TANNER

ENVIRONMENTAL SERVICES

BURTNER PARCEL DIVISION PROJECT: SOUTHERN RUBBER BOA HABITAT ASSESSMENT AND RARE PLANT SURVEY

DECEMBER 9, 2011

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Project Site Location: USGS Moonridge 7 ½ - Minute Topographic Map, Township 2 North, Range 2 East, Section 19
APN: 0315-231-16
Applicant: William and Lisa Burtner
Owner: William and Lisa Burtner
Principal Investigator: Richard G. Tanner, Tanner Environmental Services (see above)

SIGNED: _____ DATE: December 5, 2011
Richard Tanner, Report Author

Additional Work Performed By:

SIGNED: _____ DATE: December 5, 2011
Christine Craig

SIGNED: _____ DATE: December 5, 2011
Drew Farr

CERTIFICATION: "I hereby certify that the statements furnished in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a nondisclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project."
DATE: _____ SIGNED: _____
Report Author

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1.0 Executive Summary

In the fall of 2011, Tanner Environmental Services (TES) conducted a focused habitat assessment for the southern rubber boa (*Charina umbratica*), a survey for rare special-status plants including threatened and endangered species and a survey for specialized rare plant habitat on the proposed project site. The proposed project site occurs within the range of the southern rubber boa and pebble plain habitat for rare plant species had been identified in the vicinity of the proposed project site. No special-status plant species and no sensitive wildlife species were identified on the site during our surveys. No specialized habitat for the southern rubber boa or rare plants was identified on the site during our surveys. Although no southern rubber boa habitat was found on the site, there is habitat suitable for the southern rubber boa within a 100 meter buffer. We make no recommendations for mitigation measures but recommend monitoring for the southern rubber boa during the initial grading activities for road construction.

2.0 Project Site Description

The proposed project site is a 7.8 acre area (Tentative Tract Map No. 18816) composed of one parcel in the Erwin Lake area near the city of Big Bear City (Figures 1 and 2). The proposed project involves the creation of 18 lots for single family residences within the project area. The project site is within the San Bernardino National Forest (SBNF) in San Bernardino County. The site is located just east of Highway 38 south of Baldwin Lake, east of Erwin Ranch Road and west of 10th Lane. The project site represents roughly the eastern half of what was the proposed Big Bear Pines Development Project (Leach Property).

This report addresses the biological resources occurring on or immediately adjacent to the project site and potential impacts to those resources from the proposed project. In addition to the project site, our surveys included a surrounding 100 meter buffer zone though access was limited in some areas because of fencing and because a portion of this area has been developed as single-family residences.

The project site is at an elevation of approximately 6800 feet (2,070 meters) on land with well-drained soils which is topographically flat. There are no drainage features within the project site but a small drainage just west of the site runs northeast to a Shay Meadow north of the site. The site has only one major vegetation type, Jeffrey pine forest, which can be seen in Figure 3. In addition, there are disturbed areas on the site from OHV and equestrian use and from previous thinning operations.

Figure 1 – Regional Map of Proposed Project Site

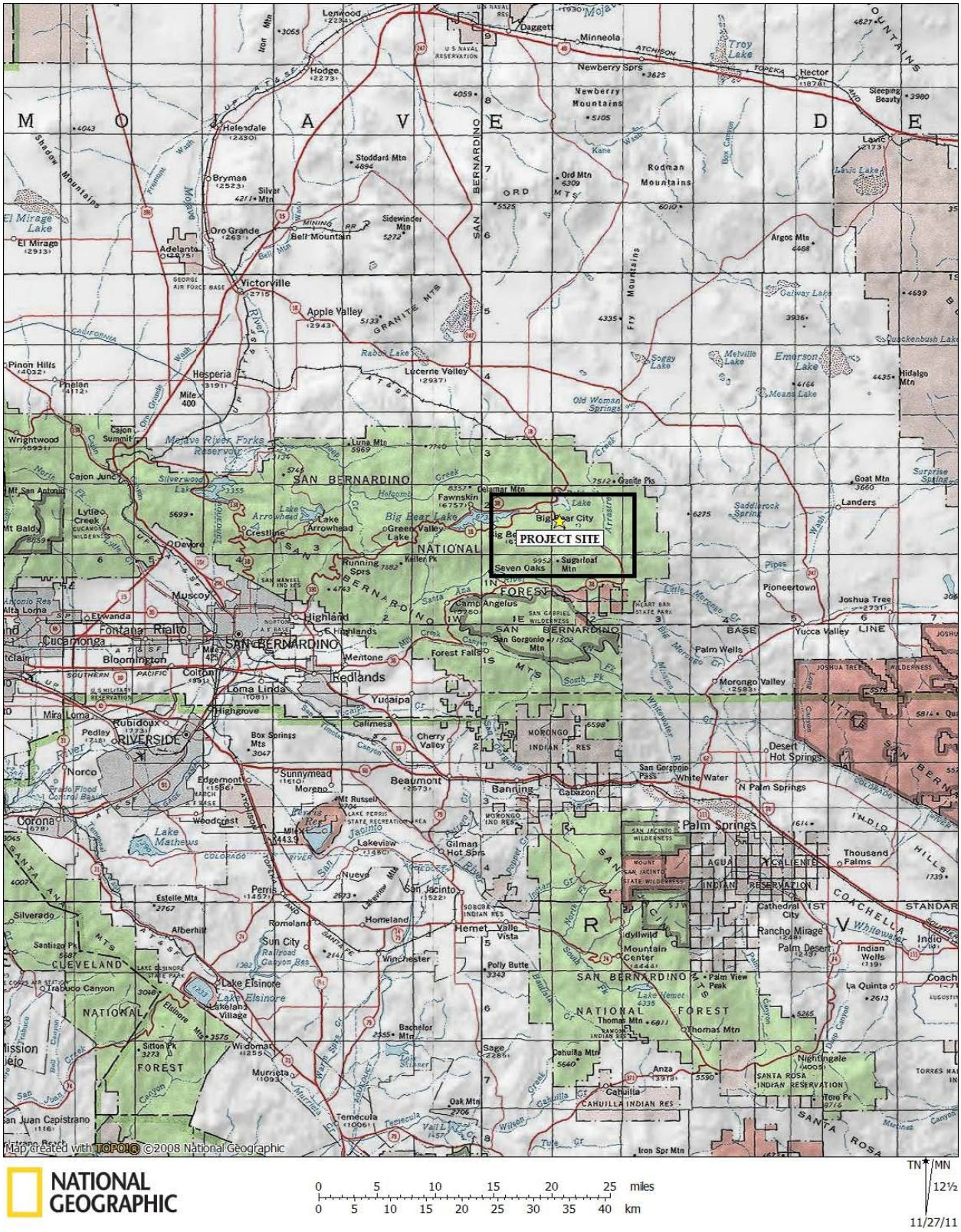

Figure 2 – Vicinity Map of Proposed Project Site; APN 0315-231-16

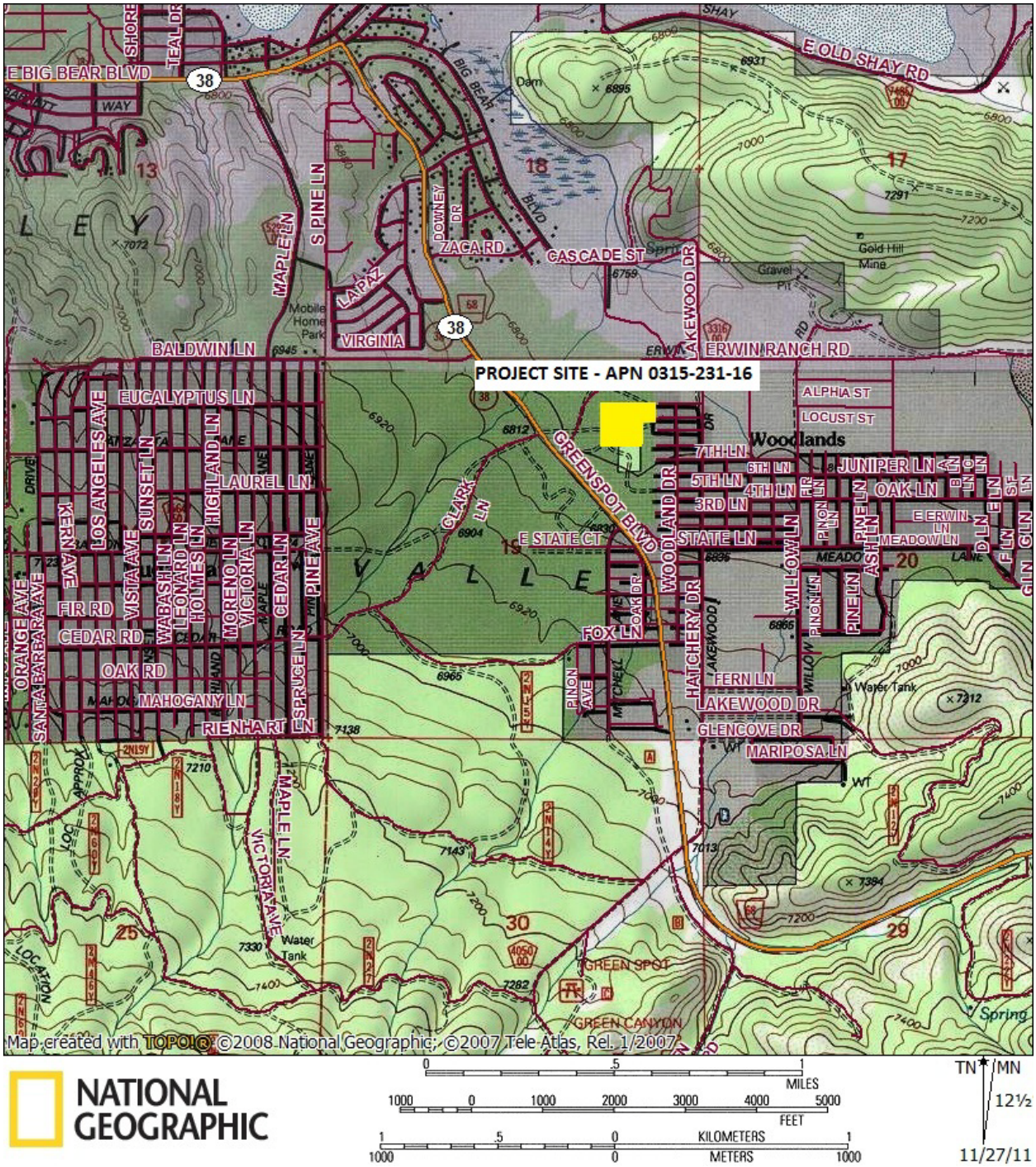

Figure 3 – View of Site from Eastern Edge to Southwest. Site vegetation includes even-aged Jeffrey Pine Forest.

3.0 Focus Study/Species of Concern

At the request of the landowner, we conducted a habitat assessment and a rare plant survey on the proposed project site. During a preliminary habitat assessment by Mr. Richard Tanner, we determined that the project site did not include suitable habitat for any special status wildlife species so we concluded that no focused surveys for sensitive wildlife species were necessary.

However, because of concerns raised by the California Department of Fish and Game (CDFG) and San Bernardino County's Land Use Services District (LUSD), we conducted a focused habitat assessment for the southern rubber boa (*Charina umbratica*) on the project site and within a 100 meter buffer. This species is listed as threatened under the California Endangered Species Act and is a Forest Service Sensitive species.

Based on the literature review including reports from the Big Bear Pines Development Project, our knowledge of the project site and after consultations with SBNF staff botanists, we determined that surveys for rare plants should be conducted at the site. This effort focused on the following federally protected species: Bear Valley sandwort (*Arenaria (Eremogone) ursine*); ash-grey paintbrush (*Castilleja cinerea*); and southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*). All three of these species can be surveyed for and are visible in

the fall when our survey was conducted. No other federally protected species had even a low probability of occurring on the project site.

Pebble plain was described by Derby and Wilson (1978, 1979). A detailed discussion was prepared by Neel and Barrows (1990) and brief descriptions appear in Holland (1986) and Sawyer and Keeler-Wolf (1995). Pebble plain occurs as distinct open patches within lower montane forest and woodland vegetation dominated by Jeffrey pine (*Pinus jeffreyi),* single leaf pinyon (*P. monophylla*) and western juniper (*Juniperus occidentalis*). The substrate consists of clay soil with quartzite pebbles and gravel that are continually pushed to the surface, evidently through frost heave (Holland 1986). Vegetation structure is similar to the mat-forming structure of alpine plants at much higher elevations. Vegetation consists largely of well-spaced cushion-forming perennials and a variety of tiny annuals, though shrubs (mostly sagebrush, *Artemisia* spp.) may be common and scattered trees may also occur. Bunchgrasses (e.g., *Stipa* spp., *Elymus elymoides*) may be common and some succulents may also occur. Other indicator species include: Englemann's hedgehog cactus (*Echinocereus englemannii*), silverhair mousetail (*Ivesia argyrocoma*) and Nevada biscuitroot (*Lomatium nevadense*). Pebble plains of the Big Bear area are classified as "southern montane black sagebrush pebble plains" by CDFG (2002), "a series or association considered rare and worthy of consideration" by the California Natural Diversity Data Base (CNDDB).

4.0 Southern Rubber Boa Habitat Assessment

4.1 Background

The southern rubber boa is found in the San Bernardino and San Jacinto Mountains at elevations ranging from roughly 5000 to 8000 feet (1540-2460 meters; Stewart 1988). They are associated with moist woodlands and coniferous forests. Because it is a burrower, the southern rubber boa makes use of rock outcrops, large downed logs and a well-developed duff layer. The duff layer is critical for maintaining high soil moisture which is likely a limiting factor for the range of the southern rubber boa (Loe 1985). The project site is located within the range of the southern rubber boa (Loe 1985, Stephenson and Calcarone 1999).

4.2 Methods

Prior to conducting a habitat assessment of the project site, we consulted available literature to identify special status wildlife which might occupy or forage in the area as well as suitable habitat for those species. These literature sources included the CNDDB (California Department of Fish and Game 2011) and SBNF's GIS database of modeled habitat, special status as well as general plant and wildlife species locations. In addition we consulted biological reports and CDFG responses for the proposed Big Bear Pines Planned Development. Again, the Burtner project site represents roughly the eastern half of the proposed Big Bear Pines Planned Development project.

A preliminary habitat assessment of the project site was conducted on September 27, 2011 by Mr. Richard Tanner. An additional focused habitat assessment for the southern rubber boa on the project site and within a 100 meter buffer was conducted on October 19, 2011 by Mr. Drew Farr. Surveys of the project site were conducted on foot along transects approximately 50 meters apart

with a focus on southern rubber boa habitat components including: downed woody debris, rock outcrops and perennially damp areas. In order to avoid disturbing the habitat, we did not rake or dig in an attempt to locate southern rubber boas during the surveys.

4.3 Results

We did not observe any habitat capable of supporting southern rubber boas within the project site. Also, we did not observe any sign of additional sensitive species or any habitat which could support other sensitive wildlife species. As shown in Figure 3, the habitat is open and the ground has been cleared of all downed logs. There are no rock outcroppings and no areas with perennial moisture. In addition, the soil which appears to be dry throughout is either exposed or is covered by a thin (maximum two inches) duff layer of pine needles (Figure 4).

Figure 4 – Photo of Representative Duff Layer in Project Site

4.3.1 Common Vegetation Types

The project site has only one major vegetation type:

- Jeffrey Pine Forest – The entire project site is covered by Jeffrey pine series (Sawyer and Keeler-Wolf 1995). In general, Jeffrey pine is the dominant tree in this vegetation community while California black oak (*Quercus kelloggii*), white fir (*Abies concolor*), western juniper (*Juniperus occidentalis)* and singleleaf pinyon pine (*Pinus monophylla*) occur at lower densities. In general the understory consists of scattered shrubs and low

herbaceous cover. On the project site, the habitat lacks this diversity and structural complexity with only western juniper present in addition to the dominant Jeffrey pine. The understory is dominated by Great Basin sagebrush (*Artemisia tridentata*).

4.3.2 Special Status Wildlife Species

Again, no suitable habitat for sensitive wildlife species was observed during the habitat assessment of the project site. However, during our surveys in the 100 meter buffer around the project site, we identified three locations with the potential to support the southern rubber boa:

1. South: This location is approximately 30 meters south of the project site and is composed of down woody material; however, the soil has very low moisture content and a duff layer that is minimal and patchy (Figure 5).
2. West: This location is approximately 50 meters west of the project site composed of down woody material; however, the soil has very low moisture content and the duff layer is minimal and patchy (Figure 6).
3. North: This location is approximately 90 meters north of the project site and is composed of down woody material which is in a more advanced state of decomposition (Figure 7). The soil has more moisture and is covered by a fairly contiguous duff layer of wood chips and needles (Figure 8). This area is adjacent to a dry meadow.

The potential southern rubber boa habitat to both the south and west of the project site (Numbers 1 and 2) have a low probability of supporting the southern rubber boa because they are dry, isolated and lack a sufficient duff layer to retain critical moisture. The location to the north has the highest probability of supporting the southern rubber boa because of the soil moisture and the thicker more contiguous duff layer.

Based on the habitat on the project site, we do not anticipate that the site can support sensitive wildlife species but it is possible that the habitat is utilized by the Cooper's hawk (*Accipiter cooperii*) which is a CDFG Species of Special Concern but has no Federal or Forest Service status. The Cooper's hawk utilizes forest edges and, if present, would likely forage along the edges of the Jeffrey pine forest.

5.0 Rare Plant Survey

5.1 Background

Big Bear Valley is known for its high level of botanical diversity and high proportion of locally endemic and rare plant species (Krantz 1994). Many of these rare and endemic species have special status under the California or federal Endangered Species Acts. In addition, these plants as well as other sensitive plant species have been provided special status by the California Native Plant Society (CNPS). These species are listed in CNPS' *Inventory of Rare and Endangered Vascular Plants of California* (Tibor 2001).

Figure 5 – Photo of Potential Southern Rubber Boa Habitat to South of Project Site

Figure 6 – Photo of Potential Southern Rubber Boa Habitat to West of Project Site

Figure 7 – Photo of Potential Southern Rubber Boa Habitat to North of Project Site

Figure 7 – Photo of Duff Layer at Potential Southern Rubber Boa Habitat to North of Project Site

5.2 Methods

Prior to conducting the rare plant survey, we consulted available literature to identify rare plants which might occur on or near the project site. These literature sources included the CNDDB (California Department of Fish and Game 2011) and SBNF staff regarding their GIS database of modeled habitat, special status plant species locations. In addition we consulted biological reports and DFG responses for the proposed Big Bear Pines Planned Development. These reports indicated that one plant of the federally threatened ash-grey paintbrush (*Castilleja cinerea*) was located near the west end of the Big Bear Pines project. However, it could not be located when the area was resurveyed in 2007.

Our botanist, Ms. Christine Craig, visited the project site on October 19, 2011. In addition to the project site, Ms. Craig surveyed an approximately 100 meter buffer. Access was limited in some portions of the buffer and coverage was less than 100 percent in these areas. The survey was focused on open areas which had the potential to support pebble plains. All accessible areas were walked on foot and all areas which had the potential to support sensitive species were explored. Ms. Craig recorded all plant species encountered as they were found and notes were taken on the vegetation of the site. The species list is presented as a Floral Compendium in Appendix 1.

5.3 Results

5.3.1 Special Status Plants

The plant survey of the project site and the buffer area was a floristic one, with an attempt made to identify every plant species present on the parcel and in the buffer area to a level sufficient to be sure it was not a listed sensitive species. On the parcel itself, no rare or sensitive plant species were found. Most of the rare plants of the San Bernardino Mountains are herbs of open areas with little to no canopy cover including meadows and pebble plains. There are no meadows on the project site and no pebble plains were located within the Jeffrey pine forest which is the only vegetation community on the site.

5.3.2 Special Status Vegetation

Although the Jeffrey pine forest was fairly open with a canopy cover of 20-30%, the openings were insufficient for pebble plain. Although the openings that are present have the cobbly appearance of a pebble plain, they are OHV tracks or are remnants from thinning operations. These openings do not show evidence of frost heave and no indicator species [i.e., Engelmann's hedgehog cactus (*Echinocereus englemannii*), silverhair mousetail (*Ivesia argyrocoma*), or Nevada biscuitroot (*Lomatium nevadense*)] were present.

5.3.3 Special Status Plants Potentially Occurring on Project Site

Sensitive plant species that might have been expected at the site, based on general habitat and location, but which were not found are listed below. In addition to the state and federal listing status, the following California Rare Plant Rankings following the plant names are to be interpreted as follows (Tibor 2001):

1B.1 = Rare, threatened, or endangered in California and elsewhere: seriously threatened in California

1B.2 = Rare, threatened, or endangered in California and elsewhere: fairly threatened in California
1B.3 = Rare, threatened, or endangered in California and elsewhere: not very threatened in California
2.1 = Plants Rare, Threatened, or Endangered in California, but more common elsewhere: seriously threatened in California
2.2 = Plants Rare, Threatened, or Endangered in California, but more common elsewhere: fairly threatened in California
2.3 = Plants Rare, Threatened, or Endangered in California, but more common elsewhere: not very threatened in California
4.3 = Plants of Limited Distribution/ Watch List: not very threatened in California

- Bear Valley sandwort (*Arenaria (Eremogone) ursina*) – Federally Threatened, CNPS 1B.2 – –this species is associated with pebble plains habitat and there are no pebble plains on the site.

- Parish's rockcress (*Arabis (Boechura) parishii)* – Forest Service Sensitive, CNPS 1B.2 – – this species is associated with pebble plains and there are no pebble plains on the site.

- Big Bear Valley woollypod (*Astragalus leucolobus*) – Forest Service Watchlist, CNPS 1B.2 – – this species is located across much of the Big Bear Valley.

- Ash-grey paintbrush (*Castilleja cinerea*) – Federally Threatened, CNPS 1B.2 – –this species is associated with pebble plains habitat, where it is typically parasitic on *Eriogonum* spp. No pebble plain habitat was present on the project site and there was no evidence of this species at the 2007 location cited in the Big Bear Pines reports.

- Southern mountain buckwheat (*Eriogonum kennedyi austromontanum*) – Federally Threatened, CNPS 1B.2 – – this species is associated with pebble plains and there are no pebble plains on the site.

- Silver-haired ivesia (*Ivesia argyrocoma*) –Forest Service Sensitive, CNPS 1B.2 – – this species is often associated to pebble plains habitat and there are no pebble plains on the site.

- Baldwin Lake linanthus (*Linanthus killippii*) – Forest Service Sensitive, CNPS 1B.2 – – this species is usually associated with pebble plain habitats and alkaline meadows, and there were none of those observed in the area.

- Big Bear Valley phlox (*Phlox dolicantha*) – Forest Service Sensitive, CNPS 1B.2– –this species is located across much of the Big Bear Valley.

Based on the project site location, the one special status plant which could potentially occur on the site and would not have been detectable at the time of the survey is the Baldwin Lake linanthus (*Linanthus killippii*). This plant is associated with pebble plains and alkaline meadows and prefers gravelly areas along the drip lines of trees and shrubs and not under canopy. Based

on the contiguous nature of the Jeffrey pine forest canopy and the lack of pebble plain and gravelly areas, we believe there is a low probability that this plant could occur on the project site.

6.0 Project Impacts

We anticipate that project construction will involve the grading of all roads through the project site as well as the eighteen proposed lots. Although many of the trees on the site will be left intact, all vegetation found where homes, driveways and roads are planned will be removed. Staging of equipment and storage of fill or waste will likely impact habitat on the project site as well.

6.1 Impacts to Southern Rubber Boa

No habitat for the southern rubber boa was located on the proposed project site so we anticipate no direct impacts to this species by the project. The project site does occur within the range of this species and we identified three different locations within 100 meters of the site which may provide suitable habitat. Therefore, we do anticipate some impact through loss of foraging and/or dispersal habitat. In addition, the project results in further fragmentation of existing habitat through the construction of homes and roads.

The initial grading and perhaps the construction phase of this project could directly impact foraging or dispersing southern rubber boas and result in a take under the California Endangered Species Act. To avoid a take we have recommended that a biological monitor be present during the road construction as noted below in Section 7.2.

6.2 Impacts to Special Status Plants and Habitat

No special status plants or pebble plain habitat were identified within the project site or within a 100 meter buffer of the area so we anticipate no direct impacts to the federally listed species which could potentially occur on the project site. Although there is a low probability of occurrence, the Baldwin Lake linanthus (*Linanthus killippii*; Forest Service Sensitive, CNPS 1B.2) could occur on the site and, if present, would be directly impacted. Impacts to special status plants such as the Baldwin Lake linanthus which are not listed as threatened or endangered would not meet the California Environmental Quality Act (CEQA) threshold for mandatory findings of significance or CEQA standards as generally applied in San Bernardino County.

The area has been severely impacted by OHV traffic as well as previous thinning operations. The federally threatened ash-grey paintbrush (*Castilleja cinerea*) was previously located near the site during surveys for the Big Bear Pines project, but it appears that it or its host plant was destroyed by OHVs. This project may deter OHV use in the area.

Edge effects resulting from development often lead to the die off of rare plants. Possible edge effects include the exclusion of rare plants by invasive weeds, altered hydrology, or pollution from landscaping chemicals. However, there are no sensitive plant species in the project area which could be impacted by edge effects.

Shay Meadow is located approximately one half mile north of the project site. The sensitive wet meadow habitat present at this site supports the federally endangered the Shay Creek unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) and there are records of the federally endangered California taraxacum (*Taraxacum californicum*). Based on the project site location, the proposed project will have no direct impacts on Shay Meadow but runoff from sheet flow during a major rain event could affect water turbidity. Because of the small scale of this project, we do not anticipate that indirect impacts to water quality in Shay Meadow will be significant.

7.0 Mitigation, Surveying and Monitoring Recommendations

7.1 Mitigation

Based on our habitat assessments and survey results, we do not make any recommendations for mitigation. We believe that project impacts would not meet CEQA criteria for a finding of significant impact and would not meet thresholds of significance as commonly applied by the County of San Bernardino.

7.2 Project Surveying and Monitoring

Because of the topography and the condition of the habitat on the project site, we anticipate minimal impacts from the construction of homes on the proposed lots by individual homeowners. Consequently, our recommendations for surveying and monitoring apply only to the construction of roads for this project.

The study area has the potential to support migratory bird and raptor nests. These nests would fall under the regulatory jurisdiction of the Migratory Bird Treaty Act (MBTA). Disturbing or destroying active nests is a violation of the MBTA and the nests and eggs are also protected under CDFG Code Section 3503. We recommend that the grading for road construction be completed between August 15 and February 15 to avoid impacts to nesting birds. If the grading must be completed during the nesting season, we recommend the following:

- Pre-construction Surveys: Nesting bird surveys approximately three to five days prior to construction. Depending on the species, buffer zones of 100 to 500 feet must be established around nesting birds until nesting is confirmed to have failed or fledglings are deemed sufficiently developed and independent. In general these buffer zones and protection for nesting birds under the MBTA remain in place between February 15 and August 15.
- If buffer zones are created around nest sites, monitors should at minimum check nesting status on a weekly basis. Buffers can be removed and work can resume in the area once nests are determined to have failed or fledglings are sufficiently developed.

Although there is no suitable habitat for the southern rubber boa on the project site, we believe it is possible that several areas adjacent to the site could support this species (see Section 4.2.2). Because of the potential for disturbance to the species, we do not recommend focused surveys of habitat; however, we do recommend construction monitoring as follows:

- Have a qualified biological monitor present during initial road construction grading activities to ensure that no southern rubber boas are present or move into the construction zone.
- Following initial grading and depending on whether southern rubber boas were observed during initial grading, conduct random visits and spot checks. Staging and storage areas should be checked to confirm that no southern rubber boas have moved into the area.

8.0 Literature Cited

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Appendix 1 - Faunal Compendium from Rare Plant Survey, October 19, 2011

Family	Scientific Name	Common Name	Habit	CA[1]	Notes
AST	Artemisia tridentata Nutt.	Great Basin Sagebrush	Shrub	N	Site Yes; Buffer Yes
AST	Chaenactis DC.	Pincushion	Annual	N	Site Yes; Buffer Yes
AST	Erigeron divergens Torr. & Gray	Spreading Fleabane	Annual	N	Site Yes; Buffer Yes
AST	Gutierrezia sarothrae (Pursh) Britton & Rusby	Broom snakeweed	Perennial	N	Site Yes; Buffer Yes
BRA	Lepidium virginicum L.	Virginia pepperweed	Biennial	N	Site Yes; Buffer No
BRA	Sisymbrium altissimum L.	Tall Tumblemustard	Annual	I	Site Yes; Buffer Yes
CUP	Juniperus occidentalis Hook.	Western juniper	Perennial	N	Site Yes; Buffer Yes
ERI	Eriogonum nidularium Coville	Birdnest buckwheat	Annual	N	Site Yes; Buffer Yes
ERI	Eriogonum umbellatum Torr. var. munzii Reveal	Munz's Buckwheat	Perennial	N	Site Yes; Buffer No
ERI	Eriogonum wrightii Torr. ex Benth. var. subscaposum S. Watson	Bastardsage	Perennial	N	Site Yes; Buffer Yes
FAB	Astragalus sp. L.	Milkvetch	Perennial	N	Site No:L Buffer Yes
FAB	Lotus nevadensis (S. Wats.) Greene	Sulphur-flowered Lotus	Perennial	N	Site Yes; Buffer Yes
ONA	Gayophytum diffusum Torr. & A. Gray	Groundsmoke	Annual	N	Site Yes; Buffer Yes
PIN	Pinus jeffreyi Grev.	Jeffrey Pine	Tree	N	Site Yes; Buffer Yes
PLG	Polygonum arenastrum Jord. ex Boreau	Oval-leaf knotweed	Annual	I	Site Yes; Buffer No
POA	Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths	Blue grama	Perennial	N	Site Yes; Buffer Yes
POA	Bromus tectorum L.	Cheat Grass	Annual	I	Site Yes; Buffer Yes
POA	Elymus elymoides (Raf.) Swezey	Bottlebrush Squirreltail	Perennial	N	Site Yes; Buffer Yes
POA	Stipa L.	Needlegrass	Perennial	N/I	Site Yes; Buffer Yes
POA	Stipa (Achnatherum) hymenoides Roemer & Schultes	Indian Ricegrass	Perennial	N	Site Yes; Buffer Yes
POR	Calyptridium	Pussypaws	Annual	N	Site Yes; Buffer No
ROS	Amelanchier utahensis Koehne	Service Berry	Shrub	N	Site Yes; Buffer Yes
ROS	Cercocarpus ledifolius Nutt.	Curlleaf Mountain Mahogany	Shrub/Tree	N	Site Yes; Buffer Yes
ROS	Purshia tridentata (Pursh) DC.	Antelope bitterbrush	Perennial	N	Site Yes; Buffer Yes

[1] N: Native to California; I: Invasive