Yellow-Blotched Ensatina Salamander

Yellow-Blotched Salamander (*Ensatina eschscholtzii croceater*)

Management Status

Heritage Status Rank: G5T2T3S2S3

Federal: USDA Forest Service Region 5 Regional Forester's Sensitive Species

State: California Department of Fish and Game Species of Special Concern

Other: None

General Distribution

Yellow-blotched salamander is one of seven subspecies of *Ensatina eschscholtzii* that occur from British Columbia south to Baja California, primarily west of the Sierra-Cascade crest (Petranka 1998). The known range of yellow-blotched salamander is restricted to Kern and Ventura Counties and extends from the Piute Mountains southwest to the vicinity of Alamo Mountain (Jennings and Hayes 1994). The subspecies occurs in the Tehachapi Mountains and extends to the vicinity of Mount Pinos, Frazier Mountain, and Alamo Mountain (Jennings and Hayes 1994). Blotched ensatina salamanders found in the San Bernardino Mountains have color patterns similar to yellow-blotched salamander but appear to be genetically closer to *E. e. klauberi* (Wake and Schneider 1998). Subspecific status has not been definitively determined for these salamanders, but because of genetic similarity, they will be treated here as part of the *E. e. klauberi* subspecies. The absence of blotched ensatina salamanders in the San Gabriel Mountains has long been an enigma because there appears to be an extensive amount of suitable habitat there, and people continue to search for isolated, undiscovered populations (Wake and Schneider 1998).

Distribution in the Planning Area

Yellow-blotched salamanders are known to occur in the Tehachapi mountains and extends into the Los Padres National Forest in the vicinity of Mount Pinos, Frazier Mountain and Alamo Mountain (Jennings and Hayes 1994). Potential habitat close to the known range of this subspecies exists on Liebre and Sawmill Mountains on the Angeles National Forest (Stephenson and Calcarone 1999).

Systematics

Ensatina is a geographically and genetically variable taxon that has traditionally been treated as a single species with seven recognized subspecies. The subspecies include both blotched and unblotched color forms. *Ensatina* has also traditionally been treated as a "ring" species, whose subspecies form a ring-shaped distribution around the Central Valley of California and do not interbreed where the ends of the ring overlap in southern California (Stebbins 1949, Wake and Yanev 1986).

Natural History

Habitat Requirements

Yellow-blotched salamanders occur in open woodlands dominated by black oak (*Quercus kelloggii),* blue oak *(Q. douglasii*), and gray pine (*Pinus sabiniana*) and in open forests dominated by Jeffrey pine (*P. jeffreyi*), ponderosa pine (*P. ponderosa),* and white fir (*Abies concolor*). They are also common in canyons among litter and debris from canyon live oaks (*Q. chrysolepis*) and extend onto slopes supporting California scrub oaks (*Q. dumosa*) and deerbrush (*Ceanothus sp.)* (Jennings and Hayes 1994). Colonies of *Ensatina* salamanders seem best developed in marginal belts between dense and sparse vegetation, that is, in "edge" situations (Stebbins 1951). Downed logs, leaf litter, and woody debris appear to be important habitat elements (Stebbins 1951). *Ensatinas* are commonly found in areas with considerable leaf litter, which serves as an insulating blanket to help conserve moisture and to buffer temperature fluctuations (Stebbins 1951).

Populations of ensatinas in drier regions of southern California primarily occur on north-facing slopes of deep canyons and in other microhabitats that provide cool, moist conditions. *Ensatinas* are frequently found near streams where soils are relatively moist, or in shaded, moist habitats where there is good canopy cover (Stebbins 1945, 1951).

Reproduction

If yellow-blotched salamander conforms to the patterns of other *Ensatina* salamanders, mating occurs in February and March. The male and female perform a complex mating ritual that results in the female picking up a spermatophore (Stebbins 1951). Females oviposit in late spring in central and southern coastal populations, and in early summer in northern coastal areas (Norman 1986) and higher elevation sites in the Sierra Nevada (Stebbins 1951). Each female lays a single cluster of eggs in an underground passage, beneath bark, or in or beneath logs. The female stays with the eggs, protecting them from drying and from other animals. The young hatch in the fall and must soon fend for themselves (Stebbins 1959).

Daily/Seasonal Activity

The species is nocturnal and difficult to see near the surface, so it could be more widespread than current data suggest. Juveniles and adults are most active when the ground is wet and temperatures are

moderate (Stebbins 1951, Storer 1925). *Ensatinas* remain underground throughout the dry summer in most areas of their range and can tolerate substantial dehydration (Stebbins 1945). During dry weather, they tend to frequent holes in the ground such as rodent burrows, rotted-out root channels, and openings among rocks (Stebbins 1951). Except in areas where severe winter weather occurs, ensatinas emerge with the first rains of autumn and are active on the ground through spring. Surface activity is highest immediately following rains and continues while temperature and moisture conditions are favorable (Stebbins 1951).

Diet and Foraging

Insects, spiders, crustaceans, and earthworms that occur in and beneath the leaf litter serve as food for these salamanders. Most feeding occurs above ground when the surface is damp and temperatures are not too high (Stebbins 1951). The principle prey of 45 specimens from southern California were isopods, centipedes, spiders, collembolans, and beetles (Zweifel 1949).

Territoriality/Home Range

Movements of *Ensatina* salamanders were found to be quite localized in the Berkeley hills of California. Females were more sedentary and males were more mobile. On average, adult males tended to move about twice as far as females. The average distance moved was 66 feet (20 meters) for mature males and 33 feet (10 meters) for mature females. The home ranges of females were 20-75 feet (6–23 meters) in greatest dimension; the home ranges of males were 33–135 feet (10–41 meters) (Stebbins and Cohen 1995). Stebbins (1951) reported no indication of territorial behavior in *Ensatina* salamanders. However, Wiltenmuth (1996) reported territorial behavior in *Ensatinas* in the laboratory (see below).

Predator-Prey Relations

Garter snakes (*Thamnophis sp.)* and Steller's jays (*Cyanocitta cristata)* prey upon *Ensatinas* (Beneski 1989, Stebbins 1954). Snakes often gape repeatedly after eating or attempting to eat ensatinas, a behavior suggesting that the tail secretions are distasteful and serve to repel potential predators (Storer 1925).

Inter- and Intra-Specific Interactions

Laboratory observations of staged encounters between residents and intruders from four California populations representing three subspecies (*E. e. oregonensis*, *E. e. platensis,* and *E. e. xanthoptica*) suggest that *Ensatinas* are territorial outside the breeding season (Wiltenmuth 1996). When same-sex, similar-sized intruders from the same population were introduced into resident containers, residents were more aggressive than intruders and resident males were more than four times as aggressive as resident females. Resident salamanders presumably mark their territories with fecal material and/or cloacal secretions, and intruders orient to these and the resident's presence by frequent nose-tapping (Wiltenmuth 1996).

Population and/or Habitat Status and Trends

On National Forest System Lands/Beyond National Forest System Lands

Very little has been reported on the population dynamics of *Ensatina* salamanders. A better understanding of the local and geographic trend of this taxon is needed (Jennings and Hayes 1994).

Threats and Conservation Considerations

Yellow-blotched salamanders have a limited range and may be more vulnerable to catastrophic loss of entire populations than more widely distributed taxa. Proposed development and modification of land use practices in the Tehachapi Mountains could threaten a significant portion of the taxon's range. Significant development occurred from the mid-1980s to the mid-1990s in the Tehachapi Mountains, Cummings Valley, and Bear Valley areas south of Highway 58. Tejon Ranch Company, probably the largest landowner in this area, has conducted extensive woodcutting operations and opened various areas for hunting, camping, agriculture, mining, and potential investment. Existing and planned development in these areas has largely focused on oak woodlands, perhaps the most important habitat used by yellow-blotched salamanders (Jennings and Hayes 1994).

These salamanders are affected by habitat losses resulting from development on private lands, but are not considered to be particularly vulnerable to prevailing land use activities on public lands. Over-collection of standing trees and downed logs in oak-conifer forests can be a problem near roads, and likely reduces habitat quality for this taxon (Stephenson and Calcarone 1999). Surveys are needed to determine if yellow-blotched salamander is present on Liebre or Sawmill Mountains in the Angeles National Forest.

The following is a list of conservation practices that should be considered for the yellow-blotched salamander:

- Retain down logs and snags as replacement habitat.
- Restrict vehicles to designated roads to reduce impacts from fuelwood gathering.
- Conduct surveys in the Liebre and Sawmill Mountains on the Angeles National Forest to determine presence or absence.
- Conduct fuels treatment where needed and feasible to help prevent high intensity wildland fire.

Evaluation of Current Situation and Threats on National Forest System Lands

Yellow-blotched salamanders are found in a variety of montane forest, woodland, and shrub habitats. They seem to prefer deep canyons with cool moist conditions and don't seem to be particularly vulnerable to Forest Service activities. Most of the impacts are on private lands, resulting from development. Fuelwood gathering adjacent to roads is a concern, but road density is low in known and

suspected habitat. Vehicles are generally required to stay on roads, so the impact of incidental fuelwood gathering is localized near roads.

Based upon the above analysis this species has been assigned the following threat category:

> 4. Disjunct in the Plan area with no substantial threats to persistence or distribution from Forest Service activities.

Viability Outcome Statement

Though the yellow-blotched salamander is disjunct within its geographic range and often occurs in inaccessible habitats, there are some impacts that could occur to undetected occurrences from grazing and recreation use. The direct and indirect effects from national forest management activities on species-at-risk, by alternative, are described in the FEIS. As described above (Evaluation of Current Situation and Threats), there are no substantial threats to the distribution or persistence of the yellow-blotched salamander. Variations in land use designations would not alter this current situation and the various emphases of the alternatives would not result in a substantial change in conditions for the yellow-blotched salamander except, possibly, for undetected occurrences of the yellow-blotched salamander. The yellow-blotched salamander would remain generally well distributed across its current geographic range on National Forest System lands under all alternatives. By maintaining the current distribution of the yellow-blotched salamander on National Forest System lands, no alternatives are expected to contribute substantial adverse cumulative effects that would cause the yellow-blotched salamander to suffer a decline in its overall distribution.

Yellow-blotched salamanders are a USDA, Region 5 Forest Service, Sensitive Species. This assures that any new project proposed in or near its habitat has to undergo a careful analysis of effects through the development of a biological evaluation at the site-specific level.

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