

V. TAKE AVOIDANCE, MINIMIZATION AND MITIGATION

The conservation strategy contained in Chapter IV describes the acquisition and habitat management guidelines to be employed by the Natomas Basin Conservancy. In addition to TNBC programs, the Permittees will each conduct various activities and apply various operational guidelines to avoid, minimize, and mitigate the take of Covered Species resulting from Authorized Development and Water Agency O&M activities within the Natomas Basin.

The measures presented in this Chapter are organized into three categories: measures that relate to the Land Use Agencies (City of Sacramento and Sutter County); measures that relate to the TNBC as a Permittee, and measures that relate to the Water Agencies (RD 1000 and Natomas Mutual).

A. LAND USE AGENCIES' CONSERVATION

In addition to accepting and transferring to TNBC Mitigation Fees, and possibly land dedications, as required under the NBHCP, the Land Use Agencies shall implement a variety of measures that will avoid, minimize or mitigate the take of Covered Species ("Conservation Measures"). These Conservation Measures shall be implemented or monitored by the involved Land Use Agency for development projects as conditions in Urban Development Permits, as well as for public projects sponsored by the respective Land Use Agency.

1. Pre-Construction Surveys

Not less than 30 days or more than 6 months prior to commencement of construction activities on specific Authorized Development sites in the NBHCP area, a pre-construction survey of the site shall be conducted to determine the status and presence of, and likely impacts to, all Covered Species on the site. However, pre-construction surveys for an individual species may be completed up to one year in advance if the sole period for reliable detection of that species is between May 1 and December 31. The applicant seeking to develop land will be responsible for contracting with qualified biological consultants to carry out the pre-construction surveys, and as necessary, to implement specific take minimization, and other Conservation Measures set forth in the NBHCP and approved by the Wildlife Agencies.

The results of the pre-construction surveys along with recommended take minimization measures shall be documented in a report and shall be submitted to the Land Use Agency, USFWS, CDFG and TNBC. Based upon the survey results, the Land Use Permittees will identify applicable take avoidance and other site specific Conservation Measures, consistent with this NBHCP, required to be carried out on the site. The approved pre-construction survey documents and list of Conservation Measures will be submitted by the developer of the Authorized Development project to the applicable Land Use Agency to demonstrate compliance with the NBHCP.

Reconnaissance level surveys should be conducted prior to species specific surveys to determine what habitats are present on a specific development site and what, if any, more intensive survey activities should be conducted to accurately determine the status of the Covered

Species on the site. It shall be the obligation of the developer/landowner to complete July 25, 2002 such surveys and the Land Use Agency Permittees's responsibility to ensure the surveys are properly completed prior to disturbance of habitat. Surveys shall be conducted by qualified personnel (e.g., persons with suitable biological, botanical, or related expertise). Note: negative species-specific survey results generally do not obviate the requirement to implement minimization measures prescribed in the revised NBHCP where a pre-construction survey indicates that habitat for a particular listed species exists onsite.

2. Preservation of the Area Adjacent to Fisherman's Lake

Fisherman's Lake and portions along both sides are and will continue to be, owned and managed by RD 1000. Also, RD 1000 has an easement on portions of the land along the east side of Fisherman's Lake. The easement was granted for flood control purposes and all uses not inconsistent with flood control were reserved to the land owner. The City shall create a buffer on the City side of Fisherman's Lake. Towards that end, the City of Sacramento approved the necessary action in June 2003 to amend the North Natomas Financing Plan to include the buffer area along Fisherman's Lake in the Land Acquisition Program (i.e., development impact fees will be increased to fund acquisition of the buffer area). The buffer area will be managed by TNBC.

According to the City's North Natomas Community Plan, the buffer area along Fisherman's Lake is a 250 foot wide land area stretching from Del Paso Road to El Centro Road on the City side of Fisherman's Lake, a portion of the West Drain. The east side of Fisherman's Lake is in the City of Sacramento and the west side is in the unincorporated portion of Sacramento County. Pursuant to the Settlement Agreement, the City has agreed to initiate a North Natomas Community Plan amendment to potentially widen the agricultural buffer along the City side of Fisherman's lake to 800 feet wide.

As of July 2002, TNBC owns 136 acres of Mitigation Land on the Sacramento County side of Fisherman's Lake, in partial compliance with the City of Sacramento's Settlement Agreement that requires acquisition of 250 acres of Mitigation Land in Zone 1.

Giant garter snakes, Swainson's hawks and other Covered Species inhabit the Fisherman's Lake area, a portion of the West Drain. According to the 2000 Annual Survey Results for the Swainson's Hawk, dated September 2000, prepared by the Swainson's Hawk Technical Advisory Committee, there are three nests along Fisherman's Lake. No data was available for the nests in 1998; 3 young were fledged from two of the nests in 1999; and two of the three nests were inactive and the third nest was active but failed to fledge any young in 2000. Also, Figure 5 in the 2000 Field Season Report for the Giant Garter Snake, dated December 21, 2000, and prepared by USGS, indicates the use of Fisherman's Lake by giant garter snakes.

3. General Measures to Minimize Take

In order to generally minimize the impacts of development on Covered Species, the City of Sacramento and Sutter County shall impose the following requirements on Authorized Development when approving Urban Development Permits within the Natomas Basin:

- a. Tree Preservation: Valley oaks and other large trees should be preserved whenever possible. Preserve and restore stands of riparian trees used by Swainson's hawks and other animals for nesting, particularly adjacent to Fisherman's Lake.
- b. Native Plants: Improve the wildlife value of landscaped parks, buffers, and developed areas by planting trees and shrubs which are native to the Natomas Basin and therefore are used by native animals.
- c. Protect Raptor Nests: Avoid the raptor nesting season when scheduling construction near nests. Specific avoidance criteria are set forth in the species specific measures later in this chapter.
- d. Protected Plant/Animal Species, also referred to as "Special Status Species": Search for protected plants species during flowering season prior to construction and protected animal species during the appropriate season.

4. Measures to Minimize Take of Vernal Pool Species

Vernal pool resources within the Natomas Basin are limited to small pools generally located in the far eastern portion of the Natomas Basin. Intact vernal pool complexes are not known to occur within the City or the Sutter County Land Use Agencies' Permit Areas. However, it is possible that isolated vernal pools exist within the Permit Areas of the City and the County and, therefore, would be subject to disturbance by Authorized Development or other Covered Activities.

Vernal pool resources within the City and the Sutter County Permit Areas shall be identified prior to disturbance through pre-construction surveys and other biological investigations. Such resources shall be discovered either through the early CEQA project review (required for general plan, specific plan, rezone, subdivision and other discretionary approvals of the Land Use Agencies) or during the pre-construction surveys required under the NBHCP. The following measures shall be implemented by the Land Use Agencies prior to issuance of Urban Development Permits when public or private development projects are proposed for areas that may support wetlands and/or vernal pool species. *(Note: The following mitigation measures do not replace or exempt an applicant from applying for and complying with Section 404 of the Clean Water Act and the related Section 7 consultations with USFWS in the event such resources are determined to be subject to Section 404. Rather, these mitigations set the standard for mitigation of vernal pool resources in the NBHCP area.)*

- a. General Biological Survey and Information Required.

In the event a biological reconnaissance survey or the pre-construction survey identifies that vernal pool resources are on-site, a vernal pool species specific biological assessment must be provided by the developer to the Land Use Agency during the appropriate season (as established by USFWS)—to determine the type and abundance of species present. The species specific biological assessment must address covered vernal pool plants (i.e., Sacramento Orcutt grass,

slender Orcutt grass, Colusa grass, legenere, and Bogg's lake hedge-hyssop), crustaceans (i.e., vernal pool tadpole shrimp, vernal pool fairy shrimp, and midvalley fairy shrimp), and amphibians (i.e., California tiger salamander and western spadefoot toad). The vernal pool plant survey must be a USFWS-approved plant survey prepared by a USFWS-approved qualified field biologist and shall list the methods of field analysis, condition of habitat, size and acreage of direct and indirect impact (as defined by seasonal inundation and hydric soils and other appropriate characteristics), and species present. The vernal pool crustacean species survey shall be in accordance with the USFWS Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (April 19, 1996) or the most recent approved USFWS survey guidelines for vernal pool species (Appendix L). This assessment must be submitted with the urban development permit application and prior to approval of an Urban Development Permit by the Land Use Agency.

If it is determined that wetland and/or vernal pool resources would be disturbed by a project, then take of vernal pool associated Covered Species would be covered under the NBHCP, subject to the following limitation and guidelines:

- (1) Where site investigations indicate vernal pool species may occur, the developer shall notify the Land Use Agency regarding the potential for impacts to vernal pool species. Such notification shall include biological data (see Section (a) above regarding biological information required) adequate to allow the Land Use Agency, and the USFWS and CDFG to determine the potential for impacts to vernal pool species resulting from the proposed development.
- (2) Following notification by the Land Use Agency, USFWS and CDFG shall identify specific measures required to avoid, minimize and mitigate impacts to vernal pool species to be implemented prior to disturbance and in accordance with adopted standards or established guidelines (e.g., the USFWS programmatic biological opinion for vernal pool species attached as Appendix G as it may be amended from time to time). In some cases, USFWS and CDFG may require complete avoidance of vernal pool species, such as where Covered Species such as slender orcutt grass, Sacramento orcutt grass, Colusa grass and/or vernal pool tadpole shrimp are found to be present. Such measures shall be identified by USFWS and CDFG within 30 days or as soon as possible thereafter of notification and submittal of biological data to the agencies by the Land Use Agency.
- (3) The requirement by USFWS to preserve a vernal pool within development would be based on identification of an intact vernal pool with minimal disturbance where the presence of one or more of the following species is recorded: slender orcutt grass, Sacramento orcutt grass, Colusa grass, or vernal pool tadpole shrimp.

Prior to requiring on-site preservation of a vernal pool area, USFWS shall consider the suitability of the vernal pool as TNBC Mitigation Lands. No such

preservation requirement shall be made unless the vernal pool is a suitable site for TNBC Mitigation Lands. Such vernal pool areas, including any required buffer land dedication, shall apply toward the Land Acquisition Fee component of the development project's NBHCP mitigation obligation.

- b. Mitigation Strategies: Vernal pool resources (i.e., vernal pool fairy shrimp, vernal pool tadpole shrimp, midvalley fairy shrimp, Sacramento Orcutt grass, slender Orcutt grass, Colusa grass, legenera, and Bogg's Lake hedge-hyssop) identified through site specific investigations shall be mitigated in one of three general approaches as described below. Strategies to minimize and mitigate the take of the California tiger salamander and western spadefoot toad shall be conducted according to Sections V.A.5 and V.B.4.

(1) Avoidance and Preservation On-Site as a Means to Minimize Impacts

In the event USFWS requires on-site preservation in accordance with Section a.3 above, on-site mitigation shall be required. In the event USFWS does not require on-site mitigation, a developer or private land owner may still propose to dedicate fee title or conservation easement for that portion of the property with vernal pool resources and an associated 250-foot buffer surrounding the vernal pool resource to the TNBC. Acceptance of the offer to dedicate shall be subject to review and approval by the Land Use Agency, TNBC Board and the Wildlife Agencies. The TNBC Board and the Wildlife Agencies shall consider the location, connections, species present, condition of the proposed site to be dedicated, and may decide to accept the dedication in lieu of payment of the Land Acquisition Fee portion of the NBHCP Mitigation Fee for the affected acreage. TNBC Board may accept or decline the offer based on the balance of habitat needs and the biological goals of the HCP. If the dedication is accepted, a reduction in the Land Acquisition Fee portion of the habitat Mitigation Fee shall be granted the developer for the portion (calculated on an acreage basis) of the site permanently preserved by easement or dedication. However, habitat Mitigation Fees, in full, must be paid on the remaining developable acreage on the site, and all fees other than Land Acquisition Fees shall be paid for all acres on the site. Additional conditions to preserve the biological integrity of the site (such as reasonable drainage conditions) may be imposed by the Land Use Agency in consultation with TNBC and the TAC.

In the event the developer does not support on-site preservation or TNBC does not accept the offer to dedicate, then one of the following mitigation approaches shall be employed.

(2) Construction Period Avoidance and Relocation of Vernal Pool Resources.

Relocation of vernal pool resources and commencement of Authorized Development shall be subject to the following mitigation measures will be required:

- (a) No grading, development or modification of the vernal pool site or the buffer area extending 250 feet around the perimeter of the vernal pool site may occur during the vernal pool "wet" season as identified by USFWS.

Protective fencing shall be established around the perimeter of the vernal pool site and the buffer area during the vernal pool wet season.

- (b) In consultation with TNBC and the TAC, soils and cysts from the vernal pool may be relocated as soon as practicable during the dry season to a suitable TNBC or other reserve site provided the relocation/recreation site is approved by TNBC, and the USFWS.

If it is not practicable to relocate vernal pool resources, and/or TNBC or USFWS determine that TNBC does not have a suitable reserve site for relocation of resources, then the applicant shall follow the mitigation approach outlined in Section (3) below.

(3) Payment Into a USFWS Approved Conservation Bank.

In the event all of the above approaches are not appropriate for the site, the Land Use Agency shall require the developer to purchase credits from a USFWS-approved mitigation bank in accordance with the standards set forth in the following Table V-1. USFWS shall determine the type and amount of credits to be purchased based on the impacts associated with the development.

Mitigation ratios for credits dedicated in Service-approved mitigation banks or for acres of habitat outside of mitigation banks shall be as follows:

**TABLE V-1
MITIGATION RATIOS**

	Bank	Non-Bank
Preservation	2:1	3:1
Creation	1:1	2:1

Preservation Component: For every acre of habitat directly or indirectly affected, at least two vernal pool credits will be dedicated within a Service-approved ecosystem preservation bank, or based on Service evaluation of site-specific conservation values, three acres of vernal pool habitat may be preserved on the project site or on another non-bank site as approved by the Service.

Creation Component: For every acre of habitat directly affected, at least one vernal pool creation credit will be dedicated within a Service-approved habitat mitigation bank, or based on Service evaluation of site-specific conservation values, two acres of vernal pool habitat created and monitored on the project site or on another non-bank site as approved by the Service.

5. Measures to Reduce Take for Individual Species

Identified below are specific measures that will be imposed as conditions on Urban Development Permits or implemented for public works projects, and enforced by the Land Use Agencies to mitigate, minimize and avoid take of each NBHCP Covered Species, as related to urban development. Specific measures to avoid, minimize and mitigate take resulting from TNBC and Water Agency Covered Activities are provided in Sections V.B and V.C., respectively.

a. Measures to Reduce Take of Giant Garter Snake

- (1) Within the Natomas Basin, all construction activity involving disturbance of habitat, such as site preparation and initial grading, is restricted to the period between May 1 and September 30. This is the active period for the giant garter snake and direct mortality is lessened, because snakes are expected to actively move and avoid danger.
- (2) Pre-construction surveys for giant garter snake, as well as other NBHCP Covered Species, must be completed for all development projects by a qualified biologist approved by USFWS. If any giant garter snake habitat is found within a specific site, the following additional measures shall be implemented to minimize disturbance of habitat and harassment of giant garter snake, unless such project is specifically exempted by USFWS.
- (3) Between April 15 and September 30, all irrigation ditches, canals, or other aquatic habitat should be completely dewatered, with no puddled water remaining, for at least 15 consecutive days prior to the excavation or filling in of the dewatered habitat. Make sure dewatered habitat does not continue to support giant garter snake prey, which could detain or attract snakes into the area. If a site cannot be completely dewatered, netting and salvage of prey items may be necessary. This measure removes aquatic habitat component and allows giant garter snake to leave on their own.
- (4) For sites that contain giant garter snake habitat, no more than 24-hours prior to start of construction activities (site preparation and/or grading), the project area shall be surveyed for the presence of giant garter snake. If construction activities stop on the project site for a period of two weeks or more, a new giant garter snake survey shall be completed no more than 24-hours prior to the re-start of construction activities.
- (5) Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project as Environmentally Sensitive Areas. This area shall be avoided by all construction personnel.

- (6) Construction personnel completing site preparation and grading operations shall receive USFWS approved environmental awareness training. This training instructs workers on how to identify giant garter snakes and their habitats, and what to do if a giant garter snake is encountered during construction activities. During this training an on-site biological monitor shall be designated.
- (7) If a live giant garter snake is found during construction activities, immediately notify the USFWS and the project's biological monitor. The biological monitor, or his/her assignee, shall do the following:
 - (a) Stop construction in the vicinity of the snake. Monitor the snake and allow the snake to leave on its own. The monitor shall remain in the area for the remainder of the work day to make sure the snake is not harmed or if it leaves the site, does not return. Escape routes for giant garter snake should be determined in advance of construction and snakes should always be allowed to leave on their own. If a giant garter snake does not leave on its own within 1 working day, further consultation with USFWS is required.
- (8) Upon locating dead, injured or sick threatened or endangered wildlife species, the Permittees or their designated agents must notify within 1 working day the Service's Division of Law Enforcement (2800 Cottage Way, Sacramento CA 95825) or the Sacramento Fish and Wildlife Office (2800 Cottage Way, Room W-2605, Sacramento, CA 95825, telephone 916 414-6600). Written notification to both offices must be made within 3 calendar days and must include the date, time, and location of the finding of a specimen and any other pertinent information.
- (9) Fill or construction debris may be used by giant garter snake as an over-wintering site. Therefore, upon completion of construction activities remove any temporary fill and/or construction debris from the site. If this material is situated near undisturbed giant garter snake habitat and it is to be removed between October 1 and April 30, it shall be inspected by a qualified biologist to assure that giant garter snake are not using it as hibernaculae.
- (10) No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes will be placed on a project site when working within 200 feet of snake aquatic or rice habitat. Possible substitutions include coconut coir matting, tactified hydroseeding compounds, or other material approved by the Wildlife Agencies.
- (11) Fences will be constructed along the shared boundary of urban development and the North Drainage Canal and the East Drainage Canal within Sutter's Permit Area, subject to the following guidelines:
 - (a) A minimum of 100 feet will be provided from fence-to-fence and access to the canals shall be limited by gates.

- b) A snake deterrent will be placed along the fences on the North Drainage Canal and the East Drainage Canal (i.e., fence construction that restricts snake movement or an appropriate vegetative barrier either inside or outside of the boundary fence). The design of the deterrent shall be subject to approval by the Wildlife Agencies.
 - (c) The specific fence/snake barrier design adjacent to a given development will be determined within Sutter County's review of the proposed development and the fence/barrier shall be installed immediately after site grading is completed.
- (12) At the time of urban development along the North and East Drainage Canals, Sutter shall consult with the Wildlife Agencies to determine design strategies that would enhance conditions for giant garter snake movement through the North and East Drainage Canals. Possible strategies may include expanded buffer areas and modified canal cross sections if such measures are, in the determination of Sutter and the Water Agencies, found to be feasible.

b. Measures to Reduce Take of Swainson's Hawk

Measures to Reduce Cumulative Impacts to Foraging Habitat

- (1) To maintain and promote Swainson's hawk habitat values, Sutter County will not obtain coverage under the NBHCP and incidental take permits, nor will Sutter County grant Urban Development Permit approvals, for development on land within the one-mile wide Swainson's Hawk Zone adjacent to the Sacramento River. The City of Sacramento has limited its Permit Area within the Swainson's Hawk Zone to the approximately 252 acres located within the North Natomas Community Plan that was designated for urban development in 1994 and, likewise, will not grant development approvals within the Swainson's Hawk Zone beyond this designated 252 acres. It should be noted that of these 252 acres of land in the Swainson's Hawk Zone, about 80 acres will be a 250 foot wide agricultural buffer along the City's side of Fisherman's Lake. Should either the City or the County seek to expand NBHCP coverage for development within the Swainson's Hawk Zone beyond that described above, granting of such coverage would require an amendment to the NBHCP and permits and would be subject to review and approval by the USFWS and the CDFG in accordance with all applicable statutory and regulatory requirements.

Because the effectiveness of the NBHCP's Operating Conservation Program (OCP) adequately minimizes and mitigates the effects of take of the Swainson's hawk depends substantially on the exclusion of future urban development from the City's and Sutter County's portion of the Swainson's Hawk Zone, approval by the City of future urban development (i.e., uses not consistent with Agricultural Zoning) in the zone beyond the 170 (252 acres minus 80) acres

identified above or approval by Sutter of any future urban development in the Swainson's Hawk Zone would constitute a significant departure from the Plan's OCP and would trigger a reevaluation of the City's and/or Sutter's Permits and possible suspension or revocation of the City's and/or County's permits.

Measures to Reduce Nest Disturbance

- (1) Prior to the commencement of development activities at any development site within the NBHCP area, a pre-construction survey shall be completed by the respective developer to determine whether any Swainson's hawk nest trees will be removed on-site, or active Swainson's hawk nest sites occur on or within ½ mile of the development site. These surveys shall be conducted according to the Swainson's Hawk Technical Advisory Committee's (May 31, 2000) methodology or updated methodologies, as approved by the Service and CDFG, using experienced Swainson's hawk surveyors.
- (2) If breeding Swainson's hawks (i.e. exhibiting nest building or nesting behavior) are identified, no new disturbances (e.g., heavy equipment operation associated with construction) will occur within ½ mile of an active nest between March 15 and September 15, or until a qualified biologist, with concurrence by CDFG, has determined that young have fledged or that the nest is no longer occupied. If the active nest site is located within 1/4 mile of existing urban development, the no new disturbance zone can be limited to the 1/4 mile versus ½ mile. Routine disturbances such as agricultural activities, commuter traffic, and routine facility maintenance activities within ½ mile of an active nest are not restricted.
- (3) Where disturbance of a Swainson's hawk nest cannot be avoided, such disturbance shall be temporarily avoided (i.e., defer construction activities until after the nesting season) and then, if unavoidable, the nest tree may be destroyed during the non-nesting season. For purposes of this provision the Swainson's hawk nesting season is defined as March 15 to September 15. If a nest tree (any tree that has an active nest in the year the impact is to occur) must be removed, tree removal shall only occur between September 15 and February 1.
- (4) If a Swainson's hawk nest tree is to be removed and fledglings are present, the tree may not be removed until September 15 or until the California Department of Fish and Game has determined that the young have fledged and are no longer dependent upon the nest tree.
- (5) If construction or other project related activities which may cause nest abandonment or forced fledgling are proposed within the 1/4 mile buffer zone, intensive monitoring (funded by the project sponsor) by a Department of Fish and Game approved raptor biologist will be required. Exact implementation of this measure will be based on specific information at the project site.

Measures to Prevent the Loss of Nest Trees

- (1) Valley oaks, tree groves, riparian habitat and other large trees will be preserved wherever possible. The City and Sutter County shall preserve and restore stands of riparian trees used by Swainson's hawks and other animals, particularly near Fisherman's Lake and elsewhere in the Plan Area where large oak groves, tree groves and riparian habitat have been identified in the Plan Area.
- (2) The raptor nesting season shall be avoided when scheduling construction near nests in accordance with applicable guidelines published by the Wildlife Agencies or through consultation with the Wildlife Agencies.
- (3) Annually, prior to the Swainson's hawk nesting season (March 15 to September 15) and until buildout of their Authorized Development has occurred, the City of Sacramento and Sutter County will notify each landowner of any property within the permit area(s) on which a Swainson's hawk nest tree is present, and will identify the nest tree, and alert the owner to the specific mitigation measures prohibiting the owner from removing the nest tree.

Measures to Mitigate the Loss of Swainson's Hawk Nest Trees

- (1) The NBHCP will require 15 trees (five gallon container size) to be planted within the habitat reserves for every Swainson's hawk nesting tree anticipated to be impacted by Authorized Development. It will be the responsibility of each Land Use Agency approving development that will impact Swainson's hawk nest trees to provide funding from the applicable developer for purchase, planting, maintenance and monitoring of trees at the time of approval of each Authorized Development project. TNBC shall determine the appropriate cost for planting, maintenance and monitoring of trees.
- (2) The Land Use Agency Permittee approving a project that impacts an existing Swainson's hawk nest tree shall provide funding sufficient for monitoring survival success of trees for a period of five (5) years. For every tree lost during this time period, a replacement tree must be planted immediately upon the detection of failure. Trees planted to replace trees lost shall be monitored for an additional five-year period to ensure survival until the end of the monitoring period. A 100% success rate shall be achieved. All necessary planting requirements and maintenance (i.e., fertilizing, irrigation) to ensure success shall be provided. Trees must be irrigated for a minimum of the first 5 years after planting, and then gradually weaned off the irrigation in an approximate two-year period. If larger stock is planted, the number of years of irrigation must be increased accordingly. In addition, 10 years after planting, a survey of the trees shall be completed to assure 100% establishment success. Remediation of any dead trees shall include completion of the survival and establishment process described.

- (3) Of the replacement trees planted, a variety of native tree species will be planted to provide trees with differing growth rates, maturation, and life span. This will ensure that nesting habitat will be available quickly (5-10 years in the case of cottonwoods and willows), and in the long term (i.e., valley oaks, black walnut and sycamores), and minimize the temporal losses from impacts to trees within areas scheduled for development within the 50-year permit life. Trees shall be sited on reserves in proximity to hawk foraging areas. Trees planted shall be planted in clumps of 3 trees each. Planting stock shall be a minimum of 5-gallon container stock for oak and walnut species.
- (4) In order to reduce temporal impacts resulting from the loss of mature nest trees, mitigation planting shall occur within 14 months of approval of the NBHCP and ITP's. It is estimated at this time that 4 nesting trees within the City of Sacramento are most likely to be impacted by Authorized Development in the near term. Therefore, in order to reduce temporal impacts, the City of Sacramento will advance funding for 60 sapling trees of diverse, suitable species (different growing rates) to TNBC within the above referenced 14 months. It is anticipated that the City will recover costs of replacement nest trees as an additional cost to be paid by private developers at the time of approval of their development projects that impact mature nest trees.
- (5) For each additional nesting tree removed by Land Use Agencies' Covered Activities, the Land Use Agency shall fund and provide for the planting of 15 native sapling trees of suitable species with differing growth rates at suitable locations on TNBC preserves. Funding for such plantings shall be provided by the applicable Permittee within 30 days of approving a Covered Activity that will impact a Swainson's hawk nesting tree.

c. Measures to Reduce Take to Valley Elderberry Longhorn Beetle (VELB)

The Land Use Agencies shall require private developers and public infrastructure projects to comply with conservation practices for the VELB set forth in the conditions of the "USFWS Compensation Guidelines for the Valley Elderberry Longhorn Beetle," dated 1999, attached as Appendix C as it may be updated from time to time. This policy assumes that any elderberry bushes found within the range of the species are likely to provide beetle habitat, and any destruction or loss of such elderberry shrub habitat must be mitigated according to the Guidelines. The principle conditions of the Guidelines are summarized below; Appendix C contains the Guidelines in their entirety. These Guidelines, or any revision or successor to the Guidelines approved by the USFWS, are hereby incorporated as terms and conditions of the NBHCP.

Prior to approval of Urban Development Permit, the involved Land Use Agency shall require a pre-construction survey. If such survey determines VELB habitat is present, the Land Use Agency shall require the developer to follow the following appropriate measures to avoid take and minimize of individuals:

- (1) Impacts to VELB habitat including any direct and indirect effects on VELB critical habitat will be avoided whenever possible. To the maximum extent practicable, projects will be designed to avoid stands of elderberry bushes and to avoid isolation of the plants from other nearby populations. Pre-construction surveys at the construction impact site will be conducted to assess the appropriate amount of mitigation.
- (2) If elderberry plants cannot be avoided, they shall be transplanted during the dormant season (November 1 to February 15) to an area protected in perpetuity and approved by the USFWS.
- (3) Replacement seedling plants will be provided at a ratio of 2 to 1 to 5 to 1 depending on the extent of beetle utilization of the plants moved or lost. A 1,800-square-foot area will be provided for each transplanted elderberry shrub or every five elderberry seedling plants.
- (4) Annual monitoring of VELB habitat will be provided in the planted mitigation sites for a ten year period.
- (5) Replacement elderberry shrubs will meet a 60% survival rate by the end of the ten year period and the 60% survival rate shall be required for the term of the applicable permit.

d. Measures to Reduce Take on Tricolored Blackbird

- (1) Prior to approval of an Urban Development Permit, the involved Land Use Agency shall require a pre-construction survey of potential breeding and nesting habitat for presence of breeding and nesting tricolored blackbirds.
- (2) If surveys determine tricolored blackbirds are present, the following measures shall be implemented in accordance with the Migratory Bird Treaty Act, to avoid disturbance to active (occupied) nesting colonies during the nesting season. A boundary shall be marked by brightly colored construction fencing that establishes a boundary 500 feet from the active nest site. No disturbance associated with Authorized Development shall occur within the 500 foot fenced area during the nesting season to July 1, or while birds are present. A qualified biologist, with concurrence of USFWS, must determine young have fledged and nest sites are no longer active before the nest site may be disturbed.

e. Measures to Reduce Take on Aleutian Canada Goose

- (1) Prior to approval of an Urban Development Permit, the applicable Land Use Agency shall require a pre-construction survey. If such survey determines Aleutian Canada Goose are present, the Land Use Agency shall require the developer to consult with USFWS and CDFG to determine appropriate measures to avoid and minimize take of individuals. Such measures shall be appropriate

for the use (e.g., foraging, roosting, etc.) and activity of the species, since this species is a seasonal visitor to the Basin.

f. Measures to Reduce Take on White-faced Ibis

- (1) Prior to approval of an Urban Development Permit, the involved Land Use Agency shall require a pre-construction survey.
- (2) If surveys determine the presence of active nest sites of White-faced ibis, disturbance by Authorized Development within 1/4 mile of nests will be avoided within the nesting season of May 15 through August 31 or until a qualified biologist, with concurrence of Wildlife Agencies, has determined that young have fledged or that the nest is no longer occupied.

g. Measures to Reduce Take on Loggerhead Shrike

- (1) Prior to approval of Urban Development Permit, the involved Land Use Agency shall require a pre-construction survey.
- (2) If surveys identify an active loggerhead shrike nest that will be impacted by Authorized Development, the developer shall install brightly colored construction fencing that establishes a boundary 100 feet from the active nest. No disturbance associated with Authorized Development shall occur within the 100 foot fenced area during the nesting season of March 1 through July 31. A qualified biologist, with concurrence of USFWS must determine young have fledged or that the nest is no longer occupied prior to disturbance of the nest site.

h. Measures to Reduce Take of Burrowing Owl

- (1) Prior to the initiation of grading or earth disturbing activities, the applicant/developer shall hire a CDFG approved qualified biologist to perform a pre-construction survey of the site to determine if any burrowing owls are using the site for foraging or nesting. The pre-construction survey shall be submitted to the Land Use Agency with jurisdiction over the site prior to the developer's commencement of construction activities and a mitigation program shall be developed and agreed to by the Land Use Agency and developer prior to initiation of any physical disturbance on the site.
- (2) Occupied burrows shall not be disturbed during nesting season (February 1 through August 31) unless a qualified biologist approved by the CDFG verifies through non-invasive measures that either: 1) the birds have not begun egg-laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
- (3) If nest sites are found, the USFWS and CDFG shall be contacted regarding suitable mitigation measures, which may include a 300 foot buffer from the nest

site during the breeding season (February 1 - August 31), or a relocation effort for the burrowing owls if the birds have not begun egg-laying and incubation or the juveniles from the occupied burrows are foraging independently and are capable of independent survival. If on-site avoidance is required, the location of the buffer zone will be determined by a qualified biologist. The developer shall mark the limit of the buffer zone with yellow caution tape, stakes, or temporary fencing. The buffer will be maintained throughout the construction period.

- (4) If relocation of the owls is approved for the site by USFWS and CDFG, the developer shall hire a qualified biologist to prepare a plan for relocating the owls to a suitable site. The relocation plan must include: (a) the location of the nest and owls proposed for relocation; (b) the location of the proposed relocation site; (c) the number of owls involved and the time of year when the relocation is proposed to take place; (d) the name and credentials of the biologist who will be retained to supervise the relocation; (e) the proposed method of capture and transport for the owls to the new site; (f) a description of the site preparations at the relocation site (e.g., enhancement of existing burrows, creation of artificial burrows, one-time or long-term vegetation control, etc.); and (g) a description of efforts and funding support proposed to monitor the relocation.

Relocation options may include passive relocation to another area of the site not subject to disturbance through one way doors on burrow openings, or construction of artificial burrows in accordance with the CDFG's October 17, 1995, Staff Report on Burrowing Owls Mitigation (see Appendix D).

- (5) Where on-site avoidance is not possible, disturbance and/or destruction of burrows shall be offset through development of suitable habitat on TNBC upland reserves. Such habitat shall include creation of new burrows with adequate foraging area (a minimum of 6.5 acres) or 300 feet radii around the newly created burrows. Additional habitat design and mitigation measures are described in the CDFG's October 17, 1995, Staff Report on Burrowing Owl Mitigation (see Appendix D).

i. Measures to Reduce Take on Bank Swallow

- (1) Disturbance to bank swallows nesting colonies will be avoided within the nesting season of May 1 through August 31 (or until a qualified biologist, with concurrence of USFWS and CDFG, has determined that young have fledged or that the nest is no longer occupied) during all Authorized Development activities conducted in the Permit Areas.
- (2) If surveys identify an active bank swallow nesting colony that will be impacted by Authorized Development, the developer shall install brightly colored construction fencing that establishes a boundary 250 feet from the active nesting colony. No disturbance associated with Authorized Development shall occur within the 250 foot fenced area during the nesting season of May 1 through

August 31. Additionally, disturbance within ½ mile upstream or downstream of the colony will be avoided if the colony is located upon a natural waterway.

j. Measures to Reduce Take on Northwestern Pond Turtle

- (1) Take of the northwestern pond turtle as a result of habitat destruction during construction activities, including the removal of irrigation ditches and drains, and during ditch and drain maintenance, will be minimized by the dewatering requirement described above for giant garter snake (see Section 5.a.(3)).

k. Measures to Reduce Take on California Tiger Salamander

- (1) Prior to approval of an Urban Development Permit, the involved Land Use Agency shall require a pre-construction survey. If a future survey determine the presence of California tiger salamander, the Land Use Agency shall require the developer to consult with USFWS and CDFG to determine appropriate measures to avoid and minimize take of individuals.

l. Measures to Reduce Take on Western Spadefoot Toad

- (1) Prior to approval of an Urban Development Permit, the involved Land Use Agency shall require a pre-construction survey. If such survey determines western spadefoot toad are present, the Land Use Agency shall require the developer to consult with CDFG and USFWS to determine appropriate measures to avoid and minimize take of individuals.

m. Measures to Reduce Take of Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp, and Midvalley Fairy Shrimp

- (1) Prior to approval of an Urban Development Permit, the involved Land Use Agency shall require a pre-construction survey. If such survey determine vernal pool fairy shrimp, vernal pool tadpole shrimp, and midvalley fairy shrimp are present, the Land Use Agency shall require the developer to consult with USFWS to determine appropriate measures to avoid and minimize take of individuals. Procedures for reviewing projects that could affect vernal pools and vernal pool species are discussed under Section V.A.4 above.

n. Measures to Reduce Take of Delta Tule Pea

- (1) If Delta tule pea plants are identified through a pre-construction survey, the involved Land Use Agency shall provide notice to USFWS, CDFG and the California Native Plant Society. Under such circumstances, the development proponent shall allow the transplantation of plants prior to site disturbance.

o. Measures to Reduce Take on Sanford's Arrowhead

- (1) If Sanford's arrowhead plants are identified through a pre-construction survey, the involved Land Use Agency shall provide notice to USFWS, CDFG and the California Native Plant Society. Under such circumstances, the development proponent shall allow the transplantation of plants prior to site disturbance.

p. Measures to Reduce Take on Boggs Lake Hedge-Hyssop, Sacramento Orcutt Grass, Slender Orcutt Grass, Colusa Grass, and Legenere

- (1) Prior to approval of an Urban Development Permit, the involved Land Use Agency shall require a pre-construction survey. If such survey determines Boggs Lake hedge-hyssop, Sacramento orcutt grass, Slender orcutt grass, Colusa grass, or legenere are present, the Land Use Agency shall require the developer to consult with USFWS to determine appropriate measures to avoid and minimize loss of individuals. If Authorized Development is proposed for areas containing vernal pools, the applicant will be required to complete additional review, permitting and mitigation as described under Section V.A.4.

B. THE NATOMAS BASIN CONSERVANCY'S (TNBC) CONSERVATION MEASURES

As a Permittee, TNBC shall employ a number of measures to avoid, minimize and mitigate take of Covered Species during the undertaking of the TNBC's Covered Activities. The TNBC's Covered Activities include the acquisition and management of habitat reserves including where approved through site specific management plans, development activities necessary to create suitable supportive habitat for the Covered Species. Chapter IV, the Conservation Plan, outlines a number of actions which the TNBC will use to avoid take in the acquisition and management of habitat reserves. In addition to those measures specified in Chapter IV, the TNBC shall also employ the following measures.

1. General Conservation Strategies

The Existing Conditions Biological Assessment, as described in Section IV.D.1.a, shall document the types of habitat present on newly acquired reserves and the Covered Species that might be present on the site. The data collected through the Existing Conditions Biological Assessment shall be utilized to identify general strategies to avoid take of Covered Species during the acquisition, development and management phases of reserve operations. Not less than 30 days prior to commencement of major construction activities on specific reserve sites, TNBC shall conduct a formal pre-construction survey of the site to determine the status and presence of, and likely impacts to, all Covered Species on the site. For purpose of TNBC, major construction shall include site grading or contouring, dredging or filling of ditches or drainage systems, construction of reserve access roads or other structures. Actions involving substantial vegetation removal or the removal shall also be subject to pre-construction survey, which may be more focused to identify the presence of nests of Covered Species, other likely species impacts. TNBC will utilize qualified biological consultants to carry out the pre-construction surveys, and

as necessary, to implement specific take minimization measures set forth in the NBHCP and approved by the Wildlife Agencies.

2. Conservation Strategies for Wetland Species and Reserves

The TNBC shall employ the wetland conservation acquisition and management strategies included in Chapter IV.

3. Conservation Strategies for Upland Species and Reserves

The TNBC shall employ the upland conservation acquisition and management strategies included in Chapter IV.

4. Conservation Strategies for Individual Species

a. Giant Garter Snake

1. All construction activity involving disturbance of habitat, such as site preparation and initial grading, will be restricted to the snake's active period (May 1 - September 30).
2. Avoid construction activities within 200 feet from banks of giant garter snake aquatic habitat and confine movement of heavy equipment to existing roadways to minimize habitat disturbance to the extent feasible.
3. No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes will be placed on a project site when working within 200 feet of snake aquatic or rice habitat. Possible substitutions include coconut coir matting, tactified hydroseeding compounds, or other material approved by the Wildlife Agencies.
4. Pre-construction surveys for the snake, as well as other Covered Species, will be completed for all development projects by a qualified biologist who has been approved by the Service. If snake habitat is found within a specific site, the following additional measures shall be implemented to minimize disturbance of habitat and harassment of the snake, unless that project is specifically exempted by the Service:
 - (a) Between April 15 and September 30, all irrigation ditches, canals, or other aquatic habitat will be completely dewatered, with no puddled water remaining, for at least 15 consecutive days prior to the excavation or filling in of the dewatered habitat. The dewatered habitat will be observed to ensure that it does not continue to support snake prey, which could attract snakes to the project site. If a site cannot be completely dewatered, snake prey items will be removed using netting or other salvage methods.

- (b) No more than 24-hours prior to the start of construction activities (site preparation and/or grading), the project area shall be surveyed for snakes. If construction activities stop on the project site for a period of two weeks or more, a new snake survey shall be completed no more than 24-hours prior to the re-start of construction activities.
- (c) Clearing will be confined to the minimal area necessary to facilitate construction activities. Snake habitat within or adjacent to the project will be flagged for avoidance. The avoidance area shall be avoided by all construction personnel.
- (d) Construction personnel completing site preparation and grading operations shall receive Service-approved environmental awareness training. This training instructs workers on how to identify the snake and its habitats and what to do if a snake is encountered during construction activities. An on-site biological monitor will be designated during the training.
- (e) If a live snake is found during construction activities, the Service and the project's biological monitor will be immediately notified. The biological monitor, or his/her assignee, shall halt construction in the vicinity of the snake. The snake will be monitored and allowed to leave the area on its own. The monitor shall remain in the area for the remainder of the work day to make sure the snake is not harmed or, if it leaves the site, does not return. Escape routes for the snake should be determined in advance of construction and snakes should always be allowed to leave on their own. If a snake does not leave on its own within one working day, further consultation with the Service will be conducted.
- (f) Upon locating dead, injured or sick Covered Species, the Conservancy or its designated agents shall notify, within one working day, the Service's Division of Law Enforcement (2800 Cottage Way, Sacramento CA 95825) or the Sacramento Fish and Wildlife Office (2800 Cottage Way, Room W-2605, Sacramento, CA 95825, telephone 916 414-6600). Written notification to both offices will be made within three calendar days and will include the date, time, and location of the finding of a specimen and any other pertinent information.
- (g) Fill or construction debris may be used by the snake as an over-wintering site. Therefore, upon completion of construction activities, any temporary fill and/or construction debris will be removed from the site. If the material is located near undisturbed snake habitat and will be removed between October 1 and April 30, it shall be inspected by a qualified biologist to ensure that snakes are not using it as hibernaculae.

b. Swainson's Hawk

TNBC shall implement the following measures to further enhance habitat and to reduce the potential for take of upland Covered Species during improvement, operation and maintenance of TNBC reserves:

- (1) TNBC, in conjunction with the Land Use Agencies, will monitor proposed development in the Swainson's Hawk Zone, where the majority of known Swainson's hawk nest sites are currently located and, hence, much of the Swainson's hawk nesting and foraging in the Basin occurs. Based on existing general plans and the City's and Sutter County's NBHCP Permit Areas, development in this zone is expected to be limited over the life of the Plan. However, if the NBHCP is amended and such development does occur, Mitigation Lands established for such development shall, likewise, be located within the Swainson's Hawk Zone. In addition, TNBC shall set as a top priority the acquisition of upland reserve sites in the Swainson's Hawk Zone (via easement or land purchase. Further, any reserve lands established in the Swainson's Hawk Zone shall, to the maximum extent possible, be managed to benefit all upland-associated Covered Species, though any management in this zone must be fully consistent with Swainson's hawk biology and needs.
- (2) To enhance the success of the species, TNBC reserves shall include tree plantings of valley oaks (*quercus lobata*), cottonwoods (*populus fremontii*), various willow including black willow or other suitable species to recreate suitable nesting sites for the Swainson's hawk over the life of the Plan. Such tree planting shall be in reasonable proximity to upland foraging areas covered by the conservation plan including agricultural areas managed by TNBC.
- (3) For rice fields operated by TNBC, rice production practices to increase habitat for Swainson's hawk shall be incorporated. This includes allowing at least 10% of rice fields to fallow each year as well as allowing foraging before and after rice flooding. It is estimated that during the time hawks are present in the Basin, drained or flooded rice fields provide foraging habitat for an average of 2 months every year. Additionally, it is expected, that wildlife friendly agricultural practices (organic farming, providing crop residual for rodent production, similar to those used at the nearby Cosumnes River Preserve), will greatly increase the habitat value of ricelands to the hawk and other Covered Species.
- (4) Where possible develop or restore upland components of wetland reserves such that upland Covered Species, including the Swainson's hawk also benefit from the habitat. Thus, wetland reserves, along with the upland reserves described above will help offset habitat losses affecting the Swainson's hawk within the NBHCP Plan Area. Also, the upland component of wetland reserves will benefit some of the upland Covered Species, especially those that also have wetland habitat needs (e.g., the tricolored blackbird).

- (5) Utilize best management practices to ensure availability of food sources for Swainson's hawk including meadow mice (*Microtus californicus*) and insects. In the Central Valley, meadow mice and insects make up a significant portion of the Swainson's hawk's diet. In the management of nearby similarly designed preserves (e.g., Beach Lake Mitigation Bank, Stones Lakes National Wildlife Refuge), the increased availability of water in previously dry grasslands has increased *Microtus* abundance (Caltrans, 1991). This would be expected given the biological requirement of *Microtus* for green food. This species has been found to increase its reproductive rate nearly ten-fold in the presence of persistent green food over dry grasses (Batzli, 1986; Bowen, 1987; Gill, 1976). Those green plant species generally preferred by *Microtus* (bent grass, chickweed, bedstraw, sorrel, plantain and bromus) are tolerant of limited inundation and will do well in a seasonally wetland environment, as well as those ruderal habitats associated with agricultural and water conveyance systems (Ostfeld and Klosterman, 1986). It is expected that the Water Agencies' Covered Activities on nearly 250 miles of canals, improved agricultural practices timing of water management (floodup and drawdown) on reserve lands, and the increase in edge or ecotone between upland and wetland habitats will greatly enhance upland habitat values for Swainson's hawk.
- (6) Specific plans for acquisition of upland habitat reserve lands will be determined by TNBC in consultation with the Technical Advisory Committee, by applying the objectives and criteria described above, and consistent with the requirements described in Chapter IV. Specific management plans for reserve sites providing Swainson's hawk habitat will be developed as described in Chapter IV.
- (7) Upland reserves will initially be designed to maintain existing Swainson's hawk populations and, where possible, to increase such populations through the tree planting program. However, such reserves will be re-designed, as necessary, to meet Swainson's hawk recovery plan goals, once a Swainson's Hawk Recovery Plan is prepared and approved by CDFG.
- (8) Reserve design will use wildlife friendly agricultural practices. For health and safety reasons rodent control measures will be limited to that necessary to maintain structurally sound flood control levees within the Basin.

Measures to Reduce Swainson's Hawk Nest Disturbance

- (1) Prior to the commencement of development activities at any reserve site within the NBHCP area, a pre-construction survey shall be completed by TNBC to determine whether any Swainson's hawk nest trees will be removed on-site or active Swainson's hawk nest sites occur on or within ½ mile of the development site. These surveys shall be conducted according to the Swainson's Hawk Technical Advisory Committee's (May 31, 2000) methodology or updated

methodologies, as approved by the site specific management plan for the reserve site.

- (2) If an active Swainson's hawk nest is identified, no new disturbances (e.g., heavy equipment operation associated with construction) will occur within ½ mile of an active nest site between March 15 and September 15. If the active site is located within 1/4 mile of existing urban development the no new disturbance zone can be limited to the 1/4 mile versus ½ mile. Routine disturbances such as agricultural activities, commuter traffic and routine facility maintenance activities within ½ mile of an active nest site are not restricted.
- (3) If practicable, disturbance or destruction of Swainson's hawk nest sites shall be entirely avoided by designing the project (including construction activities) to maintain the year-round integrity of the nest site.
- (4) If practicable, disturbance or destruction of Swainson's hawk nest sites shall be avoided during the active nesting season through seasonal use or other restrictions that apply annually or as needed.
- (5) Where disturbance of a Swainson's hawk nest cannot be avoided, such disturbance shall be temporarily avoided (i.e., defer construction activities until after the nesting season) and then if unavoidable, the nest tree may be destroyed during the non-nesting season. For purposes of this provision the Swainson's hawk nesting season is defined as March 15 to September 15. If any tree must be removed that has an active nest in the year the impact is to occur, the tree removal should only occur between September 15 and February 1.
- (6) Disturbance should be avoided within ½ mile of an active nest between March 15 through August 15, or until fledglings are no longer dependent on nest tree habitat (which could be as late as September 15).
- (7) If a Swainson's hawk nest tree is to be removed and fledglings are present the tree may not be removed until September 15 or until the CDFG has determined that the young have fledged and are no longer dependent upon the nest tree.

Measures to Prevent the Loss of Swainson's Hawk Nest Trees

As part of the Urban Development Permit process, the Land Use Agencies will seek to preserve valley oaks, tree groves, riparian habitat and other large trees wherever and whenever possible on publicly owned or controlled lands.

Measures to Mitigate the Loss of Swainson's Hawk Nest Trees

TNBC shall plant replacement trees in upland reserve areas and where appropriate on the edges of wetland reserves. These trees may be contributed to the reserve as part of the Land Use Agencies' tree mitigation program or may be determined to be important to

the habitat enhancement of objectives of the site. The replacement mitigation trees shall include a variety of native tree species with differing growth rates, maturation and life span. This will ensure that nesting habitat will be available quickly (5 to 10 years in the case of cottonwoods and willows) and in the long term (i.e., valley oaks, black walnut and sycamores). Trees shall be sited on reserves in proximity to hawk foraging areas.

c. Tricolored Blackbird (Foraging)

- (1) As part of baseline species survey for each reserve and as part of the annual survey of reserves, any colonization by tricolored blackbirds shall be recorded by location and if possible, with a population estimate and activity description.
- (2) Where tricolored blackbirds have been observed in colonies (active nesting and foraging), the nesting area and a reasonable foraging area adjacent to the nesting area within the reserve shall be identified and incorporated into the site specific plan, or if necessary accommodated through adaptive management of an existing developed reserve.
- (3) In order to enhance wetland to upland edges of reserves to attract tricolored blackbirds, plantings of wild rose, tule and cattails shall be incorporated in habitat reserve units where biologically appropriate.
- (4) During the nesting season, disturbance of foraging areas adjacent to active nest sites or previously active nest sites on reserve lands shall be avoided to the maximum extent possible. If nests are occupied, a reasonable buffer of foraging lands adjacent to the nest shall be marked and protected on reserve lands.

Tricolored Blackbird (Nesting)

- (1) Disturbance to tricolored blackbird nesting colonies will be strictly avoided within the nesting season (April 1 to July 1 or while birds are present) during TNBC development and management activities undertaken on TNBC property in wetland and upland reserve areas unless approved by the Wildlife Agencies. In accordance with the Migratory Bird Treaty Act, disturbance to active (occupied) nesting colonies will be avoided during the nesting season. A boundary shall be established (through a method determined by TNBC and in consultation with the TAC) to establish a boundary 500 feet from the active nest site on reserve lands. No disturbance associated with TNBC reserve construction, such as major grading operations, shall occur within the designated 500 foot buffer of the reserve during the nesting season of April 1 through July 1 or while birds are present, unless a qualified biologist, with concurrence of USFWS and CDFG, determines young have fledged and nest sites are no longer active. Routine disturbances such as agricultural activities and TNBC reserve management within 500 feet of an active nest site are not restricted so long as no physical disturbance to the nest site occurs.

- (2) During the nesting season, disturbance of foraging areas adjacent to active nest sites or previously active nest sites on reserve lands shall be avoided to the maximum extent possible. If nests are occupied, a reasonable buffer of foraging lands adjacent to the nest shall be marked and protected on reserve lands if construction or major grading operations are occurring on the Reserve.
- (3) Plantings of wild rose, tule and cattails shall be incorporated in habitat reserve units where biologically appropriate to enhance tricolored blackbird nesting habitat.

d. Loggerhead Shrike

- (1) TNBC shall encourage and maintain loggerhead shrike perching and nesting sites to the maximum extent practicable on all Conservancy lands.
- (2) TNBC shall avoid disturbance to loggerhead shrike nest sites and disturbance of the loggerhead shrike during nesting season during reserve management and enhancement activities to the maximum extent practicable unless otherwise approved by TNBC in consultation with the TAC.
- (3) If the loggerhead shrike nests on a TNBC reserve, TNBC shall identify and mark (through a method determined appropriate by TNBC and in consultation with the TAC) a buffer extending 100 feet from the active nest on reserve lands. No disturbance associated with TNBC reserve construction, such as major grading activities, shall occur within the 100 foot marked area during the nesting season of March 1 through July 31, unless a qualified biologist, with concurrence of the Wildlife Agencies, determines young have fledged or that the nest is no longer occupied. Routine disturbances such as agricultural activities and TNBC reserve management within 100 feet of an active nest site are not restricted so long as no physical disturbance to the nest site occurs.

e. Burrowing Owl

- (1) TNBC will avoid disturbance to active burrowing owl nesting burrows during reserve management activities to the maximum extent practicable. Disturbance to burrowing owl nesting colonies will be strictly avoided within the nesting season (February 1 through August 31) or while birds are present unless otherwise approved by the Wildlife Agencies. The Guidelines for Burrowing Owl Mitigation (Appendix D) shall be utilized to the extent practicable to avoid active nests during reserve construction and management activities.
- (2) TNBC shall utilize applicable Service or CDFG approved burrowing owl recovery or management plans, and the Adaptive Management provisions described in Section VI.F of this document to implement any additional conservation measures deemed appropriate should use of the Plan Area by this species appreciably increase at any time in the future.

- (3) In upland reserve areas, TNBC may be asked to create new burrowing owl habitat by creating new burrows or restoring old burrows, based on avoidance, minimization and mitigation measures applied by the Land Use Agency Permittees to proponents of Authorized Development (see Section V.A.5.h). New habitat shall include adequate foraging area around the burrow, and burrow design shall be done in consultation with qualified biologists. Additional habitat design and mitigation measures are described in the CDFG's October 17, 1995, Staff Report on Burrowing Owl Mitigation (see Appendix D).

f. Bank Swallow

- (1) TNBC will avoid disturbance to active bank swallow nesting burrows during reserve management activities to the maximum extent practicable.
- (2) TNBC shall utilize applicable Service or CDFG approved bank swallow recovery or management plans, and the Adaptive Management provisions described in Section VI.F of this document to implement any additional conservation measures deemed appropriate should use of the Plan Area by this species appreciably increase at any time in the future.
- (3) Disturbance to bank swallow nesting colonies will be strictly avoided within the nesting season (May 1 through August 31 or until a qualified biologist, with concurrence of USFWS and CDFG, has determined that young have fledged or that the nest is no longer occupied) during TNBC reserve development and management activities unless otherwise approved by the Wildlife Agencies.
- (4) If surveys identify an active bank swallow nesting colony that will be impacted by TNBC activities, TNBC shall identify and mark (through a method to be determined by TNBC in consultation with the TAC) a boundary 250 feet from the active nesting colony on reserve lands. No disturbance associated with TNBC activities shall occur within the 250 foot marked area of the reserve during the nesting season of May 1 through August 31. Additionally, disturbance within ½ mile upstream or downstream of the colony on reserve lands will be avoided if the colony is located upon a natural waterway. Routine disturbances such as agricultural activities and TNBC reserve management within 250 feet of an active nesting colony or within ½ mile upstream or downstream of an active nesting colony are not restricted so long as no physical disturbance to the nest site occurs.

g. Aleutian Canada Goose

TNBC shall utilize applicable Service approved Aleutian Canada goose recovery or management plans, and the Adaptive Management provisions described in this document, to implement any additional conservation measures deemed appropriate should use of the Plan Area by this species appreciably increase at any time in the future.

h. White-faced Ibis

- (1) TNBC shall utilize applicable Service approved white-faced ibis recovery or management plans, and the Adaptive Management provisions described in this document, to implement any additional conservation measures deemed appropriate should use of the Plan Area by this species appreciably increase at any time in the future.
- (2) Disturbance to white-faced ibis nesting colonies by TNBC reserve construction activities will be strictly avoided within the nesting season (May 15 to August 31 or while birds are present, or until a qualified biologist, with concurrence of the Wildlife Agencies, has determined that young have fledged or that the nest is no longer occupied). During the nesting season, a foraging buffer 1/4 mile in width shall be identified around any active nest site to ensure minimal disturbance to the nest and nearby foraging areas on reserve lands. Routine disturbances such as agricultural activities and TNBC reserve management within 250 feet of an active nesting colony are not restricted so long as no physical disturbance to the nest site occurs.

i. Northwestern Pond Turtle

TNBC shall consult with northwestern pond turtle researchers and experts periodically during implementation of the NBHCP to determine what, if any, conservation opportunities for this species might exist within TNBC's reserve system. TNBC shall implement such conservation measures through the Plan's Adaptive Management provisions as appropriate. Such opportunities might include, but are not limited to, provision of suitable upland habitat for nesting (e.g., unshaded slopes), plentiful basking sites (e.g., floating snags), and shallow water with dense emergent and submergent vegetation for juveniles.

j. Valley Elderberry Longhorn Beetle (VELB)

- (1) During reserve development activities, impacts to VELB habitat will be avoided whenever possible. Projects will be designed to avoid stands of elderberry bushes and to avoid isolation of the plants from other nearby populations to the maximum extent practicable. Pre-construction surveys at the construction impact site will be conducted to assess the appropriate amount of mitigation.
- (2) If elderberry plants cannot be avoided, they should be transplanted during the dormant season (November 1 to February 15) to an area protected in perpetuity and approved by the USFWS.
- (3) Replacement seedling plants will be provided at a ratio of 2 to 1 through 5 to 1 depending on the extent of beetle utilization of the plants moved or lost. An 1,800-square foot area will be provided for each transplanted elderberry shrub or every five elderberry seedling plants.

k. California Tiger Salamander

TNBC shall consult with the TAC and California tiger salamander researchers experts periodically during implementation of the Plan to determine what, if any, additional conservation opportunities for this species might exist within the Plan's proposed reserve system. TNBC shall implement such conservation measures through the Plan's Adaptive Management and the Site Specific Management Plans prepared for reserve sites as appropriate. In the event preconstruction surveys or other scientific evidence show that the California tiger salamander is impacted by authorized development, TNBC shall create habitat within reserve sites that is conducive to California tiger salamanders, such as stock ponds or "artificial" vernal pools with nearby natural materials for cover such as logs or large rocks. Possible relocation of tiger salamanders from the site to be impacted or elsewhere in the Basin into the TNBC reserve system may be considered if preconstruction surveys or other NBHCP monitoring show the species is impacted by Authorized Development.

l. Western Spadefoot Toad

TNBC shall consult with the TAC and western spadefoot toad experts periodically during implementation of the NBHCP to determine what, if any, additional conservation opportunities for this species might exist within the Plan's proposed reserve system. TNBC shall implement such conservation measures through the Plan's Adaptive Management provisions and through the Site Specific Management Plans prepared for each reserve site as appropriate. In the event preconstruction surveys or other scientific evidence show that the western spadefoot toad is impacted by authorized development, TNBC shall create habitat within reserve sites that is conducive to western spadefoot toads, such as areas of slow-moving waters such as pools and plunge pools of small creeks, and short grasses with sandy or gravelly soils, and other grassy areas.

m. Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp and Midvalley Fairy Shrimp

TNBC shall consult with the TAC, and fairy shrimp and tadpole shrimp experts periodically during implementation of the NBHCP to determine what, if any, additional conservation opportunities for vernal pool fairy shrimp, vernal pool tadpole shrimp and midvalley fairy shrimp might exist within the proposed reserve system. In the event preconstruction surveys or other scientific information document impacts to these species from authorized development, TNBC shall implement such conservation measures through the Plan's Adaptive Management provisions and Site Specific Management Plan prepared for each reserve site as appropriate.

n. Delta Tule Pea

- (1) TNBC shall evaluate the potential for, and as appropriate, implement measures to further the conservation of Delta tule pea within the NBHCP's reserve system through appropriate means. In the event preconstruction surveys or other scientific documentation indicate impacts to the Delta Tule Pea as a result of authorized development, the TNBC's adaptive management program and Site Specific Management Plan process shall be used to further the conservation of

the species including but not limited to, introduction of the plant into suitable locations on TNBC reserve sites.

- (2) TNBC shall monitor any known populations of plant Covered Species within the NBHCP area.

o. Sanford's Arrowhead

- (1) TNBC shall evaluate the potential for, and as appropriate, implement measures to further the conservation of Sanford's arrowhead within the NBHCP's reserve system through appropriate means. In the event preconstruction surveys or other scientific documentation indicate impacts to the Delta Tule Peas as a result of authorized development, the TNBC's adaptive management program and Site Specific Management Plan process shall be used to further the conservation of the species including but not limited to, introduction of the plant into suitable locations on TNBC reserve sites.
- (2) TNBC shall monitor any known populations of plant Covered Species within the NBHCP area.

p. Other Covered Plant Species

TNBC shall evaluate the potential for, and as appropriate, implement measures to further the conservation of covered plant species within the NBHCP's vernal pool areas or its wetland reserve system through appropriate means. In the event preconstruction surveys or other scientific documentation indicate impacts to Bogg's Lake hedge-hyssop, Sacramento orcutt grass, Slender orcutt grass, Colusa grass and/or legenera as a result of authorized development, the TNBC's adaptive management program and Site Specific Management Plan process shall be used to further the conservation of the species including but not limited to, introduction of the impacted plant species into suitable locations on TNBC reserve sites. Bogg's Lake hedge-hyssop, Sacramento orcutt grass, Slender orcutt grass, Colusa grass and legenera into vernal pool areas or other suitable locations in the NBHCP area.

C. WATER AGENCIES' CONSERVATION MEASURES

The following provisions were developed through preliminary consultations between the NBHCP Permittees, the Water Agencies and the Wildlife Agencies. At such time as the Water Agencies seek Incidental Take Permits through this NBHCP, the following covered activities and conservation measures will be reviewed and revised as determined necessary by the Wildlife Agencies.

The Water Agencies (RD 1000 and Natomas Mutual collectively) shall employ various conservation measures to avoid and minimize take of Covered Species during the Water Agencies' operations and maintenance. Described below are the Water Agencies' Covered

Activities and specific measures to be employed by the Water Agencies to avoid, minimize and mitigate take of Covered Species.

1. Water Agencies' Covered Activities

The Water Agencies' respective Section 10(a)(1)(B) and Section 2081 permits shall provide incidental take coverage for the following Operations and Maintenance (O&M) activities undertaken by the Water Agencies or their authorized agents, as noted in Section I.N.2 and restated here:

- (1) De-silting
- (2) Excavation and re-sloping of ditches and channels
- (3) Deposition of ditch and canal spoils materials on adjacent property
- (4) Placement of fill material
- (5) Control of vegetation in and around canals, ditches, and drains by mowing and other measures to provide necessary operation and maintenance of canals as needed which would be presented to the Wildlife Agencies on a three year basis for review and approval.
- (6) Construction and improvement with no significant increase to the existing footprint, of flood control and water conveyance facilities, water ditches, canals, pumphouses or maintenance facilities, and other ancillary facilities that are owned or operated by RD 1000 or Natomas Mutual.

2. Water Agencies' Facilities

The water conveyance systems of RD 1000 and Natomas Mutual consist of over 247 miles of ditches and canals that provide habitat for the giant garter snake and other Covered Species. The Water Agencies' existing water delivery and drainage system is depicted in Figure 3. One component of the conveyance system consists of a series of drains that are owned and maintained by RD 1000. RD 1000 is charged by California law to maintain its drainage in its service area. Another component of the conveyance system consists of irrigation canals that are owned, operated and maintained by Natomas Mutual a non-profit mutual company. In many areas of the Basin, however, Natomas Mutual utilizes portions of the RD 1000 system to convey surface water to its customers. Operation and maintenance of the existing water conveyance system in the Natomas Basin is critical for the Water Agencies to fulfill their obligations in their respective areas.

Maintenance by the Water Agencies of the conveyance system in the Natomas Basin is, and has been, limited historically by practical considerations, including economic and physical constraints. Natomas Mutual is a non-profit company, and funding for RD 1000 comes from property owner assessments within RD 1000's service area. Staff at both agencies who are available for operations and maintenance are limited in number. As a practical matter, these constraints tend to prevent intensive maintenance of large portions of the water conveyance system in Natomas Basin during any given year. Thus while maintenance of canals, ditches and drains in the Natomas Basin is an important function for both RD 1000 and Natomas Mutual, intensive maintenance by the Water Agencies to maximize agricultural irrigation and flood

control services throughout the Basin each year is not always feasible. In light of these constraints, the Water Agencies' primary operations and maintenance efforts during any given year focus on keeping the water conveyance systems functioning in a manner that ensures timely movement of irrigation water for agricultural purposes, and drainage of agricultural water and urban flows from lands within the Basin.

Although operations will vary from year to year, RD 1000's and Natomas Mutual's operations and maintenance activities in prior years underscore the limited extent of such activities during any given year. For instance, in 1999, RD 1000 worked on a total of 26.5 miles of drains, canals, and channels, of which RD 1000 desilted 19 miles of the system, and resloped 11.5 miles. In 2000, RD 1000 worked on a total of 28.25 miles of drains, canals, and channels, which RD 1000 desilted 12.75 miles and resloped 14.5 miles. In both 1999 and 2000, RD. 1000 controlled weed growth on 75% of the drains with herbicide to control weed growth and mowed approximately 50% of the drains to a height of six inches or higher.

Records maintained by Natomas Mutual regarding operations and maintenance activities during prior years underscore the same point. In 1999, for example, Natomas Mutual replaced service gates, replaced or repaired canal gates and weirs, repaired pumps, as well as excavated and resloped portions of fourteen canals and ditches. In addition, Natomas Mutual purchased a gasoline tank for the headquarters yard. Natomas Mutual also rebuilt 2.2 miles of canals, and cleaned or sloped 5.4 miles of canals, affecting less than 3% of the Natomas Basin ditch system operated by Natomas Mutual and RD1000. Finally, in any given year, Natomas Mutual generally limits its use of herbicides primarily to maintenance roads. (Note: use of herbicides, rodenticides and pesticides is not a Covered Activity of the Water Agencies for purposes of the NBHCP and related incidental take permits.) Although activities vary from year to year, the activities described above are typical of RD 1000's and Natomas Mutual's operation and maintenance activities.

Minimizing and avoiding impacts associated with maintenance activities, to the extent feasible, is the continuing goal of the Water Agencies, as well as of the Plan itself. Current operations and maintenance activities by the Water Agencies are the result of previous efforts by various affected stakeholders to establish guidelines or "best management practices" ("BMPs") for water users in the Sacramento Valley. These efforts culminated in 1996, with the release of a report prepared by Sacramento Valley water users, USFWS, and CDFG entitled "Operation and Maintenance Guidelines for Sacramento Valley Water Users Having Verified Giant Garter Snake Populations" ("Guidelines Report"). The Guidelines Report describes BMPs to minimize the impacts of operating and maintaining water conveyance systems in the Sacramento Valley on giant garter snakes inhabiting these systems. RD 1000 and Natomas Mutual participated in the development of the BMPs in the Guidelines Report.

In 1997, the Water Agencies proactively adopted the Guidelines Report BMPs as standard procedure for operations and maintenance activities within their respective service areas. The 1996 Guidelines Report BMPs have been adapted for purposes of the Plan. At such time as one or both of the Water Agencies seeks Incidental Take Permits through the NBHCP, the Water Agencies' operational guidelines and conservation measures described within this

NBHCP will be reviewed and modified as necessary prior to issuance of their respective Section 10(a)(1)(B) and Section 2081 permits. RD 1000, Natomas Mutual, USFWS, and CDFG recognize that the Water Agencies, in adhering to and implementing the BMPs and conservation measures described within a NBHCP, are obligated by statute to provide services in a manner consistent with public health, safety and welfare. Pursuant to that charge, in certain limited circumstances, particularly those involving flood-related events, RD 1000, Natomas Mutual, USFWS and CDFG recognize that public health and safety considerations may prevent compliance with the prescribed BMPs on a short-term, interim basis. Such temporary deviations are anticipated to have at most short term adverse impacts on the Covered Species.

3. Water Agencies' Conservation Measures for Giant Garter Snake

In addition to the Water Agencies' avoidance, minimization, and mitigation measures described herein and as modified prior to issuance of Incidental Take Permits, the Water Agencies shall comply with all other applicable Federal, State and local regulations that pertain to the proposed Covered Activities.

a. Conservation Objectives for the Giant Garter Snake

The Plan's conservation objectives for giant garter snake and other Covered Species dependent on similar habitat are set forth in Section I.C.1. and TNBC Conservation Strategy for giant garter snake and other wetland associated species is discussed in Section IV.C.3. With respect to the Water Agencies specifically, these objectives are designed: (a) to ensure and maintain the long-term integrity of the Natomas Basin giant garter snake population and other Covered Species dependent on similar habitat; and (b) to avoid, minimize and mitigate impacts on the giant garter snake and other Covered Species caused by the Water Agencies' Covered Activities. Consistent with their respective 10(a)(1)(B) and 2081 permits, the Water Agencies will, among other things, coordinate as appropriate with the other Permittees to achieve the biological goals and objectives of the Plan [Section I.C] for giant garter snake and other Covered Species dependent on similar habitat.

b. Canal and Ditch Maintenance

(1) Location of Ditch and Canal Maintenance Operations

RD 1000 and Natomas Mutual shall limit canal and ditch maintenance activities (activities involving excavation, desilting and/or resloping of channels) during any calendar year to not more than ten percent (10%) of the total miles of canals and ditches within each Water Agencies' respective service area. Where giant garter snakes are known to exist, the timing of these activities shall be restricted to after May 1 and before October 1 in any calendar year. Consistent with this limitation, re-sloping of canals and ditches by RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, shall be restricted to one side of the canal or ditch during any calendar year, unless otherwise necessary to ensure adequate water conveyance.

(2) De-Watering and Filling of Ditches and Canals

From May 1 to September 30 of any calendar year, before RD 1000, Natomas Mutual and agents acting on behalf of the Water Agencies, fill or caused to be filled any ditch or canal within the Water Agencies' respective service areas, the Water Agencies and agents under the direct control and acting on behalf of the Water Agencies, shall de-water or cause to be de-watered any existing canal or ditch prior to filling such canal or ditch with soil or other fill material. After de-watering any such canal or ditch, RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies, and water users within the Water Agencies' respective service areas, shall wait a period of fifteen (15) days prior to filling such a de-watered canal or ditch.

(3) Vegetation Control

The measures set forth below shall govern activities by RD 1000, Natomas Mutual, and agents acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, to control vegetation in and on canals ditches and drains within existing service areas of RD 1000 and Natomas Mutual as shown in Figure 3. RD 1000, Natomas Mutual, USFWS and CDFG recognize that the vegetation control measures set forth below may be used separately or in combination by RD 1000, Natomas Mutual, and agents acting on behalf of the Water Agencies within the Water Agencies' respective service areas. Likewise, because RD 1000, Natomas Mutual, and agents acting on behalf of the Water Agencies, within the Water Agencies' respective service areas currently utilize many different types of vegetation control on canals, ditches and drains, the list of vegetation control measures set forth below is not intended to be exclusive.

(a) General Forage and Cover Preservation Strategies

Best management practices as delineated below, for the nearly 250 miles of canals within the Basin will seek to preserve vegetative cover which will provide food and protection for a productive prey base. This prey base will disperse onto adjacent habitats where it will be available as Swainson's hawk forage and forage for other species.

(b) Mowing

For any mowing activity by RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas to control terrestrial vegetative cover on top of, and inside, canal banks to the water line, the remaining vegetation shall be not less than 6 inches in height measured from the ground.

(c) Burning

Burning by RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas to control vegetation on ditches and canals shall be conducted only between October 1 and April 30. Any such burning activities shall be subject to any and all laws regarding burning activities.

(d) Detailed Management Plans

Recognizing that management and maintenance activities to be conducted by RD 1000 and Natomas Mutual may be modified over time, the Water Agencies shall submit detailed Channel Management Plans for review and approval by the Wildlife Agencies. Such Management Plans shall address the control of vegetation in and around canals, ditches, and drains by mowing and other measures to provide necessary operation and maintenance of canals as. The Water Agencies' Management Plans shall be reviewed and approved by the Wildlife Agencies on a three year basis.

(e) Education Program

RD 1000 and Natomas Mutual, with the assistance and cooperation of USFWS and CDFG, shall develop and implement a giant garter snake education and awareness program. The program shall be designed to educate RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies within the Water Agencies' respective service areas regarding how best to avoid adverse impacts to the giant garter snake and its habitat that could result from canal and ditch maintenance activities, vegetation control, vehicle traffic, ditch and canal fill-in procedures, emergency operations, and chemical applications for rodent control. With the participation of USFWS and CDFG, training shall also include information on the recognition of and the basic life history requirements or critical habitat criteria for the Covered Species. The education program shall also address other aquatic and upland associated Covered Species and their habitats including but not limited to information on how to distinguish burrowing owl versus rodent dens and avoidance measures for brooding, nesting and fledgling periods for bird species which utilize emergent aquatic vegetation. The education program shall be incorporated into new employee training programs and provided annually to regular operations and maintenance staff. RD 1000 and Natomas Mutual, with the cooperation of USFWS and CDFG, shall use their best efforts to implement the education program required by this section.

(f) Traffic

RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, shall minimize unauthorized traffic on canal and ditch bank roads through gate closures. RD 1000 and Natomas Mutual shall encourage water users within their respective service areas to minimize unauthorized use of canal and ditch bank roads.

(4) Erosion Control

No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes will be placed on a project site when working within 200 feet of snake aquatic or rice habitat. Possible substitutions include coconut coir matting, tactified hydroseeding compounds, or other material approved by the Wildlife Agencies.

c. Emergency Operations

As noted above, RD 1000 and Natomas Mutual are obligated by statute to provide services within their respective service areas in a manner consistent with public health, safety and welfare. Accordingly, during an emergency, as defined below, public health and safety considerations may supersede compliance with the conservation measures set forth above. Such an emergency, in turn, may require alternative canal management practices by RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, that are different, and/or more extensive, than those set forth above. For purposes of the Water Agencies' respective Permits, activities by RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas during an emergency shall be deemed "emergency operations."

For purposes of the Plan, and the Water Agencies' respective Permits, emergency operations by RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, shall constitute a Covered Activity under the Plan and take associated with such emergency operations shall be authorized as follows:

(1) Declaration and Notice of Emergency

Emergency operations by RD 1000, Natomas Mutual, and agents under the direct control and acting on behalf of the Water Agencies within the Water Agencies' respective service areas, shall be authorized only where RD 1000 or Natomas Mutual declare the existence of, and notify USFWS and CDFG of, an emergency. RD 1000 or Natomas Mutual shall notify the USFWS and CDFG of an emergency requiring emergency operations as soon as possible, but no later than five (5) business days after RD 1000 or Natomas Mutual declare the existence of an emergency.

(2) Emergency Defined

An emergency shall mean a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, or property (including but not limited to crops), or essential public services. An emergency shall not include long-term projects undertaken by RD 1000, Natomas Mutual, agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, for the purpose of preventing or mitigating a situation that has a low probability of occurrence in the short-term.

(3) Emergency Operations Defined

Emergency operations activities by RD 1000, Natomas Mutual, agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, shall mean and shall be limited to activities and repairs to water conveyance facilities owned by RD 1000 or Natomas Mutual depicted in Figure 3 that are necessary in the

short-term to restore or maintain services essential to the public health, safety or welfare within the Water Agencies' respective service areas, and to the prevention or mitigation of loss of, or damage to, life, health, property (including crops) or essential public services. This definition includes all post-flood repairs necessary to achieve pre-flood service levels.

(4) Duration of Emergency Requiring Emergency Operations

Emergency operations activities by RD 1000, Natomas Mutual, agents under the direct control and acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, shall only be authorized as long as the emergency requiring the need for such activities persists. The duration or continued existence of an emergency requiring emergency operations by RD 1000, Natomas Mutual, agents under the direct control and acting on behalf of the Water Agencies, and water users within the Water Agencies' respective service areas, shall be determined by the party declaring the existence of an emergency.

(5) Emergency Operations and Avoidance and Minimization of Adverse Impacts

RD 1000, Natomas Mutual, agents acting on behalf of the Water Agencies, within the Water Agencies' respective service areas, shall devise and implement emergency operations activities to avoid or minimize adverse impacts to giant garter snake and other Covered Species to the extent, and at the time, feasible.

(6) Notice and Commencement of Emergency Operations

RD 1000 and Natomas Mutual shall notify USFWS and CDFG of the commencement of emergency operations within five (5) business days of the commencement of such activities. Such notification shall include a description of the emergency activities or repair work and an estimate of how long the emergency and activities and repair work responding to such emergency are expected to last. RD 1000 and Natomas Mutual shall notify USFWS and CDFG within five (5) business days when the emergency is over.

4. Reporting Requirements for Covered Activities

RD 1000 and Natomas Mutual shall provide to TNBC at the beginning of each calendar year all the following information: (1) a summary of Covered Activities conducted in the previous year; (2) deviations from the measures described above, if any, and the reasons for such deviations; (3) an annual summary accounting of the taking of any individual giant garter snakes or other Covered Species, if known, resulting from Covered Activities by RD 1000 or Natomas Mutual during the previous year; and (4) any other information deemed relevant by the Water Agencies. RD 1000 and Natomas Mutual shall also submit copies of their respective annual reports to the USFWS and CDFG.

5. Covered Activities and Adaptive Management

For purposes of the Plan, and the Water Agencies respective Section 10(a)(1)(B) and Section 2081 permits, RD 1000, Natomas Mutual, USFWS and CDFG recognize that the

conservation measures and reporting requirements set forth above may need to be revised periodically to reflect ongoing giant garter snake research or management principles pursuant to the Plan's Adaptive Management Program as set forth in Section VI.F. Consistent with the Plan's Adaptive Management Program, RD 1000, Natomas Mutual, USFWS and CDFG agree to cooperate in implementing any such revisions.

Any revisions to the reporting requirements or conservation measures for Covered Activities shall be guided by the work of qualified wildlife biologists and shall take into consideration the Water Agencies' obligations to provide services to water users, land owners, and members of the public within their respective service areas in the Natomas Basin. In addition, any revisions to the Water Agencies' reporting requirements or conservation measures for Covered Activities shall have, as their specific purpose, the further avoidance or minimization of take of giant garter snakes or other Covered Species that use or rely on the water conveyance systems in Natomas Basin that are owned or operated by RD 1000 or Natomas Mutual.

6. Federal Provision of Construction Incentives for Water Districts and Users

The Draft Giant Garter Snake Recovery Plan states that financial incentives should be developed and made available to water districts and users for the following types of activities (see Draft Recovery Plan at pp. 70-71.):

- (1) Funding for limited amounts of rock rip-rap along banks of levees, ditches, and canals that benefit giant garter snakes.
- (2) Funding for the purchase and installation of gates and warning signs on country roads to control unauthorized vehicular traffic.
- (3) Funding for security. The Water Agencies have problems with trespassers using their property to dump urban waste, which can harm giant garter snakes.
- (4) Funding for water district employee training in methods of identifying and appropriately managing habitat for the giant garter snake.

For purposes of the Plan, and the Water Agencies' respective Section 10(a)(1)(B) and Section 2081 permits, RD 1000 and Natomas Mutual shall participate in the above programs if and when such programs become available and, in the opinion of RD 1000 or Natomas Mutual, are feasible.