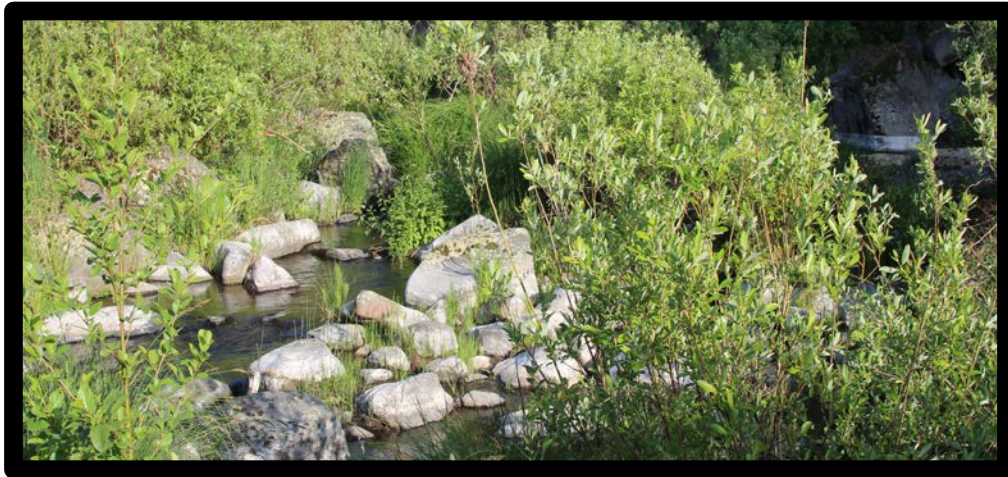


2015 Annual Monitoring Survey for Big Bend Hot Springs Resort

Big Bend, California



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I. Introduction

In 2011 a biological survey was conducted at Big Bend Hot Springs Project (BBHSP) to assess the potential for species of concern, nesting birds, and mammal dens within a 20 acre parcel scheduled for redevelopment. A comprehensive survey was conducted in 2013 to incorporate additional species not previously surveyed for this site. Annual preconstruction surveys have been conducted each year beginning in 2012 as follow-up and monitoring of the site during breeding season for birds and to minimize any disruption that construction could have to wildlife. This report includes recommendations for construction to minimize impact to wildlife for the year beginning June 1. See *BBHSP Preconstruction Report 2011* for and subsequent preconstruction surveys for complete details on methods, setting, and species accounts.

The 2015 survey was conducted from May 3-7 by ecologist Jennifer Berry with support by aquatic entomologist Amy Maskey. The survey was conducted on foot within 20 feet of construction activity scheduled for 2015(called out from here-on as the Study Area), utilizing data-points created in prior years with GPS datum WGS 84 with 2-meter accuracy. This survey focused on potential impact from construction to nesting birds, bat roosts, wildlife dens, and any observed Special Status Species. In addition, any new species found on site were added to the observed species list found in Appendix A. Changes to wildlife patterns are also discussed in this report.

BBHSP is located between 1600 to 2000 feet in elevation in Shasta County, and the northern border of the parcel is the Pit River. The 20 acres of commercial zone proposed for development within the Study Area have been heavily altered and in regular anthropic use predating European settlement and continuing through to the present date. The general character of the habitat varies from small patches of manzanita chaparral and mixed evergreen forest with riparian forest zones along a spring-fed creek and the Pit River, to developed land consisting of orchards and open areas with understory plant species consisting mainly of non-native annual and perennial herbs. Construction on this site for 2015 is limited to pre-developed areas with prior disturbance and the updating of pre-existing infrastructure.

Predominant wildlife observed during surveys is indicative of human-adapted species, such as Gray Fox and American Robin. In addition, the observation of such introduced species as Bullfrogs and Signal Crayfish in riparian areas indicate reduced potential for aquatic species of concern such as Cascades Frog and Yellow-Legged Frog. The redevelopment areas are devoid of old and secondary growth conifer and mixed deciduous forests preferred by such species as Fisher and NSO, and alluvial soils are devoid of vernal pools and serpentine.

Birds exhibiting breeding behavior, potential bat roosts and mammal dens were found within the Study Area, along with several Special Status Species including Valley Elderberry Longhorn Beetle, Yellow Warbler, Western Pond Turtle, Rana species, Woodrats, Raptors of concern and Red-breasted Sapsucker.

II. Executive Summary

A. Summary of Construction Activity for 2015

1. Grading will continue for the Tub Plaza, Geothermal Management Complex, Campground Improvements, Driveway, Welcome Kiosk, Garden, Maintenance yard, & Parking Lot.
2. Construction on the Community Room will continue during the nesting period but will be limited to hand work and light machinery until after August 1.
3. Excavation for utilities and improvements to existing roads is scheduled to

continue in 2015.

4. Construction at camping areas is limited to grading and trenching, and will continue in 2015.
5. Parking areas will include grading, trenching and paving and will be continue in 2015.
6. See Appendix B: Wildlife Survey Sheet for locations of activity for 2015.

B. Summary of Recommendation for Activity for 2015

1. Based on prior surveys, it is recommended that the Breeding Period for birds in the Study Area be considered May 1st to August 1st. During this time it is recommended that the use of excessively loud equipment such as wood chippers and excavating equipment be suspended.
2. Areas with a higher density of trees, including young saplings, should be free of heavy machinery and heavy traffic during the Breeding Period.
3. Activity in the Creek Camping Area should be limited to foot traffic and light equipment until August 1st. Any detected nests should have a 20 foot keep-out zone and heavy machinery prohibited within 100 feet of nest(s) until after August 1st.
4. Many of the breeding birds within the Study Area have been shown to prefer habitats comprised of mixed evergreen and deciduous forest. Therefore steps should be taken to maintain current forest composition, including maintaining stands of pine, doug fir and cedar within forest patches.
5. All detected nests of ground birds should be cordoned off with mesh cage to ensure a better success rate, plus restriction of activity within 20 feet.
6. Stumps, dead and partially dead trees greater than 18" diameter should be left standing so long as they do not pose a risk to humans or structures. Activity should be limited to foot traffic and light machinery within 100 feet of these trees regardless of whether they have been identified as habitat or not.
7. Heavy equipment and chippers should be limited to after September within 100 of any potential bat roosting trees as identified on Wildlife Survey Sheet as well as any additional roosts not marked on sheets. These roosts must also be free of artificial lighting during this time.
8. The use of heavy machinery should be prohibited within 50 feet of active fox dens at all times, and foot traffic and hand work be kept at a minimum between March and July within 20 feet.
9. All potential mammal den sites, including hollow logs and standing hollow trees with a diameter or greater than 36 inches, rock piles and brush piles existing before May 1st should be left unaltered between the months of May and August 1st, with reduction of noise and human activity within 100 feet whenever possible.
10. In areas to be mowed it is recommended that a thorough survey of areas within 100 feet of tree nests and/or the territories of ground nesting birds such as Sparrows, Juncos, and Towhees should be conducted before any mowing activity begin. Should any young or fledglings be found then operations are to cease immediately until nests are no longer occupied and/or fledglings have vacated the area.
11. The use of pesticides should be avoided during breeding period.
12. A detailed list of construction activity and prohibitions should be provided for all contractors and subcontractors outlining above mitigation measures.

13. Motor vehicles use should be limited within 100 feet of riparian areas, posting 5 MPH speed limits, and prohibiting the use of all motor vehicles in areas where Western Pond Turtle are found to frequent. Survey construction site daily and relocate individuals to outside construction zones.

C. Summary of Bird Activity

During the survey in May 2015, several bird species were observed displaying evidence of breeding, including species adapted to more urban environments such as Robins, and those preferring less populated areas such as Vireos. At this time, reproduction activity was typically limited to areas with less human activity within larger patches of mixed forest along the creek and White Oak Forest, with the exception of House wren nests which could be found nesting in three anthropogenic pre-existing structures and Orioles, which nest each year in the orchard north of the Creek Camping Area. Areas with a higher density of trees, including young saplings, were more likely to be nested than smaller patches of mature trees. Single mature trees in the Chaparral Area were typically used by many species for display of territory and hawking, though nesting in this area is limited to Stellar Jays.

D. Summary of Roosting Bats

One species of bat was positively identified as *Myotis californicus*, California myotis in 2012. At least two other species were found to forage with this species, and the potential exists for these species to co-mingle in maternity roosts in particularly suitable habitats. While California myotis will roost in a variety of places, only standing dead Ponderosa pines and Douglas firs possess suitable criteria for roosting on this site for roosts. There are currently no trees with these characteristics in the Study Area due to recent storms. No rock outcrops, caves or cliffsides characteristic of roosts for some bat species exist within the Study Area.

E. Summary of Animal Dens

One primary fox den and two other potential fox dens with similar characteristics were identified within the Study Area in 2011 and 2012 surveys. A fox den within 200 feet of the construction site for the Community Room was not in use, but general fox activity has continued in the Study Area. These locations are noted in the Wildlife Survey Sheet. Potential bobcat den sites have been identified here as well, though none have been confirmed.

F. Summary of Changes in Wildlife Activity for 2015

In general there has been observed for 2015 that nesting and animal activity has been minimally impacted by construction of the Community Room to date, with the most sensitive species moving away from activity and noise but not leaving the site completely. Those species more adapted to human activity have shifted nesting to into those sites made vacant by more sensitive species, with grosbeaks, yellow warblers, black-throated gray warblers, and robins in the Creek Camping Area where once vireos and orange-crowned warblers occupied. More sensitive species such as Cassin's vireo and orange-crowned warbler species were found to be on Site, but had moved more than 300 feet from the site of the Community Room construction to areas with similar

characteristic of dense undergrowth and closed tree canopy. Other birds such as Bullock's Oriole could be found nesting in same locations as in prior years. Cowbirds have increased in population and could be seen in multiple locations throughout the Study Area.

Yellow Warblers, a species of concern in California, had not been detected breeding in prior surveys, but during the May 2015 survey were present and displaying breeding behavior near the Confluence of the creek and Pit River and the Creek Camping Area. Protection for this species has been included in this report.

Two pairs of Black Phoebe were also nesting in the Study Area for the first time. It is presumed that this human-adapted species is moving into the area as a result of increase in human structures and as more sensitive species seek nesting sites further from human development.

Bobcat activity was noted in the Chaparral Area, and has been detected in prior surveys but not listed until now, and new provisions have been included in this report to protect this species during its breeding season.

The nests of Bushy-tailed woodrats have been observed in the Creek Camping Area near the southern boundary of the property but outside of the Study Area boundaries. The Dusky-footed Woodrat is a species of concern in California, and provisions to protect these nests have been outlined in this report.

Fox activity can still be seen in the area, and mammals are still using trails along the River bank, through the Creek Camping Area, and the Chaparral Area, though the den site closest to the Community Room was unoccupied at this time.

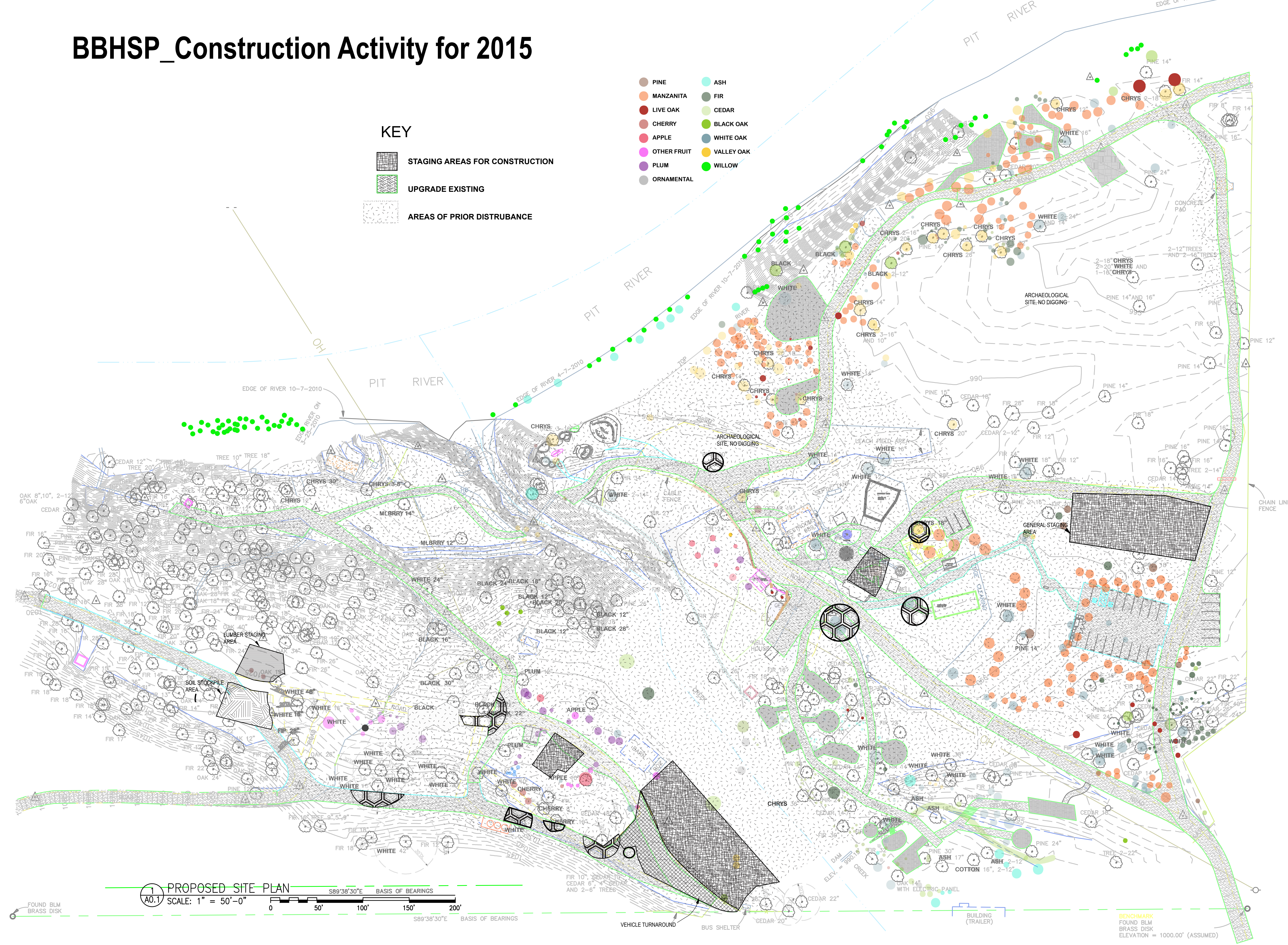
Winter storms have knocked down the last of the standing dead ponderosa pines that were potential bat roosts, though many other suitable habitat remains on the parcel to the east of the Study Area.

III. Species Accounts

A. Nesting Birds

The following birds displayed breeding behavior in the May 2015 survey: Stellar's Jay, American Robin, Black-backed Grosbeak, Cassin's vireo, Orange-crowned Warbler, Black-throated Gray Warbler, Yellow Warbler, House Wren, Black Phoebe, Fox Sparrow, Tree Swallow, American Dipper and Red-breasted Sapsucker.

BBHSP_Construction Activity for 2015





1. Stellar's Jay, *Cyanocitta stelleri*.

Stellar's jays are competitive within their own social groups for ranking and nest placement, and these groups occupy the same territory year-to-year. Those nesting pairs with the highest social ranking choose nest site closest to food sources, and other nesting pairs distribute themselves further from food sources as social ranking decreases. Nesting territories are heavily guarded and defended, resulting in a spatial distribution of nest locations of increased distances as they radiate out from nearest food sources and go down the social ranking (Brown). They are typically single brooded.

Jays were found occupying same nesting sites as in prior years, adding nesting material to old nests along the River and Chaparral Area. Jays were observed defending their territory throughout the 20 acres of commercially zoned land at BBHSP during the survey period. The diet of Jays is primarily nestlings of other species during their own nesting period, exerting pressure on other species around them, though this diet changes after young have fledged.

(Baicich and Harrison). The predation of Stellar's Jays on nests has been observed during surveys.



2. Orange-crowned Warbler, *Oreothlypis celata lutescens*.

Orange-crowned warbler will nest over a wide variety of habitat types, preferring riparian areas in deciduous, dense cover. Nests are typically made of grasses, bark strips, plant down, and other filamentous plant material, and can be found from the ground to a height of 2 feet. Single brooded (Baicich and Harrison).

Orange-crowned warblers typically could be heard making territorial calls from several locations throughout the Study Area, with nesting activity limited to riparian zones and dense undergrowth south of a patch of mixed hardwood and conifer forest called the White Oak Forest.



3. Black-Throated Gray Warbler, *Setophaga nigrescens*.

Little information in the scientific literature exists for the nesting behavior of this species, but one studies found that Black-Throated Gray Warblers (BTYW) prefer to nest in areas within mixed conifer and deciduous hardwood with juniper being the dominant tree in the composition (Jones et al). Adults were observed in the Chaparral Area gathering feathers for nesting, though nest locations have not been determined. In prior years this species was observed nesting in the White Oak Forest.

Nest predation and parasitization by brown-headed cowbirds has shown to be a leading cause of nest abandonment, and breeding adults will try nesting again many times should failure occur (NMDGF). It is recommended that White Oak Forest have the same restrictions on activity May 1 through August 1, with reduction in human activity and noise within 100 feet of any nests and no activity within 20 feet of those nests.



4. Yellow Warbler, (*Setophaga petechia*).

Yellow Warblers are a Species of Concern in the state of California. They typically occupy riparian vegetation in close proximity to water along streams and in wet meadows (Lowther et al, 1999). They prefer to nest in willows, cottonwoods, alder and Oregon ash, all of which are found in riparian zones within the Study Area. A study in Clear Creek, Shasta county showed that localized breeding was more successful as forest density increased (PRBO unpubl. data).

Nest parasitization, predation by squirrels and jays, and habitat patchiness are the primary cause of decline in Yellow Warbler populations in California (Shuford and Gardali). Brown-headed cowbird, a nest parasitizing species of bird (*Molothrus ater*) were not found on site, but squirrels and jays pose a potential for nest predation within the Study Area.

Breeding behavior was limited to areas more than 300 feet from the Community Room construction site along the Pit River in cottonwoods trees. This species was first detected in 2012 and was found displaying breeding behavior in 2015. Nesting period from nest-building to fledge is typically 32

days, with egg to fledge being up to 28 days. Sometimes double brooded.

It recommended that construction for the Tub Plaza and foot bridge across the creek begin no earlier than August 1, with reduction in human activity and noise within 100 feet of any nests and no activity within 20 feet until young have fledged.



5. American Robin, *Turdus migratorius*.

Robin nests have been observed in the Orchard Area, Creek Camping Area, and White Oak Forest in past surveys, and were exhibiting breeding behavior during the 2015 survey. This species is often nesting near black-headed grosbeaks in both orchards in the Study Area. Nests of both species are often alike, with robin nests differing in their mud linings. Robins exhibit nest site fidelity from year to year when successful, therefore indicating a tolerance for typical human activity and successful breeding in the Study Area. Studies of effects of noise pollution on nesting birds demonstrate that human-adapted

birds may seek noisier areas to escape predation by Jays, though species richness is reduced as anthropogenic noise intensifies (Francis et al.).

It is recommended that where nests are located there be restrictions on activity May 1 through August 1, with reduction in human activity and noise within 100 feet of any nests and general avoidance within 20 feet.



6. Black-Headed Grosbeak, *Pheucticus melanocephalus*.

Nest predation by species including Stellar's jays is the major cause of nesting failure for this species, with additional negative impacts occurring from parasitization by brown-headed cowbirds. Both pressures are reduced with greater anthropogenic sound, though greater noise levels interfering with communication drive Black-headed Grosbeak to seek alternative nesting sites.

Grosbeaks are known to utilize bird feeders.

Based on observations of Grosbeaks from prior years, this species has increased its territory from nesting primarily in mature broadleaf trees within the Orchard Area and expanded to include broadleaf trees in the Forested Area at the East Gate, with several males defending territory throughout the Study Area, nesting in areas where Robins once were more frequent.

It is recommended that where nests are located there be restrictions on activity May 1 through August 1, with reduction in human activity and noise within 100 feet of any nests and no activity within 20 feet.



7. Cassin's Vireo, *Vireo cassinii*.

Vireos are particularly vulnerable to predation by Stellar's jays, and also fall prey to parasitization by brown-headed cowbirds. The nests of Cassin's vireo's are typically three to 40 feet in oak trees in a dense cover of vegetation near openings of forests and parks, though this population will nest in a variety of deciduous trees. Their breeding season is generally mid April to mid May, and they can be double-brooded if first brood fails.

As human activity has increased in the Study Area over the years, vireos have nested increasingly further from areas of redevelopment, preferring edges of forest where human activity is limited to occasional foot traffic.

Adults typically display defensive behavior when approached within 20 feet at this particular site. The defensive behavior can make these nests vulnerable to nest predation by Stellar Jays and/or parasitization by Brown-

headed cowbird, which has been increasing in abundance since surveys first began in 2011. It is recommended that where nests are located there be restrictions on activity May 1 through August 1, with reduction in human activity and noise within 100 feet of any nests and no activity within 20 feet.



8. House Wren, *Troglodytes aedon*.

As in prior surveys, several males were observed defending territory within the Study Area in various separate locations, with preferred human structures occupied again as in past years.

This species is typically polygamous, with males competing heavily for territory and displaying predation on the nests of other males. Wrens are typically double-brooded. The nesting period for house wrens is 42 days, with an overlap of 15 days for incubation of a new brood by the female only while

the male continues to feed previous fledglings. Therefore is it recommended that activity near both nests be limited to foot traffic, light vehicles and hand tools within 100 feet, and general avoidance within 20 feet of the nests when possible until August 1st.



9. Tree Swallow, *Tachycineta bicolor*.

As typical for tree swallows, several nesting pairs have colonized abandoned woodpecker nests in an oak tree along Deer Lane just north of the Orchard and on the southern border of the Study Area along Indian Creek in an Nesting period is typically finished by mid-July, single-brooded (Baich and Harrison).

It is recommended that activity be limited to foot traffic, light vehicles and hand tools within 100 feet, and general avoidance within 20 feet of the nests until August 1st. Any dead, diseased or dying trees should be left standing

whenever possible and should only be pruned or removed after the nesting period is over August 1st or when all young have fledged.



10. Chestnut-backed Chickadee, *Poecile rufescens*, *Parus rufescens*.

A chickadee nest located in a live Oregon ash tree in the Creek Camping Area in an old woodpecker cavity. This is the first year that this species has been detected in the Study Area. Adults were seen to carry out fecal sacks, an indication that eggs had hatched.

Birds typically nest in natural cavities or those excavated by the chickadees themselves in dead wood, and occasionally in woodpecker holes and nest boxes. The nesting period is 24-29 days. (Baicich and Harrison).



11. Fox Sparrow, *Passerella iliaca*.

Fox sparrows will occupy a variety of habitats including mixed forests, low shrubs, and chaparral. They typically nest in in the ground in dense cover and thickets up to 7 feet. (Baicich and Harrison). A study of Fox sparrows in Fresno county, Ca reported that nests are typically near willows, manzanita, chinquapin, and gooseberries (Burns and Hackett). Beginning in the 2013 survey a nest was located at the mouth of the creek where it meets the Pit River in a thicket of himalayan blackberry, where this species has nesting each year since. This location is in an area where access is restricted due to terrain, and the noise floor is high with both creek and river meeting, but an avoidance of excessive anthropogenic noise at the Confluence tub is recommended for the Breeding Period of May 1 to August 1.



12. Bullock's Oriole, *Icterus bullockii*

Bullock's Oriole typically will nest in solitary trees in open areas, such as Orchards and farmlands, and along riparian edges. Females build pendant nests up to 50 feet in trees and nesting period is typically 30 days to fledge. Female solely tends nest but both parents tend fledglings, of which there is typically a single brood (Baicich and Harrison). Bullock's Orioles are semi-colonial but will nest near other birds in order to reduce nest predation by jays (Richardson and Bolen).

Orioles have been detected since 2012 in the Study Area. In the May 2013 survey a nest was positively identified at a height of 35 feet in a solitary oak in the garden orchard and lawn area to the west of Restroom building. This

tree continues to be the site where orioles nest each year.

Anthropogenic sound is common in this area due to frequent use by gardening staff, grounds keepers and visitors. It is therefore recommended that routine activities may continue but that heavy machinery, loud noises and large gatherings of people be restricted from within 100 feet of nest until young have fledged. Routine activities including mowing should be done so only after the area has been thoroughly checked for fledglings first.



13. Pacific Slope Flycatcher, *Empidonax difficilis*.

Willow Flycatcher surveys were conducted June 2013 using audio playback of fitz-bew songs following the California year 2000 protocol. During the survey two other species of Flycatcher, the Ash-Throated Flycatcher and Pacific-Slope Flycatcher (PSF) were detected, but Willow Flycatchers were absent from the survey site.

As in prior years, this year's survey found the presence of PSF in the Creek Camping Area, specifically in Oregon ash trees along the riparian

corridor. This species can be found nesting colonially amongst tree swallows in abandoned woodpecker nests in an oak tree along Deer Lane just north of the Orchard.

It is recommended that activity be limited to foot traffic, light vehicles and hand tools within 100 feet, and general avoidance within 20 feet of the nests until August 1st. Once again, this species will benefit from leaving any dead, diseased or dying trees standing whenever possible. Tree work should only be as necessary for the safety of humans and infrastructure and undertaken after the nesting period is over August 1st or when all young have fledged.



14. Black Phoebe, *Sayornis nigricans*.

This species prefers nesting near and on human settlements, where they typically hunt for insects on the wing in meadows and cleared vegetation. Nests

may be on ledges, overhangs, wells and mine-shafts, and support beams of structures. (Baichich and Harrison).

Both male and female phoebe were seen with nesting material entering the foundation well of a structure at the Confluence of the creek and river. A second phoebe nest was located under the overhang of a structure in the Orchard Area. According to Baichich and Harrison, incubation lasts typically 15-18 days, followed by fledge at 21 days. This structure is used regularly by people and it is presumed that phoebe are acclimated to regular human activity. It is recommended that while nest is in use that activity remain the same at this location, but that there be no increase in noise, night lighting, or occupation during this time or within 20 feet of nest until young have fledged.



15. American Dipper, *Cinclus mexicanus*.

Nesting sites are typically overhangs above streams, on raised sites including culverts, streambank, rock face, roots of waterside trees, or fallen trunks. This species is double-brooded, with nesting period beginning in mid-April in north. Young are born with feathers and leave the nest at 18-25 days, where they typically learn to swim and dive before flying. Parents will continue to feed for 12 days more, with both parents in attendance (Baichich and Harrison).

Two dipper fledglings were observed during the 2015 survey, where they were learning to fly and in attendance by one parent. Parent was wary of human movement and would coax young from people upstream when they used the hot tub and/or crossed the footbridge at the creek. Though this is the first time nesting behavior has been observed at the Study Area, it is presumed that birds have nested here previously and have remained undetected due to placement of nests were observation from the Study Area has not been possible. It is presumed that dipper are acclimated to regular human activity due to placement of nest in close proximity to regularly used structure. It is recommended that while nest is in use that activity remain the same at this location, but that there be no increase in noise, night lighting, or occupation during this time or within 20 feet of nest until young have finished fledging.



16. Red-breasted Sapsucker, *Sphyrapicus ruber*.

This special status species prefers nesting in montane riparian, aspen, montane hardwood-conifer and mixed forests near meadows and slow-moving streams. It feeds on insects, specifically ants, and the sap and soft tissues of deciduous hardwoods and conifers. Other species including warblers and hummingbirds will use sap reservoirs for food resource. Will also hawk over open spaces and feed on fruits and berries (Gaines).

Red-breasted sapsucker has been observed in the Study Area during spring field surveys in the Forested Area at the Eastern Gate. Nests have been observed in both locations in live trees occupied also by tree swallows and pacific slope flycatchers. This area has a high density of nesting birds and has been given special consideration as a result, and heavy equipment, noisy machinery, and

gasoline motor vehicles have been prohibited from within 100 feet of this site during the Breeding Season. It is recommended that the Forested Area at the East Gate have restrictions on activity May 1 through August 1, with reduction in human activity and noise within 100 feet of any nests and no activity within 20 feet until young have fledged.



17. Northern Flicker, *Colaptes auratus*

Flickers will nest in a wide variety of trees, typically excavating cavities in live trees but occasionally in dead standing wood, stumps, utility poles, and nest boxes. Their preference for living trees allows their nests to be used for many years by other cavity nesting species such as bluebirds, making them an important species for increasing nesting potential on a site. This species is

BBHSP_WILDLIFE SURVEY SHEET

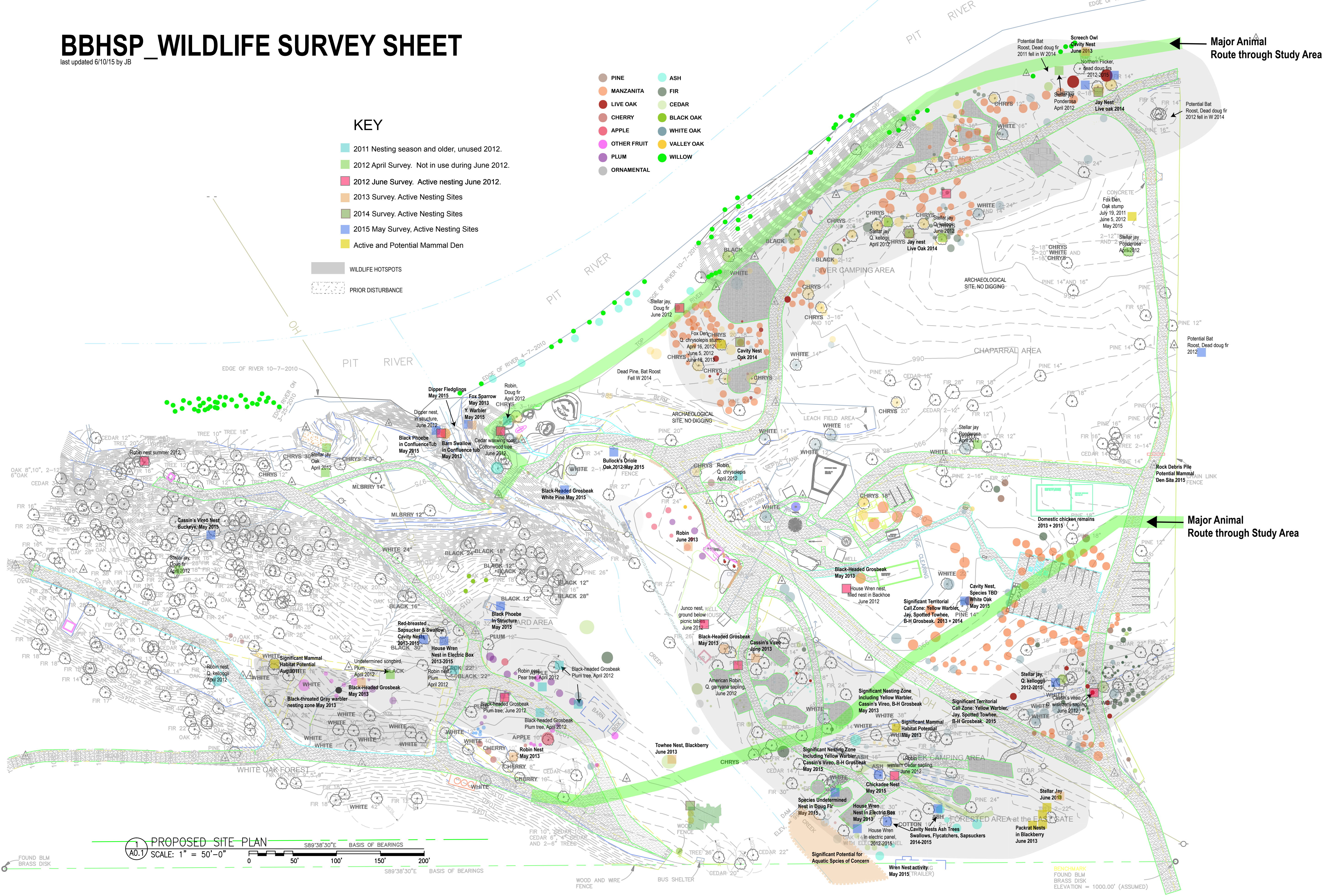
last updated 6/10/15 by JB

KEY

- 2011 Nesting season and older, unused 2012.
- 2012 April Survey. Not in use during June 2012.
- 2012 June Survey. Active nesting June 2012.
- 2013 Survey. Active Nesting Sites
- 2014 Survey. Active Nesting Sites
- 2015 May Survey. Active Nesting Sites
- Active and Potential Mammal Den

- WILDLIFE HOTSPOTS
- PRIOR DISTURBANCE

- PINE
- MANZANITA
- LIVE OAK
- CHERRY
- APPLE
- OTHER FRUIT
- PLUM
- ORNAMENTAL
- ASH
- FIR
- CEDAR
- BLACK OAK
- WHITE OAK
- VALLEY OAK
- WILLOW

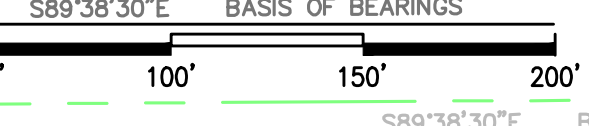


Major Animal Route through Study Area

Major Animal Route through Study Area

PROPOSED SITE PLAN

SCALE: 1" = 50'-0"



BASIS OF BEARINGS: S89°38'30"E

FOUND BLM BRASS DISK

BENCHMARK FOUND BLM BRASS DISK ELEVATION = 1000.00' (ASSUMED)

typically found in moderately developed habitats such as residential areas and the edges of farmlands.

Flickers have historically nested in several locations within the Study Area, though most frequently in stands of aging pines along the northeast boundary at the Pit River. It is recommended for this location a reduction in human activity and noise within 100 feet of any observed nests and no activity within 20 feet until any young have fledged.



B. Bats and Bat Roosts

A bat specimen was found dead on the property on April 3, 2012, cause of death unknown. Specimen was determined as a male California myotis, *Myotis californicus* based on key characteristics including size, tragus shape, keeled calcar, (Bogan et al) and tail membrane (Constantine). At least two other bat species yet unidentified were found to be foraging alongside California myotis, and it is known that different species will share particularly habitable roosting sites.

California myotis will utilize a number of different types of roosts including rock crevices, abandoned mines, under the bark of trees, and even human structures. A study conducted to determine maternity roost preference for California myotis in British Columbia determined that when bats chose tree bark sites, these trees exhibited particular characteristics. Ponderosa pines and occasionally Douglas firs were typically chosen for maternity roosts, and had a characteristic of being taller than nearby trees, partially dead or fully dead with bark intact, and without visual obstruction to roost entrance. These trees were typically close to fresh water sources, and had a canopy of shorter trees nearby. (Brigham et al.) Several trees with these characteristics were observed and mapped at BBHSP in previous years, however winter storms have reduced

the number of standing dead wood, and the last dead standing yellow pine on site fell during the winter of 2014-2015.

California myotis exhibit roost fidelity depending upon the duration of the tree snag, which can be up to 40 years if left standing, with diminishing use as bark begins to peel off the tree and roosting sites are eliminated (Brigham et al.) These bats will utilize a number of different maternity roost locations, and often more than one per 24 hour period (Barclay and Brigham). Therefore, the likelihood of more than one location for roosts on this site is great, and the need to preserve conifer snags on this site is very crucial to this bat population.

It is recommended that all dead conifers with a diameter of 12" remain standing so long as they do not pose a risk to humans or structures, and that activity is limited to foot traffic and light machinery within 100 feet of these trees. It is recommended that heavy equipment and chippers be limited to after September within 100 feet of snags, stumps and partially dead trees 12 inches or more in diameter to ensure no impact to bats.



C. Animal Dens

I. Gray Fox, *Urocyon cinereoargenteus*.

Fox activity occurred at regular locations throughout the Study Area, with greatest concentrations between two dens, one located in the Chaparral area in dead oak along the eastern edge of the property and a living oak in the Creek Camping Area. Another den approximately 200 feet from the construction site of the Community Room was not in use during this survey. This population of gray foxes seems to prefer mature hollow cavities in trees with a diameter

greater than 36", including oaks and cedars.

According to studies, den use is typically undertaken by breeding females when raising young, and when foxes are not rearing, the use of dens for rearing is replaced primarily by dense vegetation as the preferred resting place of foxes during the day (Fuller and Cypher). Breeding period for foxes is generally from January to April and gestation lasts approximately 60 days. Young remain with their mothers until around 8-10 months, and with males typically dispersing to their own territories the first year and females staying longer. Foxes are typically monogamous and occupy a family territory. Therefore it is assumed that the foxes on site are reproducing, and care should be taken to preserve dens and avoid negative impact to foxes using dens during all seasons.

Therefore it is recommended that there be no clearing of vegetation or trees within 20 feet of potential dens, and the use of heavy equipment and noisy machinery be limited to areas more than 100 feet from dens at all times. Predation on foxes by dogs has been observed in the Study Area, therefore steps should be taken to prevent dogs from preying upon foxes whenever possible.



2. Bobcat, *Lynx rufus*.

As in prior years, evidence of predation on chickens was observed in the Chaparral Area. Based on feeding observations compared to text from Elbroch's *Mammals Tracks and Sign*, it is believed to be from bobcat activity, though this species has not been detected visually or by camera traps.

Bobcats do show preference for particular plant communities, including the chaparral and pine mosaic found within the Study Area. Bobcats will utilize a variety of habitat types and sites to den, including rock piles and brush piles, but also potentially competing with foxes for nests in hollow logs and standing trees. Young are born between May and June and are weaned between 6 and 8 weeks of age, and will disperse in the fall in warmer climates (Tesky).

It is therefore recommended that brush piles and rock piles be left unaltered from May to August 1st in addition to protections established for fox den sites.



3. Bushy-tailed Woodrat, *Neotoma cinerea*

The nests of several woodrats have been seen in winters when the leaves have fallen from large impenetrable mounds of Himalayan blackberry along the south east edge of the creek within the Creek Camping Area. Nests of woodrats are typically five to eight feet in diameter and as tall, made of heaped branches and twigs with smaller nesting areas inside lined in moss, feathers, fur, and leaves. Females build nest mounds and may live in them for many generations with their female offspring. Males make their own nests and live solitary lives. They will eat a wide variety of foods, including plants, fungi and insects, bird eggs and other small animals (Bonadio).

The Dusky-foot woodrat, a close relative of the Bushy-tailed woodrat, is a federally listed endangered species. This species has been impacted by the loss of 90% of riparian corridors in the Central Valley, plus predation rodenticide use, wildfire, drought and flood (USFWS). This species, like the Bushy-tailed rat, is considered a keystone species, providing habitat for many other species and an important food source for owls, raptors, mammals and perhaps snakes (Brylski).

While woodrat nests are within 20 feet of the Study Area, no construction is scheduled that would lead to nests being directly disturbed. It is recommended for future development that woodrat nests be left in place and undisturbed wherever possible.

D. Species Accounts: Special Status Species Observed or with a Potential to be Present



1. Blue elderberry shrubs, (*Sambucus mexicana*),

Elderberry are host plant of the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). The VELB was listed as a threatened species in 1980 by USFWS. VELB utilizes only *Sambucus* species as its host plant, with a larval stage of one to two years inside the stems before emerging as a short lived adult. Adults emerge from late March through June. It is assumed that VELB are likely to be present on all plants with one or more stems measuring 1.0 inch or greater in diameter.

Three Elderberry shrubs were observed and mapped in one location, as presented on the Wildlife Survey Sheet. These shrubs are of medium to large-size, with the majority of branches larger than 1 inch in diameter at ground level, indicative of the potential for VELB. Exit holes indicative of the VELB were detected on two of the three shrubs that could be surveyed closely.

Per USFWS 1999 Conservation guidelines, complete avoidance may be assumed when a 100-foot buffer is established and maintained around elderberry plants, excluding firebreaks. Two shrubs in this Study Area are located on a steep embankment along the Pitt River within the riparian setback and are only visible with binoculars from the western bank of Indian creek along the Pit River. The shrubs are on a slope that makes any access difficult, at greater than 100 foot distance from any proposed construction areas. One additional shrub is located near Deer Lane, north of the Orchard Area and east of the White Oak Forest. This area is also inhabited by Red-breasted Sapsuckers. Provisions have been made to the site which include a 100 foot buffer zone and signage as directed in the BBHSP Preconstruction Report 2011. Please see this report for additional description and mitigation measures.

2. Willow and Little Willow Flycatchers: *Empidonax trailii* & *E. t. brewsterii*.

Both species are listed as endangered by the state of California. Surveys of willow flycatchers are relatively difficult due to their nondescript appearance, infrequent vocalization, and limited breeding season. Based on historic literature and records, it is assumed that willow flycatchers were locally common along willow-dominated riparian corridors across California (Bombay et al). In a prior survey Hammond's flycatcher was identified in the riparian corridor along the Pit River, and dominant plant species are in accordance with preferred

composition of willow- dominated habitat. Therefore it must be assumed that willow flycatchers are present within the Study Area.

Mitigation measures call for steps to reduce parasitization by cowbirds, management of feral domestic pets, management of trash, prevention of fire, prohibition of campfires within breeding areas, safe pesticide use and regular monitoring of water quality, and management of key invasive species, as well as limited or no access to breeding sites during breeding season (Finch et al.).

Cowbirds were detected in 2014 for BBHS during survey, with increased presence in 2015. BBHSP has prohibited the use of pesticides during the breeding season and has prohibited open fires during the summer due to high fire risk. Management has begun a program to monitor and manage invasive plant species when appropriate. Riparian zones along the Pit River are inaccessible within 35 feet due to steep terrain. Construction for BBHSP is limited to grading of previously developed land within 100 feet of river with the exception of changing and shower facilities, a deck, and tubs at the Tub Plaza at the mouth of Indian Creek within 35 feet of river edge, which will not remove any existing vegetation and also is within the footprint of previously developed land. Steps will be taken to prevent erosion during and after construction.



3. Raptors: Eagles and Hawks

Osprey, Bald Eagles and Peregrine falcons have been identified during surveys flying over the Study Area. Bald eagles and osprey frequent the Pit River while fishing, though as of yet none have been sited perching or roosting within the Study Area. An osprey nest has been sited well outside of the Study Area in a parcel north and west of the Pit River. Northern Goshawk, Osprey, Golden Eagle and Bald Eagle will nest in coniferous and mixed coniferous forests such as those found in the Study Area (Shuford). The Service defines these “important

eagle-use areas” as “an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles” (USFWS 2009). Studies have shown that eagles will utilize territories of up to four miles from nesting sites for hunting (Shuford). Steps have been taken by BBHSP to preserve any potential raptor nesting sites at all times and should nests be identified then appropriate mitigation measures will be taken at such time, including reduced activity and noise within 100 feet of nests and prohibition of any activity within 20 feet until young have fledged.

See BBHSP Preconstruction Report 2011 for additional details and mitigation.



4. Western Pond Turtle, *Emmys marmota* syn *Actinemys marmota*.

Western Pond Turtle (WPT) is listed as a USFWS Species of Concern and a BLM Sensitive Species. WPT requires habitat which includes both aquatic and terrestrial habitats. Aquatic habitats are generally slow moving streams, ponds and irrigation canals. Terrestrial habitats are required for nesting, basking, overwintering and dispersal, and can travel up to 200m from aquatic areas for necessary sun exposure (Rosenberg).

WPT are found in abundance in the Study Area and include both adults with shells measuring approximately 5.5 inches and juveniles measuring approx. 2.5 inches. Several sightings have been reported by those onsite and one juvenile

was observed during the 2013 survey. Basking sites within the river are located in the northwest corner of the Study Area, and potential habitat exists along the river wherever sun is adequate.

Threats to the WPT include loss of habitat, predation, and road mortality. Riparian zones along the Pit River are inaccessible within 35 feet due to steep terrain. Construction for BBHSP is limited to grading of previously developed land within 100 feet of river with the exception of changing and shower facilities, a deck, and tubs at the Tub Plaza at the mouth of Indian Creek within 35 feet of river edge, which will not remove any existing vegetation and also is within the footprint of previously developed land.

It is recommended that steps be taken to prevent road mortality to WPT, including limiting the use of motor vehicles within 100 feet of riparian areas, posting 5 MPH speed limits, and prohibiting the use of all motor vehicles in areas where WPT are found to frequent. Steps should also be taken to prevent WPT take during construction, including surveying construction site daily and relocating individuals to outside fenced construction zones. Measures should be implemented to prevent erosion and pollution into riparian corridors.

5. Frogs: Foothills yellow-legged frog, *Rana boylei*, Cascades frog, *R. cascadae*

Both of these species are listed as Species of Concern in the state of California.

Foothills yellow-legged frogs frequent rocky streams and river with adequate open sunny banks in chaparral and forests up to 6700 feet. Habitat loss, disease, introduced crayfish, stream alteration from dams, mining, logging, and grazing, are threats to this frog. (CalHerps). Studies have shown that introduced trout reduce populations both directly by predation and indirectly by reducing available food resources (Joseph).

Cascades frogs also reproduce in aquatic environments, including streams, lakes, rivers, ponds and marshes. They are typically absent where predatory fishes are found to be present. Like yellow-legged frogs, this species suffers decline when populations of crayfish are found present (Calherps).

A *Rana* species other than *R. catesbeianus* was spotted during the 2013 survey in the Pit River. It is assumed that while habitat potential exists for the cascades frog, introduced trout to the Pit River make the likelihood of finding this frog low. Pressures from non-native species include also bullfrogs and signal crayfish. It is recommended that steps be taken to prevent road mortality to frogs, including limiting the use of motor vehicles within 100 feet of riparian areas, posting 5 MPH speed limits, and prohibiting the use of all motor vehicles in areas where frogs are found to frequent. Steps should also be taken to prevent frog take during construction, including surveying construction site daily and relocating individuals to outside fenced construction zones. Measures have been implemented to prevent erosion and pollution into riparian corridors.

6. Yellow-breasted Chat, (*Icteria virens*).

Yellow Breasted chat is listed as a Species of Special Concern in California. Chat will inhabit vines, shrubs and small trees typical of riparian edges, and will inhabit blackberry and poison oak (Hunter). Chat are easy to identify by vocalization during the breeding season, and will breed in well-developed riparian vegetation along streams and river valleys. This species was not identified within the Study Area nor within the construction zone for the FLUZER, but was identified within the parcel within the Pit River riparian zone. Should nests be identified within construction zones then appropriate mitigation measures will be taken at such time, including reduced activity and noise within 100 feet of nests and prohibition of any activity within 20 feet until young have fledged.

F. Of Special Note: Invasive Species

Several invasive plant species have been identified at this site, particularly in disturbed areas. It is recommended that site development include steps to reduce the number of invasive plant species through active weeding programs and a reduction in soil disturbance in areas dominated by invasive plants.

In addition, several species of invasive animals have been found within the Study Area.

Of particular note are Signal crayfish (*Pacifastacus leniusculus*), European starlings (*Sturgus vulgaris*), and American Bullfrogs (*Rana catesbeiana*) which each having a large negative impact on native inhabitants.

Starlings are particularly aggressive in choosing nesting sites and will drive out other species, including Bluebirds, Wrens and Woodpeckers. Declines of Eastern bluebirds have been directly tied to the introduction and range expansion of Starlings.

The addition of bird boxes suitable for desired species would greatly improve the chances of survival for local songbirds, provided they are in the habitat and microclimate required for each species.

Bullfrogs are known to cause a cascading eutrophication (collapse) of ecosystems with their voracious appetite and ability to eat a wide range of species, including other frogs, fish, aquatic insects, and even small birds. They have been shown to cause a decline in available insects for nesting birds and a direct decline of endangered species such as foothill yellow-legged frogs and other native frogs through predation (Moyle). It is recommended that this species be eradicated through active management while populations are still low.

Signal crayfish typically exerts both direct pressure on other aquatic specie through aggressive behavior and indirect pressure through competition for food resources. (Light et al, 1995). Along with habitat destruction it is the leading cause of decline and local extinction of the Shasta crayfish, (*Pacifastacus fortis*). This species has

been identified during each annual survey and was found present again in 2015.

G. Of Note: Indian Creek and Surrounding Riparian Zone

A preliminary survey for aquatic insects was conducted by Amy Maskey, (Master in biology: aquatic entomology, NMU, Michigan) on May 3-5 2015. Creek was evaluated for quality based on number of families present. Three sites were located along creek, Site 1 being above a dam and under the dense cover of shade, Site 2 being below the dam with less dense tree cover, and Site 3 being just before the confluence of the Pit River after hot spring effluent mixed with creek waters. Species numbers increased as waters warmed further from the cold spring source and as tree cover decreased. Text referenced for the purpose of insect keys: An Introduction to Aquatic Insects of North America by R.W Merritt and K. W. Cummins.

At Site 1 there were found present five families of aquatic insects, including Leptphlebiidae, Perlidae, Hydropsychidae, Chloroperlidae, and Limnephilidae.

At Site 2 were found present seven families of aquatic insects, including; Ephemerellidae, Bactidae, Siphonuridae, Chloroperlidae, Limnephilidae, Simuliidae, and Chironomidae. During this survey two larval Coastal Giant Salamanders were also caught and a Rainbow trout was observed.

At Site 3 were found present nine species of aquatic insects, including; Heptageniidae, Ephemerellidae, Chloroperlidae, Perlodidae, Brachycentridae, Limnephilidae, Simuliidae, Chironomidae, Tipulidae.

This diversity of aquatic species is an indication of the health of this creek and potential for aquatic species of concern, including Rana species, though none were observed during survey. Insect hatches were emerging each day of the survey, an important source of food for nesting birds and bats within the Study Area.

| Genus | Species | Common Name | Lifeform | | |
|----------------------|------------------------|-------------------------------|------------|--|--|
| Native Plants | | | | | |
| Acer | macrophyllum | Big Leafed Maple | Tree | | |
| Achillea | millefolium | Yarrow | Perennial | | |
| Aesculus | californica | Buckeye | Tree | | |
| Agrostis | exarata | Spike bentgrass | Grass | | |
| Alnus | rhombifolia | White Alder | Tree | | |
| Amelanchier | utahensis | Western Service Berry | Tree/Shrub | | |
| Angelica | arguta | Angelica | Perennial | | |
| Apocynum | andrisaemifolium | Spreading dogbane | Perennial | | |
| Arbutus | menzesii | Madrone | Tree | | |
| Arctostaphylos | viscida | Pale leaved Manzanita | Shrub | | |
| Arctostaphylos | manzanita | Manzanita | Shrub | | |
| Asarum | caudatum | California Ginger | Perennial | | |
| Asclepias | cordifolia | Purple Leafed Milkweed | | | |
| Berberis | aquifolium var. repens | Oregon Grape | Shrub | | |
| Calocedrus | decurrens | Western Cedar | Tree | | |
| Calystegia | malacophyla | Morning Glory | Vine | | |
| Calystegia | purpurata | Western Morning Glory | Vine | | |
| Campanula | medium | Canterbury Bells | Perennial | | |
| Castilleja | | Indian Paintbrush | Perennial | | |
| Ceanothus | integerrimus | Deer brush | Shrub | | |
| Cercis | occidentalis | Western Redbud | Tree | | |
| Cercocarpus | betuloides | Mountain Mahogany | Shrub | | |
| Clarkia | modesta | Waltham Creek clarkia | | | |
| Clarkia | purpurea quadrivulnera | Purple Clarkia | Annual | | |
| Claytonia | parviflora | Narrow-leaved Miner's Lettuce | Annual | | |
| Clematis | ligustifolia | Virgin's Bower Vine | Vine | | |

| | | | | | |
|---------------|---|---------------------------|----------------|--|--|
| Cornus | glabrata | Brown Dogwood | Tree | | |
| Cornus | nuttallii | Pacific Dogwood | Tree | | |
| Cornus | serisea spp occidentalis | Western Dogwood | Tree | | |
| Corylus | cornuta var. californica | Western Hazel | Tree | | |
| Cynoglossum | grande | Hound's Tongue | Perennial | | |
| Darmera | peltata | Indian Rhubarb | Perennial | | |
| Delphinium | depauperatum | Few Flowered Larkspur | Perennial | | |
| Dianthus | armeria | Deptford Pink | Annual | | |
| Dicentra | formosa | Bleeding Heart | Perennial | | |
| Dichelostemma | capitatum | Blue Dick | Perennial Bulb | | |
| Digitalis | purpurea | Foxglove | Biennial | | |
| Epipactus | gigantea | Stream Orchid | Perennial | | |
| Eriodictyon | californicum | Yerba Santa | Shrub | | |
| Eriogonum | nudum | Naked Buckwheat | Perennial | | |
| Eschscholzia | caespitosa | Foothill Poppy | Annual | | |
| Fraxinus | latifolia | Oregon Ash | Tree | | |
| Gilia | sinistra ssp sinistra | Clockwise Gilia | Annual | | |
| Heuchera | | Alum root | Perennial | | |
| Juncus | mexicana | Mexican Rush | Perennial | | |
| Lilium | washingtonianum ssp washingtonianum | Shasta lily | Perennial Bulb | | |
| Lomatium | dissectum | Bisquit Root | Perennial | | |
| Lonicera | ciliosa | Orange Honeysuckle | Vine | | |
| Lunaria | annua | Money Plant | Annual | | |
| Lupinus | albifrons | Silver Lupine | Shrub | | |
| Lupinus | bicolor | Miniature Lupine | Annual | | |
| Madia | elegans | Tarweed | Annual | | |
| Mimulus | kelloggii | Kellogg's Monkeyflower | Annual | | |

| | | | | | |
|---------------|------------------------------|---------------------------|-----------------|--|--|
| Mimulus | layneae | Layne's Monkeyflower | Annual | | |
| Mimulus | guttatus | Seep Spring Monkey Flower | Perennial | | |
| Monardella | lanceolata | Mustang Mint | Perennial | | |
| Oemleria | cerasiformis | Oso Berry | Tree/Shrub | | |
| Pedicularis | densiflora | Indian warrior | Perennial | | |
| Pelagiobotrys | | Popcorn Flower | Annual | | |
| Pellea | mucronata | Coffee Fern | Fern | | |
| Perideridia | gairdneri | Yampah | Annual | | |
| Phacelia | distans | Common Phacelia | Perennial | | |
| Phacelia | heterophylla | Vari-leaf Phacelia | Perennial | | |
| Phladelphus | lewisii | Western Mock Orange | Deciduous shrub | | |
| Pinus | ponderosa | Ponderosa Pine | Tree | | |
| Polygonum | bistortoides | Western Bistort | Perennial | | |
| Polystichum | munitum | Western Sword Fern | Fern | | |
| Populus | balsamifera ssp. trichocarpa | Black Cottonwood | Tree | | |
| Potentilla | gracilis var. fastigiata | Slender cinquefoil | | | |
| Prunus | virginiana var. demissa | Western Choke Cherry | Shrub | | |
| Prunus | emarginata | Bitter Cherry | Tree | | |
| Pseudotsuga | menzesii | Douglas Fir | Tree | | |
| Quercus | chrysolepis | Canyon Live Oak | Tree | | |
| Quercus | garryana | Oregon White Oak | Tree | | |
| Quercus | kelloggii | Black Oak | Tree | | |
| Quercus | wislezanii | Interior Live Oak | Tree | | |
| Rhamnus | purshiana | Cascara | Shrub | | |
| Rhus | trilobata | Lemonade Berry | Shrub | | |
| Ribes | californicum | Gooseberry | Shrub | | |
| Ribes | californicum | Current | Shrub | | |

| | | | | | |
|-------------------|-----------------------------------|-----------------------|-----------|--|--|
| Ribes | roezlii | Gooseberry | Shrub | | |
| Rosa | california | Western Rose | Shrub | | |
| Rubus | unsinus | California Blackberry | Vine | | |
| Rumex | salicifolius var. salicifolius | Willow Leaved Dock | Perennial | | |
| Salix | exigua | Narrow Leafed Willow | Tree | | |
| Salix | lucida ssp. lasiandra | Yellow Willow | Tree | | |
| Sambucus | mexicana | Blue Elderberry | Shrub | | |
| Scrophularia | californica | California figwort | Perennial | | |
| Scutellaria | antirrhinoides | Snapdragon Skullcap | Perennial | | |
| Silene | douglasii | Douglas' Champion | Perennial | | |
| Smilacina | racemosa | Soloman's seal | Perennial | | |
| Smilax | californica | California greenbriar | Vine | | |
| Solidago | californica | California goldenrod | Perennial | | |
| Spiraea | douglasii | Rose spiraea | Shrub | | |
| Symphoricarpos | albus var. laevigatus | Snowberry | Shrub | | |
| Syringa | hybrid | Lilac | Shrub | | |
| Toxicodendron | diversilobum | Poison Oak | Shrub | | |
| Trientalis | arctica | Arctic Starflower | Perennial | | |
| Trillium | ovatum | Western Wakerobin | Perennial | | |
| Typha | angustifolia | Narrow Leafed Cattail | Grass | | |
| Verbena | hastata | Blue Vervain | Perennial | | |
| Viola | glabella | Pioneer violet | Perennial | | |
| Viola | lobata ssp integrifloia | Yellow violet | Perennial | | |
| | | | | | |
| Tricholoma | matsutake | Matsutake mushroom | Fungus | | |
| Trametes | versicolor | Turkey Tail | Fungus | | |
| | | | | | |
| Genus | Species | Common Name | | | |
| Non-Native Plants | | | | | |

| | | | | | |
|----------------|-----------------------------|--------------------------|-----------|--|--|
| Aegilops | | Barbed Goatgrass | Grass | | |
| Avena | barbata | Slender Oats | Grass | | |
| Bromus | Catharticus | Rescuegrass | Grass | | |
| Bromus | tectorum | Down Chess | Grass | | |
| Centaurea | solstitialis | Yellow Star Thistle | Perennial | | |
| Centaurea | maculosa | Knapweed | Perennial | | |
| Cichorium | intybus | Chickory | Perennial | | |
| Conium | maculatum | Poison Hemlock | Annual | | |
| Cynodon | dactylon | Bermuda Grass | Grass | | |
| Hedera | helix | English Ivy | Vine | | |
| Holcus | lanatus | Velvet Grass | Grass | | |
| Hypericum | perforatum | St. John's Wort | Perennial | | |
| Lactuca | serriola | Prickly Lettuce | Annual | | |
| Lamium | amplexicaule | Henbit | Annual | | |
| Leucanthemum | vulgarre | Ox Eye Daisy | Perennial | | |
| Lychnis | coronaria | Rose Campion | Perennial | | |
| Melissa | officinalis | Lemon Balm | Perennial | | |
| Oenothera | elata | Evening Primrose | Perennial | | |
| Parthenocissus | quinquefolia | Boston Ivy | Vine | | |
| Penstemon | deustus | Hot rock penstemon | Perennial | | |
| Phalaris | brachystachys | Short Spike Canary Grass | Grass | | |
| Plantago | lanceolata | Plantain | Perennial | | |
| Poa | pratensis spp. pratensis | Kentucky Bluegrass | Grass | | |
| Ranunculus | arvensis | Field Buttercup | Annual | | |
| Rhus | glabrata | Smooth Sumac | Tree | | |
| Robinia | pseudoacacia | Black Locust | Tree | | |
| Rubus | discolor | Himalayan Blackberry | Vine | | |
| Rubus | lactiniatus | Cutleaf Blackberry | Vine | | |

| | | | | | |
|----------------------|---------------|-------------------------------|--------------|--|--|
| Rumex | acetosella | Sorrel | Perennial | | |
| Silene | latifolia | Bladder Campion | Perennial | | |
| Sinapis | arvensis | Field Mustard | Annual | | |
| Solanum | dulcamara | Nightshade | Perennial | | |
| Symphytum | × uplandicum | Comfrey | Perennial | | |
| Taeniantherum | caput-medusae | Medusahead | Grass | | |
| Torilis | arvensis | Field Hedge Parsely | Annual | | |
| Tragopogon | dubious | Yellow Salsify | Biennial | | |
| Trifolium | hirtum | Clover | Annual | | |
| Trifolium | pratense | Red Clover | Perennial | | |
| Verbascum | blattaria | Moth Mullein | Biennial | | |
| Verbascum | thapsis | Common Mullein | Biennial | | |
| Vinca | major | Periwinkle | Vine | | |
| | | | | | |
| Invertebrates | | | | | |
| Adelpha | californica | California Sister Butterfly | Butterfly | | |
| Apiomerus spp | | Bee Assassin | Bug | | |
| Argia | vivida | White damselfly | Damselfly | | |
| Battus | philenor | Pipevine swallowtail | Butterfly | | |
| Buprestis | aurulenta | Golden Buprestid | Jewel beetle | | |
| Catocala | spp | Underwing moth | Moth | | |
| Cercyonis | pegala | Wood Nymph Butterfly | Butterfly | | |
| Coelocnemis | californica | Broad-necked Darkling Beetle | Beetle | | |
| Coenonympha | californica | California Ringlet | Butterfly | | |
| Collomia | grandiflora | Mountain Collomia | Annual | | |
| Chalcophora | angulicollis | Western Sculptured Pine Borer | Beetle | | |
| Charidryas | gabbii | Gabb's Checkerspot | Butterfly | | |

| | | | | | |
|--------------|---------------------|-----------------------------------|-------------------|--|--|
| Cinidela | longilabris | Long-lipped Tiger Beetle | Beetle | | |
| Danaus | plexippus | Monarch Butterfly | Butterfly | | |
| Dasymutilla | sackenii | Velvet Ant | Wasp | | |
| Desmocerus | californicus dimorp | Valley Elderberry Longhorn Beetle | Beetle | | |
| Erynnis | prospertius | Prospertius Duskywing | Butterfly | | |
| Gnophaela | latipennis | Pindi moth | Moth | | |
| Junonia | coenia | Buckeye Butterfly | Butterfly | | |
| Monochamus | clamator latus | Pine Sawyer Beetle | Beetle | | |
| Nemoria | pulcherrima | Emerald moth | Moth | | |
| Nymphalis | antiopa | Mourning cloak | Butterfly | | |
| Occidryas | chalcedona | Chalcedon Checkerspot | Butterfly | | |
| Osmia | spp | Mason Bee | Bee | | |
| Papilio | zelicaon | Anise Swallowtail Butterfly | Butterfly | | |
| Papilio | eurymedon | Pale Swallowtail Butterfly | Butterfly | | |
| Phyciodes | mylitta | Mylitta Checkerspot | Butterfly | | |
| Prionus | californicus | California Prionus beetle | Beetle | | |
| Speyeria | callippe | Callippe Fritillary Butterfly | Butterfly | | |
| Sphinx | vashti | Vashti Sphinx moth | Moth | | |
| | | | | | |
| | | | | | |
| Birds | | | | | |
| Anas | crecca | Green-winged Teal | Duck | | |
| Anas | platyrhynchos | Mallard | Duck | | |
| Archilochus | alexandri | Black chinned Hummingbird | Hummingbird | | |
| Ardea | herodias | Great Blue Heron | Aquatic | | |
| Bombycilla | cedrorum | Cedar waxwing | Songbird: Waxwing | | |
| Buteo | jamaicensis | Red-tailed Hawk | Hawk | | |
| Calypte | anna | Anna's Hummingbird | Hummingbird | | |

| | | | | | |
|----------------|------------------|-----------------------------|-------------------------|--|--|
| Cinclus | mexicanus | American Dipper | Songbird: Cinclid | | |
| Coccothraustes | vespertinus | Evening Grosbeak | Songbird:Finc h | | |
| Colaptes | auratus | Nothern Flicker | Woodpecker | | |
| Contopus | sordidulus | Western Wood Peewee | Songbird: Flycatcher | | |
| Cardellina | pusilla | Wilson's Warbler | Songbird: Warbler | | |
| Cyanocitta | stelleri | Stellar's Jay | Corvidae | | |
| Empidonax | difficilis | Pacific-Slope Flycatcher | Songbird: Flycatcher | | |
| Euphagus | cycanocephalus | Brewer's Blackbird | Songbird: Blackbird | | |
| Falco | peregrinus | Peregrine Falcon | Falcon | | |
| Haliaeetus | leucocephalus | Bald Eagle | Eagle | | |
| Icterus | bullockii | Bullock's oriole | Songbird: Blackbird | | |
| Junco | hyemalis | Dark-eyed Junco | Songbird: Sparrow | | |
| Megaceryle | alcyon | Belted Kingfisher | Kingfisher | | |
| Megascops | kennicottii | Western Screech Owl | Owl | | |
| Meleagris | gallopavo | Wild Turkey | Wildfowl | | |
| Melospiza | melodia | Song Sparrow | Songbird: Sparrow | | |
| Molothrus | elater | Brown-headed Cowbird | Songbird: Blackbird | | |
| Myiarchus | cinerascens | Ash-Throated flycatcher | Songbird: Flycatcher | | |
| Oreothlypis | celata lutescens | Orange-crowned Warbler | Songbird: Warbler | | |
| Oreortyx | pictus | Mountain Quail | Wildfowl | | |
| Pandion | haliaetus | Osprey | Eagle | | |
| Passerella | iliaca | Fox Sparrow | Songbird: Sparrow | | |

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|--------------|----------------|--------------------------------|-------------------------|--|--|
| Passerina | amoena | Lazuli Bunting | Songbird: Cardinals | | |
| Patagioenas | fasciata | Band-Tailed Pigeon | Dove | | |
| Pheucticus | melanocephalus | Black-headed grosbeak | Songbird: Cardinals | | |
| Picoides | pubescens | Downy Woodpecker | Woodpecker | | |
| Pipilo | maculatus | Spotted Towhee | Songbird: Sparrow | | |
| Piranga | ludoviciana | Western Tanager | Songbird: Cardinals | | |
| Poecile | rufescens | Chestnut-backed Chickadee | Songbird: Tit | | |
| Psaltriparis | minimus | Bushtit | Songbird: Tit | | |
| Sayornis | nigricans | Black Phoebe | Songbird: Flycatcher | | |
| Selasphorus | calliope | Calliope Hummingbird | Hummingbird | | |
| Selasphorus | rufus | Rufous Hummingbird | Hummingbird | | |
| Setophaga | coronata | Yellow-rumped Warbler | Songbird: Warbler | | |
| Setophaga | nigrescens | Black-throated Gray Warbler | Songbird: Warbler | | |
| Setophaga | petechia | Yellow Warbler | Songbird: Warbler | | |
| Sialia | mexicana | Western Bluebird | Songbird: Thrushes | | |
| Sphyrapicus | ruber | Red breasted Sapsucker | Woodpecker | | |
| Spinus | pinus | Pine Siskin | Songbird: Finch | | |
| Spinus | psaltria | Lesser Goldfinch | Songbird: Finch | | |
| Sturnus | vulgaris | European Starling | Songbird: Starling | | |
| Tachycineta | bicolor | Green Tree Swallow | | | |
| Troglodytes | aedon | House wren | Songbird: Wren | | |
| Turdus | migratorius | American Robin | Songbird: Thrushes | | |
| Vireo | cassinii | Cassin's vireo | Songbird: Vireo | | |
| Zenaida | macroura | Mourning Dove | Dove | | |
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|------------------------------|---------------------|----------------------------------|------------|--|--|
| Fish | | | | | |
| Oncorhynchus | mykiss | Rainbow trout | Trout | | |
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| Reptiles + Amphibians | | | | | |
| Coluber | constrictor mormon | Western yellow bellied racer | Snake | | |
| Diadophis | punctatus occident | Northern Ringneck Snake | Snake | | |
| Dicamptodon | tenebrosus | Coastal giant salamander | Salamander | | |
| Elgaria | multicarinata | Southern Alligator Lizard | Lizard | | |
| Emmys | marmota | Western Pond turtle | Turtle | | |
| Ensatina | eschscholzii | Monterey Ensatina | Salamander | | |
| Pituophis | catenifer catenifer | Gopher Snake | Snake | | |
| Pseudacris | regilla | Pacific Chorus Frog | Frog | | |
| Rana | boylei (?) | Foothills Yellow-legged frog | Frog | | |
| Rana | catesbeiana | Bullfrog | Frog | | |
| Sceloporus | occidentalis | Western Fence Lizard | Lizard | | |
| Taricha | torosa or granulosa | California or Rough-Skinned Newt | Newt | | |
| Thamnophis | couchii | Sierra Garter Snake | Snake | | |
| Thamnophis | elegans | Terrestrial Garter Snake | Snake | | |
| Thamnophis | sirtalis | Common garter snake | Snake | | |
| Mammals | | | | | |
| Brassariscus | astutus | Ringtail | Carnivore | | |
| Canis | latrans | Coyote | Carnivore | | |
| Castor | canadensis | Beaver | Rodent | | |
| Felis | catus | Feral cat | Carnivore | | |
| Lontra | canadensis | N. American river otter | Carnivore | | |
| Lynx | rufus | American Bobcat | Carnivore | | |
| Mustela | erminea | Short-tailed Weasel | Carnivore | | |
| Myotis | californicus | California Bat | Bat | | |

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|-----------------|------------------|----------------------------|------------|--|--|
| Neotoma | cinerea | Bushy-tailed Woodrat | Rodent | | |
| Neovison | vison | American mink | Carnivore | | |
| Odocoileus | hemoinus | Black-tailed deer | Herbivore | | |
| Otospermophilus | beecheyi | California Ground Squirrel | Rodent | | |
| Puma | concolor | Puma | Carnivore | | |
| Scapanus | orarius | Coastal mole | Shrew/Mole | | |
| Sciurus | niger | Fox Squirrel | Rodent | | |
| Sciurus | griseus | Western gray squirrel | Rodent | | |
| Sylvilagus | bachmani | Western brush rabbit | Rabbit | | |
| Tasmasciurus | douglasii | Douglas' Squirrel | Rodent | | |
| Urocyon | cinereoargenteus | Grey Fox | Rodent | | |
| Ursus | americanus | California Black Bear | Omnivore | | |
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Appendix A: Additional Resources.

(See BBHSP Preconstruction Biological Report 2011 and 2012 Amendment for complete list of references.)

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