/20/2022	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0
1	All Nights	0	11	11	0	0	0	0	0	0	0	0	0	0	0	10	0	0
3	7/18/2022	0	12	12	0	0	0	0	0	0	0	0	2	0	0	8	0	0
3	7/19/2022	0	14	14	0	0	0	0	0	0	0	1	1	0	0	9	0	0
3	7/20/2022	0	5	5	0	0	0	0	0	0	0	4	0	0	0	0	0	0
3	All Nights	0	31	31	0	0	0	0	0	0	0	5	3	0	0	17	0	0
3	7/18/2022	0	4	4	0	0	0	0	0	0	0	1	1	0	0	1	0	0
3	7/19/2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	7/20/2022	0	7	7	0	0	0	0	0	0	0	0	0	0	0	5	0	0
3	All Nights	0	11	11	0	0	0	0	0	0	0	1	1	0	0	6	0	0
4	7/18/2022	0	4	4	0	0	0	0	0	0	0	0	3	0	0	1	0	0
4	7/19/2022	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4	7/20/2022	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4	All Nights	0	6	6	0	0	0	0	0	0	0	0	3	0	0	3	0	0
Total	**All nights**	**0**	**59**	**59**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**7**	**0**	**0**	**36**	**0**	**0**

Species Key: EPFU = big brown bat, LANO = silver-haired bat, LACI = hoary bat, MYYU = Yuma myotis, MYLU = little brown bat, MYCA = California myotis, MYTH = fringed myotis, MYEV = long-eared Myotis, PAHE = canyon bat, ANPA = pallid bat, COTO, Townsend's big-eared bat, EUPE = western mastiff bat, TABR = Mexican free-tailed bat.
* = federally listed species: ** = state listed species

Note: Data in tables are the Quantitative results produced by SonoBatLIVE.

5.0 RECOMMENDATIONS

Based upon county records, proximity to foraging habitat, and proximity to travel/migration corridors, any of the 17 species listed in Table 1 may potentially be present in the AOR and/or AOI. Possible foraging habitat and travel/migration corridors near the AOR and AOI include, but are not limited to, creeks and streams such as Collins Creek, Dog Creek, and Wahtoke Creek.

Although all 17 species could utilize the area for foraging and migration, only 15 species listed in Table 1 could potentially utilize the area as roosting habitat, which is limited to the sparse trees and buildings. The two bat species that are unlikely to use the area for roosting habitat include the canyon bat (*Parastrellus hesperus)* and the spotted bat (*Euderma maculatum*), as these species typically roost in crevices in cliffs (Zeiner 1888–1990).

To minimize impacts to these tree roosting bat species, tree removal and trimming, if necessary, should be conducted outside the maternity season (May 1 to August 30) to the extent feasible. Any trees impacted by future projects should be replaced. Additionally, during tree cutting or removal, mechanical equipment should be used to vigorously vibrate the tree for the purpose of alerting any potential bats roosting in the trees and providing them time to fly way.

Several of 17 bats that potentially may be found on and in the area of the installation, such as the Mexican free-tailed bats and Yuma myotis, may use buildings as maternity roost. To the extent feasible, the demolition of structures or large-scale renovations to roof and wall areas should be conducted outside of the maternity period (May 1 to August 30).

Availability of and proximity to water are important criteria for many bat species. Stream corridors and wetlands provide both critical drinking areas and excellent foraging habitat for most bats, and these areas typically have greater levels of activity than surrounding areas (Harvey et al. 2011). Aquatic resources, such as wetlands, were observed on the installation. These resources support the presence of bats and wildlife overall. It is therefore important for impacts to aquatic resources be avoided or minimized to the greatest extent possible.

6.0 REFERENCES

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Appendix A
Permits, Study Design, and Agency Consultation

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July 13, 2022

Kelley Nelson
Environmental Scientist
CA. Department of Fish and Wildlife
1234 E. Shaw Ave
Fresno, CA 93701
Kelley.Nelson@Wildlife.ca.gov
(559) 580-3194

Subject: Request for Survey Methodology Approval – Acoustic Monitoring Survey
Yosemite International Airport, Fresno County, California.

Ms. Nelson:

Jackson Group is requesting concurrence relating to the methodology for an acoustic bat species survey for the Yosemite International Airport located Fresno County, California. The purpose of the survey is to inform the ANG of rare, threatened, and/or endangered bat species with potential to occur at the facility as part of an Environmental Impact Study (EIS) for the potential real-estate acquisition by the Air National Guard. The project area and its location are illustrated on the enclosed map figures.

Jackson Group has teamed with Swaim Biological Incorporated, a local California Ecological Consulting Firm, who is experiences with California bats to conduct the field survey and data analysis for this project. They have received the appropriate permit approval for this project.

The Area of Interest (AOI) is the Yosemite International Airport. However, the Airport is completely comprised of concrete and building structures, with no suitable habitat to sample. Therefore, in coordination with the Air National Guard, we are sampling adjoining golf course, approximately 94-acres (0.38-Km^2) in size, which provides the only available habitat in close proximity of the AOI.

Currently, California uses the North American Bat Monitoring Program (NABP) developed by the US Department of Interior National Park Service. The NABP protocol suggest dividing a project area into 5x5-km quadrant of the Sampling Unit (SU, 10 x 10-km) and placing 1 detector per SU. However, this project is less than 1-km^2 and this protocol cannot be effectively implemented as suggested by the NABP. Therefore, Jackson Group will use a more robust modified approach.

Acoustic Survey

The project area will be dived into four (4) quadrants or Sampling Units (SU) and an acoustical detector will be placed in each quadrant and monitored for two (2) nights, totaling eight (8) detector nights. In addition to the acoustical survey, mist-survey will be conducted by sampling one (1) mist-net site for three (3) nights.

Acoustic bat detectors (Pettersson D500X and SonoBatLIVE) will be deployed along bat commute routes, foraging areas, and capture locations within the airbase to identify bat species and monitor bat activity. The placement of bat detectors will be based on recommendations and guidance from the North American Bat Monitoring Program Regional Protocol for Surveying with Stationary Deployments of Echolocation Recording Devices, Version 1.0, Pacific Northwestern US (Rodriguez et. al., 2019). Pettersson D500X detectors will be operational from 8:00 pm (before sunset) to 6:00 am (after sunrise). SonoBatLIVE stationed near bat capture locations and will be used to confirm myotis (hand released near the

Jackson Group
859.623.0499 | 3925 Simpson Lane | Richmond, KY 40475
jacksongroupco.com

SonoBatLIVE microphone to obtain voucher calls) bat species and monitor bat activity at the capture sites. SonoBatLIVE will be operational for during the capture efforts, approximately from 8:00 pm (before sunset) and until shut down manually when the capture survey is complete.

Pettersson D500X detector microphones will be elevated 3-4 meters above the ground to record activity within the airbase, sampling bats that passed within 10-30 meters of the microphone. The directional horn will be left on in order to eliminate extraneous non-bat noise recordings like wind or crickets. The D500 profile settings were: SAMP. FREQ = 500 kHz, PRETRIG = 0, REC. LEN = 4, HP-FILTER = OFF, T. SENSE = MEDIUM. Recording settings were: INPUT GAIN: 40, TIG LEV = 120, Interval = 0.

All recorded bat call files (recorded by Pettersson D500X and SonoBatLIVE) will be analyzed using SonoBatTM 4.4.5, an automated bat echolocation call classifier and analysis software program. The audio files will be scrubbed using the high-grade scrubber in the SonoBatTM Data Wizard 4.4.5 to remove non-bat noise files. Files will then be auto-classified using the California Central Valley, and Great Basin regional classifier. These classifiers include all species found within the region and will be confirmed by manual vetting performed by a qualified SBI wildlife biologist using the SonoVetTM utility.

Severe Weather Definitions

If any of the following weather conditions exist at a survey site during acoustic sampling, the acoustic sampling effort for that night will be repeated (a) temperatures fall below 50°F (10°C) during the first 5 hours of survey period; (b) precipitation, including rain and/or fog, that exceeds 30 minutes or continues intermittently during the first 5 hours of the survey period; and (c) sustained wind speeds greater than 9 miles/hour (4 meters/second; 3 on Beaufort scale) for 30 minutes or more during the first 5 hours of the survey period. At a minimum, nightly weather conditions for survey sites will be checked using the nearest NOAA National Weather Service station and summarized in the survey report.

Please reply via email to jjackson@jacksongroupco.com with your concurrence, or with any additional requests or guidelines needed for concurrence. If you have any questions or require additional information, please contact me at (501) 339-3580

Sincerely,

Jeremy L Jackson, CE
Owner/Ecologist

Enclosures
Vicinity Map
Project Area Map

From: Nelson, Kelley@Wildlife <Kelley.Nelson@Wildlife.ca.gov>
Sent: Thursday, July 14, 2022 3:19 PM
To: Kate Bartz; Jeremy Jackson
Cc: Amanda Kreider; Bonner, Lawrence(Larry)@Wildlife; Sinclair, Crystal@Wildlife
Subject: RE: Bat Study proposal

Good afternoon Kate and Jeremy – CDFW would not necessarily provide "concurrence" on the proposal and surveys; however, the survey appears adequate for the purposes of CEQA compliance for a real estate transaction of the golf course property. Please note that any modifications to the buildings onsite and/or changes in land use on the golf course property may warrant additional surveys and analysis.

Thank you for providing the additional information Kate. And please let me know if you have any further questions at this time.

Kelley Nelson
Environmental Scientist
CA. Department of Fish and Wildlife
1234 E. Shaw Ave
Fresno, CA 93701
(559) 580-3194

Legacy Permit Amendment **Amended: August 30, 2021**
LPA-190350001-2672-001 **Expiration: June 13, 2022**

California Department of Fish and Wildlife (Department) - Wildlife Branch **SC-002672**
Authorizations and Conditions for Scientific Collecting Permit (SCP)
ENTITY: Swaim Biological Inc.
Principal Investigator: Karen E. Swaim, Ricka Stoelting, and Ryan Byrnes
See Attachment #2 for the List of Authorized Individuals

Garcia, Justin@Wildlife

Digitally signed by Garcia, Justin@Wildlife
DN: CN="Garcia, Justin@Wildlife"
Reason: I am the author of this document
Location: your signing location here
Date: 2021-08-30 12:02:06
Foxit PhantomPDF Version: 9.7.3

This permit was previously issued on June 13, 2019. The terms and conditions (11 pages dated June 05, 2019) set forth in that permit are hereby superseded by this amendment.

Authorizations and conditions based on your eleven-page SCP justification received by the Department on October 1, 2018, additional justification submitted May 20, 2019, and the LPA application received by the Department on July 04, 2021, on file with the Nongame Wildlife Program (NWP).

You are authorized to ***take*** (***capture and release, sacrifice, and salvage***) vernal pool invertebrates (***excluding Invertebrates of Conservation Priority***) in accordance with the conditions below.

You are authorized to take (***capture, mark, collect biological tissue samples and release***) reptiles and amphibians (Wildlife Authorization #5a; ***excluding Threatened, Endangered, CESA-Candidate, Fully Protected species***) – including Red-belied newt (*Taricha rivularis*), Northern legless lizard (*Anniella pulchra*), San Diegan legless lizard (*Anniella stebbinsi*), Coast horned lizard (*Phrynosoma blainvillii*), Northwestern pond turtle (*Actinemys marmorata*), Southwestern pond turtle (*Actinemys pallida*), California giant salamander (*Dicamptodon ensatus*), Santa Cruz black salamander (*Aneides flavipunctatus niger*), and other California Amphibian and Reptile Species of Special Concern (ARSSC) – in accordance with the additional conditions below.

You are authorized to take (***capture, mark and release***) small mammals (Wildlife Authorization #5b; ***excluding Threatened, Endangered, CESA-Candidate, Fully Protected, Species of Special Concern, and other mammal species/taxa identified in Condition #2***) – including the California Mammal Species of Special Concern- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) – is authorized in accordance with the additional conditions below.

Take of non-listed bats (Order Chiroptera) is authorized in accordance with the SCP attachment (additional authorizations and conditions) on which you are named (i.e. Principal Investigator: Ryan Byrnes, Swaim Biological Inc., dated on June 04, 2019 or any later amendments).

Take of Conservancy fairy shrimp (*Branchinecta conservatio*), Longhorn fairy shrimp (*Branchinecta longiantenna*), Vernal pool fairy shrimp (*Branchinecta lynchi*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), Riverside fairy shrimp (*Streptocephalus wootton*i), Vernal pool tadpole shrimp (*Lepidurus packardi*), and California red-legged frog (*Rana draytonii*) is authorized in accordance with the most current amendment of federal permit TE-815537 on which you are named, and in accordance with the additional conditions below.

Sacrifice of American Bullfrog (*Lithobates (=Rana) catesbeianus*), and ***sacrifice*** *or* ***permanent captivity*** of Pond slider (*Trachemys scripta*), Painted turtle (*Chrysemys picta*), Spiny softshell (*Apalone spinifera*) and Snapping turtle (*Chelydra serpentine*) (non-native turtles), is authorized in accordance with the conditions below.

Take of Alameda whipsnake (*Masticophis lateralis euryxanthus*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), Giant garter snake (*Thamnophis gigas*), California tiger salamander (*Ambystoma californiense*) and Foothill yellow-legged frog (*Rana boylii*) is authorized in accordance with the most current amendment of federal permit TE-815537 on which you are named, and in accordance with the Memorandum of Understanding on which you are named (i.e., Principal Investigator: Karen E. Swaim, Swaim Biological Inc.; issued on October 10, 2016 or any later amendments; *pending renewal*).

Burrowing owl (*Athene cunicularia*) surveys shall only be conducted as outlined in the conditions below.

Salvage of dead reptiles, amphibians, and mammals (Wildlife Authorization #6) is authorized in accordance with the additional conditions below. ***Salvage*** of birds requires additional written authorization.

Permitted activities are restricted to the following geographic areas in California:

a. For marking and/or trapping activities with the authorized Amphibian and Reptile Species of Special Concern or snake biotelemetry:

   i. Northwestern pond turtle: Pacheco Pond in Indian Valley Open Space Preserve, unnamed pond at McGinnis Park and Terwilliger Pond at Stafford Lake Park (Marin County).

   ii. Red-bellied newt: Upper Steven's Creek watershed above the reservoir in Upper Stevens Creek County Park and Montebello Open Space Preserve (Santa Clara County).

   iii. Additional locations may be added throughout the ranges of the authorized ARSSCs and snakes in California, but only when a notification has been received and approved by the Department contact as defined below; see Condition #4.

b. For all other authorized wildlife taxa, research activities and methods:

i. Statewide, throughout the range of the species, or as authorized by your MOU(s)

Other Permits:

You shall obtain and maintain during the term of this SCP any federal permit(s) and/or other state permit(s) required to conduct the activities authorized herein. Although the provisions of the federal permit(s), other state permit(s) and this SCP may vary, the more restrictive conditions prevail. Copies of your federal permit(s) or other research-related permits (e.g., State Parks, landowner access agreements), and any amendments, shall be provided to the Department contacts (see below), and the names of all authorized sub-permittees shall be provided for the permit(s).

You shall carry all required documents, permits and MOUs, along with your SCP, with you while conducting all authorized activities.

Department Contacts:

The Department contact for special status vernal pool branchiopods and this permit is the Wildlife Branch SCP Coordinator (Justin Garcia, Environmental Scientist, Justin.Garcia@wildlife.ca.gov, 916-376-8698).

The Department contact for the authorized ARSSCs is Laura Patterson (Senior Environmental Scientist (Specialist), Laura.Patterson@wildlife.ca.gov, 916-373-6633).

The Department contact for the MSSC San Francisco dusky-footed woodrat and bats is Dr. Scott Osborn (Senior Environmental Scientist (Specialist), Scott.Osborn@wildlife.ca.gov, 916-373-6611).

For Regional Department contacts, see Condition #20, below.

Conditions to Scientific Collecting Permit
LPA-190350001-2672-001

1. **When a Memorandum of Understanding is needed**

Intentional take of species listed as Threatened, Endangered, or Candidate under the California Endangered Species Act (CESA), or intentional take of Fully Protected species, is not authorized without a Memorandum of Understanding (MOU) from the Department on which you are specifically named.

Intentional take (e.g., capture) of the **Foothill yellow-legged frog** or **Cascades frog (*Rana cascadae*)**, CESA Candidate species, requires a CESA MOU or letter permit authorization (Take of Foothill Yellow-Legged Frog During CESA Candidacy Period, dated on July 6, 2017), and is not authorized solely by this SCP.

After the California Fish and Game Commission makes a final finding, published in the California Regulatory Notice Register, regarding whether the petitioned action to add the Foothill yellow-legged frog or Cascades frog to the list of threatened or endangered species under CESA is warranted, the Foothill yellow-legged frog or Cascades frog will either be added as species authorized by this SCP, or a CESA MOU would be required should the species become listed under CESA.

To apply for a State MOU, contact the Department Research MOU Coordinator(s), Esther Burkett (Esther.Burkett@wildlife.ca.gov) and/or Laura Patterson (Laura.Patterson@wildlife.ca.gov), for study proposal requirements.

2. **When additional authorization on your SCP is needed**

Intentional take of Federally-listed species is not authorized without a valid federal permit **and** additional written authorization from the Department (*e.g.*, Wildlife Authorization #8), on which you are specifically named or otherwise authorized.

Except as authorized above, intentional capture of California Species of Special Concern (amphibians, reptiles, mammals) requires special authorization on your SCP.

Intentional capture of rabbits, hares and pika, bats, beaver, porcupine, carnivores (e.g., foxes, bear, ringtail, raccoon, marten, fisher, mink, badger, otters, bobcat, mountain lion, seals, sea lions), or big game mammals (e.g., deer, elk, antelope, bighorn sheep) requires special authorization on your SCP.

Intentional take or possession of birds is not authorized without valid federal permit(s) **and** additional written authorization by the Department (*e.g.*, Wildlife Authorization #7). Additionally, take of bird nests and eggs, California Bird Species of Special Concern, pelicans, herons, egrets, swans, vultures, raptors, cranes, seabirds, waterfowl, and upland game birds all require special authorization on your SCP for methods such as: intrusive nest monitoring, mist-netting, banding, marking, biotelemetry, and collection of biological samples.

Incidentally-captured individuals of non-target wildlife taxa shall be released at the capture site immediately, once identified, without further handling, unless otherwise authorized for work on that species or subspecies in this permit.

You can find a list of species and subspecies designated as Threatened, Endangered, Candidate, Fully Protected, Species of Special Concern, or "Taxa to Watch" in the Department's Special Animals List at the following link: http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline=1.

3. Location of Research

Your research project may be located in a special status natural community or in an area that provides habitat for a non-target special status plant or animal. It is your responsibility to determine whether or not implementation of your research project could have potential adverse impacts to a listed or special status plant or animal or special status natural community. To minimize potential impacts, compile relevant biological information in the general project area prior to conducting field work or research. Generally, identify vegetation and habitat types occurring in your project area based on biological and physical properties of the site and surrounding ecological subregion[1], unless a larger assessment area is appropriate. Conduct a Rarefind or CNDDB Quick Viewer search (https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data) and check with other reliable resources for known occurrences of special status plants, animals, or natural communities at the site before conducting your research. Contact the Wildlife Branch SCP Coordinator (Justin.Garcia@wildlife.ca.gov, 916-323-0644) if non-target special status plant or animal species are likely to be encountered or are being handled or disturbed.

You shall check with the landowner to determine if any other researchers are permitted to work in the same site or area. Prior to entering Department lands to conduct the research described herein, you shall first receive additional written authorization from the Reserve Manager; see also SCP Standard Condition D.

4. Prior to Conducting Field Activities

Prior to conducting field activities pursuant to this permit, notification shall be submitted to the Department Wildlife Branch SCP Coordinator (Justin.Garcia@wildlife.ca.gov) and Department Regional contacts (see Condition #20, below), in an electronic format, at least 14 days, prior to conducting activities. See also Standard Condition F.

In addition to sending the Notification of Field Work or Activity (DFW 1379b) form, notifications for such activities shall include: (a) an explanation of the purpose of the study; (b) the names of personnel conducting the work; (c) a clear description of the methods to be used, including trapping and marking techniques; (d) the extent of the area to be surveyed; (e) the number and dates of surveys; and (f) a map depicting the location of the survey site(s).

Any separate written authorizations that you receive from the Department for activities shall become conditions of your SCP and shall remain attached to the SCP at all times while conducting the research (including hard copies of authorizations received via email).

Any requests to conduct activities that are not authorized herein will require an amendment to this SCP.

5. Protocol for Disinfecting Equipment

To reduce the likelihood of disease transmission, you shall employ the "Decontamination Protocol for Field Work with Amphibians and Reptiles in Canada" (10 pages dated May 2017 or most recent revision), using methods that are effective against chytrid fungi, ranaviruses and snake fungal disease. The protocol is available at: http://www.cwhc-rcsf.ca/docs/HHWG%20Decontamination%20Protocol%202017-05-30.pdf.

6. Vernal Pool Invertebrates

You may sample for vernal pool invertebrates using appropriate methods to avoid incidental injury or mortality to federally-listed species. You may not intentionally survey for federally-listed branchiopods without being so authorized on a federal recovery permit. Live capture and release is the preferred method for gathering invertebrate data when feasible.

[1] U.S. Forest Service Ecological Subregions of California: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=86840

Sacrifice of vernal pool invertebrates, including federally-listed vernal pool branchiopods, is authorized as needed for identification. You or someone present should have the expertise to distinguish listed species or subspecies using field techniques. Sacrifice of vernal pool invertebrates is authorized as needed for identification, not to exceed 10% of the population within the pool.

Lethal take of invertebrates on the California Terrestrial and Vernal Pool Invertebrates of Conservation Concern (17 pages dated June 2017) list shall be reasonably avoided.

All suitable specimens sacrificed or salvaged, intentionally or incidentally, shall be donated to a public scientific or educational institution in California for research or teaching collections after one month of acquisition (e.g., Entomology Research Museum, University of California, Riverside, CA; California Academy of Sciences, San Francisco, CA; Essig Museum of Entomology, University of California, Berkeley, CA). You shall make a reasonable effort to coordinate with any other researchers who may be collecting the same species in the same locations to avoid impacts to local populations.

7. Reptiles and Amphibians

You shall make a reasonable effort to coordinate with other researchers who may be conducting research on the authorized ARSSC (e.g., Red-bellied newt) in the same locations to avoid duplicate work and to avoid impacts to local populations, and to share information on individually-marked individuals and their movements.

a. Capture and Handling

The authorized methods of capture for reptiles and amphibians (excluding turtles) are: hand, dip net, minnow seine, lizard noose, snake tongs, snake hook, coverboard, pitfall trap, drift fence and funnel traps (see also Condition #9, below).

Capture methods shall avoid disturbing native reptile and amphibian eggs and egg masses. Amplexing or mating pairs of native amphibians and reptiles shall not be captured, handled, or disturbed.

Amphibians shall be handled with wet hands that are free of lotions, creams, sunscreen, oils, ointment, insect repellent or any other material that may harm them.

You shall process individuals expediently. Larval amphibians shall not be handled out of the water for longer than 30 seconds unless rewetted, and shall not be retained for longer than five (5) minutes for processing. Adult and juvenile amphibians and reptiles shall be released immediately if they exhibit signs of excessive physiological stress or if handling time exceeds one (1) hour.

All amphibians and reptiles shall be released at the point of capture, unless the Department issues written permission to move them (see Condition #18, below), or unless that location puts them in imminent danger, in which case they shall be placed in a nearby refugium sufficient to protect them.

Any habitat element (e.g., rocks, boulders, and logs) moved to survey for reptiles or amphibians shall be placed back exactly where they were found to avoid negative impacts on habitat conditions.

Threatened, Endangered, CESA-candidate, or amphibian and reptile species of special concern (ARSSC) that are incidentally captured shall be immediately released at the site of capture and reported to the California Natural Diversity Database at least annually.

b. Amphibian or Reptile Die-offs

If you identify a die-off or a substantial portion of sick or infected individuals at a site (e.g., snakes suspected of having snake fungal disease), you shall notify the Department contact (Laura Patterson Laura.Patterson@wildlife.ca.gov) and Dr. Deana Clifford (Wildlife Investigations Lab, 916-358-2378, Deana.Clifford@wildlife.ca.gov), as soon as possible (but no more than 48 hours after the discovery) with the following details: date, location, approximate number, physical condition, possible cause, disposition if collected, and any photographs (jpg files).

c. Incidental Injury or Mortality

All capture, handling and marking methods utilized shall follow standard practices and ensure no undue disturbance of the authorized ARSSC and other wildlife species.

You shall report any incidental injury or mortality of a listed, candidate, or fully protected amphibian or reptile, and ARSSC to Laura Patterson (Laura.Patterson@wildlife.ca.gov) within three (3) days, and you shall provide a written report of the incident within ten (10) days via email.

8. <u>Marking Reptiles and Amphibians</u>

You may collect biological tissue samples and mark reptiles and amphibians for mark-recapture studies (***excluding Threatened, Endangered, CESA-Candidate, Fully Protected species, and Turtles; but including Red-bellied newt, Northern legless lizard, San Diegan legless lizard, Coast horned lizard, California giant salamander, Santa Cruz black salamander and other ARSSC***) using standard methods appropriate for each taxon, as follows:

Except as already authorized for J. De Leon's graduate research on Red-bellied newt, you shall receive additional written authorization from the Department contact (see Condition #4, above) prior to conducting any marking activities with ARSSC under this section (e.g., biotelemetry).

a. Non-invasive Marking

You may mark skin using non-toxic ink, paint, correction fluid, or black dye for reptiles. Paint should not be used to mark moist, permeable skin of amphibians. You may apply non-toxic fluorescent powders to ventral and lateral parts of adult and adult sized amphibians. Marks should not burden the animal or make it vulnerable to predation. Non-invasive methods of marking shall be preferred when feasible for research.

b. Limits and Methods for Marking / Collection of Tissue Samples

You may scale clip/brand, surgically implant biotelemetry transmitters in snakes, mark with passive integrated transponder tags (PIT) tags, toe-clip and collect tail tips for tissue samples of the authorized reptiles and amphibians, only after receiving adequate training from researchers experienced in the methods, as described below.

You may mark and/or collect tissue samples from up to 40 individuals per collection site per authorized reptile and amphibian (***excluding Threatened, Endangered, CESA-Candidate, Fully Protected species, ARSSC, and Turtles***) using appropriate methods. You may mark and/or collect tissue samples from up to ten (10) individuals per authorized ARSSC per collection site (***excluding Threatened, Endangered, CESA-Candidate, and Turtles***) using appropriate methods. You may take no more than five (5) mm of tail tip, four (4) ventral scale clips, or two (2) toe-clips (not more than one toe per foot) from any ARSSC.

For purposes of this permit, a "collection site" is defined as one or more sampling localities that occur in the same geographic area and elevational/ecological zone, and represent the same breeding population for a given species.

You may not mark (e.g., insert PIT tags or attach radio biotelemetry devises) the California red-legged frog or other federally-listed species without specific authorization on your federal recovery permit.

c. Toe-clipping Amphibians

Single toe-clipping (one toe per foot) is authorized for marking amphibians (***excluding Threatened, Endangered, CESA-Candidate, Fully Protected species***), only when sufficiently trained in the method. Multiple toe-clipping (more than one toe per foot) should not be used to mark individual amphibians for mark-recapture studies. PIT tagging shall be preferred technique for marking amphibians in large studies if single toe-clipping combinations are insufficient. Multiple toe clipping may be requested via a SCP amendment when required for obtaining genetic material, for skeletochronological studies, or with other specific justification.

d. Toe-clipping Small Lizards

Toe clipping is authorized for obtaining genetic material, for skeletochronological studies, or only as required for identification of small lizards (***excluding Threatened, Endangered, CESA-Candidate and Fully Protected species***). You may clip one toe per foot per individual. If one toe per foot is insufficient for identification, take is limited to two (2) toes per limb and should not exceed three (3) total toes.

e. General Marking Conditions

When marking animals and collecting tissue samples, you shall take all necessary precautions to avoid transmitting infectious agents between individuals and causing excessive bleeding, infection, ulceration, or pain. You shall immediately release amphibians and reptiles if they exhibit signs of excessive physiological stress or if handling time exceeds normal standards.

Tail/Toe-Clipping: Use a sharp, sterilized cutting implement such as surgical scissors or razor blade, minimize handling time, and return animals to their capture site as fast as possible. Wash equipment and hands before and after handling each animal. You should take a maximum of 5 mm from the tail. Up to 1 centimeter may be taken from animals greater than 3 inches long when larger samples are absolutely necessary for research.
You shall adhere to the American Society of Ichthyologists and Herpetologists "Guidelines for use of live amphibians and reptiles in field and laboratory research" (Beaupre et al. 2004).

A portion of each sample may be stored at San Jose State University and analyzed as part of Joie De Leon's graduate research study(ies) on newts. All other tissue samples (e.g., toe, tail and scale clips) shall be deposited into a genetic reference collection that is open and free to the public (see Condition #16, below).

Any serious injury or mortality of one individual as a result of marking and tissue collection activities shall be reported to Laura Patterson as soon as possible (Laura.Patterson@wildlife.ca.gov).

d. Biotelemetry of Snakes

i. General Conditions

You may surgically implant biotelemetry devices into adult and adult-sized juvenile snakes (***excluding Threatened, Endangered, CESA-Candidate and Fully Protected species***), as described in your SCP justification. The biotelemetry devices shall be of appropriate weight relative to the species and body weight of the individual (≤5%). You shall have sufficient training under a permitted individual prior to conducting biotelemetry research activities.

Prior to conducting snake biotelemetry studies, you shall notify and receive additional written authorization from the Department contact (see Condition #4, above).

ii. Radio Frequencies

If using VHF radios, you shall not use the Department frequency range 159.000 – 160.999, unless otherwise authorized in writing by the Department. You shall coordinate radio frequencies with the Department's Regional telemetry frequency coordinator in your study area (e.g., Kimberly Paulson, Kimberly.Paulson@wildlife.ca.gov, Bay Delta Region) and with other researchers who may be working with the same frequencies in your study area(s) to avoid potential overlap.

iii. Conditions for Captivity

The authorized snakes may be removed from the wild and transported to an appropriate veterinary center for the purpose of surgically implanting biotelemetry devices, if necessary. No gravid or juvenile snakes may be used in the study(ies).

All collection, transport, captive care and biotelemetry research activities will follow standard operating procedures and protocols for the snakes. Veterinary care shall be provided as needed to the animals while in captivity.

Short term anesthesia is authorized to perform surgical procedures that cause more than slight or momentary pain or physiological stress, and only under the guidance of a veterinary expert. You shall be trained by a veterinarian or be working with a veterinarian to use anesthetics or sedation.

You may not hold snakes in captivity longer than forty eight (48) hours and release them back into the wild, without additional authorization obtained via an SCP amendment.

iv. Release of Snakes Back into the Wild

All healthy snakes maintained in isolation for 48 hours or less shall be released at the site of capture, following recovery from anesthesia and surgical procedures, in accordance your SCP justification and the conditions below. Snakes kept in captivity at the designated facility shall be maintained with high standards of cleanliness and may only be released at their site of capture under the following conditions:

A. They are kept isolated from other animals, wild or domestic, including conspecifics from other locations, in sanitized containers;
B. Articles inside the container are also kept sanitized and were not in contact with other animals, as described above;
C. Standard surgical procedures are used to reduce the risk of disease transmission;
D. They are inspected by a qualified veterinarian (with expertise specific to the species, Family, or Order) prior to release if exhibiting any signs of illness; and

E. You shall consult with and obtain permission from a Department wildlife veterinarian prior to release of snakes (*e.g.*, Deana Clifford, Deana.Clifford@wildlife.ca.gov), as required by the Department contact.

Snakes that are not healthy or were in contact with other animals as described above may not be released. These animals shall be sacrificed using humane euthanasia guidelines (Beaupre et al. 2004, AVMA 2013), unless otherwise instructed by the Department (Laura.Patterson@wildlife.ca.gov).

9. Pitfall and Funnel Traps

Pitfall traps and funnel traps are authorized as needed for **reptiles** and **amphibians** only, including for targeting **listed species in accordance with your federal recovery permit** and **MOU**.

a. Pitfall Traps

Pitfall traps and funnel traps shall be placed as far as possible from ant nests. If an ant nest develops within 10 feet of an existing pitfall trap, the pitfall trap shall be moved, removed from the field, or closed. Pitfall traps shall be checked no less than once daily during sampling periods. Pitfall traps shall be shaded during sampling periods, and covered to prevent animal entry during non-sampling periods. Traps shall consist of non-galvanized metal or plastic containers the size of a #10 coffee can or larger. Six to eight holes, approximately 0.25 inch in diameter, shall be drilled in the sides of the traps 1 to 1.5 inches above the bottom to allow water drainage. Non-cellulose sponges (at least 1x2x2 inches) shall be placed in the bottom of the traps and kept moist at all times to avoid amphibian desiccation. Reasonable measures shall be taken to mitigate the incidental catch and potential harm to small mammals, such as an escape mechanism (*e.g.*, Karraker, N. 2001. String theory: reducing mortality of mammals in pitfall traps. Wildl. Soc. Bull. 29(4): 1158-1162 OR Kogut, N. and W.D. Padley 1997. A method for reducing mortalities in pitfall traps. Trans. West. Sect. Wildl. Soc. 33: 75-78). When the trap array is pulled, the soil shall be replaced in the pit trap holes.

b. Funnel Traps

Terrestrial and/or aquatic funnel traps (e.g., modified minnow traps) shall be designed to float using commonly accepted methods to avoid drowning mortalities, and checked daily. Reasonable measures shall be taken to mitigate the incidental catch and potential harm to non-target species.

When trapping in the specific habitats and ranges of Threatened, Endangered, CESA-Candidate, or Species of Special Concern, reasonable measures should be taken to avoid injury or mortality of such species (e.g., check funnel traps at least three times a day to remove rodents and process snakes and/or modify traps to provide a snake retreat).

Aquatic funnel traps shall not be used in anadromous waters where use of the traps may result in capture of special concern or listed fishes (e.g., salmonids), unless otherwise authorized by the Department regional fisheries biologist (contact Lee Scheffler, Lee.Scheffler@wildlife.ca.gov).

You shall report any serious incidental injury or mortality of a listed, candidate, or fully protected fish, and Fish Species of Special Concern to Lee Scheffler (Lee.Scheffler@wildlife.ca.gov, Fisheries Branch).

c. Labeling of Traps

Your permittee number (SC-002672) shall be clearly marked at each trapping location (*e.g.*, a flagged stake). Failure to comply with these protocols could result in the removal

of your trapping equipment by local Department enforcement staff. **NOTE: *You shall have prior approval of the local Department office prior to setting up pitfall trap or funnel trap arrays.***

10. <u>Turtles</u>

You shall make a reasonable effort to coordinate with other researchers who may be conducting research on ARSSC Northwestern pond turtle and Southwestern pond turtle (pond turtles) in the same locations to avoid duplicative work and to avoid impacts to local populations, and to share information on individually-marked pond turtles and their movements.

Turtle research activities may be conducted at study area(s) in Marin County. Prior to marking or setting live traps for turtles at other locations, you shall receive additional written authorization from the Department contact (see Condition #4, above) and Department regional contact(s) (see Condition #20, below).

****Additional written authorization from the Department contact is required prior to independently collecting tail tips and/or blood samples. See the List of Authorized Individuals (Attachment #2).*

a. Capture, Marking and Release

Any habitat element (e.g., rocks, boulders, and logs) moved to survey for turtles shall be placed back exactly where they were found to avoid negative impacts on habitat conditions.

The authorized methods of capture for pond turtles and non-native turtles are: hand capture, dipnet, and turtle traps (see Condition #10b, below).

You shall process pond turtles expediently and immediately release any animals exhibiting signs of excessive physiological stress or if handling time exceeds one (1) hour.

All capture, handling, and marking methods utilized shall follow standard practices and ensure no undue disturbance of the authorized pond turtles and non-target species (e.g., Bury et al. 2012).

Any captured pond turtles and non-native turtles may be held in temporary on-site captivity during trapping efforts to avoid repeated recaptures, and to let transmitter glue dry. All pond turtles captured shall be released alive and unharmed at the site of capture after handling and processing, unless the Department issues written permission to move them (see Condition #18, below), or unless that location puts them in imminent danger, in which case they shall be placed in a nearby refugium sufficient to protect them.
Any captured non-native turtles should not be released back into the wild (see Condition #10, below).

b. Turtle Traps

All turtle traps (e.g., hoop traps) listed in your SCP justification shall be designed to float to avoid drowning mortalities. Reasonable measures shall be taken to mitigate the incidental catch and potential harm to pond turtles and non-target wildlife. Funnels may be used for floating traps. Seines may be used with floating turtle traps, but fish nets may not be used.

Turtle traps shall not be used in anadromous waters where use of the traps may result in capture of
special concern or listed fishes (e.g., salmonids), unless otherwise authorized by the Department regional fisheries biologist (contact Lee Scheffler, Fisheries Branch, Lee.Scheffler@wildlife.ca.gov).

All traps shall be marked with your SC-ID (SC-002672) and checked daily, as described in your SCP justification. Failure to comply with these protocols could result in the removal of your trapping equipment by local Department enforcement staff.

c. Marking and Sampling Pond Turtles

You may weigh, measure, photograph, and mark pond turtles with PIT tags or by notching the marginal scute (excluding those on the bridge) for the purpose of identification, only after receiving adequate training from researchers experienced in the methods. You may mark turtle shells using temporary non-toxic paint. Female pond turtles may also be palpated for eggs after receiving the appropriate training.

You may collect blood samples and/or tail-clip for tissue samples from up to ten (10) adult and adult-sized juvenile pond turtle individuals per population, only after receiving additional written authorization from the Department contact (Laura.Patterson@wildlife.ca.gov). The totals are cumulative and shall not be exceeded by the combined efforts of other researchers associated with the research study(ies).

You shall take all necessary precautions to avoid transmitting infectious agents between individual pond turtles. You shall also take reasonable measures to avoid bleeding, infection, ulceration, or excessive pain and stress for the animal. You shall immediately release animals if they exhibit signs of excessive physiological stress or if handling time exceeds normal standards.

You shall only collect a minimum amount of tail tip tissue, not to exceed 5mm, using care to avoid damaging any vertebrae (see also Bury et al. 2012; page 63). You shall minimize handling time to the greatest extent feasible. You shall have sufficient experience or training under an individual with tissue sample collection techniques before independently conducting such work on pond turtles.

Tissue samples shall be deposited into a genetic reference collection that is open and free to the public (see Condition #16, below).

d. Biotelemetry of Pond Turtles

You may attach and remove a biotelemetry device (i.e., GPS transmitter or VHF radio transmitter) on up to 10 adult and adult-sized juvenile pond turtle individuals per authorized study location. You shall have sufficient training under a permitted individual prior to conducting telemetry on pond turtles.

The transmitter shall not exceed 5% of the body weight of the individual. Transmitter antennas that are left free shall be straight whip antennas and shall not be a loop. If five-minute epoxy is used, care should be taken to use only a thin layer of epoxy to avoid excessive heat build-up and potential burning of tissue underlying the carapace. A small amount of quick-set epoxy may be used to "glue" a transmitter onto the carapace, but should not be used to completely encase transmitters.

If using VHF radios, you shall not use the Department frequency range 159.000 – 160.999, unless otherwise authorized in writing by the Department. You shall coordinate radio frequencies with Regional Department staff in your study area (e.g., Kimberly Paulson, Bay Delta Region, Kimberly.Paulson@wildlife.ca.gov) and with other researchers who may be working with the same frequencies in the same areas to avoid potential overlap.

d. Incidental Harm of Pond Turtles

Any serious injury or mortality of one (1) pond turtle as a result of your research activities shall be reported to Laura Patterson (Laura.Patterson@widlife.ca.gov) within three (3) days

of the event, and you shall provide a written report of the incident within ten (10) days via email. The totals are cumulative and shall not be exceeded by the combined efforts of other researchers associated your research project(s).

You shall report any serious incidental injury or mortality of a listed, candidate, or fully protected fish, and Fish Species of Special Concern to Lee Scheffler (Lee.Scheffler@wildlife.ca.gov, Fisheries Branch).

11. Sacrifice and/or Permanent Captivity of Non-native Turtles and American Bullfrogs

You shall send notification prior to starting invasive species program work to the Department Invasive Species Program (Invasives@wildlife.ca.gov) and the appropriate Department regional contact(s) (see Condition #20, below).

Sacrifice of American bullfrogs (bullfrogs) and non-native turtles is authorized for eradication/control and to reduce competition and predation on special concern species such as the California tiger salamander, California red-legged frog and pond turtles. Collection limits do not apply to take of the non-native turtles and bullfrogs.

To remove non-native bullfrogs from the wild, you are authorized to use hand capture, dip net, minnow traps, seines, gigs, air rifles and air pistols.

Minnow traps shall not be used in waters where use of the traps may result in capture of special concern or listed fished or amphibians, unless otherwise authorized by the Department regional fisheries biologist (contact Lee.Scheffler@wildlife.ca.gov).

To remove non-native turtles from the wild, you are authorized to use hand capture, dip net and turtle traps (see Condition #10b, above).

You shall have the expertise to distinguish all life stages of bullfrogs and non-native turtles from listed and special concern species or subspecies of frogs and turtles that may co-occur at you site, using field techniques. If in doubt, do not sacrifice. The use of firearms to kill amphibians is prohibited.

Sacrifice of all non-native turtles is preferred by the Department, since "adopted" non-native turtles may potentially end up in another watershed in the future, requiring removal once again.

Bullfrogs and non-native turtles shall be sacrificed using humane euthanasia guidelines (Beaupre et al 2004, American Veterinary Medical Association 2013). All carcasses shall be properly disposed of via burial or incineration or donated to an educational or public institution. Animals sacrificed using MS-222 shall not be disposed of in the wild.

Any non-native turtles taken into captivity shall not be released back into the wild. Once in captivity individual non-native turtles will not, under any circumstances, be bred in captivity without the written permission of the Department contact. Individuals taken into captivity shall be used for public display educational purposes.

Note that all species and subspecies of snapping turtles (Family Chelydridae) are restricted species (California Code of Regulations, Title 14, Section 671(c)(7)(B)), and shall be euthanized or donated to an education or public institution. They may not be taken to an adoption center.

You shall send notification to the Invasive Species Program for any non-native turtle or bullfrog encountered and correctly identified (https://www.wildlife.ca.gov/Conservation/Invasives/Report).

12. <u>Small Mammal Trapping</u>

a. Precautions for COVID-19 and Rabbit Hemorrhagic Disease Virus (RHDV2)

The conditions outlined in the following notice letters shall apply for all mammal activities, as appropriate for this permit: "***Notice of Changes to Scientific Collecting Permit (SCP) and Memorandum of Understanding (MOU) Authorizations, and Handling Precautions for Bats and other Mammals*" dated May 6, 2020; and "*Notice of Changes to Scientific Collecting Permits (SCP) and Memorandums of Understanding (MOU) Authorizations and Information Related to Rabbit Hemorrhagic Disease Virus Serotype 2 (RHDV2)*" dated June 11, 2020.**

b. Capture and Release

The authorized method of small mammal capture is by using live-traps (e.g., Sherman- or Tomahawk-brand) of appropriate size to avoid capture of medium-sized mammals or carnivores.

You shall have sufficient experience or training under an individual with mammal trapping experience before independently setting traps. When conducting presence/absence surveys using live-traps for small mammals (for this purpose, species in mammalian families Talpidae, Soricidae, Cricetidae, Dipodidae, Geomyidae, Heteromyidae, Muridae, and Sciuridae), you shall employ all reasonable measures to avoid injury to or mortality of individuals, particularly of special status species or subspecies (*e.g.*, using traps of sufficient size and adjusting trap doors to create a gap to accommodate tails of kangaroo rats or pocket mice).

To avoid the risk of Hantavirus, we recommend handling mammals in open areas and using a respirator when cleaning traps. See also SCP Standard Condition M.

If trapping for authorized diurnal mammals within the known geographic range and habitat of the Mohave ground squirrel (*Xerospermophilus mohavensis*), you shall close all traps during hours of darkness, unless you are using the traps to capture nocturnal mammals, during inclement or extreme weather, during daylight periods when the ambient temperature in the shade at ground level exceeds 90° Fahrenheit (°F), or when the ambient temperature falls below 40 degrees °F. You shall protect each trap from excessive heating by placing and maintaining it in the shade of a non-metal structure set in a north-south orientation. You may place open-mesh traps without such a shelter, until and unless authorized mammals (*X. tereticaudus*, *Otospermophilus spp.* or *Ammospermophilus spp.)* captured in these traps exhibit heat stress at 90° F or below. You shall check traps at least once every four hours. If Mohave ground squirrel is incidentally captured, you shall stop trapping at that site and obtain an MOU.

When working in squirrel colonies, report any burrowing owls (*Athene cunicularia*) seen on the California Native Species Field Survey Form and contact Esther Burkett at Esther.Burkett@wildlife.ca.gov to report the owl location(s).

All small mammals shall be released at the point of capture, unless the Department issues written permission to move them (see Condition #18, below), or unless that location puts them in imminent danger, in which case they shall be placed in a nearby refugium sufficient to protect them.

Mammal species of special concern (MSSC) that are incidentally captured shall be reported to CNDDB at least annually. Except as otherwise authorized for San Francisco dusky-footed woodrat; you may not continue to trap at a site where MSSC or listed small mammals are captured without additional written authorization via an SCP amendment and/or a MOU for capturing and handling the species.

c. Woodrat Nests

Woodrat nests/middens (including of the MSSC San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)) may be monitored, handled, or removed only with authorization from the Department regional office covering the area in which the project occurs, and only when the woodrats are not present (see also Condition #20, below).

d. Marking and Biological Tissue Sample Collection

You may mark small mammals (***excluding mammal species/taxa identified in Conditions #1 and #2; but including San Francisco dusky-footed woodrat (see below)***), in accordance with your SCP justification, as conditioned below. You may mark adults and adult-size juveniles with transponder tags applied subcutaneously, or you may mark hair and/or skin, but only on the ventral surface and using only non-toxic ink or black dye; or you may clip hair. You may mark a single ear of each adult and adult-size juvenile with an appropriate size ear tag (*e.g.*, fingerling tags applied to small kangaroo rats or pocket mice). Tags shall not burden the individual or make it vulnerable to injury or predation. For mammals too small for ear tags, you may mark adults and adult-size juveniles with transponder tags applied subcutaneously.

You may collect ectoparasites (e.g., ticks and fleas) and a single tissue sample from each captured individual (***excluding mammal species/taxa identified in Conditions #1 and #2***). Collection methods authorized are ear punch and interorbital bleeding, only with sufficient training and experience.

Handling time of individuals shall be minimized and measures shall be taken to avoid the transfer of infectious agents between mammals and causing excessive bleeding or infection. Mammals exhibiting signs of excessive physiological stress shall be released immediately.

e. Incidental Injury or Mortality

You shall report any incidental injury or mortality of a listed, candidate, or fully protected mammal, and MSSC to Scott Osborn (Scott.Osborn@wildlife.ca.gov) within three (3) days, and you shall provide a written report of the incident within ten (10) days via email.

13. <u>San Francisco Dusky-footed Woodrat</u>

a. For the purpose of enhancing their survival, you are authorized to conduct the following research activities with the San Francisco dusky-footed woodrat (woodrat):

   i. Set live traps of at least 12 inches in length to attempt to catch the woodrat;
   ii. Handle the captured mammals for the purpose of identifying, aging, sexing, and taking standard measurements;
   iii. Mark with non-toxic black ink or dye on the ventral surface or by hair clipping; and
   iv. Salvage of dead or moribund individuals.

b. This research may be conducted throughout the geographic range of the authorized woodrat. You shall coordinate with other researchers to avoid duplicate work and undue disturbance or take of the authorized woodrat, and to share information on individually-marked individuals.

   Prior to beginning field work at a site which you previously have not studied, you shall make a reasonable, good-faith effort to determine whether any person or entity holding a permit allowing study of the authorized woodrat is working in, or has worked during the current field season in, the proposed study site. You shall not conduct work on a site under active study by another permit-holder for the authorized woodrat, unless the Department contact allows it via

written correspondence. You shall check with the landowner to determine if any other researchers are permitted to work in the same site or area.

c. You shall use Sherman, Tomahawk, or similar box-type traps. Only live-traps of sufficient length or modification to eliminate or substantially reduce the risk of tail or other injuries to kangaroo rats, pocket mice, or other incidentally captured mammals shall be used. You shall clean and sanitize all traps prior to setting out the traps at each site. To help avoid the risk of Hantavirus, we recommend handling mammals in open areas and using a respirator when cleaning traps. See also the following websites and cited documents for Hantavirus risk prevention:

- General Centers for Disease Control and Prevention (CDC) website on HPS (Hantavirus Pulmonary Syndrome): http://www.cdc.gov/hantavirus/hps/prevention.html

- Publication for persons working with rodents, including "ecologic" work (Methods for Trapping and Sampling Small Mammals for Virologic Testing, September 1995): http://www.cdc.gov/hantavirus/pdf/rodent_manual.pdf

- Kelt et al. (2010) on behalf of American Society of Mammalogists: https://www.mammalogy.org/articles/updated-guidelines-protection-mammalogists-and-wildlife-researchers-hantavirus-pulmonary-sy

d. You shall take all due precautions in conducting the authorized activities. You shall close all traps during daylight hours and open them only within one hour before sunset. Unless special precautions (*e.g.*, provision of protective trap housings and thermal insulation) are taken to protect animals from inclement weather, traps will be closed during inclement or extreme weather or when the ambient temperature falls below 50 degrees Fahrenheit. The last check shall be completed no later than one hour after dawn. Trapped individuals shall be processed as quickly as possible to reduce stress to the animals and shall be released at the location they were trapped following data collection (exception below in Condition #13g). Mammals shall be released as quickly as possible if unusual weather conditions or other circumstances suggest that they may be at risk if kept in the traps longer (*e.g.*, excessive heat or cold).

e. You shall set no more traps during each trapping period than can reasonably be checked and safely processed (*i.e.*, removing captured animals from traps and handling) given the study protocol and trapping conditions. The number of traps set shall not exceed 150 traps during a trapping session. All trap locations shall be marked appropriately via GPS and/or flagging to minimize, to the greatest extent feasible, the chance of losing or overlooking traps. The Principal Investigator may request an increase in the number of traps for specific projects by emailing the Department contact.

f. You shall immediately release at the capture-site, without handling or marking, all incidentally-captured individuals of listed or fully protected species. Include information on any incidentally captured non-target MSSC in your annual report (see Reporting section below). Woodrats may be handled in order to take standard measurements and to assess reproductive and general condition of the animal. In the event that a captured listed, fully protected, or special concern mammal is marked, you may handle it to the extent necessary to identify features of the marking (*e.g.*, numbers and colors). In the event you discern a captured listed or special-concern mammal has been marked previously by another researcher, you shall make a reasonable attempt to notify the researcher of the recapture data.

g. You shall not conduct removal trapping or translocation of the woodrat, except with the written approval of the Department contact (Scott.Osborn@wildlife.ca.gov).

h. You shall not hold any individual of the woodrat in captivity, except briefly to allow a trap-chilled or –heated, wet, disoriented, or slightly-injured mammal to recover. You shall not sacrifice any individual woodrat, except in the circumstance in which a debilitating injury requires humane euthanasia.

i. Should any one serious injury (i.e., compromising survival in the wild) or mortality of the woodrat occur as a result of your methods, the Department contact shall be notified as soon as possible. After the second injury or mortality of the woodrat, all work shall cease after completion of that day's trap check. Before any additional work can be authorized, consultation shall occur between you and the Department contact. The Department contact will need time to consult internally and possibly externally before authorizing any additional capture work. A written report shall be sent to the Department contact in pdf format via email within 10 days of the mortality or injury event.

14. Burrowing Owl

Passive observation of burrowing owls for nest monitoring purposes is authorized, from a distance. You are not authorized to disturb, use burrow scopes or burrow cameras, or closely approach burrowing owl nests. Care shall be taken to avoid flushing owls, and to minimize risk of nest failure or predation due to disturbance of normal behavior patterns. Spotting scopes and/or binoculars shall be used from a distance to avoid disturbance to the owls and to monitor nesting stage and nesting activities.

Passive surveys (walking transects) for burrowing owl presence is authorized. The full burrowing owl habitat assessment and survey protocol shall be followed as described by Appendix C & D of the Department's Staff Report on Burrowing Owl Mitigation, dated March 7, 2012, found at this link: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline=true.

In California, the burrowing owl breeding season extends from February 1 – August 31, with some variance by geographic location and climatic conditions.

The minimum of four survey visits shall occur as follows: 1) at least one site visit between 15 February and 15 April, and 2) a minimum of three survey visits, at least three weeks apart, between 15 April and 15 July, with at least one visit after 15 June.

Report any burrowing owls seen on California Native Species Field Surveys Forms (CNDDB forms), https://www.wildlife.ca.gov/Data/CNDDB, and send copies of the forms and maps to Esther Burkett (Esther.Burkett@wildlife.ca.gov). See Reporting Requirements, below.

Burrowing owl passive relocation, burrow exclusion, translocation, and active relocation offsite, including via one-way doors at burrow entrances, is not authorized by this permit. You may not take, evict, passively relocate, move, translocate, cage, confine, or take burrowing owls into captivity without additional written State authorization from both the Regional Department office (https://www.wildlife.ca.gov/Regions) and the Wildlife Branch (contact Esther Burkett, Esther.Burkett@wildlife.ca.gov, 916-531-1594).

For future reference, see Appendices E and F of the Department's Staff Report on Burrowing Owl Mitigation, dated March 7, 2012 (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline) for examples of exclusion plans and mitigation site management.

If you have any questions, the Department statewide coordinator and contact for burrowing owl research and conservation is Esther Burkett (Esther.Burkett@wildlife.ca.gov), 916-531-1594.

15. Salvage of Birds, Mammals, Amphibians and Reptiles

You may salvage birds, mammals, amphibians, and reptiles incidentally killed during permitted activities or encountered dead in the field, as specified below. There is no limit to the number of salvaged wildlife.

Salvaged specimens of CESA-listed, CESA-Candidate, and Fully Protected species require disposition instructions from the Department (contact Laura Patterson,

Laura.Patterson@wildlife.ca.gov; see also Reporting below). Fresh specimen(s) of these special-status taxa may require necropsy and shall be refrigerated, not frozen, until disposition is finalized. Federally-listed species require authorization and disposition instructions from the U.S. Fish and Wildlife Service (Service). After contacting Ms. Patterson within 24 hours of encountering a special-status species, you shall provide a report within ten (10) working days, via email, describing the collection location of the specimen including UTM zone, UTM coordinates and datum, date and time the specimen was encountered, name of observer/collector, and details regarding the specimen including sex, estimated age, condition of carcass, possible or probable cause of death, distance from any road, and any other relevant information or observation notes. Photographs of the specimen and the salvage locale shall also be provided to Ms. Patterson.

You may not salvage bats (Order Chiroptera) or marine mammals unless additionally authorized. Salvage of mountain lions (*Puma concolor*) or their parts is prohibited by law. Black bears (*Ursus americanus*) may not be salvaged without obtaining additional authorization from the Department's regional law enforcement office and the regional wildlife management supervisor. Salvage of other big game species (i.e., Feral pig (*Sus scrofa*), Deer (*Odocoileus hemionus*), Elk (*Cervus elaphus*), Pronghorn antelope (*Antilocapra americana*), and Bighorn sheep (*Ovis canadensis*)) is not authorized without obtaining additional written approval from the Big Game Program (contact Nathan Graveline, Nathan.Graveline@wildlife.ca.gov).

You may not salvage migratory birds or bird parts, including feathers, without being so authorized by a valid federal Migratory Bird (MB) permit (e.g., Special Purpose - Salvage) from the Service (http://www.fws.gov/migratorybirds/mbpermits.html) and additional written authorization from the Department (contact Justin.Garcia@wildlife.ca.gov). Copies of these permits shall be provided to the Department, and the names of all authorized subpermittees shall be provided for the MB permit.

This SCP does not authorize you to take bird eggs or nests (including unviable eggs and abandoned nests), without an amendment.

If requesting to salvage dead or injured birds and/or bats at renewable energy facilities (e.g., wind farm, solar farm), you shall submit an amendment request detailing the purpose of the work and describing the specific methods to be used. Your amendment request shall also contain your resume/CV describing your specific expertise and length of experience in conducting salvage work at renewable energy facilities. Copies of all appropriate federal permits shall also be included in the SCP amendment request. You may not conduct salvage work at renewable energy facilities without an approved amendment to this SCP.

You shall leave specimens that are unsuitable for donation at the site or shall completely destroy them through burial or incineration. You shall obtain additional permission to salvage on private or public property from the landowner or custodian of that property.

16. Labeling and Disposition of Specimens

You shall securely label each salvaged specimen and collected tissue sample with the following information: (a) date of salvage/collection; (b) location of the specimen (GPS coordinates and datum); (c) species name; (d) unique identification number; (e) name and affiliation of the person who collected the specimen; and (f) the permit number(s) and expiration date(s) under which the specimen was collected.

You shall deposit all salvaged specimens and samples in a public scientific or educational institution in California within one month of acquisition (e.g., Museum of Vertebrate Zoology, University of California, Berkeley, CA; California Academy of Sciences, San Francisco, CA).

To validate the specimens were collected pursuant to this permit, a copy of the Transfer of Possession – Chain of Custody form (DFW 1379c) shall accompany any salvaged specimens or samples when transferred to another person or entity.

17. Training and Educational Workshops

Following the conditions and protocols above, the authorized amphibians, reptiles, and small mammals (***excluding Threatened, Endangered, CESA-Candidate, Fully Protected species; but including ARSSCs and San Francisco dusky-footed woodrat***) may be handled during educational field technique training courses and workshops to be displayed, identified and released immediately thereafter at the site of capture.

When teaching in the field, all due consideration shall be given to the health and safety of each individual animal and its unique response to all forms of handling and sampling, and the time period required for all activities. The most essential information should be gathered as the first order of business before subjecting any individual animals to increased handling time.

Workshops shall provide an educational program on the identification, biology, ecological role and conservation of the target wildlife, in addition to agency regulations, different methods of bullfrog control, shooting safety and ability for bullfrogs, as appropriate.

Field Assistants, students, and trainees may only handle, mark, or sacrifice animals when under direct supervision (within three meters) of the Principal Investigator or an Authorized Individual, and may not handle special status species or subspecies (i.e. ***species/taxa noted in Conditions #1 and #2***). You shall have the expertise to identify or avoid trapping in their known ranges and preferred habitats.

Prior to implementing workshops with the authorized ARSSC, bullfrogs or non-native turtles, you shall receive additional written authorization from the Department contact (Laura.Patterson@wildlife.ca.gov; see Condition #4, above).

18. Relocation of Terrestrial Wildlife

California Environmental Quality Act (CEQA) or other project-related relocation of Threatened, Endangered, Candidate, Species of Special Concern or other animal species for movement "out of harm's way" is not solely authorized by this SCP, but may be permitted via separate written authorization from the regional Department office (http://www.wildlife.ca.gov/Regions) for the geographic area in which the project or activity is located.

Rattlesnakes (*Crotalus sp.*) may be rescued and relocated nearby when interfering with work areas/structures for human safety **only** after receiving additional written authorization from the Department Regional office (see Condition #20, below) *and* the Department contact (Laura.Patterson@wildlife.ca.gov). All collection, transport, and release activities will follow standard operating procedures and protocols for the rattlesnakes. The Department strongly recommends sufficient training, experience, or supervision to ensure personal safety and to avoid excessive stress on rattlesnakes.

Relocation for any other purpose (e.g., research, recovery, or propagation) is not permitted without separate written State authorization via the SCP amendment process.

Field activities for biological monitoring or assessments, Lake and Streambed Alteration Agreements, and construction monitoring related to CEQA, or other project mitigation, requires separate written State authorization via the SCP amendment process if it includes capturing, handling, or relocating animals, intrusive nest monitoring methods, or broadcasting species-specific vocalizations of birds. Incidental take of Threatened, Endangered or Candidate species by a project (CEQA or other) shall be addressed through a California Endangered Species Act (CESA) 2081(b) permit (Fish and Game Code 2081(b)). You shall contact both the regional office (see also Condition #20, below) and the Wildlife Branch

(Laura Patterson, Laura.Patterson@wildlife.ca.gov) prior to beginning any specific relocation activity.

19. Reporting

Abstracts, reports, and other publications may be submitted to the Wildlife Branch SCP Coordinator (Justin.Garcia@wildlife.ca.gov) and the Department contact(s) noted below, in an electronic format (such as a pdf file), which is the preferred format.

If no activities were conducted with any or all species authorized under the SCP during the previous year or term of your permit, you shall state this in writing in your annual report and/or MWR form.

Annual Report(s) for Vernal Pool Branchiopods, ARSSC, SF Dusky-footed Woodrat, and Non-native Species Eradication:
You are required to submit an annual report(s), in an electronic format, describing the results and significant findings of your research on:

- Federally-listed vernal pool branchiopods to Justin Garcia (Justin.Garcia@wildlife.ca.gov);
- San Francisco dusky-footed woodrat to Dr. Scott Osborn (Scott.Osborn@wildlife.ca.gov); and
- ARSSC, bullfrog and non-native turtles to Laura Patterson (Laura.Patterson@wildlife.ca.gov).

The annual reports shall be submitted on or before **January 31st** of the year following each year of research. The reports shall follow standard scientific format (Title, Date, Author(s) and Affiliation(s), Introduction, Study Area (with map), Methods, Results, Discussion, and Literature Cited). Include any information important for conservation of the authorized CA Species of Special Concern, along with a description of known threats to the species and management recommendations. Photographs may be included as needed, or as an Appendix.

i. The annual report(s) shall include, but not be limited to, the following information for all ARSSC and Foothill yellow-legged frogs captured and/or observed:

   a) The dates of field work, site name, and names of all workers;
   b) Date observed and captured;
   c) Number and location of animals observed or handled (GPS coordinates and datum);
   d) A map depicting the locations of the survey/research site(s);
   e) A map indicating the locations of detections and/or locations where animals were captured and released;
   f) Information on individual health, condition, sex, maturity/estimated age, size, and morphometric measurements;
   g) Detailed identification information for any captured and/or marked animals (e.g., numbering codes and assignments of scute notches, and a photograph of the carapace/plastron);
   h) Habitat description, including photographs of sites where animals were detected and sites where any relocation may have occurred;
   i) Estimates of population size, distribution, and relative density, if feasible;
   j) Any information regarding movements and habitat use;
   k) A description of the number, causes, and location of any incidental injuries or mortalities; and
   l) The date and location of reposition of each salvable or injured specimen.

ii. The annual report(s) shall include, but not be limited to, the following information for MSSC San Francisco dusky-footed woodrat:

   a) The dates of field work, site name, and names of all workers;
   b) Number of trap nights, dates, and numbers of mammals per species detected;

c) The results of sampling efforts for each study site, in tabular format, including the USGS quad name and GPS coordinates of each trapping grid's centroid;
d) Information on individual health, condition, sex, maturity/estimated age, size, and morphometric measurements;
e) A map depicting the location of the survey site(s) and labeled with the APN, the USGS quad name, the county and a north arrow;
f) A separate map or a depiction on the map required in E. above indicating the locations of listed or special concern mammal detections;
g) Description of the study site including dominant vegetation, including photographs of sites where animals were detected and sites where any relocation may have occurred;
h) A description of the number, causes, and location of any incidental injuries or mortalities; and
i) The date and location of reposition of each salvable or injured specimen.

iii. The annual report(s) for bullfrog and non-native turtle eradication work shall include, but not be limited to, the following information:

a) The dates of field work, site name, and names of all workers;
b) Location of each collection location by county, and by GPS coordinates and datum;
c) Numbers of bullfrogs/turtles captured, and not released, at each site by date;
d) Species and numbers of captured non-target animals released alive or found predated by bullfrogs at each site by date;
e) Efficacy of non-native frog/turtle removal, conservation/recovery value, and benefitted species; and
f) Any management recommendations. Provide a map with the collection locations clearly depicted.

iv. **Federally-listed species**: You shall submit a copy of your survey report(s) and annual report required by the for the federally-listed vernal pool branchiopods and California red-legged frog to meet reporting requirements for this SCP.

Mandatory Wildlife Report (MWR) Form:
You shall report all take of wildlife, including incidental take (e.g., capture) of non-target species, on the MWR form within 30 days of expiration of the permit. In cases where large quantities of incidental capture cannot be avoided, such as with dip nets, you may estimate numbers to the best of your ability, or use a general description of the quantity.

When you submit the MWR form, please reference your annual scientific reports for the research described above and any CNDDB data that have been submitted to the Department. There is no need to repeat the more detailed information contained in your CNDDB forms on the MWR form.

Other Reports:
You shall also provide copies of abstracts you may prepare for any papers you present, or copies of any papers you prepare for popular articles or scientific journals, or copies of any periodic, annual, or final report that you prepare or assist in preparing for a client or other third party.

For additional reporting requirements, see the SCP attachment(s) (e.g., for bats) and MOU(s) (e.g., for Alameda Whipsnake, Giant Garter Snake, etc.) on which you are named.

California Natural Diversity Database (CNDDB):
For any Threatened and Endangered, Candidate, Fully Protected, or Species of Special Concern (e.g., pond turtle, California red-legged frog, Red-bellied newt) encountered and correctly identified (see the Department Special Animals list), you shall send occurrence data to the CNDDB. You shall submit point data to the CNDDB at least annually. Data can be submitted on the standard CNDDB Field Survey Forms

(https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=25739&inline=1), in an electronic spreadsheet with an attached map depicting locations of observations, or via the Online Field Survey Form (https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data). Include known threats to the species in your submittal. A cross reference to your annual report(s) shall also be included.

20. Regional Office Notification and Report Circulation

In addition to the regional office notification requirement in Standard Condition F, you shall send notification to the regional biologists listed below for work in the counties below (page 18). You should have a specific project before conducting any work authorized by this SCP or your MOU(s), and notify the regional contact prior to the start of each new project. Submit electronic copies of any reports produced or required by this permit or your MOU(s), within two weeks of completion, to the contact listed below, as appropriate for the counties of your work.

Napa, Sonoma
Stacy Martinelli, Stacy.Martinelli@wildlife.ca.gov, 707-576-2868

Alameda, Marin, Contra Costa
John Krause, John.Krause@wildlife.ca.gov, 415-454-8050

Alameda, San Francisco
Marcia Grefsrud, Marcia.Grefsrud@wildlife.ca.gov, 707-644-2812

San Bernardino, Riverside, Imperial, Inyo, Mono
Lacey Greene, Lacey.Greene@wildlife.ca.gov, 760-872-1128

For mammal work only:
Mendocino: Scott Koller, Scott.Koller@wildlife.ca.gov, 707-456-0329
Modoc: Richard Shinn, Richard.Shinn@wildlife.ca.gov, 530-340-3581
Lassen: Brian Ehler, Brian.Ehler@wildlife.ca.gov, 530-254-6808
Shasta and Trinity: Pete Figura, Pete.Figura@wildlife.ca.gov, 530-225-3224
and Jennifer Carlson, Jennifer.Carlson@wildlife.ca.gov, 530-225-2754
Siskiyou: Bob Schaefer, Robert.Schaefer@wildlife.ca.gov, 530-598-6820
Tehama: Scott Hill, Scott.Hill@wildlife.ca.gov, 530-529-7162

For reptiles and amphibians only:
Mendocino, Humboldt, Del Norte, Modoc, Lassen, Shasta, Trinity, Siskiyou, Tehama
Justin Garwood, Justin.Garwood@wildlife.ca.gov, 707-825-4723
Santa Barbara, San Diego, Orange, Los Angeles, Ventura
Jennifer Pareti, Jennifer.Pareti@wildlife.ca.govDepartment Central Region
Craig Bailey, Craig.Bailey@wildlife.ca.gov, 559-243-4014 x 227

When working on Department lands and/or with special status species:
San Francisco, San Mateo, Santa Cruz, Santa Clara
Terris Kasteen, Terris.Kasteen@wildlife.ca.gov, 408-365-1066

For Law Enforcement contacts, send notifications to the appropriate regional office email address, found here: https://wildlife.ca.gov/Regions.

21. Standard Provisions

The attached provisions shall also be followed: Standard Conditions for All Scientific Collecting Permits (2 pages dated July 01, 2017).

22. List of Authorized Individuals

All researchers working independently on your research project(s) shall carry a copy of this SCP and be named on your Entity SCP List of Authorized Individuals (LAI; Attachment #2).

The Principal Investigator(s) may request to change or add Authorized Individuals to be named on the LAI by submitting a SCP amendment application with the following information: a) name of the individual; b) species the individual will be working with; c) research activities the individual will conduct; d) whether or not these research activities will be conducted independently or under direct supervision (within three meters); and e) resumes/CVs and statements of qualifications that describe the individual's experience with the species, and experience with the research methods to be employed in the study. Letters of recommendation may also be required as supplemental information.

23. Term

This Entity SCP shall be in your possession while conducting the work described above, and is valid for three years from the date of issuance.

You may use the SCP amendment form for any modifications to your research in the future (https://www.wildlife.ca.gov/Licensing/Scientific-Collecting).

Minor deviation from the stipulated terms and conditions may be authorized on a case-by-case basis when approved by the Department contact unless an amendment to this permit would be required.

Should you have any questions, please contact Justin Garcia (Justin.Garcia@wildlife.ca.gov), Esther Burkett (Esther.Burkett@wildlife.ca.gov), Laura Patterson (Laura.Patterson@wildlife.ca.gov), and/or Scott Osborn (Scott.Osborn@wildlife.ca.gov).

Literature cited:

American Veterinary Medical Association (AVMA). 2013. AVMA Guidelines for the Euthanasia of Animals: 2013 Edition. https://www.avma.org/KB/Policies/Documents/euthanasia.pdf.

Beaupre, J., E.R. Jacobson, H.B. Lillywhite, and K. Zamudio. 2004. Guidelines for use of live amphibians and reptiles in field and laboratory research. Second Edition. Revised by the Herpetological Animal Care and Use Committee (HACC) of the American Society of Ichthyologists and Herpetologists.
http://www.asih.org/sites/default/files/documents/resources/guidelinesherpsresearch2004.pdf

Bury, R.B., H.H. Welsh, D.J. Germano, and D.T. Ashton (editors). 2012. Western pond turtle: biology, sampling techniques, inventory and monitoring, conservation, and management. Northwest Fauna 7. The Society for Northwestern Vertebrate Biology. 128 pages.

From: Hobbs, Jennifer <jennifer_hobbs@fws.gov>
Sent: Wednesday, July 20, 2022 11:15 AM
To: Jeremy Jackson
Subject: Re: [EXTERNAL] Bat Survey Question

Hi Jeremy, thanks for all the information from CDFW. I reviewed the information you provided
and don't have any comments on it. Since we don't have any federally listed bats in that area
we do not have any regulatory authority for the surveys. I don't see any issues with you all
carrying out the surveys. Thanks,
Jenn

Jennifer Hobbs (she/her)
Military and Waterway Planning Division Supervisor
Sacramento Fish and Wildlife Office
(916) 297-3842 (cell)
(916) 414-6541 (desk)

Appendix B
Mist-net Site and Habitat Photos

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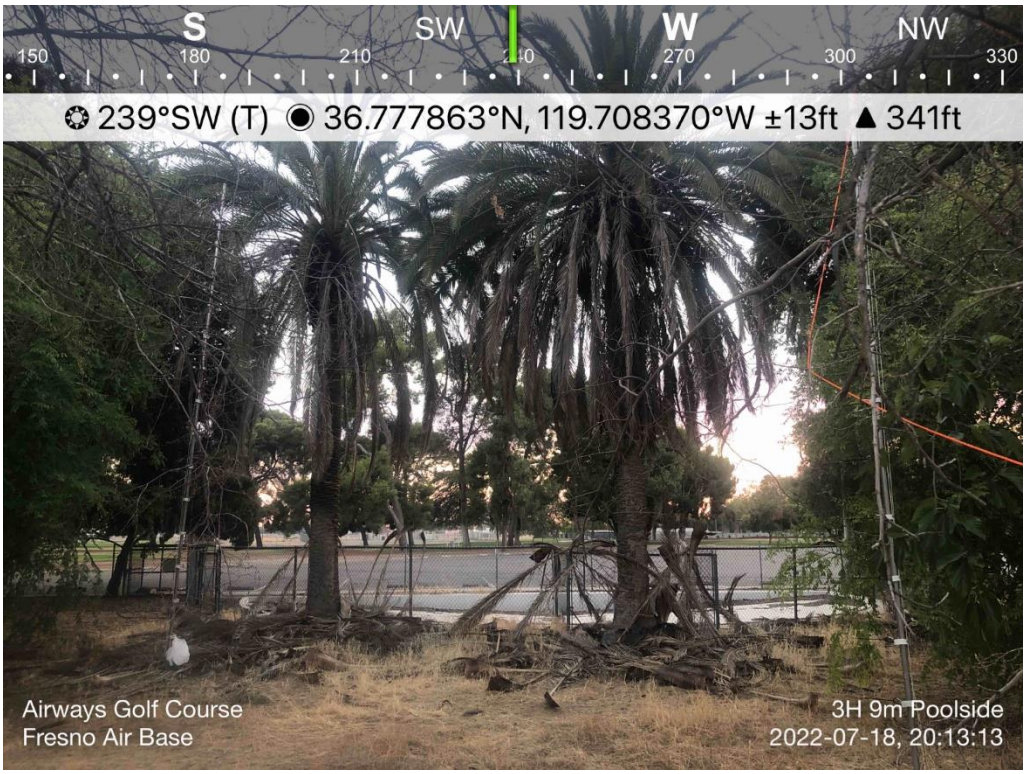
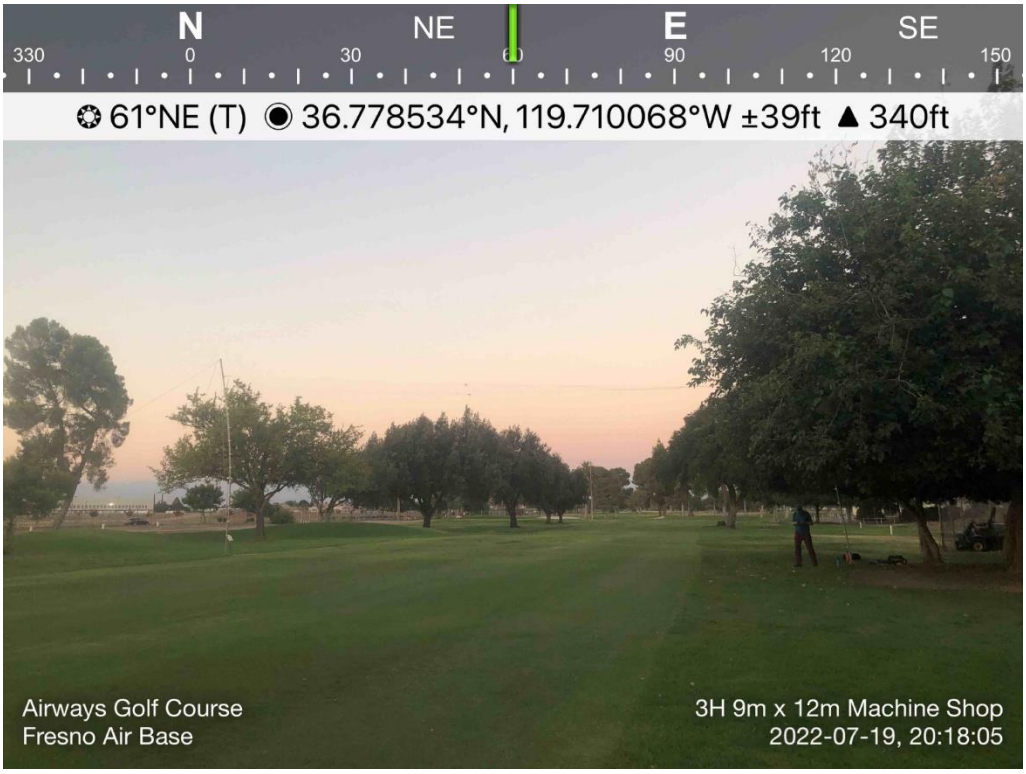
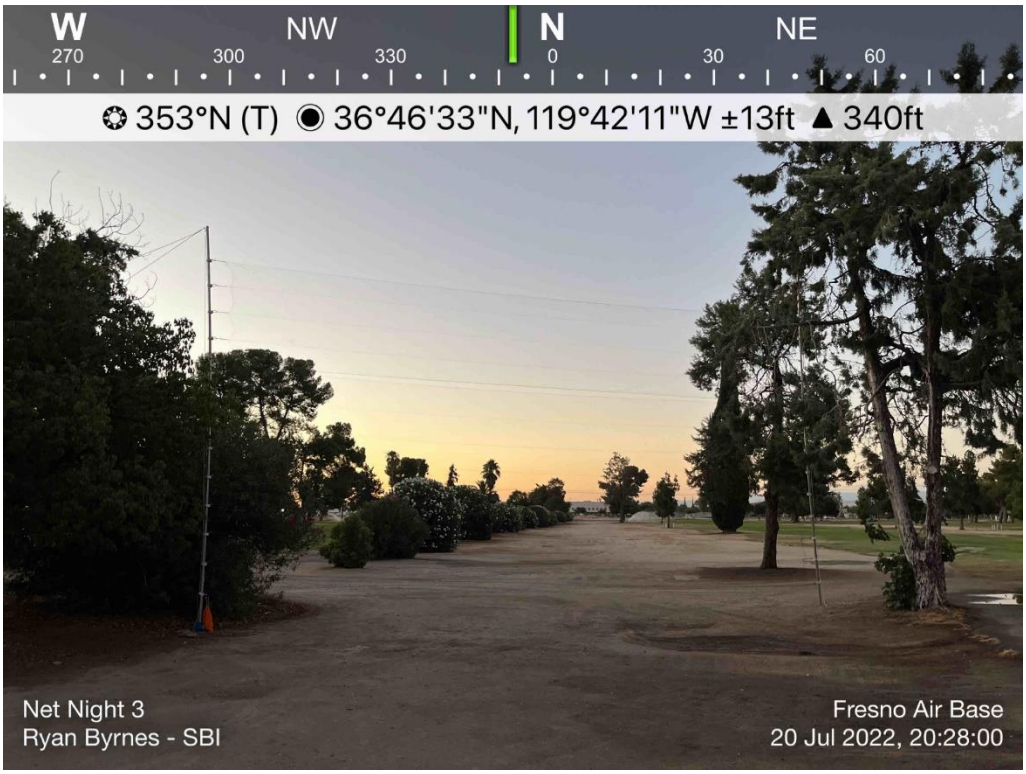


Mist-net Site 1



Mist-net Site 2



Mist-net Site 3

Potential roosting habitat marked by the red arrow in the AOR

Appendix C
Acoustic Site Photos

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Detector Site 1

Detector Site 2

Detector Site 3

Detector Site 4

Appendix D
Data Sheets

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R. Byrnes

STAFF K. Slocum

BAT CAPTURE DATA FORM

Location (state, county, town): Fresno Yose Int. Airport

Date: 7/19/22 **Start Time:** 1930 **End Time:** 0030 **Recorder:** SBLIVE

Lat/Long: _____ **Start Temp:** 78 **End Temp:** _____ **%clouds:** 0

Habitat: Golf course 36.778555, -119.709687

Capture Technique: (# and type) __6-meter Tandem X 12-meter x 3 high; X 9-meter t __18-meter; __Harp Trap; _____ Other

Set Over/Near Water: YES/NO – If "yes" dimensions of Pool-size: ___W x ___L and of "swoop-zone": ___W x ___ L

X 9 m single high

	TIME	SPECIES	SEX (M/F)	AGE (J/A)	REPRODUCTIVE STATUS (P/L/PL/NR)	FA (MM)	EAR (MM)	WEIGHT (G)	BAND OR MARKING (COMMENTS)
1.	NO	BATS							
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									

PAGE _____ OF _____

BAT CAPTURE DATA FORM

STAFF: E. Byrnes K. Slocum

Location (state, county, town): Yose Fresno Int Airport

Date: 7/18/22 **Start Time:** 1930 **End Time:** 2330 **Recorder:** SonoBatLIVE

Lat/Long: _____ **Start Temp:** 100 **End Temp:** _____ **%clouds:** 0

Habitat: Golf Course 36.777856, -119.708543

Capture Technique: (# and type) __6-meter X 12-meter x 3 high __9-meter __18-meter __Harp Trap _____ Other

Set Over/Near Water: YES/NO – If "yes" dimensions of Pool-size: ___W x ___L and of "swoop-zone": ___W x ___ L

	TIME	SPECIES	SEX (M/F)	AGE (J/A)	REPRODUCTIVE STATUS (P/L/PL/NR)	FA (MM)	EAR (MM)	WEIGHT (G)	BAND OR MARKING (COMMENTS)
1.	NO	BATS							
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									

PAGE _____ OF _____

BAT CAPTURE DATA FORM

STAFF: K. Slocum
R. Byrnes

Location (state, county, town): Fresno Yosemite Int Airport

Date: 7/20/22 **Start Time:** 1930 **End Time:** ~~1~~ 2330 **Recorder:** SB LIVE

Lat/Long: _____ **Start Temp:** 99 **End Temp:** _____ **%clouds:** _____

Habitat: Golf Course 36.776038, -119.703208

Capture Technique: (# and type) __6-meter X 12-meter x 3 high; X 9-metert ___18-meter; __Harp Trap _____ Other

Set Over/Near Water: YES/NO – If "yes" dimensions of Pool-size: ___W x ___L and of "swoop-zone": ___W x ___ L

	TIME	SPECIES	SEX (M/F)	AGE (J/A)	REPRODUCTIVE STATUS (P/L/PL/NR)	FA (MM)	EAR (MM)	WEIGHT (G)	BAND OR MARKING (COMMENTS)
1.	ND	BATS							
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									

PAGE _____ OF _____

Bat Acoustic Survey

Date: 7/18/2022	Begin Time: 1700	End Time: 7/21/22 - 1200
Observer(s): R. Byrnes K. Slocum		
Site Name: Fresno Airbase		
County: Fresno	State: CA	Elevation: 335 ❑ m ☒ ft
Coordinates:	Quadrangle:	❑ 15' ❑ 7.5'
Or UTM or Lat/long:		
Time of Sunset: 2016	Moon Phase: 3rd Quarter	% Cloud Cover: 0
Start Air Temperature: 100 ☒ °F ❑ °C	End Air Temperature:	❑ °F ❑ °C
Wind: 14 mph		

Site Descriptions:

❑ lake/pond	❑ seep	❑ marsh/bog	☒ other: Golf course	
❑ stream	❑ spring	❑ artificial water		
Nearby Land Characteristics:	❑ alpine mdw	❑ rocky	❑ exclosure	❑ crops
❑ active grazing pasture	❑ unused grazing pasture	❑ scrub	❑ woodland	❑ Airport

Observations: type of detector(s):

Detector #	Absolute Timer Setting	Date Deployed	Date Retrieved	LAT/LON ~~Comments~~
1	2000 - 0600	7/18/2022	7/21/22	36.778136, -119.707349
2	2000 - 0600	7/18/2022	7/21/22	36.776901, -119.709864
3	2000 - 0600	7/18/2022	7/21/22	36.777193, -119.70515
4	2000 - 0600	7/18/2022	7/21/22	36.778282, -119.701987
	-			
	-			
	-			
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Szewczak 1996, 2002

Appendix E
Representative Sonograph Photos

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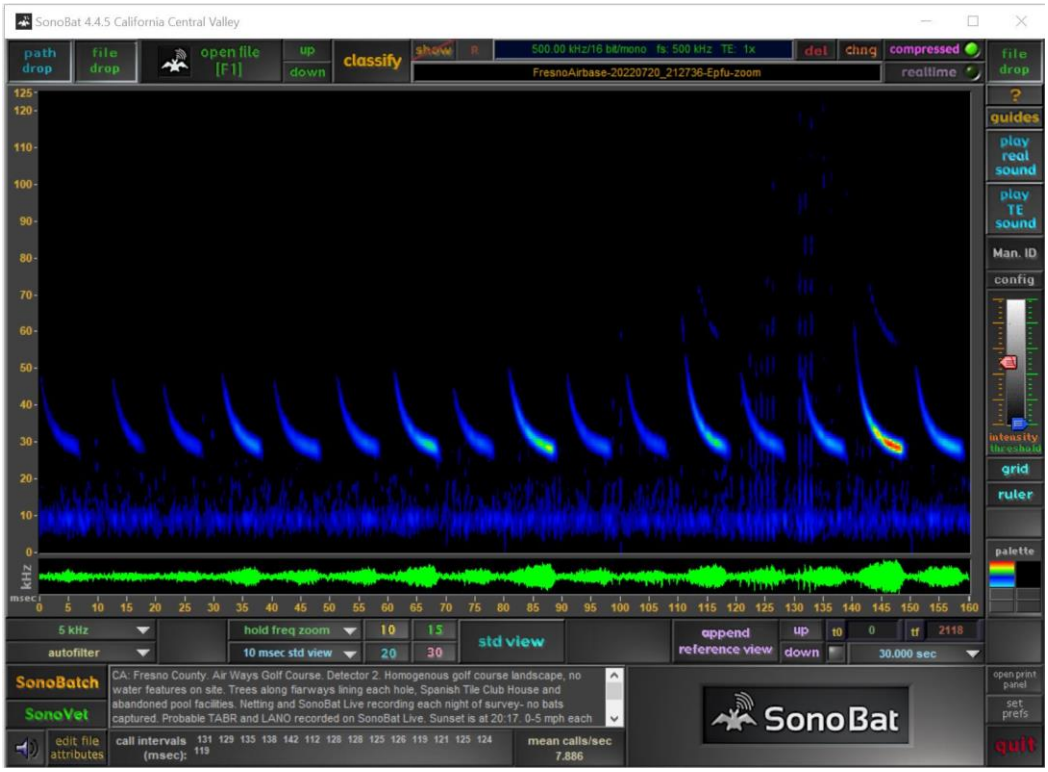
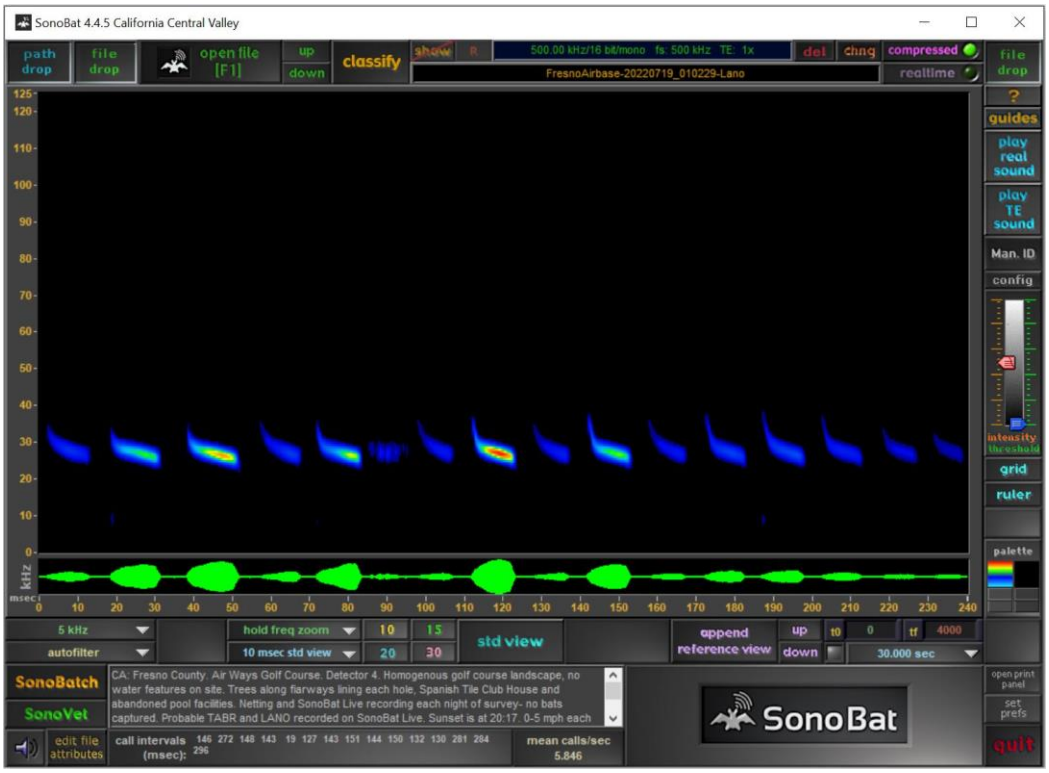
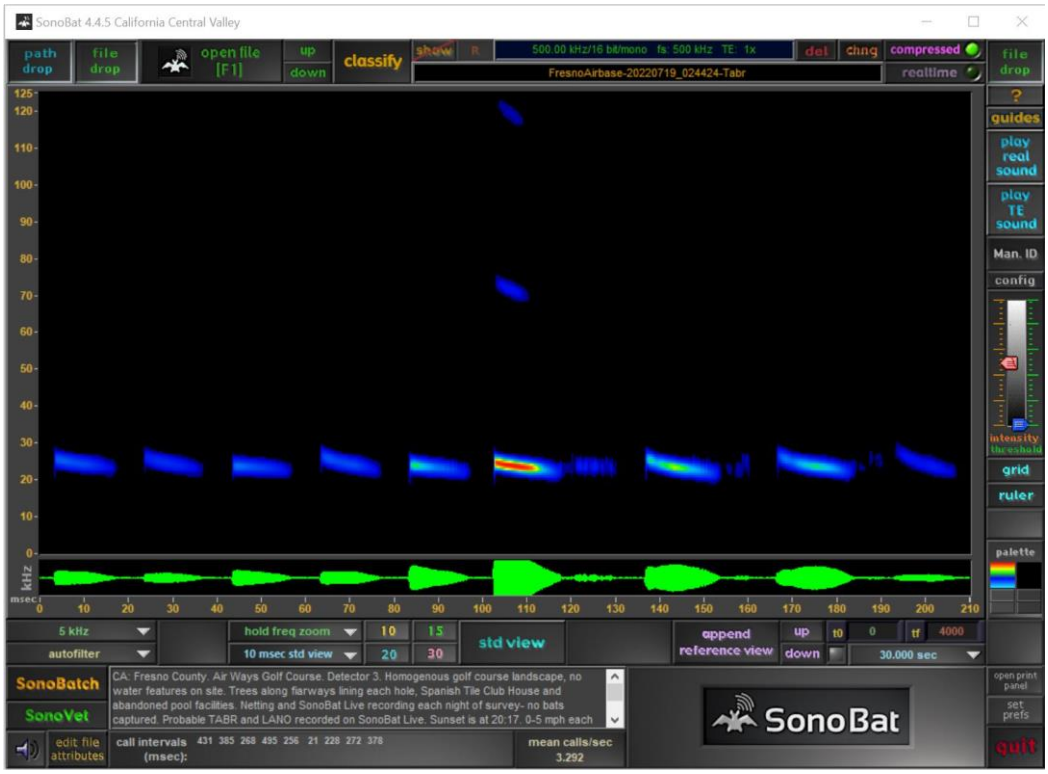


Sonogram of recorded big brown bat at the AOR



Sonogram of recorded silver-haired bat at the AOR



Sonogram of recorded Mexican free-tailed bat at the AOR

Appendix F
Acoustic Log Files

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Detector 1-1

MODEL NO: SDCFXPS-032G

FW REV: HDX9.03

SERIAL: H ZA606051511391

LABEL: D500X

2022-07-18 17:02:12 $$SYSTEM START, FW VERSION: D500X V2.3.8 201211, 12:06:07, S/N: 51467, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 4.3V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 17:03:59 $$SYSTEM START, FW VERSION: D500X V2.3.8 201211, 12:06:07, S/N: 51467, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 17:05:00 $$TIMER SLEEP ------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 17:17:21 $$KEYBOARD WAKEUP --- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 17:19:30 $$TIMER SLEEP ------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 18:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 19:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 20:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 20:00:02 $$TIMER WAKEUP ------ TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

2022-07-18 21:00:00 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.7V, FILE: M000042.WAV, TOTAL FREE: 29.65G

2022-07-19 00:00:00 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: M000637.WAV, TOTAL FREE: 27.40G

2022-07-19 01:00:02 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M000792.WAV, TOTAL FREE: 26.82G

2022-07-19 02:00:02 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M000803.WAV, TOTAL FREE: 26.77G

2022-07-19 03:00:02 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M000821.WAV, TOTAL FREE: 26.71G

2022-07-19 04:00:02 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M000824.WAV, TOTAL FREE: 26.69G

2022-07-19 05:00:00 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M000882.WAV, TOTAL FREE: 26.47G

2022-07-19 06:00:20 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001008.WAV, TOTAL FREE: 26.00G

2022-07-19 06:30:30 $$TIMER SLEEP ------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 07:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 08:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 09:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 10:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 11:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 12:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 13:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 14:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 15:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 16:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 17:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 18:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 19:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 20:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 20:00:02 $$TIMER WAKEUP ------ TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: M001074.WAV, TOTAL FREE: 25.75G

2022-07-19 21:00:04 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001157.WAV, TOTAL FREE: 25.43G

2022-07-19 22:00:00 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001189.WAV, TOTAL FREE: 25.31G

2022-07-19 23:00:14 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001229.WAV, TOTAL FREE: 25.16G

2022-07-20 00:00:01 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001247.WAV, TOTAL FREE: 25.09G

2022-07-20 01:00:02 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001263.WAV, TOTAL FREE: 25.03G

2022-07-20 02:00:22 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001269.WAV, TOTAL FREE: 25.01G

2022-07-20 03:00:04 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001270.WAV, TOTAL FREE: 25.01G

2022-07-20 04:00:04 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001270.WAV, TOTAL FREE: 25.01G

2022-07-20 05:00:03 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001271.WAV, TOTAL FREE: 25.00G

2022-07-20 06:00:18 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M001450.WAV, TOTAL FREE: 24.33G

2022-07-20 06:30:30 $$TIMER SLEEP ------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 07:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 08:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 09:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.1V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 10:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.1V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 11:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 12:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 13:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 14:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 15:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.3V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 16:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 17:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 18:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: M001619.WAV, TOTAL FREE: 23.69G

2022-07-20 18:58:34 $$SYSTEM START, FW VERSION: D500X V2.3.8 201211, 12:06:07, S/N: 51467, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: M001619.WAV, TOTAL FREE: 23.69G

Detector 1-2

MODEL NO: SDCFXS-032G

FW REV: HDX16.01

SERIAL: A ZA906221814355

LABEL: D500X

2022-07-20 19:02:44 $$SYSTEM START, FW VERSION: D500X V2.3.8 201211, 12:06:07, S/N: 51467, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: -, TOTAL FREE: 29.82G

2022-07-20 19:03:00 $$TIMER SLEEP ------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: -, TOTAL FREE: 29.82G

2022-07-20 20:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: -, TOTAL FREE: 29.82G

2022-07-20 20:00:02 $$TIMER WAKEUP ------ TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: -, TOTAL FREE: 29.82G

2022-07-20 21:00:04 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.2V, FILE: M000203.WAV, TOTAL FREE: 29.05G

2022-07-20 23:00:03 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M000722.WAV, TOTAL FREE: 27.08G

2022-07-21 00:00:25 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 4.9V, FILE: M000857.WAV, TOTAL FREE: 26.57G

2022-07-21 01:00:03 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M000875.WAV, TOTAL FREE: 26.50G

2022-07-21 02:00:03 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M000876.WAV, TOTAL FREE: 26.50G

2022-07-21 03:00:03 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M000893.WAV, TOTAL FREE: 26.44G

2022-07-21 04:00:02 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M000901.WAV, TOTAL FREE: 26.41G

2022-07-21 05:00:01 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M000908.WAV, TOTAL FREE: 26.38G

2022-07-21 06:00:02 $$HOUR LOG ---------- TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 4.8V, FILE: M001085.WAV, TOTAL FREE: 25.71G

2022-07-21 06:30:30 $$TIMER SLEEP ------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 4.8V, FILE: M001161.WAV, TOTAL FREE: 25.42G

2022-07-21 07:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 4.9V, FILE: M001161.WAV, TOTAL FREE: 25.42G

2022-07-21 08:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 4.9V, FILE: M001161.WAV, TOTAL FREE: 25.42G

2022-07-21 09:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 4.9V, FILE: M001161.WAV, TOTAL FREE: 25.42G

2022-07-21 10:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M001161.WAV, TOTAL FREE: 25.42G

2022-07-21 11:00:00 $$HOUR LOG ---------- TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.0V, FILE: M001161.WAV, TOTAL FREE: 25.42G

Detector 2-1

MODEL NO: SDCFXPS-032G

FW REV: HDX9.03

SERIAL: I ZA608051903150

LABEL: D500X

2022-07-18 17:03:42 **SYSTEM START, FW VERSION: D500X V2.4.5 201211, 12:06:56, S/N: 52339, TIMER OFF, INPUT GAIN=45, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.80G

2022-07-18 17:10:03 **SYSTEM START, FW VERSION: D500X V2.4.5 201211, 12:06:56, S/N: 52339, TIMER OFF, INPUT GAIN=45, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.80G

Detector 2-2

MODEL NO: SanDisk SDCFHSNJC-008G

FW REV: HDX 7.08

SERIAL: A ZK904241128055

LABEL: D500X

2022-07-20 18:21:16 **SYSTEM START, FW VERSION: D500X V2.4.5 201211, 12:06:56, S/N: 52339, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.1V, FILE: -, TOTAL FREE: 7.449G

2022-07-21 01:37:23 **OUT OF MEM 01 CF1 - TIMER ON, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 4.5V, FILE: M001967.WAV, TOTAL FREE: 5.156M

2022-07-21 11:26:52 **SYSTEM START, FW VERSION: D500X V2.4.5 201211, 12:06:56, S/N: 52339, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:10/06:02, DST=DIS, BATTERY: 4.9V, FILE: M001967.WAV, TOTAL FREE: 5.188M

Detector 3-1

MODEL NO: SDCFXPS-032G

FW REV: HDX9.03

SERIAL: K ZA606051518214

LABEL: D500X

2022-07-18 16:48:02 **SYSTEM START, FW VERSION: D500X V2.4.5 201211, 12:06:56, S/N: 52340, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.81G

Detector 3-2

MODEL NO: SanDisk SDCFX-008G

FW REV: HDX 6.06

SERIAL: D ZP505241228300

LABEL: D500X

2022-07-20 18:34:33 **SYSTEM START, FW VERSION: D500X V2.4.5 201211, 12:06:56, S/N: 52340, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.4V, FILE: -, TOTAL FREE: 7.446G

Detector 4-1

MODEL NO: SDCFXS-032G

FW REV: HDX16.01

SERIAL: A ZA014191618452

LABEL: D500X

2022-07-18 18:31:39 **SYSTEM START, FW VERSION: D500X V2.4.5 201211, 12:06:56, S/N: 52341, TIMER OFF, INPUT GAIN=60, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 6.0V, FILE: -, TOTAL FREE: 29.82G

Detector 4-2

MODEL NO: SanDisk SDCFHSNJC-008G

FW REV: HDX 7.08

SERIAL: A ZM407151307072

LABEL: D500X

2022-07-20 18:53:17 **SYSTEM START, FW VERSION: D500X V2.4.5 201211, 12:06:56, S/N: 52341, TIMER OFF, INPUT GAIN=40, TRIG LEV=120, INTERVAL=0, RTIMER ON/OFF: --:--/--:--, SET/RISE 18:09/06:02, DST=DIS, BATTERY: 5.5V, FILE: -, TOTAL FREE: 7.447G

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