# Annotated List of Animal Species Observed In and Adjacent to the Mojave Desert Portion of Grand Canyon — Parashant National Monument

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**October 2011**

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**Abstract**. Observations of animals in the Mojave Desert portion of Grand Canyon — Parashant National Monument were recorded, providing evidence for the presence of 93 species of birds, 20 species of mammals, 15 species of herps, and 18 species of odonates. Some of these species have not previously been documented in the area. The only surprising observation was of two Uinta Chipmunks (*Tamias umbrinus*) at Middle Spring. These animals were outside of the expected range, outside of typical habitat, below the expected elevation, and vocalized in a manner unexpected for a chipmunk. It is possible that these chipmunks are Pleistocene relicts stranded at the spring and isolated from others of their kind, possibly representing an undescribed subspecies.

For electronic copies of these data, contact Jim Boone at jlboone@aol.com

**Introduction**. Grand Canyon — Parashant National Monument (PARA) lies in the little-visited northwest corner of Arizona, north of the Colorado River, west of Grand Canyon National Park (GRCA), and east of the Nevada State Line. In this region, Lake Mead and the Colorado River (300-ft setback from maximum pool height) are included in Lake Mead National Recreation Area (LAKE).

For many years, animal observations have been recorded at LAKE, GRCA, and higher-elevation portions of PARA. However, little has been recorded in the lower-elevation, western portion of PARA where habitat is typical of the Mojave Desert. The objective of this report was to provide records of animal species observed in the Mojave Desert portion of PARA, with additional records of observations within a few miles of the boundaries of PARA. Species recorded outside of PARA are expected to occur within the National Monument.

Southwestern PARA lies in the Mojave Desert and experiences climate conditions typical for that desert (hot, dry summers; cold, dry winters). Vegetation in this area also is typical of the Mojave Desert. It is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) at the lowest elevations, by a diverse assemblage of shrubs at middle elevations, and by Pinyon-Juniper Woodland (*Pinus monophylla* and *Juniperus osteosperma*) at higher elevations. This contrasts with the eastern portions of PARA, where higher elevations, cooler temperatures, and greater precipitation support ponderosa pine (*Pinus ponderosa*) forests, big sagebrush (*Artemisia tridentata*), and other montane species.

**Methods**. I visited the PARA area in 1998, 2001, 2008, and 2011. The primary purpose of the early trips was recreational camping and bird watching. I recorded species presence, location, habitat characteristics, time of day, and weather conditions; and less consistently, counts, behavior, and other notes.

In 1998, I entered PARA at the Mt. Trumbull School House, traversed the area to the east, and exited to Toroweap, where I camped for two nights. In 2001, I entered PARA from Whitney Pass, drove south past Pakoon Springs, and exited via St. Thomas Gap on the same day. In 2008, I spent a day climbing Billy Goat Peak, about 1 mile west of the PARA boundary.

During September 2011, I spent 5 days observing and recording animal species during the fall bird migration (Figure 1). I recorded species presence, location, time of day, weather conditions, counts, behavior, habitat characteristics, and other notes. I entered PARA via Lime Kiln Road, drove south to Whitney Ranch, Pakoon Springs, and Tassi Ranch. I exited PARA via Grand Wash, Cottonwood Wash, and Lime Kiln Road.

The presence of species was determined by visual observation of the animal, or by observation of sign (e.g., calls, songs, tracks, scat, and burrows).

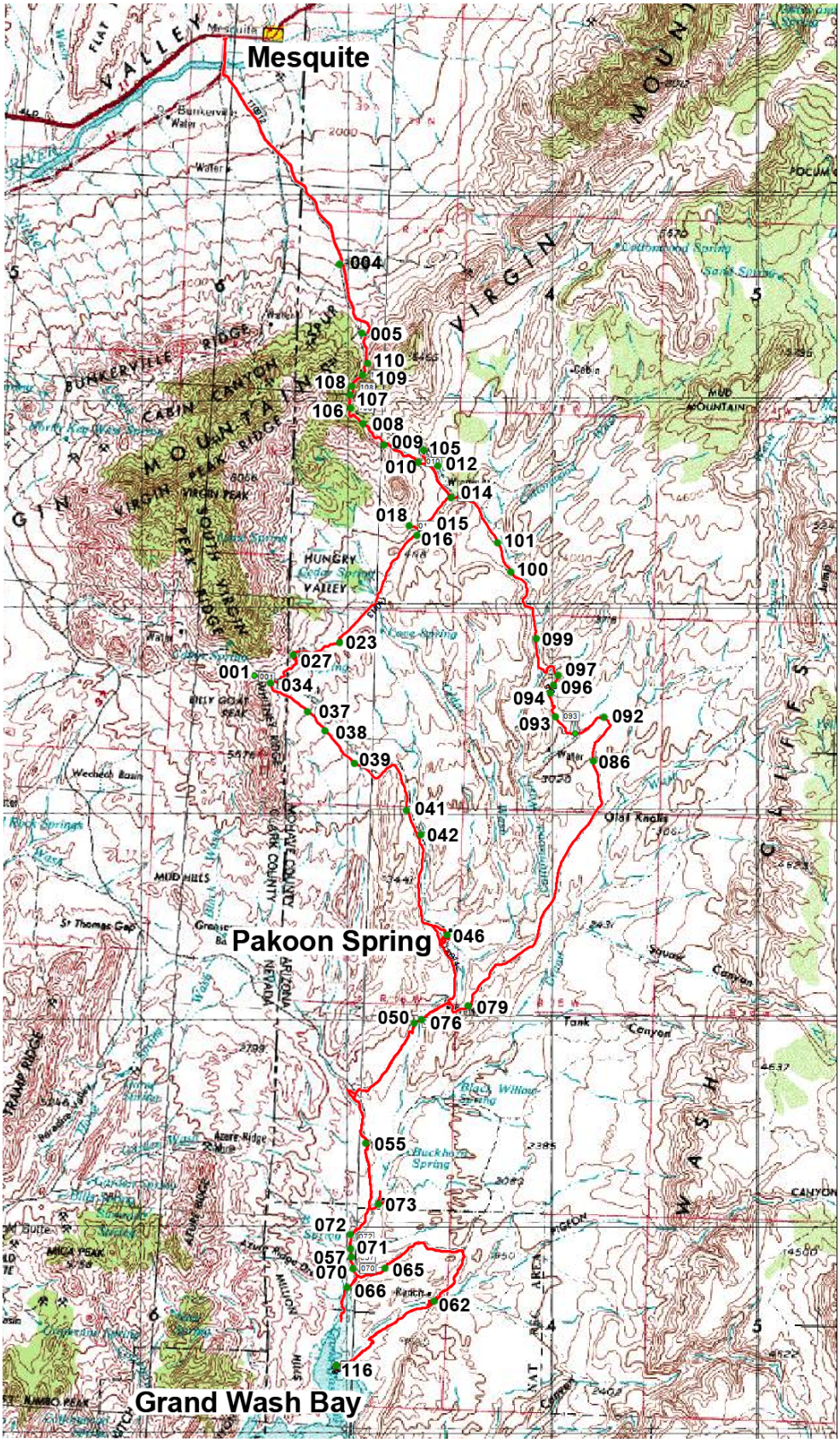


Figure 1. Survey route (red) from Mesquite, Nevada to Grand Wash Bay, Arizona. Site numbers indicate observation record locations (Appendix G).

Bird names follow the American Ornithologists' Union *Check-list of North American Birds* (http://www.aou.org). Herp names follow the Society for the Study of Amphibians and Reptiles *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, With Comments Regarding Confidence In Our Understanding. Edition 6.1 Last updated: 24 May 2011* (http://www.ssarherps.org). Mammal names follow the American Society of Mammalogists *Don E. Wilson & DeeAnn M. Reeder (eds.). 2005. Mammal Species of the World. A Taxonomic and Geographic Reference (3rd ed), Johns Hopkins University Press, 2,142 pp*. (http://www.bucknell.edu/msw3/). Odonate names follow The Dragonfly Society of the Americas *Abbott, J.C. 2007. OdonataCentral: An online resource for the distribution and identification of Odonata. Texas Natural Science Center, The University of Texas at Austin*. (Accessed: October 05, 2011). (http://www.odonatacentral.org). Plant names follow the USDA Natural Resources Conservation Service *Plants Database* (http://plants.usda.gov).

At each observation site, longitude and latitude were recorded on a hand-held Global Position System (GPS) device with an estimated 3-m maximum position error. Habitat characteristics were also recorded.

**Results**. Observation records of birds, mammals, amphibians, reptiles, and odonates are listed in the appendices. For birds, 93 species (Appendix A) were identified with a high degree of certainty. Birds seen but not identified were not recorded.

For mammals, 19 species (Appendix B) were identified with a high degree of certainty. In addition, feral equids are present (scat, tracks), but none were seen, so these might have been horses or burros. At least 5 species of bats were observed, but only two were identified with any certainty. Small bats and medium-sized bats were seen, and one group of bats had been using Lime Kiln Mine as a maternity site or summer roost (no longer present in the mine). These observations are included.

For herps, 3 species of amphibians were observed (Appendix C). Of these, 1 species of toad was intermediate in defining characteristics, and so is tentatively identified as the more common species. For reptiles, 9 species of lizards and 2 species of snakes were identified (Appendix D) with a high degree of certainty. One well-formed tortoise burrow was found, but it was inactive (no scat or tracks), so the species is listed without full certainty.

For odonates, 10 species of dragonflies and 8 species of damselflies were identified (Appendix E) with a fairly high degree of certainty. One Glider was observed, but not identified to species. In addition, 2 individual Bluets were observed but not identified. These were included to indicate the paucity of these creatures.

Habitat characteristics were recorded at each observation site (Appendix F). These data included visually dominant plant species, other interesting species that caught my eye, and weeds. GPS coordinates for each observation site are presented in Appendix G.

**Discussion**. The Mojave Desert portion PARA appears to be typical Mojave Desert habitat with a typical complement of plant and animal species. Animal species typical of this desert ecosystem, but not yet recorded in the area, should be expected.

The only unusual observation was of two brightly colored chipmunks at Middle Spring (Site 027) on the eastern flank of the South Virgin Peak Ridge. These two chipmunks had bright reddish-orange sides and well-defined dark and light dorsal stripes. Despite being out of range, out of habitat, and too low in

elevation, I interpret these as Uinta Chipmunks (*Tamias umbrinus*). One Cliff Chipmunk (*Tamias dorsalis*) was seen in Lime Kiln Canyon, just north of the PARA boundary, and it was marked typical for that species (dark sides, indistinct dorsal stripes).

The two Uinta Chipmunks barked in a voice atypical for chipmunks. In general, chipmunks bark with a loud, short, high-pitched note. These two chipmunks, however, barked with a quiet, low-pitched note that was more of a huff than a bark. At first, I thought the sounds might be a chukar or quail, but the sound was quite unusual, and when I tracked it down, I saw the chipmunks barking.

When I first saw the chipmunks, one was in a large cactus apple (*Opuntia engelmannii*), perhaps harvesting a ripe fruit, and the other was in a large catclaw acacia tree (*Acacia greggii*). The chipmunk on the ground climbed into the tree, and both retreated some distance into the thicket. I left the area briefly, and when I returned, the two were in their previous positions. Again, the squirrel on the ground climbed into the tree, and both retreated farther back into the thicket of catclaw acacia trees. Despite repeated efforts, I was not able to photograph the chipmunks.

If these are Uinta Chipmunks, they probably represent a population isolated from others of their kind by distance, elevation, and habitat, and given the unique voice, might represent an undescribed subspecies.

# APPENDIX A — BIRDS

Note: NR = Not Recorded

## Anseriformes

Green-winged Teal (*Anas crecca*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 1 | Adult | Female | None |

## Galliformes, Odontophoridae

Gambel's Quail (*Callipepla gambelii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 1 | Adult | NR | None |
| Mesquite Stock Pond (4) | 09/12/2011 | 2 | Adult | NR | None |
| Lime Kiln Stock Pond (5) | 09/12/2011 | 10 | Adult | NR | None |
| Grave Site (34) | 09/13/2011 | 10 | Adult | NR | None |
| Pakoon Stock Pond (42) | 09/13/2011 | 8 | Adult | NR | None |
| Pakoon Springs (46) | 09/13/2011 | 100 | Adult | NR | None |
| Burro Spring - North (50) | 09/14/2011 | 10 | Adult | NR | None |
| Burro Spring - North (50) | 09/15/2011 | 10 | Adult | NR | None |
| Road 113 (55) | 09/14/2011 | 10 | Adult | Both | None |
| Tassi Spring (62) | 09/14/2011 | 125 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 10 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 15 | Adult | NR | None |
| Road 1027 (93) | 09/16/2011 | 10 | Adult | NR | None |
| Road 1027 (99) | 09/16/2011 | 10 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 20 | Adult | NR | None |

A. The sounds of one covey were assumed to be 10 birds. Counted coveys ranged from about 8-15.

Chukar (*Alectoris chukar*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Pass (8) | 09/12/2011 | 5 | Adult | NR | A |

A. Heard calling in the distance.

## Pelecaniformes, Ardeidae

Black-crowned Night-Heron (*Nycticorax nycticorax*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 2 | Adult | NR | A |

A. Two adults roosting high in a cottonwood tree

## Accipitriformes, Cathartidae

Turkey Vulture (*Cathartes aura*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 2 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | NR | None |
| Lime Kiln Pass (8) | 09/16/2011 | 2 | Adult | NR | None |
| Road 1027 (100) | 09/16/2011 | 2 | Adult | NR | None |

## Accipitriformes, Accipitridae

### Cooper's Hawk (*Accipiter cooperii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Pass (8) | 09/16/2011 | 1 | Adult | NR | None |

### Red-tailed Hawk (*Buteo jamaicensis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 1 | Juvenile | NR | None |
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 1 | Juvenile | NR | None |
| Burro Spring - North (50) | 09/14/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/14/2011 | 2 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | None |
| Mesquite Stock Pond (4) | 09/16/2011 | 1 | Adult | NR | None |
| Road 1027 (93) | 09/16/2011 | 1 | Adult | NR | None |

### Golden Eagle (*Aquila chrysaetos*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Pass (8) | 09/16/2011 | 2 | Adult | NR | A |

A. Flying together and landed on a ledge together

## Falconiformes, Falconinae

### American Kestrel (*Falco sparverius*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 1 | Adult | Male | None |
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | None |
| Road 111 (86) | 09/15/2011 | 1 | Adult | NR | None |
| Road 1027 (93) | 09/16/2011 | 1 | Adult | NR | None |
| Road 1027 (99) | 09/16/2011 | 1 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 1 | Adult | NR | None |

### Peregrine Falcon (*Falco peregrinus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

### Prairie Falcon (*Falco mexicanus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/13/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/14/2011 | 1 | Adult | NR | None |
| Lime Kiln Pass (8) | 09/16/2011 | 1 | Adult | NR | A |

A. Identification uncertain (either Prairie or Peregrine), but probably Prairie

## Charadriiformes, Charadriidae

### Killdeer (*Charadrius vociferus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 111 (39) | 09/13/2011 | 1 | Adult | NR | A |

A. Flushed off roadway

## Columbiformes, Columbidae

Mourning Dove (*Zenaida macroura*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Stock Pond (5) | 09/12/2011 | 4 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 3 | Adult | NR | None |
| Pakoon Springs (46) | 09/13/2011 | 10 | Adult | NR | None |
| Tassi Spring (62) | 09/14/2011 | 10 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 2 | Adult | NR | None |

## Cuculiformes, Cuculidae

Greater Roadrunner (*Geococcyx californianus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |
| Road 242 (10) | 09/16/2011 | 2 | Adult | NR | None |

## Strigiformes, Tytonidae

Barn Owl (*Tyto alba*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 1 | NR | NR | A |

A. Outside the boundaries of Parashant.

## Strigiformes, Strigidae

Western Screech-Owl (*Megascops kennicottii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | A |
| Tassi Spring (62) | 09/14/2011 | 2 | Adult | NR | B |

A. Roosting in old ranch house.
B. Calling from cottonwood trees behind ranch house and from near the cattle tank.

Great Horned Owl (*Bubo virginianus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 1 | NR | NR | A |
| Tassi Spring (62) | 09/14/2011 | 2 | Adult | NR | B |

A. Outside the boundaries of Parashant.
B. One owl roosting on cliff a few hundred yards upstream from the ranch, the other in cottonwood trees just below the ranch house.

## Caprimulgiformes, Caprimulgidae

Common Poorwill (*Phalaenoptilus nuttallii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | A |

A. One bird calling in the night.

## Apodiformes, Apodidae

White-throated Swift (*Aeronautes saxatalis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Billy Goat Camp (01) | 11/25/2002 | NR | Adult | NR | A |

A. Outside the boundaries of Parashant.

## Apodiformes, Trochilidae

Black-chinned Hummingbird (*Archilochus alexandri*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

Anna's Hummingbird (*Calypte anna*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | Female | None |

Costa's Hummingbird (*Calypte costae*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |

A. Outside the boundaries of Parashant.

Broad-tailed Hummingbird (*Selasphorus platycercus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | Female | None |
| Tassi Spring (62) | 09/15/2011 | 5 | Adult | NR | None |
| Road 113 (70) | 09/15/2011 | 1 | Adult | Female | None |

## Piciformes, Picidae

Red-naped Sapsucker (*Sphyrapicus nuchalis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | NA | NA | NA | A |
| Tassi Spring (62) | 09/14/2011 | NA | NA | NA | A |
| Seven Springs (73) | 09/15/2011 | NA | NA | NR | A |
| Lime Kiln Road (108) | 09/16/2011 | NA | NA | NA | B |

A. Sap wells on trees.
B. Sap wells on oak trees

Ladder-backed Woodpecker (*Picoides scalaris*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 1 | Adult | Female | None |
| Road 101 Cattle Tank (16) | 09/12/2011 | 1 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | Both | None |
| Tassi Spring (62) | 09/14/2011 | 2 | Adult | Both | None |

Northern Flicker (*Colaptes auratus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |
| Road 1027 (92) | 09/16/2011 | 1 | Adult | NR | None |

**Passeriformes, Tyrannidae**

Olive-sided Flycatcher (*Contopus cooperi*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | NR | None |

Western Wood-Pewee (*Contopus sordidulus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 4 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 5 | Adult | NR | None |
| Pakoon Springs (46) | 09/13/2011 | 5 | Adult | NR | None |
| Tassi Spring (62) | 09/14/2011 | 1 | Adult | NR | None |

Willow Flycatcher (*Empidonax traillii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

Gray Flycatcher (*Empidonax wrightii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Road 242 (9) | 09/12/2011 | 1 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Stock Pond (42) | 09/13/2011 | 2 | Adult | NR | None |

A. Outside the boundaries of Parashant.

Cordilleran Flycatcher (*Empidonax occidentalis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 101 Cattle Tank (16) | 09/12/2011 | 1 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NR | None |

Say's Phoebe (*Sayornis saya*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Pakoon Stock Pond (42) | 03/25/2001 | 1 | Adult | NR | None |
| Road 101 Cattle Tank (16) | 09/12/2011 | 1 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 2 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 1 | Adult | NR | None |
| Road 1027 (93) | 09/16/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.

Ash-throated Flycatcher (*Myiarchus cinerascens*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |

A. Outside the boundaries of Parashant.

## Passeriformes, Laniidae

### Loggerhead Shrike (*Lanius ludovicianus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 1 | Adult | NR | None |
| Mesquite Stock Pond (4) | 09/12/2011 | 1 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 2 | Adult | NR | None |
| Road 111 (37) | 09/13/2011 | 1 | Adult | NR | None |
| Road 111 (38) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/13/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 1 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | None |
| Pigeon Point (116) | 09/15/2011 | 2 | Adult | NR | None |
| Road 1027 (92) | 09/16/2011 | 1 | Adult | NR | None |
| Road 1027 (99) | 09/16/2011 | 1 | Adult | NR | None |

## Passeriformes, Vireonidae

### Bell's Vireo (*Vireo bellii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

### Gray Vireo (*Vireo vicinior*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |

A. Outside the boundaries of Parashant.

### Plumbeous Vireo (*Vireo plumbeus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

### Cassin's Vireo (*Vireo cassinii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NR | None |

### Warbling Vireo (*Vireo gilvus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 242 (9) | 09/12/2011 | 2 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 5 | Adult | NR | None |

## Passeriformes, Corvidae

### Pinyon Jay (*Gymnorhinus cyanocephalus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Road 101 Cattle Tank (16) | 09/12/2011 | 15 | Adult | NR | B |
| Jacobs Ranch (23) | 09/13/2011 | 20 | Adult | NR | C |

A. Outside the boundaries of Parashant.
B. Estimated count (one flock)
C. Estimated count (one large flock)

Western Scrub-Jay (*Aphelocoma californica*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Billy Goat Camp (01) | 03/25/2001 | 5 | Adult | NR | A |
| Lime Kiln Stock Pond (5) | 09/12/2011 | 3 | Adult | NR | None |
| Lime Kiln Pass (8) | 09/12/2011 | 2 | Adult | NR | None |
| Road 242 (10) | 09/12/2011 | 2 | Adult | NR | None |
| Sandstone Outcrops (12) | 09/12/2011 | 5 | Adult | NR | None |
| Four Corners (14) | 09/12/2011 | 3 | Adult | NR | None |
| Road 101 Cattle Tank (16) | 09/12/2011 | 3 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 5 | Adult | NR | None |
| Lime Kiln Stock Pond (5) | 09/16/2011 | 2 | Adult | NR | None |
| Road 242 (10) | 09/16/2011 | 2 | Adult | NR | None |
| Four Corners (14) | 09/16/2011 | 1 | Adult | NR | None |
| Lime Kiln Cement Trough (110) | 09/16/2011 | 2 | Adult | NR | None |

A. Outside the boundaries of Parashant.

Common Raven (*Corvus corax*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Billy Goat Camp (01) | 03/25/2001 | 1 | Adult | NR | A |
| Pakoon Stock Pond (42) | 03/25/2001 | 4 | Adult | NR | None |
| Road 242 (10) | 09/12/2011 | 1 | Adult | NR | None |
| Road 101 Cattle Tank (16) | 09/12/2011 | 1 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 2 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 3 | Adult | NR | None |
| Tassi Spring (62) | 09/14/2011 | 7 | Adult | NR | None |
| Road 113 (70) | 09/15/2011 | 1 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | None |
| Pigeon Point (116) | 09/15/2011 | 1 | Adult | NR | None |
| Lime Kiln Pass (8) | 09/16/2011 | 1 | Adult | NR | B |
| Road 1027 (92) | 09/16/2011 | 1 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 4 | Adult | NR | None |

A. Outside the boundaries of Parashant.
B. Harassing a pair of Golden Eagles

## Passeriformes, Alaudidae

Horned Lark (*Eremophila alpestris*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 101 Cattle Tank (16) | 09/12/2011 | 3 | Adult | NR | None |

## Passeriformes, Hirundinidae

Violet-green Swallow (*Tachycineta thalassina*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 5 | Adult | NR | None |
| Burro Spring - North (50) | 09/14/2011 | 4 | Adult | NR | None |

Northern Rough-winged Swallow (*Stelgidopteryx serripennis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 4 | Adult | NR | None |

Cliff Swallow (*Petrochelidon pyrrhonota*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |

## Passeriformes, Paridae

Juniper Titmouse (*Baeolophus ridgwayi*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |

A. Outside the boundaries of Parashant.

## Passeriformes, Remizidae

Verdin (*Auriparus flaviceps*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Billy Goat Camp (01) | 11/25/2002 | NR | Adult | NR | A |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | B |

A. Outside the boundaries of Parashant.
B. Also saw 1 old nest

## Passeriformes, Aegithalidae

Bushtit (*Psaltriparus minimus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 15 | Adult | NR | None |

## Passeriformes, Troglodytidae

Cactus Wren (*Campylorhynchus brunneicapillus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Billy Goat Camp (01) | 03/25/2001 | 3 | Adult | NR | A |
| Pakoon Stock Pond (42) | 03/25/2001 | 3 | Adult | NR | None |
| Billy Goat Camp (01) | 11/25/2002 | NR | Adult | NR | A |
| Road 101 at Cattle Guard (15) | 09/12/2011 | NA | NA | NA | B |
| Road 101 Cattle Tank (16) | 09/12/2011 | 4 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 5 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |
| Pakoon Stock Pond (42) | 09/13/2011 | 2 | Adult | NR | None |
| Road 113 (55) | 09/14/2011 | 5 | Adult | NR | C |
| Tassi Spring (62) | 09/14/2011 | 5 | Adult | NR | None |
| Mesquite Stock Pond (4) | 09/16/2011 | 2 | Adult | NR | None |
| Road 1027 (92) | 09/16/2011 | 5 | Adult | NR | None |
| Road 1027 (99) | 09/16/2011 | 1 | Adult | NR | None |
| Road 1027 (100) | 09/16/2011 | 1 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.
B. Nest in buckhorn cholla.
C. One group flying among several buckhorn cholla.

Rock Wren (*Salpinctes obsoletus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Pass (8) | 09/12/2011 | 1 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NR | None |

Canyon Wren (*Catherpes mexicanus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/14/2011 | 2 | Adult | NR | None |
| Lime Kiln Road (106) | 09/16/2011 | 1 | Adult | NR | None |

Bewick's Wren (*Thryomanes bewickii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 101 Cattle Tank (16) | 09/12/2011 | 1 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 2 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/13/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 3 | Adult | NR | None |
| Pigeon Point (116) | 09/15/2011 | 1 | Adult | NR | None |

House Wren (*Troglodytes aedon*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

Marsh Wren (*Cistothorus palustris*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/13/2011 | 3 | Adult | NR | None |

## Passeriformes, Polioptilidae

Blue-gray Gnatcatcher (*Polioptila caerulea*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 2 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 3 | Adult | NR | None |
| Road 1027 (92) | 09/16/2011 | 1 | Adult | NR | None |

Black-tailed Gnatcatcher (*Polioptila melanura*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Pakoon Stock Pond (42) | 03/25/2001 | 1 | Adult | Male | B |
| Pakoon Stock Pond (42) | 09/13/2011 | 2 | Adult | Both | None |
| Burro Spring - South (72) | 09/15/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.
B. Singing

## Passeriformes, Regulidae

Ruby-crowned Kinglet (*Regulus calendula*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Billy Goat Camp (01) | 03/25/2001 | 2 | Adult | NR | A |
| Billy Goat Camp (01) | 11/25/2002 | NR | Adult | NR | A |
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.

## Passeriformes, Mimidae

### Northern Mockingbird (*Mimus polyglottos*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 2 | Adult | NR | None |

### Bendire's Thrasher (*Toxostoma bendirei*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 2 | Adult | NR | A |

A. Heavily streaked breast; foraging along fencelines.

### Crissal Thrasher (*Toxostoma crissale*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Billy Goat Camp (01) | 03/25/2001 | 1 | Adult | NR | A |
| Billy Goat Camp (01) | 11/25/2002 | 5 | Adult | NR | A, B |

A. Outside the boundaries of Parashant.
B. Seems to be a healthy population here (this was before the fire).

## Passeriformes, Ptilogonatidae

### Phainopepla (*Phainopepla nitens*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 1 | Adult | Male | A |
| Pakoon Stock Pond (42) | 09/13/2011 | NA | Adult | NA | B |
| Pakoon Springs (46) | 09/14/2011 | NA | NA | NA | B |
| Burro Spring - North (50) | 09/14/2011 | NA | NA | NA | B |
| Tassi Spring (62) | 09/14/2011 | NA | NA | NA | B |

A. Male was engaged in aerial display wherein he launched from a perch, flew in a big circle, and returned to the perch.
B. Scat piles on upper branches of mesquite trees

## Passeriformes, Parulidae

### Orange-crowned Warbler (*Oreothlypis celata*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |

### Nashville Warbler (*Oreothlypis ruficapilla*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 3 | Adult | NR | None |

### MacGillivray's Warbler (*Geothlypis tolmiei*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |
| Pakoon Stock Pond (42) | 09/13/2011 | 1 | Adult | Male | None |

### Common Yellowthroat (*Geothlypis trichas*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | NR | None |
| Lime Kiln Road (108) | 09/16/2011 | 1 | Adult | NR | None |

Yellow Warbler (*Setophaga petechia*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | None |
| Burro Spring - North (50) | 09/15/2011 | 1 | Adult | Male | None |
| Tassi Spring (62) | 09/15/2011 | 5 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 1 | Adult | NR | None |

Yellow-rumped Warbler (*Setophaga coronata*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

Townsend's Warbler (*Setophaga townsendi*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/13/2011 | 1 | Adult | Male | None |

Wilson's Warbler (*Cardellina pusilla*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 2 | Adult | Female | None |
| Middle Spring (27) | 09/13/2011 | 8 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 4 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 2 | Adult | NR | None |

Yellow-breasted Chat (*Icteria virens*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 2 | Adult | NR | None |

**Passeriformes, Emberizidae**

Green-tailed Towhee (*Pipilo chlorurus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 3 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | None |

Spotted Towhee (*Pipilo maculatus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |

Chipping Sparrow (*Spizella passerina*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Sandstone Outcrops (12) | 09/12/2011 | 8 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | NR | None |

Brewer's Sparrow (*Spizella breweri*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 10 | Adult | NR | A |
| Pakoon Springs (46) | 09/14/2011 | 15 | Adult | NR | B |
| Tassi Spring (62) | 09/14/2011 | 200 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 2 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 5 | Adult | NR | None |
| Road 1027 (93) | 09/16/2011 | 5 | Adult | NR | None |
| Pigeon Point (116) | 09/15/2011 | 15 | Adult | NR | None |

A. Main area
B. Southern area

Vesper Sparrow (*Pooecetes gramineus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Road 1007 (79) | 09/15/2011 | 2 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 1 | Adult | NR | None |

Lark Sparrow (*Chondestes grammacus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Sandstone Outcrops (12) | 09/12/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 3 | Adult | NR | A |
| Tassi Spring (62) | 09/14/2011 | 10 | Adult | NR | None |
| Pigeon Point (116) | 09/15/2011 | 10 | Adult | NR | None |

A. Southern area

Black-throated Sparrow (*Amphispiza bilineata*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 5 | NR | NR | A |
| Pakoon Stock Pond (42) | 03/25/2001 | 5 | Adult | NR | None |
| Tassi Spring (62) | 09/14/2011 | 2 | Adult | NR | None |

A. Outside the boundaries of Parashant.

Sage Sparrow (*Amphispiza belli*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 2 | Adult | NR | None |

Savannah Sparrow (*Passerculus sandwichensis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 2 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 3 | Adult | NR | None |

Song Sparrow (*Melospiza melodia*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

Lincoln's Sparrow (*Melospiza lincolnii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 3 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | None |

White-crowned Sparrow (*Zonotrichia leucophrys*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 5 | Adult | Both | None |
| Jacobs Ranch (23) | 09/13/2011 | 3 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 5 | Adult | NR | None |
| Pakoon Stock Pond (42) | 09/13/2011 | 3 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 5 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | None |

## Passeriformes, Cardinalidae

Summer Tanager (*Piranga rubra*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | A |

A. Culmen dark; bill too long for WETA

Western Tanager (*Piranga ludoviciana*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Four Corners (14) | 09/12/2011 | 1 | Adult | NR | None |
| Road 101 Cattle Tank (16) | 09/12/2011 | 2 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 4 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 5 | Adult | NR | None |
| Pakoon Springs (46) | 09/13/2011 | 3 | Adult | NR | None |
| Tassi Spring (62) | 09/14/2011 | 5 | Adult | NR | None |

Black-headed Grosbeak (*Pheucticus melanocephalus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |
| Road 101 Cattle Tank (16) | 09/12/2011 | 2 | Adult | NR | None |
| Jacobs Ranch (23) | 09/13/2011 | 2 | Adult | NR | None |

A. Outside the boundaries of Parashant.

Lazuli Bunting (*Passerina amoena*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 2 | Adult | Female | None |
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | Female | A |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 1 | Adult | Female | None |

A. Southern area

## Passeriformes, Icteridae

Western Meadowlark (*Sturnella neglecta*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | NR | NR | A |

A. Outside the boundaries of Parashant.

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 8 | Adult | Both | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 2 | Adult | NR | None |

Bullock's Oriole (*Icterus bullockii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 3 | Adult | NR | None |

Scott's Oriole (*Icterus parisorum*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 1 | Adult | NR | None |

## Passeriformes, Fringillidae

House Finch (*Carpodacus mexicanus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 5 | NR | NR | A |
| Billy Goat Camp (01) | 03/25/2001 | 1 | Adult | NR | A |
| Pakoon Stock Pond (42) | 03/25/2001 | 5 | Adult | Both | None |
| Lime Kiln Pass (8) | 09/12/2011 | 3 | Adult | Both | None |
| Road 101 Cattle Tank (16) | 09/12/2011 | 5 | Adult | Both | None |
| Jacobs Ranch (23) | 09/13/2011 | 5 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 5 | Adult | NR | None |
| Mesquite Stock Pond (4) | 09/16/2011 | 1 | Adult | Female | None |

A. Outside the boundaries of Parashant.

Lesser Goldfinch (*Spinus psaltria*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 10 | Adult | NR | None |

# APPENDIX B — MAMMALS

Note: NR = Not Recorded

## Rodentia, Sciuridae

### White-tailed Antelope Squirrel (*Ammospermophilus leucurus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 3 | Adult | Female | A |
| Billy Goat Camp (01) | 03/25/2001 | 2 | Adult | NR | A |
| Mesquite Stock Pond (4) | 09/12/2011 | 3 | Adult | NR | None |
| Lime Kiln Stock Pond (5) | 09/12/2011 | 1 | Adult | NR | None |
| Road 242 (9) | 09/12/2011 | 1 | Adult | NR | None |
| Road 242 (10) | 09/12/2011 | 2 | Adult | NR | None |
| Four Corners (14) | 09/12/2011 | 1 | Adult | NR | None |
| Road 101 Cattle Tank (16) | 09/12/2011 | 4 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |
| Grave Site (34) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 5 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 3 | Adult | NR | None |
| Road 113 (70) | 09/15/2011 | 1 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 2 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 10 | Adult | NR | None |
| Road 242 (10) | 09/16/2011 | 2 | Adult | NR | None |
| Road 1027 (92) | 09/16/2011 | 1 | Adult | NR | None |
| Road 1027 (96) | 09/16/2011 | 1 | Subadult | NR | None |
| Road 1027 (99) | 09/16/2011 | 1 | Adult | NR | None |
| Road 1027 (99) | 09/16/2011 | 1 | Adult | NR | None |
| Road 1027 (100) | 09/16/2011 | 1 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 1 | Adult | NR | None |
| Lime Kiln Mine (105) | 09/16/2011 | 1 | Adult | NR | None |
| Lime Kiln Road (108) | 09/16/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.

### Rock Squirrel (*Spermophilus variegatus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 3 | Adult | Female | A, B |
| Billy Goat Camp (01) | 03/25/2001 | 1 | Adult | NR | A |
| Billy Goat Camp (01) | 01/09/2008 | 1 | Adult | NR | A |
| Billy Goat Camp (01) | 01/09/2008 | NR | NR | NR | None |
| Lime Kiln Stock Pond (5) | 09/12/2011 | 5 | Adult | NR | None |
| Lime Kiln Road (109) | 09/12/2011 | 1 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |
| Lime Kiln Cement Trough (110) | 09/16/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.
B. One female lactating.

### Cliff Chipmunk (*Tamias dorsalis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Road (109) | 09/16/2011 | 1 | Adult | NR | A |

A. Ran across road; showed dark dorsal pattern typical of this species.

Uinta Chipmunk (*Tamias umbrinus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | A |

A. Animals were together in a catclaw tree

## Rodentia, Heteromyidae

Merriams' Kangaroo Rat (*Dipodomys merriami*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | NA | Adult | NA | A |
| Burro Spring - North (50) | 09/14/2011 | NA | NA | NA | B |
| Pakoon Springs (46) | 09/14/2011 | NA | NA | NA | B |
| Tassi Spring (62) | 09/15/2011 | NA | NA | NA | C |
| Road 1007 (79) | 09/15/2011 | NA | NA | NA | C |
| Road 1027 (92) | 09/15/2011 | NA | NA | NA | A |
| Road 1027 (99) | 09/16/2011 | NA | NA | NA | C |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | NA | NA | NA | A |

A. Many burrows.
B. Tracks and burrows.
C. Burrows

Desert Kangaroo Rat (*Diposomys deserti*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 113 (70) | 09/15/2011 | NA | NA | NA | A |
| Road 113 (71) | 09/15/2011 | NA | NA | NA | A |

A. Colony (several burrows with tracks) above road on bench with wind-blown sand.

## Rodentia, Geomyidae

Valley Pocket Gopher (*Thomomys bottae*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Middle Spring (27) | 09/13/2011 | 5 | Adult | NR | A |
| Pakoon Springs (46) | 09/14/2011 | NA | NA | NA | B |
| Tassi Spring (62) | 09/15/2011 | NA | NA | NA | A |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | NA | NA | NA | C |

A. Mounds.
B. Several sets of mounds.
C. Few burrow mounds.

## Rodentia, Cricetidae

Desert Woodrat (*Neotoma lepida*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 1 | Adult | NR | A |
| Pakoon Stock Pond (42) | 09/13/2011 | NA | NA | NA | Sign |
| Tassi Spring (62) | 09/15/2011 | NA | NA | NA | Sign |
| Road 1007 (79) | 09/15/2011 | NA | NA | NA | Sign |

A. Outside the boundaries of Parashant.

Cactus Deermouse (*Peromyscus eremicus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 1 | Adult | Female | A |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.

Piñon Deermouse (*Peromyscus truei*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Sandstone Outcrops (12) | 09/12/2011 | 3 | Juvenile | NR | A |

A. Large, gray mice (juvenile pelage) with big ears and short tail. Out running on the ground during mid-afternoon.

## Lagomorpha, Leporidae

Black-tailed jackrabbit (*Lepus californicus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Billy Goat Camp (01) | 03/25/2001 | 1 | Adult | NR | A |
| Well Head (18) | 09/12/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 2 | Adult | NR | None |

A. Outside the boundaries of Parashant.

Desert cottontail (*Sylvilagus audobonii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 111 (41) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 2 | Adult | NR | None |
| Burro Spring - North (50) | 09/14/2011 | 2 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 2 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 1 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 3 | Adult | NR | None |

## Chiroptera, Vespertilionidae

Unidentified Myotis (*Myotis spp.*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 5 | Adult | NR | A |

A. Flying low and fluttering under the trees

Pallid bat (*Antrozous pallidus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 2 | Adult | NR | A |

A. Flying under and among cottonwood trees in late evening.

Unidentified Mid-sized bat (*Myotis spp.*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 1027 (92) | 09/15/2011 | 5 | Adult | NR | A |

A. Flight fast, low, and swooping over camp with noisy wings. Sounded like birds, looked like bats

Unidentified Bats

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Mine (105) | 09/16/2011 | NA | NA | NA | A |

A. None present inside mine. Guano pile 2-ft wide, 1-inch deep. Appeared that bats had been using a small spot on the ceiling as a summer roost or maternity colony.

## Chiroptera, Molossidae

Mexican Free-tailed Bat (*Tadarida brasiliensis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 3 | Adult | NR | A |
| Road 1027 (92) | 09/15/2011 | 1 | Adult | NR | A |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 1 | Adult | NA | B |

A. Flying high, fast, and straight during late evening
B. Dead, hanging upside-down on cattail stem a few inches above the water

## Carnivora, Felidae

Bobcat (*Lynx rufus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 1027 (97) | 09/16/2011 | 1 | Adult | NA | A |

A. Tracks in mud in road

## Carnivora, Canidae

Coyote (*Canis latrans*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 1 | Adult | Female | A |
| Billy Goat Camp (01) | 01/09/2008 | NR | NR | NR | A, B |
| Well Head (18) | 09/12/2011 | 3 | Adult | NR | C |
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | B |
| Pakoon Stock Pond (42) | 09/13/2011 | NA | Adult | NA | B |
| Burro Spring - North (50) | 09/14/2011 | NA | NA | NA | B |
| Tassi Spring (62) | 09/15/2011 | NA | NA | NA | B |
| Road 1027 (92) | 09/15/2011 | 5 | Adult | NR | D |

A. Outside the boundaries of Parashant.
B. Scat only.
C. Singing in the darkness.
D. Singing at night and in the morning.

## Perissodactyla, Equidae

Feral Horse (*Equus caballus*) or Feral Burro (*Equus asinus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Stock Pond (42) | 03/25/2001 | 3 | Adult | Both | A |
| Jacobs Ranch (23) | 09/13/2011 | NA | Adult | NA | A |
| Nay Ranch (34) | 09/13/2011 | 4 | Adult | NR | B |
| Pakoon Springs (46) | 09/14/2011 | NA | Adult | NA | A |
| Burro Spring - North (50) | 09/14/2011 | NA | NA | NA | A |
| Tassi Spring (62) | 09/15/2011 | NA | NA | NA | A |

A. Sign (tracks, scat, or both) only; no animals seen
B. Probably belong to the ranch, but out on the roadway and in the desert

## Artiodactyla, Bovidae

### Domestic or Feral Cow (*Bos taurus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Billy Goat Camp (01) | 01/09/2008 | NR | NR | NR | A |
| Jacobs Ranch (23) | 09/13/2011 | 2 | Adult | NR | B |
| Tassi Spring (62) | 09/15/2011 | 10 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 5 | Adult | NR | None |

A. Outside the boundaries of Parashant.
B. Tracks at edge of pond; probably 2 animals

### Bighorn Sheep (*Ovis canadensis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Billy Goat Camp (01) | 01/09/2008 | NR | NR | NR | A, B |
| Middle Spring (27) | 09/13/2011 | NA | Adult | NA | C |

A. Outside the boundaries of Parashant.
B. Scat only.
C. Many large piles of scat and many tracks.

## Artiodactyla, Cervidae

### Mule Deer (*Odocoileus hemionus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | NR | Adult | NR | A |
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 1 | Adult | NA | B |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | NA | NA | NA | C |

A. Outside the boundaries of Parashant.
B. Tracks in mud
C. Scat

# APPENDIX C — AMPHIBIANS

Note: NR = Not Recorded

## American Bullfrog (*Lithobates catesbeianus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 100 | Adult | NR | None |

## Red-spotted Toad (*Anaxyrus punctatus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |
| Lime Kiln Cement Trough (110) | 09/16/2011 | 5 | Juvenile | NR | A |

A. Two of these tadpoles had fully developed front and back legs and appeared nearly ready to emerge. These could be Pacific Chorus Frogs

## Relict Leopard Frog (*Lithobates onca*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 10 | Adult | NR | None |

# APPENDIX D – REPTILES

Note: NR = Not Recorded

## Sauria, Phrynosomatidae

### Common Side-blotched Lizard (*Uta stansburiana*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 10 | Adult | Both | A, B |
| Pakoon Stock Pond (42) | 03/25/2001 | 5 | Adult | Both | None |
| Lime Kiln Pass (8) | 09/12/2011 | 1 | Juvenile | NR | None |
| Road 242 (9) | 09/12/2011 | 1 | Juvenile | NR | None |
| Sandstone Outcrops (12) | 09/12/2011 | 1 | Adult | NR | None |
| Middle Spring (27) | 09/13/2011 | 2 | Adult | NR | None |
| Nay Ranch (34) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Stock Pond (42) | 09/13/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Burro Spring - North (50) | 09/15/2011 | 1 | Juvenile | NR | None |
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |
| Road 1007 (79) | 09/15/2011 | 20 | Adult | NR | None |
| Road 1027 (93) | 09/16/2011 | 5 | Adult | NR | None |
| Road 1027 (100) | 09/16/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.
B. Recorded count was "lots."

### Desert Horned Lizard (*Phrynosoma platyrhinos*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 1213 (57) | 09/14/2011 | 1 | Adult | NR | None |
| Road 1027 (94) | 09/16/2011 | 1 | Adult | NR | A |

A. Medium-large size.

### Yellow-backed Spiny Lizard (*Sceloporus uniformis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 5 | Adult | Both | A, B |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |
| Road 1027 (93) | 09/16/2011 | 2 | Adult | NR | None |
| Road 1027 (96) | 09/16/2011 | 2 | Adult | NR | None |
| Road 1027 (97) | 09/16/2011 | 5 | Adult | NR | None |
| Road 1027 (99) | 09/16/2011 | 2 | Adult | NR | None |

A. Outside the boundaries of Parashant.
B. Several very large males.

### Zebra-tailed Lizard (*Callisaurus draconoides*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 1215 (66) | 09/15/2011 | 1 | Adult | NR | None |

### Ornate Tree Lizard (*Urosaurus ornatus*), Squamata, Phrynosomatidae

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 2 | Adult | NR | A |

A. Outside the boundaries of Parashant.

## Sauria, Iguanidae

### Common Chuckwalla (*Sauromalus ater*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lava Falls Trailhead (02) | 05/18/1998 | 5 | Adult | NR | A, B |
| Pakoon Springs (46) | 09/14/2011 | NA | Adult | NA | C |
| Road 1007 (79) | 09/15/2011 | NA | Adult | NA | D |

A. Outside the boundaries of Parashant.
B. A several chuckwallas were basking on rocky outcrops along the start of the trail.
C. 2, adult-size scat on rocky outcrop
D. Adult-size scat on rocky outcrop

## Sauria, Crotaphytidae

### Great Basin Collared Lizard (*Crotaphytus bicinctores*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 1 | Adult | NR | A |
| Lava Falls Trailhead (02) | 05/18/1998 | 3 | Adult | NR | A |
| Road 1213 (65) | 09/15/2011 | 2 | Adult | NR | B |

A. Outside the boundaries of Parashant.
B. Both about 2/3 grown; basking on rocks.

### Leopard Lizard (*Gambelia wislizenii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 111 (76) | 09/15/2011 | 1 | Adult | NR | A |

A. About 2/3 grown; basking on rock.

## Sauria, Teiidae

### Western Whiptail (*Aspidoscelis tigris*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Toroweap Campground (03) | 05/17/1998 | 3 | Adult | NR | A |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Burro Spring - North (50) | 09/15/2011 | 1 | Adult | NR | B |
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |

A. Outside the boundaries of Parashant.
B. Lateral lines are dots; rusty rump and tail, large

## Serpentes, Colubridae

### Gopher Snake (*Pituophis catenifer*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Road (107) | 09/16/2011 | 1 | Adult | Female | A |

A. About 4'; hissed a lot but did not bite

## Serpentes, Viperidae

### Mojave Rattlesnake (*Crotalus scutulatus*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 111 (38) | 09/13/2011 | 1 | Adult | NR | A |

A. About 3'; overcast, breeze, 77 deg

## Testudines, Testudinidae

Desert Tortoise (*Gopherus agassizii*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | NA | NA | NA | A |

A. Possible burrow, no visible scat or tracks

# APPENDIX E
# ODONATES (DRAGONFLIES AND DAMSELFLIES)

Note: NR = Not Recorded

## Anisoptera (Dragonflies), Aeshnidae

### Common Green Darner (*Anax junius*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 101 Cattle Tank (16) | 09/12/2011 | 1 | Adult | Female | A |
| Jacobs Ranch (23) | 09/13/2011 | 5 | Adult | Both | B |
| Burro Spring - North (50) | 09/14/2011 | 1 | Adult | Female | None |
| Pakoon Springs (46) | 09/14/2011 | 5 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 10 | Adult | Both | None |
| Lime Kiln Road (108) | 09/16/2011 | 3 | Adult | NR | None |
| Lime Kiln Stock Pond (5) | 09/16/2011 | 1 | Adult | Male | None |

A. Ovopositing on vegetation.
B. Several exuviae on emergent vegetation.

### Blue-eyed Darner (*Rhionaeschna multicolor*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 3 | Adult | Both | A |
| Pakoon Springs (46) | 09/14/2011 | 10 | Adult | NR | None |
| Mesquite Stock Pond (4) | 09/16/2011 | 5 | Adult | Male | None |
| Mesquite Stock Pond (4) | 09/16/2011 | 1 | Adult | Female | None |

A. Mating and flying in tandem

## Anisoptera (Dragonflies), Libellulidae

### Western Pondhawk (*Erythemis collocata*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 10 | Adult | Both | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 15 | Adult | Both | None |

### Comanche Skimmer (*Libellula comanche*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | None |

### Flame Skimmer (*Libellula saturata*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Stock Pond (5) | 09/12/2011 | 1 | Adult | NR | None |
| Road 101 Cattle Tank (16) | 09/12/2011 | 2 | Adult | Male | None |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 1 | Adult | Male | None |
| Seven Springs (73) | 09/15/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 1 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 10 | Adult | Both | A |
| Lime Kiln Road (108) | 09/16/2011 | 1 | Adult | NR | None |

A. Ovopositing single

Blue Dasher (*Pachydiplax longipennis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 15 | Adult | Both | None |

Glider (*Pantala spp.*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Road 101 Cattle Tank (16) | 09/12/2011 | 1 | Adult | NR | None |

Mexican Amberwing (*Perithemis intensa*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | Male | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 15 | Adult | Male | None |

Striped Meadowhawk (*Sympetrum pallipes*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 1 | Adult | Male | None |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | Male | None |
| Burro Spring - South (72) | 09/15/2011 | 3 | Adult | Male | None |
| Tassi Spring (62) | 09/15/2011 | 5 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 15 | Adult | Both | A |

A. Flying and ovopositing in tandem.

Variegated Meadowhawk (*Sympetrum corruptum*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Stock Pond (5) | 09/12/2011 | 3 | Adult | NR | None |
| Mesquite Stock Pond (4) | 09/12/2011 | 5 | Adult | NR | A |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Burro Spring - North (50) | 09/15/2011 | 10 | Adult | NR | None |
| Burro Spring - South (72) | 09/15/2011 | 1 | Adult | NR | None |

A. Flying and ovopositing in tandem.

Black Saddlebags (*Tramea lacerata*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 5 | Adult | NR | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 10 | Adult | Both | A |

A. Male and female flying in tandem

## Zygoptera (Damselflies), Calopterygidae

American Rubyspot (*Hetaerina americana*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Tassi Spring (62) | 09/15/2011 | 3 | Adult | NR | None |

## Zygoptera (Damselflies), Coenagrionidae

Aztec Dancer (*Argia nahuana*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Burro Spring - South (72) | 09/15/2011 | 1 | Adult | Male | None |

Blue-ringed Dancer (*Argia sedula*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |

Vivid Dancer (*Argia vivida*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Tassi Spring (62) | 09/15/2011 | 5 | Adult | NR | None |

Tule Bluet (*Enallagma carunculatum*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | NR | None |
| Pakoon Springs (46) | 09/14/2011 | 1 | Adult | Male | None |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 10 | Adult | Both | A |

A. Flying and ovopositing in tandem.

Familiar Bluet (*Enallagma civile*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Mesquite Stock Pond (4) | 09/12/2011 | 100 | Adult | Both | None |
| Pakoon Springs (46) | 09/14/2011 | 25 | Adult | Both | A |
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 100 | Adult | Both | B |
| Mesquite Stock Pond (4) | 09/16/2011 | 25 | Adult | Male | None |

A. Mating and flying tandem.
B. Flying and ovopositing in tandem.

Bluet, unidentified (*Enallagma spp.*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Jacobs Ranch (23) | 09/13/2011 | 1 | NR | NR | A |
| Road 101 Cattle Tank (16) | 09/12/2011 | 1 | NR | Female | B |

A. Brown female or teneral
B. Brown

Western Forktail (*Ischnura perparva*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Cottonwood Valley Stock Pond (101) | 09/16/2011 | 20 | Adult | Both | A |

A. Pairs mating and females ovopositing single

## Zygoptera (Damselflies), Lestidae

Great Spreadwing (*Archilestes grandis*)

| Location | Date | Count | Age | Gender | Notes |
|---|---|---|---|---|---|
| Lime Kiln Road (108) | 09/16/2011 | 1 | Adult | Female | None |

# APPENDIX F — Site Descriptions

**Billy Goat Camp (Site 001)** (Whitney Pass, 1.0 miles W of PARA boundary)
Mojave Desert Scrub dominated by mixed shrubs including blackbrush and buckhorn cholla; near the Pinyon-Juniper Woodland zone.

**Lava Falls Trailhead (Site 002)** (Grand Canyon National Park; 3.4 miles W of PARA)
Black lava rock outcrops above shrubs at the edge of the Grand Canyon

**Toroweap Campground (Site 003)** (Grand Canyon National Park; 4.8 miles W of PARA)
Pinyon-Juniper zone with sandstone cliffs and slickrock, Sonoran scrub oak (*Quercus turbinella*), cactus, and lots of annual flowers

**Mesquite Stock Pond (Site 004)**
09/12/2011, Arrival: 1215 hrs, Depart: 1230 hrs
Land Form: Bajada, north facing
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), catclaw acacia (*Acacia greggii*), southern cattail (*Typha domingensis*), joshua tree (*Yucca brevifolia*), buckhorn cholla (*Cylindropuntia acanthocarpa*), sacred thorn-apple (*Datura wrightii*).

**Lime Kiln Stock Pond (Site 005)**
09/12/2011, Arrival: 1240 hrs, Depart: 1300 hrs
Land Form: Canyon Bottom
Habitat Type: Pinyon-Juniper Woodland; old burn area with a few trees left in the bottom of the canyon
Dominant Vegetation: scattered singleleaf pinyon (*Pinus monophylla*), scattered utah juniper (*Juniperus osteosperma*), catclaw acacia (*Acacia greggii*), broom snakeweed (*Gutierrezia sarothrae*), red brome (*Bromus rubens*)

**Lime Kiln Pass (Site 008)**
09/12/2011, Arrival: 1331 hrs, Depart: 1354 hrs
Land Form: Mountains
Habitat Type: Pinyon-Juniper Woodland
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), Sonoran scrub oak (*Quercus turbinella*), pointleaf manzanita (*Arctostaphylos pungens*), utah agave (*Agave utahensis*), banana yucca (*Yucca baccata*), mormon tea (*Ephedra viridis*), prickly russian thistle (*Salsola tragus*), blackbrush (*Coleogyne ramosissima*), stansbury cliffrose (*Purshia stansburiana*)

**Road 242 (Site 009)**
09/12/2011, Arrival: 1411 hrs, Depart: 1415 hrs
Land Form: Mountains
Habitat Type: Pinyon-Juniper Woodland; burn area
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), Sonoran scrub oak (*Quercus turbinella*), pointleaf manzanita (*Arctostaphylos pungens*), utah agave (*Agave utahensis*), banana yucca (*Yucca baccata*), mormon tea (*Ephedra viridis*), prickly russian thistle (*Salsola tragus*), blackbrush (*Coleogyne ramosissima*), stansbury cliffrose (*Purshia stansburiana*), skunkbush sumac (*Rhus trilobata*) in gullies.

**Road 242 (Site 010)**
09/12/2011, Arrival: 1424 hrs, Depart: 1443 hrs
Land Form: Wash bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), Sonoran scrub oak (*Quercus turbinella*), banana yucca (*Yucca baccata*), Indian ricegrass (*Achnatherum hymenoides*), stansbury cliffrose (*Purshia stansburiana*), desert almond (*Prunus fasciculata*), skunkbush sumac (*Rhus trilobata*), apache plume (*Fallugia paradoxa*)

**Sandstone Outcrops (Site 012)**
09/12/2011, Arrival: 1451 hrs, Depart: 1510 hrs
Land Form: Low Flats
Habitat Type: Pinyon-Juniper Woodland at Mojave Desert Scrub
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*) on hillsides; wash species (e.g., burrobrush [*Hymenoclea salsola*]) in wash.

**Four Corners (Site 014)**
09/12/2011, Arrival: 1543 hrs, Depart: 1616 hrs
Land Form: Canyon Bottom
Habitat Type: Pinyon-Juniper Woodland at Mojave Desert Scrub
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), buckhorn cholla (*Cylindropuntia acanthocarpa*), Sonoran scrub oak (*Quercus turbinella*), apache plume (*Fallugia paradoxa*), skunkbush sumac (*Rhus trilobata*), big sagebrush (*Artemisia tridentata*), broom snakeweed (*Gutierrezia sarothrae*), rubber rabbitbrush (*Ericameria nauseosa*), crispleaf buckwheat (*Eriogonum corymbosum*).

**Road 101 at Cattle Guard (Site 015)**
09/12/2011, Arrival: 1624 hrs, Depart: 1624 hrs
Land Form: High Flats
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: buckhorn cholla (*Cylindropuntia acanthocarpa*), joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*)

**Road 101 Cattle Tank (Site 016)**
09/12/2011, Arrival: 1628 hrs, Depart: 1912 hrs
Land Form: Valley Bottom
Habitat Type: Pinyon-Juniper Woodland at Mojave Desert Scrub
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), Sonoran scrub oak (*Quercus turbinella*), buckhorn cholla (*Cylindropuntia acanthocarpa*), joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), broom snakeweed (*Gutierrezia sarothrae*), cactus apple (*Opuntia engelmannii*). Weeds: prickly russian thistle (*Salsola tragus*).

**Well Head (Site 018)**
09/12/2011, Arrival: 1925 hrs, Depart: 1925 hrs
Land Form: High Flats
Habitat Type: Mojave Desert Scrub (burned Pinyon-Juniper Woodland)
Dominant Vegetation: joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*).

**Jacobs Ranch (Site 023)**
09/13/2011, Arrival: 640 hrs, Depart: 1100 hrs
Land Form: Valley Bottom
Habitat Type: Mojave Desert Scrub (abandoned ranch house with wet stock pond)
Dominant Vegetation: siberian elm (*Ulmus pumila*), joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), broom snakeweed (*Gutierrezia sarothrae*), baccharis (*Baccharis spp.*), banana yucca (*Yucca baccata*), stansbury cliffrose (*Purshia stansburiana*), cactus apple (*Opuntia engelmannii*), southern cattail (*Typha domingensis*). Weeds: prickly russian thistle (*Salsola tragus*), himalayan blackberry (*Rubus armeniacus*), saltcedar (*Tamarix ramosissima*), horehound (*Marrubium vulgare*).

**Middle Spring (Site 027)**
09/13/2011, Arrival: 1128 hrs, Depart: 1406 hrs
Land Form: Hillside
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: Wetland species around spring and outflow; desert species in surrounding area. Fremont cottonwood (*Populus fremontii*), netleaf hackberry (*Celtis laevigata*), honey mesquite (*Prosopis glandulosa*), catclaw acacia (*Acacia greggii*), baccharis (*Baccharis spp.*), rush (*Juncus spp.*), southern cattail (*Typha domingensis*), sacred thorn-apple (*Datura wrightii*), yerba mansa (*Anemopsis californica*), fourwing saltbush (*Atriplex canescens*), joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), cactus apple (*Opuntia engelmannii*), crispleaf buckwheat (*Eriogonum corymbosum*).

**Nay Ranch (Site 034)**
09/13/2011, Arrival: 1424 hrs, Depart: 1431 hrs
Land Form: Rocky Hillside
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: Sonoran scrub oak (*Quercus turbinella*), broom snakeweed (*Gutierrezia sarothrae*), joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*).

**Road 111 (Site 037)**
09/13/2011, Arrival: 1440 hrs, Depart: 1448 hrs
Land Form: Low Flats
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), buckhorn cholla (*Cylindropuntia acanthocarpa*), stansbury cliffrose (*Purshia stansburiana*)

**Road 111 (Site 038)**
09/13/2011, Arrival: 1450 hrs, Depart: 1506 hrs
Land Form: Low Flats
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), buckhorn cholla (*Cylindropuntia acanthocarpa*), banana yucca (*Yucca baccata*), broom snakeweed (*Gutierrezia sarothrae*)

**Road 111 (Site 039)**
09/13/2011, Arrival: 1510 hrs, Depart: 1510 hrs
Land Form: Rolling Hills
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), buckhorn cholla (*Cylindropuntia acanthocarpa*), banana yucca (*Yucca baccata*), broom snakeweed (*Gutierrezia sarothrae*)

**Road 111 (Site 041)**
09/13/2011, Arrival: 1523 hrs, Depart: 1523 hrs
Land Form: Canyon Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), joshua tree (*Yucca brevifolia*), honey mesquite (*Prosopis glandulosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), california barrel cactus (*Ferocactus cylindraceus*).

**Pakoon Stock Pond (Site 042)**
09/13/2011, Arrival: 1546 hrs, Depart: 1654 hrs
Land Form: Valley Bottom
Habitat Type: Mojave Desert Scrub. Corral and stockpond with recent rainwater.
Dominant Vegetation: joshua tree (*Yucca brevifolia*), catclaw acacia (*Acacia greggii*), mesquite mistletoe (*Phoradendron californicum*), buckhorn cholla (*Cylindropuntia acanthocarpa*), silver cholla (*Cylindropuntia echinocarpa*), woolly fruit bur ragweed (*Ambrosia eriocentra*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), beavertail pricklypear (*Opuntia basilaris*), burrobrush (*Hymenoclea salsola*), red brome (*Bromus rubens*), engelmann's hedgehog cactus (*Echinocereus engelmannii*), california barrel cactus (*Ferocactus cylindraceus*).

**Pakoon Springs (Site 046)**
09/13/2011, Arrival: 1715 hrs, Depart: 1841 hrs
Land Form: Valley Bottom
Habitat Type: Mojave Desert Scrub; riparian with free water
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), fremont cottonwood (*Populus fremontii*), willow (*Salix spp.*), southern cattail (*Typha domingensis*), honey mesquite (*Prosopis glandulosa*), screwbean mesquite (*Prosopis pubescens*), catclaw acacia (*Acacia greggii*), mesquite mistletoe (*Phoradendron californicum*), fourwing saltbush (*Atriplex canescens*), quailbush (*Atriplex lentiformis*), yerba mansa (*Anemopsis californica*), mojave seablite (*Suaeda moquinii*), saltgrass (*Distichlis spicata*), common fishhook cactus (*Mammillaria tetrancistra*). Weeds: giant sunflowers, prickly russian thistle (*Salsola tragus*).

**Burro Spring - North (Site 050)**
09/14/2011, Arrival: 1414 hrs, Depart: 1435 hrs
Land Form: Wash bottom; spring with free water
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: honey mesquite (*Prosopis glandulosa*), creosote bush (*Larrea tridentata*), mesquite mistletoe (*Phoradendron californicum*).

**Road 113 (Site 055)**
09/14/2011, Arrival: 1501 hrs, Depart: 1505 hrs
Land Form: Wash bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*).

**Road 1213 (Site 057)**
09/14/2011, Arrival: 1519 hrs, Depart: 1519 hrs
Land Form: Wash bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*).

**Tassi Spring (Site 062)**
09/14/2011, Arrival: 1551 hrs, Depart: 1900 hrs
Land Form: Canyon Bottom; historic ranch site with springs.
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: fremont cottonwood (*Populus fremontii*), willow (*Salix spp.*), desert willow (*Chilopsis linearis*), catclaw acacia (*Acacia greggii*), honey mesquite (*Prosopis glandulosa*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), white ratany (*Krameria grayi*), california barrel cactus (*Ferocactus cylindraceus*), johnson's fishhook cactus (*Echinomastus johnsonii*), silver cholla (*Cylindropuntia echinocarpa*), canyon grape (*Vitis arizonica*), yerba mansa (*Anemopsis californica*), baccharis (*Baccharis spp.*), saltgrass (*Distichlis spicata*), southern cattail (*Typha domingensis*), mesquite mistletoe (*Phoradendron californicum*), cardinalflower (*Lobelia cardinalis*).

**Road 1213 (Site 065)**
05/15/2011, Arrival: 1140 hrs, Depart: 1227 hrs
Land Form: Canyon Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*).

**Road 1215 (Site 066)**
05/15/2011, Arrival: 1328 hrs, Depart: 1328 hrs
Land Form: Wash bottom; sand and rocks in wash
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: desert willow (*Chilopsis linearis*), creosote bush (*Larrea tridentata*).

**Road 113 (Site 070)**
05/15/2011, Arrival: 1349 hrs, Depart: 1403 hrs
Land Form: Wash bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*), schismus (*Schismus spp.*).

**Road 113 (Site 071)**
05/15/2011, Arrival: 1406 hrs, Depart: 1406 hrs
Land Form: Wash bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), white ratany (*Krameria grayi*).

**Burro Spring - South (Site 072)**
09/15/2011, Arrival: 1409 hrs, Depart: 1500 hrs
Land Form: Wash bottom; spring with free water at edge of wash
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: honey mesquite (*Prosopis glandulosa*), willow (*Salix spp.*), southern cattail (*Typha domingensis*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*).

**Seven Springs (Site 073)**
05/15/2011, Arrival: 1523 hrs, Depart: 1607 hrs
Land Form: Canyon Bottom; spring with free water.
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: honey mesquite (*Prosopis glandulosa*), fremont cottonwood (*Populus fremontii*), catclaw acacia (*Acacia greggii*), willow (*Salix spp.*), sedge meadow grazed to stubble by cows.

**Road 111 (Site 076)**
05/15/2011, Arrival: 1708 hrs, Depart: 1708 hrs
Land Form: Valley Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*).

**Road 1007 (Site 079)**
05/15/2011, Arrival: 1724 hrs, Depart: 1800 hrs
Land Form: Valley Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), california barrel cactus (*Ferocactus cylindraceus*).

**Road 111 (Site 086)**
09/15/2011, Arrival: 1840 hrs, Depart: 1840 hrs
Land Form: High Flats
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), blackbrush (*Coleogyne ramosissima*), buckhorn cholla (*Cylindropuntia acanthocarpa*), creosote bush (*Larrea tridentata*).

**Road 1027 (Site 092)**
05/15/2011, Arrival: 855 hrs, Depart: 905 hrs
Land Form: High Flats
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), red brome (*Bromus rubens*), broom snakeweed (*Gutierrezia sarothrae*), turpentinebroom (*Thamnosma montana*), banana yucca (*Yucca baccata*), Mojave cottonthorn (*Tetradymia stenolepis*), Nevada jointfir (*Ephedra nevadensis*), desert globemallow (*Sphaeralcea ambigua*), whitestem paperflower (*Psilostrophe cooperi*), littleleaf ratany (*Krameria erecta*).

**Road 1027 (Site 093)**
05/16/2011, Arrival: 912 hrs, Depart: 914 hrs
Land Form: Canyon Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*), desert willow (*Chilopsis linearis*).

**Road 1027 (Site 094)**
05/16/2011, Arrival: 930 hrs, Depart: 930 hrs
Land Form: High Flats
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*), desert willow (*Chilopsis linearis*).

**Road 1027 (Site 096)**
05/16/2011, Arrival: 935 hrs, Depart: 950 hrs
Land Form: High Ridge
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*), desert willow (*Chilopsis linearis*).

**Road 1027 (Site 097)**
05/16/2011, Arrival: 957 hrs, Depart: 1000 hrs
Land Form: Canyon Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*), desert willow (*Chilopsis linearis*).

**Road 1027 (Site 099)**
09/16/2011, Arrival: 1011 hrs, Depart: 1028 hrs
Land Form: Valley Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*), desert willow (*Chilopsis linearis*).

**Road 1027 (Site 100)**
09/16/2011, Arrival: 1038 hrs, Depart: 1041 hrs
Land Form: Valley Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: joshua tree (*Yucca brevifolia*), creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), buckhorn cholla (*Cylindropuntia acanthocarpa*), burrobrush (*Hymenoclea salsola*), catclaw acacia (*Acacia greggii*), desert willow (*Chilopsis linearis*).

**Cottonwood Valley Stock Pond (Site 101)**
09/16/2011, Arrival: 1058 hrs, Depart: 1243 hrs
Land Form: Broad valley with soft soils disturbed by cattle.
Habitat Type: Mojave Desert Scrub (formerly Pinyon-Juniper Woodland evidenced by old carcass of pinyon and juniper trees)
Dominant Vegetation: joshua tree (*Yucca brevifolia*), buckhorn cholla (*Cylindropuntia acanthocarpa*), prickly russian thistle (*Salsola tragus*), fourwing saltbush (*Atriplex canescens*), broom snakeweed (*Gutierrezia sarothrae*), peach thorn (*Lycium cooperi*), red brome (*Bromus rubens*), desert willow (*Chilopsis linearis*). Southern cattail (*Typha domingensis*), bulrush (*Scirpus spp.*), pigweed (*Amaranthus spp.*) at pond. No creosote bush (*Larrea tridentata*) in this area.

**Lime Kiln Mine (Site 105)**
09/16/2011, Arrival: 1402 hrs, Depart: 1408 hrs
Land Form: Rocky Hillside
Habitat Type: Mojave Desert Scrub (burn area formerly Pinyon-Juniper Woodland)
Dominant Vegetation: creosote bush (*Larrea tridentata*), fourwing saltbush (*Atriplex canescens*), broom snakeweed (*Gutierrezia sarothrae*), utah agave (*Agave utahensis*), buckhorn cholla (*Cylindropuntia acanthocarpa*), red brome (*Bromus rubens*).

**Lime Kiln Road (Site 106)**
09/16/2011, Arrival: 1543 hrs, Depart: 1543 hrs
Land Form: Canyon Bottom
Habitat Type: Pinyon-Juniper Woodland
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), Sonoran scrub oak (*Quercus turbinella*).

**Lime Kiln Road (Site 107)**
09/16/2011, Arrival: 1554 hrs, Depart: 1554 hrs
Land Form: Canyon Bottom
Habitat Type: Pinyon-Juniper Woodland
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), Sonoran scrub oak (*Quercus turbinella*).

**Lime Kiln Road (Site 108)**
09/16/2011, Arrival: 1556 hrs, Depart: 1623 hrs
Land Form: Canyon Bottom with creek
Habitat Type: Pinyon-Juniper Woodland
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), Sonoran scrub oak (*Quercus turbinella*), desert baccharis (*Baccharis sergiloides*).

**Lime Kiln Road (Site 109)**
09/12/2011, Arrival: 1310 hrs, Depart: 1310 hrs
Land Form: Canyon Bottom
Habitat Type: Pinyon-Juniper Woodland
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), Sonoran scrub oak (*Quercus turbinella*).

**Lime Kiln Cement Trough (Site 110)**
09/16/2011, Arrival: 1630 hrs, Depart: 1642 hrs
Land Form: Canyon Bottom
Habitat Type: Pinyon-Juniper Woodland
Dominant Vegetation: singleleaf pinyon (*Pinus monophylla*), utah juniper (*Juniperus osteosperma*), Sonoran scrub oak (*Quercus turbinella*), desert baccharis (*Baccharis sergiloides*), sacred thorn-apple (*Datura wrightii*), broom snakeweed (*Gutierrezia sarothrae*).

**Pigeon Point (Site 116)**
05/15/2011, Arrival: 1140 hrs, Depart: 1227 hrs
Land Form: Valley Bottom
Habitat Type: Mojave Desert Scrub
Dominant Vegetation: saltcedar (*Tamarix ramosissima*), arrowweed (*Pluchea sericea*).

# Appendix G
# GPS Coordinates for Observation Site (NAD83)

| Site | Location Name | Zone | UTM Easting | UTM Northing | Elevation (ft) |
|---|---|---|---|---|---|
| 001 | Billy Goat Camp | 11 | 762697.15 | 4046277.70 | 4,805 |
| 002 | Lava Falls Trailhead | 12 | 312579.26 | 4009633.92 | 4,268 |
| 003 | Toroweap Campground | 12 | 314858.42 | 4010922.06 | 4,596 |
| 004 | Mesquite Stock Pond | 11 | 765645.51 | 4066575.65 | 2,725 |
| 005 | Lime Kiln Stock Pond | 11 | 767036.93 | 4063174.36 | 3,418 |
| 008 | Lime Kiln Pass | 11 | 767164.28 | 4058881.05 | 4,844 |
| 009 | Road 242 | 12 | 231821.64 | 4057969.04 | 4,429 |
| 010 | Road 242 | 12 | 233484.17 | 4057098.08 | 3,994 |
| 012 | Sandstone Outcrops | 12 | 234323.53 | 4056906.77 | 3,875 |
| 014 | Four Corners | 12 | 235038.21 | 4055407.19 | 3,698 |
| 015 | Road 101 at Cattle Guard | 12 | 233529.42 | 4053758.00 | 3,925 |
| 016 | Road 101 Cattle Tank | 12 | 233497.95 | 4053568.77 | 3,860 |
| 018 | Well Head | 12 | 233108.15 | 4053998.52 | 4,048 |
| 023 | Jacobs Ranch | 11 | 766703.95 | 4048180.70 | 3,857 |
| 027 | Middle Spring | 11 | 764450.10 | 4047403.90 | 4,348 |
| 034 | Nay Ranch | 11 | 763477.75 | 4045991.49 | 4,402 |
| 037 | Road 111 | 11 | 765398.11 | 4044756.99 | 3,903 |
| 038 | Road 111 | 11 | 766321.70 | 4043894.67 | 3,662 |
| 039 | Road 111 | 11 | 767757.72 | 4042401.67 | 3,366 |
| 041 | Road 111 | 12 | 232915.78 | 4040206.83 | 2,925 |
| 042 | Pakoon Stock Pond | 12 | 233526.26 | 4039014.58 | 2,800 |
| 046 | Pakoon Springs | 12 | 234836.21 | 4034120.93 | 2,293 |
| 050 | Burro Spring - North | 12 | 233314.18 | 4029918.14 | 1,932 |
| 055 | Road 113 | 12 | 231034.90 | 4024094.75 | 1,625 |
| 057 | Road 1213 | 11 | 769233.90 | 4018495.95 | 1,355 |
| 062 | Tassi Spring | 12 | 234262.76 | 4016401.12 | 1,532 |
| 065 | Road 1213 | 12 | 231877.22 | 4018001.85 | 1,559 |
| 066 | Road 1215 | 11 | 769097.80 | 4016932.40 | 1,275 |
| 070 | Road 113 | 11 | 769296.99 | 4017976.03 | 1,308 |
| 071 | Road 113 | 11 | 769116.52 | 4018866.20 | 1,355 |
| 072 | Burro Spring - South | 11 | 769110.44 | 4019497.19 | 1,382 |
| 073 | Seven Springs | 12 | 231508.30 | 4021078.76 | 1,465 |
| 076 | Road 111 | 12 | 233704.67 | 4030047.54 | 1,936 |
| 079 | Road 1007 | 12 | 235908.83 | 4030744.12 | 2,286 |
| 086 | Road 111 | 12 | 241980.09 | 4042595.46 | 2,998 |
| 092 | Road 1027 | 12 | 242522.40 | 4044658.78 | 3,165 |
| 093 | Road 1027 | 12 | 240167.48 | 4044758.65 | 3,124 |
| 094 | Road 1027 | 12 | 239879.01 | 4045922.93 | 3,310 |
| 096 | Road 1027 | 12 | 239980.87 | 4046256.46 | 3,372 |
| 097 | Road 1027 | 12 | 240185.00 | 4046761.69 | 3,156 |
| 099 | Road 1027 | 12 | 239195.62 | 4048496.61 | 3,111 |
| 100 | Road 1027 | 12 | 238015.95 | 4051796.63 | 3,360 |

| | | | | | |
|---|---|---|---|---|---|
| 101 | Cottonwood Valley Stock Pond | 12 | 237323.58 | 4053190.52 | 3,415 |
| 105 | Lime Kiln Mine | 12 | 233754.85 | 4057545.30 | 4,020 |
| 106 | Lime Kiln Road | 11 | 766544.69 | 4059607.64 | 4,457 |
| 107 | Lime Kiln Road | 11 | 766501.67 | 4060219.46 | 4,283 |
| 108 | Lime Kiln Road | 11 | 766542.85 | 4060611.09 | 4,165 |
| 109 | Lime Kiln Road | 11 | 767009.06 | 4061220.73 | 3,927 |
| 110 | Lime Kiln Cement Trough | 11 | 767162.27 | 4061732.03 | 3,819 |
| 116 | Pigeon Point | 11 | 707251.19 | 4064517.48 | 1,679 |