

Southern Sierra Research Station

Conserving biological diversity through research

June 13, 2022

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Subject: Report: Informal Survey of Plants and Animals, Quarter Circle 5 Ranch

Dear Peter Colby,

This report presents results of our efforts to identify plants and animals during two visits to the Quarter Circle 5 Ranch. We worked in several groups to cover more area, and a few of us went back on a second day to try to verify one particular sighting of interest. We also outlined meadow, stream, and pasture habitat in the portion of the ranch that we surveyed using aerial imagery. The streams and meadows are the areas most likely to have species of conservation concern in them, and the pasture could be a target of future restoration of the historic flood plain. We were particularly focused on documenting the presence of any special status plant and animal species.

In this report, we highlight historical and recent evidence of several species of interest from in or near the Quarter Circle 5 Ranch property. In particular, there is both historical and possible recent evidence of yellow-legged frogs in this site, including a possible sighting during our survey. In addition, there are several historical and recent records of other species of special conservation concern at both the state and the federal levels.

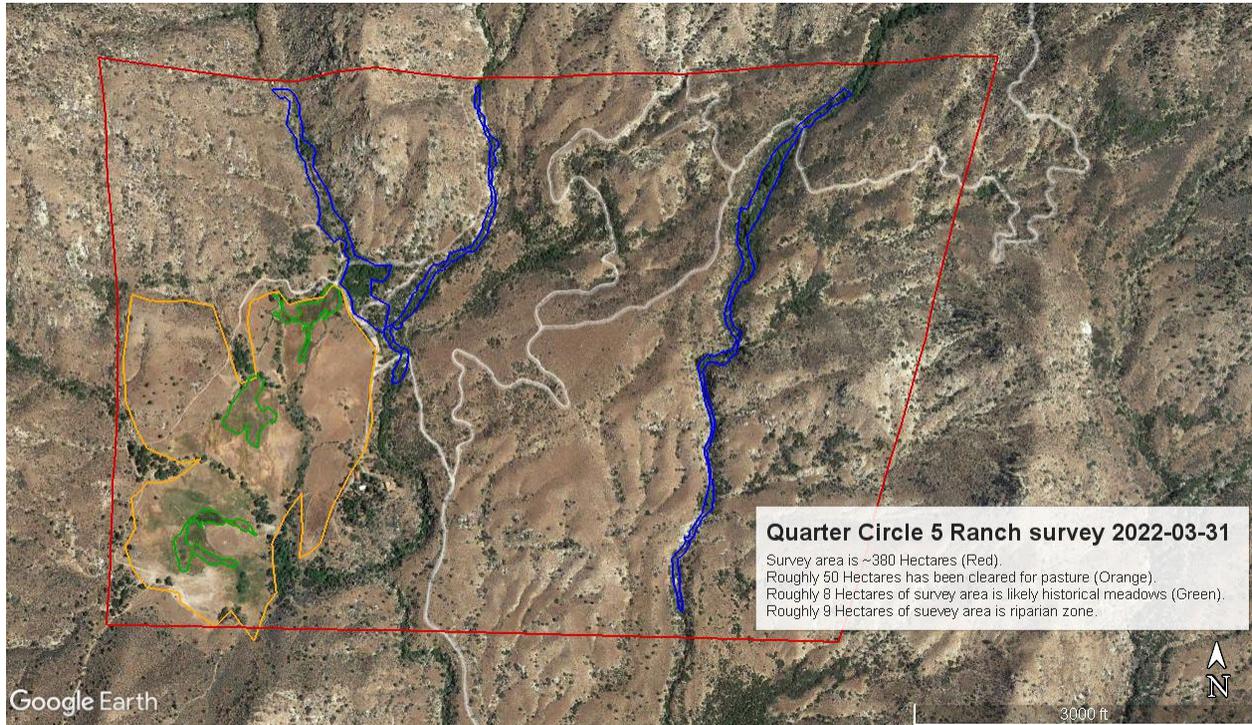
We include a separate report on plants compiled by Denise LaBerteaux that we have sent to you previously.

METHODS

Pre-Survey Investigations: Prior to the survey, we consulted several online databases including iNaturalist and eBird for the area around Fay Creek, Weldon, CA. We also consulted a report on historical records of special status animals. This report was generated from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (attached) by querying 9 map quads including and surrounding Fay Creek and Brush Creek Canyons where the ranch sits, for records of Fish, Amphibians, Reptiles, Birds, Mammals, Mollusks, Arachnids, Crustaceans, and Insects.

Field Survey: Five SSRS staff conducted surveys and recorded all sightings of plants and animals they found in iNaturalist. Birds seen or heard were recorded in eBird. Surveys were conducted during six hours (8:00 AM- 2:00 PM) on March 31, 2022. On this first visit, staff worked in 2 groups of two people and one solo surveyor. We concentrated on the area shown in Red on Map 1. In particular, we sampled the two creeks and the likely historical meadows, where we felt there would be the most biodiversity and where most species of interest would be found. A follow up survey was conducted on May 11, 2022 from 7:00 – 10:00 AM, primarily in the Fay Creek area (see Map 1) to attempt to confirm a foothill yellow-legged frog detection.

Post-Survey Habitat Identification: After spending ~6 hours surveying an area in the north end of the property with most of the wetland and stream habitat, I used Google Earth imagery to identify some of the areas near our surveys that correspond to the vegetation communities of most conservation value. These include the two main stream-channels in the property (Brush Creek and Fay Creek), an area that has been maintained as pasture, and areas within this pastureland that may represent historical meadows.



Map 1: Survey area with rough outlines of habitat types of interest.

RESULTS

Pre-Survey Investigations: I summarized the results of the search of the CDFW Natural Diversity Database in Table 1. There are two species of interest with historic records in the same drainage as the Quarter Circle 5 Ranch property. One is a record from July 13, 1911 of a foothill yellow-legged frog, that is listed as endangered by the state of California and listed as a species of special concern by CDFW. This record from T. Storer who was part of the Grinnell collecting expedition; the frog was found in Fay Creek near the main ranch barn. The other species of interest listed in the report is the Southern Sierra legless lizard. This record is from March 19, 2015 from an area near where Fay Creek drains into the floodplain of the South Fork of the Kern River.

Table 1: CDFW Occurrence Report species list. Species found in the Fay Creek drainage are bolded.

Common Name	Taxon	Date Range	Status**
Kern Canyon slender salamander	Amphibian	1981-04-04 - 2010-01-29	CA Threatened
Fairview slender salamander	Amphibian	1997-02-16 - 2011-03-05	USFS S-Sensitive
Kern Plateau salamander	Amphibian	1993-04-24 - 1995-04-13	IUCN NT-Near Threatened
foothill yellow-legged frog	Amphibian	1911-06-16 - 1992-05-06	CA Endangered; believe extirpated
western yellow-billed cuckoo	Bird	1977-07-04 - 2014-08-13*	CA Endangered
southwestern willow flycatcher	Bird	2004-07-25 - 2016-08-05*	CA Endangered

loggerhead shrike	Bird	2015-03-20*	USFWS BCC-Birds of Conservation Concern
least Bell's vireo	Bird	2015-07-21 - 2016-07-21*	CA Endangered
yellow warbler	Bird	1977-07-04*	CDFW SSC-Species of Special Concern
yellow-breasted chat	Bird	1977-07-04 - 2016-05-30*	CDFW SSC-Species of Special Concern
summer tanager	Bird	2016-05-30*	CDFW SSC-Species of Special Concern
tricolored blackbird	Bird	1992-05-24 - 2015-07-02*	IUCN EN-Endangered
Kern River rainbow trout	Fish	2009-10-08	CDFW SSC-Species of Special Concern
Yuma myotis	Mammal	1992-08-15	BLM S-Sensitive
Townsend's big-eared bat	Mammal	1938-06-10 - 1993-05-15	CDFW SSC-Species of Special Concern
pallid bat	Mammal	1945-06-22 - 1948-08-30	CDFW SSC-Species of Special Concern
Sierra Nevada mountain beaver	Mammal	1979-07-07	CDFW SSC-Species of Special Concern
Mohave ground squirrel	Mammal	1975-03-27 - 2007-05-07	CA Threatened
San Joaquin pocket mouse	Mammal	1911-06-14 - 1911-07-09	BLM S-Sensitive
Tulare grasshopper mouse	Mammal	1911-07-08	CDFW SSC-Species of Special Concern
Sierra Nevada red fox	Mammal	192X	CA Threatened
Fisher - Southern Sierra Nevada ESU	Mammal	1955	US Endangered
western pond turtle	Reptile	1988-07-16 - 1994-09-13	CDFW SSC-Species of Special Concern
Southern Sierra legless lizard	Reptile	1959-03-21 - 2015-03-19	CDFW SSC-Species of Special Concern
Crotch's bumble bee	Insect	1940-07-23 - 2019-04-25	IUCN EN-Endangered
San Emigdio blue butterfly	Insect	1991-05-12 - 2009-05-03	USFS S-Sensitive
Tehachapi Mountain silverspot butterfly	Insect	1973-07-07	USFS_S-Sensitive

*More recent records (either in 2021 and/or 2022) exist for these species within the drainage (i.e. in Fay Canyon and/or on the South Fork Kern River below Fay Creek).

** Status listed is highest sensitivity level listed in the CDFW database report (e.g., Global IUCN Red list to CA listings).

There are several other species of conservation concern listed in the report that we might expect to be found in the property at certain times of the year, generally later than when we surveyed. These species might also benefit from future restoration work to increase the amount of high-quality riparian habitat. At the highest level of conservation concern, it is worth highlighting western yellow-billed cuckoos (*Coccyzus americanus occidentalis*), southwestern willow flycatchers (*Empidonax trailii extimus*), least Bell's vireos (*Vireo bellii pusillus*), tricolored blackbirds (*Agelaius tricolor*), and Crotch's bumblebees (*Bombus crotchii*), all listed as Endangered either by the State of California or the IUCN. Fisher are listed as US endangered, but they are only expected to be seen at higher elevation in forested areas. Other species listed at lower levels of conservation concern are listed for reference.

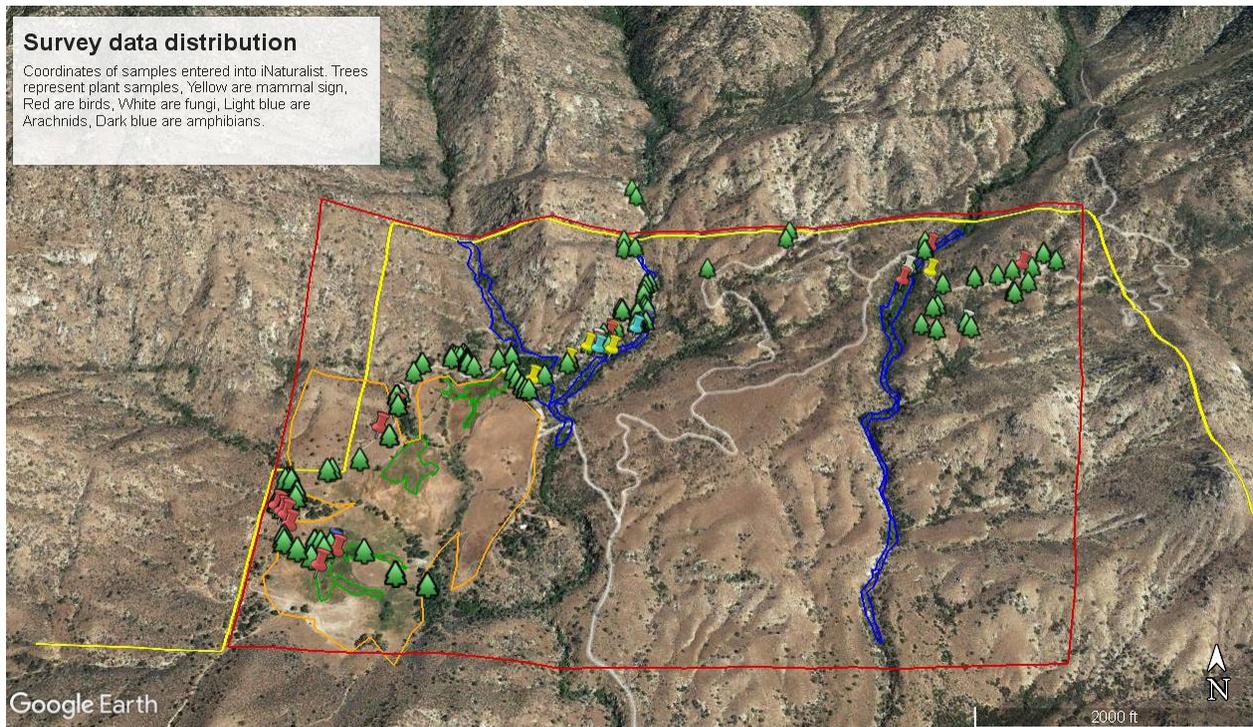
There was only one additional bird species found in eBird lists from the area beyond those in the CDFW database report, so those data are not reported here. That species is the Kern red-winged blackbird (*Agelaius phoeniceus aciculatus*) which is a California Species of Special concern. It is abundant in the marshes along the South Fork Kern River and occasionally is detected in Fay Canyon. Three additional species of interest show up in a search of the iNaturalist database as having been seen in the area. These include Crowned Muilla (*Muilla coronata*) and Kelso Creek Monkeyflower (*Mimulus shevockii*). These are both narrow endemics that are CA species of special conservation concern. In addition, there are records of San Emigdio Blue butterflies (*Plebejus emigdionis*) in the area. iNaturalist obscures the actual locations of these species to protect them from poaching.

Field Survey: I have summarized the survey data in a number of ways including a map showing locations and Taxonomic categories of our iNaturalist observations (Map 2). The symbols indicate the rough outlines of where we walked as we surveyed and different symbols are used for different taxonomic categories (see text in Map 2). In addition to this map, I have included a table of all iNaturalist observations (attachment) and a table listing out eBird observations.

We detected 71 bird species on the site (Appendix Table 1). None of these were species of special concern that were listed in the CDFW Natural Diversity Database report.

One thing to keep in mind is that many of the species of conservation concern that might be found on this site would not be expected to be detected during our March and May Surveys and could also be easily missed during a short survey period.

There are two animal species that are worth highlighting from our surveys. One is Cooper's Hawk, which is now on the CDFW Watch list, due to declining numbers in California over the past several decades. We also saw what appeared to be a yellow-legged frog in Fay Creek not far from the 1911 historical record. However, on the return visit on May 11, 2022 we were unable to find the frog again.



Map 2: Survey data recorded in iNaturalist.org showing sampling transect coverage and taxon information.

Post-Survey Habitat Identification: Using Google Earth imagery, I constructed polygons representing rough outlines of important areas to estimate Hectares of the areas where we concentrated our survey in roughly the northern one third of the property. The goal was to provide area estimates for some of the areas that might be the focus of future restoration and conservation efforts. I estimated that in the northern section that we surveyed, there are ~50 Hectares of pastureland, ~8 Hectares of historical meadow, and ~9 Hectares of riparian zone adjacent to the two main creeks. Conclusions and recommendations

In addition to being an important drainage that feeds into the South Fork of the Kern River, the Quarter Circle 5 ranch represents an important location in the Southern Sierra foothills. It contains flowing water for two thirds of the year, even in recent drought periods. Largely because of this, it represents important stopover habitat that birds and other migratory animals can use as they move through our region during spring and fall migrations. It also acts as an important migratory corridor between the

Kern River Valley and the Kern Plateau. There is also the potential to restore the meadow area to allow the growth of riparian shrubs and other meadow plants. The streams appear to still support populations of foothill yellow-legged frogs that were thought to have been extirpated from parts of southern California. Restoring an area such as this ranch could also support populations of insects such as endangered Crotch's bumblebees which are thought to be threatened by pesticide use, land conversion, and disease spread by honeybees.

We recommend further monitoring of the site to determine whether other plants and animals of special conservation concern are present. Our limited survey should not be taken as an adequate estimate of biodiversity of the site, since it included only visits on two days in spring. The potential discovery of yellow-legged frogs suggests the need for follow-up sampling that might include autonomous recording units (ARUs). These frogs are known to call mostly underwater, requiring that ARUs be developed to record in the streams where they are expected. Another productive approach that would help to determine which species of frogs are present in the streams is to use water samples to test for eDNA (eDNA assays have already been developed for foothill yellow-legged frogs). In addition to detecting which species of frogs are present, this approach might also allow us to determine details of population biology such as genetic diversity and past population bottlenecks that might affect conservation efforts and planning.

Please feel free to reach out to me or the SSRS team directly if you have any questions. We really enjoyed being able to conduct surveys in this unique site.

Sincerely,

Patrick D. Lorch

Attachments:

1. CDFW Natural Diversity Database report based on the following query:

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Quad<span style='color:Red'> IS </span>(Weldon (3511863)<span style='color:Red'> OR </span>Lake Isabella North (3511864)<span style='color:Red'> OR </span>Lake Isabella South (3511854)<span style='color:Red'> OR </span>Cane Canyon (3511852)<span style='color:Red'> OR </span>Lamont Peak (3511871)<span style='color:Red'> OR </span>White Dome (3511872)<span style='color:Red'> OR </span>Kernville (3511874)<span style='color:Red'> OR </span>Woolstalf Creek (3511853)<span style='color:Red'> OR </span>Onyx (3511862))<br /><span style='color:Red'> AND </span>Taxonomic Group<span style='color:Red'> IS </span>(Fish<span style='color:Red'> OR </span>Amphibians<span style='color:Red'> OR </span>Reptiles<span style='color:Red'> OR </span>Birds<span style='color:Red'> OR </span>Mammals<span style='color:Red'> OR </span>Mollusks<span style='color:Red'> OR </span>Arachnids<span style='color:Red'> OR </span>Crustaceans<span style='color:Red'> OR </span>Insects)
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2. iNaturalist species list including all animals and some plants and fungi detected during our survey.

APPENDIX

Table 1: eBird Observations by SSRS staff and affiliates of 71 species on March 31, 2022 and May 11, 2022 (new species shown **in Bold**)

Species	Number observed	Species	Number observed
California Quail	17	European Starling	5
Eurasian Collared-Dove	1	California Thrasher	3
Mourning Dove	2	Western Bluebird	3
Anna's Hummingbird	1	Hermit Thrush	1
Killdeer	1	American Robin	5
Great Blue Heron	1	Cedar Waxwing	4
Turkey Vulture	2	House Sparrow	2
Osprey	1	House Finch	2
Red-tailed Hawk	2	Purple Finch	1
Cooper's Hawk	2	Pine Siskin	1
Acorn Woodpecker	5	Lesser Goldfinch	2
Downy Woodpecker	2	Lawrence's Goldfinch	7
Nuttall's Woodpecker	1	Dark-eyed Junco	3
Hairy Woodpecker	1	White-crowned Sparrow	3
Northern Flicker	2	Golden-crowned Sparrow	6
American Kestrel	2	Song Sparrow	1
Black Phoebe	1	Lincoln's Sparrow	1
Western Kingbird	1	Fox Sparrow	1
Gray Flycatcher	1	Golden-crowned Sparrow	6
Dusky Flycatcher	1	Zonotrichia sp.	2
Black Phoebe	1	California Towhee	12
Ash-throated Flycatcher	2	Spotted Towhee	3
Warbling Vireo	1	Western Meadowlark	1
Steller's Jay	3	Bullock's Oriole	1
California Scrub-Jay	10	Brown-headed Cowbird	1
American Crow	1	Brewer's Blackbird	2
Common Raven	2	Orange-crowned Warbler (<i>lutescens</i>)	1
Oak Titmouse	4	Yellow Warbler	2
Tree Swallow	5	Townsend's Warbler	1
Bushtit	18	Wilson's Warbler	3
Wrentit	4	Yellow-rumped Warbler (Audubon's)	15
Ruby-crowned Kinglet	16	Black-throated Gray Warbler	2
Canyon Wren	1	Western Tanager	9
Bewick's Wren	5	Black-headed Grosbeak	4
Rock Wren	1	Lazuli Bunting	1
Blue-gray Gnatcatcher	1		