# Final

Wildlife Remote Camera Trapping Survey Report in Support of the Proposed Fallon Range Training Complex Expansion, Nevada



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ас	acre(s)
DoN	U.S. Department of the Navy
DVTA	Dixie Valley Training Area
FRTC	Fallon Range Training Complex
ha	hectare(s)
ManTech	ManTech International Corporation
NAS	Naval Air Station
NNHP	Nevada Natural Heritage Program
U.S.	United States

# Acronyms and Abbreviations

# 1. INTRODUCTION

Naval Air Station (NAS) Fallon manages the Fallon Range Training Complex (FRTC), which currently encompasses a combination of withdrawn and acquired lands totaling approximately over 223,600 acres (ac) (90,490 hectares [ha]) of military training land located southeast of Fallon, Nevada (Figure 1-1). The FRTC is the United States (U.S.) Department of the Navy's (DoN or Navy) premier integrated strike warfare training complex, supporting air units and special operations forces in a variety of mission areas. Since World War II, the Navy has extensively used the ranges and airspace of the FRTC to conduct military air warfare and ground training, including live-fire training activities. However, the current training areas are insufficient for implementation of realistic training scenarios and do not provide required buffers for public safety. In order to effectively meet these needs, the Navy proposes to modernize the land and airspace configurations of the FRTC. The Navy is currently proposing to expand the land administered by NAS Fallon by approximately 680,000 ac (275,200 ha). The proposed expansion areas are broken into four discontinuous areas associated with four of the current training ranges (ranges B-16, B-17, B-20, and Dixie Valley Training Area [DVTA]) (Figure 1-1):

- The area west of B-16 is the proposed B-16 Expansion Area.
- The area surrounding B-20 is the proposed B-20 Expansion Area.
- The areas west and east of B-17 and south of Highway 50, and areas north of Highway 50 surrounding the DVTA are the proposed DVTA Expansion Areas.
- The area south of B-17 and Highway 50 and east of B-17 is the proposed B-17 Expansion Area.

Currently, the Navy is preparing an Environmental Impact Statement (EIS) to assess the potential environmental effects of the proposed FRTC expansion. In support of the EIS, Naval Facilities Engineering Command, Southwest contracted ManTech International Corporation (ManTech) to perform a variety of ecological surveys to inventory the flora and fauna within the proposed FRTC expansion areas. This report details the results of camera trap surveys conducted in 2016/2017 under contract N62742-14-D-1863, Task Order FZNG and in 2018/2019 under Task Order FZNG, Modification 4 (Figure 1-1). Although this task was to conduct "large mammal" surveys using remote camera stations, the cameras recorded a variety of wildlife species (e.g., birds and large and small mammals) and this report provides the results of all species detections.

### 1.1. Project Area

The project area lies within the geographic feature known as the Great Basin, particularly the Great Basin Desert. The Great Basin Desert is the largest desert in the U.S., roughly bounded by the Sierra Nevada – Cascade mountain ranges to the west and the Rocky Mountains to the east. Between these large mountain ranges are a series of basins interspersed by smaller, north-south running mountain ranges. This desert covers roughly 158,000 square miles (409,218 square kilometers) of southern Idaho, southeastern Oregon, western Utah, eastern California, and nearly all of Nevada (MacMahon 1985). The Great Basin Desert is a high, cold desert, with most of its elevations over 4,000 feet (1,200 meters), and most of its precipitation comes in the form of snow, although rain showers can occur throughout the year (Sowell 2001).



Figure 1-1. Regional Location of the Proposed FRTC Expansion Areas

### 1.2. Regional Mammals

As the initial purpose of the camera trap surveys was to document the occurrence of mammals within the proposed FRTC expansion lands, the following is a summary of the occurrence of mammal species within the lands currently managed by NAS Fallon and expected to occur within the proposed FRTC expansion areas.

A total of 58 mammal species have been recorded on the approximate 223,600 ac (90,490 ha) managed by NAS Fallon (Table 1-1). Common large mammals include desert bighorn sheep (*Ovis canadensis nelsoni*), mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), feral horse (*Equus caballus*), and coyote (*Canis latrans*). Less common mammals include bobcat (*Lynx rufus*), western spotted skunk (*Spilogale gracilis*), and long-tailed weasel (*Mustela frenata*). There are no federally listed mammal species that are known to or potentially occur within the proposed FRTC expansion areas. The Nevada Natural Heritage Program (NNHP) has identified mammals that could be declining within the state and are on the state Watch List, at least three of which are known to occur within the proposed FRTC expansion area: desert kangaroo rat (*Dipodomys deserti*), kit fox (*Vulpes macrotis*) and desert bighorn sheep (NNHP 2019). By using the results of remote camera trapping, this report provides baseline information about these species in addition to other wildlife species and their habitat associations within the proposed FRTC expansion areas.

Common Name	Scientific Name
American Badger	Taxidea taxus
Big Brown Bat	Eptesicus fuscus
Black-tailed Jackrabbit	Lepus californicus
Bobcat	Lynx rufus
Brazilian Free-tailed Bat	Tadarida brasiliensis
California Myotis	Myotis californicus
Canyon Deermouse	Peromyscus crinitus
Cattle	Bos taurus
Chisel-toothed Kangaroo Rat	Dipodomys microps
Coyote	Canis latrans
Desert Bighorn Sheep	Ovis canadensis nelsoni
Desert Cottontail	Sylvilagus audubonii
Desert Kangaroo Rat	Dipodomys deserti
Desert Woodrat	Neotoma lepida
Domestic Dog	Canis familiaris
Ermine	Mustela ermine
Fringed Myotis	Myotis thysanodes
Gray Fox	Urocyon cinereoargenteus
Great Basin Kangaroo Rat	Dipodomys microps
Great Basin Pocket Mouse	Perognathus parvus
Hoary Bat	Lasiurus cinereus
Horse	Equus caballus
Kit Fox	Vulpes macrotis
Least Chipmunk	Tamias minimus
Little Brown Bat	Myotis lucifugus
Little Pocket Mouse	Perognathus longimembris
Long-eared Myotis	Myotis evotis

Table 1-1. Mammalian Species Previously Documented on NAS Fallon-
administered Lands

Common Name	Scientific Name
Long-legged Myotis	Myotis volans
Long-tailed Pocket Mouse	Chaetodipus formosus
Long-tailed Vole	Microtus longicaudus
Long-tailed Weasel	Mustela frenata
Merriam's Kangaroo Rat	Dipodomys merriami
Mountain Cottontail	Sylvilagus nuttalli
Mountain Lion	Puma concolor
Mule Deer	Odocoileus hemionus
Muskrat	Ondatra zibethica
North American Deermouse	Peromyscus maniculatus
Northern Grasshopper Mouse	Onychomys leucogaster
Ord's Kangaroo Rat	Dipodomys ordii
Pale Kangaroo Mouse	Microdipodops pallidus
Pallid Bat	Antrozous pallidus
Piñon Deermouse	Peromyscus truei
Porcupine	Erethizon dorsatum
Pronghorn	Antilocapra americana
Red Fox	Vulpes vulpes
Sagebrush Vole	Lemmiscus curtatus
Silver-haired Bat	Lasionycteris noctivagans
Southern Grasshopper Mouse	Onychomys torridus
Striped Skunk	Mephitis mephitis
Townsend's Big-eared Bat	Corynorhinus townsendii
Western Harvest Mouse	Reithrodontomys megalotis
Western Pipistrelle	Pipistrellus hesperus
Western Red Bat	Lasiurus blossevillii
Western Small-footed Myotis	Myotis ciliolabrum
Western Spotted Skunk	Spilogale gracilis
White-tailed Antelope Ground Squirrel	Ammospermophilus leucurus
Yellow-bellied Marmot	Marmota flaviventris
Yuma Myotis	Myotis yumanensis

 
 Table 1-1. Mammalian Species Previously Documented on NAS Fallonadministered Lands

Sources: NAS Fallon 1997, 2008; DoN 2014, 2018, 2019a, 2019c, 2019e; NNHP 2018.

# 2. METHODS

### 2.1. Overview of Camera Trapping

Camera traps are a popular and widely used tool to study wildlife. They are advantageous for a variety of reasons including being an effective way of reducing the day-to-day monitoring efforts of field observers while simultaneously sampling over large spatio-temporal scales in a non-invasive way. Because they do not need to be accessed on a day-to-day basis, camera traps are well suited for detecting elusive and/or remote species that are difficult to observe while on foot or are at low population densities (Long et al. 2008). The simplest use of camera trapping is to document the presence of species within a particular area of interest, but depending on the sampling design, they are a difficult tool to confirm absence of any particular taxon (Ancrenaz et al. 2012).

Camera traps are effective wildlife monitoring tools for documenting the presence of medium to large sized mammals such as mule deer, elk, bighorn sheep, coyote, and mountain lion. However, camera trapping can also be effective at recording smaller mammals, including Leporidae (rabbits and hares), Sciuridae (chipmunks, ground squirrels, prairie dogs), Procyonidae (raccoons), Mustelidae (weasels, American badger [*Taxidea taxus*], and wolverine [*Gulo gulo*]), and Mephitidae (skunks). Other small animals, including rodents, birds, reptiles, and amphibians are detected on remote cameras and are reported herein; however, different survey techniques are much more effective for documenting these taxa to the species level and are being conducted under separate survey efforts.

As the proposed FRTC expansion areas cover approximately 680,000 ac (275,200 ha), the sheer spatial scale and the relative inaccessibility of the project area makes it extremely difficult to design a sampling scheme that can capture more information than species presence within the survey area. Species distribution, density, or abundance level data are difficult to achieve over such a large project area and would require intensive field time and data analysis. In the semi-arid Great Basin, water availability dictates the patchy distribution and abundance of certain mammal taxa and would require a large number of camera traps clustered in smaller areas as well as distributed over the entirety of the proposed FRTC expansion areas. However, even with a carefully orchestrated and statistically strong sample design, there would be no guarantee that detections of species reflected any strong correlations to distribution, density, or abundance level data. Differences in photo-counts tend to reflect changes in detection rather than significant, statistical information.

For these reasons and due to the number of camera traps that could be reasonably set and checked within the required project time frame, ManTech, through consultation with the Navy project manager, opted to evenly sample habitat types to document the presence of mammal taxa and infer habitat associations, but not make any conclusions regarding distribution, density, or abundance of mammal or other species within the proposed FRTC expansion areas.

### 2.2. Project Camera Trapping Methodology

Due to the size of the study area and logistical constraints, camera traps were not evenly distributed across all proposed expansion areas or within habitats. A total of 27 Reconyx<sup>®</sup> Hyperfire HC600 cameras were initially placed in remote locations with the goal of having relatively even representation across habitat types throughout the proposed FRTC expansion areas, while covering a broad geographic area and addressing accessibility constraints. Since the separate Vegetation Communities Mapping sub-task occurred concurrently to the camera trapping effort, habitat types were initially discerned by referencing a regional geographic information system (GIS) dataset developed by the NNHP (i.e., SynthMap; Peterson 2008). This map was constructed at a course scale and is not reliably accurate; therefore, the actual habitat types were confirmed on the ground to formation level by the biologist that deployed each camera trap and were then cross-referenced to vegetation alliances based on the completed vegetation mapping effort (DoN 2019b).

Table 2-1 provides a summary of camera locations by vegetation alliance and proposed FRTC expansion area and trap set locations are shown in Figure 2-1, Figure 2-2, Figure 2-3, and Figure 2-4. A total of 71 cameras were set: 55 within the proposed DVTA expansion area (36 in 2016/2017 and 19 in 2018/2019), 12 within the proposed B-17 expansion area (8 in 2016/2017 and 4 in 2018/2019), 3 within the proposed B-20 expansion area in 2017, and 1 within the proposed B-16 expansion area in 2017.

	Camera	Proposed FRTC
Vegetation Alliance	Set #*	<b>Expansion Area</b>
Arroyo Willow Wet Shrubland	Set19-Dixie_3	DVTA
Arroyo Willow Wet Shrubland	Set19-Dixie_12	DVTA
Bailey's Greasewood Shrubland	Set17 1_06	DVTA
Bailey's Greasewood Shrubland	Set17 1_10	DVTA
Bailey's Greasewood Shrubland	Set17 1_12	DVTA
Bailey's Greasewood Shrubland	Set17 1_17	DVTA
Bailey's Greasewood Shrubland	Set17-1_18	DVTA
Bailey's Greasewood Shrubland	Set17-1_23	DVTA
Bailey's Greasewood Shrubland	Set17-2_13	DVTA
Bailey's Greasewood Shrubland	Set17-2_26	B-16
Bailey's Greasewood Shrubland	Set19-B17_14	B-17
Bailey's Greasewood Shrubland	Set19-B17_17	B-17
Bailey's Greasewood Shrubland	Set19-B17_18	B-17
Bailey's Greasewood Shrubland	Set19-Dixie_11	DVTA
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set17-1_03	DVTA
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set17-1_05	DVTA
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set17-1_09	DVTA
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set17-1_27	B-17
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set17-2_08	DVTA
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set17-2_23	DVTA
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set17-2_25	DVTA
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set19-Dixie_1	DVTA
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	Set19-Dixie_7	DVTA
Black Sagebrush Steppe & Shrubland	Set17-1_02	DVTA
Black Sagebrush Steppe & Shrubland	Set17-1_19	DVTA
Black Sagebrush Steppe & Shrubland	Set17-1_24	DVTA
Black Sagebrush Steppe & Shrubland	Set17-1_25	DVTA
Black Sagebrush Steppe & Shrubland	Set17-2_03	DVTA
Black Sagebrush Steppe & Shrubland	Set17-2_09	DVTA
Black Sagebrush Steppe & Shrubland	Set17-2_10	B-17
Black Sagebrush Steppe & Shrubland	Set17-2_20	B-17
Black Sagebrush Steppe & Shrubland	Set19-Dixie_9	DVTA
Black Sagebrush Steppe & Shrubland	Set19-Dixie_10	DVTA
Cheatgrass Ruderal Grassland	Set17-1_16	DVTA
Cheatgrass Ruderal Grassland	Set17-2_16	DVTA
Wyoming Big Sagebrush Dry Steppe & Shrubland	Set17-1_01	DVTA
Wyoming Big Sagebrush Dry Steppe & Shrubland	Set17-1_04	DVTA
Wyoming Big Sagebrush Dry Steppe & Shrubland	Set17-1_20	DVTA
Wyoming Big Sagebrush Dry Steppe & Shrubland	Set17-1_22	DVTA
Wyoming Big Sagebrush Dry Steppe & Shrubland	Set17-2_01	DVTA
Wyoming Big Sagebrush Dry Steppe & Shrubland	Set19-Dixie_4	DVTA
Wyoming Big Sagebrush Dry Steppe & Shrubland	Set19-Dixie_5	DVTA
Wyoming Big Sagebrush Dry Steppe & Shrubland	Set19-Dixie_6	DVTA
Intermountain Greasewood Wet Shrubland	Set17-1_11	DVTA
Intermountain Greasewood Wet Shrubland	Set17-2_04	B-17
Intermountain Greasewood Wet Shrubland	Set17-2_06	B-20
Intermountain Greasewood Wet Shrubland	Set17-2 17	DVTA

Table 2-1. Camera	<b>Trap Set Locations by</b>	Vegetation Alliance and	Proposed FRTC Expansion Area
		-0	

	Camera	Proposed FRTC
Vegetation Alliance	Set #*	<b>Expansion Area</b>
Microphytic Playa	Set17-1_21	B-20
Microphytic Playa	Set17-2_21	B-17
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	Set17-1_13	B-17
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	Set17-2_07	DVTA
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	Set17-3_13	DVTA
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	Set17-3_23	B-20
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	Set19-B17_16	B-17
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	Set19-B17_19	B-17
Rubber Rabbitbrush - Sand Buckwheat - Four-part Horsebrush Sparse Scrub	Set19-B17_15	B-17
Ruderal Tamarisk Riparian Scrub	Set17-1_26	DVTA
Ruderal Tamarisk Riparian Scrub	Set17-2_24	DVTA
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	Set17-1_14	DVTA
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	Set17-2_05	DVTA
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	Set17-2_18	DVTA
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	Set17-2_22	DVTA
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	Set19-Dixie_2	DVTA
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	Set19-Dixie_8	DVTA
Utah Juniper / Shrub Woodland	Set17-1_07	B-17
Utah Juniper / Shrub Woodland	Set17-1_08	B-17
Utah Juniper / Shrub Woodland	Set17-1_15	B-17
Utah Juniper / Shrub Woodland	Set17-2_12	B-17
Utah Juniper / Shrub Woodland	Set17-2_15	B-17
Utah Juniper / Shrub Woodland	Set19-Dixie_13	DVTA
Western Baltic Rush - Mexico Rush Wet Meadow	Set17-3_22	DVTA

Table 2-1, Camera Tra	n Set Locations by	<b>Vegetation</b>	Alliance and Pro	nosed FRTC Fx	nansion Δrea
Table 2-1. Callera Ita	D Set Locations D	y vegetation	Amarice and Fro	posed inte LA	pansion Area

Note: \*Set17 = camera set in 2016/2017 survey period; Set19 = camera set in 2018/2019 survey period.

Most camera traps were deployed in the afternoon following the concurrent avian survey effort that occurred in the morning, adjacent to the avian survey stations to facilitate ease of access for subsequent visits. The locations and dates of placement for each camera trapping station (i.e., trap set) were recorded using handheld global positioning system (GPS) units. Within each targeted habitat type, the cameras were set in locations where mammals were likely to pass, including game trails, water sources (natural and man-made), scat piles, and areas with signs of high prey use. In addition, bait stations were placed at each trap set that included cotton balls soaked in apple oil encased in wire mesh. Apple oil is effective at attracting both predator and prey species and is therefore appropriate for surveys targeting broad taxa groups. Cameras were secured with a locking cable attached to sand anchors and placed in locations that would dissuade theft. Camera bursts were set to five pictures per trigger with a RapidFire™ interval and no delay between triggers. Infrared, motion sensor, and night mode were activated.

During the 2016/2017 survey period, cameras were left in place for a period of time before being moved to a new location to provide an opportunity for additional data collection in a similar or different habitat, address logistical issues, or for other reasons. During the 2018/2019 survey period, traps were set and remained in the same location for the duration of the survey period. During each survey period, trap sets were visited one to four times to check batteries, change memory cards, and reset the camera. All photographs were downloaded and curated in Adobe<sup>®</sup> Lightroom where they were sorted, identified, and tagged with associated metadata (file name, species, set name, capture time, capture date).



Figure 2-1. Camera Trap Locations (Sets) within the Proposed B-16 Expansion Area



Figure 2-2. Camera Trap Locations (Sets) within the Proposed B-17 and Southern DVTA Expansion Areas



Figure 2-3. Camera Trap Locations (Sets) within the Proposed B-20 Expansion Area



Figure 2-4. Camera Trap Locations (Sets) within the Proposed DVTA Expansion Area

## 3. RESULTS

### 3.1. 2016/2017 Survey Period (December 5, 2016 – December 10, 2017)

After the initial placement of the camera traps (Set 1) within the proposed B-16, B-17, B-20, and DVTA expansion areas, each camera was revisited one to multiple times to download SD cards and to reset the camera. During the 2016/2017 survey period, cameras were left in place for an average of 141 trap days before being moved to a new location to provide an opportunity for additional data collection in a similar or different habitat, address logistical issues, or for other reasons (Sets 2 and 3). In total, cameras were set at 52 locations consisting of 3 camera sets: Set 1 with 27 cameras (3 cameras were stolen), Set 2 with 22 cameras (1 camera was stolen and 1 camera burned in a wildfire), and Set 3 with 23 cameras. Despite efforts to place cameras in secluded areas out of sight of people and implementing measures to protect them from theft, four cameras were stolen over the course of the study. In addition, one camera was destroyed in the Fairview Fire in June 2017. Therefore, photos were captured at 49 locations.

The first camera trap was set on December 5, 2016 and the last camera trap was closed on December 10, 2017. Over the course of the survey period, cameras at the 49 locations were set for an average of 132 trap days. From these 49 camera trap locations, there were a total of 541,966 camera triggers with 74,810 target captures of animals, the remainder of which were a result of camera triggers with no animal detected in photos or triggers occurring during the set-up of each camera (Table 3-1).

### 3.2. 2018/2019 Survey Period (September 14, 2018 – June 28, 2019)

During the 2018/2019 survey period, traps were set only within the proposed DVTA and B-17 expansion areas and remained in the same locations for the duration of the survey period. The first camera trap was set on September 14, 2018 and the last camera trap was closed on June 28, 2019. Over the course of the survey period, cameras were set at 19 locations with an average of 163 trap days per location. From these 19 camera trap locations, there were a total of 26,655 camera triggers with 3,662 target captures of animals, the remainder of which were a result of camera triggers with no animal detected in photos or triggers occurring during the set-up of each camera (Table 3-1).

#### 3.3. Summary of Wildlife Camera Captures

Of the over 101,000 photo captures, a total of 23 mammals were identified to species level, 5 mammals were identified to genus level, and 2 mammals were identified to a generic guild level (i.e., mouse and fox) (Table 3-2). Additionally, 37 bird species and 3 reptile species were detected, as well as 1 reptile identified to genus, 3 detections of unknown owls, 48 detections of unknown birds, and 1 detection of an unknown reptile. The species that were detected represent the majority of the species that would be expected to occur within the habitats found within the proposed FRTC expansion areas.

Based on detections within the individual proposed FRTC expansion areas, the proposed B-17 and DVTA expansion areas had the greatest diversity of species detections (Table 3-3). However, Table 3-3 is simply a list of species detected based on the camera(s) that were set up within each proposed FRTC expansion area and does not reflect a comprehensive list of species occurrence within an expansion area. Camera traps were not evenly distributed across all proposed expansion areas or within habitats. For example, only one camera trap was set in the proposed B-16 expansion area and only three camera traps were set in the proposed B-16 expansion area and only three camera traps were set in the proposed B-20 expansion area. The proposed DVTA and B-17 expansion areas had the majority of the camera traps and therefore recorded more species. The lack of a detection of any species within a proposed expansion area does not mean that that species would not occur there in the appropriate habitat and if further surveys were conducted.

Cattle accounted for the largest numbers of mammal captures (50,640 captures), mainly resulting from a relatively large number of individuals loitering at camera set locations and triggering the camera many times. As seen by the detection of cattle in all but Microphytic Playa, they range broadly throughout the proposed FRTC expansion areas in areas of high grazing suitability. Black-tailed jackrabbit (*Lepus californicus*) and coyote also accounted for a large number of captures (14,293 and 7,425, respectively), likely a result of habitual use of their home ranges and attraction to the bait set at stations. Coyotes occurred in the majority of camera trap sets across all vegetation communities with the exception of Western Baltic Rush – Mexico Rush Wet Meadow, although this is not an indication of absence from this vegetation community but only that the one camera trap in this habitat simply did not detect an animal at this location. Kit foxes also occurred in the majority of camera in the majority of camera trap sets, documented in 12 of 14 vegetation communities.

More elusive species, such as mountain lion and desert bighorn sheep, were documented within the proposed FRTC expansion areas, but not in high numbers of photographs or in a variety of vegetation communities, namely because of the broad-stroke approach of the sampling design to capture the greatest species richness. If the goal of the camera trapping surveys was to specifically record mountain lion or bighorn sheep, then cameras would have been placed in specific habitats and areas to target these species. Other large mammals such as pronghorn, mule deer, and feral horses were documented in camera traps across a wide variety of vegetation communities coinciding with high forage suitability (Table 3-2).

Chukar (*Alectoris chukar*) was the most common bird species captured with 1,754 photos (Table 3-2 and Figure 3-1). Some animals could not be identified to species from the photographs, including kangaroo rats (*Dipodomys* spp.) (Figure 3-2), woodrat (*Neotoma* spp.), cottontail (*Sylvilagus* spp.), spiny lizard (*Sceloporus* spp.), and a small number of birds (Table 3-2). These species could not easily be identified to species level from photographs due to the difficulty of examining and determining key morphological characteristics or poor image quality.



Figure 3-1. Chukar Were Commonly Recorded on Camera Traps

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# [11 x 17]

#### Table 3-1. Summary of Camera Set Effort and Number of Camera Triggers by Habitat Formation and Alliance

								Total	Total	Total	Total
Hebitet Formation	Drenered EDTC	Comore	Cat	Find	Trees	NO. SD		Dhata	Torract	Triggere	Triagore/o
	Expansion Area	Camera Sot #	Data	Date	Dave	Chacks	Commonts**	Triggorst	Canturos	during Sot Up	Animal Canturo
	Expansion Area	Jel #	Date	Date	Days	CHECKS	Comments	inggers+	Captures	during set op	Annai Capture
Cool Semi-Desert Scrub & Grassiand	DVTA		17 Jan 17	10 4	242	2		2 200	1 104	200	010
Balley's Greasewood Shrubland	DVIA	Set17-1_06	17-Jan-17	18-Aug-17	213	3		2,209	1,184	209	816
Balley's Greasewood Shrubland	DVIA	Set17-1_10	6-Dec-16	22-IVIdy-17	107	3		12,019	0,451	270	5,298
Balley's Greasewood Shrubland	DVIA	Set17-1_12	5-Dec-16	22-IVIar-17	107	2		6/6	308	155	213
Balley's Greasewood Shrubland	DVIA	Set17-1_17	3-Jan-17	19-Jun-17	167	2		1,627	800	158	669
Balley's Greasewood Shrubland	DVIA	Set17-1_18	4-Jan-17	22-Mar-17	//	2		195	30	114	45
Balley's Greasewood Shrubland	DVIA	Set17-1_23	15-Dec-16	11-Mar-17	97	2		29,760	370	218	29,174
Balley's Greasewood Shrubland	DVIA	Set17-2_13	25-May-17	13-Aug-17	80	1		454	80	/2	302
Balley's Greasewood Shrubland	B-16	Set17-2_26	18-May-17	10-Dec-17	206	2		914	324	230	360
Bailey's Greasewood Shrubland	B-17	Set19-B17_14	16-Sep-18	21-Jun-19	279	3		2,873	1,516	118	1,239
Bailey's Greasewood Shrubland	B-17	Set19-B17_17	16-Sep-18	21-Jun-19	279	3		1,787	1,301	177	309
Bailey's Greasewood Shrubland	B-17	Set19-B17_18	16-Sep-18	21-Jun-19	272*	3		35,718	3,300	148	32,270
Bailey's Greasewood Shrubland	DVTA	Set19-Dixie_11	15-Sep-18	21-Jun-19	280	3		3,325	1,780	248	1,297
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-1_03	12-Jan-17	20-Aug-17	220	3	Associated with water feature CH-046	10,799	2,621	146	8,032
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-1_05*	17-Jan-17	29-Jun-17	163	3		40,504	1,958	176	38,370
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-1_09	17-Jan-17	12-Aug-17	207	3		2,822	1,009	402	1,412
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	B-17	Set17-1_27	5-Dec-16	15-Mar-17	140	2	Associated with water feature CH-059	920	242	525	153
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-2_08	10-Mar-17	22-Mar-17	274	2		47,339	3,006	272	44,061
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-2_23*	23-Mar-17	1-Jun-17	70	1		29,372	211	97	29,064
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-2_25	24-May-17	10-Dec-17	200	2	Associated with water feature SS South	636	320	61	255
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	DVTA	Set19-Dixie_1	15-Sep-18	23-Apr-19	86*	2		21,252	22	133	21,097
Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland	DVTA	Set19-Dixie_7	15-Sep-18	21-Jun-19	280	3		1,430	435	180	815
Black Sagebrush Steppe & Shrubland	DVTA	Set17-1_02+	6-Dec-16	7-Feb-17	63	2	Associated with water feature CH-074; stolen after 7 Feb.	1,290	924	200	166
Black Sagebrush Steppe & Shrubland	DVTA	Set17-1_19†	10-Jan-17	7-Mar-17	56	1	Associated with water feature CH-081; stolen after 7 Mar.	97	1	77	19
Black Sagebrush Steppe & Shrubland	DVTA	Set17-1_24	11-Jan-17	12-Mar-17	146	2	Associated with water feature CH-076	6,708	212	117	6,379
Black Sagebrush Steppe & Shrubland	DVTA	Set17-1_25	6-Dec-16	13-Mar-17	165	3		628	159	364	105
Black Sagebrush Steppe & Shrubland	DVTA	Set17-2_03	20-Aug-17	17-Mar-17	112	1		410	242	105	63
Black Sagebrush Steppe & Shrubland	DVTA	Set17-2_09	18-Aug-17	23-Mar-17	113	1		2,125	43	199	1,883
Black Sagebrush Steppe & Shrubland	B-17	Set17-2_10	23-May-17	24-Mar-17	200	3	Associated with water feature MI-002	4,813	781	260	3,772
Black Sagebrush Steppe & Shrubland	B-17	Set17-2_20*	24-Apr-17	6-Jul-17	73	1		12,695	8,329	106	4,354
Black Sagebrush Steppe & Shrubland	DVTA	Set19-Dixie_9	6-May-19	27-Jun-19	53	1		7,395	5,717	69	1,609
Black Sagebrush Steppe & Shrubland	DVTA	Set19-Dixie_10	14-Sep-18	24-Jun-19	284	3		846	50	316	480
Cheatgrass Ruderal Grassland	DVTA	Set17-1_16	17-Jan-17	20-Aug-17	215	3		27,666	3,384	179	24,120
Cheatgrass Ruderal Grassland	DVTA	Set17-2_16	20-Aug-17	10-Dec-17	112	1		4,660	3,851	40	769
Rubber Rabbitbrush - Sand Buckwheat - Four-part Horsebrush Sparse Scrub	B-17	Set19-B17_15	16-Sep-18	21-Jun-19	279	3		9,487	6,213	202	3,072
Wyoming Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-1_01	12-Jan-17	20-Aug-17	220	3	Associated with water feature CH-045	2,865	437	238	2,190
Wyoming Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-1_04	11-Jan-17	19-May-17	128	2	Associated with water feature CH-034	383	18	258	116
Wyoming Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-1_20	17-Jan-17	8-Mar-17	69	2	Associated with water feature CH-045	63,021	460	31	62,530
Wyoming Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-1_22	14-Dec-16	10-Mar-17	171	3		66,345	241	307	65,817
Wyoming Big Sagebrush Dry Steppe & Shrubland	DVTA	Set17-2_01	20-Aug-17	16-Mar-17	112	1		483	229	57	197
Wyoming Big Sagebrush Dry Steppe & Shrubland	DVTA	Set19-Dixie_4	15-Sep-18	21-Jun-19	280	3		582	104	89	389
Wyoming Big Sagebrush Dry Steppe & Shrubland	DVTA	Set19-Dixie_5	14-Sep-18	21-Jun-19	281	2		421	205	43	173
Wyoming Big Sagebrush Dry Steppe & Shrubland	DVTA	Set19-Dixie 6	14-Sep-18	22-Jun-19	282	2		9,983	631	69	9,283
Salt Marsh											
Intermountain Greasewood Wet Shrubland	DVTA	Set17-1_11*	17-Jan-17	8-Sep-17	234	4		6,542	3,614	299	2,720
Intermountain Greasewood Wet Shrubland	B-17	Set17-2 04	23-May-17	18-Mar-17	44	2		690	295	60	335
Intermountain Greasewood Wet Shrubland	B-20		19-Aug-17	20-Mar-17	113	1		260	168	47	45
	-										-

Table 3-1. Summary	of Camera Set Effort and Number of Camera Triggers by Habitat Formation and Allia	nce
	si camera set Enort and Hamser of camera Higgers sy hasitat i officiation and Ama	

						No. SD		Total	Total	Total	Total
Habitat Formation	Proposed FRTC	Camera	Set	End	Trap	Card		Photo	Target	Triggers	Triggers w/o
Alliance	<b>Expansion Area</b>	Set #	Date	Date	Days	Checks	Comments**	Triggers‡	Captures	during Set Up	Animal Capture
Intermountain Greasewood Wet Shrubland	DVTA	Set17-2_17	22-Jun-17	9-Dec-17	170	2		1,685	773	168	764
Microphytic Playa	B-20	Set17-1_21	13-Dec-16	9-Mar-17	188	4		791	72	319	403
Microphytic Playa	B-17	Set17-2_21	22-Jun-17	26-Sep-17	96	1		216	56	87	73
Warm Desert & Semi-Desert Scrub & Grassland											
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	B-17	Set17-1_13	17-Jan-17	24-May-17	127	2		5,138	3,399	82	1,659
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	DVTA	Set17-2_07	17-Mar-17	21-Mar-17	267	3		4,475	1,265	424	2,786
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	DVTA	Set17-3_13	18-Aug-17	9-Dec-17	113	1		142	36	67	39
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	B-20	Set17-3_23	29-Oct-17	10-Dec-17	42	1		135	82	37	16
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	B-17	Set19-B17_16	16-Sep-18	21-Jun-19	279	3		1,090	498	170	422
Mojave-Sonoran Burrobrush - Sweetbush Desert Wash Scrub	B-17	Set19-B17_19	16-Sep-18	21-Jun-19	223*	2		6,428	374	173	5,881
Temperate Flooded & Swamp Forest											
Ruderal Tamarisk Riparian Scrub	DVTA	Set17-1_26	19-Dec-16	14-Mar-17	147	3		13,968	10,321	397	3,267
Ruderal Tamarisk Riparian Scrub	DVTA	Set17-2_24	6-Jun-17	N/A	0	1	Stolen	-	-	-	-
Cool Temperate Forest & Woodland											
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	DVTA	Set17-1_14	16-Jan-17	N/A	0	1	Stolen	-	-	-	-
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	DVTA	Set17-2_05	19-Aug-17	19-Mar-17	113	1		1,695	1,169	50	483
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	DVTA	Set17-2_18	23-Mar-17	9-Dec-17	261	2		20,962	982	134	19,846
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	DVTA	Set17-2_22	26-Jun-17	20-Aug-17	55	1		923	291	508	124
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	DVTA	Set19-Dixie_2	13-Oct-18	21-Jun-19	237*	3		24,893	1,022	311	23,560
Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland	DVTA	Set19-Dixie_8	12-Oct-18	28-Jun-19	248*	3		24,042	129	232	23,681
Utah Juniper / Shrub Woodland	B-17	Set17-1_07	28-Nov-16	6-Mar-17	98	2		1,600	341	1,135	124
Utah Juniper / Shrub Woodland	B-17	Set17-1_08	17-Jan-17	6-Mar-17	48	1		1,135	922	81	132
Utah Juniper / Shrub Woodland	B-17	Set17-1_15	17-Dec-16	20-Jun-17	185	4		61,969	8,304	487	53,178
Utah Juniper / Shrub Woodland	B-17	Set17-2_12	23-Mar-17	N/A	0	1	Burned in wildfire.	-	-	-	-
Utah Juniper / Shrub Woodland	B-17	Set17-2_15	20-Jun-17	10-Dec-17	173	2		36,450	389	88	35,973
Utah Juniper / Shrub Woodland	DVTA	Set19-Dixie_13	14-Sep-18	24-Jun-19	284	3		3,328	1,411	158	1,759
Shrub & Herb Wetland											
Western Baltic Rush - Mexico Rush Wet Meadow	DVTA	Set17-3_22	21-Aug-17	9-Dec-17	110	1		8,755	4,100	35	4,620
Temperate to Polar Freshwater Marsh, Wet Meadow & Shrubland											
Arroyo Willow Wet Shrubland	DVTA	Set19-Dixie_3	19-Sep-18	27-Jun-19	282	2		2,582	921	701	960
Arroyo Willow Wet Shrubland	DVTA	Set19-Dixie_12	19-Sep-18	27-Jun-19	234*	2		19,959	1026	125	18808
							Total	719,387	101,465	13,810	604,395

Notes: \*Camera SD maxed out prior to camera retrieval date. Trap days reflect number of active camera days prior to SD card depletion.

<sup>†</sup>Camera stolen after one or more successful SD card retrievals. Trap days reflect number of active camera days prior to theft.

‡In many cases, the Total Photo Triggers value is less than the sum of all captures provided in the three subsequent columns. This is because one photograph taken of two species detected in the same frame is recorded as two captures in the Total Target Captures value columns.

# [11 x 17]

				Table 3-2	. Wildlife Photo	Captures by	Taxon and Ve	getation Allia	ance						
Species	Bailey's Greasewood Shrubland (12 Camera Sets)	Basin Big Sagebrush – Foothill Big Sagebrush Dry Steppe & Shrubland (9 Camera Sets)	Black Sagebrush Steppe & Shrubland (10 Camera Sets)	Cheatgrass Ruderal Grassland (2 Camera Sets)	Intermountain Greasewood Wet Shrubland (4 Camera Sets)	Microphytic Playa (2 Camera Sets)	Mojave- Sonoran Burrobrush – Sweetbush Desert Wash Scrub (6 Camera Sets)	Ruderal Tamarisk Riparian Scrub (2 Camera Sets)	Great Basin Singleleaf Pinyon – Utah Juniper/ Shrub Woodland (5 Camera Sets)	Utah Juniper/ Shrub Woodland (5 Camera Sets)	Western Baltic Rush – Mexico Rush Wet Meadow (1 Camera Set)	Wyoming Big Sagebrush Dry Steppe & Shrubland (8 Camera Sets)	Arroyo Willow Wet Shrubland (2 Camera Sets)	Rubber Rabbitbrush - Sand Buckwheat - Four-part Horsebrush Sparse Scrub (1 Camera Set)	Total Captures
Arthropods Arthropod- unknown	8% (134)	11% (2)	10% (58)	-	-	-	33% (18)	-	40% (2)	20% (4)	-	12.5% (3)	50% (149)	100% (130)	500
Rentiles	0/0 (10 1)	11/0 (2)	10/0 (30)				33/0 (10)		10/0 (2)	20/0 (1)		12:370 (3)	30/0 (113)	100/0 (190)	500
Long-nosed leopard lizard (Gambelia wislizenii)	8% (2)	11% (5)	-	-	-	-	-	-	-	-	-	-	-	-	7
Western collared lizard (Crotophytus collaris)	8% (8)	-	10% (5)	-	-	-	-	-	-	-	-	-	50% (5)	-	18
Western fence lizard (Sceloporus occidentalis)	-	-	10% (15)	-	-	-	-	-	-	-	-	-	-	-	15
Sceloporus sp.	-	-	10% (80)	-	-	-	-	-	20% (2)	-	-	12.5% (10)	-	-	92
Reptile - unknown	-	11% (1)	-	-	-	-	-	-	-	-	-	-	-	-	1
Mammals															
Black-tailed jackrabbit (Lepus californicus)	100% (3,453)	78% (1,147)	60% (1,514)	100% (932)	100% (3,523)	50% (52)	50% (1,294)	50% (4)	80% (863)	60% (401)	100% (484)	50% (235)	-	100% (391)	14,293
Sylvilagus sp./Brachylagus sp.	17% (26)	42.9% (1,130)	20% (1,676)	-	50% (51)	-	25% (11)	-	40% (172)	-	-	25% (253)	-	-	3,319
Sylvilagus sp.	17% (647)	-	-				33% (11)		20% (3)			-	50% (26)	-	687
Pygmy rabbit (Brachylagus idahoensis)	-	-	-	-	-	-	-	-	-	-	-	-	50% (85)	-	85
White-tailed antelope squirrel (Ammospermophilus leucurus)	50% (252)	78% (163)	30% (152)	100% (67)	25% (2)	-	33% (2)	-	40% (60)	-	-	50% (84)	-	100% (144)	926
Townsend's ground squirrel (Spermophilus townsendii)	-	-	10% (5,632)	-	-	-	-	-	-	-	-	-	-	-	5,632
Least chipmunk (Tamias minimus)	-	-	-	-	-	-	-	-	20% (23)	-	-	-	50% (21)	-	44
Dipodomys sp.	42% (24)	22% (23)	-	100% (462)	50% (51)	-	-	-	-	-	-	12.5% (333)	-	-	893
Neotoma sp.	8% (1)	-	20% (16)	-	25% (10)	-	-	50% (42)	40% (148)	-	-	12.5% (26)	50% (16)	-	259
Peromyscus sp.	-	11% (3)													3
Mouse - unknown	-	-	30% (21)	-	25% (19)	50% (8)	-	50% (185)	20% (35)	20% (65)	100% (1,250)	-	50% (9)	-	1,592
Yellow-bellied marmot (Marmota flaviventris)	8% (2)	-	-	-	-	-	-	-	-	-	-	-	50% (352)	-	354
Coyote (Canis latrans)	67% (576)	67% (451)	70% (5,194)	100% (167)	100% (588)	100% (18)	83% (78)	50% (16)	60% (207)	80% (33)	-	25% (48)	50% (33)	100% (16)	7,425
Domestic dog (Canis familiaris)	-	71.4% (31)	-	-	25% (1)	-	-	-	-	20% (2)	-	-	100% (12)	-	46
Gray fox (Urocyon cinereoargenteus)	-	11% (7)	-	-	-	-	-	-	40% (337)	20% (2)	-	12.5% (5)	100% (609)	-	960
Red fox (Vulpes vulpes)	-	-	12.5% (5)	-	-	-	-	-	20% (11)	20% (22)	-	12.5% (25)	50% (5)	-	68
Kit fox (Vulpes macrotis)	58% (196)	55.5% (122)	62.5% (66)	100% (3,462)	75% (59)	100% (41)	66% (42)	50% (3)	80% (221)	40% (22)	-	62.5% (69)	-	100% (12)	4,315
Fox - unknown	-	-	10% (1)	-	-	-	-	-	-	-	-	12.5% (7)	-	-	8

	Bailey's Greasewood Shrubland (12 Camera	Basin Big Sagebrush – Foothill Big Sagebrush Dry Steppe & Shrubland (9 Camera	Black Sagebrush Steppe & Shrubland (10 Camera	Cheatgrass Ruderal Grassland (2 Camera	Intermountain Greasewood Wet Shrubland (4 Camera	Microphytic Playa (2 Camera	Mojave- Sonoran Burrobrush – Sweetbush Desert Wash Scrub (6 Camera	Ruderal Tamarisk Riparian Scrub (2 Camera	Great Basin Singleleaf Pinyon – Utah Juniper/ Shrub Woodland (5 Camera	Utah Juniper/ Shrub Woodland (5 Camera	Western Baltic Rush – Mexico Rush Wet Meadow (1 Camera	Wyoming Big Sagebrush Dry Steppe & Shrubland (8 Camera	Arroyo Willow Wet Shrubland (2 Camera	Rubber Rabbitbrush - Sand Buckwheat - Four-part Horsebrush Sparse Scrub (1 Camera	Total
Species	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Set)	Sets)	Sets)	Set)	Captures
Western spotted skunk (Spilogale gracilis)	-	11% (10)	12.5% (9)	-	-	-	-	-	-	-	-	12.5% (37)	100% (9)	-	65
Striped skunk				500((40)											
(Mephitis mephitis)	-	-	-	50% (40)	-	-	-	-	-	-	-	-	-	-	40
Bobcat	17% (77)	22% (120)	30% (30)	-	-	-	17% (12)	-	60% (77)	20% (22)	_	25% (8)	50% (19)	-	365
(Lynx rufus)												(-)			
(Puma concolor)	-	-	-	-	-	-	-	-	40% (20)	-	100% (71)	-	50% (8)	-	99
Long-tailed weasel															
(Mustela frenata)	-	-	-	-	-	-	-	-	-	-	-	12.5% (1)	-	-	1
Ermine	-	-	10% (6)	-	-	-	-	-	-	-	-	-	-	-	6
(Mustela ermine)															-
(Taxidea taxus)	25% (6)	22% (11)	20% (7)	100% (39)	-	-	-	-	20% (6)	20% (1)	-	-	50% (7)	-	77
Pronghorn	420( (50.4)	220( (4, 022)	4.00( (4)	4000( (50)	250( (477)		ccov (220)			400((4.2)	4000((5)			100% (0)	2 0 7 7
(Antilocapra americana)	42% (584)	33% (1,833)	10% (1)	100% (58)	25% (177)	-	66% (220)	-	-	40% (13)	100% (5)	12.5% (77)	-	100% (9)	2,977
Cattle	67% (10.655)	67% (3.075)	30% (1.150)	50% (1.971)	50% (158)	-	33% (3.722)	50% (9.993)	60% (730)	80% (10.555)	100% (2.289)	25% (837)	-	100% (5.505)	50.640
(Bos taurus)		(-,,										( )			
Desert Dignorn Sneep (Ovis canadensis nelsoni)	-	-	20% (228)	-	-	-	-	-	-	20% (61)	-	-	-	-	289
Mule deer							(								
(Odocoileus hemionus)	-	11% (1)	10% (3)	-	-	-	17% (5)	-	100% (352)	20% (29)	-	12.5% (161)	100% (379)	-	930
Horse	17% (289)	33% (61)	20% (73)	-	25% (43)	-	-	-	40% (208)	-	_	12.5% (6)	-	-	680
(Equus caballus)															
Birds Mountain guail															
(Oreortyx pictus)	-	-	-	-	-	-	-	-	20% (3)	-	-	-	-	-	3
Chukar	9% (E)	EE EV (1 262)	60% (284)					E0% (22)		20% (25)		62 5% (50)	100% (OE)		1 754
(Alectoris chukar)	8%(5)	55.5% (1,205)	00% (284)	-	-	-	-	50% (25)	-	20% (25)	-	62.5% (59)	100% (95)	-	1,/54
Mourning dove	-	11% (2)	10% (3)	-	25% (1)	-	-	50% (29)	-	-	-	-	-	-	35
(Zenalda macroura) Killdeer															
(Charadrius vociferus)	-	-	-	-	-	-	-	50% (1)	-	-	-	-	-	-	1
Red-tailed hawk					259/ (1)		170/ (5)								c
(Buteo jamaicensis)	-	-	-	-	25%(1)	-	17%(5)	-	-	-	-	-	-	-	0
Golden eagle	-	-	-	-	-	-	-	50% (8)	-	-	-	-	-	-	8
(Aquila chrysaetos)															
(Bubo virginianus)	-	-	10% (5)	-	-	-	-	-	-	-	-	-	-	-	5
Short-eared owl															-
(Asio flammeus)	-	-	-	50% (5)	-	-	-	-	-	-	-	-	-	-	5
Owl - unknown	8% (1)	-	-	-	-	-	-	-	20% (2)	-	-	-	-	-	3
Northern flicker ( <i>Colaptes auratus</i> )	-	11% (4)	-	-	-	-	-	-	20% (5)	-	-	-	100% (12)	-	21

# Table 3-2. Wildlife Photo Captures by Taxon and Vegetation Alliance

Gravita	Bailey's Greasewood Shrubland (12 Camera	Basin Big Sagebrush – Foothill Big Sagebrush Dry Steppe & Shrubland (9 Camera	Black Sagebrush Steppe & Shrubland (10 Camera	Cheatgrass Ruderal Grassland (2 Camera	Intermountain Greasewood Wet Shrubland (4 Camera	Microphytic Playa (2 Camera	Mojave- Sonoran Burrobrush – Sweetbush Desert Wash Scrub (6 Camera	Ruderal Tamarisk Riparian Scrub (2 Camera	Great Basin Singleleaf Pinyon – Utah Juniper/ Shrub Woodland (5 Camera	Utah Juniper/ Shrub Woodland (5 Camera	Western Baltic Rush – Mexico Rush Wet Meadow (1 Camera	Wyoming Big Sagebrush Dry Steppe & Shrubland (8 Camera	Arroyo Willow Wet Shrubland (2 Camera	Rubber Rabbitbrush - Sand Buckwheat - Four-part Horsebrush Sparse Scrub (1 Camera	Total
Species	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Sets)	Set)	Sets)	Sets)	Set)	Captures
Prairie falcon (Falco mexicanus)	-	-	10% (10)	-	-	50% (3)	-	-	-	-	-	-	-	-	13
Cordilleran flycatcher															
(Empidonax occidentalis)	-	-	-	-	-	-	17% (10)	-	-	-	-	-	-	-	10
Say's phoebe	90/ /F)		10% (20)											100% (1)	25
(Sayornis saya)	8% (5)	-	10% (29)	-	-	-	-	-	-	-	-	-	-	100% (1)	35
Ash-throated flycatcher	_	_	_	_	_	_	_		20% (3)	_	_	_	_	_	2
(Myiarchus cinerascens)	_	_	-	_	_	_	_	_	2078 (3)	-	_	_	_	-	<b>J</b>
Loggerhead shrike	-	11% (7)	-	-	-	-	-	-	-	-	_	-	-	-	7
(Lanius Iudovicianus)		,													
Pinyon jay	8% (2)	11% (5)	-	-	-	-	-	-	-	20% (17)	-	-	-	-	24
(Gynnorninus Cyunocephaius)															
(Anhelocoma woodhouseii)	-	-	-	-	-	-	-	-	40% (26)	20% (13)	-	-	-	-	39
Black-billed magpie															
(Pica hudsonia)	-	11% (116)	-	-	-	-	-	-	-	-	-	-	-	-	116
Common raven	25% (125)	22% (56)	_	_	50% (60)	50% (5)	_	50% (5)	40% (17)	_	_	_	_	100% (4)	291
(Corvus corax)	23%(123)	55% (50)	-	-	50% (09)	50%(5)	-	50%(5)	40%(17)	-	-	-	-	100%(4)	201
Horned lark	17% (84)	-	10% (114)	50% (9)	25% (42)	-	17% (2)	_	-	20% (2)	_	12 5% (1)	-	-	254
(Eremophila alpestris)	1770 (01)		10/0 (111)	5676 (57	2370(12)		1770(2)			2070 (27		12.370 (1)			
Cliff swallow	-	-	-	-	25% (3)	-	-	-	-	-	-	-	-	-	3
(Petrochelidon pyrrhonota)															
(Eunhagus cygnocenhalus)	-	-	10% (9)	-	-	-	-	-	-	-	-	-	-	-	9
Bock wren															
(Salpinctes obsoletus)	-	-	10% (9)	-	-	-	-	-	20% (1)	-	-	12.5% (5)	-	-	15
Bewick's wren											100% (1)				1
(Thryomanes bewickii)	-	-	-	-	-	-	-	-	-	-	100% (1)	-	-	-	T
Mountain bluebird	_	11% (5)	-	_	_	_	_	_	_	_	_	-	_	_	5
(Sialia currucoides)		11/0 (5)													, ,
American robin	-	-	-	-	-	-	-	-	40% (42)	-	_	-	100% (73)	-	115
(Turdus migratorius)									. ,				. ,		
varied thrush (Ixoreus paevius)	-	-	-	-	-	-	-	-	-	-	-	-	50% (8)	-	8
Western meadowlark															
(Sturnella nealecta)	8% (5)	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Bushtit									202( (5)						_
(Psaltriparus minimus)	-	-	-	-	-	-	-	-	20% (5)	-	-	-	-	-	5
Dark-eyed junco	_	_						_	20% (5)				50% (1)		6
(Junco hyemalis)				_	_	_	_		2070 (3)	-	_	_	J070 (1)	-	0
House finch	8% (3)	-	-	-	-	-	-	-	_	-	-	-	-	-	3
(Haemorhous mexicanus)	(0)														
(Pipilo chlorurus)	-	11% (3)	-	-	-	-	-	-	-	-	-	-	-	-	3

### Table 3-2. Wildlife Photo Captures by Taxon and Vegetation Alliance

Species	Bailey's Greasewood Shrubland (12 Camera Sets)	Basin Big Sagebrush – Foothill Big Sagebrush Dry Steppe & Shrubland (9 Camera Sets)	Black Sagebrush Steppe & Shrubland (10 Camera Sets)	Cheatgrass Ruderal Grassland (2 Camera Sets)	Intermountain Greasewood Wet Shrubland (4 Camera Sets)	Microphytic Playa (2 Camera Sets)	Mojave- Sonoran Burrobrush – Sweetbush Desert Wash Scrub (6 Camera Sets)	Ruderal Tamarisk Riparian Scrub (2 Camera Sets)	Great Basin Singleleaf Pinyon – Utah Juniper/ Shrub Woodland (5 Camera Sets)	Utah Juniper/ Shrub Woodland (5 Camera Sets)	Western Baltic Rush – Mexico Rush Wet Meadow (1 Camera Set)	Wyoming Big Sagebrush Dry Steppe & Shrubland (8 Camera Sets)	Arroyo Willow Wet Shrubland (2 Camera Sets)	Rubber Rabbitbrush - Sand Buckwheat - Four-part Horsebrush Sparse Scrub (1 Camera Set)	Total Captures
Brewer's sparrow (Spizella breweri)	8% (62)	-	10% (5)	-	-	-	-	-	-	-	-	-	-	-	67
Lark sparrow (Chondestes grammacus)	8% (144)	-	-	-	-	-	-	-	-	20% (58)	-	-	-	-	202
Sagebrush sparrow (Artemisiospiza nevadensis)	-	-	-	-	-	-	-	-	-	-	-	-	-	100% (1)	1
White-crowned sparrow (Zonotrichia leucophrys)	-	-	-	-	-	-	-	-	-	-	-	-	50% (5)	-	5
Black-throated sparrow (Amphispiza bilineata)	8% (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Brown-headed cowbird ( <i>Molothrus ater</i> )	-	11% (7)	-	-	-	-	-	-	-	-	-	-	-	-	7
Bird - unknown	25% (43)	-	-	-	25% (4)	-	-	-	-	20% (1)	-	-		-	48
Other															
Animal- unknown	67% (41)	78% (40)	70% (19)	50% (23)	75% (16)	-	83% (28)	50% (12)	-	40% (10)	-	100% (35)	100% (3)	-	227
Human triggered	-	44% (120)	20% (31)	-	-	50% (1)	-	-	-	20% (2)	-	-	100% (6)	-	160
Vehicle triggered	-	-	-	-	50% (32)	-	17% (194)	-	-	20% (10)	-	-	-	-	236
Total Captures	17,453	9,824	16,458	7,235	4,850	128	5,654	10,321	3,593	11,368	4,100	2,325	1,947	6,213	101,469

#### Table 3-2. Wildlife Photo Captures by Taxon and Vegetation Alliance

Note: Percentages represent the percentage of camera traps that detected the particular taxon within each vegetation alliance. The number in parentheses is the total number of photographs of that species within that vegetation alliance. For example, out of eight camera sets within Black Sagebrush Steppe and Shrubland, kit fox was documented in 66 photographs in 5 camera traps, which represents 62.5% of the total of 8 trap sets for that vegetation alliance.

Group	Species	B-16	B-17	B-20	DVTA
REPTILES	Long-nosed leopard lizard (Gambelia wislizenii)				х
	Western fence lizard (Sceloporus occidentalis)				х
	Western collared lizard (Crotophytus collaris)				х
MAMMALS	Black-tailed jackrabbit (Lepus californicus)	х	х	х	х
	Sylvilagus sp./Brachylagus idahoensis		х		х
	Pygmy rabbit (Brachylagus idahoensis)				х
	White-tailed antelope squirrel (Ammospermophilus leucurus)	х	х		х
	Least chipmunk ( <i>Tamias minimus</i> )				х
	Townsend's ground squirrel (Spermophilus townsendii)				х
	Yellow-bellied marmot (Marmota flaviventris)				х
	Coyote (Canis latrans)	х	х	х	х
	Domestic dog (Canis familiaris)		х		х
	Gray fox (Urocyon cinereoargenteus)				х
	Red fox (Vulpes vulpes)				х
	Kit fox (Vulpes macrotis)	х	х	х	х
	Ermine ( <i>Mustela erminea</i> )				х
	Western spotted skunk (Spilogale gracilis)				х
	Striped skunk (Mephitis mephitis)		х		х
	Long-tailed weasel (Mustela frenata)				х
	American badger (Taxidea taxus)		х		х
	Bobcat ( <i>Lynx rufus</i> )		х		х
	Mountain lion ( <i>Puma concolor</i> )				х
	Pronghorn (Antilocapra americana)		х	х	х
	Cattle (Bos taurus)	х	х	х	х
	Desert bighorn sheep (Ovis canadensis nelsoni)				х
	Mule deer (Odocoileus hemionus)				х
	Horse (Equus caballus)				х
BIRDS	Mountain quail ( <i>Oreortyx pictus</i> )				х
	Chukar (Alectoris chukar)		х		х
	Mourning dove (Zenaida macroura)		х		х
	Killdeer (Charadrius vociferus)				х
	Red-tailed hawk (Buteo jamaicensis)				х
	Golden eagle (Aquila chrysaetos)				х
	Prairie falcon (Falco mexicanus)		х	х	
	Great horned owl (Bubo virginianus)		х		
	Short-eared owl (Asio flammeus)		х		х
	Northern flicker (Colaptes auratus)				х
	American robin (Turdus migratorius)				х
	Varied thrush (Ixoreus naevius)				х
	Western meadowlark (Sturnella neglecta)		х		
	Cordilleran flycatcher (Empidonax occidentalis)				х
	Say's phoebe (Sayornis saya)		х		х
	Ash-throated flycatcher (Myiarchus cinerascens)				х
	Loggerhead shrike (Lanius ludovicianus)				х
	Pinyon jay (Gymnorhinus cyanocephalus)		х		х
	Woodhouse's scrub-jay (Aphelocoma woodhouseii)				х
	Black-billed magpie (Pica hudsonia)				х
	Common raven (Corvus corax)		х	х	х
	Horned lark (Eremophila alpestris)		х		х
	Cliff swallow (Petrochelidon pyrrhonota)				х
	Rock wren (Salpinctes obsoletus)		х		х
	Bewick's wren (Thryomanes bewickii)				х

Table 3-3. Summary of Camera Detections of Wildlife Species within Proposed FRTC Expansion
Areas

Group	Species	B-16	B-17	B-20	DVTA
BIRDS	Mountain bluebird (Sialia currucoides)				Х
	Bushtit ( <i>Psaltriparus minimus</i> )				х
	House finch (Haemorhous mexicanus)				х
	Green-tailed towhee (Pipilo chlorurus)				х
	Brewer's sparrow (Spizella breweri)		х		х
	Lark sparrow (Chondestes grammacus)		х		х
	Black-throated sparrow (Amphispiza bilineata)		х		
	Sagebrush sparrow (Artemisiospiza nevadensis)		х		
	White-crowned sparrow (Zonotrichia leucophrys)				х
	Dark-eyed junco ( <i>Junco hyemalis</i> )				х
	Brown-headed cowbird ( <i>Molothrus ater</i> )				х
	Brewer's blackbird (Euphagus cyanocephalus)				х

Table 3-3. Summary of Camera Detections of Wildlife Species within Proposed FRTC Expansion
Areas



Figure 3-2. Camera Trap Photos Can Elucidate Certain Taxa to Genus, Such as This Kangaroo Rat (*Dipodomys* sp.).

The total number of captures per species at each station is not an indication of relative abundance; therefore, the percentage of species captures per habitat alliance was calculated which provides a better representation of how abundant these species are in each habitat (Table 3-2). Based on this approach, the black-tailed jackrabbit was widely detected across 13 of 14 habitat alliances surveyed. White-tailed antelope squirrel (*Ammospermophilus leucurus*) is common in Bailey's Greasewood Shrubland and Basin Big Sagebrush - Foothill Big Sagebrush Dry Steppe & Shrubland. Coyote was detected in all but one habitat alliance, Western Baltic Rush - Mexico Rush Wet Meadow. Mule deer were primarily detected in Great Basin Singleleaf Pinyon - Utah Juniper/Shrub Woodland and desert bighorn sheep were only detected in Black Sagebrush Steppe & Shrubland and Utah Juniper/Shrub Woodland. For birds, both the relatively common horned lark (*Eremophila alpestris*) and common raven (*Corvus corax*) were detected in

approximately half of the habitat alliances sampled (Table 3-2); however, ravens are much more broadly distributed based on field observations.

A complete summary of detections by habitat and camera set is provided in Appendix A. Appendix B provides a representative sample of camera trap photographs.

# 4. DISCUSSION

Somewhat unexpectedly, the red fox (*Vulpes vulpes*) was also documented within the eastern and western portions of the proposed DVTA expansion area (Figure 4-1; Sets 1\_02 and 1\_22 – see Figure 2-4). Significant predators of ground-nesting birds, such as greater sage-grouse (*Centrocercus urophasianus*), and a strong displacer of native canids, red fox typically inhabit montane and boreal habitats. Their native status has been strongly contested, especially in Nevada; however, recent genetic analyses suggest that Great Basin populations are in fact native and have resulted from range expansion rather than escaped fur-farm captives (Statham et al. 2012).

Interestingly, several avian species that were not documented during the 2016 – 2019 "General Avian Surveys" subtask (DoN 2019d) were documented during the camera trapping effort. For example, the Cordilleran flycatcher (*Empidonax occidentalis*) was captured in 10 photos from one camera trap set in Mojave Sonoran Burrobrush – Sweetbush Desert Wash Scrub in the western portion of the proposed DVTA Expansion Area (Set17-2\_07 – see Figure 2-4). Though Cordilleran flycatcher and Pacific-slope flycatcher (*E. difficilis*) could easily be confused, the Cordilleran flycatcher was identified by its expansive and teardrop-shaped eye ring and small beak. Found primarily in the Rocky Mountains, the occurrence within the survey area is much further west of its typical breeding range and migratory corridor (Lowther et al. 2016).

Three morphologically similar rabbit species (desert cottontail [*Sylvilagus audubonii*], mountain cottontail [*S. nuttalli*], and pygmy rabbit [*Brachylagus idahoensis*]) were potentially documented within the proposed FRTC expansion areas. However, key morphological distinctions such as the proper proportion of ear sizes were too difficult to discern from camera trap photos, though photographs strongly suggest all three species may be present within the proposed FRTC expansion areas. While mountain cottontail and pygmy rabbit are both fairly well distributed across the entirety of Nevada, the northern edge of the range of the desert cottontail is approximately within the southern portion of the proposed B-17 expansion area (Kays and Wilson 2009). All three species occur in juniper woodland, grasslands, and areas of high sagebrush cover.

The inherent limitations of using camera trapping at the scale of this inventory limit the ability to draw strong abundance or distribution-type conclusions from these data. Although camera traps confirm presence at a location, they are not good tools to indicate absence without a much more intensive survey effort. Further, with the scale of the geographic area to be surveyed, camera trapping at a sufficient level of effort to determine abundance of large mammals is impractical and inefficient. In order to capture more fine-scale data in which abundance and/or distribution may be inferred, aerial survey data collection for large mammals is a more effective and financially viable method.

Though the initial focus of this subtask was to target large mammals, camera traps outperform in their ability to identify the diversity of mesopredators and their habitat associations. This particular group of medium-sized mammals were not inventoried by any other means of sampling for the FRTC ecological inventory (e.g., point counts are designed for avifauna, Sherman trapping is designed for most small

mammal species). Therefore, the diversity of certain mesopredators, such as the coyote, bobcat, American badger, and gray or red fox, would not have been captured by other survey methods.



Figure 4-1. Red Fox Recorded in Black Sagebrush and Steppe

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# Appendix A: Camera Trap Detections by Habitat and Camera Set

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[11x17]

Table A-1. Bailey's Greasewood Shrubland												
Camera Set	17-1_06	17-1_10	17-1_12	17-1_17	17-1_18	17-1_23	17-2_13	17-2_26	19-B17_14	19-B17_17	19-B17_18	19-Dixie_11
Set Date	17-Jan-17	6-Dec-16	5-Dec-16	3-Jan-17	4-Jan-17	15-Dec-16	25-May-17	18-May-17	16-Sep-18	16-Sep-18	16-Sep-18	15-Sep-18
End Date	18-Aug-17	22-May-17	22-Mar-17	19-Jun-17	22-Mar-17	22-Mar-17	13-Aug-17	10-Dec-17	21-Jun-19	21-Jun-19	21-Jun-19	21-Jun-19
Trap Days	213	167	107	167	77	97	80	206	279	279	272	280
Arthropods												
Arthropod- unknown	-	-	-	-	-	-	-	-	-	-	134	-
Reptiles												
Long-nosed leopard lizard (Gambelia wislizenii)	-	-	-	-	-	-	-	-	-	-	2	-
Western collared lizard (Crotaphytus collaris)	-	-	-	-	-	-	-	-	-	-	8	-
Mammals												
Black-tailed jackrabbit (Lepus californicus)	414	551	303	549	33	95	60	147	455	40	277	529
Sylvilagus sp./Brachylagus idahoensis	5	-	-	21	-	-	-	-	-	-	-	-
Sylvilagus sp.	-	-	-	-	-	-	-	-	-	410	237	-
White-tailed antelope squirrel (Ammospermophilus leucurus)	1	-	-	9	-	17	-	135	31	-	-	59
Yellow-bellied marmot (Marmota flaviventris)	-	-	-	-	-	-	-	-	-	-	2	
Dipodomys sp.	-	12	-	1	-	2	-	5				4
Neotoma sp.	-	-	-	-	-	-	-	-	-	-	1	-
Coyote (Canis latrans)	88	28	-	85	-	53	-	-	108	7	24	183
Kit fox (Vulpes macrotis)	-	-	-	-	3	1	-	30	47	2	29	84
Bobcat (Lynx rufus)	-	-	-	-	-	-	-	-	-	2	75	-
American badger (Taxidea taxus)	2	-	-	4	-	-	-	-	-	-	-	-
Pronghorn (Antilocapra americana)	9	10	-	-	-	-	20	-	537	-	8	-
Cattle (Bos taurus)	655	5,500	-	10	-	196	-	-	326	837	2455	676
Horse (Equus caballus)	-	-	-	50	-	-	-	-	-	-	-	239
Birds												
Chukar (Alectoris chukar)	-	-	5	-	-	-	-	-	-	-	-	-
Owl - unknown	-	1	-	-	-	-	-	-	-	-	-	-
Common raven (Corvus corax)	4	118	-	-	-	3	-	-	-	-	-	-
Pinyon jay (Gymnorhinus cyanocephalus)	-	-	-	-	-	-	-	-	-	-	2	-
Horned lark (Eremophila alpestris)	-	20	-	64	-	-	-	-	-	-	-	-
House finch (Haemorhous mexicanus)	-	-	-	3	-	-	-	-	-	-	-	-
Black-Throated Sparrow (Amphispiza bilineata)	-	-	-	-	-	-	-	-	-	1	-	-
Brewer's sparrow (Spizella breweri)	-	62	-	-	-	-	-	-	-	-	-	-
Lark sparrow (Chondestes grammacus)	-	144	-	-	-	-	-	-	-	-	-	-
Say's phoebe (Sayornis saya)	-	-	-	-	-	-	-	-	-	-	5	-
Western meadowlark (Sturnella neglecta)	-	-	-	-	-	-	-	-	-	-	5	-
Bird - unknown	-	4	-	4	-	-	-	-			35	-
Other												
Animal - unknown	6	1	-	-	-	3	-	7	12	3	3	6
Human Triggered	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle Triggered	-	-	-	-	-	-	-	-	-	-	-	-
Total Captures	1,184	6,451	308	800	36	370	80	324	1,516	1,302	3,302	1,780
Total Number of Photo Triggers	2,209	12,019	676	1,627	195	29,760	454	914	2,873	1,787	35,718	3,325
Total Triggers during Set Up	209	270	155	158	114	218	72	230	118	177	148	248
Total Triggers w/o Animal Capture	816	5298	213	669	45	29,174	302	360	1,239	309	32,270	1,297

[11x17]

#### Table A-2. Basin Big Sagebrush – Foothill Big Sagebrush Dry Steppe & Shrubland

Camera Set	17-1 03	17-1 05	17-1 09	17-1 27	17-2 08	17-2 23	17-2 25	19-Dixie 1	19-Dixie 7
Set Date	12-lan-17	17-lan-17	17-lan-17	 5-Dec-16	10-Mar-17	23-Mar-17	24-May-17	15-Sen-18	15-Sen-18
Find Date	20-Διισ-17	29-lun-17	17-Jun-17	24-Apr-17	9-Dec-17	1-lun-17	10-Dec-17	23-Δpr-19	21-lun-19
Tran Dave	20 Aug 17	163	207	140	274	70	200	23 Apr 13	21 341 13
Arthropods	220	105	207	140	274	70	200	00	200
Arthropod - unknown	_	_	-	_	_	_	_	_	2
Rentiles									2
Long-nosed leopard lizard (Gambelia wislizenii)	-	-	5	-	-	-	-	-	-
Reptile - unknown	-	-	1	-	-	-	-	-	-
Mammals	1								
Black-tailed jackrabbit (Lepus californicus)	241	12	673	-	15	4	138	-	64
Sylvilagus sp./Brachylagus idahoensis	955	-	-	158	17	-	-	-	
White-tailed antelope squirrel (Ammospermophilus leucurus)	112	1	1	-	-	10	20	1	18
Dipodomys sp.	18	-	-	-	-	-	-	5	-
Peromyscus sp.	-	-	-	-	-	-	-	3	-
Coyote (Canis latrans)	17	-	234	5	70	-	5	-	120
Domestic dog (Canis familiaris)	2	-	5	3	18	-	3	-	-
Kit fox (Vulpes macrotis)	-	41	-	11	-	-	31	3	36
Grav fox (Urocyon cinereogragenteus)	-	-	-	-	-	-	-	-	7
Bobcat (Lynx rufus)	-	-	-	5	-	-	-	-	115
American badger ( <i>Taxidea taxus</i> )	1	-	-	-	10	-	-	-	-
Western spotted skunk (Spilogale gracilis)	-	-	-	-	-	-	-	10	-
Pronghorn (Antilocapra americana)	-	35	-	-	1,793	-	-	-	5
Cattle (Bos taurus)	32	1,843	-	-	905	196	90	-	9
Mule deer (Odocoileus hemionus)	-	-	-	-	1	-	-	-	-
Horse (Equus caballus)	-	20	36	-	-	-	-	-	5
Birds									
Chukar (Alectoris chukar)	1,177	-	6	31	-	-	5	-	44
Mourning dove (Zenaida macroura)	-	-	-	-	2	-	-	-	-
Northern flicker (Colaptes auratus)	4	-	-	-	-	-	-	-	-
Loggerhead shrike (Lanius ludovicianus)	-	-	-	-	7	-	-	-	-
Pinyon jay (Gymnorhinus cyanocephalus)	-	5	-	-	-	-	-	-	-
Black-billed magpie (Pica hudsonia)	-	-	-	-	116	-	-	-	-
Common raven (Corvus corax)	10	-	2	-	44	-	-	-	-
Mountain bluebird (Sialia currucoides)	5	-	-	-	-	-	-	-	-
Green-tailed towhee (Pipilo chlorurus)	3	-	-	-	-	-	-	-	-
Brown-headed cowbird (Molothrus ater)	-	-	-	-	7	-	-	-	-
Other									
Animal - unknown	24	1	1	-	1	1	2	-	10
Human Triggered	20	-	45	29	-	-	26	-	-
Total Captures	2,621	1,958	1,009	242	3,006	211	320	22	435
Total Number of Photo Triggers	10,799	40,504	2,822	920	47,339	29,372	636	21,252	1,430
Total Triggers During Set Up	146	176	402	525	272	97	61	133	180
Total Triggers w/o Animal Capture	8,032	38,370	1,412	153	44061	29,064	255	21,097	815

[11x17]

	Table A-3. Black Sagebrush Steppe & Shrubland									
Camera Set	17-1_02	17-1_19	17-1_24	17-1_25	17-2_03	17-2_09	17-2_10	17-2_20	19-Dixie_10	19-Dixie_9
Set Date	6-Dec-16	10-Jan-17	11-Jan-17	6-Dec-16	20-Aug-17	18-Aug-17	23-May-17	24-Apr-17	14-Sep-18	6-May-19
End Date	7-Feb-17	7-Mar-17	6-Jun-17	20-May-17	10-Dec-17	9-Dec-17	9-Dec-17	6-Jul-17	24-Jun-19	27-Jun-19
Trap Days	63	56	146	165	112	113	200	73	284	53
Arthropods										
Arthropod – unknown	-	-	-	-	-	-	-	-	-	58
Reptiles										
Western collared lizard (Crotaphytus collaris)	-	-	-	-	-	-	-	-	5	-
Western fence lizard (Sceloporus occidentalis)	-	-	-	-	-	-	-	-	15	-
Sceloporus sp.	-	-	-	-	-	-	80	-	-	-
Mammals		_								
Black-tailed jackrabbit (Lepus californicus)	79	-	-	31	-	27	14	1,352	11	-
Sylvilagus sp./Pygmy rabbit (Brachylagus idahoensis)	-	-	-	-	-	7	-	1,669	-	-
White-tailed antelope squirrel (Ammospermophilus leucurus)	-	-	93	-	-	-	40	19	-	-
Townsend's ground squirrel (Spermophilus townsendii)	-	-	-	-	-	-	-	-	-	5,632
Neotoma sp.	-	-	9	-	-	-	-	7	-	-
Mouse - unknown	-	-	5	-	-	-	10	-	-	6
Coyote (Canis latrans)	13	-	1	15	-	5	121	5,029	-	10
Red fox (Canis rufus)	5	-	-	-	-	-	-	-	-	-
Kit fox (Vulpes macrotis)	8	-	45	-	-	2	10	1	-	-
Fox – unknown	-	-	-	-	-	-	-	-	1	-
Ermine ( <i>Mustela erminea</i> )	-	-	-	-	-	-	-	-	-	6
Western spotted skunk (Spilogale gracilis)	-	-	9	-	-	-	-	-	-	-
Bobcat (Lynx rufus)	-	-	-	1	-	-	24	-	5	-
American badger (Taxidea taxus)	-	-	-	-	-	-	1	6	-	-
Cattle (Bos taurus)	783	-	-	58	-	-	309	-	-	-
Pronghorn (Antilocapra americana)	-	-	-	-	-	-	-	-	1	-
Desert bighorn sheep (Ovis canadensis nelsoni)	-	-	40	-	188	-	-	-	-	-
Mule deer (Odocoileus hemionus)	-	-	-	-	-	-	-	-	3	-
Horse (Equus caballus)	20	-	-	53	-	-	-	-	-	-
Birds										
Chukar (Alectoris chukar)	10	-	10	-	25	-	160	70	9	-
Mourning dove (Zenaida macroura)	-	-	-	-	-	-	-	3	-	-
Great horned owl (Bubo virginianus)	-	-	-	-	-	-	-	5	-	-
Prairie falcon (Falco mexicanus)	-	-	-	-	-	-	-	10	-	-
Say's phoebe (Sayornis saya)	-	-	-	-	-	-	-	29	-	-
Horned lark (Eremophila alpestris)	-	-	-	-	-	-	-	114	-	-
Rock wren (Salpinctes obsoletus)	-	-	-	-	-	-	9	-	-	-
Brewer's blackbird (Euphagus cyanocephalus)	-	-	-	-	-	-	-	-	-	2
Brewer's sparrow (Spizella breweri)	-	-	-	-	-	-	-	5	-	-
Unknown passerine	-	-	-	-	-	-	-	-	-	3
Other		_		_				_		
Animai – unknown	6	1	-	1	6	2	3	1	-	-
Human Triggered	-	-	-	-	22	-	-	9	-	-
Total Captures	924	1	212	159	242	43	781	8,329	50	5,717
Total Number of Photo Triggers	1,290	97	6,708	628	410	2,125	4,813	12,695	846	7,395
Total Triggers during Set Up	200	77	117	364	105	199	260	106	316	69
Total Triggers w/o Animal Capture	166	19	6,379	105	63	1,883	3772	4,354	480	1,609

Camera Set	17-1_11	17-2_04	17-2_06	17-2_17
Set Date	17-Jan-17	23-May-17	19-Aug-17	22-Jun-17
End Date	8-Sep-17	6-Jul-17	10-Dec-17	9-Dec-17
Trap Days	234	44	113	170
Mammals				
Black-tailed jackrabbit (Lepus californicus)	2,729	233	33	528
Sylvilagus sp./Brachylagus idahoensis	46	-	-	5
White-tailed antelope squirrel (Ammospermophilus leucurus)	2	-	-	-
Dipodomys sp.	43	-	-	8
Neotoma sp.	10	-	-	-
Mouse – unknown	19	-	-	-
Coyote (Canis latrans)	452	9	2	125
Domestic dog (Canis familiaris)	-	-	-	1
Kit fox (Vulpes macrotis)	6	52	-	1
Pronghorn (Antilocapra americana)	177	-	-	-
Cattle (Bos taurus)	-	-	133	25
Horse (Equus caballus)	-	-	-	43
Birds				
Mourning dove (Zenaida macroura)	1	-	-	-
Red-tailed hawk (Buteo jamaicensis)	1	-	-	-
Common raven (Corvus corax)	67	-	-	2
Horned lark (Eremophila alpestris)	42	-	-	-
Cliff swallow (Petrochelidon pyrrhonota)	3	-	-	-
Bird - unknown	4	-	-	-
Other				
Animal- unknown	7	1	-	8
Vehicle triggered	5	-	-	27
Total Captures	3,614	295	168	773
Total Number of Photo Triggers	6,542	690	260	1,685
Total Triggers during Set Up	299	60	47	168
Total Triggers w/o Animal Capture	2,720	335	45	764

Camera Set	17-1_13	17-2_07	17-3_13	17-3_23	19-B17_16	19-B17_19
Set Date	17-Jan-17	17-Mar-17	18-Aug-17	29-Oct-17	16-Sep-18	16-Sep-18
End Date	24-May-17	9-Dec-17	9-Dec-17	10-Dec-17	21-Jun-19	21-Jun-19
Trap Days	127	267	113	42	279	223
Arthropods						
Arthropod- unknown	-	10	-	-	8	-
Mammals						
Black-tailed jackrabbit (Lepus californicus)	12	600	-	-	447	235
Sylvilagus sp./Brachylagus idahoensis	-	11	-	-	-	-
Sylvilagus sp.	-	-	-	-	6	5
White-tailed antelope squirrel (Ammospermophilus leucurus)	1	-	-	-	1	-
Coyote (Canis latrans)	7	54	5	-	8	4
Kit fox (Vulpes macrotis)	1	5	-	-	10	26
Bobcat ( <i>Lynx rufus</i> )	-	12	-	-	-	-
Pronghorn (Antilocapra americana)	-	-	22	82	15	101
Cattle (Bos taurus)	3,167	555	-	-	-	-
Mule deer (Odocoileus hemionus)	-	5	-	-	-	-
Birds						
Red-tailed hawk (Buteo jamaicensis)	-	-	5	-	-	-
Cordilleran flycatcher (Empidonax occidentalis)	-	10	-	-	-	-
Horned lark (Eremophila alpestris)	2	-	-	-	-	-
Other						
Animal – unknown	15	3	4	-	3	3
Vehicle triggered	194	-	-	-	-	-
Total Captures	3,399	1,265	36	82	498	374
Total Number of Photo Triggers	5,138	4,475	142	135	1,090	6,428
Total Triggers during Set Up	82	424	67	37	170	173
Total Triggers w/o Animal Capture	1,659	2,786	39	16	422	5,881

Table A-5. Mojave-Sonoran Burrobrush – Sweetbush Desert Wash Scrub

Camera Set	17-1_14	17-2_05	17-2_18	17-2_22	19-Dixie_2	19-Dixie_8
Set Date	16-Jan-17	19-Aug-17	23-Mar-17	26-Jun-17	13-Oct-18	12-Oct-18
End Date	Stolen	10-Dec-17	9-Dec-17	20-Aug-17	21-Jun-19	28-Jun-19
Trap Days	0	113	261	55	237	248
Arthropods						
Arthropod- unknown	-	-	1	1	-	-
Reptiles						
Sceloporus sp.	-	2	-	-	-	-
Mammals						
Black-tailed jackrabbit (Lepus californicus)	-	60	613	46	144	-
Sylvilagus sp./Brachylagus idahoensis	-	165	7	-	-	-
Sylvilagus sp.	-	-	-	-	3	-
White-tailed antelope squirrel (Ammospermophilus leucurus)	-	47	13	-	-	-
Least chipmunk (Tamias minimus)	-	23	-	-	-	-
Neotoma sp.	-	145	3	-	-	-
Mouse – unknown	-	35	-	-	-	-
Coyote (Canis latrans)	-	125	49	-	33	-
Gray fox (Urocyon cinereoargenteus)	-	313	-	-	24	-
Red fox (Vulpes vulpes)	-	-	-	-	11	-
Kit fox (Vulpes macrotis)	-	200	8	-	10	3
Bobcat ( <i>Lynx rufus</i> )	-	22	40	-	15	-
Mountain lion (Puma concolor)	-	-	15	-	5	-
American badger (Taxidea taxus)	-	-	6	-	-	-
Cattle (Bos taurus)	-	-	17	90	623	-
Mule deer (Odocoileus hemionus)	-	15	180	6	124	27
Horse (Equus caballus)	-	-	-	138	-	70

#### Table A-6. Great Basin Singleleaf Pinyon – Utah Juniper/Shrub Woodland

Camera Set	17-1_14	17-2_05	17-2_18	17-2_22	19-Dixie_2	19-Dixie_8
Birds	1		·	•		
Mountain quail (Oreortyx pictus)	-	-	3	-	-	-
Owl – unknown	-	-	2	-	-	-
Northern flicker (Colaptes auratus)	-	5	-	-	-	-
Ash-throated flycatcher (Myiarchus cinerascens)	-	-	3	-	-	-
Woodhouse's scrub-jay (Aphelocoma woodhouseii)	-	11	15	-	-	-
Common raven ( <i>Corvus corax</i> )	-	-	7	10	-	-
American robin (Turdus migratorius)	-	-	-	-	20	22
Bushtit ( <i>Psaltriparus minimus</i> )	-	-	-	-	5	-
Dark-Eyed Junco (Junco hyemalis)	-	-	-	-	5	-
Rock wren (Salpinctes obsoletus)	-	1	-	-		
Total Captures	0	1,169	982	291	1,022	129
Total Number of Photo Triggers	0	1,695	20,962	923	24,893	24,042
Total Triggers During Set Up	0	50	134	508	311	232
Total Triggers w/o Animal Capture	0	483	19,846	124	23,560	23,681

#### Table A-6. Great Basin Singleleaf Pinyon – Utah Juniper/Shrub Woodland

Camera Set	17-1_07	17-1_08	17-1_15	17-2_12	17-2_15	19-Dixie_13
Set Date	28-Nov-16	17-Jan-17	17-Dec-16	23-Mar-17	20-Jun-17	14-Sep-18
End Date	6-Mar-17	6-Mar-17	20-Jun-17	Burned in Wildfire	10-Dec-17	24-Jun-19
Trap Days	98	48	185	0	173	284
Arthropods						
Arthropod- unknown	-	-	4	-	-	-
Mammals						
Black-tailed jackrabbit (Lepus californicus)	-	-	28	-	362	11
Mouse - unknown	-	-	65	-	-	
Coyote (Canis latrans)	3	-	20	-	7	3
Domestic dog (Canis familiaris)	-	-	-	-	-	2
Gray fox (Urocyon cinereoargenteus)	-	-	-	-	-	22
Kit fox (Vulpes macrotis)	-	-	-	-	5	17
Bobcat ( <i>Lynx rufus</i> )	-	-	-	-	-	22
American badger (Taxidea taxus)	-	-	-	-	-	1
Pronghorn (Antilocapra americana)	-	-	5	-	8	-
Desert bighorn sheep (Ovis canadensis nelsoni)	-	-	-	-	-	61
Mule deer (Odocoileus hemionus)	-	-	-	-	-	29
Cattle (Bos taurus)	333	922	8,113	-	-	1,187
Birds						
Chukar (Alectoris chukar)	-	-	-	-	-	25
Pinyon jay (Gymnorhinus cyanocephalus)	-	-	-	-	-	17
Woodhouse's scrub-jay (Aphelocoma woodhouseii)	-	-	-	-	-	13
Horned lark (Eremophila alpestris)	-	-	-	-	2	-
Lark sparrow (Chondestes grammacus)	-	-	58	-	-	-
Bird - unknown	-	-	1	-	-	-
Other						
Animal- unknown	5	-	-	-	5	-
Human triggered	-	-	-	-	-	2
Vehicle triggered	-	-	10	-	-	-
Total Captures	341	922	8,304	0	389	1,412
Total Number of Photo Triggers	1,600	1,135	61,969	0	36,450	3,328
Total Triggers During Set Up	1,135	81	487	0	88	158
Total Triggers w/o Animal Capture	124	132	53,178	0	35,973	1,759

Table A-7. Utah Juniper/Shrub Woodland

Camera Set	17-1_01	17-1_04	17-1_20	17-1_22	17-2_01	19-Dixie_6	19-Dixie_4	19-Dixie_5
Set Date	12-Jan-17	11-Jan-17	17-Jan-17	14-Dec-16	20-Aug-17	14-Sep-18	15-Sep-18	14-Sep-18
End Date	20-Aug-17	19-May-17	27-Mar-17	3-Jun-17	10-Dec-17	22-Jun-19	21-Jun-19	21-Jun-19
Trap Days	220	128	69	171	112	282	280	281
Arthropods		l.						
Arthropod- unknown	-	-	-	3	-	-	-	-
Reptiles								
Sceloporus sp.	-	-	-	-	10	-	-	-
Mammals								
Black-tailed jackrabbit (Lepus californicus)	37	-	75	-	-	5	-	118
Sylvilagus sp./Brachylagus idahoensis	115	-	-	-	138	-	-	-
White-tailed antelope squirrel (Ammospermophilus leucurus)	1	-	2	5	-	-	76	-
Dipodomys sp.	-	-	333	-	-	-	-	-
Neotoma sp.	-	-	-	-	26	-	-	-
Coyote (Canis latrans)	31	-	-	-	-	17	-	-
Gray fox (Urocyon cinereoargenteus)	-	-	-	-	-	5	-	-
Red fox (Vulpes vulpes)	-	-	-	25	-	-	-	-
Kit fox (Vulpes macrotis)	-	7	47	4	-	-	7	4
Fox - unknown	-	7	-	-	-	-	-	-
Western spotted skunk (Spilogale gracilis)	-	-	-	-	37	-	-	-
Bobcat ( <i>Lynx rufus</i> )	-	-	-	-	1	7	-	-
Long-tailed weasel (Mustela frenata)	-	-	-	-	1			
Cattle (Bos taurus)	241	-	-	-	-	596	-	-
Mule deer (Odocoileus hemionus)	-	-	-	161	-	-	-	-
Pronghorn (Antilocapra americana)	-	-	-	-	-	-	-	77
Horse (Equus caballus)	-	-	-	-	-	-	-	6
Birds		_			_			
Chukar (Alectoris chukar)	10	2	-	41	5	-	1	-
Horned lark (Eremophila alpestris)	-	-	1	-	-	-	-	-
Rock wren (Salpinctes obsoletus)	-	-	-	-	5	-	-	-
Other								
Animal- unknown	2	2	2	2	6	1	20	-
Total Captures	437	18	460	241	229	631	104	205
Total Number of Photo Triggers	2865	383	63021	66345	483	9,983	582	421
Total Triggers During Set Up	238	258	31	307	57	69	89	43
Total Triggers w/o Animal Capture	2190	116	62530	65817	197	9,283	389	173

Table A-8. Wyoming Big Sagebrush Dry Steppe & Shrubland

Camera Set	17-1_16	17-2_16			
Set Date	17-Jan-17	20-Aug-17			
End Date	20-Aug-17	10-Dec-17			
Trap Days	215	112			
Mammals					
Black-tailed jackrabbit (Lepus californicus)	484	448			
White-tailed antelope squirrel (Ammospermophilus leucurus)	6	61			
Dipodomys sp.	452	10			
Coyote (Canis latrans)	58	109			
Kit fox (Vulpes macrotis)	367	3,095			
Striped skunk (Mephitis mephitis)	-	40			
American badger (Taxidea taxus)	10	29			
Pronghorn (Antilocapra americana)	13	45			
Cattle (Bos taurus)	1,971	-			
Birds					
Short-eared owl (Asio flammeus)	-	5			
Horned lark (Eremophila alpestris)	-	9			
Other					
Animal- unknown	23	-			
Total Captures	3,384	3,851			
Total Number of Photo Triggers	27,666	4,660			
Total Triggers during Set Up	179	40			
Total Triggers w/o Animal Capture	24,120	769			

Camera Set	17-1_21	17-2_21			
Set Date	13-Dec-16	22-Jun-17			
End Date	19-Jun-17	26-Sep-17			
Trap Days	188	96			
Mammals					
Black-tailed jackrabbit (Lepus californicus)	-	52			
Mouse - unknown	8	-			
Coyote (Canis latrans)	17	1			
Kit fox (Vulpes macrotis)	38	3			
Birds					
Prairie falcon (Falco mexicanus)	3	-			
Common raven (Corvus corax)	5	-			
Other					
Human triggered	1	-			
Total Captures	72	56			
Total Number of Photo Triggers	791	216			
Total Triggers during Set Up	319	87			
Total Triggers w/o Animal Capture	403	73			

#### Table A-10. Microphytic Playa

Camera Set	17-3_22
Set Date	21-Aug-17
End Date	9-Dec-17
Trap Days	110
Mammals	
Black-tailed jackrabbit (Lepus californicus)	484
Mouse - unknown	1250
Mountain lion (Puma concolor)	71
Pronghorn (Antilocapra americana)	5
Cattle (Bos taurus)	2289
Birds	
Bewick's wren (Thryomanes bewickii)	1
Total Captures	4,100
Total Number of Photo Triggers	8,755
Total Triggers During Set Up	35
Total Triggers w/o Animal Capture	4,620

Table A-11. Western Baltic Rush – Mexico Rush Wet Meadow

 Table A-12. Ruderal Tamarisk Riparian Scrub

Camera Set	17-1_26	17-2_24
Set Date	19-Dec-16	6-Jun-17
End Date	15-May-17	Stolen
Trap Days	147	0
Mammals		
Black-tailed jackrabbit (Lepus californicus)	4	-
Neotoma sp.	42	-
Mouse – unknown	185	-
Coyote (Canis latrans)	16	-
Kit fox (Vulpes macrotis)	3	-
Cattle (Bos taurus)	9,993	-
Birds		
Chukar (Alectoris chukar)	23	-
Mourning dove (Zenaida macroura)	29	-
Killdeer (Charadrius vociferus)	1	-
Golden eagle (Aquila chrysaetos)	8	-
Common raven (Corvus corax)	5	-
Other		
Animal – unknown	12	-
Total Captures	10,321	0
Total Number of Photo Triggers	13,968	0
Total Triggers During Set Up	397	0
Total Triggers w/o Animal Capture	3,267	0

Camera Set	19-Dixie_12	19-Dixie_3
Date Set		
Date End	27-Jun-19	27-Jun-19
Trap Days	234	282
Arthropods	L	
Arthropod- unknown	149	-
Reptiles		
Western Collared Lizard (Crotaphytus collaris)	5	-
Mammals		
Pygmy Rabbit (Brachylagus idahoensis)	85	-
<i>Sylvilagus</i> sp.	-	26
Least chipmunk (Tamias minimus)	-	21
Neotoma sp.	16	-
Mouse - unknown	9	-
Coyote (Canis latrans)	-	33
Domestic dog (Canis familiaris)	11	1
Gray fox (Urocyon cinereoargenteus)	290	319
Red fox (Vulpes vulpes)	5	-
Western spotted skunk (Spilogale gracilis)	5	4
Bobcat ( <i>Lynx rufus</i> )	19	-
Mountain lion ( <i>Puma concolor</i> )	-	8
American badger (Taxidea taxus)	-	7
Yellow-Bellied Marmot(Marmota flaviventris)	-	352
Mule deer (Odocoileus hemionus)	263	116
Birds		
American Robin (Turdus migratorius)	63	10
Chukar (Alectoris chukar)	78	17
Northern flicker (Colaptes auratus)	7	5
Dark-Eyed Junco (Junco hyemalis)	1	-
Varied Thrush ( <i>Ixoreus naevius</i> )	8	-
White-Crowned Sparrow (Zonotrichia leucophrys)	5	-
Other	2	4
Animal – unknown	2	1
Human Triggered	5	1
	1,026	921
Total Number of Photo Triggers	19,959	2,582
Total Triggers During Set Up	125	701
Total Triggers w/o Animal Capture	18,808	960

Table A-13. Arroyo Willow Wet Shrubland

Camera Set	19-B17_15
Date Set	16-Sep-18
Date End	21-Jun-19
Trap Days	279
Arthropods	
Arthropod- unknown	130
Mammals	
Black-tailed jackrabbit (Lepus californicus)	391
White-tailed antelope squirrel (Ammospermophilus leucurus)	144
Coyote (Canis latrans)	16
Kit fox (Vulpes macrotis)	12
Pronghorn (Antilocapra americana)	9
Cattle (Bos taurus)	5505
Birds	
Say's Phoebe (Sayornis saya)	1
Sagebrush Sparrow (Artemisiospiza nevadensis)	1
Common Raven ( <i>Corvus corax</i> )	4
Total Captures	6213
Total Number of Photo Triggers	9487
Total Triggers During Set Up	202
Total Triggers w/o Animal Capture	3072

Table A-14. Rubber	<b>Rabbitbrush - Sand</b>	Buckwheat - Four-	part Horsebrush	Sparse Scrub

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# Appendix B: Representative Sample of Camera Trap Photos

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Lagomorphs



Canids



Felids



Ungulates



Ungulates



Birds