FIVE YEAR STATUS REPORT

I. COMMON NAME: Giant Garter Snake
SCIENTIFIC NAME: Thamnophis couchi gigas
CURRENT CLASSIFICATION: Threatened

II. RECOMMENDED ACTION:

Retain Threatened classification.

III. SUMMARY OF REASONS FOR RECOMMENDED ACTION:

The giant garter snake (GGS) is threatened by human activities in the Central Valley. Expanding urbanization and agricultural development and the continuing threat of introduced predators and competitors threaten not only the GGS but its habitat as well.

SUPPORTING INFORMATION

IV. NATURE AND DEGREE OF THREAT:

As a result of man's activities, the GGS and its supporting habitat are depleted throughout its range. In addition, the habitat is degraded or threatened in those areas that still support this species.

Urbanization, including housing, business, industrial and recreational developments, causes the destruction of wetlands and channelization of streams, both essential GGS habitat. Other impacts of urbanization include pollution, destruction of food sources, predation by native and introduced species and removal by collectors (Hansen 1987).

Many agricultural practices are detrimental to GGS. GGS are lost during tilling, grading, harvesting and other operations of mechanical equipment within supporting habitats through both direct injury and through exposure to predators and other stresses related to loss of shelter. GGS habitat loses its protective plant cover and its ability to support GGS when exposed to heavy grazing. Soil compaction results in the destruction of underground and aquatic retreats, thereby eliminating shelter for the GGS. The effects of exposure to agricultural pest control and mosquito abatement measures (both of which historically applied large quantities of DDT and other chemicals) remain unknown. Weed abatement and rodent control measures, especially along canal or stream banks, destroy both surface and underground shelter (Hansen 1987).

Man's activities have resulted in widespread introductions of non-native species and redistributions of native species with the potential to compete with or prey on GGS. Cogeners such as the terrestrial garter snake and the Valley garter snake and a host of other animals such as skunks, raccoons and housecats

now have access to the diminishing GGS aquatic or semiaquatic habitat. Man has introduced large predatory "game fish" into many permanent freshwater environments within the range of the GGS. These species prey on GGS and compete with them for smaller forage fish (Hansen 1987).

Modern flood control practices affect GGS by enabling man to expand his activities throughout GGS habitat (Hansen 1987).

V. HISTORIC AND CURRENT DISTRIBUTION:

Historic

Fitch (1949) described the original range of the GGS as the Central Valley from the vicinity of Sacramento and Antioch southward to Buena Vista Lake near Bakersfield. Fox (1951) indicated that intergrades between the GGS and a closely related subspecies may occur in the Sacramento Valley as far north as Gridley, Butte County (Hansen and Brode 1980, Hansen 1987).

Current

By 1971, much of the wetland habitat in the valley had been reclaimed for other uses (especially agricultural development) eliminating the GGS from the southern San Joaquin Valley. It is presently found in disjunct populations along sloughs and marshes from Burell, Fresno County north through the Central Valley to 7 miles south of Chico (Figure 1) (Hansen 1987, telephone conversation of 13 May 1987 with Dr. Doug A. Rossman).

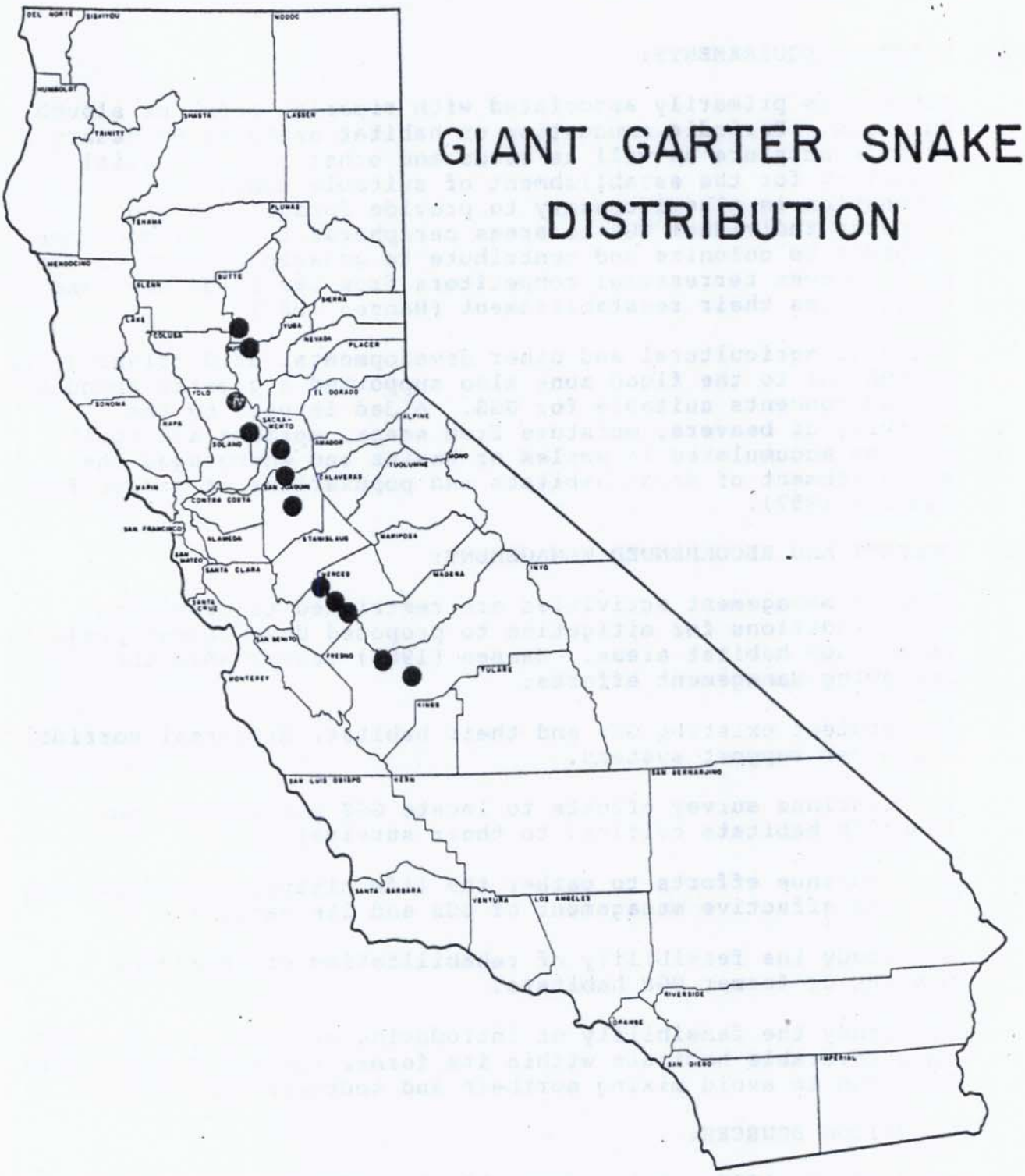
VI. HISTORIC AND CURRENT ABUNDANCE:

The GGS is an elusive snake, and abundance information is not available. However, the GGS appears to have been extirpated from the southern portion of its range, and GGS habitats continue to be depleted (Hansen 1987).

VII. SPECIES DESCRIPTION AND BIOLOGY:

The GGS is a very large garter snake, total length occasionally exceeding 4 1/2 feet. It has as elongate head with a pointed muzzle. Its color is dull brown, with a checkered pattern of well separated black spots, a dull yellow mid-dorsal stripe, often fading and with irregular margins posteriorly. Lateral stripes are frequently indistinct or lacking, the venter is brown, supralabial scales dull brown and usually lacking distinct wedge marks. The maximum number of dorsal scale rows is usually 23, supralabial scales eight, infralabial scales 10 or 11 on each side (Van Denburgh and Slevin 1918, Fitch 1940, Stebbins 1985).

FIGURE 1



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

(July 1983)

VIII. HABITAT REQUIREMENTS:

The GGS is primarily associated with riparian marsh or slough habitats. Periodic inundation of habitat areas is necessary to provide moisture as well as seeds and other plant material necessary for the establishment of suitable habitat. Inundation is also necessary to provide forage fish and disperse individual GGS to areas peripheral to the flood zone in order to colonize and contribute to genetic variation. It also removes terrestrial competitors from the flood zone and discourages their reestablishment (Hansen 1987).

Prior to agricultural and other developments, arid upland areas peripheral to the flood zone also supported a greater abundance of environments suitable for GGS. Aided in part by the activity of beavers, moisture from seeps, springs and small streams accumulated in swales or basins and encouraged the establishment of marsh habitats and populations of forage fish (Hansen 1987).

IX. CURRENT AND RECOMMENDED MANAGEMENT:

Present management activities are restricted to providing recommendations for mitigation to proposed development projects within GGS habitat areas. Hansen (1987) recommended the following management efforts:

1. Protect existing GGS and their habitat, dispersal corridors and other support systems.

2. Continue survey efforts to locate GGS populations and identify habitats critical to their survival.

3. Continue efforts to gather the life history data necessary for the effective management of GGS and its habitat.

4. Study the feasibility of rehabilitating or enhancing present or former GGS habitats.

5. Study the feasibility of introducing or reintroducing GGS into favorable habitats within its former range. Caution must be taken to avoid mixing northern and southern populations.

X. INFORMATION SOURCES:

Fitch, H. S. 1940. A biogeographical study of the ordinoides artenkreis of garter snakes (genus Thamnophis). Univ. Calif. Publ. Zool. 44: 1-150.

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Hansen, G. E. 1987. Status of the giant garter snake Thamnophis couchi gigas (Fitch) in the southern Sacramento Valley during 1986. Final report for California Department of Fish and Game, Standard Agreement No. C-1433.

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Stebbins, R. C. 1985. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Co., Boston. 336 pp.

Van Denburgh, J. and J. R. Slevin. 1918. The garter snakes of western North America. Proc. Calif. Acad. Sci. 8: 181-270.

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