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FIVE YEAR STATUS REPORT

I. COMMON NAME: Southern Rubber Boa
SCIENTIFIC NAME: Charina bottae umbratica
CURRENT CLASSIFICATION: Threatened

II. RECOMMENDED ACTION: Retain Threatened classification.

III. SUMMARY OF REASONS FOR RECOMMENDED ACTION:

Knowledge about the distribution and abundance of the southern rubber boa (SRB) is incomplete. Accelerated activities on public lands, and increased development pressures on private lands could destroy or seriously degrade both known and potential SRB habitat.

SUPPORTING INFORMATION

IV. NATURE AND DEGREE OF THREAT:

Recently, there has been much concern about the status of this species due to accelerating residential, commercial, and recreational development in the San Bernardino Mountains. Increasing levels of activity by off-highway vehicles (OHV) and fuel wood harvesters in the San Bernardino National Forest may seriously degrade or destroy SRB habitat. Timber harvest activities also may cause degradation or destruction of habitat (Stewart 1985). Land exchanges between the National Forest and private property owners could result in the loss of additional habitat (Keasler 1981).

Accelerated development on private lands which are known or potential SRB habitat is also a concern. There is some question as to how well SRB survive around human habitation. People living in areas where SRB exist seldom see them because they are so secretive. Domestic cats may prey on SRB occasionally; however, a more serious problem of human encroachment is the clearing of surface debris, especially smaller clumped and scattered rocks. SRB's seem to prefer these smaller rocks to the larger rock outcrops once spring emergence is underway. Throughout the active season (April-October), surface objects (rocks, logs, etc.) and forest litter provide important cover. Another problem associated with human encroachment may be roadway mortality. Because such mortality is limited to those few days of the year when SRB are active on the surface, its impact has not been assessed (Keasler 1981).

V. HISTORIC AND CURRENT DISTRIBUTION:

Historic

The fossil record for the rubber boas is meager, but Miocene samples described as Charina prebottae have been discovered in

California (Stewart 1976). Rubber boas apparently have changed little since the Miocene and have maintained a distribution primarily associated with derivatives of the Arcto-Tertiary flora, i.e. conifers and deciduous hardwoods.

With the uplift of the Transverse Ranges (Santa Monica, San Gabriel, and San Bernardinos mountains) during the Pliocene and Pleistocene (Hill 1930, Axelrod 1967), rubber boas probably dispersed into southern California from the Sierra Nevada Range. During the glacial advances of the Pleistocene, appropriate vegetation and climatic regimes (Axelrod 1966) probably permitted rubber boas to live at elevations of less than 3,000 ft. At such times, their distribution may have been essentially continuous throughout the chain of mountains from the Sierra Nevada to the San Jacinto Mountains, and perhaps further south. Dry interglacial periods forced them to retreat to higher elevations where cool, moist environments remained. If SRB do not occur in the San Gabriel Mountains, it is likely that they died out in the Xerothermic Period between 8,000 to 3,000 years ago (Axelrod 1967).

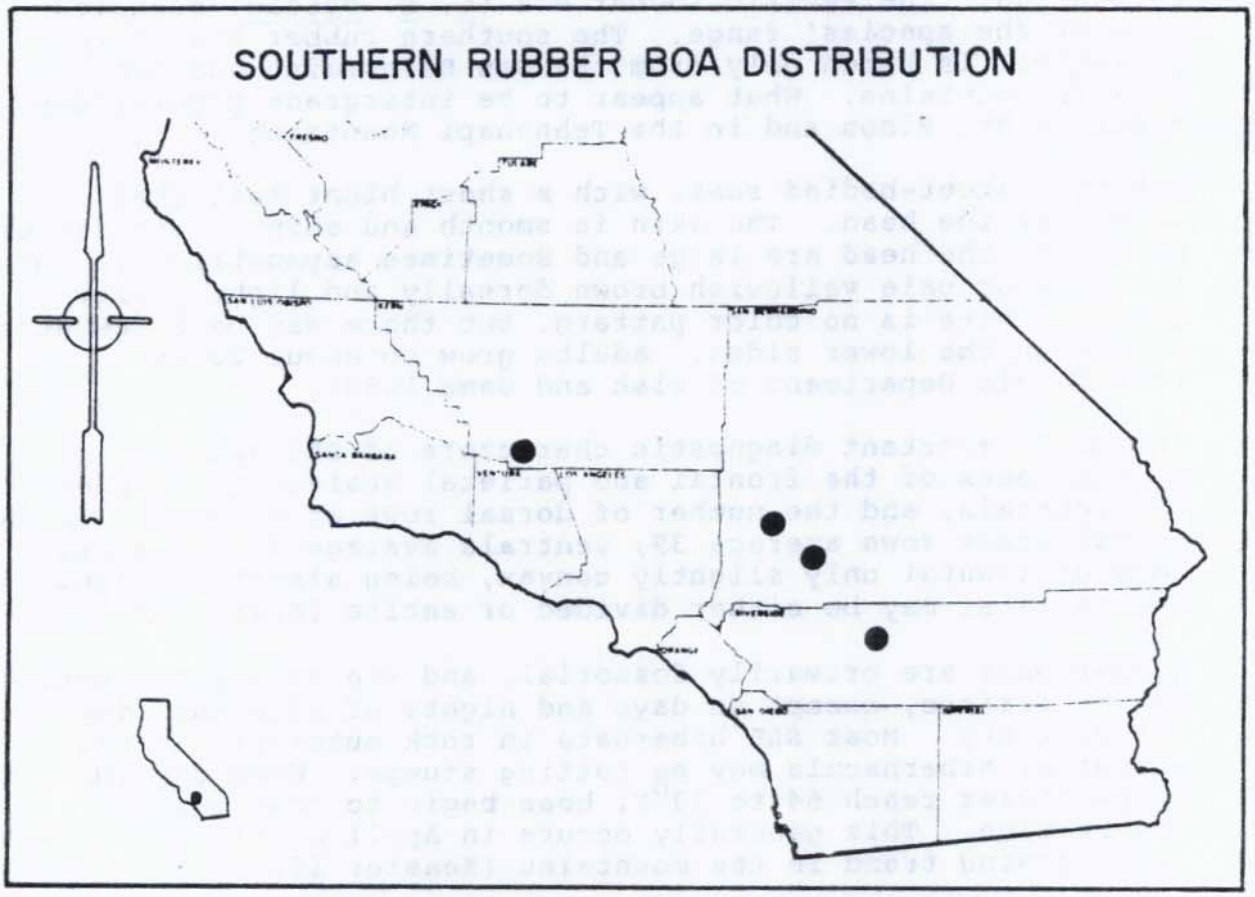
Current

The SRB is apparently restricted to the San Bernardino and San Jacinto mountains (Figure 1). An intergrade population (Charina bottae bottae x Charina bottae umbratica) is recognized in the Mt. Pinos and Tehachapi Mountain areas (Stewart 1977). The relationships among the various populations of rubber boas are poorly understood.

The SRB has been documented at 43 localities (35 in the San Bernardino Mountains, and eight in the San Jacinto Mountains). Most of these localities (19 in the San Bernardino Mountains and three in the San Jacinto Mountains) are on private property. Fifteen of the San Bernardino Mountain localities are between Rim Forest and Little Green Valley. This area comprises a 10 mi long belt of forested and riparian habitats on the crest and north slope of a west-east trending ridge. The elevation at which SRB are found ranges from 5,100 to 7,000 ft (Stewart 1985).

Keasler (1981) found that the SRB tends to have clumped distribution with areas of apparently unoccupied but suitable habitat intervening between known populations. While Keasler (1982) identified several extensive areas of potential habitat on National Forest lands, most of these areas have not been searched for SRB. Particularly important in this respect are the areas west and south of the San Gorgonio Wilderness, the area west of Onyx Summit, and the area south of Big Bear Lake (Stewart 1985).

FIGURE 1



At The Crossroads, 1980. Calif. Dep. of Fish and Game.

VI. HISTORIC AND CURRENT ABUNDANCE:

The historic and current abundance of SRB is not known. Recent improvements in collection techniques have greatly enhanced the ability to locate SRB, but even with optimum conditions SRB are difficult to find. The SRB is probably rare in recent times due to habitat fragmentation and isolation caused by geological and climatic changes.

VII. SPECIES DESCRIPTION AND BIOLOGY:

The rubber boa (Charina bottae) is one of two members of the boa family represented in the United States; the other being the rosy boa (Lichanura trivirgata). Stewart (1977) summarized much of the literature on the rubber boa and reviewed the status of its subspecies. Two subspecies presently are recognized. The Pacific rubber boa (C. b. bottae) occupies most of the species' range. The southern rubber boa (C. b. umbratica) is known only from the San Bernardino and San Jacinto mountains. What appear to be intergrade populations occur on Mt. Pinos and in the Tehachapi Mountains.

SRB is a stout-bodied snake with a short blunt tail that resembles the head. The skin is smooth and shiny. The scales on top of the head are large and sometimes asymmetrical. Color is olive or pale yellowish brown dorsally and light yellow below. There is no color pattern, but there may be a few dusky flecks on the lower sides. Adults grow to about 20 in (California Department of Fish and Game 1980).

The most important diagnostic characters of SRB are the arrangements of the frontal and parietal scales, the numbers of the ventrals, and the number of dorsal rows at midbody. In SRB dorsal scale rows average 39; ventrals average 191; posterior edge of frontal only slightly convex, being almost straight and parietal may be either divided or entire (Erwin 1974).

Rubber boas are primarily fossorial, and are rarely encountered on the surface, except on days and nights of high humidity and overcast sky. Most SRB hibernate in rock outcrops. Other potential hibernacula may be rotting stumps. When daytime air temperatures reach 64 to 70°F, boas begin to come out of hibernation. This generally occurs in April or May when there is a warming trend in the mountains (Keasler 1981).

VIII. HABITAT REQUIREMENTS:

Many reports in the literature (Stebbins 1954, Nussbaum and Hoyer 1974, Stewart 1977) suggest that the SRB prefers mixed conifer-oak forests and woodlands between 5,000 and 8,000 ft in elevation, especially in canyons and on cool, north facing slopes.

Several SRB in the San Bernardino Mountains have been found on dry, south facing slopes where little or no forest canopy is available. This is an indication that SRB may not be as dependent on these cool, moist forests as previously believed. The factors of overriding importance in all cases seem to be access to hibernation sites below the frost line and access to damp soil (Keasler 1981).

IX. CURRENT AND RECOMMENDED MANAGEMENT:

Because of concern about accelerating development pressures in the San Bernardino Mountains, and the lack of information on the occurrence of the SRB elsewhere, a group of interested biologists formed the Southern Rubber Boa Advisory Committee (SRBAC) in 1980. SRBAC's members represent local, state and federal agencies, and the academic community. SRBAC's purposes are to determine more precisely the distribution and habitat requirements of the SRB, to evaluate habitat areas, to review actions that may affect habitat, to assess the degree of endangerment of the SRB, and to assist in developing a habitat management plan (Stewart 1985).

The Department has recommended that the Wildlife Conservation Board accept a conservation easement on a 242-acre tract of private land occupied by SRB in the San Bernardino Mountains. This land formerly was owned by the U. S. Forest Service, but was exchanged for private land elsewhere.

It is recommended that further distribution studies be performed in potential SRB habitat. Further information is needed with regards to adverse impacts caused by OHV and fuel wood harvesting on public lands. The impacts of further growth and development on private lands containing SRB habitat should also be analyzed. In addition, more information on systematics, life history, movements, habitat relationships and population dynamics is needed.

A study of the systematics of the SRB is presently being conducted by a graduate student under the supervision of Dr. Glenn R. Stewart at Cal Poly University, Pomona. It is anticipated that a field survey and ecological study will be undertaken in the Snow Summit area near Big Bear Lake in the spring of 1987.

Until further studies are completed, the following management practices should be followed on Forest Service lands (Loe 1985):

- Maintain well distributed, nonisolated viable populations.
- Reforest areas where wildfire has converted forested areas to brush.

- Retain corridors of brush or forest to provide for movement of boas between rock outcrops and drainages.

- Retain cover along drainages and around rock outcrops.

- Plant native vegetation, striving for mixed species composition including hardwoods and conifers.

- Restrict OHV use to designated roads or trails.

- Prohibit OHV use in riparian areas.

- Monitor OHV damage to SRB habitat.

- Enforce fuelwood cutting regulations, prohibit fuelwood gathering in important SRB areas.

- Retain adequate numbers of downed logs and snags.

- Manage timber stands to perpetuate mixed species composition.

- Exclude seeps, springs and riparian areas from prescribed burns.

- Leave slash piles for cover in timber sale site preparation.

- Protect rock outcrops, springs, seeps and riparian areas from mechanical disturbance.

In addition to these measures, the Department should acquire key habitat on private land whenever possible to prevent development of the land and resulting SRB habitat destruction and/or degradation.

X. Information sources:

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