



United States Department of the Interior

FISH AND WILDLIFE SERVICE
 Ecological Services
 Sacramento Field Office
 2800 Cottage Way, Room E-1801
 Sacramento, California 95825-1845

In Reply Refer To:
 L-1:94-F-13

March 11, 1994

District Engineer
 U.S. Army Corps of Engineers
 Regulatory Branch (Attention: Tom Kavanaugh)
 1325 J Street
 Sacramento, California 95814-1922

Subject: Endangered Species Act Consultation on the Revised Natomas Area
 Flood Control Improvement Project (PN 199200719) in Sacramento
 and Sutter Counties, California

Dear Sir:

This responds to your request of January 21, 1994, for initiation of formal consultation pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act), on the proposed provision of 200-year flood protection for the lower American Basin. Your request was received by the U.S. Fish and Wildlife Service (Service) on January 25, 1994. At issue are the effects of the proposed project on the giant garter snake (*Thamnophis gigas*), listed as a threatened species by the State and Federal governments.

This biological opinion is based on the public notice for this project, numerous environmental documents prepared under the National Environmental Policy Act and California Environmental Quality Act, and other scientific and commercial information in Service files.

Biological Opinion

It is our biological opinion that the proposed Revised Natomas Area Flood Control Improvement Project, together with the five proposed permit conditions described in the Corps' letter dated January 21, 1994, is not likely to jeopardize the continued existence of the giant garter snake. Critical habitat has not been designated for this species; therefore, none will be adversely modified or destroyed.

Description of the Proposed Action

Please refer to the public notice (PN 199200719) for a description of the construction related details of the proposed project. In brief, the Sacramento Area Flood Control Agency (SAFCA) proposes to improve levee systems needed to provide 200-year flood protection to the 55,000-acre lower American

(Natomas) Basin. Your January 21, 1994, request for consultation included a list of five special conditions proposed for inclusion as part of any permit issued for the proposed project: three conditions designed to avoid, minimize, and offset the direct effects of project construction on the garter snake, and two conditions that would offset the indirect effects of the proposed flood control project. By mutual agreement, the Corps and Service consider these permit conditions to be part of the project proposal. Please refer to the Incidental Take section below for more details on conditional language to be included in any Department of the Army authorization of the proposed project.

To avoid, minimize, and offset the direct effects of the proposed project on the giant garter snake, the Corps proposed three permit conditions to supplement the applicant's proposed Wetland Mitigation Plan, dated June 1993. These three permit conditions, as described by letter dated January 21, 1994, would (1) require preconstruction surveys for the giant garter snake, (2) include measures to minimize the extent of incidental take, and (3) compensate for any direct losses of giant garter snake habitat. To address indirect effects of the proposed project, the Corps also proposed (in the same letter) to require (4) completion of a habitat management plan prior to start of construction of the proposed pumping station, per direction of the Assistant Secretary of the Army (Civil Works), that addresses mitigation requirements for the giant garter snake, and (5) inclusion of a habitat management plan and signed agreement among the City of Sacramento, Sacramento and Sutter counties, and the Service, to guarantee implementation of the plan. Relative to items #1 and 2 above, the permit applicant, by letter dated February 3, 1994, submitted a proposed plan to avoid direct effects of project construction on the giant garter snake. This plan will be modified and approved by the Service per requirements described in the Incidental Take section below.

Species Account/Environmental Baseline

Please refer to the October 20, 1993, Federal Register notice (58 FR 54053-54066) listing the giant garter snake as a threatened species, for detailed information on the biology/ecology of the species. One of the largest garter snakes, reaching a total length of at least 64 inches, this highly aquatic species feeds exclusively on small fishes, tadpoles, and frogs. The giant garter snake inhabits small mammal burrows and other soil orifices above prevailing flood elevations throughout its winter dormancy period (November to mid-March). The breeding season commences immediately upon emergence in the spring, extending through March and April; females give birth to live young from late July through early September (Hansen and Hansen 1990). Brood size is variable, ranging from 10 to 46 young, with a mean of 23.1 (n=19) (*ibid.*). Although growth rates are variable, young typically more than double in size by one year of age (*ibid.*). Sexual maturity averages 3 years of age in males and 5 years for females (*ibid.*).

The giant garter snake is endemic to valley floor emergent marshes in the Central Valley, historically distributed throughout the large flood basins from the former Buena Vista lakebed in Kern County northward to the Butte Basin. Reclamation of wetlands for agriculture and flood control have resulted in severe habitat fragmentation, to the extent that wetland habitats with natural hydrologic and vegetative characteristics effectively have been eliminated throughout the entire range of the species. The remaining giant garter snake populations identified since the mid-1970s are clustered in 13

distinct areas that largely coincide with historical riverine flood basins and tributary streams (Hinds 1952, Brode and Hansen 1992). In agricultural areas (predominantly rice), giant garter snakes primarily occur along water delivery and drainage canals. Nine of the remaining 13 regional populations occur discontinuously in typically small, isolated patches of valley floor habitat that support few individuals due to limited extent and quality of suitable habitat (Hansen 1983). These nine populations, encompassing about 75 percent of the species' current geographic range, are vulnerable to extinction as a result of anthropogenic causes, as well as stochastic (random) environmental, demographic, and genetic processes. Despite repeated censusing, giant garter snakes have not been observed throughout the San Joaquin Valley since the mid-1970's. Considering the urbanization threats to the American Basin population portended by the proposed project, 10 of the 13 (77 percent) extant populations are imminently imperiled.

The American Basin supports the largest extant giant garter snake population (Brode and Hansen 1992). Throughout this area, reconnaissance level surveys (USFWS 1991) indicate that about 1,400 acres of giant garter snake habitat exist in the form of man-made irrigation and drainage canals, as well as an undetermined acreage of suitable habitat within nearly 13,000 acres of adjoining rice fields. The giant garter snake also uses an undetermined amount of habitat at higher elevations to escape from winter flooding during the inactive winter phase of the snake's life cycle.

Effects of the Proposed Action

Direct Effects

The proposed levee improvement work could directly affect giant garter snakes if they occur along the reaches specified for upgrading. The applicant proposes to conduct field surveys to determine if suitable habitat and the species occur in any of the proposed work areas. If giant garter snakes are found, construction will be scheduled to avoid the period between October 1 to May 1, thereby precluding the likelihood of impacting snakes while dormant underground. Levee construction will predominantly occur along levee tops and banks, areas seldom used by this highly aquatic species during its active season. Therefore, death or injury from construction activities during the summer along levee banks and slopes is unlikely because snakes center their activities in aquatic habitats at this time.

Nonetheless, as currently formulated, the proposed levee improvements do not address the possibility of eliminating terrestrial retreat habitat during the summer while garter snakes are restricted largely to aquatic habitats. Under this scenario, terrestrial retreat habitat may become a limiting factor to any garter snakes inhabiting project reaches scheduled for levee improvement. However, it is likely that small mammals and other processes that create soil holes and fissures will relatively quickly reestablish any terrestrial retreat habitat lost due to project construction.

Indirect Effects

The proposed flood control project would provide 200-year flood protection for the 55,000-acre lower American Basin. This area currently consists 7,140 of acres of urban land uses and 47,742 acres of agricultural lands. The draft

and final Environmental Impact Statement (EIS) for the American River Watershed Investigation (U.S. Army Corps of Engineers 1991) and Environmental Impact Report (EIR) for the Revised Natomas Area Flood Control Improvement Project (SAFCA 1993) define this 55,000-acre basin as the project area. Both documents acknowledged that flood control would result in intensive urbanization of the Basin throughout the foreseeable future. In addition, various City and County plans identify proposed development for the region, to wit: draft EIR for the Sutter Bay Village Specific Plan and Golf Course Residential (Sutter County 1992); draft EIR for the Metropolitan Airport/Vicinity Special Planning Area General Plan Amendment and Rescue No. 89-GPB-70B-0781 (Sacramento County 1992); North Natomas Community Plan (City of Sacramento 1993); draft and final EIR's for the South Sutter County General Plan Amendment (Sutter County 1991, 1992). These documents establish a clear link between the proposed flood protection and resulting flood plain development. For example, the North Natomas Community Plan acknowledges that further development is precluded until the proposed flood control project is constructed. The Sutter Bay Village Specific Plan states that "[u]ltimate approval of the proposed project (Sutter Bay) is dependent on the eventual approval of a regional flood control project, which is being proposed by the Sacramento Area Flood Control Agency, the Army Corps of Engineers, and the State Reclamation Board." Moreover, Joe Serna, Mayor of the City of Sacramento, stated at a September 16, 1993, meeting of the Floodplain Management Association, that "the decision already has been made in Natomas, we're going to develop it" (Sacramento Rec, 9/17/93).

Absent measures to address the prospect of future basin-wide losses of existing giant garter snake habitat, this flood control project and consequent urban development could extirpate the giant garter snake from the American Basin (California Department of Fish and Game (CDFG) 1992, Brode and Hansen 1992)). The North Natomas Community Drainage System and associated urban development, proposed by the City of Sacramento, would affect about 26 miles of giant garter snake habitat along existing canals and ditches, and additional rice field habitat (*ibid.*). Potential effectiveness of a proposed mitigation plan remains undetermined. The proposed Sutter Bay project, at the north end of the American Basin, could eliminate and/or degrade about 42 miles of suitable canals (*ibid.*) and thousands of acres of associated rice fields and giant garter snake habitat. The proposed South Sutter Industrial Center, located near the Sutter Bay project, could eliminate another 9.0 miles of aquatic habitat and associated rice fields. The Metro Air Park is proposing about 1,890 acres of development on agricultural and vacant lands that potentially could result in major adverse impacts to the species, including the loss of about 9.0 miles of canal habitat and 1,500 acres of rice fields, as well as the disruption of movement corridors (*ibid.*). Roadway improvement and construction projects, or the planned extension of the Sacramento Regional Transit system in this area, also increases the likelihood for major impacts to the species, including elevated mortality from increased traffic on local roads and highways (*ibid.*). Numerous species of aquatic snakes are vulnerable to roadway mortality (Bernardino et al. 1992). Giant garter snakes also are killed and injured by vehicular traffic, as evinced by numerous observations (Sacramento County 1992; G. Hansen, pers. comm., 1992; J. Brode, pers. comm., 1992); of the cumulative total of 1,056 giant garter snake records compiled by G. Hansen over his many years of study, 76 (7.2 percent) were road kills (G. Hansen, pers. comm., 1992).

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With nine of the twelve other extant populations on the verge of extinction throughout 75 percent of the current range of the species, including the entire San Joaquin Valley (see Species Account/Environmental Baseline), survival of the species cannot be assured by the additional loss or degradation of the largest remaining population. Because of the severe, declining trends in habitat suitability/availability and population levels throughout 75 percent of the range of the species, the Service concludes that the maintenance of a viable giant garter snake population in the American Basin is vital to the survival of the species.

To address the prospective habitat losses of the proposed project to the American Basin population, the Corps has proposed, by letter dated January 21, 1994, a special permit condition that would establish a multispecies habitat management plan for the 55,000-acre lower American Basin, scheduled for completion prior to the start of construction of the proposed pumping station. An element of this habitat management plan would include an agreement among local governments and the Service that guarantees the conservation needs of the giant garter snake. Based on ongoing habitat conservation planning discussions with representatives of the applicant, Corps, CDFG, and landowners, this agreement, at the Federal level, will take the form of an incidental take permit and implementing agreement issued by the Service under section 10(a)(1)(b) of the Act, and at the State level, a permit issued by the CDFG under section 2081 of the State Fish and Game Code.

This habitat management plan would provide certainty for the maintenance of a viable population in the American Basin if the proposed project is authorized. The Service, therefore, concludes that the proposed project is not expected to reduce appreciably the likelihood of the survival and recovery of the giant garter snake by adversely affecting reproduction, numbers, and distribution of the species.

Cumulative Effects

Cumulative effects are those effects of future non-Federal (State and local governments, or private) activities on endangered and threatened species or critical habitat that are reasonably certain to occur during the course of the Federal activity subject to consultation. Future Federal actions are subject to the consultation requirements established in section 7 and, therefore, are not considered cumulative to the proposed action.

Various farming and canal maintenance practices adversely affect most remaining giant garter snake populations (58 FR 54060). For example, sodium sulfate and selenium contamination throughout most of the Grasslands region of the San Joaquin Valley has been documented to adversely affect giant garter snake prey species and overall habitat quality (USFWS file information). In addition, acrolein (Magnicide H) is commonly used as a herbicide in irrigation and drainage canals throughout much of the range of the giant garter snake. This compound, when used at levels needed to control target plant species, is toxic to virtually all aquatic vertebrates (CDFG and USFWS file information). Livestock grazing is known to be contributing to the elimination and degradation of available habitat at four populations (58 FR 54061).

Cumulative effects together with the impacts of the proposed project are not likely to reduce appreciably the likelihood of the survival and recovery of the giant garter snake.

Incidental Take

Sections 4(d) and 9 of the Act, as amended, prohibit any taking (harass, harr, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without special exemption. Harass is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to such an extent as to significantly disrupt normal behavioral patterns that include but are not limited to breeding, feeding, or sheltering.

Under the terms of §7(b)(4) and §7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such take is in compliance with this incidental take statement. The measures described below are nondiscretionary and must be undertaken by the agency so that they become binding conditions of any permit issued to the applicant for the exemption in §7(o)(2) to apply. The Federal agency has a continuing duty to regulate the activity that is covered by this incidental take statement. If the agency fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, the protective coverage of §7(o)(2) may lapse.

The Service anticipates that an unquantified amount of potential giant garter snake habitat could be lost during construction of the proposed levee improvements. Surveys have not been conducted to determine the extent, if any, of giant garter snake habitat within the project reaches proposed for improvement. The Corps and applicant propose preconstruction surveys to obtain the information needed to design and schedule the project so that impacts can be avoided and minimized to the extent possible. The Service also anticipates that an unquantifiable amount of giant garter snake habitat would be eliminated by future commercial development over the next 250 years throughout much of the lower American Basin consequent to the provision of the proposed flood protection.

The Service establishes the following reasonable and prudent measures to minimize the impact of take. The measures below are nondiscretionary and must be undertaken by the Corps:

- 1) Construction related disturbance to the giant garter snake shall be minimized.
- 2) A conservation plan to address indirect effects of the proposed project shall be approved by the Service prior to the start of construction on the pumping station.

To be exempt from the prohibitions of section 9 of the Act, the following terms and conditions, which implement the reasonable and prudent measures described above, must be complied with in their entirety and included as

special conditions in any Department of the Army permit issued for the proposed project:

- 1) The applicant shall prepare and implement a plan for avoiding and minimizing construction related impacts to the giant garter snake. The plan shall be submitted to the Corps and Service for review and approval prior to the start of project construction.
- 2) The permit applicant shall not begin construction on the pumping station along the East Main Drain or otherwise complete the proposed project by providing 100-year flood protection for the lower American Basin until the Service first issues an incidental take permit and associated implementing agreement pursuant to §10(a)(1)(b) of the Act to the City and County of Sacramento, Sutter County, and any other parties necessary to guarantee the successful implementation of a habitat conservation plan for the giant garter snake population resident within the American Basin. This plan shall be compatible with and a component of the multispecies habitat management plan otherwise required by the Department of the Army as a condition of permit authorization.

Pursuant to 50 CFR §402.14(1)(4), if during the course of the action the amount or extent of incidental taking is exceeded, the coactive action must cease and the Corps must reinitiate consultation immediately with the Service to avoid violation of section 9 of the Act.

Reporting Requirements: The Service shall be notified immediately of any information about take or suspected take of giant garter snakes associated with project construction and implementation of the habitat conservation plan for the giant garter snake. Upon locating a dead, injured, or sick giant garter snake specimen, the Corps, permittee, and/or contractors must immediately notify the Service within 3 working days of any such information. Notification must include the date, time, and precise location of the incident/specimen, and any other pertinent information. The Service contact for this information is the Field Supervisor at 916/978-4866. ~~Corps shall be~~ taken in handling sick or injured specimens to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state for later analysis of cause of death. The finder and handler of any such animals has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed. Injured animals or specimens shall be delivered to the Service's Division of Law Enforcement at 2800 Cottage Way, Sacramento, California 95825-1846. (916/978-4861).

This concludes formal consultation on the project as described above. Reinitiation of formal consultation is required if: (1) the amount or extent of incidental take is exceeded, as previously described; or the requirements under the Incidental Take section are not implemented; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent that was not considered in this opinion; (3) the proposed action is subsequently modified in a manner that causes an effect to the giant garter snake that was not considered in this opinion; and/or (4) a new species is listed or critical habitat is designated that may be affected by the action.

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If you have any questions regarding this opinion, please contact Peter Sorenson of the Sacramento Field Office at 916/978-4613.

Sincerely,

Dale A. Pierce

Dale Pierce

cc: FWS (DES-ARLSQ 432), Arlington, VA
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