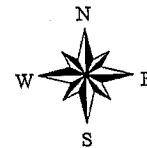
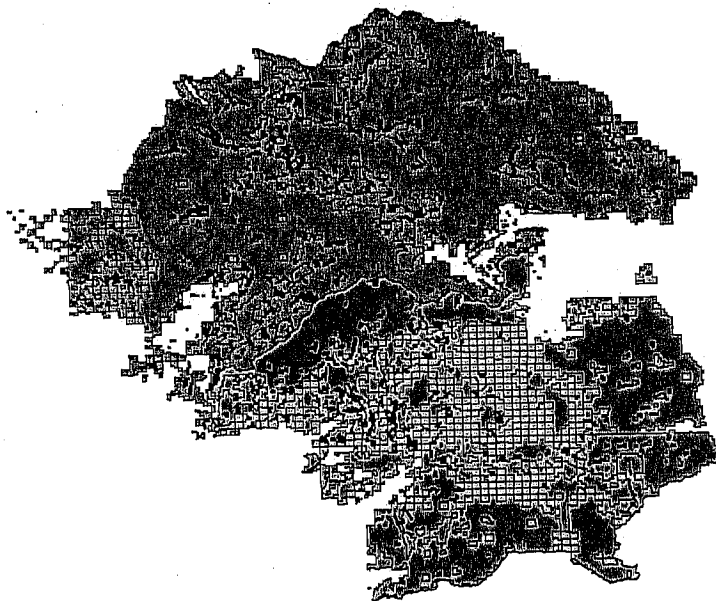


**1998 AMPHIBIAN AND REPTILE SURVEYS IN
THE PLUMAS AND TAHOE NATIONAL FORESTS:
THE RESULT OF CCSA-05-98-17-123**



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INTRODUCTION

The Plumas and Tahoe National Forests comprise an area of approximately 1.95 million acres. This area has been relatively unstudied with respect to the herpetological fauna. Other than Hayes and Cliff (1982) who report on the amphibians and reptiles of Butte County, there are no other published accounts on the region's general herpetology. Thus, the U.S. Forest Service has had to rely on published sources, which address the herpetofauna at a low level of resolution. Publications such as Stebbins (1985) contain information on the amphibians and reptiles of the western U.S., while Zeiner et al. (1988) contains distributional data at the state level, and Jennings and Hayes (1994) provide species accounts for state species of special concern.

In general, the large-scale distribution of amphibians and reptiles in California is well known. However, our knowledge of species distribution surprisingly lacks specificity when analyzing the herpetofauna at local levels. As outlined in the 1997 report of amphibian and reptile surveys in Tahoe National Forest (CCSA-05-97-17-024), the information on the distribution of amphibians and reptiles in the northern Sierra Nevada is spotty, is based on limited sampling, and to a large extent is outdated. The survey work we conducted in 1997 in the Tahoe National Forest was initiated to address these gaps in knowledge. Through the continued concern of national forest biologists, particularly those who rely on such information to make management recommendations, the Department of Herpetology, California Academy of Sciences (CAS), has expanded the focus of field work to include the Plumas National Forest, which shares an extensive border with the Tahoe National Forest. The significance of such field work lies in the documentation of species occurrence by voucher specimens.

The surprising lack of data on amphibian and reptile distributions for the Tahoe National Forest is highlighted in Spencer et al. (1998), in which museum records from 13 natural history museum collections are used to determine the distributions of amphibians and reptiles in the four counties encompassing the Tahoe National Forest. Of 33 species that are known to occur in the counties surrounding the forest, 12 are represented by specimens from five or fewer localities. With so few locality records, predicting expected distributions and, thus, making informed management decisions are difficult.

The use of published range maps may be misleading when trying to determine a species distribution in a specific area such as a national forest. Most range maps only show the generalized species distributions. Local species distributions closely linked to topography, local climate, edaphic factors and the like, cannot be expected to be properly reflected.

Because large scale biological inventories are financially prohibitive, habitat models are constructed to predict species compositions. Howell and Barrett (1998) test predictions of the California Wildlife Habitat Relationship (CWHR) System in coastal scrub and annual grassland habitats in coastal California. In both habitats sampled, the CWHR system predicts more species than the survey work found. For the habitats combined, CWHR predicts the occurrence of three amphibian and 17 reptile species. Their sampling detects only 50% of the predicted species (one amphibian and nine reptile species). Recent field work, thus, brings into question the reliability of their model, quite apart from the lack of hard data.

The CWHR system also overestimates the number of species found to occur in the Tahoe National Forest. The CWHR range maps in Zeiner et al. (1988) predict that approximately 31 amphibian and reptile species are expected to occur in the Tahoe National Forest. Documented specimens from museum records and surveys confirm only 24 species (77%) of the CWHR system model to occur in the forest (Spencer et al. 1998).

Survey work remains requisite to understanding biodiversity and local distributions of a given area. Although generalized biological inventories are often undertaken, voucher specimens (specimens collected to document a species occurrence) are rarely taken. Surveys that rely on visual observations or photographic documentation can be inconclusive. In contrast, voucher specimens deposited in a natural history museum serve as physical evidence and thus are verifiable. These specimens also provide scientific data, such as age, reproductive stage, stomach content, toxicity and parasite load. Tissue samples become available for molecular studies in evolution and population dynamics.

In 1910, Grinnell emphasized that one important element of a museum collection is its value in the future. As evident in the data provided here, museum specimens provide a historical perspective of species distribution. Biologists in the future will have access to the original record of faunal conditions and distribution patterns wherever collections are made and to assess the conditions that both broadly and locally affect the dynamics of the populations.

METHODS AND MATERIALS

Historical Records

Prior to field surveys, museum records were requested from all major US museums for their holdings from the counties which comprise the Plumas and Tahoe National Forests. Of 18 museums contacted, 16 collections

contain historical records based on voucher specimens from Butte, Lassen, Nevada, Placer, Plumas, Sierra, and Yuba Counties. Appendix A lists the museums contacted and the number of relevant specimen records obtained. Ten collections have holdings for the Plumas National Forest, and 12 for the Tahoe National Forest.

A total of 4,998 historical records were entered into a computerized database. Records were then georeferenced by adding latitude and longitude to records which had sufficient locality descriptions. A variety of methods have been employed to obtain latitude and longitude. Data consisting of only a place name were georeferenced using National Geographic Names Data Base, Dataware Technologies Inc., 1993, or Place-Name-Index, Buckmaster Publishing, 1988. Specimen localities which contain information other than place names were georeferenced using DeLorme Street Atlas USA 4.0 or by obtaining latitude and longitude from 7.5 minute topographic maps. Localities containing data which are not specific enough to accurately geocode were not included in the distribution maps.

Of the 4,998 records from the seven counties surrounding the National Forests, 971 specimen records are from within the outermost borders of the Plumas and Tahoe National Forests. An additional 267 records were added to the database from our 1997 surveys of the Tahoe National Forest (CCSA-05-97-17-024).

Because of time and financial limitations, we were not able to examine most museum specimens listed in this report. Some specimens were suspected of being misidentified and were checked by curatorial staff at their respective institutions. However, some specimen identifications may still be in error, and specimens suspected of erroneous identifications should be examined.

Surveys

Survey crews consisted of two to four people with the personnel varying according to availability; CAS staff were present on all surveys. CAS staff included: Jens V. Vindum, Michelle S. Koo, Jeffery A. Wilkinson, Carol L. Spencer, Lindsay G. Henwood, Rhonda S. Lucas, Kevin D. Wiseman, and Craig A. Reading. U.S. Forest Service staff included Marilyn M. Tierney and Kristen Sexton (Tahoe National Forest), and Kristina Hopkins, Cindy Roberts, and Stephanie Pascal (Plumas National Forest).

Surveys were conducted between 27 April and 22 October, 1998. Teams consisting of two CAS employees spent a total of 17.4 weeks (87 days) conducting field surveys. Most surveys were conducted along streams, rivers, ponds, lakes and reservoirs (Appendix B lists water bodies and courses surveyed). Surveys were conducted by two or more persons slowly walking up the middle or along the edges of water courses searching all suitable-looking habitats for amphibians or reptiles. Surveys were done during the day and at night in suitable *Rana aurora* habitat. Data were recorded for all sites visited, and records were taken for all individual amphibians and reptiles observed as well as those collected.

The surveys targeted three projects: 1) general amphibian and reptile surveys of the Foresthill and Downieville Ranger Districts of the Tahoe National Forest (23 days of survey); 2) *Rana aurora* surveys for the Oroville and La Porte Ranger Districts of the Plumas National Forest (35 days of survey); and 3) general herpetological surveys, with emphasis on aquatic species, for the Milford and Quincy Ranger Districts of the Plumas National Forest (29 days of survey). For each of the projects, we investigated targeted localities specified by district biologists.

Specimens and Specimen-Associated Data Obtained During the 1998 Surveys

In general, up to five specimens of non-protected species were taken from each locality visited. Only one specimen was taken per locality for state protected species (species of special concern). One *Rana aurora* (federally protected) tadpole was taken from the Hughes Place pond by a Federal permit holder (Mark Jennings, Research Associate, CAS).

Specimens were collected and humanely euthanized following protocols approved by the Academy's Animal Welfare Committee and the three North American herpetological societies (American Society of Ichthyologists and Herpetologists 1987). Specimens were fixed in 10% buffered formalin and later stored in 70% ethyl alcohol. In addition, tissue samples (usually liver) were removed and frozen in liquid nitrogen from at least one specimen per species per locality. The tissue samples, once received at the Academy, were placed in an ultracold freezer (-86 C). All specimens and tissues are deposited in the Herpetology research collections of the California Academy of Sciences.

Locality data were recorded for all specimens collected. Locality data consisted of a written description of the locality, usually designated by mileage from a prominent land feature or road. Using 7.5 minute topographic maps, each locality was designated to 1/16 section of the Public Land Survey System. Elevation was taken from 7.5 minute topographic maps. In addition, latitude and longitude were obtained in the field using global positioning system (GPS) units (Trimble Scoutmaster and Garmin 12). GPS coordinates were checked using ArcView (vers. 3.0) with stream or road overlays of each of the national forests. Geocoordinates which were deemed inaccurate after

projection onto 7.5 minute topographic maps were corrected using the same digitized maps. Base maps were registered on a digitizing board, and point data (latitude and longitude) obtained with ArcView. For each species, locality point data were plotted on base maps of the national forest using ArcView (vers. 3.1).

RESULTS

The 1998 survey resulted in a total of 798 specimens collected from the two national forests (605 from the Plumas and 193 from the Tahoe). These specimens represent collections from 262 unique localities from within the Plumas National Forest and 89 from the Tahoe National Forest. Combining these records with the historical data, our database of specimens collected within the outermost boundaries of the two forests consists of 2,036 specimen records, which represent 340 unique localities within the Plumas National Forest and 292 within the Tahoe National Forest (see Appendix C for maps; see Map 1 for complete historical and 1998 locality records for the seven-county area of the national forests).

27 species (11 amphibian and 16 reptile) are now known to occur within the Plumas National Forest, and 25 species (9 amphibian and 16 reptile) are documented from the Tahoe National Forest (summarized in Table 1). The survey resulted in eight new county records (i.e. species previously not documented from the county): *Charina bottae*, Butte County; *Clemmys marmorata*, Nevada County; *Diadophis punctatus*, Plumas County; and *Charina bottae*, *Diadophis punctatus*, *Elgaria coerulea*, *Lampropeltis getula*, and *Thamnophis couchii*, Yuba County.

Six species (*Batrachoseps attenuatus*, *Hydromantes platycephalus*, *Rana aurora*, *Taricha granulosa*, *Clemmys marmorata* and *Eumeces gilberti*) are only found in one of the two National Forests. *Batrachoseps attenuatus* and *Clemmys marmorata* are not found in the Tahoe National Forest. The omission of these two species is likely due to incomplete sampling at lower elevations. Three species (*Hydromantes platycephalus*, *Taricha granulosa* and *Eumeces gilberti*) have distributions which do not extend into the adjacent forest. *Hydromantes platycephalus* is represented in the Tahoe National Forest by an isolated population on the Sierra Buttes (Sierra County). The southern distribution of *Taricha granulosa* does not extend south of the Little West Branch of the Feather River (Butte County). *Eumeces gilberti* appears to reach its northern distribution at the Yuba River in Yuba County. The reasons for the absence of *Rana aurora* in the Tahoe National Forest is unclear. Historically, *R. aurora* is known from only two localities close to the western borders of the Tahoe National Forest. Because of the lack of historical data and the recent decline of populations, it is difficult to say whether the absence of these animals is due to the species never having occurred, improper sampling, or extinction.

One species, *Lampropeltis getula*, surprisingly is absent from both forests. Based on range maps, preferred habitat and elevation limits, *L. getula* is expected to occur within the forests (Stebbins 1985; Zeiner et al. 1988). The species has been found close to the Plumas National Forest in the Paradise area (MVZ 149978; end of Dean Rd at Miocene Canal, 1.5 mi E junction with Penz-Magalia Hwy, Paradise, Butte County) but other records are from elevations below the western boundaries of both forests.

In summary, the results are embodied in the following tables and appendices: *Table 1*, checklist of amphibian and reptile species occurring in the Plumas and Tahoe National Forests and surrounding counties; an *Annotated Species Account*, which includes both species found within the National Forest boundaries and those expected to occur; *Appendix A*, list of museums contacted for relevant holdings and their abbreviations; *Appendix B*, List of major water courses and bodies surveyed; *Appendix C*, maps of species distributions for the Plumas and Tahoe National Forests, arranged alphabetically by genus and species; and *Appendix D*, catalog of voucher specimens, listed (a) alphabetically by genus, species, county, and (b) numerically by museum catalog number.

FUTURE PROJECTS

Despite data from historical collections as well as the collections made during the last two years, additional surveys are required to document and further clarify the distributions of amphibians and reptiles in the Plumas and Tahoe National Forests. Of the 27 species now known to occur within the two forests, 12 species (44%) are known from 16 or fewer localities within the approximately 1.9 million acre area. Realizing that the entire forest cannot be surveyed, predictive models might be constructed to determine the likely distributions of given species. However, such models require adequate information regarding habitat and elevation limits. Models such as CWHR are made on a state-level, and thus are not too useful at the national forest-level. The CWHR amphibian and reptile distribution maps are based on major vegetation types and/or elevation limits. However, parameters such as elevation limits for species differ with latitude; elevation limits for species occurring in the southern Sierra are not the same as those for the same species in the northern Sierra. Thus, for any model to be effective, data are needed which directly pertain to the specific forest area. As the U.S. Forest Service relies more on GIS, it is essential that baseline data exist for each forest.

Future surveys should focus on general surveys in those areas that have not been adequately sampled as well as surveying for species which are of special concern to the national forest. There are still large areas within the both

forests that require general survey work. Such areas include: most of the Beckwourth, Greenville, and Milford Ranger Districts, Plumas National Forest, and northern Downieville and Foresthill Ranger Districts, Tahoe National Forest. Surveys in these areas should emphasize aquatic habitats, particularly for species of special concern while continuing to gather data on other amphibian and reptile species.

Efforts could also be made to involve Forest Service employees in documenting species occurrence. Valuable data can be obtained by salvaging dead specimens. In particular, amphibians and reptiles killed by vehicles are often in good enough condition to be prepared as museum specimens and as such can provide much useful information. For instance, specimens with well-documented locality data provide additional information on distribution even if physically damaged. Ecological information such as activity periods, feeding behavior (from stomach contents), and parasite loads can also be obtained. In addition, these salvaged specimens provide useful data for systematic studies. The CAS Department of Herpetology will be pleased to provide interested staff with appropriate instructions and supplies to prepare such specimens.

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We are especially indebted to the Conservation Technology Support Program and Environmental Systems Research Institute, Inc. for supplying software and training to MSK.

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Last but not least, thanks are also given to the staff of the Department of Herpetology at the CAS for doing the field work, and more importantly, for doing the work with a smile.

ANNOTATED SPECIES ACCOUNT OF THE HERPETOFAUNA OF
THE PLUMAS AND TAHOE NATIONAL FORESTS

The following species account is based on specimen records (Appendix D) from 16 museums collections (see Appendix A for a list of the museums and museum abbreviations) as well as specimens collected during the 1997 and 1998 surveys. Species are listed alphabetically by genus and species along with their common names (common names follow Stebbins 1985). Each record lists the National Forest in which the species has been found, general habitat requirements, comments on the distribution within the two forest area and remarks. A list of species which may occur but have yet to be documented from the Plumas and Tahoe National Forests follows the main species account. All species distribution maps referenced below can be found in Appendix C.

Ambystoma macrodactylum Long-toed Salamander

National Forest: Tahoe, Plumas (Map 2)

Habitat:

Throughout much of its range, *Ambystoma macrodactylum* occurs in a wide variety of habitats including semiarid sagebrush deserts, dry woodlands, humid forests, and alpine meadows (Nussbaum et al. 1983). In the Sierra Nevada, it is limited to montane forests and mountain meadows in the vicinity of ponds and lakes (Ferguson 1961; Stebbins 1962). Along the eastern slope of the Sierra, the species occurs in Big Sagebrush-Jeffery Pine habitat in Carman Valley, Plumas County. The Carman Valley specimens, which were collected in 1998, may represent the first records of the species occurring in sagebrush habitats along the eastern base of the Sierra.

Distribution:

Except for Yuba County, *A. macrodactylum* has been found in all counties surrounding the two forests, although very few localities have been documented. Only one historical locality exists for the Plumas National Forest; two specimens (MVZ 80047-80048) from Gold Lake. Within the Tahoe National Forest, there is only one locality record per county for Nevada and Placer Counties. The species occurs between elevations of 4,240 ft and 7,240 ft in the Plumas National Forest, and 5,288 ft to 7,000 ft in the Tahoe National Forest. The distribution extends down the eastern slope of the Sierra into Carman Valley in Plumas County.

Remarks:

Most of the specimens collected during our survey were found in water or in the immediate vicinity of water. However, specimens from one locality were found away from any obvious water source; CAS 205935-37 were found under logs along a ridge in Red Fir forest. The forest here is heavily logged, and the specimens were within 20 yards of a clear cut.

In Carman Valley, larvae were found in man-made pools; CAS 205941 and 206425-28 were collected from a large pool (3 yds x 30 yds) of a roadside ditch, and CAS 206430 was collected in a stock pond.

Because of the adverse affects of introduced trout (*Oncorhynchus* spp.) on *A. macrodactylum* eggs and larvae (Tyler et al. 1998), efforts should be made to document the current distribution of the species. Mining ponds which do not have introduced fish may prove to be important breeding refugia for this salamander.

Although none have been collected, our surveys report finding *A. macrodactylum* larvae in the Tahoe National Forest, specifically, in Sailor Meadows and an unnamed lake in the vicinity (Foresthill Ranger District).

Batrachoseps attenuatus California Slender Salamander

National Forest: Plumas (Map 3)

Habitat:

Batrachoseps is confined to the western foothills in woodland or chaparral from the eastern edge of Sacramento Valley grasslands to the western edge of Ponderosa Pine (*Pinus ponderosa*) (Hayes and Cliff 1982).

Distribution:

Batrachoseps occurs along the western edge of both forests in Butte, Yuba, Nevada and Placer Counties but tends not to occur at elevations high enough to include national forest lands. Hayes and Cliff (1982) lists the upper elevation of *Batrachoseps* as about 2,000 ft in Butte County. Specimens have been taken at 2,200 ft from 4.1 mi SW of Mooretown (MVZ 57996-58000). One specimen (CAS 205581) was collected from within the general borders of

the Plumas National Forest. The specimen was collected in the Jack Creek area, Butte County, at an elevation of 2,120 ft. *Batrachoseps* occurs at higher elevations in Nevada County, with elevations extending to 3,000 ft in the Round Mountain area.

The only other specimens which have been found close to the Plumas National Forest are from the areas around Paradise, Bloomer Hill, and SW of Mooretown. The closest localities to the Tahoe National Forest include 3.5 mi S of San Juan and the Round Mountain area, Nevada County, and the Auburn area of Placer County. Additional surveys will most likely yield specimens from the western edge of the Tahoe National Forest.

Remarks:

Hayes and Cliff (1982) state that *B. attenuatus* is only rarely sympatric (overlapping) with *Ensatina eschscholtzii* at the lower fringe of Ponderosa Pine forest. *B. attenuatus* (CAS 205581) and *E. eschscholtzii* (CAS 205822, 205840) were found sympatrically in Ponderosa Pine forest in the vicinity of Jack Creek, Butte County.

The newly described *Batrachoseps diabolicus* ranges from the American River south to the Merced River at elevations below 984 ft. (Jockusch et al. 1998). *B. diabolicus* occurs in open, brushy areas on the margins of chaparral and scattered pines (*Pinus sabiniana*, and occasionally *P. ponderosa*) (Jockusch et al. 1998). It is doubtful that *B. diabolicus* occurs in the Tahoe National Forest because of its cited affinity for low elevation chaparral (see Map 3).

Bufo boreas Western Toad

National Forest: Tahoe, Plumas (Map 4)

Habitat:

The Western Toad occurs from grasslands in the Central Valley east across the Sierra into Great Basin Sagebrush (Hayes and Cliff 1982; Stebbins 1985; Zeiner et al. 1988). *Bufo boreas* may utilize streams, rivers, ponds, lakes, and reservoirs for breeding sites.

Distribution:

Except Yuba County, *B. boreas* has been found within both forests from all counties. The known elevation range extends from about 175 ft in Butte County to 7,370 ft in Sierra County. Based on collections, the species seems to be more common at higher elevations as well as in Big Sagebrush-Jeffery Pine habitats.

Remarks:

Hayes and Cliff (1982) mention that *B. boreas* is ubiquitous throughout Butte County. However, our surveys found no *Bufo* in Butte County. Although historical records indicate toads occur at lower elevations, our surveys only found *Bufo* at relatively high elevations along the western slope of the Sierra. Toads were only found above 3,520 ft in Plumas County, 5,780 ft in Sierra County, and 5,320 in Placer County. *B. boreas* is common in the area around Dixie Mountain State Game Refuge, where toads were collected from Charles and Rowland Creeks and from six localities along Forest Roads 177 and 70.

Based on the description given by Hayes and Cliff (1982) of toads being "ubiquitous" in Butte County and the fact that we did not find any toads in Butte County and none below 3,520 ft in other counties, we recommend focused surveys be conducted for *Bufo* populations along the western slope of the national forests.

Charina bottae Rubber Boa

National Forest: Tahoe, Plumas (Map 5)

Habitat:

Charina bottae is found in a variety of habitats from Douglas Fir (*Pseudotsuga menziesii*) along the western slope of the Sierra to Big Sagebrush on the eastern side of the Sierra. Two specimens (CAS 205637-38) were found in soil and leaf litter covered mine tailings in the Golden Trout Crossing area. CAS 201590, 205988 and 206040 were captured along rocky slopes adjacent to creeks.

Distribution:

C. bottae is found in both national forests from all applicable counties. Elevations range from 3,150 ft in Butte County (CAS 205637-8) to 6,600 ft in Sierra County (LACM 20277). Although Hayes and Cliff (1982) mention *Charina* occurring in Butte County at elevations over 2,000 ft and in shaded canyons down to 1,330 ft, no

voucher specimens existed for Butte and Yuba Counties prior to 1998. Our specimens from Butte County (CAS 205637-38, 205711) and from Yuba County (CAS 205988, 206320) represent the first county records for the species.

Remarks:

CAS 205988 contained a juvenile *Peromyscus* sp.

Clemmys marmorata Western Pond Turtle

National Forest: Plumas

Habitat:

Our only native freshwater turtle frequents ponds, lakes, reservoirs, and streams (Stebbins 1985; Jennings and Hayes 1994; Bury 1970). In streams and rivers, *Clemmys* require areas of slow-moving water that are adjacent to upland areas which can be utilized for egg deposition and over-wintering (Jennings and Hayes 1994).

Distribution:

Clemmys occurs along the Sierran foothills north to Butte County. Hayes and Cliff (1982) lists the upper elevation in Butte County as 3,330 ft. Neither National Forest has historic records from any of the counties south of Butte. A voucher specimen representing a new county record was taken this year from Nevada County (CAS 207045; North San Juan, on Hwy 49).

Two populations were visually verified in Butte County within the general boundary of the Plumas National Forest although no voucher specimens were acquired. *Clemmys* was sighted at the Hughes Place pond (per. obs. J.V. Vindum and M.S. Koo, 1998) and the pond at the junction of French Creek Rd and Forest Rd 22N34 (pers. obs., J.V. Vindum, 1998).

Remarks:

No specimens were collected.

Coluber constrictor Racer

National Forest: Tahoe, Plumas (Map 6)

Habitat:

Coluber constrictor occurs in most habitats from the Central Valley to the Great Basin sagebrush except for zones above and including Red Fir forest. Within the national forests, the species is most commonly found in grassy forest openings but can also be found in areas with relatively open canopy. In the eastern sagebrush habitat, *Coluber* is found in Lassen, Plumas and Sierra Counties.

Distribution:

Specimens are documented from all counties surrounding the forests, and *C. constrictor* is found within the two forests from all counties except for Yuba and Lassen Counties. Along the western slope, *C. constrictor*'s elevation range extends from the Central Valley at about 200 ft to 4,480 ft in Nevada County. Hayes and Cliff (1982) state that within Butte County, the species may occur up to 6,000 ft in appropriate habitat, however, specimens have not been documented from this elevation. In sagebrush habitat, Racers are recorded up to 5,000 ft in the Beckwourth area of Plumas County.

Remarks:

C. constrictor is common in the grassy areas around French Creek, Butte County.

Contia tenuis Sharp-tailed Snake

National Forest: Tahoe, Plumas (Map 7)

Habitat:

The Sharp-tailed snake occurs from the Blue Oak zone in the western foothills east to Douglas Fir forest. Stebbins (1954) describes *Contia* occurring in the Upper Sonoran and Transition Life-Zones. Stebbins (1985)

mentions that *Contia* occur in the openings on the edge of coniferous forest. Cook (1960) describes *Contia* inhabiting areas from the Upper Sonoran life zone extending into the coniferous forest in the low elevation marginal or ecotonal areas, and in Transitional regions, the species can be found in valley floors, meadows, and clearings which are associated with some Upper Sonoran vegetation, especially oaks. Surveys found this snake at higher elevations within coniferous forest than were previously expected. Specimens collected in the Golden Trout Crossing area were in small open areas within mid-elevation coniferous forest dominated by Douglas Fir, Incense Cedar (*Calocedrus decurrens*), Ponderosa Pine (*Pinus ponderosa*), and Black Oak (*Quercus kelloggii*).

Distribution:

The species is documented within the Plumas National Forest in Butte and Plumas Counties, and within the Tahoe National Forest only from Sierra County. Hayes and Cliff (1982) offer the upper elevation of *C. tenuis* as 2,300 ft in Butte County. One specimen (CAS 205652) was taken at 3,600 ft from 0.8 mi S (by forest road 22N24.5) of Golden Trout Crossing. *Contia* is locally common in the Golden Trout Crossing area at an elevation of 3,125 ft (see remarks). The species is found at elevations up to about 3,560 ft in Plumas County and to 3,480 ft in Sierra County.

Remarks:

At Golden Trout Crossing, seven specimens were found within a 100 m square area in old mine tailings covered with soil and leaf litter. Cook (1960) comments on the gregarious nature of the species with some aggregations consisting of about 40 individuals.

One specimen (CAS 205587) was found in the stomach of *Diadophis punctatus* (see remarks for *Diadophis punctatus*).

Crotalus viridis Western Rattlesnake

National Forest: Tahoe, Plumas (Map 8)

Habitat:

Crotalus is found in a variety of habitats, usually in areas of open canopy and rocky substrate such as talus or rocky slopes and mine tailings.

Distribution:

Crotalus is documented from all counties surrounding the forests except for Yuba County. Within the two forests, the species is only documented from Butte, Plumas and Sierra Counties. Their elevation range extends from the Central Valley at about 100 ft to 4800 ft in montane coniferous forest of Plumas County and to 5,000 ft in the Big Sagebrush habitat of eastern Plumas County. *Crotalus viridis* is reported to occur on the Sierra Buttes, Sierra County (M.M. Tierney 1997, pers. comm.), however, there are no specimen records to substantiate the sightings.

Diadophis punctatus Ringneck Snake

National Forest: Tahoe, Plumas (Map 9)

Habitat:

Hayes and Cliff (1982) mention that the distribution of *Diadophis* corresponds to the distribution of Bigleaf Maple (*Acer macrophyllum*) and California Bay (*Umbellularia californica*). *Diadophis* is usually not found in the open, preferring cover under bark, logs, stones etc. (Stebbins 1985). Several specimens were found in talus slopes along road cuts in Douglas Fir forest (CAS 205667, 205681, 205685, 206298). Specimens taken in the Milsap Bar area were also found under rocks along road cuts. Three specimens (CAS 205832-34) collected in the French Creek area were found under the same piece of fallen bark. In contrast, CAS 205831 was found crossing a dirt road during the day.

Distribution:

Diadophis is found in Butte, Plumas and Yuba Counties within the Plumas National Forest, and only in Sierra County within the Tahoe National Forest. Hayes and Cliff (1982) list the upper elevation for the species as 3,330 ft. for Butte County. We found specimens in adjacent Yuba and Plumas Counties at upper elevations of 3,800 ft and 3,500 ft, respectively.

Remarks:

Hayes and Cliff (1982) remark that *Diadophis* in Butte County has not been found in true sympatry with *Contia tenuis*. However, we obtained a specimen of *D. punctatus* (CAS 205586) from along Forest Rd 62, E of Milsap Bar, ca 2,000 ft, containing a freshly eaten *C. tenuis* (CAS 205587). Both species have also been found in the Berry Creek area (MVZ 13797; MVZ 15983).

Elgaria coerulea Northern Alligator Lizard

National Forest: Tahoe, Plumas (Map 10)

Habitat:

Within the study area, the general habitat of *Elgaria coerulea* is considered to be cool, moist localities from the upper Upper Sonoran to Canadian zones (Lais 1976a) and montane coniferous forests (Good 1988). A number of isolated populations have been found in Great Basin habitats (Vindum and Arnold 1997). These isolated populations suggest that *E. coerulea* may once have been more widely distributed in the now arid areas of the western Great Basin Desert (Vindum and Arnold 1997). CAS 206103 was found along Bird Creek at an elevation of 6,080 ft in Big Sagebrush and Jeffery Pine habitat.

Distribution:

Hayes and Cliff (1982) list the elevation distribution of this lizard within Butte County as over 3,000 ft. The lowest recorded elevation from within the study area is 2,000 ft in the French Creek area, Butte County (CAS 205973). The highest elevation for the species within the two forests is from above Robinsons Valley Creek, Placer County (CAS 206387) at an elevation of 6,800 ft. The maximum elevations tend to decrease with an increase in latitude; 6,800 ft in Placer County, 6,600 ft in Nevada County, 6,400 ft in Sierra County, 6,300 ft in Plumas County, and 6,260 ft in Lassen County.

The Bird Creek specimen extends the eastern distribution of the species about 48 km (29.8 mi) NE of the closest locality at Sulfur Creek (CAS 206128), and about 55 km (34.2 mi) E of localities in the Quincy area (MVZ 75880 and UMMZ 104994).

Remarks:

Hayes and Cliff (1982) only found *E. coerulea* and *E. multicaarinata* in sympatry in Butte Creek Canyon, Butte County. This year, we found the two species occurring together in the French Creek area at elevations between 2,000 and 2,200 ft.

Two specimens were found each containing seven embryos which were close to full term. CAS 203459 was collected on 20 August 1997, and CAS 206322 was collected on 2 October 1998. The difference in the timing of gestation may be due to the difference in elevation, and, in corollary, the body-temperatures which the females could achieve. The respective elevations were 3,600 and 4,920 ft.

Spencer et al. (1998) report on a new county record from Sierra County; this year, additional specimens were collected in Sierra County from four localities and up to an elevation of 6,400 ft.

Prior to this year's survey, *E. coerulea* has not been recorded from Yuba County. Five specimens were collected from five separate localities in the northeastern corner of Yuba County at elevations above 3,575 ft.

Elgaria multicaarinata Southern Alligator Lizard

National Forest: Tahoe, Plumas (Map 11)

Habitat:

Elgaria multicaarinata occurs mainly in oak woodland, chaparral and semi-desert (Good 1988) but may extend into mountains, associated with Ponderosa Pine, Black Oak, Bigleaf Maple, and Madrone (*Arbutus menziesii*) (Lais 1976b). It does not frequent dense coniferous forest (Lais 1976b).

Distribution:

E. multicaarinata ranges in elevation from the base (100 ft) of the Sierra foothills to 3,960 ft in Sierra County. The species is not recorded from Lassen or Plumas Counties but should occur at elevations under approximately 4,000 ft. *E. multicaarinata* occurs at lower elevations than *E. coerulea* but will overlap with *E. coerulea* at elevations between 2,000-4,000 ft along the western slope (see remarks section for *E. coerulea*).

Remarks:

CAS 202917 was collected in fairly dense Douglas Fir forest in New York Ravine, Sierra County, at an elevation of 3,120 ft.

Ensatina eschscholtzii *Ensatina*

National Forest: Tahoe, Plumas (Map 12)

Habitat:

Ensatina occurs in the Upper Sonoran and Transition life-zones along the western slope of the Sierra (Stebbins 1949). Specimens collected during our surveys were found in Ponderosa Pine and Douglas Fir forest.

Distribution:

Hayes and Cliff (1982) describe the western edge of its distribution as approximating the lower limit of the distribution of Ponderosa Pine. *Ensatina* may occur in shaded canyons down to elevations of 1,330 ft in Butte County (Hayes and Cliff 1982) The lowest elevation for documented specimens is from the Paradise area, Butte County, at an elevation of 1,700 ft. Within the surveyed areas, the highest elevation recorded is 5,320 ft from near the southern shore of French Meadows Reservoir, Placer County (CAS 206379-206380). *Ensatina* has not been found in the lower elevations of Plumas County where it should be present.

Remarks:

Ensatina and *Batrachoseps* are found in the same general area along Jack Creek, Butte County (see remarks for *Batrachoseps attenuatus*).

Eumeces gilberti Gilbert's Skink

National Forest: Tahoe

Habitat:

Mostly occurring in Blue Oak, Chaparral, and lower Ponderosa Pine forest, this species also occurs on the valley floor in some areas (Rodgers and Fitch 1947). *Eumeces gilberti* prefers areas of rocky substrate and depend on rocks for shelter. (Rodgers and Fitch 1947).

Distribution:

This skink inhabits the foothills of the Sierra to the northern limit of its distribution at the Yuba River, Yuba County (Jones 1985). Rodgers and Fitch (1947) offer the upper elevation for Yuba and Placer Counties as 2,500 ft. Since Rodgers and Fitch (1947) reported on the species, new specimens have been deposited in the MVZ collection (MVZ 45273-74) which were collected at elevations up to 4,000 ft in Nevada County.

Remarks:

No specimens were collected.

Eumeces skiltonianus Western Skink

National Forest: Tahoe, Plumas (Map 13)

Habitat:

Eumeces skiltonianus occupies a variety of habitats along the western slope of the Sierra. The majority of collections is from habitats between the central valley grasslands east to Ponderosa Pine forest and extending into Douglas Fir forest. The species is usually found in areas of open canopy such as grassy meadows or rocky slopes. *E. skiltonianus* is usually not found in heavy forested areas.

On the eastern side of the Sierra, the species can be found in Jeffery Pine forest and Big Sagebrush habitat where rocks and logs provide cover.

Distribution:

The species is fairly common along the western Sierran slope, mostly below Red Fir forest. Along the western slope, its elevation extends to about 5,200 ft. The species attains higher elevations on the eastern side of the Sierra reaching to at least 6,200 ft, however, its occurrence along the east side of the Sierra is based on few specimens. *Eumeces* is documented from Big Sagebrush-Jeffery Pine habitat from the following localities: 3.3 mi E of Genesee, Crocker Campground and Bird Creek in Plumas County, and from Sierraville and Cottonwood Creek, SE of Sierraville, Sierra County.

Hydromantes platycephalus Mount Lyell Salamander

National Forest: Tahoe

Habitat:

Jennings and Hayes (1994) describe appropriate habitat for *Hydromantes platycephalus* as within alpine or subalpine vegetation in and among rocky outcrops and scattered boulders almost always in the presence of water, either permanent or seasonal such as snow melt.

Distribution:

Within the Tahoe National Forest, the species is only found on the Sierra Buttes, Sierra County.

Remarks:

No specimen was collected as this area was not surveyed.

Hyla regilla Pacific Tree Frog

National Forest: Tahoe, Plumas (Map 14)

Habitat:

Hyla regilla occurs close to water sources in all vegetation types except for extreme alpine habitats. This frog breeds in vernal pools, marshes, lakes, ponds, roadside ditches, reservoirs, and slow streams (Stebbins 1985). The species can also be found along rivers in side pools left by earlier high water.

Distribution:

H. regilla occurs throughout both national forests. It has been found at elevations above 7,000 ft along the Sierran crest from Plumas to Placer County. The highest recorded elevation within the two forests is 8,300 ft in Nevada County.

Remarks:

Within the study area, there are few records from sagebrush areas east of the eastern slope of the Sierra. The lack of collections from this area is most likely due to inadequate sampling. Because the species is often ubiquitous, it is often overlooked in collecting efforts.

Lampropeltis zonata Mountain King Snake

National Forest: Tahoe, Plumas (Map 15)

Habitat:

Zweifel (1952, 1974) lists *Lampropeltis zonata* as mostly restricted to Ponderosa Pine forest, and that the species is a good indicator of the Transition life-zone within the Sierra Nevada.

Distribution:

Within the forests, the species occurs only along the western slope of the Sierra in mixed conifer forest. *L. zonata* has not been recorded from Lassen, Placer, or Yuba Counties, and only 15 specimens are documented in collections from the other four counties surrounding the forest. In Butte County, it ranges in elevation from 1,170 ft, in protected canyons, to 5,000 ft (Hayes and Cliff 1982). Based on museum records, the known elevation range is between 1,990 ft in Butte County to 4,320 ft in Plumas County.

Pituophis melanoleucus

Gopher Snake

National Forest: Tahoe, Plumas (Map 16)

Habitat:

Pituophis melanoleucus inhabits a variety of habitats up to the lower edge of Red Fir forest.

Distribution:

Except for Nevada and Yuba Counties, *Pituophis* is found within the forests from all other counties. Although fairly widespread in Big Sagebrush in eastern Lassen County, the species is only found from three localities from eastern Plumas and Sierra County.

Hayes and Cliff (1982) cite 6,000 ft as the upper elevation limit in Butte County. Based on museum records, the upper elevation of known localities is: 5,100 ft in Lassen County; 5,000 ft in Plumas County; and 5,040 ft in Sierra County.

Remarks:

Although no records exist, *Pituophis* is expected to occur in the Big Sagebrush-Jeffery Pine habitats of northeastern Plumas County (Beckwourth and Milford Ranger Districts).

Rana aurora Red-legged Frog

National Forest: Plumas (Map 17)

Habitat:

Rana aurora occurs within a variety of vegetation types. It prefers ponds or pools in slow-moving streams which have emergent and submergent vegetation as well as vegetation along the banks (Storer 1925). The largest populations are found in deep ponds with dense stands of overhanging willow and fringed with cattails (Jennings 1988).

Distribution:

Based on the collections queried, there are no historical voucher specimens of *R. aurora* from within the forest boundaries of either forest. The closest localities are: 3 mi N Bidwell Bar, Butte County; 0.5 mi NE of Dutch Flat, Placer County; and Michigan Bluff, Placer County. This year, a population of *R. aurora* was found at the Hughes Place pond (2,520 ft elevation). This site is on private land within the general borders of the Plumas National Forest. The highest elevation record from the western counties is 3,360 ft (MVZ 29314-16; 0.5 mi NE of Dutch Flat).

Remarks:

During surveys in the Howland Flat area (6 October 1998), a survey crew suspected sighting *R. aurora*. Frogs were not collected, but photographs were taken of two individuals, leaving a third, putative "*R. aurora*" unphotographed. Mark R. Jennings later identified the photographed individuals as *R. muscosa*. On 21 October 1998, the site was revisited for a night survey with members of the National Forest Service and U.S. Fish and Wildlife Service. This time, frogs were seen but none were caught for a positive identification. On 3 November 1998, the site was again visited. Only one frog was seen, a subadult *R. muscosa*.

Based on the photographs, the specimen collected on 3 November, and the unprecedented occurrence of *R. aurora* at 5,440 ft, we feel that the individuals seen on the earlier surveys are most likely *R. muscosa*. Until the site can be surveyed in the spring or early summer, we suggest that no management decisions be made based on the inconclusive and undocumented sightings.

Our surveys did not find any other populations of *R. aurora* in the Plumas National Forest. Of the ponds, reservoirs, and streams surveyed, few had suitable habitat to support populations of *R. aurora*. Two sites which appeared to be suitable (a small pond ca 200 m SW of the confluence of Bush Creek and French Creek as well as Pinchard Meadow) were surveyed several times both day and night without revealing any Red-legged frogs.

Rana boylei Foothill Yellow-legged Frog

National Forest: Tahoe, Plumas (Map 18, 19)

Habitat:

This frog occurs in a variety of habitats from chaparral-gray pine to montane coniferous forest. *Rana boylei* inhabits areas with moving water but tends to avoid areas with steep gradients (Zweifel 1955). In streams, this frog is found in stretches of open canopy and gravel substrate. In large streams or rivers, *R. boylei* tends to use side pools left by earlier high water or pools fed by smaller streams or seeps. Preferred sites include gravel, cobble-sized rocks, and large boulders (Zweifel 1955, 1968; Jennings 1988; Jennings and Hayes 1994).

Distribution:

Generally *R. boylei* is found under 5,000 ft along the western slope of the Sierra. In Plumas County the distribution extends east along the Last Chance Creek drainage to elevations of about 6,000 ft. In Butte County, it is found in most drainages east of the Central Valley floor at elevations as low as 250 ft (Hayes and Cliff 1982). In Yuba and Placer Counties, the lowest recorded elevations are 1,470 and 1,480 ft, respectively.

Remarks:

The distribution map in Jennings and Hayes (1994) for *R. boylei* indicates that populations still occur within the general region of the Tahoe and Plumas National Forests. However, in the distribution map presented by Jennings (1996), the distribution for the Foothill Yellow-legged frog indicates that the species is extinct along the western slope of Plumas, Sierra, Yuba, and Nevada Counties. Our surveys reveal that the species still occurs in some tributaries to most of the main drainages. Below, we summarize known (historical) drainages where *R. boylei* has been collected as well as localities which are now documented with voucher specimens from our surveys.

In the Plumas National Forest, *R. boylei* is found within four major drainages systems: along unnamed creeks crossing Forest Rd 62 between Milsap Bar and approximately 1.5 miles E of Milsap Bar (tributaries to the Middle Fork Feather River drainage); Oroleve Creek (tributary to the South Fork Feather River drainage); Spanish Creek above Meadow Valley (tributary to the East Branch North Fork Feather River drainage); and along Slate Creek above the Slate Creek Reservoir (tributary to Canyon Creek).

In the Tahoe National Forest, *R. boylei* is found in the following drainages: throughout the North Fork Yuba River from Fiddle Creek to Woodruff Creek; in Kanaka and Grizzly Creeks, Middle Fork Yuba River drainage; North Shirttail Creek, a tributary to the North Fork American River; and Skunk Canyon Creek draining into the North Fork of the Middle Fork of the American River.

DRAINAGES WHERE *RANA BOYLEI* HAVE BEEN RECORDED WITHIN THE PLUMAS NATIONAL FOREST
(* presence verified by specimens collected during 1998 surveys)

Middle Fork Feather River Drainage

- Little North Fork Feather River
- unnamed tributaries to Middle Fork Feather River,
- E of Milsap Bar*
- Onion Valley Creek

South Fork Feather River Drainage

- Oroleve Creek*

Canyon Creek Drainage

- Slate Creek*
- Onion Creek*

East Branch North Fork Feather River Drainage

- Meadow Valley (unnamed creek)
- Spanish Creek*
- Cooks Creek
- Last Chance Creek
- Rock Creek
- McNair Meadow (tributary to Sulfur Creek)
- Crocker or Clover Creek

Little Butte Creek

W Fork Feather River

DRAINAGES WHERE *RANA BOYLII* HAVE BEEN RECORDED WITHIN THE TAHOE NATIONAL FOREST
(* presence verified by specimens collected during 1997 and 1998 surveys)

North Yuba Drainage

North Yuba River*
Devils Canyon*
Fiddle Creek*
Humbug Creek*
Woodruff Creek (and western tributaries)*
Saint Catherine Creek*
Ramshorn Creek
Youngs Ravine*

Middle Yuba Drainage

Middle Yuba River
Kanaka Creek*
Grizzly Creek*
Moonshine Creek

North Fork Middle Fork American River

North Shirttail Creek*

South Yuba Drainage

South Yuba River*
Washington Creek
South Fork Poorman Creek
Poorman Creek

North Fork American River

Skunk Canyon Creek*

Rana catesbeiana Bullfrog

National Forest: Tahoe, Plumas (see Map 17)

Habitat:

The habitat requirements of *Rana catesbeiana* are similar to those of *R. aurora*, occurring in ponds, marshes, lakes, reservoirs, and slow-moving streams (Stebbins 1985).

Distribution:

This introduced species is recorded from all counties but Lassen County. It occurs throughout the western slope and has been collected from many localities within the Plumas National Forest. Although there are no voucher specimens from the Tahoe National Forest, bullfrogs have been sighted in Joubert Diggings in Sierra County (J.V. Vindum 1997, pers. obs). Despite the lack of museum records, the species most likely occurs throughout the Tahoe National Forest below elevations of approximately 5,000 ft. In the Plumas National Forest, it is found up to 4,400 ft in Sierra County.

Remarks:

Dense populations of *R. catesbeiana* are found at Snake and Smith Lakes in Plumas County.

Rana muscosa Mountain Yellow-legged Frog

National Forest: Tahoe, Plumas (Map 20)

Habitat:

Rana muscosa inhabits a variety of aquatic habitats, including streams, ponds, and lakes (Zweifel 1955; Mullally and Cunningham 1956). Preferred habitat includes streams with moderately rocky shorelines interspersed with vegetation (Mullally and Cunningham 1956). In high elevation streams which meander through meadows with vertical or overhanging banks, the densest populations of *R. muscosa* are in areas with banks of less than 10 inches in vertical height (Mullally and Cunningham 1956).

Distribution:

In the Sierra, Zweifel (1955) lists the lower limit in elevation as 4,500 ft at San Antonio Creek, Calaveras County. A newly documented locality (CAS 203170) from Pinkard Creek meadow, Butte County, extends the lower limit to 3,425 ft. The highest elevation record within the study area is 7,840 ft at Castle Creek, Round Valley, Nevada County (CSUC 1262-3). The species occurs within these elevations from Placer to central Plumas County. An isolated northern population occurs in northern Butte and Plumas Counties north of the low-lying canyon of the North Fork of the Feather River drainage. No specimens of the northern population have been found within the Plumas National Forest.

Jennings and Hayes (1994) list the northern limit of the southern population as in the vicinity of La Porte. However, their distribution map indicates the species occurring in central and north-central Plumas County. This study found one specimen from a left bank tributary to Rock Creek (CAS 206093), and a historical collection of five specimens (CSUC 1107-1111) from Big Grizzly Creek, Oroville-Quincy Highway.

Remarks:

Because specimens of the northern population are documented in Butt Creek, Plumas County, future surveys should include streams in the Mosquito Ridge area. Additional surveys should also be made east of the North Fork of the Feather River at elevations over 3,400 ft.

Sceloporus graciosus Sagebrush Lizard

National Forest: Tahoe, Plumas (Map 21)

Habitat:

Sceloporus graciosus occurs in most habitats from Ponderosa Pine forest to upper montane coniferous forest. Usually found in areas of open canopy, it tends to be more of a ground dweller than *S. occidentalis*, preferring habitats of sandy soil with widely scattered shrubs or rocks. The species is not found in dense forest.

Distribution:

S. graciosus can be found from the Sierra Nevada foothills from about 1,000 ft (Hayes and Cliff 1982) to mountain passes of 7,500 ft (CAS-SU 23276), and along the east side of the Sierra in Big Sagebrush habitat.

Remarks:

S. graciosus is sympatric with *S. occidentalis* throughout most of its distribution within the two forests except for elevations under 1,000 ft along the western foothills where the distribution of *S. graciosus* is spotty. At higher elevations, over 6,000 ft, *S. occidentalis* becomes sparse.

Sceloporus occidentalis Western Fence Lizard

National Forest: Tahoe, Plumas (Map 22)

Habitat:

Like *Sceloporus graciosus*, it occurs in most habitats within the forests but favors a lower elevation range. *S. occidentalis* favors areas of open canopy with rocks, fallen logs, trees, or other structures (i.e., old buildings, woodpiles). The species is infrequently found in dense forest.

Distribution:

S. occidentalis is found throughout the forests from the lowest western slopes to 6,768 ft in Placer County (SDSNH 20441). The species also occurs on the east side of the Sierra in Big Sagebrush habitat.

Taricha granulosa Rough-skinned Newt

National Forest: Plumas (Map 23)

Habitat:

Taricha granulosa occurs in the vicinity of low elevation streams, rivers, and reservoirs, which are used for breeding.

Distribution:

Hayes and Cliff (1982) record *T. granulosa* from drainages north of and including the Little West Branch of the Feather River. Within the study area, *T. granulosa* is only found in northern Butte County and only in the extreme western portions of the Plumas National Forest. The highest elevation recorded in the area is 3,880 ft from Little Butte Creek, 4.5 mi NNE of De Sabla. Specimens collected within or adjacent to the Plumas National Forest are documented from the base of Paradise Dam (CSUC 56-57); Little Butte Creek, 0.25 mi N of Magalia Reservoir (CSUC 54); and 100 ft and 0.5 mi downstream of Magalia Dam # 2 (CSUC 63 and 64, respectively).

Remarks:

T. granulosa is found in sympatry with *T. torosa* in the drainages of Butte Creek and the Little West Branch of the Feather River between 1,670 ft and 2,660 ft (Hayes and Cliff 1982). This survey did not collect any specimens.

Taricha torosa California Newt

National Forest: Tahoe, Plumas (Map 24)

Habitat:

The Sierran form of *Taricha torosa* is mainly a forest species (Riemer 1958). It can be found adjacent to and in streams, rivers, lakes, and reservoirs from the western foothills east through montane coniferous forest.

Distribution:

The species can be common along western drainages in Butte and Yuba Counties. *T. torosa* is not recorded from any drainages in Sierra County, and within the Tahoe National Forest, it is only documented at higher elevations in Nevada and Placer Counties. The upper elevation limits for the Sierran populations of *T. torosa* is at Laurel Lake above Hetch Hetchy, Tuolumne County, at an approximate elevation of 6,700 ft (Riemer 1958). In the Tahoe National Forest, *T. torosa* (CAS 203375) was found along the north shore of Bowman Lake at an elevation of 5600 ft.

Although Hayes and Cliff (1982) list the upper elevation as 2,660 ft in Butte County, museum specimens document elevations to 3,880 ft (CSUC) in Butte County and to 5,300 ft in Plumas County (CSUC 101). In Yuba County, the species is recorded in the Slate Creek area at 3,450 ft.

The species has not been collected east of the Sierran crest.

Remarks:

The California Newt occurs in sympatry with *T. granulosa* in Butte County (see remarks for *T. granulosa*).

Thamnophis couchii Sierra Garter Snake

National Forest: Tahoe, Plumas (Map 25)

Habitat:

Within the national forests, *Thamnophis couchii* is closely associated with aquatic environments in montane coniferous forest. In the western portion of its distribution, the species may occur along aquatic habitats within oak woodlands, grassy valleys, and chaparral (Rossman et al. 1996). It frequents streams, rivers, ponds, lakes, and reservoirs usually in areas with rocky substrate.

Distribution:

T. couchii's elevation range extends from 330 ft in west central Butte County (Hayes and Cliff 1982) to 6,720 ft at Tamarack Lake, Sierra County (CAS 205911).

Although widely listed as being present along the Sierra Nevada from the Pit and Sacramento Rivers south to the Tehachapi Mountains (Fitch 1940, 1984; Rossman and Stewart 1987; Rossman et al. 1996), the species is not documented from Yuba County except for one specimen with confusing locality data. CAS-SU 6309 is listed in the Stanford catalog as "near Strawberry Valley, Butte and Sierra Co. line." collected in 1899. Deciphering the exact locality is difficult given that Strawberry Valley is in Yuba County and the Butte County line is within a mile of Strawberry Valley. Six specimens were collected during the 1998 surveys from the following three localities in Yuba County: Gold Run Creek (CAS 205987 and 205989); Slate Creek (CAS 206293, 206300 and 206301); and Brushy Creek (CAS 205719). In the Plumas National Forest, *T. couchii* has not been found east of the eastern base of the Sierra Nevada. In Plumas County, *T. couchii* has not been found east of Grizzly Ridge.

In the Tahoe National Forest, *T. couchii* occurs along the Truckee River drainage extending east into Nevada (Fitch 1984; Rossman et al. 1996).

Remarks:

A large concentration of *T. couchii* was seen at Sly Creek Reservoir dam where 24 individuals were encountered in 1.5 hours. During the early morning and late afternoon, we observed up to 5 specimens basking on branches of a willow about 2 m above the water's surface.

Thamnophis elegans Western Terrestrial Garter Snake

National Forest: Tahoe, Plumas (Map 26)

Habitat:

Thamnophis elegans occurs in a variety of habitats throughout both forests. In the eastern portion of Plumas County, *T. elegans* tends to favor the margins of ponds and streams while being more terrestrial on the western slope of the Sierra Nevada. Within the forests, it frequents Ponderosa Pine, Douglas Fir, White and Red Fir, Aspen, Jeffery Pine, and Big Sagebrush habitats.

Distribution:

Along the western slope, the species is found as low as 200 ft, although it tends to be absent from the valley floor (Hayes and Cliff 1982). Hayes and Cliff (1982) offer the upper elevation of this snake within Butte County as 7,082 ft from Humboldt Peak, although no voucher specimens were found. We collected a specimen at an elevation of 7,032 ft from a small pond at the headwaters of Ferris Creek, Plumas County, in Aspen-Red Fir forest. Upper elevations exceed 6,500 ft for Sierra, Nevada, and Placer Counties.

Remarks:

Fitch (1940) asserts that *T. elegans* exhibits differential feeding habits in different parts of its range. Specifically, the Great Basin specimens prey more on aquatic animals (fish or leeches) whereas specimens along the western slope of the Sierra feed on terrestrial prey items. *T. elegans* in the Sagehen Creek area of the eastern Sierra is found by White and Kolb (1974) to feed mainly on fish and rodents. Although our sample size is small, stomach contents taken from the snakes with obvious stomach contents corroborate these earlier findings. Specimens collected along the western slope of the Sierra contained slugs (CAS 205560, 205668 and 205696), a juvenile northern alligator lizard, *Elgaria coerulea*, (CAS 205668), and an adult *Ensatina eschscholtzii* (CAS 205377). Two specimens (CAS 206104 and 206160) from the Dixie Mountain State Game Refuge area contained two trout (*Oncorhynchus* sp.) and a rodent (a subadult *Microtus* sp.), respectively. The trout collectively weighed 37.29 grams (after preservation) which was 55% of the weight of the garter snake (67.73 grams after preservation). *T. elegans* in the Dixie Mountain area are closely associated with streams and ponds. White and Kolb (1974) also find *T. elegans* in the Sagehen Creek area to be closely associated with streams.

Thamnophis sirtalis Common Garter Snake

National Forest: Tahoe, Plumas (Map 27)

Habitat:

Similar to *Thamnophis elegans*, *T. sirtalis* frequents a variety of habitats extending from the Central Valley to Red Fir forest. It seems to favor lentic habitats with emergent vegetation (Hayes and Cliff 1982).

Distribution:

T. sirtalis is found throughout both forests, including elevations up to 7,500 ft at Five Lakes, Placer County. The species is not documented from the eastern portion of Plumas National Forest. There are a few records from Sierra Valley, Plumas, and Sierra Counties, but no records exist from the eastern portions of the Tahoe National Forest in Sierra County.

SPECIES WHICH HAVE NOT BEEN FOUND WITHIN THE PLUMAS NATIONAL FOREST BOUNDARIES BUT MAY OCCUR.

Rana cascadae Cascade Frog

The southeastern distribution of the Cascade Frog is along the North Fork of the Feather River. Although many specimens are found along the upper reaches of right bank tributaries, *Rana cascadae* is not found within the Plumas National Forest. Efforts should be made to survey the drainages along the right bank of the North Fork Feather River from Yellow Creek to Butt Creek.

SPECIES WHICH HAVE NOT BEEN FOUND WITHIN THE TAHOE AND PLUMAS NATIONAL FOREST BOUNDARIES BUT MAY OCCUR.

Cnemidophorus tigris Western Whiptail

Although there are no museum records of *Cnemidophorus tigris* within the national forests, it may occur in both forests along the western and northeastern borders. This fast-moving lizard favors open areas such as chaparral and desert to semidesert including pine forests as long as the substrate is free of dense grass and shrubs (Stebbins 1985). On the western borders of the forests, the valley subspecies of *C. tigris* may extend into lower elevation canyons that extend into the national forests. On the northeast, the Great Basin subspecies could be expected on the lower elevation portions of the Plumas National Forest within Lassen County, along the western edge of the Great Basin.

Hypsiglena torquata Night Snake

Stebbins (1985) describes *Hypsiglena* as frequenting a variety of habitats including "grassland, chaparral, sagebrush flats, deserts, woodland, moist mountain meadows, thornscrub, and thornforest". The only museum records of *Hypsiglena* are found in outlying areas west of the national forests, which suggests that in contiguous habitats, it may occur within the national forests as well, particularly in lower elevation canyons and foothills. In Butte County, the closest record to Plumas National Forest is located 6 miles E of Oroville (MVZ 24118); in Placer County, the nearest record to Tahoe National Forest is from 2.5 mi WNW of Foresthill (MVZ 175434).

Lampropeltis getula Common Kingsnake

The distribution map for *Lampropeltis getula* in Stebbins (1985) clearly indicates the species is expected to occur throughout both national forests. However, Hayes and Cliff (1982) state that for Butte County the upper elevation limit of *L. getula* is 2,330 ft, and, in fact, is infrequent above 2,000 ft. This would limit the species to the extreme western portions of the Plumas and Tahoe National Forests.

Masticophis lateralis California Whipsnake

Masticophis lateralis is restricted west of the Sierra Nevada (Ortenburger 1928), favoring mainly chaparral, scrubbrush, and upland foothills (Stebbins 1985). Although no specimens have been collected within the national forests, previous specimens are known from localities just west of the Plumas National Forest in Butte County (CSUC 2290, 2.6 miles NE of Jarbo Gap on Hwy 70; and CSUC 2291, Forbestown Rd, E of Oroville, 3 miles from Lumpkin Rd junction).

Phrynosoma coronatum Coast Horned Lizard

Although the Coast Horned Lizard is most abundant in sandy loam soils and alkali flats, the species is also known from a variety of other habitats including riparian woodland clearings, chaparral, and exposed gravel-sand substrate with scattered shrubs (Jennings and Hayes 1994).

The distribution of *P. coronatum* extends north to northern Butte County along the foothills of the Sierra Nevada. Based on museum records, *P. coronatum* is not found in the Sierra foothills within the counties surrounding the national forests since 1952. Historically, they are recorded from: Auburn (USNM 13844, collected in 1884) and Colfax (CAS-SU 5832, no date available), Placer County; and 10 miles E of Chico (MVZ 16454, collected in 1933), near the junction of Forbestown Rd and Hwy 162 on Forbestown Rd (LACM 135281, no date available), Oroville (CSUC 137, no date available), and 13 miles E of Chico, Chico Canyon (CSUC 136, collected in 1952), Butte County.

Rana pipiens Northern Leopard Frog

Only two historical localities exist for this species within the counties surrounding the forests. In 1934, six specimens were found in Trout Creek, 2.5 mi W of stateline, Placer County (MVZ 17175-80) and one specimen was recorded in 1958 from 1 mi NE of Sierraville, Sierra County (CSUS 356). Aquatic habitats on the east side of the Sierra which have emergent or submergent vegetation should be surveyed for this frog, particularly areas such as Sierra Valley.

Spea intermontana Great Basin Spadefoot

Spea intermontana is associated with Big Sagebrush, Pinyon-Juniper woodlands, and alkali scrub habitats of the Great Basin (Stebbins 1985; Zeiner et al. 1988). It breeds in temporary and permanent water using pools, roadside ditches, irrigation ponds, and reservoirs (Nussbaum et al. 1983). Breeding usually takes place between May and July following spring or summer rains (Stebbins 1985). The species is primarily nocturnal, foraging on rainy nights or when the humidity is high (Nussbaum et al. 1983). Specimens collected in Lassen and Plumas Counties were all collected in June and July.

Specimens are known close to the Plumas National Forest at: 2 mi W of Red Rock Post Office, 5200 ft, Lassen County; Red Rock Post Office, 5200 ft, Lassen County; and 1 mi E of Vinton, 5000 ft, Plumas County. In northern Lassen County, the species is recorded at elevations to 5800 ft.

Night surveys should be conducted for this species during summer rains in eastern Sierra and Plumas Counties and the extreme southwestern portions of Lassen County.

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Table 1. Checklist Of Amphibian and Reptile Species Occurring in Plumas and Tahoe National Forests and Surrounding Counties.*

	Plumas NF	Tahoe NF	Butte Co.	Lassen Co.	Nevada Co.	Placer Co.	Plumas Co.	Sierra Co.	Yuba Co.
Amphibians									
<i>Ambystoma macrodactylum</i> **	X	X	X	X	X	X	X	X	
<i>Ambystoma tigrinum</i>			X						X
<i>Batrachoseps attenuatus</i> **	X		X						
<i>Batrachoseps diabolicus</i>	X	X	X	X	X	X	X	X	X
<i>Bufo boreas</i> **	X	X	X	X	X	X	X	X	X
<i>Ensatina eschscholtzii</i> **	X	X	X						
<i>Hydromantes platycephalus</i>	X	X	X	X	X	X	X	X	X
<i>Hyla regilla</i> **	X	X	X						
<i>Rana aurora</i> **	X	X	X	X	X	X	X	X	X
<i>Rana boylei</i> **	X	X	X	X	X	X	X	X	X
<i>Rana cascadae</i>									
<i>Rana catesbeiana</i> **	X	X†	X	X	X	X	X	X	
<i>Rana muscosa</i> **	X	X	X						
<i>Rana pipiens</i>			X						
<i>Spea hammondi</i>				X			X		
<i>Spea intermontana</i>									
<i>Taricha granulosa</i>	X	X	X				X		X
<i>Taricha torosa</i> **	X	X	X		X	X			
Reptiles									
<i>Charina bottae</i> **	X	X	X	X	X	X	X	X	X
<i>Clemmys marmorata</i>	X†		X						
<i>Cnemidophorus tigris</i>			X	X		X	X	X	X
<i>Coluber constrictor</i> **	X	X	X	X	X	X	X	X	
<i>Contia tenuis</i> **	X	X	X	X	X	X	X	X	
<i>Crotalus viridis</i> **	X	X	X	X	X	X	X	X	
<i>Crotaphytus bicinctores</i>									
<i>Diadophis punctatus</i> **	X	X	X	X	X	X	X	X	X
<i>Elgaria coerulea</i> **	X	X	X	X	X	X	X	X	X
<i>Elgaria multicarinata</i> **	X	X	X	X	X	X	X	X	X
<i>Eumeces gilberti</i>		X							
<i>Eumeces skiltonianus</i> **	X	X	X	X	X	X	X	X	X
<i>Gambelia wislizenii</i>			X	X			X		
<i>Hypsiglena torquata</i>			X			X			

Table 1. continued

	Plumas NF	Tahoe NF	Butte Co.	Lassen Co.	Nevada Co.	Placer Co.	Plumas Co.	Sierra Co.	Yuba Co.
Reptiles continued									
<i>Lampropeltis getulus</i>			X			X			X
<i>Lampropeltis zonata</i> **	X	X	X		X		X	X	
<i>Masticophis lateralis</i>			X		X	X			X
<i>Masticophis taeniatus</i>				X					
<i>Phrynosoma coronatum</i>			X			X			
<i>Phrynosoma douglasi</i>				X					
<i>Phrynosoma platyrhinos</i>				X					
<i>Pituophis melanoleucus</i> **	X	X	X	X	X	X	X	X	X
<i>Rhinocheilus lecontei</i>				X		X			
<i>Sceloporus graciosus</i> **	X	X	X	X	X	X	X	X	X
<i>Sceloporus occidentalis</i> **	X	X	X	X	X	X	X	X	X
<i>Thamnophis couchii</i> **	X	X	X	X	X	X	X	X	X
<i>Thamnophis elegans</i> **	X	X	X	X	X	X	X	X	X
<i>Thamnophis gigas</i>			X						
<i>Thamnophis sirtalis</i> **	X	X	X	X	X	X	X	X	X
<i>Uta stansburiana</i>				X					
Total Species	27	25							

*Based on 16 museum collections.

** Species collected during 1997 and 1998 surveys within the Tahoe and Plumas National Forests. Shaded cells are new county records based on voucher specimen(s) from 1998 surveys.

† Record based on verified sighting.

**APPENDIX A. Museum Collections Contacted for Relevant County Holdings, Museum Abbreviations,
and Number of Relevant Specimens.**

American Museum of Natural History	AMNH	30
Brigham Young University	BYU	--
California Academy of Sciences	CAS	312
including Stanford University Collection at CAS	CAS-SU	364
California State University, Chico	CSUC	2022
California State University, Sacramento	CSUS	17
Carnegie Museum of Natural History	CM	11
Field Museum of Natural History	FMNH	32
Kansas University	KU	1
Los Angeles County Natural History Museum	LACM	143
Museum of Comparative Zoology, Harvard University	MCZ	2
Museum of Vertebrate Zoology, University of California, Berkeley	MVZ	1874
Museum of Zoology, University of Michigan	UMMZ	58
National Museum of Natural History	USNM	69
San Diego Natural History Museum	SDSNH	58
Texas Memorial Museum, University of Texas, Austin	TNHC	--
University of Nevada, Las Vegas	UNLV	1
University of Nevada, Reno	UNR	8
University of Texas, Arlington	UTA	1

APPENDIX B. Water Courses and Bodies Surveyed in the Plumas National Forest, 1998.

Creeks	mi.	Ponds, Lakes, and Reservoirs	mi.
Jack Creek	1.2	Slate Creek Reservoir	0.2
Ram Creek	1.0	Poverty Hill Pond	0.1
Peavine Creek	0.8	Sly Creek Reservoir Spillway pond	0.1
Unnamed Creek (N of Peavine)	0.2	Sly Creek Reservoir	0.5
Bush Creek	0.5	Secret Diggings	0.2
French Creek	3.4	Snake Lake	2.4
Pinkard Creek	1.0	Smith Lake	1.2
Pinchard Creek	0.25	Williams Loop pond	1.0
South Branch Middle Fork Feather R.	0.6	Western Pacific pond	0.1
Rock Creek	2.4	Deanes Valley Campground pond	0.1
East Branch Rock Creek	1.0	Little Schneider Creek ponds	0.1
Little Schneider Creek	0.8	Schneider Creek ponds	0.1
Schneider Creek	0.5	Delahunty pond	0.1
Gold Run Creek	0.8	Duck Soup pond	0.1
Slate Creek	1.2	Howland Flat ponds	0.1
Brushy Creek	0.8		
Wapaunsie Creek	1.2		
Thompson Creek	0.25		
Greenhorn Creek	0.8		
Squirrel Creek	1.6		
Pine Creek	2.1		
Taylor Creek	2.0		
Taylor Creek (water supply)	0.8		
Rowland Creek	3.5		
Charles Creek	1.5		
Artray Creek	1.7		
Bird Creek	1.9		
Last Chance Creek	1.4		
Ferris Creek	2.4		
Sulphur Creek	2.4		
McNair Meadow Creek	0.5		
Spanish Creek	0.7		
Meadow Valley Creek	0.6		
Big Creek	1.0		
Poplar Creek	2.0		
Total miles of creek surveyed	44.8	Total miles of shoreline surveyed	6.4

APPENDIX B. Continued Water Courses and Bodies Surveyed in the Tahoe National Forest, 1998.

Creeks

Portions of North Fork Middle Fork
American River

North Shirttail Creek

Skunk Canyon Creek

Duncan Canyon Creek

Pagge Creek

Forbes Creek

McBride Creek

Tributaries to Middle Fork American River,
NE of French Meadows Reservoir

Sailor Canyon Creek

Lavezzola River

Portions of North Yuba River

Humbug Creek

St. Catherines Creek

Devils Canyon Creek

Salmon Creek

Church Creek

Sailor Ravine

Goodyears Creek

Cherokee Creek

Ponds, Lakes, and Reservoirs

French Meadows Reservoir, south shore

Sailor Meadow

Unnamed lake in vicinity of Sailor Meadows

Robinsons Flat

Snag Lake

Freeman Meadow

Tamarack Lake

Sailor Ravine

Packer Lake

Brandy City ponds

Pond at W Fork Carmen Creek (jct. FR 71)

APPENDIX C. Maps of Species Distribution in the Plumas and Tahoe National Forests

Map 1 shows collecting localities for the seven-counties surrounding the Plumas and Tahoe National Forests. Subsequent maps are arranged alphabetically by genus and species and are referenced in the Annotated Species Account. In most cases, the scale of the map includes both forests. Where appropriate, species distribution is shown for each National Forest separately. In all maps, the distribution data displayed are those occurring within the general boundaries of the national forest except where noted. Locality records from the 1998 survey are highlighted in red. Specimens collected prior to 1998 are shown in blue and the inclusive collecting dates for the specimens is given in the legend.

Base maps supplied by the U.S. Forest Service.