Sacramento Fish and Wildlife Office
3310 El Camino Avenue, Suite 130
Sacramento, California 95821-6340

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November 13, 1997

Mr. Art Champ
Chief, Regulatory Branch
Department of the Army
U.S. Army Engineer District,
Sacramento Corps of Engineers
Sacramento, California 95814-2922

Subject: Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California.

Dear Mr. Champ:

This transmits our programmatic formal consultation pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.)*, regarding actions that the U.S. Army Corps of Engineers (Corps) may permit, pursuant to section 404 of the Clean Water Act, for projects with limited effects on the federally listed as threatened giant garter snake *(Thamnophis gigas)* or its habitat. Corps projects that meet the conditions specified below, or that the U.S. Fish and Wildlife Service (Service) determines will have similar effects, may be appended to this programmatic consultation. The geographic scope of this consultation includes eleven counties within the jurisdiction of the Service's Sacramento Fish and Wildlife Office. These eleven counties are: Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California.

The purpose of this programmatic consultation is to expedite Corps permitted projects, including activities which may qualify for authorization under Nationwide permitting, with relatively small effects on the giant garter snake and its habitat. Projects which exceed the programmatic threshold will require individual biological opinions. The Service will re-evaluate this programmatic consultation annually to ensure that its continued application will not result in unacceptable effects on the giant garter snake or its habitat. Restricting this programmatic consultation to projects with permanent impacts of less than 3.00 acres (1.21 hectares) and temporary impacts of less than 20.00 acres (8.09 hectares) of giant garter snake habitat per project will limit the effects of the programmatic process on the giant garter snake and its habitat. Tracking and restricting project effects over time will serve to minimize cumulative effects at local and regional levels.

Consultation History

On June 25, 1997, June Deweese, Kelly Hornaday, Alison Willy and Steve Miller of my staff met with Kathy Norton of the Corps to discuss developing a programmatic biological opinion for projects with relatively small effects on giant garter snakes. Kathy Norton provided a list of Corps permits that would likely affect giant garter snakes and would likely result in only minor or temporary effects. The Corps August 20, 1997, request for formal consultation was received August 22, 1997. The Service submitted an administrative draft biological opinion to the Corps on September 19, 1997.

We received comments from members of your staff on the administrative draft of the programmatic biological opinion on October 2, 1997. We have addressed your comments by incorporating your suggestions into the programmatic biological opinion, and by providing clarification within the opinion where necessary concerning your request for a 10-day notification for formal consultation. Due to staffing constraints, the Service cannot notify the Corps whether separate formal biological opinion will be required. However, upon receipt of requests for formal Section 7 consultation, the Service will make every effort to promptly determine whether there is sufficient information to complete section 7 consultation and whether it is appropriate to append proposed projects to the programmatic biological opinion, and will respond within thirty days of receipt of request for consultation. A complete administrative record of this consultation is contained at the Service's Sacramento Fish and Wildlife Office.

Definitions

Giant Garter Snake Habitat. The giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, other waterways and agricultural wetlands such as irrigation and drainage canals and rice fields, and the adjacent uplands. Essential habitat components consist of (1) adequate water during the snake's active period (i.e., early spring through mid-fall) to provide a prey base and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat; (3) upland habitat for basking, cover, and retreat sites; and (4) higher elevation uplands for cover and refuge from flood waters. For the purposes of this programmatic opinion, a basic giant garter snake habitat unit will incorporate 2.00 acres (0.81 hectares) of surrounding upland for every 1.00 acre (0.40 hectare) of aquatic habitat. The 2.00 acres (0.81 hectares) of upland also may be defined as 218 linear feet (66 meters) of bankside habitat which incorporates adjacent uplands to a width of 200 feet (61 meters) from the edge of the bank.

Disturbance Area. Primary disturbance acreage will be determined by project area; however, disturbance area may exceed project boundaries because a 200-foot radius (61 meters) from the edge of giant garter snake aquatic habitat is incorporated to include essential habitat components and determine potential take. Disturbance may be temporary and/or permanent and should

consider: (1) opportunities to avoid habitat within the project area; (2) area of dewatering and period of time dewatered; and (3) temporary haul roads and equipment staging areas. The 200-foot radius (61 meters) also will be used to evaluate aquatic habitat disturbance during temporary alterations, i.e., upstream and downstream from berms placed for temporary dewatering.

Temporary Impacts. Temporary impacts are project activities which temporarily remove essential habitat components, but can be restored to preproject conditions of equal or greater habitat values. Projects which are to be considered temporary impacts must be able to implement the project and restore the affected habitat within two seasons.

Permanent Impacts. Permanent impacts are those project activities which result in loss of habitat and/or permanently remove essential habitat components. Temporary projects which exceed two seasons to complete will be considered permanent impacts and require mitigation equal to permanent impacts. Temporary projects which exceed two seasons may partially compensate the permanent impact ratio by completing restoration of the affected habitat.

Season. A season is defined as the calendar year period between May 1 and October 1, the active period for giant garter snake when mortality is less likely to occur. Project impacts and restoration of habitat that can be completed within this period or, if necessary, within the same calendar year with an approved extension, will be considered occurring within one season for the purposes of mitigation.

Monitoring. The following level of monitoring is required when specified: (1) photo documentation included in a report notifying the Service when the habitat restoration or creation was completed, what materials were used, plantings (if specified) and justification of any substitutions to the Service recommended guidelines included in Appendix A; (2) photo documentation and progress report submitted one year from restoration implementation, or years one, two, and five for replacement habitat; (3) justification from release of any further monitoring, if requested; and (4) recommendations for remedial actions and request for approval from the Service, if necessary.

Programmatic Consultation Guidelines

Initial project authorization under this programmatic opinion is dependent upon the following criteria:

1. Impacts will not exceed permanent losses of 3.00 acres (1.21 hectares) of giant garter snake habitat. Giant garter snake habitat includes both upland and aquatic habitat components. The aquatic habitat component of giant garter snake habitat will not exceed more than 1.00 acre (0.40 hectare) of the total permanent losses.

2. Impacts will not exceed permanent loss of 218 linear feet (66 meters) of bankside habitat.

3. Impacts will not exceed 20.00 acres (8.09 hectares) of temporary disturbance to giant garter snake habitat. This total includes both upland and aquatic habitat components of giant garter snake habitat.

4. The Scope of Work is one or more of the types listed below and routinely authorized under the Corps Nationwide permitting program, or by individual permit as appropriate.

Implementing Procedure

The following process will be used when implementing future proposed projects under this biological opinion:

1. The Corps will submit a letter requesting that the proposed project be appended to this programmatic biological opinion and provide the Service with a copy of the permit application package and a brief environmental assessment (see Appendix B, List of Items Needed to Complete Consultation).

2. The Service will review the proposed project to determine: (1) if the project is not likely to adversely affect giant garter snakes; (2) is appropriate to append to this programmatic biological opinion; or (3) needs a separate biological opinion.

3. Upon appending a proposed project to the programmatic biological opinion, the Service will determine whether one or a combination of the following is required: (1) restoration of the project site; (2) creation of replacement habitat and number of acres required; (3) a deed restriction or conservation easement on replacement habitat; (4) establishment of an endowment fund for management of large mitigation areas; (5) level of monitoring required to ensure success of mitigation implemented.

BIOLOGICAL OPINION

Description of the Proposed Action

Projects which meet the above criteria will be assigned to Level 1 through 3 by the amount of temporary and/or permanent impacts. All created habitat will be protected under a Service-approved conservation easement. The compensation ratio needed to mitigate project impacts will correspond to each of the three impact levels identified as follows:

Level 1

Level 1 project impacts result in minimal environmental effects, such as repair, rehabilitation, or replacement of previously authorized structures, installation of scientific measuring devices, survey activities, temporary recreational structures, utility lines installation by boring underneath irrigation canals or creek channels, and temporary cofferdams. Level 1 projects would include those routinely authorized under Nationwide Permit numbers 3, 5, 6, 11, 12, and 33. The work would not result in any permanent loss of habitat and the temporary disturbance area would not exceed 20.00 acres (8.09 hectares) of habitat.

1. Impacts

    A. No permanent loss of giant garter snake habitat

    B. Less than 20.00 acres (8.09 hectares) of temporary disturbances

    C. Temporary impacts will be restored to preproject conditions within the same season or, at most, the same calendar year

2. Mitigation

    A. Restoration of temporary impacts to giant garter snake habitat

    B. One year of monitoring with a photo documentation report due one year from the restoration implementation showing pre- and post-project area photos

Level 2

Level 2 project impacts also include activities routinely authorized under Nationwide Permits, but the project implementation needs greater than one season to complete. Projects authorized under Nationwide Permit No. 30 (i.e., land management for wildlife) also would qualify for Level 2 mitigation.

1. Impacts

    A. No permanent loss of giant garter snake habitat

    B. Less than 20.00 acres (8.09 hectares) of temporary disturbances

    C. Two (2) seasons of temporary disturbances

2. Mitigation

A. Restoration of temporary impacts to giant garter snake habitat

B. One year of monitoring restored habitat with a photo documentation report due one year from implementation of the restoration showing pre- and post-project area photos

C. Replacement of affected giant garter snake habitat at a 1:1 ratio

D. All replacement habitat must include both upland and aquatic habitat components. Upland and aquatic habitat components must be included in the replacement habitat at a ratio of 2:1 upland acres to aquatic acres

E. Five years of monitoring additional replacement habitat with photo documentation report due each year

Level 3

Level 3 project impacts may include minor discharges into wetland habitats, such as outfall structures, bank stabilization less than 218 linear feet (66 meters), road crossings, bridge replacements or improvements, single family housing construction, and wetland and riparian restoration and creation activities.

Projects may include those routinely authorized under Nationwide Permit numbers 7, 13, 14, 18, 26, 27, and 29, or could be projects requiring individual permitting and full Public Notice. Level 3 impacts may result in permanent losses of less than 3.0 acres of giant garter snake habitat and less than 1.0 acre (0.40 hectare) of aquatic giant garter snake habitat, and temporary disturbances of less than 20.00 acres (8.09 hectares) of giant garter snake habitat. Projects with temporary disturbances which require more than two seasons to complete will be categorized as Level 3 impacts.

1. Impacts

A. Less than 3.00 acres (1.21 hectares) permanent loss of giant garter snake habitat (includes aquatic and upland habitat)

B. Less than 1.0 acre (0.40 hectare) permanent loss of aquatic giant garter snake habitat

C. Less than 218 linear feet (66 meters) permanent loss of bank habitat

D. Less than 20.00 acres (8.09 hectares) of temporary disturbances over greater than two seasons

2. Mitigation

A. Replacement of affected giant garter snake habitat at a 3:1 ratio

B. All replacement habitat must include both upland and aquatic habitat components. Upland and aquatic habitat components must be included in the replacement habitat at a ratio of 2:1 upland acres to aquatic acres

C. If restoration of habitat is a component of the replacement habitat, one year of monitoring restored habitat with a photo documentation report due one year from implementation of the restoration with pre- and post-project area photos

D. Five years of monitoring replacement habitat with photo documentation report due each year

TABLE 1 - SUMMARY OF GIANT GARTER SNAKE PROGRAMMATIC MITIGATION LEVELS

	IMPACTS: DURATION	**IMPACTS:** ACRES	**MITIGATION:** COMPENSATION
LEVEL 1	1 season	Less than 20 and temporary	Restoration
LEVEL 2	2 seasons	Less than 20 and temporary	Restoration plus 1:1 replacement
LEVEL 3	More than 2 seasons and temporary Permanent loss	Less than 20 and temporary Less than 3 acres total giant garter snake habitat AND Less than 1 acre aquatic habitat; OR Less than 218 linear feet bank habitat	3:1 Replacement (or restoration plus 2:1 replacement) 3:1 Replacement

Section 404 Options

1. If the project proponent is required to replace permanently lost wetland habitat to meet obligations pursuant to section 404 of the Clean Water Act, the 404 wetland acreage, mitigated at a minimum ratio of 1:1, may fulfill a portion of the Level 3 acreage with a 3:1 mitigation obligation required for replacing giant garter snake habitat, if the wetland acreage provides giant garter snake habitat. In-kind, on-site mitigation is preferred; however, off-site out-of-kind mitigation may be accepted on a case by case basis.

   Example. A 3.00 acre (1.21 hectares) parcel of giant garter snake habitat containing one acre of wetlands is lost, 3.00 acres (1.21 hectares) of wetlands will need to be created and a minimum of 6.00 (2.43 hectares) acres of uplands surrounding these wetlands will need to be preserved for giant garter snake mitigation. To satisfy the mitigation requirements of 404, the project proponent will need to replace 1.00 acre (0.40 hectare) of wetlands. This acre of wetlands will be credited against the total mitigation obligation. The project proponent would not be asked to create the 404 wetland component in addition to the giant garter snake aquatic habitat component.

2. Bankside or riparian habitat which has greater than 25 percent canopy may contribute to the functional values of the aquatic resources and may require 404 mitigation. If the project proponent is required to replace riparian habitat to meet obligations under 404, this acreage may not be subtracted from the Level 3 with a 3:1 mitigation obligations for giant garter snake habitat. Riparian woodlands do not provide suitable habitat because of excessive shade, lack of basking sites, and absence of prey populations.

Preservation Options

If the project proponent needs to mitigate at Level 3 and wishes to secure existing giant garter snake habitat by fee title or conservation easement, preservation of the giant garter snake habitat may be credited against, but may not exceed, 50 percent of the aquatic habitat replacement. Because Level 2 impacts require restoration of existing habitat, preservation of additional habitat to mitigate for Level 2 impacts is not an option. Level 2 requires full restoration of the temporary impacts plus construction of additional habitat at a 1:1 replacement ratio.

Example. A 3.0 acre parcel of giant garter snake habitat containing one acre of wetlands is lost. The project proponent must replace permanently lost habitat at a 3:1 ratio. Therefore, 3.00 acres (1.21 hectares) of wetlands will need to be created and a minimum of 6.00 acres (2.43 hectares) of uplands surrounding these wetlands will need to be preserved for giant garter snake mitigation. The mitigation parcel purchased to construct giant garter snake habitat contains 3.00 acres (1.00 acre of wetlands and 2.00 acres of uplands) of existing giant garter snake habitat on a portion of the property. The 1.00 acre (0.40 hectare) of wetlands may be subtracted from the aquatic component because the acreage is less than 50 percent of the aquatic habitat needed to be constructed (3.0 acres). In addition, the 2.00 acres of uplands may be subtracted from the total of 6.00 acres (2.43 hectares) of surrounding uplands needed for the upland mitigation component.

After crediting the existing preservation habitat in this example towards the total compensation needed, a total of 2.00 acres (0.81 hectare) of aquatic habitat remain to be constructed and 4.00 additional acres (1.62 hectares) of uplands surrounding the aquatic habitat need to be preserved.

Status of the Species

The Service published a proposal to list the giant garter snake as an endangered species on December 27, 1991 (56 **FR** 67046). The Service reevaluated the status of the giant garter snake before adopting the final rule. The giant garter snake was listed as a threatened species October 20, 1993 (58 **FR** 54053).

Fitch (1940) described the historical range of the species as extending from the vicinity of Sacramento and Contra Costa Counties southward to Buena Vista Lake, near Bakersfield, in Kern County. Prior to 1970, the giant garter snake was recorded historically from 17 localities (Hansen and Brode 1980). Five of these localities were clustered in and around Los Banos, Merced County, and the paucity of information makes it difficult to determine precisely the species' former range. Nonetheless, these records coincide with the historical distribution of large flood basins, fresh water marshes, and tributary streams. Surveys over the last two decades have located the giant garter snake as far north as the Butte Basin in the Sacramento Valley.

As recently as the 1970s, the range of the giant garter snake extended from near Burrel, Fresno County (Hansen and Brode 1980), northward to the vicinity of Chico, Butte County (Rossman and Stewart 1987). California Department of Fish and Game (CDFG) studies (Hansen 1988) indicate that giant garter snake populations currently are distributed in portions of the rice production zones of Sacramento, Sutter, Butte, Colusa, and Glenn Counties; along the western border of the Yolo Bypass in Yolo County; and along the eastern fringes of the Sacramento-San Joaquin River delta from the Laguna Creek-Elk Grove region of central Sacramento County southward to the Stockton area of San Joaquin County.

The giant garter snake is one of the largest garter snakes, reaching a total length of at least 160 cm. Females tend to be slightly longer and stouter than males. The weight of adult female giant garter snakes is typically 1.1-1.5 pounds (500-700 grams). Dorsal background coloration varies from brownish to olive with a checkered pattern of black spots, separated by a yellow dorsal stripe and two light colored lateral stripes. Background coloration and prominence of black checkered pattern and the three yellow stripes are geographically and individually variable (Hansen 1980). The ventral surface is cream to olive or brown and sometimes infused with orange, especially in northern populations.

Endemic to wetlands in the Sacramento and San Joaquin valleys, the giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands, such as irrigation and drainage canals and rice fields. Giant garter snakes feed on small fishes, tadpoles, and frogs (Fitch 1941, Hansen 1980, Hansen 1988). Habitat requisites consist of: (1) adequate water during the snake's active season (early-spring through mid-fall) to provide

food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter (Hansen 1980). Giant garter snakes are typically absent from larger rivers and other water bodies that support introduced populations of large, predatory fish, and from wetlands with sand, gravel, or rock substrates (Hansen 1980, Rossman and Stewart 1987, Brode 1988, Hansen 1988). Riparian woodlands do not provide suitable habitat because of excessive shade, lack of basking sites, and absence of prey populations (Hansen 1980).

The giant garter snake inhabits small mammal burrows and other soil crevices above prevailing flood elevations throughout its winter dormancy period (i.e., November to mid-March). Giant garter snakes typically select burrows with sunny exposure along south and west facing slopes. Giant garter snakes also use burrows as refuge from extreme heat during their active period. The Biological Resources Division (BRD) of the USGS (Wylie et al. 1997) has documented giant garter snakes using burrows in the summer as much as 165 feet (50 meters) away from the marsh edge. Overwintering snakes have been documented using burrows as far as 820 feet (250 meters) from the edge of marsh habitat. During radio-telemetry studies conducted by the BRD giant garter snakes typically moved little from day to day. However, total activity varied widely between individuals. Snakes have been documented moving up to 5 miles (8 kilometers) over the period of a few days (Wylie et al. 1997).

The breeding season extends through March and April, and 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 (Hansen and Hansen 1990). Young immediately scatter into dense cover and absorb their yolk sacs, after which they begin feeding on their own. Although growth rates are variable, young typically more than double in size by one year of age (G. Hansen, pers. comm.). Sexual maturity averages three years in males and 5 years for females (G. Hansen, pers. comm.).

The giant garter snake currently is only known from a small number of populations. The status of these populations and the threats to these snakes and their habitats are detailed in the final rule that listed the giant garter snake as threatened (58 **FR** 54053). A number of land use practices and other human activities currently threaten the survival of the giant garter snake throughout the remainder of its range. Although some giant garter snake populations have persisted at low levels in artificial wetlands associated with agricultural and flood control activities, many of these altered wetlands are now threatened with urban development. Cities within the current range of the giant garter snake that are rapidly expanding include: (1) Chico, (2) Yuba City, (3) Sacramento, (4) Galt, (5) Stockton, (6) Gustine, and (7) Los Banos.

Environmental Baseline

Surveys over the last two decades have located the giant garter snake as far north as the Butte

Basin in the Sacramento Valley. Currently, the Service recognizes 13 separate populations of giant garter snake, with each population representing a cluster of discrete locality records (58 **FR** 54053). The 13 extant populational clusters largely coincide with historical riverine flood basins and tributary streams throughout the Central Valley (Hansen 1980, Brode and Hansen 1992): (1) Butte Basin, (2) Colusa Basin, (3) Sutter Basin, (4) American Basin, (5) Yolo Basin--Willow Slough, (6) Yolo Basin--Liberty Farms, (7) Sacramento Basin, (8) Badger Creek--Willow Creek, (9) Caldoni Marsh, (10) East Stockton--Diverting Canal and Duck Creek, (11) North and South Grasslands, (12) Mendota, and (13) Burrel/Lanare. These populations span the Central Valley from just southwest of Fresno (i.e., Burrell-Lanare) north to Chico (i.e., Hamilton Slough). The 11 counties where the giant garter snake is still presumed to occur are: Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo.

In 1994, the BRD (then the National Biological Survey [NBS]) began a study of the life history and habitat requirements of the giant garter snake in response to an interagency submittal for consideration as an NBS Ecosystem Initiative. Since April of 1995, the BRD has further documented occurrences of giant garter snakes within some of the 13 populations identified in the final rule. The BRD has studied populations of giant garter snakes at the Sacramento and Colusa National Wildlife Refuges within the Colusa Basin, at Gilsizer Slough within the Sutter Basin, and at the Badger Creek area of the Cosumnes River Preserve within the Badger Creek-Willow Creek area. These populations, along with the American Basin population of giant garter snakes represent the largest extant populations. With the exception of the American Basin, these populations are largely protected from many of the threats to the species. Outside of these protected areas, giant garter snakes in these population clusters are still subject to all threats identified in the final rule. The remaining nine population clusters identified in the final rule are distributed discontinuously in small isolated patches and are vulnerable to extirpation by stochastic environmental, demographic, and genetic processes. All 13 population clusters are isolated from each other with no protected dispersal corridors. Opportunities for recolonization of small populations which may become extirpated is unlikely given the isolation from larger populations and lack of dispersal corridors between them.

Effects of the Proposed Action

Proximity of the action - Projects which meet the criteria for inclusion in this consultation will be permitted under the Corps' Nationwide Permits or individual permits, as appropriate. All permits will be issued for projects that will impact wetlands, and thus all permitted activities may occur in potential giant garter snake habitat. Projects may involve direct work in aquatic giant garter snake habitat, such as dredging and filling, and construction of outfall or other structures in canals and waterways. Other activities associated with the permitted project may occur adjacent to aquatic giant garter snake habitat and thus may impact upland giant garter snake habitat or adjacent seasonal wetlands that provide seasonal foraging habitat. These activities may include grading, clearing, mowing, and equipment staging and access.

Distribution - Nationwide Permits and individual permits are issued for projects throughout the

11 counties from which the giant garter snake is currently known. Projects may occur throughout the range of the giant garter snake.

Timing - Most projects affecting wetlands are carried out during the dry season, from April through November. The active period of the giant garter snake is May 1 to October 1. During this period direct impacts are lessened because snakes are actively moving and avoiding danger. Projects occurring outside this period will have greater impacts to giant garter snakes since they are less likely to actively avoid danger, and essential feeding, reproductive, and sheltering behaviors may be disrupted.

Dispersal from wintering sites and breeding occurs from mid-March through April. Snakes are more vulnerable when they first become active. After the winter inactive period, initial successful foraging is critical to reproductive success, particularly for breeding females, and to juvenile survival. Snakes are also seeking mates and breeding at this period. Disturbance during this time may lessen reproductive success.

Snakes begin their winter inactive period in October. Snakes are vulnerable during their inactive period when they are occupying burrows and soil crevices because they are unlikely to leave their retreat sites and may be crushed, trapped, or buried during movement of heavy equipment or excavation.

Juveniles are born late July to early September, and because of their small size they may be vulnerable to predation when disturbed from cover. Adequate feeding before the inactive period is critical for juvenile survival through the winter. Disturbance of juveniles, disruption of normal foraging activity, or removal of prey base may reduce survival of juveniles through the inactive period.

Disturbance duration and frequency - Projects that would qualify for this programmatic consultation may have both temporary and permanent impacts. Projects may be completed within one season, or may require two or more seasons to complete. Some projects may result in permanent loss of habitat and in increased disturbance frequency associated with maintenance and recreation activities. Temporary loss of habitat and temporary disturbance may result from repairs, modifications, or maintenance (e.g., temporary fill for a construction access or detour, dredging of canals or waterways). Increased disturbance frequency from recreation, traffic, feral or domestic animals, or human intrusion may be an indirect effect of some projects. Completed projects that require routine maintenance activities in proximity to habitat have future potential to cause harm, harassment, or injury.

Disturbance intensity and severity - Projects which would qualify for this consultation have either small permanent impacts of less than 3.00 acres (1.21 hectares) of giant garter snake habitat or temporary impacts which can be restored at completion of the project. Projects qualifying under this opinion are expected to have only small effects on giant garter snake populations.

Direct effects - Construction activities may remove vegetative cover and basking sites necessary for thermoregulation, fill or crush burrows or crevices, dewater habitat and remove the prey base. Temporary fill of canals and waterways will remove giant garter snake habitat and may obstruct movement of giant garter snakes. Because giant garter snakes utilize small mammal burrows and soil crevices as retreat sites, giant garter snakes may be crushed, buried, or otherwise injured from construction activities. Snakes may be run over by construction equipment or other vehicles accessing the construction sites. The disturbance from construction activities may also cause giant garter snakes to move into areas of unsuitable habitat where they will experience greater risk of predation or other sources of mortality. Silting, fill, or spill of oil or other chemicals could cause loss of prey items on or downstream of the project sites.

Indirect effects - Utility lines, road improvements, drainage facility improvements, recreational structures such as boat ramps, and flood control projects, are all potentially growth inducing and may have indirect effects to giant garter snakes. These include: vehicular mortality, human intrusion, predation from domestic and feral animals, predation from raccoons (*Procyon lotor*), skunks (*Mephitis mephitis*), opossum (*Didelphis virginiana*) and other species attracted to suburban developments, dumping of garbage causing contamination or injury, reduced water quality from urban runoff contributing to a reduced prey base, and introduction of exotic species such as predatory game fish which may prey on juveniles or compete with giant garter snakes for prey. Increases in severity and frequency of flooding may be associated with development and may inundate overwintering snakes or force snakes to seek new flood refugia during their inactive period. Other potential habitat alterations include changes in fluvial morphology and floodplain configurations for flood control, resulting in lack of refugia, loss of aquatic corridors, and restriction of movement. Land conversions may change stream and wetland hydrology. Conversion of seasonal wetlands to perennial wetlands may allow populations of non-native predatory game fish or bullfrogs (*Rana catesbiana*), which may eat juvenile snakes and compete for prey, to become established or invade to nearby marshes, sloughs, and other wetlands supporting giant garter snake.

Beneficial effects. The programmatic process will expedite projects resulting in less than 3.00 acres (1.21 hectares) of permanent impacts to giant garter snake habitat and may encourage applicants to avoid greater impacts which would require a lengthier permit process. Project planning efforts that stay within the programmatic guidelines may facilitate giant garter snake recovery by resulting in significantly less habitat loss over time. Occupied habitat protected under conservation easements will provide population components that are not threatened by the factors that contributed to listing the species. The Service anticipates that the mitigation implemented now will lead to the development of protected habitat areas distributed across the landscape. Local communities can use these preserved areas as foundations for future habitat conservation plans.

Cumulative Effects

Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

An undetermined number of future land use conversions and routine agricultural practices are not subject to Federal authorization or fundings and may alter the habitat or increase incidental take of giant garter snakes and are, therefore, cumulative to the proposed project. These additional cumulative effects include: (1) unpredictable fluctuations in aquatic habitat due to water management; (2) dredging and clearing vegetation from irrigation canals; (3) discing, mowing, ornamental cultivation, and routine grounds maintenance of upland habitat;

(4) increased vehicular traffic on access roads adjacent to aquatic habitat; (5) use of burrow fumigants on levees and other potential upland refugia; (6) contaminated runoff from agriculture and urbanization; and (7) predation by feral animals and pets.

Conclusion

After reviewing the current status of the giant garter snake, the environmental baseline for the action areas, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the projects which meet the qualifications for this programmatic consultation, and will be evaluated for cumulative take and habitat losses annually, are not likely to jeopardize the continued existence of the giant garter snake. No critical habitat has been designated for these species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined by the Service as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding and sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, and sheltering. Incidental take is defined by the Service as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act, provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are nondiscretionary and must be implemented by the Corps so

that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o) (2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) 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 or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Incidental Take

The Service anticipates incidental take of giant garter snakes will occur. The project sizes and impacts authorized under this programmatic will vary, but are expected to have small effects. Giant garter snakes are secretive and notoriously sensitive to human activities. Individual snakes are difficult to detect unless they are observed, undisturbed, at a distance. Most close-range observations represent chance encounters that are difficult to predict. The Service anticipates the following forms of incidental take:

1. The number of giant garter snakes that may be found in 250 acres (100 hectares) of habitat per year will be disturbed, harassed, harmed, or killed by project activities resulting in temporary impacts and permanent impacts, especially from dewatering, channel reconfiguration, and use of heavy equipment within or near aquatic habitat.

2. Fifty acres (20 hectares) of giant garter snake habitat per year may be permanently lost.

Effect of the Take

In the accompanying biological opinion, the Service has determined that this level of anticipated take is not likely to result in jeopardy to the giant garter snake or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of giant garter snakes.

1. Harassment, harm, or take of giant garter snakes during construction activities associated with implementing the projects shall be minimized (refer also to Appendix C, Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake Habitat).

2. Impacts of temporary losses and degradation of habitat of giant garter snakes shall be minimized and, to the greatest extent practicable, habitat restored to its pre-project condition. More than two season and temporary loss on any permanent loss of habitat

shall be compensated.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. The terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure number one:

   A. All construction activity within giant garter snake habitat shall be conducted between May 1 and October 1. This is the active period for giant garter snakes and direct impacts are lessened, because snakes are actively moving and avoiding danger. More danger is posed to snakes during their inactive period, because they are occupying underground burrows or crevices and are more susceptible to direct effects, especially during excavation. Between October 2 and April 30 contact the Service's Sacramento Fish and Wildlife Office to determine if additional measures are necessary to minimize and avoid take.

   B. Any dewatered habitat must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

   C. Construction personnel shall participate in a Service-approved worker environmental awareness program. Under this program, workers shall be informed about the presence of giant garter snakes and habitat associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of the Act. Prior to construction activities, a qualified biologist approved by the Service shall instruct all construction personnel about: (1) the life history of the giant garter snake; (2) the importance of irrigation canals, marshes/wetlands, and seasonally flooded areas, such as rice fields, to the giant garter snake; and (3) the terms and conditions of the biological opinion. Proof of this instruction shall be submitted to the Sacramento Fish and Wildlife Office.

   D. Within 24-hours prior to commencement of construction activities, the site shall be inspected by a qualified biologist who is approved by the Service's Sacramento Fish and Wildlife Office. The biologist will provide the Service with a field report form documenting the monitoring efforts within 24-hours of commencement of construction activities. Information that should be included in a field report form is provided in Appendix D. The monitoring biologist needs to be available thereafter; if a snake is encountered during construction activities, the monitoring biologist shall have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that

the snake will not be harmed. Giant garter snakes encountered during construction activities should be allowed to move away from construction activities on their own. Capture and relocation of trapped or injured individuals can only be attempted by personnel or individuals with current Service recovery permits pursuant to section 10(a)1(A) of the Act. The biologist shall be required to report any incidental take to the Service immediately by telephone at (916) 979-2725 and by written letter addressed to the Chief, Endangered Species Division, within one working day. The project area shall be re-inspected whenever a lapse in construction activity of two weeks or greater has occurred.

E. Clearing of wetland vegetation will be confined to the minimal area necessary to excavate toe of bank for riprap or fill placement. Excavation of channel for removal of accumulated sediments will be accomplished by using equipment located on and operated from top of bank, with the least interference practical for emergent vegetation.

F. Movement of heavy equipment to and from the project site shall be restricted to established roadways to minimize habitat disturbance.

2. The following terms and conditions implement reasonable and prudent measure number two:

A. Preserved giant garter snake habitat shall be designated as Environmentally Sensitive Areas and shall be flagged by a qualified biologist approved by the Service and avoided by all construction personnel.

B. After completion of construction activities, any temporary fill and construction debris shall be removed and, wherever feasible, disturbed areas shall be restored to pre-project conditions. Restoration work may include replanting emergent vegetation (refer to Appendix A, Mitigation Criteria for Restoration and/or Replacement of Giant Garter Snake Habitat).

C. More than two season and temporary permanent losses of habitat shall be compensated at the ratios described in **Table 1** and meet the criteria listed in Appendix A, Mitigation Criteria for Restoration and/or Replacement of Giant Garter Snake Habitat).

D. All wetland and upland acres created and provided for the giant garter snake shall be protected in perpetuity by a Service-approved conservation easement or similarly protective covenants in the deed. The conservation easement on the mitigation habitat shall be recorded at the county recording office within 60 days of groundbreaking. The easement/deed, including a title report for the land area, shall be reviewed and approved by the Service prior to recording in the

appropriate County Recorders Office(s). A true copy of the recorded easement/deed shall be provided to the Service within 30 days after recordation. Standard examples of deed restrictions and conservation easements are available from the Service upon request.

E. The Corps shall ensure compliance with the Reporting Requirements below.

Reporting Requirements

The Service-approved biologist shall notify the Service immediately if giant garter snakes are found on site as detailed in term and condition 1D, and will submit a report including date(s), location(s), habitat description, and any corrective measures taken to protect the snake(s) found. The Service-approved biologist shall submit locality information to the California Department of Fish & Game (CDFG), using completed California Native Species Field Survey Forms or their equivalent, no more than 90 calendar days after completing the last field visit of the project site. Each form shall have an accompanying scale map of the site such as a photocopy of a portion of the appropriate 7.5 minute U.S. Geological Survey map and shall provide at least the following information: township, range, and quarter section; name of the 7.5' or 15' quadrangle; dates (day, month, year) of field work; number of individuals and life stage (where appropriate) encountered; and a description of the habitat by community-vegetation type.

A post-construction compliance report prepared by the Service approved monitoring biologist shall be forwarded to the Chief, Endangered Species Division, at the Sacramento Fish and Wildlife Office within 60 calendar days of the completion of each project. This report shall detail (I) dates that construction occurred; (ii) pertinent information concerning the applicant's success in meeting project mitigation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on federally listed species, if any; (v) occurrences of incidental take of federally listed species, if any; and (vi) other pertinent information.

The Sacramento Fish and Wildlife Office is to be notified within three working days of the finding of any dead listed species or any unanticipated harm to the species addressed in this biological opinion. The Service contact person for this is the Chief, Endangered Species Division at (916) 979-2725.

Review Requirements

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the effects of incidental take that might otherwise result from the proposed action. With implementation of this measure, the Service believes that no more than 200 acres (80 hectares) of habitat will be temporarily disturbed and no more than 50 acres (20 hectares) of habitat will be permanently lost per year for the duration authorized under this opinion, or a total of 5 years. In addition, the number of giant garter snakes that may be found within 250 acres (100 hectares) of habitat per year may be disturbed, harassed, harmed, or killed as a result of

actions permitted under this opinion. If, during the course of the action, this minimized level of incidental take is exceeded prior to the annual review, such incidental take represents new information requiring review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures. This programmatic opinion will expire 5 years from the date of issuance. Issuance of a new programmatic opinion will be subject to evaluation of the recovery of the species.

CONSERVATION RECOMMENDATIONS

Section 7 (a) (1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibilities for these species.

1. As a Recovery Plan for the giant garter snake is developed, the Corps should assist the Service in its implementation.

2. The Corps should incorporate into bidding documents the enclosed "Standard Avoidance and Minimization Measures for Construction Activities in Giant Garter Snake Habitat" when appropriate.

3. The Corps, in partnership with the Service, should develop maintenance guidelines for Corps projects that will reduce adverse effects of routine maintenance on giant garter snakes and their habitat. Such actions may contribute to the delisting and recovery of the giant garter snake by preventing degradation of existing habitat and increasing the amount and stability of suitable habitat.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the projects described in this opinion. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the

agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. In addition, if the Corps discovers that the conditions of the permit have not been followed, the Corps should review its responsibilities under section 7 of the Act and reinitiate formal consultation with the Service. We appreciate the cooperation of the Corps throughout this consultation process.

If you have any questions regarding this biological opinion, please contact Kelly Hornaday of my staff at (916) 979-2120.

Sincerely,

Wayne S. White
Field Supervisor

Enclosures (Appendices A-D)

cc: AES, Portland, OR
CESAC, Regulatory Branch
FWS-SFO, Wetlands Branch
CDFG, Region 2, David Zezulak

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Personal Communications

Hansen, G., Consulting Environmental Biologist, 3230 Brookwood Road, Sacramento, CA

95821.