



2008 Habitat Monitoring Report: Carnegie State Vehicular Recreation Area

By

**Clint Elsholz
Environmental Scientist
Carnegie SVRA
California State Parks**

**Craig Swolgaard
Environmental Scientist
Natural Resources Division
California State Parks**



Table of Contents

Introduction.....	3
Methods	
Birds.....	4
Amphibians.....	5
Results	
Birds.....	6
Amphibians.....	9

Introduction

Carnegie State Vehicle Recreation Area (CSVRA) encompasses 5,000 acres in the coastal hills of western San Joaquin and eastern Alameda counties. The topography can be described as rolling hills with some areas of extremely steep terrain. Several habitats exist within Carnegie SVRA including blue oak woodland, annual grassland, coastal scrub, and valley foothill riparian. The climate is Mediterranean, with cool, wet winters and hot dry summers. Of the 5,000 acres, approximately 1,500 are open to off-highway vehicular (OHV) recreation. The park's remaining acreage is primarily used for cattle grazing.

Grassland habitats cover approximately 50% of the unit and are composed of mainly non-native grasses and forbs. However, native species such as purple needlegrass (*Nassella pulchra*), blue wildrye (*Elymus glaucus* ssp. *glaucus*), and California fescue (*Festuca californica*) are also present (unpublished data). Blue oak woodland can be found in around 35% of the park and consists of blue oaks (*Quercus douglasii*) as the dominant tree found on both the slopes and ravines, with a wide range of canopy cover, although valley oak (*Quercus lobata*) is found in lower elevations and near waterways. On the higher slopes, conifer species include California juniper (*Juniperus californica*) and foothill pine (*Pinus sabiniana*) and shrub species include California buckeye (*Aesculus californica*), holly-leaf redberry (*Rhamnus ilicifolia*), and toyon (*Heteromeles arbutifolia*). Valley foothill riparian habitats cover approximately 4% of the park and include Fremont cottonwood (*Populus fremonti*), valley oak, and western sycamore (*Platanus racemosa*) being the dominant tree species. The dominant shrub species of the lower drainages is mulefat (*Baccharis salicifolia*), although in the ravines bisecting the hills desert olive (*Forestiera pubescens*) is also found in thickets. Coastal scrub habitat covers approximately 11% of the park and includes California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), and bush monkeyflower (*Mimulus aurantiacus*) (unpublished data).

Because of its position in the rain shadow of the Coast Range, CSVRA is unique in that it contains the northernmost range of several arid or desert habitat species, as well as other desert inhabiting species. These include desert olive, desert buckwheat (*Eriogonum fasciculatum* var. *polyfolium*), Mormon tea (*Ephedra californica*), western spadefoot (*Scaphiopus hammondi*), glossy snake (*Arizona elegans*), coachwhip (*Masticophis flagellum*), Cassin's kingbird (*Tyrannus vociferans*), greater roadrunner (*Geococcyx californianus*), phainopepla (*Phainopepla nitens*), desert woodrat (*Neotoma lepida*), and Heermann's kangaroo rat (*Dipodomys heermanni*) (unpublished data).

Other wildlife typically seen at or near the unit includes black-tailed deer (*Odocoileus hemionus*), tule elk (*Cervus elaphus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), red-tailed hawk (*Buteo jamaicensis*), and California ground squirrel (*Spermophilus beecheyi*). In addition, nine special status or listed animal species are known to inhabit CSVRA. These include foothill yellow-legged frog (*Rana*

boylii), California red-legged frog (*Rana aurora draytonii*), western pond turtle (*Clemmys marmorata*), western spadefoot toad (*Scaphiopus hammondi*), California tiger salamander (*Ambystoma californiense*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), American badger (*Taxidea taxus*), and Townsend's big-eared bat (*Corynorhinus townsendii*). Also, potential habitat exists for Alameda whipsnake (*Masticophis lateralis euryxanthus*) and San Joaquin kit fox (*Vulpes macrotis*). Occasionally mountain lions (*Puma concolor*) pass through the park. Non-native species such as feral pig (*Sus scrofa*) and wild turkey (*Meleagris gallopavo*) are also present, though in small numbers. Part of the purpose for monitoring wildlife in the unit is to maintain a vigil for threatened or endangered species, and to detect any changes in species abundance or general composition.

Methods

Birds

Each bird survey route was surveyed two times in the spring, for a total of 15 survey hours (table 1).

Use	Transect	Survey 1 (hrs)	Survey 2	Avg	Total
Riding	Corral Hollow	1.08	1.32	1.2000	2.40
	Pottery/Franciscan	1.32	1.17	1.2417	2.48
	Kiln Canyon	0.83	1.38	1.1083	2.22
Non-Riding	Mitchell Ravine	1.25	0.97	1.1083	2.22
	Tesla West	1.25	1.08	1.1667	2.33
	Upper Ranch	2.18	1.23	1.7083	3.42
	Total Riding				7.1
	Total Non-Riding				8.0
	Total Hours				15.1

Table 1. Avian survey time effort for CSVRA in 2008.

Before surveying the unit for birds, the species list that had been compiled in the past for CSVRA was reviewed, along with field guides and audio CDs of birdcalls, to refresh identifications skills. Avian biologist Andrew Engilis, curator of U. C. Davis Vertebrate Museum, was consulted in 2003 for a survey method that would maximize probability of collecting data for inventory and monitoring purposes. He suggested a simple area search along a transect route, that involves walking along a permanent transect and recording all bird species seen or heard at an unlimited distance. Start and end times are recorded to determine amount of time spent on each transect. The transect surveys are to be done in spring and winter, twice in each season. Replicate surveys are separated by at least a week. The results would yield both species richness data and relative abundance data, which could be compared across years. It was decided to adopt this method, rather than the variable circular plot method, since the purpose will be monitoring species richness and relative abundance instead of species

population change. Also attractive is the fact that more area is covered by one transect than one point count station, optimizing the probability of adding new species.

For CSVRA, six transects were originally chosen at different parts of the unit to reflect the variation in habitat and topography, three in the riding area and three in the non-riding area. See maps in appendix for locations and GPS coordinates of old & new routes.

To best use the time, two groups of at least two people conducted surveys of different routes, with at least one person in each group being experienced in field identification of birds. Surveys for birds began early in the morning- generally at 7 AM- and continued until early afternoon. Binoculars, field guides (National Geographic 2002), and an audio CD of bird calls (Keller 2002) are used during surveys and one observer records all birds, along with their numbers and the habitat they occur in. If it is impossible to record the species, then the bird is identified to the closest taxa possible (e.g. *Epidonax* sp.).

Amphibians

Amphibian surveys consisted of area searches of known water bodies in the park. These included stock ponds, sediment basins, rain pools, and sections of Corral Hollow Creek in both riding and non-riding areas.

During surveys, the water body was always approached slowly and quietly at first, and scanned with binoculars for any sign of amphibians on the shoreline. All ponds were systematically dip-netted from the shore for larvae, or adult amphibians and the surveyor would try to cover the whole perimeter of the pond. One of the surveyors (Craig Swolgaard) is permitted by the U. S. Fish & Wildlife Service for surveying both California red-legged frog and California tiger salamander. Pond sampling consisted of carefully dipping the net in the water with a sweeping arc motion, checking the net, and recording any captures by species, including developmental stage. A herpetological field guide (Stebbins 1985) and other identification keys or photographs were used to verify species. Occasionally photographs were taken of a listed species captured in the net. All amphibians were carefully returned to the water and the observer would walk approximately 5 – 10 yards before dipping again.

Once a red-legged frog or tiger salamander was detected at a water body site, regardless of developmental stage, that species was considered to be present and the site was not revisited, unless to verify another listed species. All sites were visited at least once in winter / spring of 2008, except for Franciscan, Lower Juniper, and Clear ponds.

Amphibian surveys were conducted on 3 separate days. A total of 18 surveys were conducted for 15 different sites in the park. Four sites were surveyed twice and two sites were surveyed three times. Each survey consisted of between one and four State Parks personnel, and totaled 8.5 hours (table 2).

Date	Site	Time (hrs)	Area/Length
4/15/2008	Kiln Canyon Pond	0.25	0.15 ac
4/15/2008	Tesla Stock Pond	0.50	0.04 ac
4/15/2008	Corral Hollow Creek (non-riding)	0.75	0.17 mi
4/15/2008	Sector Office Pond	0.50	0.30 ac
4/15/2008	Mitchell Ravine Pond	0.25	0.17 ac
4/15/2008	Corral Hollow Creek (riding)	2.00	1.36 mi
5/23/2008	Corral Hollow Creek (riding)	1.00	1.36 mi
5/23/2008	Ravine Corral Pond	0.25	0.15 ac
5/23/2008	Lone Oak Pond	0.25	0.08 ac
5/23/2008	Trough Pond	0.25	0.09 ac
5/23/2008	Refrigerator Pond	0.25	0.29 ac
5/23/2008	Old Pipe Pond	0.25	0.17 ac
5/23/2008	Small Pond	0.25	0.17 ac
5/23/2008	Large Pond	0.50	0.36 ac
5/23/2008	Hidden Pond	0.50	0.40 ac
6/5/2008	Sector Office Pond	0.25	0.30 ac
6/5/2008	Tesla Stock Pond	0.25	0.04 ac
6/5/2008	Mitchell Ravine Pond	0.25	0.17 ac
Total	8.5 Hours		

Table 2. Amphibian survey schedule and time effort for 2008.

Results

Birds

The results of the bird surveys are summarized in table 3 & 4.

Parkwide-Survey Totals	
Abundance	824
Total # of Species	67
*Recorded Species/Known Park Species	52%
Species Common to Both Treatments	58%
Riding Area Summary	
Abundance	447
Total # of Species	48
*Recorded Species/Known Park Species	37%
Non-Riding Area Summary	
Abundance	377
Total # of Species	58
*Recorded Species/Known Park Species	45%
Species-Riding Area Transects	
Corral Hollow	31
Pottery-Franciscan	23
Kiln	28
<i>Mean</i>	27.33
<i>Standard Deviation</i>	4.0415
Species-Non Riding Area Transects	
Mitchell Ravine	25
Tesla	24
Upper Ranch	43
<i>Mean</i>	30.67
<i>Standard Deviation</i>	10.6927

*Survey conducted in Spring (Winter excluded)

Table 3. Summary of Bird Survey Data (Spring 2008)

Riding Area		Non Riding Area	
Common Name	Count	Common Name	Count
Acorn Woodpecker	1	Acorn Woodpecker	5
American Crow	2	American Kestrel	5
Anna's Hummingbird	10	Anna's Hummingbird	13
Ash-throated Flycatcher	15	Ash-throated Flycatcher	19
Bewick's Wren	31	Barn Swallow	1
Black-headed Grosbeak	5	Bewick's Wren	19
Brown-headed Cowbird	8	Black Phoebe	3
Bullock's Oriole	1	Black-headed Grosbeak	13
Bushtit	20	Brown-headed Cowbird	1
California Quail	29	Bullock's Oriole	2
California Thrasher	2	Bushtit	4
California Towhee	19	California Quail	20
Canyon Wren	2	California Towhee	10
Cassin's Kingbird	3	Cassin's Kingbird	1
Cliff Swallow	71	Cassin's Vireo	1
Common Raven	23	Cliff Swallow	5
Costa's Hummingbird	2	Common Raven	17
Empidonax sp.	1	Costa's Hummingbird	1
European Starling	7	Empidonax sp.	1
Golden Eagle	1	European Starling	15
House Finch	23	Golden Eagle	3
Killdeer	2	Gray Flycatcher	1
Lesser Goldfinch	3	Greater Roadrunner	1
Mourning Dove	17	Hermit Warbler	1
Nashville Warbler	1	House Finch	11
Northern Rough-winged Swallow	1	Killdeer	3
Nuttall's Woodpecker	3	Lazuli Bunting	2
Oak Titmouse	16	Lesser Goldfinch	1
Orange-crowned Warbler	1	Lewis's Woodpecker	2
Red-tailed Hawk	10	Loggerhead Shrike	2
Red-winged Blackbird	12	Mallard	2
Ruby-crowned Kinglet	1	Mourning Dove	16
Selaphorus sp.	8	Northern Flicker	2
Sharp-shinned Hawk	1	Northern Mockingbird	2
Spotted Towhee	8	Northern Rough-winged Swallow	8
Turkey Vulture	9	Nuttall's Woodpecker	6
Violet-green Swallow	2	Oak Titmouse	21
Western Bluebird	4	Orange-crowned Warbler	1
Western Kingbird	13	Pacific-slope Flycatcher	8
Western Meadowlark	1	Phainopepla	1
Western Scrub-Jay	25	Red-tailed Hawk	1
Western Tanager	1	Selasphorus sp.	2
White-breasted Nuthatch	2	Spotted Towhee	8
White-crowned Sparrow	2	Swainson's Thrush	3
Wild Turkey	4	Townsend's Warbler	2
Wilson's Warbler	4	Turkey Vulture	9
Wrentit	16	Violet-green Swallow	4
Yellow Warbler	4	Warbling Vireo	5
		Western Bluebird	9
		Western Kingbird	3
		Western Meadowlark	8
		Western Scrub-Jay	30
		Western Tanager	2
		White-breasted Nuthatch	10
		Wilson's Warbler	8
		Wrentit	18
		Yellow Warbler	2
		Yellow-billed Magpie	3

Table 4. Bird list by riding and non-riding.

Amphibians

The results of the amphibian survey are summarized in table 5.

Treatment	Site Name	Species	Larvae	Adult
Riding	Kiln Canyon	Pacific Chorus Frog	50+	-
	Corral Hollow Creek (Riding)	Western Toad	100+	-
		Western Spadefoot	20	-
Non-Riding	Tesla Stock Pond	Pacific Chorus Frog	100+	-
		Western Toad	1000+	-
		California Tiger Salamander	7	-
		California Newt	15	-
	Corral Hollow Creek (Tesla)	Pacific Chorus Frog	100+	-
		Western Toad	100+	-
	Sector Office Pond	Western Toad	100+	-
		Pacific Chorus Frog	20+	-
		California Tiger Salamander	5	-
	Sector Office Bridge	Western Toad	300+	-
	Mitchell Ravine Pond	Pacific Chorus Frog	50+	-
		Western Toad	500+	-
		Pacific Chorus Frog	100+	-
	Ravine Corral	Pacific Chorus Frog	10	-
		California Tiger Salamander	12	-
		California Newt	10	1
		Pacific Chorus Frog	50+	-
	Lone Oak Pond	Pacific Chorus Frog	5	-
		California Red Legged Frog	10	-
		California Tiger Salamander	8	-
		California Newt	15	-
		Pacific Chorus Frog	20	-
	Refrigerator Pond	California Tiger Salamander	10	-
		California Newt	15	1
		Pacific Chorus Frog	5	-
	Old Pipe Pond	Western Toad	-	1
		California Tiger Salamander	10	-
		Pacific Chorus Frog	20+	-
	Small Pond	California Red Legged Frog	12	4
		Pacific Chorus Frog	50+	5
	Large Pond	California Red Legged Frog	-	1
		Western Toad	500+	-
California Tiger Salamander		3	-	
Pacific Chorus Frog		33	-	
California Newt		10	-	
Hidden Pond	Pacific Chorus Frog	10+	-	
	California Red Legged Frog	10+	4	
	California Tiger Salamander	1	-	
	California Newt	5	-	
	Pacific Chorus Frog	50+	-	

Table 5. Results of 2008 Amphibian Survey

