

**FINDINGS AND RECOMMENDATIONS  
FOR THE ISSUANCE OF SECTION 10(a)(1)(B)  
INCIDENTAL TAKE PERMITS  
ASSOCIATED WITH THE  
NATOMAS BASIN HABITAT CONSERVATION PLAN**

**I. DESCRIPTION OF THE PROPOSED ACTION**

The U.S. Fish and Wildlife Service (Service) proposes to issue Incidental Take Permits (Permits) to the City of Sacramento (City), Sutter County (Sutter), and Natomas Basin Conservancy (Conservancy) under the authority of section 10(a)(1)(B) and section 10(a)(2) of the Endangered Species Act of 1973, as amended (ESA) for a period of 50 years. Documents used in the preparation of this statement of Findings and Recommendations include the Draft Natomas Basin Habitat Conservation Plan (City *et al.* 2002), Final Natomas Basin Habitat Conservation Plan (NBHCP) (City *et al.* 2003), associated Draft and Final Environmental Impact Statement (EIS) (Service 2002, 2003a), the Implementation Agreement (IA) (City *et al.* 2003), the Service's Biological and Conference Opinion on the Permit applications (Service 2003b), and resolutions passed by the City and Sutter approving the Final NBHCP (City 2003; Sutter 2003). All of these documents are incorporated by reference as described in 40 CFR § 1508.13.

Under the Permits, the City, Sutter, and Conservancy (collectively referred to as Permittees) would receive incidental take authorization for certain activities administered under their jurisdictions as identified in the NBHCP submitted by the prospective Permittees as part of their Permit applications. The City and Sutter (Land Use Agencies) would also have the ability to extend take to third parties (i.e., landowners and developers) that are under their direct control by incorporating on-site take avoidance, minimization, and mitigation measures into any Urban Development Permits they issue for projects located in the areas covered by the Permits (Permit Areas) (see Section 3.1.7 of the IA).

The prospective Permittees are requesting coverage under the Permits for a total of twenty-two species (Covered Species). The Permits would cover incidental take for one endangered animal species vernal pool tadpole shrimp (*Lepidurus packardii*), and three threatened animal species giant garter snake (*Thamnophis gigas*)(snake), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)(beetle), and vernal pool fairy shrimp (*Branchinecta lynchi*). The Permits would also cover one species formerly listed as threatened [Aleutian Canada goose (*Branta canadensis leucopareia*)(goose), which was de-listed on March 20, 2001, one proposed species California tiger salamander (*Ambystoma californiense*)(salamander) and nine currently unlisted animal species: Swainson's hawk (*Buteo swainsoni*)(hawk), white-faced ibis (*Plegadis chihi*)(ibis), bank swallow (*Riparia riparia*)(swallow), tricolored blackbird (*Agelaius tricolor*)(blackbird), northwestern pond turtle (*Clemmys marmorata marmorata*)(turtle), loggerhead shrike (*Lanius ludovicianus*)(shrike), burrowing owl (*Athene cunicularia*)(owl), western spadefoot toad (*Spea hammondi*)(toad), and midvalley fairy shrimp (*Branchinecta mesovallensis*), should they become listed in the future during the term of the permits. The

Permits would become effective to authorize take of the currently unlisted Covered animal Species concurrent with their listing under the Act. One endangered plant species Sacramento Orcutt grass (*Orcuttia viscida*), two threatened plant species Colusa grass (*Neostapfia colusana*) and slender Orcutt grass (*Orcuttia tenuis*) and four currently unlisted plants Boggs Lake hedge-hyssop (*Gratiola heterosepala*), delta tulle pea (*Lathyrus jepsonii* var. *jepsonii*), legenere (*Legenere limosa*), and Sanford's arrowhead (*Sagittaria sanfordii*) would also be considered Covered Species and included on the Permits. Although take of plant species is not prohibited under the ESA and therefore cannot be authorized under an incidental take permit, the plant species would be included on the permits in recognition of the conservation benefits provided to the species under the NBHCP. Assurances provided under the "No Surprises" rule at 50 C.F.R. 17.3, 17.22(b)(5) and 17.32(b)(5) would extend to all Covered Species.

The prospective Permittees have requested incidental take authorization from the California Department of Fish and Game (CDFG) for the 22 Covered Species protected under the California Endangered Species Act (CESA) and/or California Environmental Quality Act (CEQA).

Actions conducted under the NBHCP and IA will comply with the provisions of the Migratory Bird Treaty Act (MBTA) with strict avoidance measures for actions affecting MBTA-Covered Species such as the goose, hawk, ibis, swallow, blackbird, shrike, and owl. The MBTA prohibits the taking, killing, or possessing of migratory birds. The MBTA identifies a variety of prohibited actions including the taking of individual birds, young, feathers, eggs, nests, etc. There are currently no MBTA Covered Species that are listed under the ESA and subject to a Special Purpose Permit at this time. Should any of the MBTA Covered Species become listed under the ESA during the life of the Permits, the Permits would also constitute an MBTA Special Purpose Permit for that species for a three-year term as specified under 50 C.F.R. 21.27 subject to renewal by the City, Sutter, and Conservancy.

The Permit would authorize for a period of 50 years, the incidental take of Covered Species associated with the conversion of up to 15,517 acres (City = 8,050 acres, Sutter = 7,467 acres) of agricultural or vacant lands that currently, or in the future, could provide habitat for the Covered Species within the Permit Areas in the Natomas Basin (Basin). The conversion of these lands would occur as a result of urban development, an activity addressed and covered by the NBHCP, and would result in impacts to Covered Species, including take of species currently listed under the Act. In addition, take resulting from the implementation of management activities on established reserve lands would be authorized by the Conservancy's Permit. The primary mitigation for the impacts of take resulting from urban development on Covered Species and their habitat is the collection and use of mitigation fees to acquire preserve, enhance and restore 0.5 acre of habitat land for each 1.0-acre of development. The total habitat loss for Covered Species, as proposed in the NBHCP, would be mitigated by the preservation and enhancement of 7,758.5 acres of high quality habitat reserve lands that will be specifically managed in perpetuity for the Covered Species. The NBHCP also includes minimization measures to reduce impacts on Covered Species resulting from covered activities.

## **Types of Activities Covered**

Activities proposed to be covered under the Permit are the otherwise lawful activities which are described in detail in Chapter 1, Section N.(1) of the NBHCP, and in the Biological and Conference Opinion (Service 2003b). These activities generally include urban development that converts vacant land or agricultural uses to residential, commercial, and industrial uses, including related public and private infrastructure development and improvements by the Land Use Agencies. The City is seeking incidental take coverage for a total of 8,050 acres of authorized development located within the City's proposed Permit Area. A total of 4,324 acres of the 8,050 acres of the City's permit area has been disturbed or developed under the original permit issued for the 1997 NBHCP (City 1997). Also, approximately ten of the total 8,050 acres covered by the City's Permit are for drainage improvements to widen the West Drain outside of the City limits, in Sacramento County. This area has already been disturbed in compliance with the 1997 NBHCP. The proposed Permit would extend take coverage for Covered Species within the City's Permit Area and would cover urban development proposals, public projects, and associated infrastructure.

Sutter's proposed Permit would authorize incidental take coverage for the Covered Species within Sutter's Permit Area incidental to urban development, public projects, and their associated infrastructure. Sutter is requesting incidental take coverage associated with the conversion of 7,467 acres of agricultural and vacant lands to urban development located within Sutter's Industrial/Commercial Reserve area, which is located in the southeast portion of Sutter County within the Basin. The 7,467 acres of urban development would be located within the proposed Sutter Permit Area, except for infrastructure improvements in northern Sacramento County.

The Conservancy is seeking incidental take coverage associated with the acquisition, establishment and management of the system of habitat reserves that will be created by the Conservancy on behalf of the City, Sutter and other Potential Permittees throughout the Basin. Within its Basin wide Permit Area, the Conservancy is seeking incidental take coverage for managing reserves, preservation, creation, restoration, and enhancement activities, and monitoring the NBHCP's success in meeting its biological goals.

The NBHCP specifically does not cover the following: (1) agricultural activities, with the exception of those conducted on the Conservancy's reserves; (2) dredging; (3) pesticide use; or (4) hunting.

## **Relationship of Plan to Section 7 Consultations**

Private or public actions that are Covered Activities under the NBHCP may also be subject to separate Section 7 review if those actions are authorized, carried out, or funded by federal agencies. Incidental take for Covered Activities carried out by the Permittees or third party developers acting under the authority of an Urban Development Permit issued by either the City or Sutter County will be granted under the Permits and will be subject to the take mitigation, minimization and avoidance measures provided for under the NBHCP. Incidental take coverage

for the federal action agency will be granted through the incidental take statement issued with the Service's Section 7 biological opinion.

### **Term of the Permits**

The Permits would be in effect for a period of 50 years. Section 8.2 of the IA describes provisions for termination of the Permit(s). Under these provisions, should a Permittee request early termination of its Permit, the Permittee would be required to execute a termination agreement in order to ensure that it fulfills its mitigation obligations for all authorized development approved, authorized, or carried out prior to termination. Mitigation obligations will be in accordance with the NBHCP and the IA for all urban development approved, authorized, or carried out. The Service may suspend or revoke a Permit as a result of a violation of the Permit and/or pursuant to any applicable Federal laws or regulations. If the Permit is revoked or suspended, the Permittee remains obligated to fulfill all of its responsibilities under the Permit for any permitted activity approved, authorized, or carried out by the Permittee between the effective date of the Permit and date of the Permit suspension or revocation.

### **Background - Natomas Basin Regional Conservation Strategy**

The 2003 NBHCP is the culmination of almost a decade of regional conservation efforts in the Basin. In 1994, the Sacramento Area Flood Control Agency (SAFCA) proposed a flood control project for the Basin that required a permit from the U.S. Army Corps of Engineers (Corps). The Corps conditioned its permit for the flood control project on the preparation of a habitat conservation plan (HCP) for the Basin. The local land use agencies (City, Sutter, and Sacramento County), with additional participation by the water agencies (Reclamation District Number 1000 (RD 1000) and Natomas Central Mutual Water Company (Natomas Mutual), began preparing a HCP. In 1997, the City was the first to submit its permit application to the Service. In December 1997, the Service issued a Section 10(a)(1)(B) incidental take permit to the City.

Sutter and Sacramento County informally submitted draft HCPs to the Service in October 1998. The Service suspended review of their HCPs because a lawsuit was filed challenging the City's HCP and Permit. To date, Sacramento County has elected not to apply for an incidental take permit covering unincorporated County lands in the Basin based on the 1997 NBHCP, the 2003 NBHCP, or a separate HCP.

Because Sacramento County elected not to continue participation in the regional HCP effort, a separate HCP designed to fit within the structure of the regional NBHCP was prepared for Metro Air Park (MAP), a special planning area adjacent to Sacramento International Airport in the County of Sacramento that Sacramento County approved for commercial and industrial development. The MAP comprises 1,983 acres of the total 17,500 acres of planned urban development described in the 2003 NBHCP. The Service issued a Permit to the Metro Air Park Property Owners Association on February 21, 2002.

In February 2000, the National Wildlife Federation and other plaintiffs filed suit against the Service's issuance of the Permit to the City (*National Wildlife Federation, et al. V. Babbitt*, (E.D.Cal.) (*NWF. V. Babbitt*). The plaintiffs claimed that the Service violated Sections 7 and 10 of the ESA in issuing the City's permit. In addition, the plaintiffs asserted that the Service violated the National Environmental Policy Act (NEPA) by preparing an Environmental Assessment rather than an EIS.

In August 2000, the United States District Court for the Eastern District of California issued a Memorandum of Opinion and Order (Order). The Court ruled in favor of the plaintiffs on six of nine claims. Pursuant to a Settlement Agreement executed by the parties in the federal suit (effective May 10, 2001), the Order was modified to allow incidental take protection for limited land development within the City, with the provision of specific mitigation requirements.

The City and Sutter, with involvement by the Water Agencies, prepared the 2002 draft NBHCP which corrected deficiencies in the original HCP identified by the district court in *NWF v. Babbitt*. In July 2002, the City, Sutter, and the Conservancy each submitted Permit applications, in accordance with ESA Section 10(a)(2)(A), based on the 2002 NBHCP. On August 16, 2002, the draft EIS/EIR, draft NBHCP and draft IA went out for public review for a period ending on December 5, 2002. The final EIS/EIR, final NBHCP and final IA went to the public for the 30-day cooling off period on May 2, 2003 through June 2, 2003. Refer to section II. Public Comment for more detail.

### **NBHCP Conservation Strategy**

The purpose of the NBHCP is to promote biological conservation in the Natomas Basin in conjunction with economic and urban development within the Permit Areas. The NBHCP was developed as a multi-species conservation program designed to provide a regional conservation strategy for the protection and conservation of threatened, endangered, and sensitive species and their habitats in the Natomas Basin. The NBHCP emphasizes conservation of the overall ecosystem for the Natomas Basin by maintaining and enhancing a combination of wetland and upland habitat values utilized by the species covered by the plan. The NBHCP establishes a conservation program to minimize and mitigate the expected loss of habitat values and incidental take of Covered Species that could result from urban development and certain activities associated with the Conservancy's management of its system of reserves established under the NBHCP. The goal of the NBHCP is to minimize incidental take of the Covered Species in the Permit Areas and to provide mitigation for the impacts of Covered Activities on the Covered Species and their habitat. The primary mitigation for the impacts of urban development on Covered Species and their habitat in the Natomas Basin is the collection and use of mitigation fees to acquire and preserve 0.5 acre of habitat land for each 1.0-acre of gross development that occurs in the Basin. The effective, basin-wide, ratio of conservation to development is actually higher than 0.5 to 1.0, because all undeveloped lands in the Basin are subject to the mitigation ratio regardless of their value as habitat for the Covered Species.

The City and Sutter will each be required to mitigate the impacts of their Covered Activities independently. Thus, if either one of the Permits, other than the Permit issued to the Conservancy, is revoked, the other Permits would remain in effect. However, the conservation strategy adopted in the NBHCP reflects a region-wide assessment of, and mitigation for, impacts to the Covered Species; even though the level of impacts to particular Covered Species differs between each jurisdiction. The withdrawal of one of the jurisdictions from the NBHCP is considered a Changed Circumstance under the NBHCP, which would trigger a review of the mitigation lands relative to the types of habitat which have been and are projected to be impacted by the remaining jurisdiction and, if necessary, modification of reserve system management to ensure that reserve lands adequately mitigate for the types of habitat and impacts to species occurring in the remaining land use jurisdiction. Because the Conservancy, in carrying out its reserve acquisition and management activities, is acting on behalf of and is controlled by the City and Sutter, noncompliance by the Conservancy with the terms and conditions of its Permits, the NBHCP or IA, shall be considered a failure of the City and Sutter to comply with their obligations under the NBHCP and may result in suspension and/or revocation of their respective Permits.

The effectiveness of the NBHCP's Operating Conservation Program to adequately minimize and mitigate the effects of take of the Covered Species due to authorized development depends on the City and Sutter limiting total development within their respective Permit Areas to a combined total of 15,517 acres. In addition, the Operating Conservation Program and the NBHCP's effects analysis account for a combined total of 17,500 acres of Planned Development occurring in the Basin (i.e., 15,517 acres within the City and Sutter County's Permit Areas and 1,983 acres of Metro Air Park development in Sacramento County). Because the NBHCP's Operating Conservation Program is based upon the City limiting total development to 8,050 acres within the City's Permit Area, approval by the City of future urban development beyond the 8,050 acres or outside of its Permit Area would constitute a significant departure from the NBHCP's Operating Conservation Program and would trigger a reevaluation of the NBHCP, a new effects analysis, potential amendments and/or revisions to the NBHCP and Permits, a separate conservation strategy and issuance of Permits to the permittee for that additional development, and/or possible suspension or revocation of the City's Permit in the event the City was to violate such limitations without having completed the required reevaluation, amendments or revisions. Similarly, approval by Sutter of development within the Basin beyond the authorized 7,467 acres or outside of the Sutter Permit Area would constitute a significant departure from the NBHCP's Operating Conservation Program and would trigger a reevaluation of the NBHCP, a new effects analysis, potential amendments and/or revisions to the NBHCP and Permit, and/or possible suspension or revocation of the Sutter's Permit in the event Sutter were to violate such limitations without having completed the required reevaluation, amendments or revisions. Any additional urban development within the Basin that occurs outside of the City's and Sutter's Permit Areas, with the exception of the MAP development, including any development within Sacramento County or within the jurisdiction of another Potential Permittee, also would constitute a significant departure from the NBHCP's Operating Conservation Program. Such new urban development would require a new effects analysis, a new conservation strategy and issuance of new Permits to authorize take resulting from the additional

urban development. However, so long as the City and Sutter limit urban development to their respective Permit Areas and continue to meet their respective obligations under the NBHCP, the Operating Conservation Program and associated Permits will remain valid for each Permittee's Covered Activities.

The NBHCP, developed in support of the proposed Permits, includes a conservation strategy which contains the following: (1) identification and implementation of incidental take avoidance and minimization measures to minimize impacts to species covered by the NBHCP; (2) establishment, enhancement, and management (at full build out) of up to 7,758.5 acres of reserves in perpetuity for the species covered by the NBHCP; and (3) establishment of a monitoring and reporting plan to gauge the anticipated biological success of the NBHCP and to provide information for the Adaptive Management Plan, which is designed to improve the biological success of the NBHCP as new information becomes available or conditions change.

Details regarding the proposed mitigation and minimization measures can be found in Section V of the NBHCP and in the Service's Biological and Conference Opinion (2003b). As required under the No Surprises Rule (50 CFR Parts 17 and 22 as modified on February 28, 1998), unforeseen and changed circumstances are also addressed and are discussed in more detail later in this document.

The conservation strategy is further summarized below:

#### Incidental Take Avoidance and Minimization Measures

Sections V.A and V.B of the NBHCP and the Service's Biological and Conference Opinion (Service 2003b) discuss in detail specific incidental take minimization measures designed to minimize the impacts by averting the actual mortality or injury of individuals of Covered Species. Avoidance and minimization measures required in the NBHCP include: (1) completion of pre-construction surveys; (2) species-specific take avoidance and minimization measures; (3) preservation of the land adjacent to Fisherman's Lake; (4) a commitment by City and Sutter to avoid development within the one-mile wide Swainson's Hawk Zone (SHZ) adjacent to the Sacramento River (except for 252 acres previously approved within the City's SHZ); and (5) preservation and restoration of stands of riparian trees used for nesting by Swainson's hawks and other animals; also including tree plantings on Conservancy reserve lands.

#### Establishment and Management of Reserves in Perpetuity

The NBHCP proposes to offset the adverse effects of urban development by providing for the establishment of an interconnected reserve system composed of upland and managed marsh habitats and rice lands inside the Basin. Primary mitigation under the NBHCP is the progressive establishment of a system of interconnected biological reserves, representing 0.5-acre of reserve land for each 1.0-acre developed. Reserve lands are to be managed for the benefit of the Covered Species. A maximum of 15,517 acres of lands which provide habitat for the Covered Species is proposed for development under the NBHCP, requiring up to 7,758.5 acres of habitat

preservation and/or enhancement/creation. All mitigation lands will be acquired through fee simple or easement acquisition.

Reserves will consist of habitat blocks, each a minimum of 400 acres in size, consisting of a matrix of wetland, upland, and rice habitat, with an interlinking network of water supply channels or canals. Upon completion of the 50-year Permit Term, at least one contiguous reserve will be larger than 2500 acres. Individual reserves must be connected to one another. This connectivity may be by air, land, or water, depending on the biology of the Covered Species and type of reserve being addressed. The Conservancy's acquisition of habitat mitigation lands for the City and Sutter will be in accordance with the IA and Section IV.C of the NBHCP.

The Conservancy will improve and manage the system of reserves in a manner that will benefit the Covered Species. While the system of reserves is intended to benefit all Covered Species, individual reserve sites may focus on either upland or wetland habitat that supports only a portion of the Covered Species. The Conservancy's current basin-wide land management objective for the reserves, under the NBHCP, is to maintain 25 percent as managed marsh, 25 percent as upland habitat for use by Swainson's hawk and other upland species, and 50 percent in rice production that is grown using production practices that are "species-friendly" for the giant garter snake and other Covered Species. The Conservancy will prepare specific Habitat Management Plans for reserve lands acquired under the NBHCP. These plans detail habitat restoration and management for the mitigation properties acquired by the Conservancy and address the specific resources and habitat values of each reserve site.

Chapter IV of the NBHCP describes the establishment and management of wetland and upland reserves including, but not limited to: (1) wetland and upland reserve acquisition criteria/methodology; (2) buffers and setbacks; (3) managed marsh design/management; (4) management of rice lands; and (5) avoidance of conflicts with Sacramento International Airport.

### Monitoring and Reporting Plan

Monitoring of the NBHCP: Two related but separate types of monitoring programs will be required under the NBHCP. First, Compliance Monitoring will document Permittee activities and ensure that NBHCP Permittees complete obligations as specified within the NBHCP. These obligations vary between Permittees, based upon their specific obligations. Second, a Biological Effectiveness Monitoring Plan measures the biological success of the Operating Conservation Program. The Biological Effectiveness Monitoring Plan will provide the biological data necessary to guide and direct the Operating Conservation Program. Monitoring shall be performed for the duration of the Permits and in perpetuity per the terms of the Plan.

Compliance Monitoring: Compliance monitoring is verifying that the Permittees are carrying out the terms of the NBHCP, the IA and the associated Permits. The Conservancy will be the primary entity responsible for compiling, retaining, and making available to the Service and CDFG (Wildlife Agencies) data on compliance with the provisions and obligations contained within the NBHCP and the associated IA. The Land Use Agencies shall conduct compliance



monitoring and report to the Conservancy on their compliance and the compliance of parties operating under their control with regard to their obligations under the NBHCP and Permits, including implementation of the NBHCP take avoidance, minimization, and mitigation measures. Compliance Monitoring will include the status of the implementation of the NBHCP terms and conditions (e.g., financial responsibilities and obligations, management responsibilities, and other aspects of the Permits, NBHCP and IA). At the Implementation Annual Meeting, the Conservancy will report to the other Permittees and Wildlife Agencies on the progress of the HCP conservation strategy. The Permittees' compliance with the NBHCP obligations will be reported in the Conservancy's annual report. Additional detail regarding Compliance Monitoring is located in Chapter VI of the NBHCP.

**Biological Effectiveness Monitoring:** Biological Effectiveness Monitoring will evaluate the effects of authorized development and other Covered Activities and will determine whether the effectiveness of the NBHCP's Operating Conservation Program is consistent with the assumptions and predictions made when the NBHCP was developed and approved. The Biological Effectiveness Monitoring evaluates the NBHCP to ensure that the biological goals and objectives are being met. The Conservancy will be responsible for completing the Biological Effectiveness Monitoring and will publish the results in its annual report. In order to ensure consistent application of monitoring techniques both on Conservancy reserves and throughout the Natomas Basin, the Conservancy shall prepare a comprehensive Biological Effectiveness Monitoring Plan. Additional detail regarding Biological Effectiveness Monitoring is located in Chapter VI of the NBHCP.

**Annual Report:** The Conservancy will compile and submit an annual report to the Wildlife Agencies detailing authorized development activities, habitat acquisition, management, and compliance and effectiveness monitoring activities throughout the Plan Area for the preceding year. Each Permittee will be responsible for providing the Conservancy with information in their possession necessary for compiling the annual report.

#### Identification of Species to be Covered Under the NBHCP

The Service evaluated 22 species that could be covered under the NBHCP based on the following criteria: (1) sufficient information is known and for which adequate existing management prescriptions exist or can be easily defined and implemented and is sufficient to support an application for a section 10(a)(1)(B) Permit; or (2) information is limited, but the species share habitat with other Covered Species whose management prescriptions would be of sufficient benefit to support its inclusion under the NBHCP.

#### Biological Goals and Objectives

Overall biological goals and objectives of the NBHCP include:

1. Establish and manage in perpetuity a biologically sound and interconnected habitat reserve system that mitigates impacts on Covered Species resulting from Covered Activities and provides habitat for existing, and new viable populations of Covered Species.
2. Implement an adaptive management program that responds to changing circumstances affecting Covered Species and their habitats.
3. Preserve open space and habitat that may also benefit local, non-listed and transitory wildlife species not identified within the NBHCP.
4. Ensure that direct impacts of authorized development upon Covered Species are avoided or minimized to the maximum extent practicable.
5. Minimize conflicts between wildlife and human activities, including conflicts resulting from airplane traffic, roads and automobile traffic, predation by domestic animals, and harassment by people.
6. Ensure connectivity between Conservancy reserves to minimize habitat fragmentation and species isolation. Connections between reserves will generally take the form of common property boundaries between reserves, waterways (primarily irrigation and drainage channels) passing between reserves and/or an interlinking network of water supply channels or canals.
7. Within individual Conservancy reserves, provide a mosaic of habitats that support both wetland and upland species, and that are configured to support species that utilize both types of habitat.
8. Implement monitoring programs with qualitative and/or quantitative monitoring methods to evaluate management objectives and strategies for the reserve system.
9. Increase the diversity and abundance of Covered Species on reserve lands.
10. Revise the reserve design and management based on the most current biological data.

In addition to the overall biological goals and objectives, the following wetland species habitat goals and objectives have been proposed:

1. Acquire, enhance and create a mosaic of wetland habitats with adjacent uplands and connecting corridors to provide breeding, wintering, foraging, and cover areas for wetland species in the Plan Area.
2. Provide habitat to maintain, attract and sustain viable populations of the Covered Species. The habitat areas should be configured to encompass natural species migration areas, minimize species isolation, and prevent future habitat fragmentation.

3. Document population trends of Covered Species through monitoring.

In addition to the overall biological goals and objectives, the following upland species habitat goals and objectives have been proposed:

1. Acquire, enhance and create a mosaic of upland habitat types for breeding, foraging, and cover for species dependent on upland habitats.
2. Ensure reserve land connectivity with travel corridors for upland-dependent species. The habitat areas should encompass grasslands, agricultural croplands, riparian habitats, and shelter and nesting habitat areas (fence rows, clusters of shrubs and small trees), as well as wetland areas to provide a year-round source of water for upland species. The upland areas should be configured to enhance natural species migration, minimize species isolation, and prevent future habitat fragmentation.

### Adaptive Management Plan

Adaptive management is a process that allows the NBHCP's Operating Conservation Program to be adjusted during the life of the Permits to ensure that the most up-to-date information is being utilized, that the Plan's biological goals and objectives are being achieved, and in response to changing conditions. As identified in VI.F.1 of the NBHCP, some uncertainties regarding the NBHCP's Operating Conservation Program exist. Adaptive management will allow the Operating Conservation Program to address and respond to these uncertainties over time. Adaptive management changes to the NBHCP management actions, monitoring, and research needs may be implemented in the following ways:

1. Regularly scheduled periodic evaluations of the NBHCP monitoring data, other new scientific information or future recovery plan recommendations by the Conservancy and/or the TAC and a determination linking the information to the Plan's success in implementation and achieving the biological goals and objectives.
2. Identifying significant measurable threshold limits for each of the adaptive management objectives that will trigger proposals and solutions requiring a management change.
3. Conducting a review at the Independent Mid-Point Reviews for Land Use Agencies and the Overall Program Review at 9,000 acres of development.

These approaches will be used to evaluate the effectiveness of the established habitats on reserve lands and to implement adjustments to the Operating Conservation Program, as necessary, in order to achieve the biological goals and objectives of the NBHCP, and to address the mitigation requirements for particular Covered Species.

The Conservancy will use the annual reporting process to review the compliance and effectiveness monitoring and will use data collected in that effort to inform the adaptive

management process. The Conservancy's report will include a summary of findings with specific management recommendations and direction, if applicable.

Preliminary management thresholds are provided in Section VI.F.1 of the NBHCP. Revised management thresholds will be incorporated within two years of issuance of the proposed Permits as part of the Biological Monitoring Programs. The management thresholds, in addition to the periodic evaluations, will be used to evaluate the NBHCP's implementation status and success in achieving its conservation goals and objectives.

The NBHCP requires that habitat reserves include a variety of habitat types to support the various needs of the Covered Species. The initial requirement is for the reserve system to be comprised of 50% managed rice, 25% managed marsh habitat, and 25% upland habitat. The NBHCP's adaptive management provisions provide for an increase in the amount of land required to be in managed marsh in response to a future giant garter snake recovery plan, monitoring results from the Basin, or new scientific information if the Service determines that a higher proportion of managed marsh would improve the effectiveness of the NBHCP's Operating Conservation Program, is beneficial for the snake, and would not adversely affect any other listed Covered Species. The NBHCP allows for a maximum of 75% of the wetland component of the mitigation lands to be converted to managed marsh. In support of a change in the ratio, the Service would provide justification in the form of a written analysis based upon scientific evidence or monitoring results, or a snake recovery plan (when adopted). The revised ratio would apply to reserves acquired and developed following issuance of the revised ratio. In other words, the revised ratio would not be retroactive.

The NBHCP also allows changing of the habitat ratios (i.e., 25% marsh, 50% rice, 25% uplands) if it is determined insufficient Swainson's foraging habitat is available. Such modifications also would be applied prospectively to future Conservancy acquisitions and would not affect existing, improved Conservancy reserves (see NBHCP, Section IV.C.1.e).

#### Program Adaptation for Recovery Plans

The NBHCP's adaptive management provisions allow for revisions to management strategies to incorporate new or modified management strategies, such as those which may be included in recovery plans, or in response to monitoring results in the Plan Area or to new peer-reviewed scientific information. The NBHCP will incorporate recommendations made pursuant to future recovery plans, monitoring results from the Plan Area, or new scientific information provided such recommendations:

1. Relate to the physical management of mitigation lands.
2. Would improve the effectiveness of the NBHCP's Operating Conservation Program by identifying relevant new information, approaches, techniques, or species protection needs.

3. Can be implemented within the NBHCP Plan Area.
4. Fit within the overall intent, framework, are consistent with the NBHCP's biological goals and objectives and would not exceed the established mitigation ratio of the Plan.
5. Will not substantially sacrifice habitat values for Covered Species that are not addressed by the recovery plan.

Adaptive management revisions will be made consistent with the NBHCP's Amendments and Revision section (see Chapter VI of the NBHCP). Changes to the NBHCP that are substantial in scope, and are beyond the scope of the Adaptive Management Program will require the amendment of the Permits, and additional review and approval under the ESA, CESA, CEQA and NEPA. The Conservancy is required to maintain a complete administrative record of all NBHCP revisions resulting from the Adaptive Management Program.

#### NBHCP Overall Program Review at 9,000 acres of Development

The NBHCP establishes a comprehensive overall program review designed to evaluate the performance and effectiveness of the NBHCP to be conducted when, and if, authorized development within the Basin allowed by the Permits for the City and Sutter and by Sacramento County for MAP reaches a total of 9,000 acres (the "Overall Program Review"). This Overall Program Review will be triggered at the point Urban Development Permits covering a total of 9,000 acres of development in the Natomas Basin have been issued by the Land Use Agencies and by Sacramento County for the Metro Air Park. During the review, up to, but not more than, an additional 3,000 acres of additional urban development may be approved. In other words, no more than a total of 12,000 acres of urban development shall be approved prior to completion of the Overall Program Review.

The Overall Program Review shall specifically address the following factors: (1) status and population trends of the snake, hawk, and all other Covered Species within the NBHCP area, especially with respect to those biological factors that are directly affected by Covered Activities under the NBHCP; (2) status and effectiveness of the Plan's habitat reserve system, including its buffer and setback requirements; (3) the NBHCP's success in meeting the 2,500-acre and 400-acre minimum habitat block size requirements; (4) the status and effectiveness of the NBHCP's funding mechanisms; (5) the relative status and distribution of developed lands and reserve lands within each of the Land Use Agency jurisdictions (the City, Sutter, and MAP); (6) the success of the 25% managed marsh/50% rice/25% upland reserve system for supporting the Covered Species; and (7) compliance of RD1000 and Natomas Mutual with approved canal and ditch maintenance practices.

The review shall be conducted through consultation among all affected Permittees, the Conservancy, the Service, and the CDFG, which shall be known collectively as the NBHCP Review Board. The Conservancy shall inform the other parties, in writing, when the 9,000-acre

trigger for the overall program review has been reached and shall initiate and coordinate the review.

Results of the review shall consist of a written report presenting the conclusions of the Review Board. These conclusions shall address each of the factors described above. The report shall also present recommendations consisting of the following or of a combination thereof: (1) a recommendation that the NBHCP is functioning as intended and that no revisions to the NBHCP's measures, in addition to those originally set forth, are necessary; (2) a recommendation that the NBHCP is significantly in need of correction and the specific corrective measures that are needed; and (3) a recommendation as to whether such corrections should be treated as an NBHCP revision under the NBHCP's adaptive management provisions, or whether the corrections exceed the scope or intent of the adaptive management process and should be treated as an amendment of the NBHCP 's associated Section 10(a)(1)(B) and CDFG Section 2081 Permits. Upon completion of the review, the Service and CDFG shall, depending on the results, either document in writing that the NBHCP is functioning as intended and that no Plan revisions or Permit amendments are necessary, or assist the Permittees in revising the NBHCP and, if necessary, amending their respective Permits, as needed. The Review Board's report shall be made available to the public for review and comment before written findings are made by the Service and CDFG. If it is determined that substantial revisions to the NBHCP need to be made through amendment of the Permits, all statutory and regulatory requirements including those regarding public notice and review under the ESA, NEPA and CEQA shall be completed.

#### Independent Mid-Point Reviews for Land Use Agencies

In addition to the NBHCP Overall Program Review, once 9,000 acres of authorized development have been approved, both the City and Sutter will conduct Independent Mid-Point Reviews as development occurs within each Land Use Agency's Permit Area. Thus, up to three program reviews (one overall and two independent reviews) may be completed, depending on the timing of development within the City and Sutter. On June 19, 2003, the City advised the Service that approved Authorized Development will trigger an obligation to conduct an Independent Mid-Point Review of the NBHCP upon issuance of the proposed Permits to the City. An additional mid-point review is required to be undertaken under the MAP HCP when 800 acres of land have been authorized for development under the MAP Permit. The Independent Mid-Point Reviews conducted by the City and Sutter will address each of the factors noted for the 9,000 acre overall program review above, as well as the expanded evaluation of progress on the 2,500 acre preserve, and minimum preserve size.

#### **Changed and Unforeseen Circumstances**

Changed and unforeseen circumstances are described in Section VI.K of the NBHCP and Section 6.1 of the IA. The City and Sutter would be required to provide planned responses to the changed circumstances identified in the NBHCP in accordance with the Service's "No Surprises" rule at 50 C.F.R. 17.22(b)(5) and 17.32(b)(5). The City and Sutter, in consultation

with the Wildlife Agencies, have identified seven changed circumstances that may occur. Five of the changed circumstances apply to types of environmental events: floods, fire, changes in availability of irrigation water due to drought, invasion by exotic species, and toxic spills and illegal dumping of toxic materials. These five changed circumstances focus on the reserves established under the NBHCP. In the event of the changed circumstances identified above, the Conservancy shall assess the damage and with the concurrence of the Wildlife Agencies, prepare a report, and recommend remediation measures. Funding will be provided through the Conservancy, with funds provided as described in Section VI.B of the NBHCP. Two other changed circumstances consist of the non-participation by either the City or Sutter in the NBHCP and the listing of new species. In the event of non participation by either the City or Sutter, the participating Land Use Agency, in conjunction with the Conservancy's Technical Advisory Committee (TAC) and the Conservancy, shall review the existing and planned reserve system relative to the types of habitat which have been impacted and are projected to be impacted by authorized development. The existing overall reserve management measures will be reviewed and modified, as necessary, to ensure that the reserve lands are acquired in accordance with the 0.5 to 1.0 mitigation ratio and to ensure that within that ratio, adequate management and enhancement activities are incorporated in the reserve system design to respond to any change in the type of habitat and associated species which will be impacted. Additional details regarding changed circumstances are located within the NBHCP and IA. If a new species, not covered by the Permits, is listed and occurs in the Basin, the Permittees will implement measures identified by the Service as necessary to avoid take, jeopardy, and adverse modification of the designated critical habitat, if any, of the newly listed species, within their Permit Areas until either their Permits are amended to cover the newly listed species or the Service notifies the Permittees that such measures are no longer necessary to avoid take, jeopardy to, or adverse modification of the critical habitat of, the newly listed species.

Pursuant to the “No Surprises” rule, the Service will not require any additional land, water, or other natural resources without the consent of the City and Sutter in the event an unforeseen circumstance occurs. If the Service determines that an unforeseen circumstance has occurred and that additional land, land restrictions, or financial compensation beyond that required under the NBHCP are needed to conserve the Covered Species, then the City and Sutter will not be obligated to provide the additional measures without their consent. Pursuant to 50 C.F.R. 17.22(b)(8) and 17.32(b)(8) the Service retains the authority to revoke the Permits, in response to an unforeseen circumstance or otherwise, if we find that continuation of the take permitted under the permits would appreciably reduce the likelihood of the survival and recovery of a listed species.

### **Changes made between Draft and Final NBHCP**

The Notice of Availability for the draft NBHCP was published in the Federal Register on August 16, 2002 (67 FR 54819). Public comment was solicited and lasted through December 5, 2002 (including one extension to the public comment period). The public comment period on the draft NBHCP (City *et al.* 2002) and its associated environmental documents enabled the Service to gather comments from interested parties. The process of reviewing and considering these

comments led to the development of changes to the original proposed NBHCP. These changes were clarifications, updates, and additional minimization, mitigation, and monitoring measures. The final NBHCP was modified accordingly and is incorporated herein by reference (City *et al.* 2003). The final EIS and final NBHCP were made available to the public for review on May 2, 2003 (68 FR 23457). The main substantive changes from the draft to the final NBHCP are summarized as follows:

1. Sections IV.C.1, V.A.5, and V.B.4.a include updated conservation measures that improve protections for the snake.
2. Section IV.C.1 includes increased analysis with regards to Swainson's hawk foraging habitat.
3. Section IV.C.2.c addresses potential sale or transfer of mitigation reserves.
4. Section V.A.4.a includes survey protocols for Covered vernal pool plant and animal species.
5. Sections VI.E.2 and VI.E.3 include refined biological monitoring measures.
6. Section VI.F.3 includes improved database management measures.

On May 13, 2003, the City approved the Final NBHCP, with three changes that will improve protections for Covered Species (Ordinance Number 2003-290). These changes are:

1. No mitigation lands will be acquired in Area B, an area outside of the Basin that had been proposed to be used for habitat reserves in some instances.
2. The City may exercise its discretion to require developer/land owners to dedicate mitigation land in lieu of the land acquisition component of the mitigation fee prior to issuance of an Urban Development Permit.
3. Land owners within the City's Permit Area will be notified annually if they have a Swainson's nest tree on their property. The Notice will identify the nest tree and alert the owner to the specific mitigation measures prohibiting the owner from removing the nest tree prior to future Authorized Development of the property.

Sutter approved the Final NBHCP (Resolution Number 03-030) on May 13, 2003. On June 10, 2003, Sutter approved a second resolution to make Sutter's obligations consistent with those of the City. Changes included in the second resolution include:

1. No mitigation lands will be acquired in Area B. All mitigation lands must now be acquired in the Natomas Basin.



2. Sutter may exercise its discretion to require developer/land owners to dedicate mitigation land in lieu of the land acquisition component of the mitigation fees prior to issuance of an Urban Development Permit.
3. Land owners within Sutter's Permit Area will be notified annually if they have a Swainson's nest tree on their property. The notice will identify the nest tree and alert the owner to the specific mitigation measures prohibiting the owner from removing the nest tree prior to future Authorized Development of the property.

### **Analysis of Effects**

As set forth in more detail below under Section III.2, the Service has determined that the impacts likely to result to listed and unlisted Covered Species that may occur as a result of issuance of the proposed Permits and approval of the NBHCP would be minimized and mitigated to the maximum extent practicable by measures described in the NBHCP and the Permits. Issuance of the Permits would result in the loss of approximately 15,517 acres of agricultural or vacant lands which provide varying levels of habitat for the Covered Species. Loss of that habitat would be offset by the establishment of 7,758.5 acres of reserve lands managed to provide high quality habitat for the Covered Species in perpetuity. The NBHCP is a multi-species plan designed to provide a regional conservation strategy for the protection and conservation of threatened, endangered, and sensitive species and their habitats in the Basin. The NBHCP emphasizes conservation of the overall ecosystem of the Natomas Basin by maintaining and enhancing a combination of wetland and upland habitat values utilized by species covered by the NBHCP.

While snakes and hawks are known to occur widely throughout the Natomas Basin, the other Covered Species: (1) are known to, or are likely to, occur within the Basin in only in limited areas or during certain periods of the year; or (2) could potentially occur in the Basin during the life of the Permits. The habitat needs of many Covered Species overlap significantly with the giant garter snake and Swainson's hawk such that specific habitat requirements of the other Covered Species can be incorporated into and met within the upland and wetland components of the reserves which are focused on providing giant garter snake and Swainson's hawk habitats. The habitat necessary to support the giant garter snake and Swainson's hawk provides, to varying extent, the habitat types utilized during some or all of the life cycles of many of the remaining Covered Species. For the vernal pool-related species, which are found in or potentially could occur in a very small portion of the Basin, separate conservation measures have been developed to ensure that these species are adequately protected by the NBHCP. Specific consideration of the needs of the other Covered Species must be incorporated into the restoration, enhancement, and management plans as they are developed for each reserve block .

Many of the Covered Species use the Natomas Basin for only a part of their habitat needs or for only a short time of the year. For example, several of the covered migratory bird species occur in the Basin occasionally during the winter and utilize the Basin for foraging and resting areas during migration and wintering. Several Covered Species that occur only occasionally or have very localized distributions within the Basin are likely to expand their distributions and become

more established as resident and breeding populations in response to habitat restoration and enhancement activities proposed under the NBHCP. Habitats restored and managed in the Conservancy's reserve system will also benefit the Covered Species through increased stability and quality of habitat. Covered species occupying managed habitat will encounter decreased disturbance, harassment, injury, and mortality which often results from farming practices and canal maintenance activities conducted on non-reserve agricultural lands used by the species. Marsh habitats will provide more extensive and more diverse habitats than currently exists within the Basin, and are likely to support greater numbers of giant garter snakes and other Covered Species than the existing landscape of agricultural lands and canals and waterways. The use of grazing on reserve lands will benefit burrowing owls and loggerhead shrikes. Ground squirrels are more numerous in areas that are grazed, and as burrowing owls utilize abandoned ground squirrel burrows as nest locations, there should be an increase in potential nesting locations. Grazed grasslands also allow burrowing owls and loggerhead shrike to see and avoid predators, and more efficiently prey upon small insects. Restored and created marsh habitat, which is absent from the Basin, will provide important habitat for white-faced ibis, tricolored blackbird, northwestern pond turtle, and Sanford's arrowhead. White-faced ibis, in particular, which currently use the Basin only for foraging, could in the future nest in the Basin as a result of the creation of suitable nesting habitat in the managed marsh component of the reserved lands. The tricolor blackbird will also benefit from good aquatic and upland habitat for basking, nesting, overwintering, and foraging.

## **II. PUBLIC COMMENT**

A Notice of Intent to prepare an EIS for the federal action associated with the project was published in the Federal Register on December 18, 2000 (65 FR 79115). Public comments on the scope of the alternatives and environmental effects to be examined for the proposed project were requested by January 16, 2001. Thirty-two comment letters were received.

A second Notice of Intent was published in the Federal Register on August 18, 2001 (66 FR 43267), which addressed the addition of the Water Agencies as participants in the environmental document. Public comments on the addition of the Water Agencies were requested by September 17, 2001. Two comment letters were received.

A Notice of Availability of the Draft EIR/EIS, with a public review period of 60 days, was published in the Federal Register on August 16, 2002 (67 FR 53581). Comments were requested by October 16, 2002. An extension to the public review period was published by amended Notices of Availability, and the comment period was extended to December 5, 2002. Twenty-five comment letters were received (Attachment 1 to the Final EIR/EIS). A response to each comment is included in the Final EIR/EIS as Attachment 2.

A Notice of Availability of a Final EIR/EIS was published in the Federal Register on May 2, 2003 (68 FR 23457). Eight comment letters were received. Responses to those comments are included in the Record of Decision.

### III. INCIDENTAL TAKE PERMIT CRITERIA - ANALYSIS AND FINDINGS

#### 1. The taking will be incidental.

The Service finds that the taking of Covered Species under the NBHCP will be incidental to otherwise lawful activities. The activities for which incidental take coverage are sought under the permits include residential and commercial development; upland crop and rice farming (on Conservancy rice and upland reserves only); and managing, enhancing, and monitoring of reserves and scientific collection associated with these activities. Any take of Covered Species resulting from the loss of habitat through its conversion to urban development, farming practices on Conservancy mitigation lands and protection, enhancement, restoration and management of those lands by the Conservancy will be incidental to, and not the purpose of, these lawful activities.

#### 2. The Permittees will, to the maximum extent practicable, minimize and mitigate the impacts of taking of covered animal species and the effects to other Covered Species that may occur within the Permit Areas.

The Service finds that the City, Sutter, and Conservancy will minimize and mitigate the impacts of take of the Covered Species to the maximum extent practicable. The City, Sutter, and Conservancy have developed the NBHCP and IA, pursuant to the incidental take permit requirements codified at 50 CFR 17.22(b)(1) and 50 CFR 17.32(b)(1), which require measures to minimize and mitigate the effects of issuing the permits. Under the provisions of the NBHCP, the impacts of take will be minimized, mitigated, and monitored in accordance with the Permit requirements of Permit #TE73665-0, #TE73663-0, #TE073667-0 through the following measures:

- (1) Identification and implementation of incidental take minimization measures to minimize impacts to species covered by the NBHCP (see Sections V.A, V.B, and VI of the NBHCP).
- (2) Establishment, enhancement, and active management of as much as 7,758.5 acres of high quality reserve habitat in perpetuity that is managed specifically for the benefit of the species covered by the NBHCP.
- (3) Establishment of a monitoring and reporting plan to gauge the anticipated biological success and effectiveness of the NBHCP and to provide information for the Adaptive Management Plan which is designed to improve the biological success of the NBHCP as new information becomes available or conditions change.
- (4) Implementation of a funding mechanism which contains assurances that the NBHCP will be implemented.

The minimization and mitigation measures proposed by the prospective Permittees were developed based on a comprehensive evaluation of impacts to Covered Species that would result from urban development and Conservancy management practices that will occur in the Permit Areas. As previously described, the Monitoring Plan will monitor the effectiveness of the conservation program over the life of the Permits.

To make the finding that the conservation measures included in the NBHCP minimize and mitigate the impacts of take to the maximum extent practicable, the Service must first evaluate whether the conservation measures are rationally related to the level of take anticipated under the plan. In effect, the minimization and mitigation measures need to address the biological needs of the Covered Species in a manner that is commensurate with the impacts to the species allowed under the NBHCP. The Service believes the level of minimization and mitigation provided for in the NBHCP compensates for the impacts of take<sup>1</sup> of each Covered Species that will or could potentially occur under the plan. The primary form of take of each of the Covered Species anticipated under the NBHCP is in the form of harm resulting from the conversion of 15,517 acres of agricultural or vacant lands in the Basin to urban development. "Harm" is defined in the Service's regulations as follows:

Harm ... means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. 50 C.F.R. 17.3.

Thus a loss of habitat, in and of itself, does not result in take; take results when the loss of habitat causes injury or death to a species by significantly impairing an essential behavioral pattern of the species. Having evaluated the effects to the Covered Species of urban development resulting in the loss of approximately 15,517 acres of land of varying habitat quality, the Service concludes that for each of the Covered Species, with the exception of the giant garter snake, the level of take will be low. The Service further concludes that with respect to all of the Covered Species, including the giant garter snake, the impacts of take will be effectively mitigated by the creation of approximately 7,758.5 acres of reserve lands managed specifically for the benefit of the species. This is because (1) several of the Covered Species are not known to occur in the Basin, or the level of use of the Basin by the species is low or sporadic; (2) the Basin constitutes an insignificant portion of most of the species' ranges; (3) for those species known to use the Basin, habitat remains available both within the Basin and outside of the Basin to satisfy the species' essential behavioral needs; and 4) the habitat value of the managed reserve lands to the species is greater than the value of the agricultural and vacant lands that will be converted to urban development. As a consequence, the loss of habitat resulting from the NBHCP

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<sup>1</sup>Plants are not subject to the take prohibitions of the ESA and an incidental take permit is not required for impacts to plants. However, in discussing impacts to the Covered species, 7 of which are plants, the Service uses the term "take" to refer to both take of covered animal species and loss of covered plant species.

implementation is not expected to significantly impair the essential behavior patterns of these species resulting in their injury or death, i.e., is not expected to result in take of these species, to a significant degree.

The midvalley fairy shrimp, western spadefoot toad, California tiger salamander, legenere, Boggs lake hyssop, Sanford's arrowhead, Colusa grass, slender Orcutt grass, Sacramento Orcutt grass, delta tule pea, and valley elderberry beetle are not known to occur within the Natomas Basin, and the Basin currently contains little potential vernal pool or wetland habitat for these species. The vernal pool tadpole shrimp and the vernal pool fairy shrimp are each known from only a single occurrence in the Basin and, because of the very limited amount of vernal pool habitat in the Basin, are not likely to be found in significant numbers in the Basin in the future. The absence of the species from the Basin, or their rarity in the Basin, combined with the dearth of suitable habitat for the species in the Basin and the take avoidance, minimization and mitigation measures incorporated into the NBHCP for each species, renders the potential for take of these species low, and in some cases, non-existent. For these reasons, impacts of take on the species would also be low. The measures incorporated into the NBHCP to minimize and mitigate effects on these species, should any be found in the Basin, should effectively offset the impacts of any future take under the NBHCP.

The pond turtle, a wide ranging species, is known from only two occurrences in the Basin. Rice fields provide most of the turtle's potential habitat in the Basin, but because these fields typically lack upland areas needed by the turtle for foraging, nesting, overwintering, and basking, rice is of questionable value to this species. Therefore, the level of take anticipated for this species is low and the impacts of take, given the species wide range, are expected to be small. The creation of managed marsh should improve conditions for the pond turtle by providing both the aquatic and upland components needed to support pond turtles' essential behavioral patterns.

The Aleutian Canada goose is also a wide ranging species that winters throughout Oregon, and California's Central Valley. It is only an occasional visitor to the Basin. While a portion of the species' foraging habitat in the Basin will be lost under the Permits, ample foraging habitat will remain for this species both in the Basin and on nearby wildlife refuges and farmlands, and additional high-quality foraging habitat will be created through the NBHCP's system of reserves. The loss of foraging habitat resulting from the NBHCP is not expected to significantly impair the species' essential behavioral patterns, resulting in take, to any appreciable degree.

The loggerhead shrike, a species that occurs throughout the United States, is common throughout lowland California and is known to occur in the Natomas Basin. Shrikes nest in shrubs and trees (<20') that are in short grass fields. A small portion of the shrike's potential nesting habitat will be lost under the NBHCP, but upland areas on managed marsh reserves and some areas of the upland reserves will provide good nesting habitat. Because the Basin occupies such a small percentage of this species' range and ample foraging habitat will remain in the Basin both on reserve and non-reserve lands as the NBHCP is implemented, the level of take of this species anticipated from the NBHCP is anticipated to be low. Given the species' stable population status in California, the impacts of such take on the species are expected to be negligible.

The tricolored blackbird, which ranges throughout the Central Valley and inland areas of northern and southern California, is known to nest and forage in the Basin. A portion of the tricolored blackbird's potential nesting and foraging habitat will be lost under the plan, however, significant amounts of such habitat will remain available to the species in the Basin and in farmlands near the Basin, thus minimizing the level of take resulting from conversion of its habitat. The take minimization measures incorporated into the NBHCP, including avoidance of active tricolored blackbird nests and a requirement to dewater sites prior to construction, should also minimize the level of take. Importantly for this species, the managed marsh reserves created under the plan will provide potential nesting habitat in close proximity to foraging habitat, thus increasing suitable nesting opportunities for this species in the Basin beyond what currently exists. Because the Basin occupies only a small portion of the species' range, ample foraging habitat will remain in and nearby the Basin, and the wetland component of the reserves will result in higher quality habitat for this species than currently exists in the Basin, the impacts of take on the species resulting from the NBHCP are expected to be low, and will be more than offset by the creation of high quality habitat in the reserves.

Similarly, the white-faced ibis, which ranges throughout western North America, should benefit from the NBHCP. The ibis is a common visitor to the Basin, but no suitable nesting habitat for this species currently exists in the Basin. The primary impact to this species from the plan will be a loss of foraging habitat; however ample foraging habitat will remain within the Basin, and on nearby wildlife refuge areas and farm lands. Therefore, implementation of the plan is not expected to significantly impair this species' feeding or other essential behavioral patterns, resulting in take of the species, to any appreciable degree. Overall, the species should benefit from the plan as the managed marsh component of the reserves will create high quality nesting habitat in the Basin for the species where none currently exists.

The bank swallow is found throughout North and South America and breeds across the northern half of the United States. Within California, the majority of the population nests along streams found in the Central Valley, primarily the Sacramento and Feather Rivers. No suitable nesting habitat currently exists in the Natomas Basin for this species, although it could potentially forage in the Basin. Thus, the primary impact of the plan on this species is the loss of this potential foraging habitat. However, ample foraging habitat will remain for this species in and nearby the Basin, with implementation of the plan. Importantly, the NBHCP largely prohibits development within the SHZ, a one mile-wide swath of habitat adjacent to the Sacramento River, which provides valuable foraging habitat for breeding colonies of this species that nest along the Sacramento River. The impacts of take on this species, given its wide range, its speculative use of the Basin for foraging, the availability of foraging habitat in remaining portions of the Basin and nearby areas, and the take minimization and mitigation measures incorporated into the NBHCP render the impacts of take of this species negligible under the NBHCP.

The burrowing owl is a wide-ranging species that occurs throughout the western United States and extends into southern Canada and northern Mexico and breeds from Southwestern Canada to southern California and Texas. The burrowing owls known to occur in the Basin are non-migratory residents. Owl habitat occurs along the Basin's canals that contain small mammal

burrows and in adjacent upland foraging habitat. The primary impact of the plan on the owl will be the loss of potential nesting and foraging habitat along canals. That loss will be offset by the protection and restoration of upland habitat in the reserves and management of canals within the reserves to benefit the owls and small mammals on which they depend. The plan also prohibits disturbance of owls during their nesting season and provides for relocation of owls, which has shown some success elsewhere, during other portions of the year. To date the Conservancy has acquired two blocks of habitat known to be occupied by burrowing owls; one of which is described as the largest colony of owls in the Basin. Even with the loss of some canals and ditches and adjacent foraging habitat, a majority of the canals in the Basin will remain unaffected by the Permits. That remaining habitat combined with the higher quality habitat made available to the owls on reserve lands, should offset any take that results from the NBHCP. In addition, given the very large range of this species, the impacts of any take of the owl within the Basin on the species as a whole will be negligible.

The Swainson's hawk, a wide-ranging species that breeds throughout western North America, including the Mojave Desert, northeastern California, the Central Valley and Owens Valley regions of California. The species winters in Central and South America. The Natomas Basin is home to a substantial number of Swainson's hawks, which primarily nest along the banks of, or nearby the Sacramento River and forage throughout the Basin and nearby agricultural areas. Issuance of the Permits will result in the removal of a small amount of potential nesting habitat for the species in the Basin. Six Swainson's hawk trees occur within the City's Permit area; two of these trees contained active nest sites in 2002. Hawks nesting in these trees, and in an additional nest tree located adjacent to the City's permit area and trees along Fisherman's Lake could be disturbed by nearby construction and other development related activities. In addition, four of the nest trees are anticipated to be removed as a result of Authorized Development. No nesting habitat occurs within Sutter County's portion of the Basin. After implementation of the NBHCP, over 80 percent of potential Swainson's hawk nesting habitat will remain in the Basin.

In addition to the loss of a small amount of nesting habitat, the NBHCP will result in the loss of approximately 40 percent of the hawk's potential foraging habitat in the Basin. Once establishment of the reserves is complete, the net loss of potential Swainson's hawk foraging habitat in the Basin will be between 7,000 and 9,200 acres. However, potential take of Swainson's hawk likely to result from the loss of both nesting and foraging habitat and the impacts of that take on the species is likely to be low for the reasons discussed below.

The NBHCP incorporates numerous measures to minimize disturbance to active Swainson's hawk nest sites incident to construction activities to minimize the potential for take. These measures include pre-construction surveys, avoidance buffers (until the young have fledged), timing restrictions, and monitoring. The City has committed to plant and maintain 60 new Swainson's hawk nest trees on reserve lands to replace the four nest trees in the City's Permit area likely to be lost or become unsuitable for hawks, a mitigation ratio of 15 to 1. If the two nest trees already surrounded by existing development and the additional tree located adjacent to the City's permit area are included, the planting of replacement trees represents better than an 8 to 1 mitigation ratio. These trees will be planted within 14 months of permit issuance to lessen

any temporal effects on the species. The City's tree plantings will be supplemented by additional nest trees planted by the Conservancy on reserve lands at appropriate locations. Each of these trees will be planted in areas surrounded by foraging habitat available to the Swainson's hawk during its critical nesting season. To date, the Conservancy has planted over 300 native trees as part of the restoration and enhancement activities, including tree species used for nesting by hawks such as valley oak, sycamore, and willows. Willows are fast growing and are forecast to be suitable for nesting within 5 to 10 years. Thus, implementation of the NBHCP is expected to increase the amount of nesting habitat available to the species in the Basin.

Although the NBHCP will result in a substantial decrease in potential foraging habitat in the Basin, that loss is also expected to result in low level of take of the species. In part, this is because the majority of the foraging habitat that will be lost is currently not available to the hawk during its nesting season when the hawk is present in the Basin. In addition, even with the loss of approximately 7,000 to 9,200 acres of foraging habitat as a result of the plan, 13,000 to 15,000 acres of foraging habitat will remain in the Basin. Apart from the substantial acreage of foraging habitat left in the Basin, extensive foraging habitat will also remain available to the species across the Sacramento River in Yolo County within the species' known flight range. Much of this habitat is found in the Yolo and Sutter bypasses. Given the expanse of foraging habitat that will remain accessible to the species in and around the Basin, the likelihood that the decrease in available foraging habitat within the Basin resulting from the plan will significantly impair the species' feeding or breeding patterns, leading to injury or death, (i.e., a taking of the species) is low. Because the level of take of Swainson's hawk is expected to be low, the impacts of that take on the species either within the Central Valley of California or across its entire range are also expected to be low.

Take that may result from loss of nesting or foraging habitat will be mitigated by the creation of high quality Swainson's hawk habitat on upland reserve lands, including the upland component of wetland reserves. This high quality foraging habitat will be in close proximity to nesting birds and available to them throughout the nesting season, in contrast to the mostly moderate quality habitat that will be lost in the Basin and which is largely unavailable to the species during its nesting season. Impacts to the hawk will also be minimized through the establishment and preservation of the SHZ, a mile-wide strip of habitat along the Sacramento River which encompasses or is directly adjacent to most nest active Swainson's hawk nest trees in the Basin. With the exception of 252 acres previously approved for development in the City, the SHZ may not be developed during the life of the NBHCP.

The expected level of take of each of the 21 species discussed above, is anticipated to be low and the impacts of such take on the species are also expected to be low. The NBHCP, through its on site take avoidance and minimization measures and its creation of a system of interlinked, large reserves, managed and protected in perpetuity as high quality habitat for the species, will effectively mitigate for the low level of take of each of these Covered Species anticipated under the NBHCP.

Giant Garter Snake



In contrast to the species discussed above, there is a likelihood of higher levels of take of the giant garter snake as a result of conversion of rice fields and loss of canals and ditches anticipated under the plan. The higher take level expected for this species under the NBHCP will be minimized through on site take avoidance and minimization measures and effectively mitigated through the system of interconnected reserves to be established under the plan and managed for the snake in perpetuity in the Basin.

Approximately 8,512 acres (including Metro Air Park) of rice fields and associated drainage canals and irrigation ditches will be converted to urban development. This constitutes approximately one third of the rice habitat in the Basin. Take of snakes will result both from on site impacts of construction activities, including crushing or entombment of snakes on site, vehicle strikes, etc., and from habitat restoration and management activities undertaken by the Conservancy on reserve lands. Additional take is likely to result from the significant habitat modification that will accompany conversion of rice fields and associated canals and ditches, which compose the snake's current habitat in the Basin, to urban development. However, the plan incorporates numerous measures to minimize and mitigate the impacts of such take. No construction is permitted during the snake's dormant period from October 1 through April 30. In addition, prior to undertaking any construction activities, each development site must be surveyed for snakes, dewatered to encourage any snakes present on the site to move to other habitat, and on-site construction workers must undergo environmental awareness training by a biologist that has been approved by the wildlife agencies. If a snake is spotted during construction activities, those activities must stop to provide the snake an opportunity to leave the site. Similar requirements pertain to all construction and activities undertaken by the Conservancy on mitigation lands. These measures should significantly reduce the level of take resulting from construction activities.

In order to mitigate the loss of 8,512 acres of rice fields and associated canals, the plan provides for creation of 2,187.5 acres of high quality managed marsh, and 4,375 acres of rice lands managed in a "snake friendly" manner to benefit the snake, providing a total of 6,562.5 acres of high quality snake habitat. The managed marsh component of this habitat, in particular, should provide significantly higher value for the snake than the rice fields and canals lost to development. In contrast to existing rice fields in the Basin, managed marsh lands: (1) will not be subject to continuous disturbance resulting from snake averse farming practices; (2) will be relatively free of human intrusion; (3) will provide year round habitat for the snake whereas rice fields are drained in the fall; (4) will not be periodically fallowed; (5) will be monitored and managed specifically to benefit the snake and other wetland-dependent Covered Species; and (5) will be protected in perpetuity. The rice fields managed by the Conservancy will also provide higher quality habitat than existing Basin habitat for the snake because such fields will also adopt "snake friendly" practices. The most important habitat for giant garter snakes in the Basin are the canals, ponds, and seasonally wetted areas in the Basin. Approximately 425 acres of this essential habitat will be lost as a result of plan implementation. However, the plan will result in the creation of 2,187.5 acres of managed marsh, resulting in a 5 to 1 mitigation ratio. The 6,562.5 acres of high quality snake habitat created on the reserves should fully mitigate for the loss of 8,512 acres of rice lands and associated canals and ditches resulting from plan

implementation. Including the mitigation lands, approximately 16,000 acres of snake habitat will remain in the Basin under the NBHCP.

Implementation of the plan will not eliminate connectivity among the three important snake areas in the Basin. In some instances the current level of connectivity between the snake areas will be reduced due to the loss of a portion of the drainage canals and ditches within the City and Sutter Permit Areas; however, essential connectivity corridors will remain. Canals are required for flood control throughout the Basin, and agriculture, which depends on canals and ditches for water delivery and irrigation, is expected to persist in the Basin throughout the Permit term. The NBHCP is designed to insure that connectivity is maintained within and among the system of habitat reserves and adjacent agricultural lands to facilitate snake movement within the Basin. Under the plan, the City and Sutter are required to ensure such connectivity is maintained. Among other measures, the plan provides for the outright acquisition of canals, the granting of Memoranda of Agreement, transfer easements or lands in fee to the Conservancy, and relocation of unimproved reserve components as necessary to maintain connectivity. The consolidation of mitigation lands into large reserve blocks will also help to reduce the number of connections required. The maintenance of important connectivity corridors will also reduce the level of take of giant garter snakes resulting from the plan.

The on-site take avoidance and minimization measures, combined with the creation of high quality snake habitat on reserves and the retention of connectivity among the three major snake areas in the Basin as well as among and within individual reserves, will substantially minimize the level of take resulting from conversion to urban development of 8,512 acres (including Metro Air Park) of rice fields and associated canals and ditches within the Permit areas. Unavoidable take will be effectively mitigated through the creation of 6,562.5 acres of high quality managed marsh and rice field habitat on the reserve lands, which will be protected and managed in perpetuity for the benefit of the giant garter snake.

To make a finding that the NBHCP minimizes and mitigates the impacts of take to the maximum extent practicable, the Service first must find that the minimization and mitigation measures provided under the plan are rationally related to the level of take anticipated under the plan. As explained above, the Service believes that the level of take likely to occur to 21 of the 22 Covered Species under the plan is low, the impacts of that take on the species are also low, and the creation and management of reserves in the Basin to benefit these species, will effectively compensate for the take anticipated to occur. In the case of the giant garter snake, which is anticipated to incur higher take levels under the NBHCP, the Service also concludes that the combination of on-site take minimization measures and new high quality wetland habitat created under the plan will effectively mitigate for the effects of take on this species. With particular regard to the Swainson's hawk and the giant garter snake, target species around which the wetland and upland components of the reserve lands were designed; the Service believes that the plan will contribute to the maintenance of viable populations of these species in the Basin for the foreseeable future.

In addition to evaluating the effectiveness of the minimization and mitigation provided under the NBHCP, the Service must also evaluate whether these measures minimize and mitigate the impacts of take "to the maximum extent practicable." This requires evidence in the record that additional mitigation would not be feasible. However, the Service does not believe that feasibility can be divorced from considerations of proportionality: that is, the mitigation under the plan must be proportional to the impacts of take under the NBHCP. Thus, when considering whether additional minimization and mitigation measures are feasible, the Service first and foremost, must consider the adequacy of the mitigation provided to compensate for the impacts of take and determine that the mitigation is sufficient and fair. As discussed above, this standard has been met by the City, Sutter and Conservancy.

The City and Sutter have also provided substantial evidence to the Service that additional mitigation would be impracticable. The plan provides for collection of mitigation fees for each acre of authorized development whether or not the land is known to contain habitat for any of the Covered Species. Taking into account the varying levels of habitat quality affected by urban development, the plan provides for each developer to pay a mitigation fee adequate to acquire, enhance, restore, manage and monitor in perpetuity, 0.5 acre for every one acre converted to development. There is no cap on the amount of fees that can be collected to satisfy the plan's mitigation requirements. The fee is reassessed annually by NBHCP, which recommends adjustments to the fee necessary to insure the plan is fully implemented. Failure by the City or Sutter to adjust the fee as necessary to fully fund their Permit obligations would be a violation of the permit and subject their respective permits to revocation. In fact, the Mitigation Fee which started out at \$2,624 under the 1997 NBHCP, has been raised six times by the City since then to insure the City's obligations under the plan are fully funded. In June 2003, the Mitigation Fee was increased from \$10,027 to \$12,270.

The proposed permittees submitted a financial analysis which was prepared by Economic and Planning Systems (EPS), as Appendix A to the NBHCP, to determine the effect of the fee on the overall cost burdens sustained by Authorized Development. According to EPS, the cost burden placed on urban development generally should not exceed a range of 15 to 20 percent if the development is to remain economically feasible. The cost burden for residential and commercial development in the Basin as of 2002 was already close to or at the industry benchmark for feasibility. EPS also compared the mitigation fee under the NBHCP with other HCPs either completed or under development in the Central Valley. The analysis points out that the mitigation fee under the NBHCP as of 2002 - \$ 5,993 - is considerably higher than the mitigation fee imposed in other approved Central Valley HCPs, or proposed in nearby HCPs under development. The proposed mitigation fee in the 2003 NBHCP has been increased to \$10,027 in response to increasing land acquisition costs in the Basin, as well as increases in the other components of the Mitigation Fee. As stated above, in June 2003, the fees were again increased to \$12,270. Future fee increases are expected to occur in rough step with increases in land values in the Basin.

The Service finds that the NBHCP minimizes and mitigates the impacts of take of the Covered Species to the maximum extent practicable, based on the information provided above because:

(1) the NBHCP's minimization and mitigation measures effectively compensate for the impacts of take under the plan; (2) the plan provides for adaptive management to adjust to changing habitat conditions and adjustment of the mitigation fee over the life of the plan to fully fund its implementation; and (3) the City and Sutter provided substantial evidence to the Service that an additional mitigation resulting in a higher initial mitigation fee would compromise the feasibility of the NBHCP.

The Final EIS considers the proposed NBHCP and five alternatives: (1) Increased Mitigation Alternative; (2) Habitat-based Mitigation Alternative; (3) Reserve Zones Alternative; (4) Reduced Potential for Incidental Take Alternative; and (5) No Action Alternative. The Increased Mitigation and Habitat-Based Mitigation Alternatives would result in the acquisition of more mitigation lands than the proposed action. However, the applicants demonstrated in the economic analysis conducted by EPS that neither one of these alternatives is feasible. In addition, the Service believes that the Habitat-Based Mitigation Alternative would actually result in less mitigation lands, as it would create an incentive for agricultural producers to simply quit farming their lands in advance of development in order to eliminate habitat for the Covered Species on their properties. Additional discussion is provided in the "Alternatives" section below.

On June 24, 2003, the City, Sutter, and Conservancy provided the Service with a letter (Guerra 2003) summarizing why they believed their Section 10(a)(1)(B) permit applications should be approved by the Service. After reviewing the City's, Sutter's, and Conservancy's June 24, 2003, letter, the Service concurs with their conclusion that the avoidance, minimization, and mitigation measures included in the Final NBHCP minimize and mitigate to the maximum extent practicable the impacts of the take of Covered Species for the reasons described in this section of the Findings.

**3. The applicant(s) will ensure that adequate funding for the plan and procedures to deal with unforeseen circumstances will be provided.**

The Service finds that the City, Sutter and the Conservancy will ensure funding adequate to carry out the Plan. Funding for the acquisition, restoration, management, and monitoring of habitat reserves in perpetuity will be financed through the collection of development fees for authorized development (in acres), as described in Chapter VI of the NBHCP. A mitigation fee will be paid to fund 0.5 acre of mitigation land acquisition and associated habitat enhancement, management, administration and monitoring for each one acre of authorized development.

The mitigation fee has five components. The land acquisition fee component funds acquisition of reserve lands, including transaction costs, and includes a contingency to address land cost spikes in any given year. The Restoration and Enhancement component funds restoration and enhancement of reserve lands, including restoration to managed marsh of a proportion of the lands. The Administration and Operations (O &M) component funds on-going operation and maintenance of the reserve lands, including administration costs. This component also includes farming income and hunting revenues generated from the reserve lands and is projected to exist in perpetuity. The O & M Endowment component accumulates fee revenues that will earn interest income over time. The interest income may be used to subsidize funding of the O & M account, primarily after year 45 of the plan. Finally, the Supplemental Endowment component accumulates revenue to allow the conservancy to purchase 200 acres of land in advance of all fees being paid and supplement annual purchases, if land acquisition prices rise unexpectedly in any given year. This fund is also available to supplement operations and maintenance, adaptive management, monitoring, and plan responses to changed circumstances in perpetuity.

The mitigation fee is based upon a conservative cash flow model that incorporates several contingencies including: (1) a supplemental fee for land acquisition; (2) a restoration and enhancement contingency; (3) an administrative contingency; (4) a conservative estimate of interest earned from the operations and maintenance endowment; (5) an increase in the supplemental endowment fee to provide for costs from changed circumstances; (6) the ability to use the fee funding the Conservancy's annual costs for any of their other activities; and (7) no cap on the mitigation fee. All of these contingencies provide additional assurances that the NBHCP will be adequately funded.

The Mitigation Fee, including each of its component parts, is required to be reassessed by March 1 of every year and must be adjusted as necessary by the City and Sutter to reflect actual operation and land costs in the Basin, changes to the adaptive management program to increase the effectiveness of the Operating Conservation Program, and to otherwise fully fund implementation of the plan. Fee adjustments will typically originate with a recommendation from the Conservancy to the Land Use Permittees, although any party may recommend such an adjustment. The mitigation fee must also be adjusted annually to account for inflation or deflation using the Consumer Price Index. In addition, the City and Sutter will each enact a Catch-Up fee ordinance that requires developers to pay a "catch-up" mitigation fee in the event

the developer pays the mitigation fee prior to obtaining an Urban Development Permit (The City adopted its catch up fee ordinance in 2001).

Individual landowners may be required by the City or Sutter, or may on their own, choose to donate land to the Conservancy in lieu of payment of some or all of the acquisition component of the mitigation fee. In such cases, the Conservancy, Service and CDFG will determine which lands are acceptable, considering location, proximity to urban uses and roads, and current condition. All land proposed to be transferred in lieu of payment of all or a portion of the land acquisition component of the mitigation fees must be approved by the Service and CDFG prior to acceptance by the Conservancy. In addition, the landowner remains responsible for payment of each of the other components of the mitigation fee.

The Conservancy will acquire and manage mitigation lands based on the total amount of fees collected, and acres approved for authorized development by both the City and Sutter. Therefore, the failure of either jurisdiction to raise mitigation fees in a timely manner and in an amount sufficient to fully implement the NBHCP, including acquisition and management of mitigation lands, may result in the inability of the Conservancy to acquire and manage mitigation lands for all authorized development approved under the NBHCP. In that event, any shortfall in acquisition of mitigation lands or shortfall in funds available to cover the management and other plan implementation costs, may result in suspension or revocation of one or both Permits. If the shortfall in funding is attributable to the failure of only one of the Land Use Agencies to adjust its mitigation fee, the shortfall shall be attributed solely to that agency. Notwithstanding the revocation of their individual federal permits, the City and Sutter each remain obligated pursuant to 50 C.F.R. 17.22(b)(8) and 17.32(b)(8) to complete its mitigation obligations with respect to all Authorized Development approved by the jurisdiction prior to the revocation or other termination of its Permit.

In order to help assure implementation of the NBHCP, the Conservancy will establish and maintain a 200-acre cushion of mitigation lands prior to the approval of any new authorized development by the City or Sutter County. No Urban Development Permits for Authorized Development may be issued after September 30 of each calendar year until the Conservancy has acquired mitigation lands which equal the number of acres necessary to cover the mitigation obligation attached to all prior authorized development under the NBHCP plus an additional 200 acres of mitigation lands.

If the Conservancy falls behind on acquiring mitigation land, then the Conservancy must notify all Land Use Agencies and the Conservancy may not accept additional mitigation fees until acquisition of mitigation land is in compliance. The Land Use Agencies, in turn, may not issue any additional Urban Development Permits for Authorized Development until the 200 acres of advance mitigation are in place. This NBHCP requirement will ensure that mitigation will always be in place in advance of Authorized Development and will preclude the possibility that Mitigation Fees collected under the permits will be insufficient to fund the acquisition of required mitigation lands. The 200-acre advance mitigation requirement, in combination with the annual reassessment of the adequacy of each component of the Mitigation Fee required under

the plan, will ensure that adequate funding will be available to fully implement the NBHCP throughout the permit term and provide permanent management of the reserve lands beyond the Permit terms.

The Service finds that the NBHCP includes procedures to address unforeseen circumstances. NBHCP and IA include procedures for determining the occurrence of both changed circumstances and unforeseen circumstances. The City and Sutter identified, described and provided responses in the NBHCP, six changed circumstances that may affect Covered Species or their habitats and can reasonably be anticipated and planned for in the plan. Identified changed circumstances include the listing of a new species not covered by the Permits, fire or flood, invasion of non-native species onto the reserve lands, changes in water availability, toxic spills or illegal dumping of toxic materials and non-participation of the City or Sutter in the NBHCP. In accordance with the Service's "no surprises" regulations at 50 CFR 17.22(b)(5) and 17.32(b)(5), in the event of an unforeseen circumstances, and assuming the NBHCP is being properly implemented, the City and Sutter may be required to make modifications within the reserve lands or to the plan's Operating Conservation Program, but only if such modifications will not involve the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources beyond the level agreed to under the NBHCP, unless the City or Sutter consent to such additional mitigation. However, in the event an unforeseen circumstance occurs that would result in an appreciable reduction in the likelihood of survival and recovery of any of the Covered Species, and the circumstance has not been remedied in a timely fashion, the Service retains authority to revoke the Permits under 50 C.F.R. 17.22(b)(8) and 17.32(b)(8).

On June 24, 2003, the City, Sutter, and Conservancy provided the Service with a letter (Guerra 2003) explaining why they believed their Section 10(a)(1)(B) permit applications should be approved by the Service. After reviewing the City's, Sutter's, and Conservancy's June 24, 2003, letter, the Service concurs with their conclusion that the City, Sutter, and Conservancy have ensured adequate funding for the reasons described in this section of the Findings.

**4. The taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.**

The Service finds that the taking to be authorized under the proposed Permits will not appreciably reduce the likelihood of the survival and recovery of the Covered Species in the wild. The ESA's legislative history establishes the intent of Congress that this issuance criterion be identical to a finding of "no jeopardy" pursuant to section 7(a)(2) of the ESA and the implementing regulations pertaining thereto (50 CFR 402.02). As a result, the Service has reviewed the NBHCP under section 7 of the Act. In a Biological and Conference Opinion (Service 2003b), which is incorporated herein by reference, the Service has concluded that the issuance of the proposed Permits are not likely to jeopardize the continued existence of the 22 species covered under the Permits. Neither critical habitat for the valley elderberry longhorn beetle nor proposed critical habitat for vernal pool species will be destroyed or adversely modified as neither designated valley elderberry longhorn beetle critical habitat nor proposed

vernal pool critical habitat is located within the proposed project's action area. The Service's finding that the Covered Species will not be jeopardized as a result of the take authorized under the proposed permits is discussed in detail in the Service's Biological and Conference Opinion (Service 2003b) and summarized below.

The Natomas Basin is within the American Basin portion of the Mid-Valley Recovery Unit of the giant garter snake. The Basin supports an important and sizeable snake population with a fairly widespread distribution that is currently dependent almost entirely on rice lands and associated drainage canals and irrigation ditches. Implementation of the NBHCP and issuance of the incidental take permits will not appreciably reduce the likelihood of the survival and recovery of the giant garter snake for the following reasons: (1) effective impact avoidance and minimization are proposed for the snake measures such as preconstruction surveys, and dewatering of construction sites; (2) loss of each acre of agricultural or vacant land will be compensated for by protecting and enhancing 0.5 acre of high-quality habitat on reserve lands, three-quarters of which will be specifically managed in perpetuity to benefit the snake; (3) essential connectivity corridors for the snake will remain to ensure that connectivity is maintained; (4) habitat targeted for protection under the NBHCP is focused on large blocks of interconnected habitat with appropriate habitat features incorporated to support essential behaviors of the snake; and (5) the NBHCP Biological Monitoring Plan and Adaptive Management Plan will allow such adjustments to the reserve system as are necessary to maintain high quality habitat and provide for the persistence of snake populations on reserve lands in perpetuity.

The Natomas Basin is home to substantial numbers of the Swainson's hawks, a wide ranging species that breeds throughout western North America, nesting in the Mojave Desert, northeastern California, the Central Valley and Owens Valley regions of California. The Swainson's hawk primarily nests along the banks of, or near the Sacramento River, and forages throughout the Basin and nearby agricultural areas.

Implementation of the NBHCP will not appreciably reduce the likelihood of the survival and recovery of the Swainson's hawk for the following reasons: (1) the Natomas Basin comprises only a minor portion of the range of this species; (2) effective impact avoidance and minimization measures have been proposed for the hawk, including preconstruction surveys and timing restrictions to avoid active nests; (3) take levels anticipated for the hawk under the plan are expected to be low; (4) loss of habitat in the NBHCP Plan Areas will be adequately compensated by protecting and enhancing high-quality habitat on reserve lands that will be specifically managed in perpetuity to benefit the hawk; (5) high quality foraging habitat will be in close proximity to nesting birds and available to them throughout the nesting season; (6) planting and maintaining of Swainson's hawk nest trees on reserve lands surrounded by foraging habitat is expected to increase the amount of nesting habitat available to the hawks in the Basin; (7) the establishment and preservation of the SHZ protects the primary nesting habitat of the hawk in the Basin; and (6) the NBHCP Biological Monitoring Plan and Adaptive Management Plan will allow such adjustments to the reserve system as are necessary to maintain high quality



habitat and provide the necessary conditions for the persistence of the Swainson's hawk populations on reserve lands in perpetuity.

Issuance of the Permits is expected to have little impact on, and result in only limited take of, the vernal pool Covered Species. The vernal pool tadpole shrimp, vernal pool fairy shrimp, Sacramento Orcutt grass, slender Orcutt grass, and Colusa grass inhabit vernal pools, swales, and other seasonal wetlands capable of supporting vernal pool species. Sacramento Orcutt grass, slender Orcutt grass, and Colusa grass are typically found in large vernal pools that hold water later in the year; the Basin's vernal pools are typically small and do not hold water later in the year. While the vernal pool tadpole shrimp and vernal pool fairy shrimp have both been identified in the Basin, the midvalley fairy shrimp, Sacramento Orcutt grass, slender Orcutt grass, and Colusa grass are not known to occur in the Basin. As explained more fully in the biological opinion, potential habitat for each of the covered vernal pool species is very limited in the Basin, and none of this habitat has been identified by the Service as essential for the conservation of the vernal pool Covered Species in its proposed rule to designate critical habitat for these and other vernal pool species.

Implementation of the NBHCP will not appreciably reduce the likelihood of the survival and recovery of the vernal pool tadpole shrimp, vernal pool fairy shrimp, midvalley fairy shrimp, Sacramento Orcutt grass, slender Orcutt grass, or Colusa grass because: (1) effective impact avoidance and minimization measures are proposed for these species which require on-site avoidance of vernal pools or mitigation through a Service-approved mitigation bank where avoidance is not appropriate; (2) the amount of take of the covered vernal pool crustaceans is likely to be low given the paucity of vernal pool habitat in the Basin; (3) the loss of the three listed covered plant vernal pool species is anticipated to be low to non-existent, given the absence of any documented occurrences of these three species in the Basin; (4) the species are relatively rare in the action area, not because of the past conversion of their habitat, but because of the absence of suitable habitat (soil types, hydrology, etc.) for these species in the Basin; (5) the vast majority of the range for the vernal pool species is outside the NBHCP plan area; and (6) the recovery of these species does not depend on the conservation of their habitat in the Basin.

The valley elderberry longhorn beetle's range includes substantial population strongholds in areas outside of the Basin. There are no known valley elderberry longhorn beetle occurrences within the Basin, although there are several occurrences of valley elderberry longhorn beetle along the western and southern edges just outside of the Basin. Implementation of the NBHCP will not appreciably reduce the likelihood of survival and recovery of the valley elderberry longhorn beetle because: (1) the vast majority of the documented range for the valley elderberry longhorn beetle is outside the NBHCP Plan area; (2) impacts to the valley elderberry longhorn beetle will be mitigated according to the Service's July 9, 1999, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*; and (3) the Basin contains only a small amount of potential beetle habitat, and no occurrences of the beetle are known from the Basin, so the overall impacts to the species and its habitat are expected to be small.

After review of the current status of the Aleutian Canada goose, burrowing owl, tricolored blackbird, loggerhead shrike, white-faced ibis, bank swallow, northwestern pond turtle, California tiger salamander, western spadefoot toad, Delta tule pea, Sanford's arrowhead, Bogg's Lake hedge-hyssop, and legener; the environmental baseline for the action area; the effects of the proposed action and the cumulative effects; the Service concludes in the Biological and Conference Opinion (2003b) that should any of these species be listed in the future, issuance of the Permits, will not appreciably reduce the likelihood of the survival and recovery of these species because: (1) the Natomas Basin comprises only a minor portion of the range of these species; (2) effective impact avoidance and minimization measures are proposed for all species, including preconstruction surveys, timing restrictions to avoid active nests, dewatering of construction sites, and relocation of species where appropriate; (3) take levels anticipated for each of these species under the plan is expected to be low; (4) loss of habitat in the NBHCP Permit areas will be adequately compensated by protecting and enhancing 0.5 acre of high-quality habitat on reserve lands that will be specifically managed in perpetuity to benefit the Covered Species for each acre impacted; (5) habitat targeted for protection under the NBHCP is focused on large blocks of interconnected habitat with appropriate habitat features incorporated to support essential behaviors of these species; (6) the NBHCP Biological Monitoring Plan and Adaptive Management Plan will allow such adjustments to the reserve system as are necessary to maintain high quality habitat and provide conditions that will promote the persistence of populations of these species on reserve lands, consistent with the biological objectives of the NBHCP; and (7) as a result of implementing the NBHCP, many of these species may expand their distributions and become more established as resident and breeding populations in response to habitat restoration and enhancement activities.

**5. Other measures, as required by the Director of the Fish and Wildlife Service, as necessary or appropriate for purposes of the plan will be met.**

The Service finds that all additional measures required by the Service as necessary or appropriate for the NBHCP are included in the NBHCP, IA and/or the Permits. In particular, the IA, an agreement among the Service, CDFG, the City, Sutter and Conservancy that governs implementation of the plan, binds the Permittees to fully implement and fund the NBHCP.

**6. The Service has received the necessary assurances that the plan will be implemented.**

The Service finds that the NBHCP and IA provide the necessary assurances that the plan will be carried out by the City, Sutter and Conservancy. By accepting their individual Permits, the City, Sutter and Conservancy are bound to fully implement the provisions of the NBHCP in accordance with the IA.

## Alternatives

The Final EIS describes the NBHCP Alternative (identified as the NEPA preferred Alternative in the Final EIR/EIS), which is to issue the Permit as requested by the prospective Permittees as described above, and five alternatives that were considered by the Service prior to issuance of the Permits. The alternatives are the following: (1) Increased Mitigation Alternative; (2) Habitat-based Mitigation Alternative; (3) Reserve Zones Alternative; (4) Reduced Potential for Incidental Take Alternative; and (5) No Action Alternative.

### Increased Mitigation Alternative

Under this alternative, the mitigation ratio for developed land would be increased from 0.5:1 to 1:1. The development limit for the City, Sutter County, and Metro Air Park would remain the same as for the NBHCP Alternative, but this amount of development would result in the acquisition of twice as much mitigation land. The requirement for one contiguous block of 2,500 acres would not change, and other reserve lands would be acquired to ensure that they form 400-acre contiguous blocks. Avoidance and minimization measures for construction and management activities would be the same as under the NBHCP Alternative. This alternative would result in the loss of additional farm lands (as they are converted to reserves). As explained above, the Service does not believe a 1 to 1 mitigation ratio is appropriate because it is not commensurate with the level and impacts of take likely to result from implementation of the plan. Given the variable quality of habitat that currently exists on the undeveloped agricultural and vacant lands, requiring a 1 to 1 mitigation ratio that ignores these habitat variations would result in significantly greater mitigation - at least in the form of land set asides - than the Service's analysis of impacts of take requires. The financial analysis prepared by EPS also indicates that adopting a 1 to 1 mitigation ratio, in combination with all of the other conservation measures included in the NBHCP's operating Conservation Program, is impracticable from a funding perspective. While leaving the lands as rice fields or other agricultural crops would decrease plan costs, the Service believes that active management, enhancement and restoration of the mitigation lands to benefit the Covered Species is a critical component of a successful conservation strategy for these species. Therefore, the Service does not believe a 1 to 1 mitigation ratio is either necessary to mitigate the impacts of take of the Covered Species or practicable from an economic standpoint.

### Habitat-Based Mitigation Alternative

Under this Alternative, the mitigation ratio to compensate for urban development impacts would be based on the habitat value of the lands to be developed. Site-specific management plans would be developed as the reserve lands are acquired, and these reserve lands would be subject to the same requirements as under the NBHCP alternative. For this alternative, mitigation requirements would be based on the habitat needs of the two key species, giant garter snake and Swainson's hawk. Giant garter snake mitigation ratios would be consistent with the Service's *Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Actions*.

Swainson's hawk mitigation ratios are based on CDFG's *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California*. Avoidance and minimization measures for construction and management activities would be the same as under the NBHCP alternative. About twice as much land would be incorporated into the habitat reserves under this alternative compared with the NBHCP alternative. As stated for the Increased Mitigation Alternative, the 0.5:1 ratio has been determined to effectively minimize and mitigate the impacts of take resulting from planned urban development in the Basin. The habitat based mitigation ratio uses standard categories of existing land uses in the Basin, including rice fields, canals, and other lands within 10 miles of an active Swainson's hawk nest to predict future habitat conditions. As such it represents a crude approximation of habitat potentially available to the giant garter snake, Swainson's hawk and other Covered Species. The habitat based alternative results in a total mitigation land requirement that is very similar to the 1 to 1 mitigation ratio discussed under the Increased Mitigation Alternative. As with the Increased Mitigation Alternative, the Habitat-Based Mitigation Alternative would be economically infeasible. The mitigation fees required to both acquire mitigation lands at an approximate 1 to 1 mitigation ratio and also implement the habitat enhancement, restoration, management and monitoring elements of the plan on these lands would likely increase the cost burden on development in the Basin beyond the recognized industry yardstick for feasibility. If the habitat enhancement and management features of the plan's conservation strategy were eliminated in order to make this alternative more feasible, the Service believes the conservation value of the alternative would significantly suffer. The Service believes that an active habitat restoration and management plan imposed on fewer mitigation lands will yield a higher conservation benefit than the acquisition of more rice fields and other agricultural and vacant lands for the Covered Species.

Additionally, the Habitat-Based Mitigation Alternative could be difficult to implement from a practical standpoint and could actually result in less mitigation habitat than the proposed plan. This is because almost all of the existing habitat for the Covered Species in the Basin is provided by agricultural lands, either rice fields, canals and irrigation ditches, or other agricultural crops. Very little if any natural habitat remains in the Basin. Thus, a Habitat-Based Mitigation Alternative could create a perverse incentive for agricultural producers to simply quit farming their lands in advance of development in order to eliminate habitat for the Covered Species on their properties. This would result in less extant habitat for the species prior to development, less mitigation imposed on the developers, and ultimately less mitigation land for the species as development occurs. In contrast to the current plan which distributes the costs of mitigation evenly across all lands in the Basin, the Habitat-Based Mitigation Alternative would target those landowners who, by virtue of their farming practices, currently provide the vast majority of habitat which allows the Covered Species to maintain viable populations in the Basin.

### Reserve Zones Alternative

This Alternative identifies specific reserve zones that would be emphasized in reserve acquisition efforts. These reserve zones would be outside the North and South Natomas Community Plan areas, and outside of Sutter County's Industrial-Commercial Reserve. Land acquisition would occur based on a 0.5:1 mitigation ratio as under the Proposed Action. This

Alternative differs from the NBHCP alternative, however, in that reserve acquisition would focus on five overlapping zones that are distributed throughout the Natomas Basin based on the habitat needs of giant garter snakes and Swainson's hawks, rather than on the NBHCP's alternative broad requirement to mitigate generally within the Basin. Special conditions regarding the size and distribution of reserve blocks within the five zones would apply. The effects of this Alternative would be the same as those from the NBHCP Alternative. The Service does not believe an alternative which identifies specific zones for reserve acquisition is biologically necessary or economically practicable. The goal of the conservation strategy is to create high value habitat out of currently vacant lands or lands currently in agricultural production. The biological success of the plan does not depend on conservation of particular tracts of land which current information may indicate may support snakes or another Covered Species (with the exception of vernal pool species, which have a separate mitigation program). Rotating crop patterns, fallowing of fields, canal maintenance activities, etc. can result in changing patterns of habitat use by the Covered Species from year to year and season to season. The Service believes that the criteria for reserve land acquisition specified in the plan will result in high-quality habitat for the Covered Species throughout the Basin. In addition, this conservation strategy which focuses solely on the snake and Swainson's hawk could compromise the plan's overall conservation strategy which is to protect and provide opportunities for expansion of other Covered Species in the Basin. Apart from biological considerations, identification of specific areas for reserve acquisition results in significantly increased land values in those areas. The targeting of specific lands in Sacramento County under the recent Settlement Agreement in *NWF v. Babbitt*, dramatically illustrates this point. As a result of the settlement, the City imposed an approximate \$4,000 premium on the land acquisition component of the Mitigation Fee. The City and Sutter recently agreed to restrict the acquisition of all mitigation lands to the Natomas Basin. The Service supports this modification to the plan because it will result in more in-Basin habitat to support viable populations of the Swainson's hawk and giant garter snake, while acknowledging that it will likely cause the cost of mitigation lands to increase. Further restriction of acquisition to specific areas in the Basin would, as EPS and the City's recent experience demonstrated, likely increase land acquisition costs even further. The reserve zones alternative is not biologically necessary to mitigate for the impacts of take under the plan and would compromise the feasibility of the plan.

#### Reduced Potential for Incidental Take Alternative

Under this Alternative, lands that may be developed as a result of the proposed action have been reduced by 5,500 acres. Consequently, impacts of the proposed action would reduce by 5,500 acres. Development of 12,000 acres under this Alternative (5,197 acres in the City of Sacramento, 4,820 acres in Sutter County, and 1,983 acres for Metro Air Park) would result in the acquisition of 6,000 acres of habitat reserves, at 0.5:1 mitigation ratio. Acquisition criteria, management, oversight, and other aspects of the planned habitat reserve system would remain the same as described in the NBHCP. This alternative is not deemed practicable to the Land Use Agencies because it would not be consistent with approved land use plans and development planned within their respective jurisdictions within the Basin. While a reduced development scenario would reduce impacts to the Covered Species, the conservation strategy proposed under

the NBHCP effectively mitigates impacts to the Covered Species while accommodating compatible urban development previously approved by the jurisdictions. This alternative is neither biologically necessary nor, from the standpoint of the permit applicants, practicable. The analysis of this alternative by EPS also indicates it would require higher mitigation fees that could impair the feasibility of the overall plan.

#### No Action Alternative

Under the No Action Alternative, no Section 10(a)(1)(B) permit would be issued for take of listed species as a result of urban development and other activities in the plan area and no comprehensive HCP would be implemented. In the absence of a comprehensive habitat conservation planning program, the needs of listed species would be addressed on a project-by-project basis, resulting in piecemeal planning that would likely establish smaller and more widely isolated patches of mitigation land scattered throughout the Basin. This alternative would not provide for the establishment and management of reserves designed to consolidate and improve habitat for the Covered Species. Also, species other than those federally-listed would not derive the benefits of a regionally based approach, as would be facilitated through the NBHCP program.

#### **IV. MIGRATORY BIRD SPECIAL PURPOSE PERMIT**

Pursuant to the Migratory Bird Treaty Act, 16 U.S.C. 703 - 712, and 50 C.F.R. 21.27, the Service finds that the City, Sutter, and Conservancy have made a sufficient showing that each of the seven Covered Species currently listed under the Migratory Bird Treaty Act will benefit from the conservation measures included in the NBHCP to minimize disturbance and enhance the habitat of these species. The Section 10(a)(1)(B) permit applications submitted by the City, Sutter and Conservancy, including the NBHCP, provide detailed information regarding the MBTA related activities, the purpose of such activities, the permit areas, the effects of those activities on the MBTA Covered Species, and other information relevant to the issuance of the Special Purpose Permits required under 50 C.F.R. 21.27. Therefore, the Section 10(a)(1)(B) permits, if issued, shall also constitute Special Purpose Permits under the MBTA and 50 C.F.R. 21.27 for each MBTA Covered Species that may become listed under the ESA during the term of the Section 10(a)(1)(B) permits. Such Special Purpose Permit shall become effective concurrent with the listing of the MBTA Covered Species under the ESA.

#### **V. GENERAL CRITERIA AND DISQUALIFYING FACTORS -- FINDINGS**

The Service has no evidence that the Permit applications should be denied on the basis of the criteria and conditions set forth in 50 CFR 13.21(b) - (c).

VI. RECOMMENDATION ON PERMIT ISSUANCE

Based on the foregoing findings with respect to the proposed action, I recommend approval of the issuance of Permit Numbers #TE073665-0, #TE073663, and #TE073667-0 in accordance with the NBHCP and its supporting IA.

Acting David G. Paulic  
Deputy Manager  
California/Nevada Operations Office

4/27/03  
Date

## References

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- City of Sacramento, Sutter County, Natomas Basin Conservancy, Reclamation District No. 1000, and Natomas Mutual Water Company (NBHCP). 2003. Final Natomas Basin Habitat Conservation Plan and Implementation Agreement. Sacramento, California: Prepared for the U. S. Fish and Wildlife Service and California Department of Fish and Game. April.
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