

Notice of Public Hearing

Sacramento City Council

City Council Chamber, Interim City Hall
First Floor -730 "I" Street, Sacramento, California

PUBLIC NOTICE is hereby given that on the date of June 28, 2005 at the hour of 7:00 p.m., the following hearing will be held before the Sacramento City Council.

NORTH NATOMAS COMMUNITY PLAN AMENDMENT RELATED TO FISHERMAN'S LAKE BUFFER WIDTH (M04-118).

For further information on this matter, please contact Carol Shearly, Manager, New Growth Division, at (916)808-8368.

If you challenge the nature of the proposed action in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice or in written correspondence delivered to the Office of the City Clerk located at City Hall, 730 "I" Street, Suite 211 at or prior to the public hearing.

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Further information may be obtained from the Office of the City Clerk at (916) 808-7200.

Shirley Concolino
City Clerk

Your Order is sent.

Customer Information

Customer Name : SAC. CITY CLERK
Address : 730 I ST #211
City : SACRAMENTO
State - Zip : CA - 95814

Master Id : 37458
Phone : 9168087604
Fax : -

Product Information

Legal : GOVERNMENT - SAC CITY PUBLIC HEARING-1 PUB

Order Information

Attention Name : Dawn Bullwinkel
Ad Description : PH 1034-Fisherman's
Special Instructions : Please publish as soon as available-if not on 6/20/05

Billing Reference No. : 5070017570
Sale/Hrg/Bid Date : 06/20/2005

Orders Created

Order No.	Newspaper Name	Publishing Dates
832947	THE DAILY RECORDER, CA	06/20/2005

Ad



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Shirley Concolino
City Clerk



OFFICE OF THE CITY CLERK

730 I STREET SACRAMENTO, CALIFORNIA 95814
CITY HALL ROOM 211 TELEPHONE (916) 808-7200

**NOTICE OF CITY
COUNCIL HEARING**

Robert Nelson
Westside Community Assoc.
3706 Far Niente Way
Sacramento, CA 95834

Mr. Enlow Ose
2399 American River Dr., Ste. 7
Sacramento, CA 95825

Councilmember Ray Tretheway
District 1
0100 Council Office

Karen Pardieck, Dist. Director
District 1
0100 Council Office

Mr. John Roberts
Natomas Basin Conservancy
1750 Creekside Oaks Dr. Ste. 290
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Ms Tina Thomas, Attorney
Remy, Thomas & Moose Attys.
455 Capitol Mall, Ste. 210
Sacramento, CA 95814

Mayor Heather Fargo
City Hall
0100 Mayor's Office

Donna Decker, Senior Planner
New Growth
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Stephanie Browning
West Natomas Community Assoc.
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Mr. Rick Meredith
3020 Explorer Dr., Ste. 5
Sacramento, CA 95827-2727

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MO4-118

2 of 2

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Mr. Craig Aubrey
US Fish and Wildlife Service
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Friends of the Swainson's Hawk
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One Maritime Plaza, Suite 1325
San Francisco, CA 94111

MO4-118

1 of 2



Notice of Public Hearing

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City Council Chamber, Interim City Hall
First Floor -730 "I" Street, Sacramento, California

PUBLIC NOTICE is hereby given that on the date of May 10, 2005 at the hour of 7:00 p.m., the following hearing will be held before the Sacramento City Council.

NORTH NATOMAS COMMUNITY PLAN AMENDMENT RELATED TO FISHERMAN'S LAKE BUFFER WIDTH (M04-118).

For further information on this matter, please contact Carol Shearly, Manager, New Growth Division, at (916)808-8368.

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District 1
0100 Council Office

Donna Decker, Senior Planner
New Growth
4823 NPC

MO4-118

2 of 2

From: Carol Shearly
To: Dawn Bullwinkel; Jeralynn Kozak
Date: Wednesday, April 20, 2005 5:23PM
Subject: Re: Fwd: Fisherman's Lake

I believe Joe is quoting from law, as a minimum. I think we should do what we usually do for public hearings and that is mailing notice and newspaper publication. Thanks, Carol

>>> Dawn Bullwinkel 04/20/05 5:19 PM >>>

Send me the Hearing Language and clarify that I am reading Joe's email correctly that we DO NOT HAVE TO MAIL notice but only Publish in the Newspaper (Daily Recorder) once within 10 days of Hearing.

I will need 48 hours notice to do so- - and happy to publish as soon as I get the language.

Your Order is sent.

Customer Information

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City : SACRAMENTO
State - Zip : CA - 95814

Master Id : 37458
Phone : 9168087604
Fax : -

Product Information

Legal : GOVERNMENT - SAC CITY PUBLIC HEARING-1 PUB

Order Information

Attention Name : Dawn Bullwinkel
Ad Description : PH 1023 Fisherman lake
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Billing Reference No. : 5070017570
Sale/Hrg/Bid Date : 04/28/2005

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Order No.	Newspaper Name	Publishing Dates
811053	THE DAILY RECORDER, CA	04/28/2005

Ad

The Ad exists as an uploaded file.

REMY, THOMAS, MOOSE and MANLEY, LLP

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April 6, 2005

VIA HAND DELIVERY

Honorable Mayor and City Council Members
Sacramento City Hall
915 I Street, Room 205
Sacramento, CA 95814

Re: Fisherman's Lake Buffer

Dear Mayor Fargo and City Council Members:

You will soon be considering a proposed amendment to the North Natomas Community Plan ("NNCP") that could expand the buffer along Fisherman's Lake and provide for additional measures that will protect Swainson's hawks and Giant Garter Snakes ("GGS"). Your City staff, in consultation with biological and economic experts, the Department of Fish and Game, the U.S. Fish and Wildlife Service, and other stakeholders, has made a recommendation that is well-reasoned and based on sound biological evidence. This letter is submitted on behalf of West Lakeside, LLC and Woodside Homes, the applicants for the West Lakeside project located just north of Del Paso Road along Fisherman's Lake. We fully support staff's recommendation and urge you to adopt it.

The proposed amendment is a result of the settlement in the first round of litigation challenging the Natomas Basin Habitat Conservation Plan ("NBHCP"). Although that settlement agreement is no longer enforceable, as we will explain further below, the City nevertheless followed through on its commitment to *initiate* an amendment to the NNCP that is protective of Swainson's hawks and GGS. Under staff's proposal, the buffer would be a minimum of 250 feet wide, measured from the City limit, and would "bulb out" to provide a 300-foot buffer around nesting trees. Additional measures, such as

screening and restricting access to the buffer, would further protect the species. The very thoroughly researched opinion of the City's biological expert supports this proposal.

Nevertheless, the petitioners in the NBHCP litigation remain unsatisfied. Despite a lack of scientific evidence justifying a wider buffer, they insist that, generally, more open space is needed. Their position is at odds with the overwhelming biological evidence that a wider buffer is not necessary and ignores the serious fiscal and economic impacts that would result from an excessive buffer. Apparently supporting the general idea that more open space is warranted at any cost, the Planning Commission recommended an 800-foot buffer. We urge the City Council to adopt the more reasonable, biologically justified approach that staff is recommending.

There is No Biological Justification for a Wider Buffer.

Rick Meredith of Padre Associates prepared a well-researched, comprehensive analysis of the needs of Swainson's hawks and GGS (the "Padre report"). After an extensive literature review, consultation with noted experts, and review of species accounts in North Natomas and other communities, the Padre report makes the following conclusions:

- There are many factors besides buffer width to consider in protecting the species - increased distance alone may not be as effective as other measures such as screening and limiting human access.
- Real protection for species is not based on geographical or political boundaries, but on providing conditions that encourage and protect the species' activities.
- The protective measures included in the staff recommendation will provide protection for Swainson's hawks and GGS.¹

Swainson's hawks need space for two activities: foraging and nesting. As the attached Exhibit 1 shows, the Natomas Basin Conservancy has already acquired vast areas of land to the west of Fisherman's Lake that provides foraging habitat. As discussed above, the Padre report concludes that protective measures such as screening and limiting activities within the buffer provide better protection than increased distance.

¹/ A copy of the Padre report, with the relevant section highlighted, is attached as Exhibit 2.

Although the Padre report clearly finds that an 800-foot buffer would provide little additional value, the petitioners insist on it. But when the extreme cost of acquiring the additional buffer is weighed against the benefits to the species, it is clear that staff has reached their recommendation based on a sound and balanced assessment. The staggering costs - a conservative estimate of \$28 million just for the portion south of Del Paso Road² - are not justified by the limited benefits to the species.

The Proposed Amendment Exceeds the Requirements of the Existing NBHCP.

The buffer along Fisherman's Lake was clearly contemplated in the 2003 NBHCP. The proposed amendment recommended by staff is far more protective to the species along Fisherman's Lake than the NBHCP. The NBHCP contemplated only a 250-foot buffer along Fisherman's Lake. The proposed "bulb out" around nesting trees and additional protective measures go beyond the protections of the NBHCP.

Furthermore, the Department of Fish and Game and the U.S. Fish and Wildlife Service both participated in the development of the proposed amendment. Neither of those agencies has objected to staff's recommendation. In fact, these wildlife agencies specifically acknowledged the issue of where the buffer starts and how wide it is in their responses to comments on the draft NBHCP. There, the agencies stated the NBHCP would be amended to reflect the City's interpretation of the existing buffer - a 200-foot wide buffer that starts at the City limit.³

Petitioners' CEQA and Other Legal Arguments have no Merit.

Perhaps as an attempt to threaten the City with litigation, the petitioners claim in their comments to the Planning Commission that adopting the proposed amendment would require an environmental impact report ("EIR"). This comment is based on the mistaken notion that the proposed amendment would actually shrink the buffer. That claim, however, is false. William Carnazzo, former Deputy City Attorney clearly concluded that the existing buffer is 200 feet wide and starts at the City limit (the middle

^{2/} As noted in the report prepared by EPS for the City.

^{3/} Excerpts from the 2003 NBHCP and the Final EIR/EIS for the NBHCP, in which the agencies acknowledge the adequacy of the existing buffer, are attached as Exhibit 3.

of the West Drain - Fisherman's Lake).⁴ An area-based buffer that is a minimum of 250 feet wide (measured from the City limit) and 300 feet wide around nesting trees is clearly larger and more protective to species than the existing buffer.

The petitioners also spend many pages in their comments to the Planning Commission setting forth various legal theories on why the City should measure the buffer from some other starting point besides the City limit line. The Padre Report, however, *did* consider various starting points for measuring the buffer. The recommendation is ultimately based on biology – as stated above, the species care little about geographical or political boundaries. Adoption of the proposed amendment will finally put all of these arguments to rest by establishing a new buffer, based on biology.

The City Has Satisfied Its Obligations Under the Settlement Agreement.

There appeared to be some confusion at the Planning Commission regarding the City's obligations pursuant to the settlement agreement. Some of the Commissioners indicated that they believed the settlement agreement required the City to adopt an 800-foot buffer. The settlement agreement is clear, however, the City was required to *initiate* an amendment to the NNCP to expand the buffer to 800-feet.⁵ The settlement agreement *did not* require the City to actually adopt such an amendment. This is self-evident from the settlement agreement which required that environmental and other analysis be completed prior to Council's consideration of the proposed amendment. Referenced in staff's report are the conclusions from that analysis, *none of which substantiates the need to amend the NNCP to require an 800-foot buffer*. Furthermore, the petitioners participated in the stakeholder process for the proposed amendment and clearly understood staff's recommendation concerning the buffer amendment would be based on the biological and economic reports which, again, are now complete and do not justify an 800-foot buffer. The City has therefore satisfied any obligations it had under the settlement agreement by bringing this proposed amendment to the City Council. The petitioners have not claimed otherwise.

The petitioners submitted several comments at the Planning Commission claiming that the City's actions violated the settlement agreement in various other ways. Even if

⁴/ The William Carnazzo memorandum, with relevant portions highlighted, is attached as Exhibit 4.

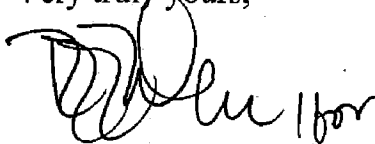
⁵/ The Settlement Agreement, with relevant portions highlighted, is attached as Exhibit 5.

Honorable Mayor and City Council Members
April 6, 2005
Page 5

petitioner's novel interpretations were correct, their comments would still be unwarranted because by its own terms, the settlement agreement has expired. The settlement agreement, which served as an interim agreement to allow some development during the preparation of a revised NBHCP, expired on October 1, 2002. The settlement agreement even included a section which enumerated which obligations would survive expiration of the agreement.⁶ Initiating an amendment to the NBHCP is not one of the surviving obligations.

Nevertheless, the City has continued on with the stakeholder process – which included the petitioners – to propose an NNCP amendment which provides for a wider buffer and additional protections for Swainson's hawks and GGS. We respectfully urge the City Council to follow the well-reasoned balanced approach recommended by the staff.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Tina A. Thomas' with a stylized flourish at the end.

Tina A. Thomas

cc: Carol Shearly
City Clerk

⁶/ See page 16 of the Settlement Agreement.



WEST LAKESIDE MITIGATION PROPERTY AND NBC PRESERVES

FOOTHILL ASSOCIATES
 ENVIRONMENTAL CONSULTING • PLANNING
 LANDSCAPE ARCHITECTURE



0 1500 3000
 SCALE IN FEET

Drawn By: AH
 Date: 04/06/05

FIGURE 3

WEST LAKESIDE MITIGATION PROPERTY

mitigation_site_with_tnbc_props.mxd
 © 2005

**FISHERMAN'S LAKE BUFFER ZONE STUDY
CITY OF SACRAMENTO, CALIFORNIA**

Prepared for

City of Sacramento
Planning and Building Department
2101 Arena Boulevard, Suite 200
Sacramento, CA 95834
Attention: Carol Shearly

Prepared by:

Padre Associates, Inc.
3020 Explorer Drive, Suite 5
Sacramento, CA 95827

December 2004

TABLE OF CONTENTS

1.0	INTRODUCTION	
1.1	Purpose	1
1.2	Location and Description	1
1.3	Land Ownership	1
2.0	ENVIRONMENTAL SETTING	
2.1	Regional Setting	3
2.2	Vegetative Cover Types	3
2.2.1	Great Valley Cottonwood Riparian Forest	3
2.2.2	Perennial Freshwater Emergent Wetland	4
2.3	Wildlife Habitat Associations	4
2.3.1	Great Valley Cottonwood Riparian Forest	4
2.3.2	Wetlands	4
3.0	REVIEW OF PERTINENT LITERATURE	
3.1	Review of Regulatory Set-Backs	5
3.1.1	Giant Garter Snake	5
3.1.2	Swainson's Hawk	5
3.1.3	Other Pertinent Regulations	6
3.1.4	Summary	6
3.2	Review of North Natomas Planning Documents	7
3.2.1	North Natomas Community Plan EIR	7
3.2.2	North Natomas Community Plan (1986)	7
3.2.3	Revised North Natomas Community Plan (1996)	8
3.2.4	Mitigation Monitoring Plan of North Natomas Community Plan	9
3.2.5	North Natomas Financing Plan	9
3.2.6	Agreement to Settle Litigation	9
3.2.7	Natomas Basin Habitat Conservation Plan	10
3.2.8	Natomas Basin HCP EIR/EIS	11
3.2.9	Summary	11
3.3	Species Accounts	11
3.3.1	Swainson's Hawk	11
3.3.2	Giant Garter Snake	20
3.4	Conservation Biology	23
3.4.1	Habitat Patch Dynamics	23
3.4.2	Edge Effects	24
3.4.3	Metapopulations	24

4.0	ANALYSIS AND CONCLUSIONS	
4.1	Current Nesting Territories	26
4.2	Separation Distances	26
4.3	Buffer Analysis.....	28
4.3.1	City Limit Boundary Alternative.....	32
4.3.2	RD 1000 ROW Boundary Alternative	32
4.3.3	GGs Buffer	32
4.4	Ancillary Buffer Benefits	32
4.4.1	General Wildlife Benefits	32
4.4.2	Special-Status Species	33
5.0	ACREAGE REQUIREMENTS	
5.1	Width-Based Buffer Alternatives.....	38
5.1.1	City Limit Boundary Alternative.....	38
5.1.2	RD 1000 ROW Boundary Alternative	38
5.1.3	Swainson's Hawk Protective Buffer	38
5.2	Area-Based Buffer Alternative.....	38
6.0	RECOMMENDATIONS	
6.1	Swainson's Hawk	40
6.2	Giant Garter Snake.....	40
6.3	Other Species.....	42
7.0	LITERATURE CITED AND PERSONAL COMMUNICATIONS	
7.1	Literature Cited.....	43
7.2	Personal Communication	51
LIST OF FIGURES		
1	Vicinity Map	2
2	City Boundary Buffer Zone Depictions	30
3	RD 1000 ROW Buffer Zone Depictions.....	31
LIST OF TABLES		
3-1	Reproductive Success of Swainson's Hawk at Fisherman's Lake Between 1998 and 2002.....	17
5-1	Acreage of Lands By Owner and Buffer Alternative	39
APPENDICES		
A.	Wildlife Species Observed or Reported Along Fisherman's Lake	

1.0 INTRODUCTION

1.1 Purpose. The purpose of this report is to provide the City of Sacramento with recommendations for a buffer zone size and design for Fisherman's Lake in order to maintain habitat for special-status species, particularly Swainson's hawk (*Buteo swainsoni*) and the giant garter snake (*Thamnophis gigas*).

1.2 Location and Description. Fisherman's Lake is a 2.1-mile segment of the West Drainage Canal located within the Natomas Basin of Sacramento and Sutter counties, California (Figure 1). It extends from the south turn of the West Drainage Canal (SW¼, NW¼, Section 4, T-9-N, R-4-E) to El Centro Road (SW¼, SW¼, Section 10, T-9-N, R-4-E). Reaches of Fisherman's Lake north of Del Paso Road are within an unincorporated area of Sacramento County. South of Del Paso Road, the channel centerline is the boundary between Sacramento County (west) and the City of Sacramento (east).

1.3 Land Ownership. There are three entities that hold title to the land along the east side of Fisherman's Lake. Reclamation District 1000 (RD 1000) owns the channel and adjacent lands for the entire length of Fisherman's Lake. The land immediately east of the RD 1000 land north of Del Paso Road to the West Drainage Canal is owned by AKT Development (Adams Farm). RD 1000 also has an easement on the AKT Development parcel for the eastern maintenance road. The land immediately east of the RD 1000 land south of Del Paso Road to El Centro Road is owned by the Tsakopoulos Family Trust (Natomas Central). RD 1000 also has an easement on the Tsakopoulos Family Trust parcel for a maintenance road.

Insert Figure 1



2.0 ENVIRONMENTAL SETTING

2.1 Regional Setting. Fisherman's Lake is within the Yolo and American-basins subsection of the Great Valley Ecological Region of California (Miles and Goudey, 1997), most of which is on an alluvial plain adjacent to the lower Sacramento River that historically flooded in most winters and spring. The subsection includes recent alluvium of stream channel, stream overflow, and alluvial fan deposits. The alluvium is derived from granitic, volcanic, sedimentary, and metamorphic rocks from the mountains and foothills surrounding the valley. The topography of the subsection is nearly level to very gently sloping. Elevations range from about 10 to 40 feet, mean sea level (msl). Fluvial erosion and deposition are the principal geomorphic processes (Miles and Goudey, 1997). The mean annual precipitation is 14 to 18 inches, almost all as rain, and the mean annual temperature is between 60° and 62°F. The mean freeze free period is between 250 and 275 days. Soils in the Yolo-American Basins subsection are mostly Aquic Xerofluvents, Aeris Haplaquepts, and Cumulic and Vertic Haplaquolls. Most soils are moderately well drained to poorly drained with thermic soil temperature regimes and aquic and xeric soil moisture regimes (Miles and Goudey, 1997).

Fisherman's Lake is located in the American Lake Basin, which was one of six natural overflow basins of the Sacramento River Drainage System. Prior to reclamation, high river flows deposited the heaviest soils close to the riverbanks, creating natural levees or rimlands. The riverbeds and banks gradually built up such that they were higher in elevation than the extensive flat lands beyond the natural levees. As a result, when the levees were overtopped, the basins flooded and created large lakes. These lakes gradually released waters back into the river through sloughs as the water surface elevation in the Sacramento and American rivers receded. However, in topographic depressions, water persisted until it evaporated or infiltrated into the soil. When the seasonal lake finally dried by mid-summer, extensive tule wetlands remained. The interior of the lower American Lake Basin was covered with a seasonal lake that was called Bush Lake or Brush Lake on early maps (Bradley and Corbett, 1995).

Fisherman's Lake is a remnant of a natural slough that drained the American Lake Basin prior to the reclamation. It connected the Upper American Lake in the north to the American Lake to the south (City of Sacramento, 1997). Fisherman's Lake is now part of the West Drainage Canal, but retains its general shape and size.

2.2 Vegetative Cover Types. Fisherman's Lake is a shallow, warmwater lake that is surrounded by a narrow discontinuous canopy of *Great Valley Cottonwood Riparian Forest* and *Perennial Freshwater Emergent Wetland*. These cover types are described below:

2.2.1 Great Valley Cottonwood Riparian Forest is a dense, broad-leaved, winter-deciduous riparian forest with a canopy stratum dominated by Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), and California black walnut (*Juglans californica*), and an understory of sandbar willow (*Salix exigua*), western buttonbush (*Cephalanthus occidentalis*), Himalayan blackberry (*Rubus procerus*), and Mexican elderberry (*Sambucus mexicana*) (City of Sacramento, 1985; U.S. Fish and Wildlife Service [USFWS], 1991). This cover type is underlain with fine-grained alluvial soils near perennial or near-perennial streams, and is typically inundated annually, resulting in inputs of nutrients. It was formerly extensive along the major low-gradient depositional streams throughout the Great Valley, but is now reduced to scattered, isolated remnants of young stands because of development (Holland, 1986). The *Great Valley Cottonwood Riparian*

Forest is categorized as a Palustrine Forested Wetland (PFO) under the USFWS wetland classification system (Cowardin et al., 1979), and Fremont Cottonwood Series under the California Native Plant Society (CNPS) system (Sawyer and Keeler-Wolf, 1995).

2.2.2 Perennial Freshwater Emergent Wetland are areas that are permanently to semi-permanently flooded or containing saturated soils, and are dominated by a herbaceous stratum composed principally of tule bulrush (*Scirpus californicus*), broad-leaved cattail (*Typha latifolia*), and other hydrophytic species (City of Sacramento, 1985; USFWS, 1991). This community is transitional between the open water of Fisherman's Lake and the riparian community. This cover type is categorized as a Palustrine Emergent Wetland (PEM) under the USFWS wetland classification system (Cowardin et al., 1979), and Sedge Series or Bulrush Series under the CNPS system (Sawyer and Keeler-Wolf, 1995).

2.3 Wildlife Habitat Associations. The vegetative cover types along Fisherman's Lake provide habitat for resident and migratory wildlife species. The composition, density, distribution, and physical characteristics of these vegetative cover types determine the diversity and abundance of wildlife species residing in and around Fisherman's Lake. The interspersed of upland habitat (grasslands, agricultural fields, and woodlands) with wetlands provides habitat elements including permanent water, forage, roost, and escape cover for wildlife. The following is a brief description of the wildlife value of the vegetative cover types.

2.3.1 Great Valley Cottonwood Riparian Forest. Riparian woodland and associated areas support the greatest diversity of wildlife of terrestrial habitats in California (Laymon, 1984). This is due to floristic and structural diversity, microclimatic conditions, abundance of edge, availability of food and water, migration and dispersal corridors, and escape, nesting, and thermal cover (Sander et al., 1985; Grenfell, 1988). Laymon (1984) reported 147 bird species as nesters or winter visitants to Central Valley foothill riparian communities. Johnson (1982) recorded over 220 species of birds along the American River Parkway, and over 60 of these commonly nest in Central Valley riparian habitats (Gaines, 1974). Trapp et al. (1984) reported 55 species of mammals inhabiting the Central Valley riparian communities, and over 30 species of mammals have been reported along the lower American River (USFWS, 1991). Brode and Bury (1984) reported at least 50 species of amphibians and reptiles using riparian corridors.

2.3.2 Wetlands. Freshwater emergent wetland areas are also productive wildlife habitats in California, providing food, cover, and water for over 160 species of birds, and numerous mammals, amphibians, and reptiles (Kramer, 1988). Riparian/wetland areas are high value habitats due to the presence of water and the sensitive wildlife dependent upon these habitat types.

Wildlife observed during project surveys and reported from earlier studies are detailed in Section 4.4.

3.0 REVIEW OF PERTINENT LITERATURE

3.1 Review of Regulatory Set-Backs

A review of the literature was conducted to document statutes or regulations pertaining to buffer zones and setbacks, if any, for either Swainson's hawk or giant garter snake (GGS) in the Natomas area.

3.1.1 Giant Garter Snake. According to the *Mitigation Recommendations for Restoration and/or Replacement of Giant Garter Snake Habitat*, the USFWS (1997) recognizes two upland habitat categories as essential habitat components for GGS: (a) upland habitat for basking, cover, and retreat sites; and (b) higher elevation uplands for cover and refuge from flood waters. Uplands within 200 feet from the edge of aquatic habitat banks are considered upland habitat and regulated by USFWS under the federal Endangered Species Act (FESA).

3.1.2 Swainson's Hawk. In the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California*, the California Department of Fish and Game (CDFG, 1997) states: "No intensive new disturbances (e.g., heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities) or other project related activities which may cause nest abandonment or forced fledging, should be initiated within ¼-mile (buffer zone) of an active nest between March 1 – September 15 or until August 15 if a Management Authorization or Biological Opinion is obtained for the project. The buffer zone should be increased to ½-mile in nesting areas away from urban development (i.e. in areas where disturbance [e.g. heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities] is not a normal occurrence during the nesting season). Nest trees should not be removed unless there is no feasible way of avoiding it. If a nest tree must be removed, a Management Authorization (including conditions to off-set the loss of the nest tree) must be obtained with the tree removal period specific in the Management Authorization, generally between October 1 – February 1. If construction or other project related activities which may cause nest abandonment or forced fledging are necessary within the buffer zone, monitoring of the nest site (funded by the project sponsor) by a qualified biologist (to determine if the nest is abandoned) should be required. If it is abandoned and if the nestling are still alive, the project sponsor shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s). Routine disturbances such as agricultural activities, commuter traffic, and routine facility maintenance activities within ¼-mile of an active nest should not be prohibited."

The CDFG guidelines are incorporated in the Natomas Basin Habitat Conservation Plan (NBHCP) Environmental Impact Statement/Report (EIS/R) as part of the Measures to Reduce Take of Swainson's Hawk, and have been expanded to require the following:

- If breeding Swainson's hawks (i.e., exhibiting nest building or nesting behavior) are identified, no new disturbances (e.g., heavy equipment operation associated with construction) will occur within ½-mile of an active nest between March 15 and September 15 or until a qualified biologist, with concurrence by CDFG, has determined that the young have fledged, or that the nest is no longer occupied. If the active nest site is located within ¼-mile of existing urban development, the new disturbance zone can be limited to ¼-mile versus ½-mile. Routine disturbance such as agricultural activities, commuter traffic, and routine facility maintenance activities within ½-mile of an active nest are not restricted.

- Where disturbance of a Swainson's hawk nest cannot be avoided, such disturbance shall be temporarily avoided (i.e., defer construction activities until after the nesting season) and then, if unavoidable, the nest tree may be destroyed during the non-nesting season. For purposes of this provision the Swainson's hawk nesting season is defined as March 15 to September 15. If a nest tree (any tree that has an active nest in the year the impact is to occur) must be removed, tree removal shall only occur between October 1 and February 1.
- If construction or other project related activities that could cause nest abandonment or forced fledging are proposed within the ¼-mile buffer zone, intensive monitoring (funded by the project sponsor) by a CDFG-approved raptor biologist will be required. Exact implementation of this measure will be based on specific information at the project site.

The Swainson's Hawk Technical Advisory Committee (2000) has suggested that project activities (personnel and machinery) greater than 200 yards from a nest would constitute a low risk of reproductive failure. Initiating construction activities within 200 yards of a nest after eggs are laid and before young are greater than 10 days old, or personnel within 50 yards of nest tree (out of vehicle) for extended periods while birds are on eggs or protecting young that are less than 10 days old would constitute a moderate risk of reproductive failure. Direct physical contact with the nest tree while the birds are on eggs or protecting young, or helicopters in close proximity, would result in a high risk of reproductive failure.

From the perspective of long-term survivability, single-season projects with activities that blend well with a site's normal activities would have a low risk of adversely affecting long-term survival. Multi-year, multi-site projects with substantial noise/personnel disturbance would have a moderate risk of affecting long-term survival. The loss of available foraging area and/or loss of nest trees would have a high risk of adversely affecting long-term survival.

3.1.3 Other Pertinent Regulations. The USFWS also administers the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). Under the MBTA, it is unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR 10, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21). Under Section 3503.5 of the California Fish and Game Code, all birds-of-prey (Falconiformes and Strigiformes), their eggs, and their nests are protected.

The CDFG, under the authority of Section 1600 of the California Fish and Game Code, routinely require a minimum setback of 50 feet from the top of bank for Lake and/or Streambed Alteration Agreements (J. Marr, CDFG, pers. comm., 2002).

3.1.4 Summary. Based on these regulations, the following is concluded:

- GGS uplands are protected for a distance of 200 feet landward to the top of bank of Fisherman's Lake. This, however, is not a strict prohibition because with proper permitting and mitigation, upland areas can be temporarily disturbed. Permanent loss of foraging or nesting habitat requires mitigation.
- New construction activity is generally restricted for a distance of 2,640 feet in rural areas and 1,320 feet in urban areas from active Swainson's hawk nests sites during the nesting season. This, too, is not an absolute prohibition, and can be modified with appropriate mitigation and proper authorization from CDFG. Further, the new construction prohibition has no effect on routine, on-going activities.

-
- Routine on-going activities are not regulated unless they violate either the MBTA or Section 3503.5 of the California Fish and Game
 - A minimum 50-foot setback from the high bank of Fisherman's Lake may be required by CDFG under Section 1600.
 - Finally, no regulatory or statutory requirements for buffer zones or setbacks were found for either GGS or Swainson's hawk.

3.2 Review of North Natomas Planning Documents

A review was conducted of relevant planning documents pertaining to the North Natomas Community Plan area, and Fisherman's Lake in particular, to determine the origin and evolution of the buffer zone concept, and to determine if buffer zone configurations were formulated on the basis of sound conservation biology principals.

3.2.1 North Natomas Community Plan Environmental Impact Report (City of Sacramento, 1985). The 1985 EIR included provisions to establish a buffer zone to define the "containment edge to development for the 20-year plan". The buffer zone would include greenbelts between the community and adjacent agricultural areas. The greenbelts were intended to protect the urbanizing community from agricultural activities, and were specific to land abutting agricultural land on the northern and western border to the incorporated Study Area (City limits). The greenbelts were not intended to be easily accessible, nor used for active recreation. Drainageways, such as the West Drainage Canal, were also discussed in terms of providing some physical separation between developed urban uses and agricultural lands, but were not considered sufficiently wide to inhibit or prevent trespassing or vandalism on agricultural lands, and would not provide adequate buffering to limit urban encroachment.

While the principal function of the greenbelts was related to land use separation and to minimize urban-agriculture conflicts, the EIR noted that one approach to mitigating development impacts to Swainson's hawk was to preserve agricultural and open space foraging lands in the western part of the Study Area, as well as preserving and restoring stands of riparian trees. The EIR noted that Fisherman's Lake, which is located along the western edge of the Study Area, was the most likely nesting habitat in the Study Area, and was the most important open space to preserve. The EIR further noted that to mitigate impacts to other special-status species, specific nesting and roosting areas could be protected from development, *along with buffer zones of appropriate size* (emphasis added). At the time of the EIR, known sites included a communal roost of white-tailed kites (*Elanus caeruleus*) at Fisherman's Lake. Swainson's hawk nesting was not recorded from Fisherman's Lake at the time of the 1985 EIR.

3.2.2 North Natomas Community Plan (City of Sacramento, 1986). The North Natomas Community Plan (NNCP), which was adopted by the City Council on May 13, 1986, set forth a goal to create a strong edge between community and adjacent areas of permanent agriculture, and to develop a greenbelt along the northern and western boundaries of the unincorporated portions of the Planning Area.

Specific greenbelt policies included in the NNCP were:

- Strong edge
- The greenbelt will average in width 500 feet¹ to separate residential and agricultural uses
- The greenbelt is intended to provide a low-maintenance, limited access open spaces that defines and preserve the limits of North Natomas throughout the term of the plan
- Suitable plant materials for the greenbelt are eucalyptus, acacias, and similar fast-growing evergreen species that will provide a wind/shelterbelt to protect residential areas from prevailing winds and agricultural spraying
- Is not easily accessible and does not encourage active recreational use

3.2.3 Revised North Natomas Community Plan (City of Sacramento, 1996). Under of the Open Space chapter of the 1994 Revised NNCP (City of Sacramento, 1996), a guiding policy of the City was to protect adjacent agricultural lands north and west of the North Natomas community and designate an urban edge by creating a linear open space area between the agricultural and urban land uses. The City designated agricultural buffer areas along the north and west boundaries of the Plan Area as Open Space. The western buffer was 200 feet in width and allowed uses included: pedestrian and bikeways, linear parks and open space, drainage canals or detention basins, irrigation canals, and public and maintenance roads (page 59). The City also provided that surplus greenbelt or buffer acreage should be relocated, where feasible, to provide useable open space opportunities, which include widening of buffer areas as part of *habitat conservation or other useable open space, and to buffer the Witter Ranch and Fisherman's Lake from proposed development adjacent to the sites* (emphasis added).

Under the Environmental Design Standards chapter of the 1994 NNCP, the northern and western greenbelts will be a minimum of 250 feet in width², and were intended to provide a low-maintenance, limited-access open space that would not encourage active recreational use, and that defined and preserved the urban limits of North Natomas. The design standards specified that plant materials for the greenbelt included primarily fast-growing, non-deciduous species that would provide a wind/shelterbelt to protect residential areas from prevailing winds and agricultural spraying.

Under the Vegetation and Wildlife section of the Environmental Design Standards chapter, the City stated that valley oaks and other large trees should be preserved and restored wherever possible, particularly the stands used by Swainson's hawk adjacent to Fisherman's Lake.

¹ Under the Agricultural Preservation Program of the NNCP, it is stated that, "The buffer area should be wide enough to effectively separate the conflicting land uses and should only contain compatible non-agricultural uses. According to information from the County Agricultural Commissioner, a buffer of 500 feet in width will meet this objective. Inclusion of drainage canals, freeways, arterial streets, utility corridors, etc. could lower the net acreage that would be needed to the buffer areas."

² The change from 200 to 250 feet in the buffer width under the Environmental Design Standards (page 82) was likely in reference to the Northern Boundary Buffer along Elkhorn Boulevard, but not for Fisherman's Lake. The 250-foot buffer width was designated in the Mitigation Monitoring Plan.

3.2.4 Mitigation Monitoring Plan for the Revised North Natomas Community Plan (City of Sacramento, 1994). Under Mitigation Measure 4.2-3 pertaining to the loss of agricultural lands, the Mitigation Monitoring Plan (MMP) required the use of a greenbelt along the northern and western boundaries of the Project Area to create a strong edge between the community and adjacent areas of permanent agriculture. This greenbelt must be a minimum of 250 feet in width, not including the Elkhorn Boulevard right-of-way and the irrigation canals and maintenance roads on the north side of Elkhorn (page 2). The greenbelt was intended to provide a low-maintenance, limited access open space that does not encourage active recreational use and that defines and preserves the urban limits of the Project Area. Plant materials in the greenbelt will include fast growing, non-deciduous species that will provide a wind/shelter belt to protect residential areas from prevailing winds and agricultural spraying" (Mitigation Measure 4.2-3).

Under Mitigation Measure 4.5-2 concerning potential disturbance to Swainson's hawk nesting activities, the MMP notes that valley oaks and other large trees should be preserved where possible. Preserve and restore stands of riparian trees used by Swainson's hawks and other animals for nesting, particularly adjacent to Fisherman's Lake.

Under Mitigation Measure 4.5-4 concerning loss of seasonal wetland values provided by rice fields, the MMP requires the creation of a minimum 250-foot wide greenbelt along the northern and western boundaries of the Update area to create a strong edge between the urban area and adjacent areas of permanent agriculture (page 15). The landscaping in the greenbelt will be of native trees and shrubs, which are used by many native animals. Further, riparian and wetland areas will have limited human use so as to enhance their value for wildlife.

Under Mitigation Measure 4.5-9 pertaining to loss of Swainson's hawk foraging habitat, the City requires preservation of open space or agriculture in the west part of the Project Area near the Swainson's hawk nesting sites along the Sacramento River and Fisherman's Lake, or preserve and enhance foraging habitats outside the Project Area, but near known nesting territories.

3.2.5 North Natomas Financing Plan (City of Sacramento, 1999). Under the Land Acquisition Program contained within the North Natomas Financing Plan, the City states that "Open space and land buffers are required through the area along the I-5 and I-80 freeways, as *habitat buffers along Fisherman's Lake* (emphasis added), as a buffer to agricultural land along the south side of Elkhorn Boulevard and open space along the western City limits. The nature of these buffers and open space are considered beyond 'normal' dedication of development setbacks." (Note: public land acquisitions for an agricultural buffer along Fisherman's Lake are not depicted on Figure V-1).

3.2.6 Agreement to Settle Litigation (National Wildlife Federation et al, 2001). According to the Settlement Agreement, "Biologists have identified Fisherman's Lake and surrounding lands as an important habitat area for both GGS and SWH and other species. As recognized in the Original NBHCP, habitat lands acquired in this area, if preserved, protected, enhanced and restored, can contribute significantly to the long-term survival of listed species in the Natomas Basin."

In accordance with the East Side Protections of the Settlement Agreement, the City agreed to initiate an amendment to the North Natomas Financing Plan to provide for the acquisition of an expanded buffer of 250 feet, a 50-foot increase, along the east side of Fisherman's Lake to comport with provisions of the Mitigation Monitoring Plan for the NNCP (1994).

Additionally, the amendment to the NNCP could provide for the expansion of the width of the NNCP buffer by 600 feet for a total of 800 feet.

3.2.7 Natomas Basin Habitat Conservation Plan (City of Sacramento et al., 2003). A primary strategy identified in the Natomas Basin Habitat Conservation Plan (NBHCP) to mitigate impacts to the Swainson's hawk is avoidance of development in the Swainson's Hawk Zone (SHZ) and the acquisition of upland habitat inside the SHZ. The SHZ is a corridor beginning at the Sacramento River, extending eastward for one mile, and running from the confluence of the Sacramento River and the Natomas Cross Canal in the north of the Natomas Basin to where Interstate 80 crosses the Sacramento River. The avoidance strategy was designed to provide optimum nesting and foraging habitat for Swainson's hawk in the area where most nesting occurs currently within the Natomas Basin along the Sacramento River.

With the exception of its' extreme northern and southeast ends, Fisherman's Lake is within the SHZ. While avoidance is the primary strategy, the NBHCP identified approximately 252 acres of land within the SHZ that were previously designated and approved for urban development in the 1994 NNCP. The NBHCP notes that this acreage includes 80 acres of land that comprises the 250-foot wide buffer zone along the east side of Fisherman's Lake. The NBHCP requires the establishment of setback zones³ between mitigation lands acquired by The Natomas Basin Conservancy (TNBC) and existing urban lands or lands that are designated for urban uses in an adopted General Plan. The purpose of the setback requirement is to ensure that mitigation lands acquired by TNBC will not impact or be impacted by existing urban lands or lands designated for development by the Land Use agencies (e.g., City of Sacramento and Sutter County). The setback zone is a minimum of 800 feet. The HCP proposes that the setback zones should be in agriculture, open space, or other non-urban use, and not counted as mitigation lands. The setback requirement was not applied to lands acquired pursuant to the Settlement Agreement on the west side of Fisherman's Lake. In this instance, the high quality of the site warranted the acquisition even though less than 800-foot setback from designated urban lands on the east side of Fisherman's Lake, which was acquired pursuant to the Settlement Agreement.

As part of the Take Avoidance, Minimization and Mitigation, the City will preserve the area adjacent to Fisherman's Lake. The NBHCP notes that Fisherman's Lake, and immediately adjacent areas, will continue to be owned and managed by RD 1000, but the City shall create a buffer on the City (east) side of Fisherman's Lake. The City will take necessary action to amend the North Natomas Financing Plan to include the buffer⁴ area on the east side of Fisherman's Lake in the Land Acquisition Program (i.e., development impact fees will be increased to fund acquisition of this setback area). This buffer area would be managed by the TNBC. The NBHCP notes "According to the City's North Natomas Community Plan, the buffer area along Fisherman's Lake is a 250 foot wide land area stretching from Del Paso Road to El Centro Road on the City side of Fisherman's Lake, a portion of the West

³ The NBHCP includes a category of Buffers. Buffers are areas within reserve lands, such as created wetland habitat, that are intended to "minimize the effects of incompatible adjoining land uses, and to ensure a functional transition from improved habitat to adjacent land uses. In addition, the buffers will help ensure that the management of reserve lands does not impose an unnecessary burden on adjoining landowners." Typical buffers will consist of native or ruderal vegetation and will vary between 30 and 75 feet in width. In contrast to Setback Zones, the buffers are part of the reserve system and will be purchased and managed by TNBC.

⁴ The buffer area discussed in terms of Fisherman's Lake is separate and apart from the reserve area buffers detailed under Footnote 2.

Drain. The east side of Fisherman's Lake is in the City of Sacramento and the west side is in the unincorporated portion of Sacramento County. Pursuant to the Settlement Agreement, the City has agreed to initiate a North Natomas Community Plan amendment to potentially widen the agricultural buffer along the City side of Fisherman's lake [sic] to 800 feet wide" (page V-2).

3.2.8 Natomas Basin Habitat Conservation Plan Environmental Impact Report and Environmental Impact Statement (USFWS et al., 2002). As part of the General Measures to Reduce Take, the HCP notes that valley oaks and other large trees should be preserved whenever possible, preserve and restore stands of riparian trees used by Swainson's hawks and other animals for nesting, *particularly adjacent to Fisherman's Lake* (emphasis added).

The draft EIR noted that the 23 acres of riparian habitat along the City's (east) side of Fisherman's Lake "...is not designated as exempt from paying mitigation fees, and therefore is included in the habitat and land use assessment as an area to be developed. This riparian habitat, however, would not be developed because of the required agricultural buffer to be created in this area under the Proposed Action (in accordance with the North Natomas Community Plan and the Settlement Agreement)" (page 4-35 and 4-36).

The DEIR states, "Buffer lands would be preserved adjacent to Fisherman's Lake as described previously. This area supports four Swainson's hawk nest sites (SHTAC, 2000). With these measures, the known nesting sites associated with Fisherman's Lake would be protected and additional ones could be created with restoration of riparian habitat on habitat reserves in the Fisherman's Lake area" (page 4-71).

3.2.9 Summary. Based on a review of the planning documents for the North Natomas area, the concept of the buffer zone was formulated as a land use separation measure to reduce conflicts between urbanizing areas and remnant agricultural lands. The buffer was originally envisioned as a greenbelt/shelterbelt to provide protection to the developing areas from winds and agricultural spraying, and to clearly separate land uses. Consequently, the use of fast-growing non-native evergreen trees (eucalyptus, acacia, etc.) was encouraged. However, over time, the potential habitat value of a buffer zone between developed areas and Fisherman's Lake has been recognized. Consequently, concurrent functions, such as species protection and increased habitat, have evolved. The North Natomas Community Plan MMP indicated that the landscaping in the greenbelts would be native trees and shrubs that are used by a number of native animals. The Draft HCP EIS/R recommended that valley oaks and other large trees along Fisherman's Lake be preserved and restored.

3.3 Species Accounts

3.3.1 Swainson's Hawk

Legal Status: Swainson's hawk is a California-listed Threatened species.

Description: Swainson's hawk is a medium-sized buteo, with long, pointed bi-colored wings, and a square tail. The adult female weighs between 28 and 34 ounces and the male weighs between 25 and 31 ounces. The wingspan on the adult hawk is approximately four feet. The Swainson's hawk plumage is variable in color, and characterized by light, dark and rufous color phases. The tail is gray and barred. The sexes are generally similar in appearance; however, the females are larger than the males (Clark and Wheeler, 1987).

Distribution and Abundance: Swainson's hawk is a long-distance migrator, with nesting grounds in western North America and wintering grounds in South America (Argentina, Brazil, and Uruguay) for the interior population, and Mexico for the Central

Valley population (Bradbury et al., in prep.). Swainson's hawk breeds throughout most of the arid region of North America west of the Mississippi, from northwestern Mexico, including Baja California, north to Alaska (American Ornithologists' Union, 1957; Detrich, 1986).

In California, Swainson's hawks were historically common throughout non-forested lowlands, absent only from the Sierra Nevada and North Coast ranges, Klamath Mountains, and portions of the desert regions (Bloom, 1980). Today, the range is restricted to the Central Valley and portions of Modoc, Siskiyou, and Lassen counties in the Great Basin region of northeastern California, and a few isolated locations in the Owens Valley (CDFG, 1990a, 1992, and 1994; Estep, 1989). The major concentrations are centered in Yolo, Sacramento, and San Joaquin counties (Schlorff and Bloom, 1984; Detrich, 1986). Swainson's hawk have been reported as rare visitors in the Sierra Nevada (Beedy and Granholm, 1985; Verner et al., 1980; Orr and Moffitt, 1971), where they are thought to forage in high meadows prior to southward migrations in fall, or as local movements of birds from the east slope. No records of breeding in the foothills or mountains could be found, and it is assumed that appropriate nesting habitat is rare or absent.

Historically, the Swainson's hawk population in California may have exceeded 17,000 breeding pairs, based on an historical range of 47,600 mi² and a maximum density of 36 breeding pairs/100 mi² (Bloom, 1980). Current population estimates are between 700 and 1,000 breeding pairs within the Central Valley (Anderson, 2000). According to the California Natural Diversity Database (CDFG, 2002), there are about 882 nesting site occurrences in California, of which 141 are from Sacramento County and 53 from Sutter County.

Breeding Biology: Swainson's hawks arrive in the Central Valley between late March and early April to establish breeding territories. Males and females may be monogamous until the loss of a mate. Nesting trees may vary among years within the traditional territories (Estep, 1989). Swainson's hawks will construct new nests, refurbish old nests, and refurbish nests of other species, such as yellow-billed magpie (*Pica nuttalli*), American crow (*Corvus brachyrhynchos*), and red-tailed hawk (*Buteo jamaicensis*). It is a late nester, establishing nests about a month later than the red-tailed hawk in areas where the species are sympatric. In Central California, Swainson's hawk may successfully dislodge incubating red-tail hawks and white-tailed kites, but are generally unable to remove great horned owls (*Bubo virginianus*) (Estep, pers comm., in England et al., 1997).

England et al. (1997), in summarizing data from seven studies, indicated that nest spacing is typically at least 0.9 to 1.5 miles apart, with the shortest average inter-nest distance of 0.7-mile reported in the Central Valley of California. Estep (1989) recorded five nests within a 0.6-mile riparian strip in the Central Valley, with the closest distance of approximately 200 feet. At Fisherman's Lake, the inter-nest distances ranges from 0.24- to 0.70-mile.

Nest construction and courtship begins within a day after arriving on breeding territories and continues through April. The clutch (generally 1 to 3 eggs) is laid in early April to early May. Both parents participate in the brooding of eggs and young, but the female performs the majority of the care. Incubation lasts from 28 to 35 days, and the nestlings are fledged at between four and eight weeks of age (Beebe, 1974; Detrich, 1986). After fledging, the young are dependent on the adults for about four weeks, at which time they permanently leave the territory. By mid-August, the breeding territories are no longer defended, and Swainson's hawks begin to form communal groups in advance of fall migration from late August to mid-September (Anderson, 2000).

Nesting Habitat: The Swainson's hawk nests throughout the Central Valley in solitary trees, small groves, or large woodland strips adjacent to open grasslands or agricultural

fields (Dunkel, 1977; Bloom, 1980; Woodbridge, 1983; Schlorff and Bloom, 1984; and Estep, 1989).

Much of the nesting habitat in this area is associated with riparian woodlands. Schlorff and Bloom (1984) reported that 82 percent of the nests were located in, or within, one mile of riparian forests, while Estep (1989) found 78 percent of Swainson's hawk nest-sites in riparian areas. Favored nesting trees include valley oak (*Quercus lobata*), and Fremont cottonwood (Schlorff and Bloom, 1984); however, eucalyptus (*Eucalyptus* spp.), western sycamore, walnut, and willow may be utilized to a lesser extent (Detrich, 1986). Nests are usually located near the top of the tallest tree in an area approximately 20 to 90 feet above ground where shade is provided along with a good view of the surrounding terrain (Mallette and Gould, 1978; Schlorff and Bloom, 1984). The average tree and nest height of 40 Swainson's hawk nests in Yolo, Sacramento, and San Joaquin counties were 57.7 feet and 47.2 feet, respectively (Estep, 1989). Moreno (1994) reported that the average tree height of 32 nesting territories along the Sacramento River was 81 feet, with the average nest situated 65 feet above ground. Nest locations are generally within easy flying distance to agricultural fields with abundant and available prey.

Foraging Habits and Habitat: Foraging habitat includes native grasslands, lightly grazed pastures, alfalfa and other hay crops, tomatoes, beets, and a combination of row crops. Telemetry studies in the mid-valley area indicate that the feeding habitat of Swainson's hawk was, in order of preference, alfalfa, disced fields, fallow fields, dry-land pasture, beets, tomatoes, irrigated pasture, grains, other row crops, and other agricultural lands (Estep, 1989). Unsuitable foraging habitat includes orchards, vineyards, flood rice fields, and cotton crops in which the vegetative cover precludes sighting of prey (CDFG, 1990a). Swainson's hawks are sensitive to habitat fragmentation when foraging and will avoid parcels subdivided to less than 10 acres even if suitable prey is present (Estep and Teresa, 1992). The CDFG considers habitat within one mile of the nest site as more valuable foraging habitat than habitat at greater distances, and of the 22,051 acres of potential foraging habitat in the Natomas Basin, 12,446 acres (56 percent) is within one mile of a known nest site (U.S. Fish and Wildlife Service, 2002).

Swainson's hawk are typically insectivorous, but switch to vertebrate prey during breeding. Major prey includes rodents (squirrels, mice and gophers), birds (ring-neck pheasant, mourning dove), and insects (grasshoppers and crickets). Foraging range is dependent on the abundance and availability of prey. In Central California, foraging range varied from 30 to 16,000 acres, with distances up to 18 miles from the nest (Estep, 1989). In the Sacramento area, Babcock (1995) reported home ranges from 1,790 to 18,925 acres, with a maximum foraging distance of approximately 14 miles. These numbers differ considerably from home range studies conducted in other areas of the western U.S. Craighead and Craighead (1956) recorded maximum foraging areas in Wyoming ranging between 180 to 1,056 acres. Newton (1979) compiled data on separate studies conducted in Utah (Smith and Murphy, 1973) and Wyoming (Dunkle, 1977; Craighead and Craighead, 1956), and reported that the home range Swainson's hawk nesting pairs averaged between 1,200 and 1,600 acres (1.2-1.5 mi²/pair). Studies conducted by Bechard (1982) in Washington found Swainson's hawk home ranges were between 1,500 and 3,200 acres. Bechard (1982) also reported a significant positive correlation between the size of the home range and the amount of cultivated land it contained. Those home ranges with uncultivated pasture or left fallow presumably increased prey vulnerability and decreased the area required to forage. Estep (1989) reported that Swainson's hawk aggressively defends only a small area around nests from conspecifics and other buteos. The defended territory for two ranges was 65 acres in a woodland territory and 995 acres in a more open territory.

Trapping studies conducted by Estep (1989) found that tomato fields had the highest capture rates of small mammals (22.1 percent), followed by sugar beets (19.9 percent), edge habitat (19.6 percent), fallow fields (10.3 percent), dryland pasture (10.3 percent), alfalfa (7.2 percent), and riparian (3.7 percent). Bechard (1982) noted the hunting sites of Swainson's hawk in Washington State were a function of prey vulnerability rather than prey density. Field observations of radio-tagged Swainson's hawk in California indicate that over 50 percent of observed foraging time and 73 percent of successful prey captures were conducted during certain field practices, such as harvesting, discing, mowing, flood irrigating, and agricultural burning, in which cover was removed or prey otherwise disturbed and, thus, more vulnerable to predation (Estep, 1989). Swainson's hawk actively searched in concert with farm equipment. Unless field activities were being conducted, Swainson's hawk would spend little time on a single field before moving on in search of prey. This highly active foraging behavior results in birds traveling as far as 18 miles in search of food (Estep, 1989).

The USFWS (1986) noted that abundance of food is the most important factor determining the abundance of hawks. In northern California, Woodbridge (1983) reported that Swainson's hawk prey consisted of small mammals (60 percent), birds (25 percent), and reptiles and insects (14 percent), with Belding's ground squirrel comprising the greatest biomass. In the mid-Central Valley area, pellet analysis conducted by Estep (1989) found that small mammals accounted for 21.7 percent of total prey and 43.5 percent of total biomass; birds constituted 10.8 percent of total prey and 49.8 percent of total biomass; reptiles and amphibians accounted for 0.6 percent of total prey and 1.3 percent of total biomass; and invertebrates (insects and crustaceans) accounted for 66.8 percent of total prey and 5.4 percent of biomass. The USFWS (1986) have suggested that insects may be underrepresented in prey studies due to ease of digestion. Insects are particularly important as food for fledglings (Detrich, 1986).

Predators and Competitors. Swainson's hawk may be preyed upon by golden eagles (*Aquila chrysaetos*). Swainson's hawk are also in competition for food and/or nesting habitat with red-tailed hawk, white-tailed kite, golden eagles, northern harriers (*Circus cyaneus*), great horned owls, and western burrowing owls (*Athene cunicularia*) (Zeiner, 1990).

Migration and Overwintering: Swainson's hawks migrate to wintering grounds in impressive flocks (American Ornithologists' Union, 1957), with the peak migration period in September (Woodbridge, 1983). Swainson's hawk spends about seven months on their winter-feeding grounds or in migration. The primary wintering range for the interior populations is in Argentina, with subordinate winter range in Uruguay, Paraguay, Bolivia, Brazil, Peru, Ecuador, Colombia, and Venezuela (USFWS, 1986). Based on telemetry studies conducted by the Swainson's Hawk Technical Advisory Committee (SHTAC), the Central Valley population appears to concentrate over-wintering in Mexico and northern Central America, with some individuals wintering in Colombia and as far south as Argentina (M. Bradbury, 2000), with little to no interaction with other populations. A small population of about 30 Swainson's hawks regularly over-winter in the Sacramento-San Joaquin Delta, with a known roost site at the tip of Andrus Island (Herzog, 1996).

Endangerment Factors: Many factors have been postulated as possible causes for the declining populations of Swainson's hawk in California. These include incompatible vegetative cover for the production and/or capture of prey (Bloom, 1980), grazing pressure (Detrich, 1986), predation from great horned owls and American crows (USFWS, 1986), depredation by humans on wintering grounds (Bloom, 1980), pesticide use (Bloom, 1980; Detrich, 1986), direct shooting (Bloom, 1979), low productivity/low recruitment (England et

al., 1995), and loss of breeding and foraging habitat through land use conversions (CDFG, 1990a).

Craighead and Craighead (1956) observed that Swainson's hawks were in direct competition with the more aggressive red-tailed hawk and were forced to use inferior nest sites. As a result, productivity may have been affected because red-tailed hawk nesting success, as measured from eggs laid to successfully fledged young, was 75 percent versus 43 percent for Swainson's hawk (Craighead and Craighead, 1956).

Several factors have been investigated as potential causes for the decline of Swainson's hawk in California, including shell thinning secondary to organochlorine burdens, excessive biocide exposure, depredation on wintering grounds, interspecific competition, and habitat loss and/or modification (Risebrough et al., 1979).

Two factors, habitat loss and pesticide residues, may be plausible explanations; however, Risebrough et al. (1989) concluded that as yet unidentified local factor(s) are responsible for the decline. The authors noted that much of the former breeding habitat in the Central Valley has been lost to agricultural conversions. However, in some areas, the breeding populations have declined without any appreciable environmental change and large areas of formerly occupied breeding habitat in the Central Coast Range, the Mojave Desert, the Great Basin, Owens Valley and the Southern California coast area still exist. As a result, it was concluded that habitat destruction may be a contributing factor in the Central Valley, but it is not the principal reason for extirpation in the southern half of California.

Baseline Project Conditions: Given the general decline in Swainson's hawk populations throughout California, the nesting rate in the Sacramento area is relatively high (Estep, 1989). During the 1990 breeding season, 21 Swainson's hawk nesting territories were identified in the vicinity of the Natomas area along the Sacramento River (between River Miles 64.5 and 79.1). Nine confirmed nests were located on the Yolo County side of the Sacramento River, and 12 confirmed nests were found on the Sacramento County side of the river (USFWS, 1990a-d). Successful nesting occurred in seven of nine nests along the west side of the Sacramento River, but in only 4 of 12 nests in the Natomas area. In 1993, Moreno (1994) reported 32 nesting attempts along the Sacramento River between Freeport (River Mile 46) and Verona (River Mile 79.1). Of these, 23 nests were successful and fledged 39 young.

Since 1998, SHTAC has monitored Swainson's hawk nesting in the Natomas Basin. The known nesting territories are monitored annually, and categorized as:

- | | |
|-------------------|--|
| • Active | At least one adult observed on the nesting tree |
| • Inactive | Neither adult observed on the nesting tree |
| • Successful | Young reared to fledging |
| • Outcome Unknown | Nesting attempted, unknown if young fledged |
| • Failed | Nesting attempted with no young reared to fledging |
| • Did Not Nest | Adults present on territory, but not nesting |
| • No Data | Survey not conducted or no activity detected. |

Within the Natomas Basin, including those nesting along the Sacramento River, a total of 62 Swainson's hawk nesting territories were monitored in 2001 by the SHTAC (2001), of which 46 were active and 16 were inactive. A total of 24 territories were successful and fledged 40 young. Of the remaining 22 active territories, 15 failed, and no nesting was attempted on seven territories.

Seventy nesting territories were inspected in 2002 (SWTAC, 2002). Of the 70 territories, 28 were inactive, six were active but no nesting occurred, 11 had failed nests, one nest had an undetermined outcome, 10 fledged one young, and 14 fledged two young.

Between 1999 and 2001, the Natomas Basin (exclusive of the Sacramento River corridor) had between 15 and 19 active territories, and fledged a total of 63 young. However, the number of young produced per active territory ranged from 0.95 in 2001 to 1.67 in 1999 (SHTAC, 2001).

No Swainson's hawk territories were observed at Fisherman's Lake during surveys conducted in 1985 for the North Natomas Community Plan EIR (City of Sacramento, 1987), nor during surveys conducted in 1987 for the North Natomas Comprehensive Drainage Plan (Jones & Stokes Associates, 1989). Swainson's hawk nesting along Fisherman's Lake was first reported in the California Natural Diversity Database (CNDD) in 1992. One active territory (CNDD Occurrence No. 393) was recorded along the south end of Fisherman's Lake approximately one mile southwest of El Centro and Del Paso roads (SE¼, Section 9, Township 9 north, Range 4 east). This territory probably corresponds to NB-18, which was lost in 1998, but reestablished in another tree west of Fisherman's Lake in 2002. In 1994, a nesting territory (CNDD Occurrence No. 392) that produced three fledglings was reported along the east side of Fisherman's Lake approximately 150' south of Del Paso Road (NW¼, Section 9, Township 9 north, Range 4 east). This territory probably corresponds to NB-21.

Since 1998, SHTAC has reported four territories along Fisherman's Lake, all of which are south of Del Paso Road and on the east side of the lake. These territories are:

- NB-4 Located 0.9-mile south of Del Paso Road
- NB-5 Located 0.4-mile south of Del Paso Road
- NB-8 Located 0.3-mile west south of El Centro Road (nesting tree removed in 1998, but territory reestablished on west side of Fisherman's Lake)
- NB-21 Located 0.1-mile south of Del Paso Road

Within the past seven breeding seasons, the four territories have produced a total of four fledglings, which is a reproductive rate less than the overall Natomas Basin (Table 3-1). The question is whether this is attributable to poor habitat conditions, disturbance, and/or other factors. We surmise that, based on experience with other Swainson's hawk in the area, the nesting trees at Fisherman's Lake are part of a territorial complex comprised of several nesting trees. Consequently, the trees are used if other nest trees are occupied by another Swainson's hawk or other species. Between 1998 and 2002, no more than two pairs have occupied the four nesting territories (Table 3-1). Disturbance may be a factor for nest failure at NB-21 due to its proximity to traffic on Del Paso Road and human activity associated with recreational fishing on both sides of Del Paso Road. This nest has failed in five of the six years with nesting records. Unfortunately, there are no identification records of the pair or pairs using this territory. We have observed one instance of interspecific competition for nests at Fisherman's Lake. In 1998, a pair of Swainson's hawk was dislodged by a great horned owl at nest territory NB-21. In 2003, a great horned owl was observed nesting near NP-21, but a pair of Swainson's hawks was establishing a nest in another tree. While not observed specifically at Fisherman's Lake, it is also possible that red-tailed hawks, and possibly red-shouldered hawks could occupy the nests before the Swainson's hawk arrive because they initiate breeding activity earlier than Swainson's hawk. Red-tailed hawks are more likely to be able to defend a territory and resist displacement because of their larger size. Red-tailed hawks can be displaced by Swainson's hawk, but at a high energy cost. A

red-shouldered hawk has nested in the grove of trees along the west side of Fisherman's Lake just north of Del Paso Road.

TABLE 3-1 Reproductive Success of Swainson's Hawks at Fisherman's Lake Between 1998 and 2004							
Territory	Year						
	1998	1999	2000	2001	2002	2003	2004
NB-4	No Data	Active Successful 2 fledged	Active No nesting	Inactive	Inactive	Inactive	Inactive
NB-5	No Data	Active Successful 1 fledged	Inactive	Active Failed 0 fledged	Inactive	Inactive	Inactive
NB-18	Active Failed 0 fledged	Inactive ¹	Inactive	Inactive	Active Successful 2 fledged	Active Failed 0 fledged	--
NB-21	No Data	No Data	Active Failed 0 fledged	Active Failed 0 fledged	Active No nesting	Active Failed 0 fledged	Active Successful 1 fledged

Source: SHTAC (2001)

¹Original nesting tree removed in 1999. Territory reestablished in 2002 at tree on west side of Fisherman's Lake

Disturbance Effects. The CDFG mitigation requirements for the Swainson's hawk (1994) prohibit new intensive disturbances (e.g., heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities) or other project-related activities within one-quarter-mile of an active nest between March 1 and September 15 that could cause nest abandonment or forced fledging. This buffer zone should be increased to one-half mile in nesting areas away from urban development.

Various studies have documented Swainson's hawks nesting in the vicinity of disturbed and developed areas. Bosakowski et al. (1996) reported that Swainson's hawk nest sites were generally located between 250 and 1,462 feet of the nearest building, and between 0 and 1,462 feet of the nearest paved road in Logan County, Utah. Bechard et al. (1990) reported that of 67 Swainson's hawk nest sites examined in southeastern Washington, 42 percent were within 3,250 feet of a building, which was generally a ranch or farm structure, but also included power plants, airports, highway rest stops, a nuclear power plant, and towns.

Berry et al. (1998) studied the association of a number of raptor species with percentage of landscape types near Boulder, Colorado. Landscape categories included upland grassland, lowland grassland, and urban (pavement/buildings and urban vegetation). They reported a positive correlation between Swainson's hawk numbers and the percent of lowland grasslands, but no correlation (positive or negative) with percent of urbanization. The researchers were unwilling to conclude that Swainson's hawk was insensitive to urban development based on studies conducted by England et al. (1995).

In a largely rural area of the Mapimi Desert in Durango, Mexico (no paved roads, large ranches, or large towns), Rodriguez-Estrella (2000) studied a population of Swainson's hawks. The principal factors explaining over 90 percent of the variance of nest-site habitat characteristics were distance to a human activity and nest structure and location. No significant correlation was found among the nest-site characteristics and nesting success. Rodriguez-Estrella reported a success ratio of 1.30 between the number of young fledged/nesting attempted, which indicates a stable population. No indication of distance to or intensity of disturbance was provided in the study.

Bednarz and Hoffman (1988) compared Swainson's hawk reproductive success between an active oil development/construction area of the Waste Isolation Pilot Plant (treatment site) in southeastern New Mexico against a control area with little to no human disturbance. The treatment site encompassed 36 mi² (22,580 acres) and contained nine nests. The treatment site had heavy traffic including frequent deliveries of construction materials and supplies and daily trips of 600 employees. The control site was in similar habitat next to the WIPP and contained 13 nests on 30 mi² (18,820 acres). Disturbances on the control plot were confined to the activities of the rancher and occasional visits by workers maintaining gas and oil well equipment. No significant difference was found in the reproductive success (as measured by young fledged/active nest) between the treatment and control areas, and the researchers observed that Swainson's hawks were relatively tolerant of human intrusion in the vicinity of a nest, and would assume normal activities shortly after the departure of the intruder. The study did not provide information pertaining to proximity, frequency, duration, or persistence of the disturbance. The researchers did, however, opine that intensive human activity in a small area near an active nest would likely result in breeding failure at that site, and suggested that construction activities be delayed in areas within 1,625 feet of an active nest site.

James (1992) reported successful urban nesting of Swainson's hawks in Saskatchewan, Canada. Five nests were found within the City of Regina between 1988 and 1991. Two nests were in residential properties; two were in commercial areas; and, one was observed in a municipal park. Three nests were in conifers, one in a maple, and the other was in a railroad signal gantry. Four of the five nesting attempts were successful, with a reproductive success rate of 1.4 young/nesting attempt, which compared favorably with the general success of the species in traditional habitats (1.2 to 1.5 young/nesting attempt).

During the Swainson's hawk nesting study conducted in 1992 for the Sacramento Urban Area Levee Reconstruction Project, Wilkinson and Levy (1994) monitored disturbance levels around active nest sites. Disturbance was rated as high, moderate, or low depending on the frequency of disturbance, proximity to the nest site, noise level of the disturbance, type of disturbance, vegetative or visual screening, and level of effect upon the nest site. As an example cited by the authors, construction and recreation activities that occurred on a regular basis in close proximity to the nest site were rated as a high disturbance. Infrequent boating activity or moderate traffic constituted a moderate disturbance. The researchers noted that some pairs experienced considerable disturbance during the incubation period and managed to fledge young, while other pairs were unsuccessful with only moderate levels of disturbance. Of the total 24 successful breeding pairs, 63 percent were subject to sustained high levels of disturbance, 33 percent experienced moderate disturbance levels, and 4.2 percent experienced low disturbance levels. Of the six unsuccessful breeding pairs and eight floater pairs, 21 percent experienced high disturbance levels, 71 percent had moderate disturbance, and 7 percent had low disturbance.

Within the boundaries of the levee construction zones, seven nests were adjacent to levee construction, and five were directly across the river from the construction. Of these 12 nests, 10 were successful and fledged 15 young.

The researchers cautioned against in-depth conclusions for these observations because scientific correlation among the disturbance variables and nesting success was beyond the scope of the project, and would have required more in-depth study.

Moreno (1994) monitored the nesting success of Swainson's hawks in 1993 along the Sacramento River between Freeport and Verona. Of the 32 nesting attempts, 23 were

successful and fledged 39 young. Four nests were abandoned during nest building, and five nests failed during incubation. Three of the failed nests were adjacent to homes. One failed nest was near a house under construction, which had been successful in the three preceding years. Moreno (1994) opined that noise and other disturbances created by construction workers and equipment probably caused or contributed to the abandonment. Another nest that failed after hatching was located near a river park, where jet-skiers would often circle under the nest. The same nest failed the two previous years. Moreno (1994) noted that successful nests were also subject to moderate to high disturbance levels that were persistent and regular (light traffic, farming, equipment, houses). One particular nest successfully fledged three young in 1993 despite constant disturbance from a parking structure under construction, and a restaurant and marina less than one-quarter mile away. Moreno (1994) opined that disturbance alone could not explain nest abandonment because tolerance to territorial intrusion by humans and other raptors, noise, and other perturbations vary among individual Swainson's hawks.

Estep (1989), in a study of Swainson's hawk biology in the Central Valley of California, noted that in 1987, 35 percent of nests were within 0.2-mile (1,060 feet) of a farmhouse or residential area, and 32 percent were within 0.2-mile of a county road or highway. Three nests were along the edge of a busy highway. No significant difference in nesting success or productivity was observed between nests near human habitation and those away from human disturbance.

England et al. (1995) studied urban-nesting of Swainson's hawk in Yolo and San Joaquin counties, California between 1990 and 1994. A total of 31 urban-nesting attempts were recorded, of which over 75 percent were in the yards of homes in residential neighborhoods. Nests were also observed in golf courses, cemeteries, and on the University of California, Davis campus. Three nests in Stockton were in commercial and industrial settings, two of which were next to major intersections and commercial areas. The researchers noted that the level of human activity among sites varied, but it was persistent and highly predictable throughout the nesting season. They concluded that urban-nesting Swainson's hawks selected sites with adjacent human activities and habituated to site conditions from the beginning of the nesting cycle. Within the urban setting, most Swainson's hawks were found in neighborhoods greater than 45 years old. Nesting also occurred in neighborhoods less than 20 years old if large old trees were present that predated urbanization. Swainson's hawks nested most frequently in conifers, which were believed to offer more visual screening due to radial branching and denser foliage than typically found in non-conifers. The researchers noted that in all instances of urban-nesting in the Central Valley, the adjacent lands were surrounded by croplands, which were suitable for Swainson's hawk foraging. Urban nesting was not reported from Lodi and presumed the result of considerable acreage of vineyards for three to five miles outside the city, which is not suitable foraging habitat. Swainson's hawk nesting does occur in the City of Sacramento, but is generally confined to the riparian corridor along the Sacramento River, which is adjacent to foraging habitat. The hawks are absent from mature tall trees in the center of the city, which were also three to five miles from foraging habitat. These distances may be too great an energetic cost for transporting prey to the nest on a sustained basis.

In comparing urban and rural nesting sites, England et al. (1995) noted a difference in reproductive success. In rural sites, the ratio of number fledged per nesting attempt was 1.35 and 1.38 in Yolo County and San Joaquin County, respectively. In contrast, reproductive success at urban nesting sites was 1.16 in the City of Davis and 1.06 in the City of Stockton, which represents unstable populations. As urbanization continues, the

researchers opined that the distance to foraging habitat would continue to increase, which will increase energetic costs and reduce reproductive success.

The researchers provided two possible hypotheses as to why Swainson's hawks nest in urban environments. First, rural nesting sites may be saturated forcing the hawks to more marginal sites. However, this was discounted because a portion of rural nest sites is unoccupied each year. Further, no association could be found between high rural nesting attempts and high urban nesting attempts, which would be expected if they were forced into

Mark and recapture studies conducted by Wylie and Casazza (2000b) reported GGS population densities of 40 to 130 snakes per mile of canal within the Natomas Basin, and Hansen and Brode (1993) estimated approximately 1,000 snakes per square mile of rice land in the basin. Wylie et al. (1998) reported populations of 277 GGS in the Natomas Basin, between 170 and 206 at Gilsizer Slough, 119 to 132 at Colusa NWR, and 191 at Badger Creek.

Habitats. GGS typically inhabit sloughs, marshes, and drainage canals characterized by slow flowing or standing water, permanent summer water, mud bottoms, earthen banks, and an abundance of preferred forage species. The GGS is highly aquatic, but avoids areas of dense riparian overstory, preferring instead emergent aquatic vegetation, such as tules and cattails, and herbaceous terrestrial cover composed of annual and perennial grasses, blackberry, and mustard, (CDFG, 1989). This vegetation, along with burrows, undercut banks, and large rocks, provide escape cover (J. Brode, pers. comm., 1990). In addition, areas devoid of overstory shading are required for basking areas for thermoregulation. Rice fields have been found to be more important in recent years and females use these fields as nursery area in mid-summer (J. Brode, pers. comm. 1990; Wylie and Casazza, 2000a). Elevated topographic features are necessary for refuge in areas subject to winter flooding (CDFG, 1990a). The GGS is generally absent from areas occupied by large, exotic predatory fish, such as largemouth bass (*Micropterus salmoides*) and striped bass (*Morone saxatilis*). GGS also avoid larger bodies of open water and areas where the banks are only lightly vegetated (CDFG, 1990a).

Recent telemetry studies by Wylie and Casazza (2000a) in the Natomas Basin reported little, if any, use of non-rice agricultural lands. During the summer, GGS were found in canals and sloughs and in rice fields 91 and 9 percent of the time, respectively. Prior to the flooding of rice fields in the spring, GGS were found in sloughs 93 percent, field roads 6 percent, and rice fields 1 percent of the time. They further noted that particular parcels of upland pasture in the Natomas area did not support GGS.

The USFWS (1997) have determined that essential habitat components consist of the following:

- Adequate water during the snake's active period (early spring through mid-fall) to provide a prey base and cover
- Emergent, herbaceous wetland vegetation, such as cattail and bulrushes, for escape cover and foraging habitat
- Upland habitat for basking, cover, and retreat sites, and
- Higher elevation uplands for cover and refuge from flood waters

Potential upland habitat for GGS includes grassy banks and openings in waterside vegetation, developed areas (levees), ruderal/grassland areas adjacent to canals, and riparian shrub/scrub areas located within 200 feet of GGS channel banks (USFWS, 1997).

During winter (i.e., November to mid-March), GGS will use small mammal burrows and other soil crevices above prevailing flood elevations to escape flooding. Wintering sites varied from canal banks and marsh locations, to riprap along a railroad grade near the marsh (Wylie et al., 1997). Based on radio-telemetry studies, winter burrows were up to 813 feet from the edge of aquatic habitat (Wylie et al., 1997).

GGs also use small mammal burrows, crayfish burrows, and soil crevices during extremely hot periods in summer (Hansen and Brode, 1993). Summer burrows were generally within 164 feet from the edge of aquatic habitat (Wylie, et al., 1997).

Home Range and Dispersal. Based on radio-telemetry studies by Wylie and Casazza (2000), the size of GGS home ranges were between 32 and 215 acres (median = 86 acres) in Elverta and Fisherman's Lake sites. For comparison, home ranges were between 5 and 213 acres (median = 39.5 acres) at Gilsizer Slough in Sutter County, and 22 and 2,070 acres (median = 128 acres) at the Colusa National Wildlife Refuge.

GGs rely on canals and ditches as movement corridors. These corridors are vital to GGS dispersal and, most importantly, for continuing genetic exchange between subpopulations. Unvegetated canals may be used as dispersal corridors, but they typically do not remain in exposed canals due to increased vulnerability to predators. They have been reported as traveling distance of over one mile, and may move as much as two miles in a day (Hansen and Brode, 1992).

Annual Activity Pattern. GGS are active from April to mid-October. After the first part of October, GGS begin to search for suitable winter refugia. Wylie and Casazza (2000) found that radio-marked GGS over-wintered in burrows in ditch banks where they remained relatively inactive from mid-October to April. Adult and juvenile GGS emerge from winter retreats in late March or early April. They remain active from March to October, with surface activity concentrated from April to July.

Daily Activity Pattern. GGS generally emerge from burrows in levees and channel banks after sunrise. They bask on grassy banks and open areas adjacent to aquatic habitat to warm their bodies to activity temperatures during cool weather or on cool mornings. Once activity temperature has been achieved, GGS engage in foraging or courting activity the rest of the day until temperatures drop, and the GGS retreat to burrows, where they spend the night. During very hot weather, GGS are sometimes observed after sunset usually lying motionless on warm pavement or dirt roads (Hansen and Brode, 1992).

Prey. GGS is an aquatic feeder that specializes in ambushing fish underwater. It generally feeds on small carp (*Cyprinus carpio*), bullhead (*Ictalurus* spp.), mosquitofish (*Gambusia affinis*), and minnows. It will also feed on bullfrog (*Rana catesbeiana*), Pacific treefrog (*Hyla regilla*), and tadpoles (Hansen, 1982).

Predators. Known predators of GGS include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), hawks, northern harrier (*Circus cyaneus*), great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), and American bittern (*Botaurus lentiginosus*) (USFWS, 1999). Within sampling areas in Gilsizer Slough and Colusa National Wildlife Refuge, Wylie et al. (1997) noted that predation did not appear to be a limiting factor in maintaining GGS populations in spite of abundant populations of predators including fish, frogs, wading birds, hawks, otters, etc.).

Reproductive Behavior. GGS have been observed mating on vegetated canal banks or on stands of emergent vegetation from April to May. The sexes separate after breeding. Gravid females continue to feed in the summer. Females give birth to live young about 120 days after copulation, generally in August. Between 15 and 25 young are produced per female per year (Wylie and Casazza, 2000). Clutch size increase with the age of the

female, reaching as high as 50 young for a 10- to 12-year old female. GGS have a life span between 10 and 15 years (Wyllie and Casazza, 2000)

Endangerment. The primary factors responsible for the decline of the GGS are habitat loss, degradation, and fragmentation. Urban development has changed GGS habitat through pollution, reduction of prey availability, and conversion of preferred native vegetation to exotic landscapes. Wetlands have been drained and streams have been rerouted through pipes or concrete channels to create sites for urban development and agriculture. GGS are also lost as a direct result of farming operations. Livestock grazing has depleted protective plant cover and compacted the soil resulting in the destruction of underground retreats. Incompatible agricultural management practices, such as conversion of ricelands to alternative crops, have resulted in habitat loss. The introduction of large predators, such as largemouth bass and bullfrog into almost all permanent freshwater environments, has affected the GGS through predation and competition for smaller forage fish (Ellis, 1987).

Baseline Conditions. During the 1998 and 1999 sampling seasons, nine GGS were captured at Fisherman's Lake (Wyllie, 1999). Based on radio-telemetry studies, the home range of five GGS from Fisherman's Lake ranged from 32 to 215 acres. In the spring of 1998, GGS were found most often in slough/riparian habitat (93 percent), followed by "other" habitat (6 percent), and rice fields (1 percent). In the summer of 1999, GGS were again found principally in slough/riparian habitat (91 percent), followed by rice fields (9 percent) (Wyllie and Casazza, 2000). GGS from Fisherman's Lake seldom ventured in surrounding rice fields, which may indicate that sufficient resources (e.g., prey, basking sites, cover, hibernation habitat) are available in Fisherman's Lake (Wyllie and Casazza, 2000). Hansen (2002) noted that with the exception of an isolated population at Fisherman's Lake, GGS have been eliminated from the area south of Interstate 5 and west of Interstate 80. Lands acquired to mitigate for GGS losses have not sufficiently matured and monitoring indicates they are largely unoccupied. GGS sampling along Fisherman's Lake is constrained by water depth and visibility of traps to the public. Consequently, only one GGS was captured in 1998, and demographic analysis was not conducted. However, because of compromised connectivity, Fisherman's Lake may become isolated (E. Hansen, pers. comm., 2002).

3.4 Conservation Biology

In an effort to formulate recommendations for buffer zone development, we reviewed pertinent conservation biology literature to address issues concerning habitat patch dynamics and edge effects.

3.4.1 Habitat Patch Dynamics. The riparian corridor surrounding Fisherman's Lake represents an isolated habitat patch due to its disconnection from similar habitats in the area. Habitat patches, unlike large and continuous habitat areas, tend to have reduced species richness (alpha-diversity), smaller population sizes, and have barriers to other potentially habitable sites due to either distance or incompatible intervening cover types. As a consequence, isolated habitat patches are more vulnerable to local extinction from natural catastrophes (fire, flood, storms), environmental stochasticity (failed recruitment, decreased immigration), demographic stochasticity (mortality exceeding recruitment, inbreeding and genetic drift), and human-induced factors (hunting, development) (James and Saunders, 2002; Gilpin and Soule, 1986; Terbough and Winter, 1980; Soule, 1987). Populations or individuals within small isolated habitats may not be able to escape from catastrophes, droughts, or human disturbances in order to survive. The effects are compounded with small patches because demographic factors, such as inbreeding and genetic drift, can

reduce the genetic diversity of the population and its ability to respond to changing conditions.

3.4.2 Edge Effects. Habitat patches are generally surrounded by non-native landscapes, most often agriculture and urban/suburban development, which subject native populations to contrasts and fluxes between natural and non-native habitats commonly referred to as "edge effects". In general, urban edge effects on wildlife and habitat are negative (County of Riverside, 2002; James and Saunders, 2002), and can result in the following impacts:

- Increase predation by mesopredators (e.g., striped skunks, opossum, raccoon, and domestic cats)
- Direct and indirect competition from exotic plants and feral animal species
- Increased fire frequency
- Altered microclimates (temperature, light and wind)
- Human intrusion and disturbance (off-road vehicles, dumping, shooting)
- Increase urban runoff including pesticides and other toxic materials

The overall impact of edge depends on the contrast between native and non-native habitats, and the size and shape of the natural habitat patches. Ideally, edge effects are minimized by the relative reduction of the actual edge. Consequently, patches that are more circular reduce the edge-to-interior ratio, while long and linear patches increase the ratio. The most effective patches are configured in a manner that the long axis is less than five times the length of the short axis (James and Saunders, 2002).

The edge between urban/agricultural development and natural habitats represents a complex interaction among at least three suites of species: (1) core or interior species that are sensitive to edge factors; (2) core species that are not sensitive to edge effects; and (3) edge species that prefer boundaries. Core species are normally native species adapted to the habitat, while edge species tend to be aggressive, and many are non-native species that displace or prey on native species (e.g., domestic cats) (County of Riverside, 2002). Core species within patches less than two to three acres can be totally swamped by edge species.

3.4.3 Metapopulations. Because of the susceptibility of small populations in habitat patches to extinction from environmental and demographic stochasticity, connectivity among habitats is important in maintaining functional metapopulations. A metapopulation is a series of interacting subpopulations genetically connected by migration, extinction, and recolonization. The degree of connectedness among subpopulations is important in determining whether and how long a metapopulation is likely to persist. Metapopulations afford local subpopulations protection from permanent extinction from deterministic events, such as habitat destruction and fragmentation, and from environmental stochastic events, such as drought and floods. If a local subpopulation is destroyed, the other subpopulations in the area are potential sources for repopulation through dispersal, provided that suitable conditions persists at the de-populated habitat, and movement corridors or landscape linkages are intact. Because of demographic stochasticity, such as annual reproductive success, a local population may be a sink one year, but a source in subsequent years. If, however, habitat patches supporting subpopulations are small and widely separated, the rate of immigration is likely to be low and individuals may be lost or occupy intervening marginal habitats, and be lost to the metapopulation. The constant disappearance and reoccupation of patches is a natural process, and persistence of occupation of a population to a patch is generally a function of patch size. As a general rule of thumb, for a population to persist over one year, the effective patch size needs to exceed tens of meters in width; to

persist over tens of years, patches need to be tens to hundreds of meters wide; and, for persistence over hundreds of years, patches need to be hundreds to thousands of meters wide (James and Saunders, 2002).

The location of a habitat patch is a critical factor because subpopulations at the edge of a species' range are more vulnerable to extinction than subpopulations at the center of the range (Weaver, 1993). While peripheral populations are at risk, the habitats in which they exist may be critical to long-term viability of a regional population by providing dispersal corridors and temporary displacement habitat during catastrophes or times of high-population levels (Leftkovich and Fahrig, 1985; Pulliam and Danielson, 1991). Further, peripheral populations that have diverged from central populations over time due to isolation, genetic drift, and local adaptations may be potential sources for future species diversity (Noss *et al.*, 1997).

In the case of Fisherman's Lake, edge effects and distance between patches is not likely to adversely affect Swainson's hawk because it is capable of long distance travel and mesopredators are not a threat. However, GGS and other resident species at Fisherman's Lake are less mobile, and more vulnerable to predation from house cats and other non-native predators.

4.0 ANALYSIS AND CONCLUSIONS

4.1 Current Nesting Territories. At present, there are a total of four nesting territories in the vicinity of Fisherman's Lake. These territories are used intermittently, and likely are portions of larger territorial complexes used by two nesting pairs of Swainson's hawks. In 2004, one pair of Swainson's hawks successfully fledged one young at Site NB-21. The other territories were inactive.

Development proposed along the east side of Fisherman's Lake will have two possible consequences to Swainson's hawk nesting: 1) reduction of foraging habitat, and 2) increased levels of human disturbance during the breeding period. Under existing conditions, Swainson's hawks nesting at Fisherman's Lake are able to forage in the agricultural fields on both sides of the riparian corridor. Development to the east of Fisherman's Lake will result in the loss of foraging habitat; however, the area to the west of the lake is part of the Swainson's Hawk Zone and will remain zoned for agricultural production. Also, parcels have been and are being acquired by TNBC to preserve Swainson's hawk foraging habitat near Fisherman's Lake. Preservation of the Swainson's Hawk Zone would provide adequate foraging habitat within close proximity to the existing territories at Fisherman's Lake. Consequently, the loss of foraging habitat on the east side of Fisherman's Lake is not likely to adversely affect Swainson's hawk nesting success at Fisherman's Lake.

With regard to levels of disturbance, nesting trees along Fisherman's Lake, which are located on the east side of the lake, are not protected against human intrusion. Access to the nest trees is discouraged by gated access roads, signs, expulsion of trespassers by property managers, and dense vegetation. However, because access to fishing and hiking areas is easier from the west side of Fisherman's Lake, the east side has less human intrusion. Screening is currently limited on the east and is provided only by the narrow canopy between nest trees and the agricultural fields. Both the access restrictions to the east side of Fisherman's Lake, a low level of screening, and approximately 2,750 feet of separation from the nearest development have been sufficient to allow some reproductive success for Swainson's hawk because human activity has been relatively low. However, as land use patterns change, the most significant changes affecting Swainson's hawk will be a large increase in human activity. Two general categories of disturbance will occur. The first category is construction-related noise and human presence, and the second is normal suburban activities after homes are constructed and occupied. During the breeding season, CDFG will impose a ½-mile protective zone between construction activities and active nest sites, which will protect nesting hawks at Fisherman's Lake. However, after construction is completed, CDFG has no regulatory setback or other protective measures. As such, after construction is complete, a principal protection afforded the Swainson's hawk nesting along Fisherman's Lake will be the buffer zone.

With increasing numbers of people residing in the area, intrusions into the riparian woodland, whether authorized or not, are inevitable. If intrusions are frequent, persistent, and in close proximity to nesting hawks, it is reasonable to expect that the rate of nest failures will increase because the existing pairs are not habituated to increased levels of human disturbance.

4.2 Separation Distances. Based on the review of literature and discussion with species experts, we found no single post-construction distance between residential development and nest trees that would assure nesting success. As detailed in Section 3.3,

general guidelines were found that were based on professional judgment rather than empirical studies. To complement the literature review in Section 3.3, we examined a number of nesting territories within the Natomas Basin that were in proximity to developed areas in an attempt to find analog conditions upon which to make informed recommendations.

The locations of the 2002 and 2003 nesting territories mapped by SHTAC (2002) were plotted on USGS topographic maps and Thomas Guide® street maps. The sites were inspected in the field to determine the type and location of land uses surrounding the nest territories. The distances between residential areas and the nesting territories were scaled from the maps. We found six territories near moderately developed areas in the Natomas Basin and a number of territories in low-density residential development areas along the Sacramento River. These territories are discussed below.

- NB-70 was located approximately 150 feet from new residential development along the north side of Garden Highway. The nest tree was separated from the development by the Garden Highway Levee, but without significant screening. Access was partially restricted by Garden Highway. NB-70 was an Active territory with an unknown outcome, and the first record in that location in 2002. In 2003, this nest was active but failed.
- NB-22 was located approximately 2,500 feet from new residential development along El Centro Road and San Juan Boulevard. There was no screening between the nest tree and housing development, and the nest tree is clearly visible from the development. There were no access restrictions except intervening cropland. NB-22 was an active territory in 2002, but the Swainson's hawks did not nest. In 2003, this nest was active but failed.
- NB-69 was located in a highway cloverleaf approximately 600 feet from a multi-story hotel, and 800 feet from an all-night truck stop/restaurant, gas station/convenience store, and fast-food outlet. There was no screening between the nest and developed areas. Access was restricted by on- and off-ramps. Nesting was successful in 2002 and one young was fledged. This nest was inactive in 2003.
- NB-24 was located in a park/floodway approximately 1,200 feet from a new residential development. The nest tree was separated from the developed areas by grassland, a flood control levee, and a six-foot wall surrounding the development. However, the nest tree is clearly visible from developed areas. There are no access restrictions to the nest tree. The territory was successful in 2002 and 2003, and two young were fledged in both years.
- NB-27 was located approximately 350 feet from an older residential neighborhood along Garden Highway. The nest tree was separated from the developed area by Garden Highway/Levee. Moderate screening was provided by the riparian canopy in which the nest tree was located and by trees in the backyards of the residential lots. Access was restricted by Garden Highway and a slough. The territory was successful in 2002 and 2003, and two young were fledged in both years.

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- NB-1 was an active territory reported in 2003 (J. Estep, pers. comm., 2003) in a tree stand of an old homestead between I-5 and the intersection of Barandas Drive and Watercourse Way. It was a successful nest and produced one fledgling, and is presumed to be the same pair that occupied territory NB-69 in 2002. The nest tree is approximately 235 feet from a residential development area. The nest is partially screened by a row of trees between the developed area and the nest tree. The area between the nest tree and the development includes Barandas Drive and a seven-foot tall concrete block wall abutting the backyards of the residential lots.

The majority of Swainson's hawk nesting territories within the Natomas Basin occur along the Sacramento River. Because of the configuration of the area between the river and Garden Highway, the residential housing is linear with each property extending from the highway to the river. The density of the housing is variable, but generally low (one residence per acre). However, because of the narrow width of the properties, the nesting trees are sometimes less than 100 feet from the house. During the 2002 nesting season, five successful nests were located along the east bank of the Sacramento River in Sacramento County. NB-55 fledged 2 young and was within 150 feet of a residence; NB-67 and NB-68 each fledged one young and were located within 150 feet of residences; NB-35 fledged two young and was within 75 feet of a residence; and NB-43 fledged two young and was within 1,000 feet of a residence.

Based on information reviewed in the literature and an analysis of nesting territories near Fisherman's Lake in 2002 and 2003, we were able to determine that successful Swainson's hawk nesting has occurred at distances less than 300 feet from housing developments with screening and access restrictions, and less than 600 feet without screening but with access restrictions.

We recognize that any comparison among territories is not exact because of differences in habitat type, topographic features, types and intensity of disturbance, and individual hawk habituation. However, the weight of evidence suggests that Swainson's hawk can, in certain situations, habituate to residential development near nesting trees. It is our opinion that increasing the separation distance between nest trees and developed areas will likely increase the chances of successful nesting. Further, the separation distance between nesting trees and developed areas can be reduced with visual screening, active and passive access restrictions, and other proactive measures to reduce or eliminate disturbance to the nest tree. Based on the literature review and limited analog situations in the Natomas Basin, a screened separation of 300 feet and a unscreened separation of 600 feet with access restrictions have been sufficient for successful nesting.

4.3 Buffer Analysis

This section analyzes two buffer zone alternatives (250-foot and 800-foot) as discussed above. In addition, this analysis examines two buffer zone boundary alternatives. The City Attorney's office has concluded the westerly edge of the buffer should be measured from the City limits (Carnazzo, 2002). This is referred herein as the City Limit Boundary Alternative. Based on the Settlement Agreement, Friends of the Swainson's Hawk (FOSH) maintain that a greenbelt should start from the eastern boundary of the RD-1000 ROW (RD-1000 ROW Boundary Alternative). Other boundary alternatives suggested have included the east and west shorelines of Fisherman's Lake. Figure 2 is a depiction of the 250-foot and 800-foot

buffer zone alternatives using the City Limit Boundary Alternative. Figure 3 depicts the 250- and 800-foot buffer zone alternative using the RD-1000 ROW Boundary Alternative.

In order to rate the efficacy of the various buffer options, we analyzed screened and unscreened separation distances for the two buffer widths and two boundary alternatives in relation to active and historic nesting trees along Fisherman's Lake. We assume buffers that provided a screened separation of less than 300 feet or an unscreened separation of less than 600 feet would have reduced rates of Swainson's hawk nesting success.

Figure 2

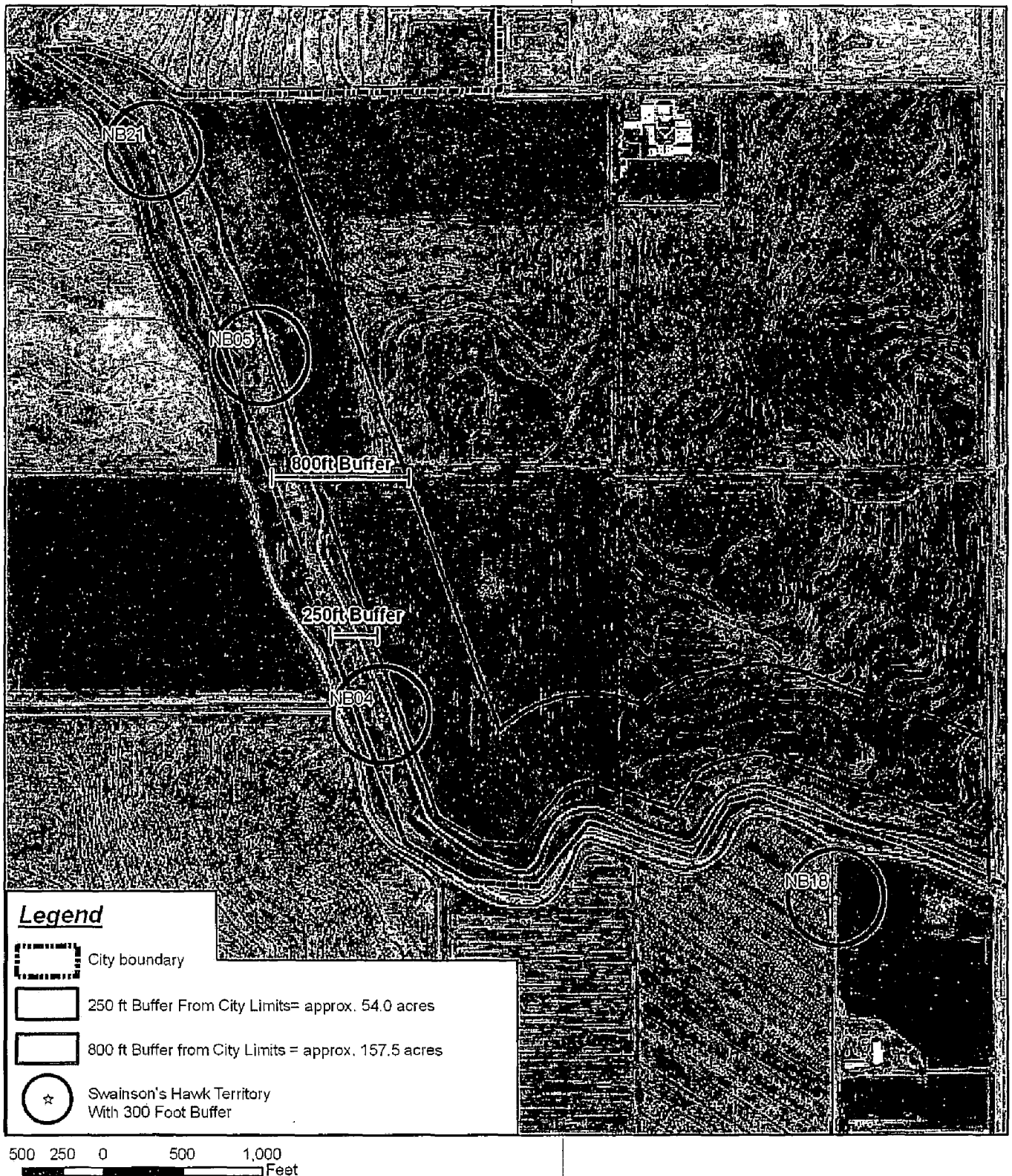


FIGURE 2
Depiction of the 250-foot and 800-foot
Buffer Zone Options at Fisherman's Lake
Based on a Western Boundary at the City Limit



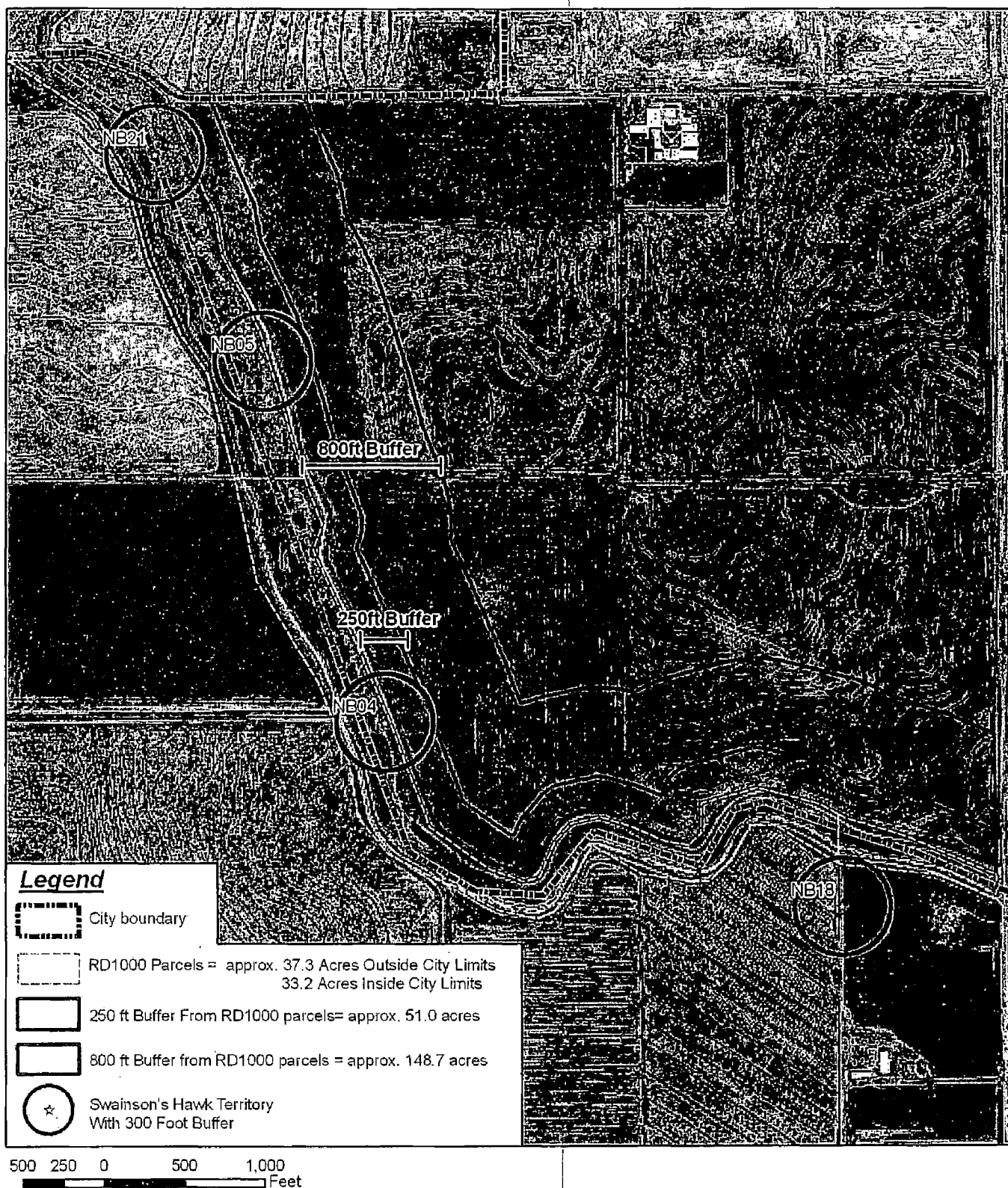


FIGURE 3
Depiction of the 250-foot and 800-foot Buffer Zone Options at Fisherman's Lake Based on a Western Boundary at the RD-1000 Right-of-Way Limit



Figure 3

4.3.1 City Limit Boundary Alternative. This alternative would have the western edge of the buffer zone along the city limit. Under this boundary alternative, a 250-foot buffer would provide 260 feet of separation and an 800-foot buffer would provide 810 feet of separation at NP-21. At NP-5, a 250-foot buffer would provide 80 feet of separation and an 800-foot buffer would provide 630 feet of separation. At NP-4, a 250-foot buffer would provide 132 feet of separation, and an 800-foot buffer would provide 680 feet of separation. Under this boundary alternative, the 250-foot buffer would not provide adequate separation between residential development and nesting trees. An 800-foot buffer would provide adequate screened separation and marginal unscreened separation.

4.3.2 RD 1000 ROW Boundary Alternative. This alternative would use the RD-1000 ROW as the western boundary of the buffer zone. At NP-21, a 250-foot buffer would provide 290 feet of separation and an 800-foot buffer would provide 1,050 feet of separation. At NP-5, a 250-foot buffer would provide 315 feet of separation and an 800-foot buffer would provide 865 feet of separation. At NP-4, a 250-foot buffer would provide 290 feet of separation and an 800-foot buffer would provide 840 feet of separation. Under this boundary alternative, the 250-foot buffer would provide adequate screened separation, but inadequate unscreened buffers. An 800-foot buffer would provide adequate screened and unscreened separation.

4.3.3 GGS Buffer. For GGS, all scenarios from the City Boundary and the RD 1000 ROW Boundary alternatives would provide adequate protection for upland habitat elements, which requires protection of 200 feet from the edge of the channel banks per USFWS guidelines.

4.4 Ancillary Buffer Benefits. Any increase in the overall area of habitat surrounding Fisherman's Lake provided by a buffer zone would provide a net benefit to other native species associated with riparian woodland and emergent wetlands at Fisherman's Lake. This is due to: 1) a substantial increase in habitat area potentially available for occupation; and, 2) with the interspersions of grassland, shrubland, and woodland habitat, an increase in habitat diversity. The overall widening of the vegetated area, combined with the preservation of lands by TNCB along the west side of Fisherman's Lake, would increase the habitat patch size and decrease the edge-to-interior ratio, which could reduce edge effects and benefit core area species inhabiting the existing habitats.

4.4.1 General Wildlife Benefits. Based on a review of literature and limited field studies, over 100 species of wildlife have been reported at Fisherman's Lake and surrounding wetland and riparian habitats (Appendix A). However, no long-term systematic sampling of the habitats has been conducted. Consequently, the actual number of wildlife using the area may be substantially greater, particularly during peak migratory periods.

A number of bird species have been identified that occupy the mature tree and gallery riparian forest that would benefit from the conservation or restoration of nesting habitat for Swainson's hawk (Woodbridge, 1998). These include great horned owl, red-tailed hawk, white-tailed kite, Cooper's hawk, great blue heron, and black-crowned night-heron that have been recorded at Fisherman's Lake. Other species occurring at Fisherman's Lake that would benefit from an increase in woodland and shrub cover types include wood duck (*Aix sponsa*), tree swallow (*Tachycineta bicolor*), Bewick's wren (*Thryomanes bewickii*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltiriparus minimus*), belted kingfisher (*Ceryle alcyon*), and Nuttall's woodpecker (*Picoides nuttallii*). The inclusion of grassland patches would provide habitat for western kingbird (*Tyrannus verticalis*), western meadowlark

(*Sturnella neglecta*), California vole (*Microtus californicus*), and gopher snake (*Pituophis melanoleucus*).

In general, wetland-dependent species would not gain in actual habitat from the upland buffer; however, they would benefit from reduced edge effects. In addition, construction of habitat terraces would increase the areal extent of wetland habitat. Certain colonial tree nesting species, such as great blue heron, great egret, snowy egret, and black-crowned night-heron could use the increased tree cover for a rookery.

4.4.2 Special-Status Species. Based on the Covered Species list from the NBHCP, a number of special-status species have the potential to occur in the Natomas Basin. An analysis of those species that could potentially occur at Fisherman's Lake, and any benefit provided by a buffer zone, are detailed below.

Sanford's arrowhead (*Sagittaria sanfordii*). Status: Federal Species of Concern. Sanford's arrowhead is an aquatic perennial herb that occurs under shallow-water conditions in freshwater marshes and other slow-moving waterways (ponds, ditches, vernal pools, sloughs). It is found primarily from the Central Valley. There 26 occurrences from Sacramento County and none from Sutter County. It has not been reported from the Natomas Basin. (USFWS et al., 2002). Potential Benefit.

Bogg's Lake hedge-hyssop (*Gratiola heterosepala*). Status: California Endangered. Bogg's Lake hedge-hyssop is semi-aquatic, annual herbaceous plant found in shallow waters or moist-clay soils, in vernal pools and along lake margins. It occurs in six widely disjunct areas in Lake, Sacramento, Placer, Fresno, Madera, and Shasta counties in California, and Lake County, Oregon. It has not been reported from the Natomas Basin (USFWS et al., 2002). Potential Benefit

Sacramento Orcutt grass (*Orcuttia viscida*). Status: Federal Endangered and California Endangered. The Sacramento Orcutt grass is an annual species that occurs in medium to large vernal pools with relatively long inundation periods. It has been reported from Lake, Plumas, Sacramento, Shasta, Siskiyou, and Tehama counties. There are two occurrences from Sacramento County, but none from the Natomas Basin (USFWS et al., 2002). No Benefit

Slender Orcutt grass (*Orcuttia tenuis*). Status: Federal Threatened and California Endangered. Slender Orcutt grass inhabits vernal pools in Sacramento and surrounding counties at elevations between 100 and 6,000 feet. It has been reported from two sites in Sacramento, but none from the Natomas Basin (USFWS et al., 2002). No Benefit.

Colusa grass (*Neostapfia colusana*). Status: Federal Endangered and California Endangered. Colusa grass is an annual species that occurs in larger vernal pools during the drying phases. There are 59 known occurrences in California but none from the Natomas Basin or Sacramento County (USFWS et al., 2002). No Benefit.

Legenere (*Legenere limosa*). Status: Federal Species of Concern. Legenere is an annual herb that occurs in vernal pools, marshes, lakeshores, and other seasonally inundated habitats. It has been reported from 49 sites in California including 18 from Sacramento County. There are no reported occurrences in the Natomas Basin, but potentially suitable habitat occurs near the eastern boundary of the Natomas Basin adjacent to Del Paso Road (USFWS et al., 2002). Potential Benefit.

Delta tule pea (*Lathyrus jepsonii jepsonii*). Status: Federal Species of Concern. Delta tule pea occurs in freshwater and brackish marshes primarily in the Delta region at elevations to 15 feet, msl. The project area is beyond the range of this species and no brackish marshes occur on the project site. No Benefit.

Vernal pool tadpole shrimp (*Lepidurus packardii*). Status: Federal Endangered. Vernal pool tadpole shrimp occurs in vernal pools within the Central Valley and the Sacramento-San Joaquin Delta east of San Francisco Bay (Rogers, 2001). There are three known occurrences in Sacramento County near Mather Air Force Base, Galt, and Rancho Seco, and one in Sutter County adjacent to Steelhead Creek (USFWS et al., 2002). There is no suitable habitat (e.g., vernal pools) at Fisherman's Lake. No Benefit.

Vernal pool fairy shrimp (*Branchinecta lynchi*). Status: Federal Threatened. Vernal pool fairy shrimp occurs throughout much of the Central Valley and as far south as the Santa Rosa Plateau in Riverside County. This species occurs in two types of vernal pools; pooled water in small depressions of sandstone outcrops surrounded by foothill grasslands, and ponded water in small swales or depression basins with grassy or muddy bottoms in un-plowed grasslands (Eriksen and Belk, 1999). There are 50 reported occurrences from Sacramento County and one adjacent to Steelhead Creek in Sutter County (USFWS, et al., 2002). There are no recorded occurrences at Fisherman's Lake. No Benefit.

Midvalley fairy shrimp (*Branchinecta mesoalensis*). Status: Federal Species of Concern. Midvalley fairy shrimp occurs in very ephemeral grass bottom vernal pools within the center of the Central Valley at elevations between 65 and 300 feet (Eriksen and Belk, 1999). There are many recorded occurrences in Sacramento County. There is one reported occurrence in Sacramento County, but none in the Natomas Basin and no suitable habitat occurs along Fisherman's Lake. No Benefit.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Status: Federal Threatened. The valley elderberry longhorn beetle (VELB) is a moderate-sized, brightly colored, and sexually dichromatic beetle found on the blue elderberry (*Sambucus mexicana*) within the Central Valley of California and surrounding foothills. Elderberry plants are obligate hosts for the VELB, providing a source of food and broodwood. Occurrences of the VELB are primarily in the vicinity of moist valley oak woodlands associated with riparian corridors in the lower Sacramento River and upper San Joaquin River drainages (USFWS 1984). It is known to occur up to the 2,200-foot elevation in the Sierra Nevada foothills, although less frequently.

According to Barr (1991), the western range of the VELB is from Napa and Solano counties northwest of Fairfield. The VELB has not been collected at Fisherman's Lake, but the elderberry plants in the riparian community provide potential habitat. Increasing the riparian community would benefit the VELB by providing additional habitat. Potential Benefit.

California tiger salamander (*Ambystoma tigrinum*). Status: Federal Threatened. The California tiger salamander typically inhabits grassland and oak woodland habitats below 1,500 feet that have scattered ponds, intermittent streams, and/or vernal pools. Tiger salamanders aestivate in rodent burrows throughout the summer and emerge after the first few sustained rainstorms in November. Adults will migrate up to 3,300 feet from aestivation sites to breeding ponds. The breeding season extends from December through February. Adults remain in breeding ponds for several days before exiting to forage in terrestrial habitat. California tiger salamanders have been reported in south Sacramento County in farm ponds and vernal pools. Fisherman's Lake does not provide suitable habitat. No Benefit.

Western spadefoot toad (*Spea hammondi*). Status: Federal Species of Concern. Western spadefoot toad occurs throughout the Central Valley and adjacent foothills in grassland and sometimes valley-foothill hardwood woodland habitat in shallow temporary pools. Western spadefoot toads have been found in vernal pools in east and south Sacramento County. Fisherman's Lake does not provide suitable habitat. No Benefit.

Northwestern pond turtle (*Clemmys marmorata marmorata*). Status: Federal Species of Concern and California Species of Special Concern. The western pond turtle occurs primarily in foothills west of the Cascade-Sierra crest throughout California. The northwestern subspecies ranges north of the San Francisco Bay area and intergrades with the southwestern pond turtle in the southern portion of the Central Valley. Pond turtles are an aquatic turtle inhabiting streams, marshes, ponds, and irrigation ditches within woodland, grassland, and open forest communities, but requires upland sites for nesting and over-wintering. Northwestern pond turtle occur in Fisherman's Lake. Potential Benefit.

White-faced Ibis (*Plegadis chihi*). Status: Federal Species of Concern and California Species of Special Concern. The white-faced ibis inhabits fresh emergent wetlands, shallow lacustrine waters, muddy grounds of wet meadows, irrigated or flooded pastures, and croplands. Extensive marshes are required for nesting. It is a rare visitor to the Central Valley, but may be found during the winter during migration, and as transients at other times. This species has been observed foraging in the project area. Potential Benefit.

Aleutian Canada goose (*Branta canadensis leucopareia*). Status: Federal Delisted. The Aleutian Canada goose is one of the smallest subspecies of the Canada goose. Aleutian Canada geese winter primarily in the Central Valley of California. It utilizes several federal and state-managed waterfowl units, and private agricultural land where they forage on barley,

wheat, oats, corn, and rice. The Aleutian Canada goose has not been reported from the project area and, given the presence of foraging habitat adjacent to Fisherman's Lake, it is not likely to occur. No Benefit.

Western burrowing owl (*Athene cunicularia hypugea*). Status: California Species of Special Concern. The burrowing owl is a yearlong resident of open, dry grassland and other open habitats. Burrowing owls use rodent or other burrow for roosts and nests. It moves to elevated perches, such as fence posts or mounds, to thermoregulate and stand sentry. Burrowing owl usually nests in old ground squirrel or other small mammal burrows, but may excavate its own burrow in soft soil. It will use pipes, culverts, and nest boxes where burrows are scarce. It is a diurnal hunter, and preys on insects, small mammals, reptiles, birds, and carrion. It hunts from a perch, hovers, hawks, dives, and hops after prey on ground. The species has been reported on five occasions between 1985 and 2001 during Christmas Bird Counts along the lower American River (American River Natural History Association, 2001), and is routinely found at the Sacramento International Airport in the Natomas Basin. The agricultural lands surrounding the project area provide potential suitable foraging and nesting habitat for the species, but has not been reported from Fisherman's Lake. Potential Benefit.

Bank swallow (*Riparia riparia*). Status: California Threatened. The bank swallow is the smallest swallow in California. It is a summer breeder that migrates south in the winter. It is a colonial breeder that excavates burrows in riverbanks and railroad and highway embankments. The banks are generally greater than three feet in height to preclude predators, and soils must be sufficiently friable to excavate. It currently ranges from central to northern California wherever suitable nesting habitat exists, with major colonies found along the Sacramento and Feather rivers. The bank swallow forages mostly on flying insects that it captures on the wing. The species has not been reported from the project area. Potential Benefit.

Loggerhead shrike (*Lanius ludovicianus*). Status: California Species of Special Concern. Loggerhead shrike is a common resident and winter visitor in lowlands and foothills throughout California. It prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. It eats large insects, small birds, mammals, amphibians, reptiles, fish, carrion, and various other invertebrates. It often skewers prey on thorn, sharp twig, wire barb, or forces it into a crotch to feed on or to cache for feeding later. Loggerhead shrike nests are well concealed in shrubs or small trees. The species has been reported on three occasions between 1985 and 2001 during Christmas Bird Counts along the lower American River (American River Natural History Association, 2001), and was observed along Fisherman's Lake. Potential Benefit.

Tricolored blackbird (*Agelaius tricolor*). Status: Federal Species of Concern and California Species of Special Concern. The tricolored blackbird is a nomadic resident of the Sacramento and San Joaquin valleys and lower foothills of the Sierra Nevada. This species nests near freshwater in dense

cattails and bulrush, and also in thickets of willow, blackberry, wild rose, and tall herbs. The species has not been reported from the project area, but suitable nesting habitat exists in wetlands along Fisherman's Lake. Potential Benefit.

5.0 ACREAGE REQUIREMENTS BY ALTERNATIVE

A number of buffer zone alternatives have been formulated over time and as a result of this study. Two basic approaches have been examined: width-based and area-based buffers. The principal approach has been the width-based buffer, which involves the 250-foot and 800-foot buffer alternatives. Further, two alternative boundary locations have been suggested. This results in four combinations of buffer-boundary alternatives. The second approach is the area-based buffer, which would be based on a total area for the buffer zone, but allows width optimization for target species. The following is a discussion of these alternatives and estimated areal requirements.

5.1 Width-Based Buffer Zone Alternatives.

To determine the land acquisition requirements of the width-based buffer alternatives, the area owned by the Tsakopoulos Family Trust (Natomas Central) property and the area owned by RD 1000 (or within the RD 1000 ROW) were calculated using the City of Sacramento's Geographic Information System (GIS).

5.1.1 City Limit Boundary Alternative. Based on the City boundary as the west border of the buffer zone, the total area encompassed by a 250-foot buffer would be approximately 54 acres of which 33 acres would be RD 1000 land and 21 acres would be Tsakopoulos Family Trust land. The 800-foot buffer would encompass approximately 158 acres of which 33 acres would be RD 1000 land and 125 acres would be Tsakopoulos Family Trust land (Figure 2).

5.1.2 RD 1000 ROW Boundary Alternative. Based on the east border of the RD 1000 ROW as the west boundary of the 250-foot buffer zone, approximately 51 acres would be Tsakopoulos Family Trust land. The 800-foot buffer would require 149 acres of Tsakopoulos Family Trust land. There is an additional 33.2 acres of land between the City limit and the RD 1000 ROW. As such, the effective buffer area would be 84 acres for the 250-foot buffer and 182 acres for the 800-foot buffer (Figure 3).

5.1.3 Swainson's Hawk Protective Buffer. With the tentatively recommended Swainson's Hawk Protective Buffer (see Figures 2 and 3), an additional 5.8 acres would extend beyond the 250-foot buffer limit for the City Boundary Alternative. The Swainson's Hawk Protective Buffer would all be within the bounds of an 800-foot buffer for both the City Boundary and RD 1000 ROW Boundary alternatives, and within the 250-foot buffer for the RD 1000 ROW Boundary alternative. Connecting the 300-foot circles with an sinuous boundary would increase the Swainson's Hawk Protective Buffer an additional 11 acres. The combination of the 300-foot circles and a sinuous eastern border would increase the overall buffer acreage by 16.4 acres to 70.4 acres for the 250-foot Buffer/City Limit Boundary. This could potentially increase the riparian woodland along Fisherman's Lake from the present 5.2 acres to over 70 acres.

5.2 Area-Based Buffer Zone Alternative.

Implementation of one of the area-based buffer zones would require between 54 and 182 acres of land. Using the fixed-width buffer alternatives, all areas along Fisherman's Lake are accorded the same level of protection regardless of whether sensitive species use a particular section. In other areas, particularly adjacent to historic nesting trees, the separation distance to developed areas may be minimal.

An area-based buffer zone is an alternative to address the limitations of the width-based buffers. Under this approach, a discrete acreage between 51 and 158 acres could be allocated for the buffer zone. The boundary of the buffer would be adjusted to optimize separation distances at critical areas along Fisherman's Lake. Less critical areas would have a narrower separation distance.

**TABLE 5-1
ACREAGE OF LANDS BY OWNER AND BUFFER AND BOUNDARY
ALTERNATIVE**

SOUTH OF DEL PASO ROAD				
Buffer Zone Width	RD 1000 Property	Tsakopoulos Property	RD 1000 Easement	Total
From City Limit				
250	25	21	8	54
800	25	125	8	158
From RD-1000 ROW ¹				
250	25	51	8	84
800	25	149	8	182

¹Note: These calculations include the 25 acres of RD-1000 property and the 8 acres of the RD-1000 easement located west of the RD-1000 ROW boundary to the City Limits.

6.0 RECOMMENDATIONS

6.1 Swainson's Hawk

Based on the review of literature, discussions with species experts, and analysis of past nesting success within the Natomas Basin, the distance between active nests and sources of disturbance is only one factor to be considered in protecting nesting activities. Other factors, such as presence of multiple alternative nesting trees, weather, screening from disturbance, distance to foraging habitat, presence of humans, prey base, and interspecific competition for nests, may be more critical than separation distance in nesting success.

Distance alone may be inadequate to maintain current nesting territories, or to induce new nesting activity along Fisherman's Lake if levels of disturbance and other edge effects increase. An 800-foot buffer would provide greater separation from existing nesting trees than a 250-foot buffer, but if unimproved, may not adequately restrict human intrusion into nesting areas. However, improving the buffer zone with vegetative screening and access restrictions will likely increase the efficacy of a buffer zone in maintaining Swainson's hawk nesting territories and periodic successful fledging of young hawks. The following measures are recommended to enhance the efficacy of the buffer zone:

First, rather than using an arbitrary geographical/political boundary, the buffer zone should be based on conditions that have resulted in successful nesting and fledging in the Natomas Basin. Consequently, a buffer should be a minimum of 300 feet in width, but based on the distance between the known nesting territories and the western edge of developed lots (see Section 4.3 above). Figures 2 and 3 depict a 300-foot buffer around known nesting trees. Preservation of lands along the west side of Fisherman's Lake by TNBC would provide foraging habitat for nesting pairs at Fisherman's Lake.

Second, for a buffer zone to be effective in preserving Swainson's hawk nesting habitat, it must provide screening between the nest and developed areas to protect against human disturbance. Consequently, the buffer zone should be planted with a mix of riparian trees and shrubs to increase the width of the existing riparian woodland along Fisherman's Lake. The plantings should be concentrated around the existing nest tree stands to increase screening, and to increase the source of potential nest trees as existing trees age and decline. A combination of Fremont cottonwood, valley oak, California black walnut, and Goodding's willow, which currently occur along Fisherman's Lake, would provide a mix of fast- and slow-growing species to balance the needs for expedited habitat maturation and long-term persistence. Dense thickets of native grape (*Vitis californica*), California blackberry (*Rubus ursinus*), western buttonbush, and possibly western poison-oak (*Toxicodendron diversilobum*) should be established to discourage human access to the riparian corridor and, specifically, the nesting trees. The plantings should be configured in a manner to reduce the edge-to-interior ratio in order to provide protection to other native species occurring in the riparian woodland. In this manner, the wooded portion of the buffer zone will be convoluted with the widest portion centered on the known nesting tree stands. The non-wooded portions of the buffer should be maintained as grasslands and shrublands, possibly elderberry savanna to enhance habitat of the VELB.

Third, in addition to visual screening, the buffer zone must restrict human access to the riparian community at least through the critical stages from nest building to hatching. As such, two sets of fencing are recommended. The first would be seven-foot high wood stockade fencing, block walls, or equivalent at the edge of residential development. A

secondary chain-link or wire fence should be installed immediately eastward of the RD 1000 access road. The buffer zone should also be posted to prohibit trespassing during critical nesting stages. Additional fencing and signage should be erected along the El Centro and Del Paso roads to restrict access from either end of the channel.

Fourth, no recreational trails or paths should be constructed within the buffer zone in the vicinity of nesting trees. Parking should be restricted along both El Centro and Del Paso roads during critical times of the breeding season to discourage access to Fisherman's Lake. Similarly, the RD 1000 parking area to the Fisherman's Lake access road along the north side of Del Paso Road should be gated during the breeding season to discourage access.

Fifth, because of the history of fire within the riparian community along Fisherman's Lake (J. Clifton, pers. comm., 2003), a defensible space between the edge of the riparian buffer and the residential lots may be required.

Sixth, additional trees should be established on lands along the west side of Fisherman's Lake, particularly near the southern end of Fisherman's Lake, to provide alternative nesting sites and to replace nesting trees lost in recent years. Widely scattered solitary trees or small stands are recommended in order to minimize loss of potential foraging habitat. Tree plantings should be avoided on GGS mitigation ponds on the TNBC lands in order not to provide perch sites for potential GGS predators (J. Roberts, TNBC, pers. comm., 2003).

6.2 Giant Garter Snake

The north end of Fisherman's Lake has been identified as the optimal site to enhance for GGS habitat. Planning is underway to construct habitat terraces along the west bank in order to create emergent marsh areas, which are suitable for escape cover, foraging, and basking and resting areas. Locating habitat terraces along the west side of the channel will permit access for maintenance operations along the east side access road (E. Hansen, pers. comm., 2003). The absence of a tree canopy or at least a discontinuous canopy along the east side of Fisherman's Lake along the northern segment (e.g., north of Del Paso Boulevard) would increase the functionality of the GGS habitat by allowing maximum morning insolation to promote basking.

Additionally, providing a grassland buffer along a portion of the northern segment within 200 feet of the GGS habitat terraces would provide potential areas for winter refugia in the event water levels in Fisherman's Lake flood retreat burrows along the banks.

The southern section of Fisherman's Lake has large areas of emergent marsh suitable for GGS habitat. This area is shaded by the riparian canopy, which reduces its value for basking. However, the channel segment downstream from the Plant 3 Canal confluence (where the channel turns eastward) is an area potentially suitable for GGS enhancement. Due to the north-south bank orientation and the absence of a tree canopy, the area could provide potential basking. Open grassland areas adjacent to the bank and above the level of winter flooding could provide potential upland over-wintering refugial habitat for GGS. These areas could be enhanced by creating mounds and berms for use by burrowing mammals to create GGS retreats.

6.3 Other Species.

Any increase in the overall area of habitat surrounding Fisherman's Lake provided by an improved buffer zone would be a net benefit to native species in Fisherman's Lake and the riparian woodland. This is due to increased habitat area potentially available for occupation, and a potential increase in habitat types (beta-diversity). Further, the overall widening of the habitat area would decrease the edge-to-interior ratio, which could reduce edge effects. Because of the isolated nature of the riparian habitat surrounding the West Drainage Canal north and south of Fisherman's Lake and other barriers (roads, culverts, etc.), a buffer would provide limited value as either a travel/dispersal corridor or habitat linkages to area beyond the West Drainage Canal.

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APPENDICES

APPENDIX A
Wildlife Species Observed or Reported Along Fisherman's Lake
Sacramento, California

FAMILY Common Name	Scientific Name	Protected Status	Habitat
FISHES			
CYPRINIDAE (Minnow Family)			
Hitch*	<i>Lavinia exilicauda</i>		OW
Golden shiner*	<i>Notemigonus crysoleucas</i>		OW
Carp*	<i>Cyprinus carpio</i>		OW
CATOSTOMIDAE (Sucker Family)			
Sacramento sucker*	<i>Catostomus occidentalis</i>		OW
ICTALURIDAE (Catfish Family)			
Black bullhead*	<i>Ameiurus melas</i>		OW
Brown bullhead*	<i>Ictalurus nebulosus</i>		OW
POECILIIDAE (Livebearer Family)			
Mosquitofish*	<i>Gambusia affinis</i>		OW
CENTRARCHIDAE (Sunfish Family)			
Bluegill*	<i>Lepomis macrochirus</i>		OW
White crappie	<i>Pomoxis annularis</i>		OW
Green sunfish*	<i>Lepomis cyanellus</i>		OW
Largemouth bass*	<i>Micropterus salmoides</i>		OW
AMPHIBIANS			
HYLIDAE (Tree Frogs)			
Pacific treefrog*	<i>Hyla regilla</i>		MC
RANIDAE (True Frogs)			
Bullfrog*	<i>Rana catesbeiana</i>		OW/PW
BUFONIDAE (True Toads)			
Western toad*	<i>Bufo boreas</i>		MC
REPTILES			
EMYDIDAE (Pond and Marsh Turtles)			
Redear slider	<i>Pseudemys scripta</i>		OW/PW
Southwestern pond turtle*	<i>Clemmys marmorata pallida</i>	FSC	OW/PW
IGUANIDAE (Iguanids)			
Western fence lizard	<i>Sceloporus occidentalis</i>		OF
ANGUIDAE (Alligator Lizards and Relatives)			
Southern alligator lizard	<i>Elgaria multicarinatus</i>		OF
COLUBRIDAE (Colubrids)			
Gopher snake	<i>Pituophis melanoleucus</i>		MC
Common kingsnake*	<i>Lampropeltis getulus</i>		MC
Common garter snake*	<i>Thamnophis sirtalis</i>		PW
Terrestrial garter snake*	<i>Thamnophis elegans</i>		PW
Giant garter snake	<i>Thamnophis gigas</i>	FT, ST	OW/PW
VIPERIDAE (Vipers)			
Western rattlesnake	<i>Crotalus viridis</i>		MC
BIRDS			
PODICIPEDIDAE (Grebes)			
Pied-billed grebe*	<i>Podilymbus podiceps</i>	M	OW/PW
PHALACROCORADIDAE (Cormorants)			
Double-crested cormorant	<i>Phalacrocorax auritus</i>	M, CSC	PW

APPENDIX A
Wildlife Species Observed or Reported Along Fisherman's Lake
Sacramento, California

FAMILY Common Name	Scientific Name	Protected Status	Habitat
ARDEIDAE (Hérons and Bitterns)			
American bittern	<i>Botaurus lentiginosus</i>		PW
Great blue heron	<i>Ardea herodias</i>	M	PW
Great egret	<i>Casmerodius albus</i>	M	PW
Snowy egret	<i>Egretta thula</i>	M	PW
Green heron	<i>Butorides striatus</i>	M	PW
ANATIDAE (Swans, Ducks, and Geese)			
Wood duck	<i>Aix sponsa</i>	M	OW/PW
Mallard	<i>Anas platyrhynchos</i>	M	OW/PW
Cinnamon teal	<i>Anas cyanoptera</i>	M	OW/PW
CATHARTIDAE (American vultures)			
Turkey vulture	<i>Cathartes aura</i>	M	MC
ACCIPITRIDAE (Hawks and Harriers)			
White-tailed kite	<i>Elanus leucurus</i>	M, FP	GR/SW
Northern harrier*	<i>Circus cyaneus</i>	M, CSC	GR/SW
Cooper's hawk	<i>Accipiter cooperii</i>	M, CSC	OF
Red-shouldered hawk	<i>Buteo lineatus</i>	M	CF
Swainson's hawk	<i>Buteo swainsoni</i>	M, CT	OF/CF
Red-tailed hawk	<i>Buteo jamaicensis</i>	M	OF/CF
FALCONIDAE (Falcons and Caracaras)			
American kestrel	<i>Falco sparverius</i>	M	MC
PHASIADAE (Quails and Pheasants)			
Ring-necked pheasant*	<i>Phasianus colchicus</i>		GR
California quail	<i>Cillipepla californica</i>		GR
RALLIDAE (Rails, Gallinules, and Coots)			
American coot*	<i>Fulica americana</i>	M	PW
Common moorhen	<i>Gallinula chloropus</i>	M	PW
CHARADRIIDAE (Plovers and Relatives)			
Killdeer	<i>Charadrius vociferus</i>	M	PW/SW
SCOLOPACIDAE (Sandpipers and Relatives)			
Greater yellowlegs*	<i>Tringa melanoleuca</i>	M	SW/GR
LARIDAE (Gulls and Terns)			
Ring-billed gull*	<i>Larus delawarensis</i>	M	PW
California gull*	<i>Larus californicus</i>	M, CSC	PW
COLUMBIDAE (Pigeons and Doves)			
Rock dove	<i>Columba livia</i>		MC
Mourning dove	<i>Zenaida macroura</i>	M	MC
TYTONIDAE (Barn Owls)			
Common barn owl	<i>Tyto alba</i>	M	MC
STRIGIDAE (Owls)			
Great horned owl	<i>Bubo virginianus</i>	M	MC
TROCHILIDAE (Hummingbirds)			
Anna's hummingbird	<i>Calypte anna</i>	M	MC
ALCEDINIDAE (Kingfishers)			
Belted kingfisher	<i>Ceryle alcyon</i>	M	PW

APPENDIX A
Wildlife Species Observed or Reported Along Fisherman's Lake
Sacramento, California

FAMILY Common Name	Scientific Name	Protected Status	Habitat
PICIDAE (Woodpeckers and Relatives)			
Acorn woodpecker	<i>Melanerpes formicivorus</i>	M	OF/CF
Nuttall's woodpecker	<i>Picoides nuttallii</i>	M, SLC	OF/CF
Northern flicker	<i>Colaptes auratus</i>	M	OF/CF
TYRANNIDAE (Tyrant Flycatchers)			
Black phoebe	<i>Sayornis nigricans</i>	M	PW/GR
Western kingbird	<i>Tyrannus verticalis</i>	M	GR
HIRUNDINIDAE (Swallows)			
Tree swallow*	<i>Tachycineta bicolor</i>	M	OF/CF
Cliff swallow	<i>Hirundo pyrrhonota</i>	M	MC
Barn swallow	<i>Hirundo rustica</i>	M	MC
CORVIDAE (Crows, Jays, and Magpies)			
California scrub-jay	<i>Aphelocoma californica</i>	M	MC
Yellow-billed magpie	<i>Pica nuttalli</i>	M	MC
American crow	<i>Corvus brachyrhynchos</i>	M	MC
PARIDAE (Titmice)			
Oak titmouse	<i>Baeolophus inornatus</i>	M, SLC	OF
AEGITHALIDAE (Bushtits)			
Bushtit	<i>Psaltirparus minimus</i>	M	OF/WS
SITTIDAE (Nuthatches)			
Red-breasted nuthatch	<i>Sitta canadensis</i>	M	OF/WS
TROGLODYTIDAE (Wrens)			
Bewick's wren	<i>Thryomanes bewickii</i>	M, FSC	CF/WS
House wren	<i>Troglodytes aedon</i>	M	OF/WS
Marsh wren	<i>Cistothorus palustris</i>	M	PW
MIMIDAE (Mockingbirds and Thrashers)			
Northern mockingbird	<i>Mimus polyglottos</i>	M	MC
MUSCICAPIDAE (Old World Warblers, Kinglets, Thrushes)			
Western bluebird*	<i>Sialia mexicana</i>	M	MC
American robin	<i>Turdus migratorius</i>	M	MC
MIMIDAE (Mockingbirds and Thrashers)			
Northern mockingbird	<i>Mimus polyglottos</i>	M	MC
LANIIDAE (Shrikes)			
Loggerhead shrike	<i>Lanius ludovicianus</i>	M, FSC, CSC	GR
STURNIDAE (Starlings)			
European starling	<i>Sturnus vulgaris</i>		MC
VIREONIDAE (Typical Vireos)			
Hutton's vireo*	<i>Vireo huttoni</i>	M	MC
EMBERIZIDAE (Wood Warblers, Sparrows, Blackbirds)			
Orange-crowned warbler	<i>Vermivora celata</i>	M	OF/WS
Yellow-rumped warbler	<i>Dendroica coronata</i>	M	MC
Common yellowthroat	<i>Geothlypis trichas</i>	M	
Spotted towhee	<i>Pipilo maculatus</i>	M	CF/OF
California towhee	<i>Pipilo crissalis</i>	M	GR/OF
Song sparrow*	<i>Melospiza melodia</i>	M	CF/WS
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>		

APPENDIX A
Wildlife Species Observed or Reported Along Fisherman's Lake
Sacramento, California

FAMILY Common Name	Scientific Name	Protected Status	Habitat
White-crowned sparrow*	<i>Zonotrichia leucophrys</i>	M	MC
Dark-eyed junco	<i>Junco hyemalis</i>	M	MC
Red-winged blackbird	<i>Agelaius phoeniceus</i>	M	PW/GR
Western meadowlark	<i>Sturnella neglecta</i>	M	GR
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	M	MC
Northern oriole	<i>Icterus galbula</i>	M	OF
FRINGILLIDAE (Finches)			
House finch	<i>Carpodacus mexicanus</i>	M	MC
American goldfinch	<i>Carduelis tristis</i>	M	GR/WS
PASSERIDAE (Weaver Finches)			
House sparrow	<i>Passer domesticus</i>		MC
MAMMALS			
DIDELPHIDAE (Opossums)			
Virginia opossum*	<i>Didelphis virginiana</i>		MC
TALPIDAE (Moles and Relatives)			
Broad-footed mole	<i>Scapanus latimanus</i>		GR
LEPORIDAE (Rabbits and Hares)			
Desert cottontail	<i>Sylvilagus auduboni</i>		GR
Black-tailed hare	<i>Lepus californicus</i>		GR
SCIURIDAE (Squirrels)			
California ground squirrel	<i>Spermophilus beecheyi</i>		MC
Western gray squirrel	<i>Sciurus griseus</i>		OF/CF
Fox squirrel	<i>Sciurus niger</i>		OF/CF
GEOMYIDAE (Pocket Gophers)			
Boita's pocket gopher	<i>Thomomys bottae</i>		MC
CRICETIDAE (Deer Mice, Voles, and Relatives)			
Deer mouse	<i>Peromyscus maniculatus</i>		MC
California vole	<i>Microtus californicus</i>		GR
Muskrat	<i>Ondatra zibethicus</i>		PW
MURIDAE (Old World Mice and Rats)			
House mouse*	<i>Mus musculus</i>		MC
CANIDAE (Foxes, Wolves, and Relatives)			
Coyote	<i>Canis latrans</i>		MC
Gray fox*	<i>Urocyon cinereoargenteus</i>		MC
PROCYONIDAE (Raccoons and Relatives)			
Raccoon	<i>Procyon lotor</i>		MC
MUSTELIDAE (Weasels, Badgers, and Relatives)			
Striped skunk	<i>Mephitis mephitis</i>		MC
FELIDAE (Cats)			
Domestic cat	<i>Felis catus</i>		MC

*Reported in previous studies (City of Sacramento, 1995)

¹Protected Status Codes¹:

FE	Animals listed as Endangered under the Federal Endangered Species Act (FESA).
PFE	Animal proposed for listing as Endangered under the FESA.
FT	Animals listed as Threatened under the FESA.
PFT	Animals proposed for listings as Threatened under the FESA.
FC	Animals that are Candidates for possible future listing as Threatened or Endangered under the FESA.
FSC	Animals that are Species of Concern designated by the U.S. Fish and Wildlife Service.
SE	Animals listed as Endangered under the California Endangered Species Act (CESA).
PSE	Animals proposed for listing as Endangered under the CESA.
ST	Animals listed as Threatened under the CESA.
PST	Animals proposed for listing as Threatened under the CESA.
CSS	Animal Species of Special Concern listed by CDFG (Remsen, 1978; Williams, 1986; Moyle et al. (1993); and, Jennings and Hayes (1994).
M	Bird species protected under the federal Migratory Bird Treaty Act
SLC	Species of Local Concern
FP	Animal species that are Fully Protected (FP) by the State of California.
CEQA	Animals and plants that meet the definitions of rare or endangered under the California Environmental Quality Act.

Habitat²

CF – Great Valley Cottonwood Forest	GR – Non-native Grassland/Ruderal Lands
LO – Landscape/Ornamental Plantings	OF – Great Valley Valley Oak Forest
DV – Developed Lands	PW – Permanent Wetland
SW – Seasonal Wetland	WS – Great Valley Willow Scrub
MC – Multiple Covers	OW – Open Water

April 2003

Final Natomas Basin Habitat Conservation Plan



Volume 1

prepared by

City of Sacramento

Sutter County

Natomas Basin Conservancy

in association with

Reclamation District No. 1000

Natomas Central Mutual Water Company

prepared for

United States Fish and Wildlife Service
California Department of Fish and Game

V. TAKE AVOIDANCE, MINIMIZATION AND MITIGATION

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

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

A. LAND USE AGENCIES' CONSERVATION MEASURES

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

1. Pre-Construction Surveys

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

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

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

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

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

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

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

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

3. General Measures to Minimize Take

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

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

4. Measures to Minimize Take of Vernal Pool Species

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

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

a. General Biological Survey and Information Required.

In the event a biological reconnaissance survey or the pre-construction survey identifies that vernal pool resources are on-site, a vernal pool species specific biological assessment must be provided by the developer to the Land Use Agency during the appropriate season (as established by USFWS) to determine the type and abundance of species present. The species specific biological assessment must include a USFWS-approved plant survey prepared by a qualified field biologist and shall list the methods of field analysis, condition of habitat, size and acreage of direct and indirect impact (as defined by seasonal inundation and hydric soils and other appropriate characteristics), and species present. The biological species survey shall cover all vernal pools, swales, and other seasonal wetlands capable of supporting vernal pool species within 250 feet of project activities, and shall identify both potential direct and indirect effects of the development. Standards for the survey shall be in accordance with the USFWS Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods (April 19, 1996) or the most recent approved USFWS survey guidelines for vernal pool species (Appendix L). This assessment must be submitted with the urban development permit application and prior to approval of an Urban Development Permit by the Land Use Agency.

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

- (1) Where site investigations indicate vernal pool species may occur, the developer shall notify the Land Use Agency regarding the potential for impacts to vernal pool species. Such notification shall include biological data (see Section (a) above regarding biological information required) adequate to allow the Land Use Agency, and the USFWS and CDFG to determine the potential for impacts to vernal pool species resulting from the proposed development.
- (2) Following notification by the Land Use Agency, USFWS and CDFG shall identify specific measures required to avoid, minimize and mitigate impacts to vernal pool species to be implemented prior to disturbance and in accordance with adopted standards or established guidelines (e.g., the USFWS programmatic biological opinion for vernal pool species attached as Appendix G as it may be amended from time to time). If vernal pool species are found within proposed project areas, the project proponent shall coordinate with the USFWS and CDFG to ensure conservation measures are incorporated to avoid and protect the sensitive plant species. In some cases, USFWS and CDFG may require complete avoidance of vernal pool species, such as where Covered Species such as slender orcutt grass, Sacramento orcutt grass, Colusa grass and/or vernal pool tadpole shrimp are found to be present. Such measures shall be identified by USFWS and CDFG

within 30 days or as soon as possible thereafter of notification and submittal of biological data to the agencies by the Land Use Agency.

- (3) The requirement by USFWS to preserve a vernal pool within development would be based on identification of an intact vernal pool with minimal disturbance where the presence of one or more of the following species is recorded: slender orcutt grass, Sacramento orcutt grass, Colusa grass, or vernal pool tadpole shrimp.

Prior to requiring on-site preservation of a vernal pool area, USFWS shall consider the suitability of the vernal pool as TNBC Mitigation Lands. No such preservation requirement shall be made unless the vernal pool is a suitable site for TNBC Mitigation Lands. Such vernal pool areas, including any required buffer land dedication, shall apply toward the Land Acquisition Fee component of the development project's NBHCP mitigation obligation.

- b. Mitigation Strategies: Vernal pool resources identified through site specific investigations shall be mitigated in one of three general approaches as described below.

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

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

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

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

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

- (a) No grading, development or modification of the vernal pool site or the buffer area extending 250 feet around the perimeter of the vernal pool site may occur during the vernal pool "wet" season as identified by USFWS. Protective fencing shall be established around the perimeter of the vernal pool site and the buffer area during the vernal pool wet season.
- (b) In consultation with TNBC and the TAC, soils and cysts from the vernal pool may be relocated as soon as practicable during the dry season to a suitable TNBC or other reserve site provided the relocation/recreation site is approved by TNBC, and the USFWS.

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

(3) Payment Into a USFWS Approved Conservation Bank.

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

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

**TABLE V-1
MITIGATION RATIOS**

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

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

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

5. Measures to Reduce Take for Individual Species

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

a. Measures to Reduce Take of Giant Garter Snake

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

- (4) For sites that contain giant garter snake habitat, no more than 24-hours prior to start of construction activities (site preparation and/or grading), the project area shall be surveyed for the presence of giant garter snake. If construction activities stop on the project site for a period of two weeks or more, a new giant garter snake survey shall be completed no more than 24-hours prior to the re-start of construction activities.
- (5) Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project as Environmentally Sensitive Areas. This area shall be avoided by all construction personnel.
- (6) Construction personnel completing site preparation and grading operations shall receive USFWS approved environmental awareness training. This training instructs workers on how to identify giant garter snakes and their habitats, and what to do if a giant garter snake is encountered during construction activities. During this training an on-site biological monitor shall be designated.
- (7) If a live giant garter snake is found during construction activities, immediately notify the USFWS and the project's biological monitor. The biological monitor, or his/her assignee, shall do the following:
 - (a) Stop construction in the vicinity of the snake. Monitor the snake and allow the snake to leave on its own. The monitor shall remain in the area for the remainder of the work day to make sure the snake is not harmed or if it leaves the site, does not return. Escape routes for giant garter snake should be determined in advance of construction and snakes should always be allowed to leave on their own. If a giant garter snake does not leave on its own within 1 working day, further consultation with USFWS is required.
- (8) Upon locating dead, injured or sick threatened or endangered wildlife species, the Permittees or their designated agents must notify within 1 working day the Service's Division of Law Enforcement (2800 Cottage Way, Sacramento CA 95825) or the Sacramento Fish and Wildlife Office (2800 Cottage Way, Room W-2605, Sacramento, CA 95825, telephone 916 414-6600). Written notification to both offices must be made within 3 calendar days and must include the date, time, and location of the finding of a specimen and any other pertinent information.
- (9) Fill or construction debris may be used by giant garter snake as an over-wintering site. Therefore, upon completion of construction activities remove any temporary fill and/or construction debris from the site. If this material is situated near undisturbed giant garter snake habitat and it is to be removed between October 1 and April 30, it shall be

inspected by a qualified biologist to assure that giant garter snake are not using it as hibernaculae.

- (10) No plastic, monofilament, jute, or similar erosion control matting that could entangle snakes will be placed on a project site when working within 200 feet of snake aquatic or rice habitat. Possible substitutions include coconut coir matting, tactified hydroseeding compounds, or other material approved by the Wildlife Agencies.
- (11) Fences will be constructed along the shared boundary of urban development and the North Drainage Canal and the East Drainage Canal within Sutter's Permit Area, subject to the following guidelines:
 - (a) A minimum of 100 feet will be provided from fence-to-fence and access to the canals shall be limited by gates.
 - (b) A snake deterrent will be placed along the fences on the North Drainage Canal and the East Drainage Canal (i.e., fence construction that restricts snake movement or an appropriate vegetative barrier either inside or outside of the boundary fence). The design of the deterrent shall be subject to approval by the Wildlife Agencies.
 - (c) The specific fence/snake barrier design adjacent to a given development will be determined within Sutter County's review of the proposed development and the fence/barrier shall be installed immediately after site grading is completed.
- (12) At the time of urban development along the North and East Drainage Canals, Sutter shall consult with the Wildlife Agencies to determine design strategies that would enhance conditions for giant garter snake movement through the North and East Drainage Canals. Possible strategies may include expanded buffer areas and modified canal cross sections if such measures are, in the determination of Sutter and the Water Agencies, found to be feasible.

b. Measures to Reduce Take of Swainson's Hawk

Measures to Reduce Cumulative Impacts to Foraging Habitat

- (1) To maintain and promote Swainson's hawk habitat values, Sutter County will not obtain coverage under the NBHCP and incidental take permits, nor will Sutter County grant Urban Development Permit approvals, for development on land within the one-mile wide Swainson's Hawk Zone adjacent to the Sacramento River. The City of Sacramento has

limited its Permit Area within the Swainson's Hawk Zone to the approximately 252 acres located within the North Natomas Community Plan that was designated for urban development in 1994 and, likewise, will not grant development approvals within the Swainson's Hawk Zone beyond this designated 252 acres. It should be noted that of these 252 acres of land in the Swainson's Hawk Zone, about 80 acres will be a 250 foot wide agricultural buffer along the City's side of Fisherman's Lake. Should either the City or the County seek to expand NBHCP coverage for development within the Swainson's Hawk Zone beyond that described above, granting of such coverage would require an amendment to the NBHCP and permits and would be subject to review and approval by the USFWS and the CDFG in accordance with all applicable statutory and regulatory requirements.

Because the effectiveness of the NBHCP's Operating Conservation Program (OCP) adequately minimizes and mitigates the effects of take of the Swainson's hawk depends substantially on the exclusion of future urban development from the City's and Sutter County's portion of the Swainson's Hawk Zone, approval by the City of future urban development (i.e., uses not consistent with Agricultural Zoning) in the zone beyond the 170 (252 acres minus 80) acres identified above or approval by Sutter of any future urban development in the Swainson's Hawk Zone would constitute a significant departure from the Plan's OCP and would trigger a reevaluation of the City's and/or Sutter's Permits and possible suspension or revocation of the City's and/or County's permits.

Measures to Reduce Nest Disturbance

- (1) Prior to the commencement of development activities at any development site within the NBHCP area, a pre-construction survey shall be completed by the respective developer to determine whether any Swainson's hawk nest trees will be removed on-site, or active Swainson's hawk nest sites occur on or within ½ mile of the development site. These surveys shall be conducted according to the Swainson's Hawk Technical Advisory Committee's (May 31, 2000) methodology or updated methodologies, as approved by the Service and CDFG, using experienced Swainson's hawk surveyors.
- (2) If breeding Swainson's hawks (i.e. exhibiting nest building or nesting behavior) are identified, no new disturbances (e.g., heavy equipment operation associated with construction) will occur within ½ mile of an active nest between March 15 and September 15, or until a qualified biologist, with concurrence by CDFG, has determined that young have fledged or that the nest is no longer occupied. If the active nest site is located within 1/4 mile of existing urban development, the no new disturbance zone can be limited to the 1/4 mile versus ½ mile. Routine disturbances such as agricultural activities, commuter traffic, and routine facility maintenance activities within ½ mile of an active nest are not restricted.

RECEIVED

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December 2, 2002

SENT VIA FACSIMILE and U. S. MAIL

Wayne White, Field Supervisor
United States Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, California 95825
Facsimile: (916) 414-6711

Re: Comments on Draft Natomas Basin Habitat Conservation Plan and EIR/EIS

Dear Mr. White:

We provide these comments on the Draft Natomas Basin Habitat Conservation Plan ("Draft NBHCP") and Draft Environmental Impact Report/Environmental Impact Statement ("Draft EIR/EIS") on behalf of AKT Development. Currently, the City of Sacramento is processing an EIR for AKT's West Lakeside project. West Lakeside is located just outside the City limits and the area covered by the North Natomas Community Plan ("NNCP"), north of Del Paso Road. AKT is seeking to annex the area to the City.

112-1

We are concerned that the Draft NBHCP appears to be making land use determinations that are not supported by biological principles. For instance, we are concerned that the Draft NBHCP unnecessarily caps development in the City at levels adopted in 1994, without providing a biological rationale. Such an approach will likely hinder the City's land use planning. We believe that an HCP that contemplates current and reasonably foreseeable planning will provide greater administrative efficiency, resulting in better protection for special status species.

112-2

The Draft NBHCP acknowledges that habitat value will vary throughout the basin. One of the underlying principles for establishing the Draft NBHCP's mitigation ratio is that the habitat value of the land preserved will exceed the habitat value of the

Wayne White, Field Supervisor
December 2, 2002
Page 2

112-2 land developed. This principle does not cease to apply above a certain acreage of development. From a biological perspective, therefore, there is no difference between a level of development contemplated in the 1994 NNCP and other development currently in the planning process. Nor is this approach necessary to satisfy the ruling in *National Wildlife Federation v. Babbitt*.

112-3 We are also concerned that the Draft NBHCP arbitrarily limits the City's ability to annex. The Draft NBHCP does not purport to establish which lands can be developed, but specifically states that annexation of West Lakeside would trigger the need to amend the permit. The amendment would be necessary even if development of West Lakeside would not exceed the City's development quota.¹ Other areas can be annexed without triggering the need for an amendment to the NBHCP.

112-4 AKT Development has been working with the City on the West Lakeside project for years. Additionally, West Lakeside is located within the City's sphere of influence in the draft of the City's General Plan Amendment and Comprehensive Annexation Plan. We acknowledge that the City's take permit would have to be amended upon annexation of West Lakeside. Alternatively, AKT may obtain an incidental take permit through the Section 7 consultation process. However, we believe the Draft NBHCP should be flexible enough to include West Lakeside within the City's take permit without the additional administrative hurdles contemplated by the current Draft NBHCP.

112-5 Land use agencies must retain the ability to amend their land use plans. By capping the number of acres that can be developed in each jurisdiction and hindering future annexations, the Draft NBHCP infringes on this ability.

112-6 We also have noticed a few areas of the Draft NBHCP that need clarification. First, the Draft NBHCP repeatedly notes the existence of a 250-foot buffer along Fisherman's Lake established by the NNCP. This is inaccurate. While the NNCP established a 250-foot buffer along the north edge of the plan, the buffer along the western edge, including Fisherman's Lake is 200 feet.

112-7 Additionally, the Draft NBHCP makes reference to a "Swainson's hawk zone" ("SHZ") along the Sacramento River. While the City's draft General Plan Amendment

¹ Furthermore, the Draft NBHCP arbitrarily establishes that an amendment, as opposed to a revision, would be required upon annexation without any biological evidence that annexation would affect species in a significant way.

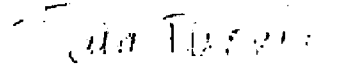
Wayne White, Field Supervisor
December 2, 2002
Page 3

112-7

and Comprehensive Annexation Plan indicates an interest in establishing a 1-mile wide corridor along the Sacramento River, such a SHZ has not yet been established by City planning. The Draft NBHCP should be updated to address these clarifications.

AKT Development hopes to work cooperatively with the wildlife agencies throughout the processing of its application to annex into the City, and ultimately, to be included in the NBHCP. Thank you for considering these comments.

Very truly yours,


Tina A. Thomas

cc: Vicki Campbell, Chief, Conservation Planning Division, U.S. Fish & Wildlife Office
Tom Hutchings, Director, Sacramento County Planning Department
Gary Stonehouse, Director, Sacramento City Planning Department
Carol Shearly, Natomas Unit Manager, Sacramento City Planning Department

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between two incorporated, developed areas of the City. If or when the City approves an annexation that is not addressed in the NBHCP, the area to be annexed must comply with all state and federal regulations, including CEQA, NEPA, CESA, and ESA.

Response to Comment I12-4

The West Lakeside project is discussed under Master Response 4 (Cumulative Impacts), including its status relative to the General Plan Amendment and Comprehensive Annexation Program. In addition, also see Master Response 3 (Joint Vision) and I12-6 below.

Response to Comment I12-5

The NBHCP does not cap the number of acres that can be developed, and the Land Use Agencies have not abdicated their land use authority (see Response to Comment I13-11 for additional information). Also see Master Response 3 (Joint Vision) for a discussion of how future annexations would be considered consistent with federal, state, and local laws.

Response to Comment I12-6

The West Lakeside project is located outside the City limits, north of Del Paso Road and on the east side of the portion of the West Drain known as Fisherman's Lake. Because the area is not a part of the North Natomas Community Plan area and therefore not subject to the requirements of the NNCP, it is not known what the relationship of the project area and the agricultural buffer is to be at this time. However, it is expected that a similar relationship would exist between the project area and Fisherman's Lake as the urban project area south of Del Paso Road and Fisherman's Lake when/ if the West Lakeside area is annexed into the City.

In an Inter Office Memo dated May 30, 2002, William Carnazzo, Chief Assistant City Attorney, completed a document search of all relevant North Natomas documents related to the width of the agricultural buffer along the western side of the North Natomas Community Plan area, including Fisherman's Lake. In his memo, Mr. Carnazzo concluded that "the governing documents are the various editions of the community plan, where references to the westerly buffer width consistently specify 200 feet." One of the obligations of the 2001 Settlement Agreement related to the 1997 NBHCP federal litigation required the City to initiate a North Natomas Financing Plan amendment to widen the westerly agricultural buffer from 200 feet to 250 feet "to be consistent with the Mitigation Monitoring Plan of the NNCP." Such an amendment of the Financing Plan was completed in June 2002. The other conclusion reached by Mr. Carnazzo's memo is that the agricultural buffer starts at the City limits (the western edge of the Permit Area), approximately the centerline of Fisherman's Lake. References to the 250-foot-wide buffer in the NBHCP and EIR/EIS will be clarified to be consistent with the opinion of the Chief Assistant City Attorney.

Response to Comment I12-7

The 1997 NBHCP established a one-mile Swainson's Hawk Zone along the Sacramento River (p. IV-26 of the 1997 NBHCP). The 1997 NBHCP was drafted with the anticipation that Sacramento County would also be using the HCP as the basis upon which to seek an incidental take permit. The County did not seek such a permit in 1997, nor has it indicated it is seeking take coverage outside the MAP area.

interoffice

MEMORANDUM

to: Carol Shearly, Natomas Manager Thomas Lee, Deputy City Manager
cc: Karen Diepenbrock, Attorney at Law
from: William P. Carnazzo
re: Width/Location of Agricultural Buffer on Westerly Edge of the NNCP Area
date: July 16, 2002

I have completed review of the relevant North Natomas documents possibly containing references to the agricultural buffer along the westerly edge of the NNCP area—and in particular, along that portion of the West Drainage Canal known as “Fisherman's Lake”.

My review included the following documents:

1. Draft EIR, North Natomas Comprehensive Drainage Plan (December, 1996).
2. Final EIR, North Natomas Comprehensive Drainage Plan (March, 1997).
3. 1986 North Natomas Community Plan.
4. Draft EIR, 1986 North Natomas Community Plan.
5. Final EIR, 1986 North Natomas Community Plan.
6. Findings and Statements of Overriding Considerations, 1986 North Natomas Community Plan.
7. 1994 North Natomas Community Plan.
8. Supplement to the 1986 North Natomas EIR.
9. Findings and Statements of Overriding Considerations, 1994 North Natomas Community Plan.
10. Mitigation Monitoring Plan, 1994 North Natomas Community Plan.
11. Natomas Basin HCP (1997).
12. Implementation Agreement, Natomas Basin HCP (1997).
13. 1994 North Natomas Finance Plan.
14. Nexus Study, 1994 North Natomas Finance Plan.
15. 1999 North Natomas Finance Plan Update.
16. Nexus Study, 1997 North Natomas Finance Plan Update.
17. 1986 North Natomas Settlement Agreement.
18. 2001 North Natomas Settlement Agreement.

from the desk of...

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The results of my inquiry are set forth below. I have attached a copy of all pages excerpted from the various documents.

A. **Documents having no relevant references to the buffer.** The following documents contain no relevant reference to the buffer:

1. The Draft and Final EIRs for the Comprehensive Drainage Project.
2. The Natomas Basin HCP and Implementation Agreement.
3. The 1994 North Natomas Finance Plan and Nexus Study.
4. The 1999 North Natomas Finance Plan Nexus Study.
5. The 1985 North Natomas Settlement Agreement.

B. **Documents containing references to the location and/or width of the buffer.**

1. **1986 NNCP.**

- a. Figure 3. This map shows the westerly buffer located to the east of Fisherman's Lake. The map is not helpful as it is a schematic of poor quality.
- b. Page 12, Table 2. The "greenbelt" is listed as 770 net acres. The pertinent footnote states: "Refers to greenbelt abutting agriculture on the norther and western borders of the incorporated study area."
- c. Page 59. A policy statement is made: "To create a strong edge between the community and adjacent areas of permanent agriculture, develop a greenbelt along the norther and wester boundaries of the incorporated portion of the planning area."
- d. Page 103. The page 59 policy statement is repeated. Another policy statement is made: "The greenbelt will average in width 500 feet to separate residential and agricultural uses."
- e. Page 116. A statement is made regarding the source of the 500 foot width: "According to information from the County Agricultural Commissioner, a buffer of 500 feet in width will meet this objective."

2. **1986 NNCP Draft EIR.**

- a. Exhibit A-14. This is a spreadsheet showing the greenbelt area associated with a variety of alternatives and positions. The relevant footnote states: "Refers to greenbelt abutting agriculture on the norther and western borders of the incorporated study area."
- b. Exhibit A-20. Another spreadsheet depicting greenbelt area associated with 5 alternatives. The relevant footnote is the same as the previously mentioned note.
- c. Exhibit A-21. This is a land use map for Alternative A (no project), which shows a buffer on the east side of the westerly city boundary, in the vicinity of Fisherman's Lake.
- d. Page D-53. There is a discussion of the relative benefits of buffers and their management.

- e. Page D-57. There is a discussion of the need for buffers.
 - f. Page H-48. There is a discussion of buffers in general, and a reference to them as "land abutting agriculture on the northern and western borders of the incorporated study area."
 - g. Page L-78. There is a statement that: "Criteria for determining the width and use limitations of the buffer area include compatible low intensity, uninhabited uses such as open space/recreation or public utility uses."
3. **1986 NNCP Final EIR.**
- a. Page 221. There is a general discussion of the buffers in a response to a comment.
4. **1986 Findings and Statement of Overriding Considerations.**
- a. Page 105. Open space buffers are proposed as a mitigation measure "where the Study Area is contiguous to agricultural lands."
 - b. Page 183. The following statement is made: "The buffer area should be wide enough to effectively separate the conflicting land uses and should only contain compatible non-agricultural uses. According to information from the County Agricultural Commissioner, a buffer of 500 feet in width will meet this objective. Inclusion of drainage canals, freeways, arterierial streets, utility corridors, etc., could lower the net acreage that would be needed in the buffer areas."
5. **1994 NNCP.**
- a. Page 10. Table 1 contains a reference to "Ag and Fwy Buffers", listing the acreage as 320.9. Regarding the agricultural buffers, footnote 5 states: "Refers to ag buffers on the N and W borders of the study, but not ag land."
 - b. Page 11. Table 2 is similar to Table 1, with the same footnote.
 - c. Page 52. There is a statement that "Open Space includes agricultural buffer areas along the north and west boundaries of the plan area."
 - d. Page 53. Table 13 shows Agricultural Buffer at 195.9 acres. Footnote 5 states: "Includes acreage along west and north boundaries of the plan used to buffer the agricultural uses from the urban uses."
 - e. Page 55. Figure 14 depicts a buffer along the westerly edge of the NNCP area, of undetermined width. Although the map is a schematic, the buffer appears to be located inside of the city limit, east of the West Canal.
 - f. Page 58. There is a policy statement regarding creation of linear open space to buffer agricultural lands.
 - g. Page 59. There is a statement that: "The buffer along the west side of the plan area is 200 feet wide and allows the same uses as the northern buffer."
 - h. Page 82. There are the following statements: "Develop a greenbelt along the northern and western boundaries of the planning area..";

and "The greenbelt will be a minimum of 250 feet in width, not including the Elkhorn Boulevard right of way and irrigation canals and maintenance roads on the north side of Elkhorn, which brings the total width to 500+/- feet." **Observation: this statement is ambiguous. It is not possible to tell whether the 250 feet width refers only to the northern buffer or is intended to refer to both the northern buffer and the western buffer.**

5. **Supplement to the 1986 NNCP EIR.**

- i. Page 2.0-5. Mention is made of the use of the buffer as open space.
- j. Appendix A, page 10. This is a chart showing the buffer to be 320.9 acres (net), with a footnote similar to those quoted above.
- k. Appendix A, page 55. Figure 14 depicts the buffer as being along the westerly city boundary near Fisherman's Lake. It is shown inside the city limit, to the east of the West Canal.
- l. Appendix A, page 58. The buffer is described as 200 feet in width.
- m. Appendix A, page 821. The same ambiguous statement is made (see 4.h. above).

6. **Final Supplement to the 1986 NNCP EIR.**

- a. Page 2. There is a statement in a comment letter that "Many communities have considered 300 feet as a sufficient buffer...."
- b. "Letter 2." In a response to a letter from the Department of Conservation, the following statement is made: "The buffer along the west side of the plan area is 200 feet wide and allows the same uses as the northern buffer."

7. **1994 Findings and Statement of Overriding Considerations.**

- a. Page 13. The statement is made that "These measure require the use of a greenbelt along the northern and western boundaries of the Project area to create a strong edge between the community and adjacent areas of permanent agriculture. This greenbelt must be a minimum of 250 ft. in width, not including the Elkhorn Boulevard right-of-way." **[Observation: these two sentences, when taken together, are ambiguous. The first sentence relates to both buffers, and by itself is clear. The second sentence could be interpreted as applying only to the Elkhorn buffer, but could also mean that both buffers are to be 250 feet in width. This conflicts with previous statements that the west side buffer is to be 200 feet in width.]**

8. **1994 Mitigation Monitoring Plan.**

- a. Page 2. The statements quoted in 7.a. above are repeated here.

9. **1993 Draft NNCP.** This draft plan was not adopted. The following statement

appears on page 58: "The plan calls for an agricultural buffer along the north and west boundaries of the plan area. The north buffer along Elkhorn Boulevard includes a 250 foot wide strip of land along the south side of Elkhorn Boulevard, the 136 foot wide public right-of-way of Elkhorn Boulevard, and any maintenance road or irrigation canal on the north side of Elkhorn Boulevard....The buffer along the west side of the plan area is 200 feet wide and allows the same uses as the northern buffer."

10. **Land Use Map Attached to 1994 NNCP.** This map depicts the westerly buffer as a 38.8 acre strip commencing at the easterly edge of the West Drain. There is no explanation as to why it commences at that point, as opposed to the center of the canal which is the city boundary.
11. **1999 North Natomas Financing Plan.**
 - a. Figures I-4 and IV-2. These figures show the "Ag and Freeway Buffers" as acquisitions under the "Public Facilities Land Acquisition Fee."
 - b. Page IV-18. Agricultural buffers are named as part of the public land to be acquired under the Land Acquisition Program and Fees.
 - c. Page V-1. In the introduction, buffers are named as being part of the land acquisition program.
 - d. Page V-3. The statement is made that "Open space and land buffers are required throughout the area along the I-5 and I-80 freeways, as habitat buffers along Fisherman's Lake, as a buffer to agricultural land along the south side of Elkhorn Boulevard and open space along the western City limits. [Observation: this statement is somewhat inaccurate in its depiction of the nature of the buffers.]
 - e. Page V-5, figure V-1. This map appears to depict the westerly buffer as beginning at the city limit line. However, the map is not intended to be precise; rather, it is illustrative only and relates to financing plan issues.
 - f. Page V-6, Figure V-2. This chart includes 105.2 acres of agricultural buffer in the estimates of land acquisition cost.
 - g. Page F-1, figure F-1. This chart includes 85.75 acres of agricultural buffer. There is no explanation of the acreage difference between this chart and Figure V-2.
11. **2001 HCP Litigation Settlement.** On page 12, the following statement is made: "City agrees to initiate (1) an amendment to the NNFP to provide for the acquisition of an expanded buffer of 250 feet (i.e., 50-foot increase along the East side of Fisherman's Lake (to be consistent with the Mitigation Monitoring Plan for the North Natomas Community Plan)...."

C. **Conclusions.** Based on the above information, it is reasonable to conclude:

1. As to the location of the westerly buffer, virtually all text references specify that is to be located "along the westerly edge" of the plan area. The 1994 NNCP map places it at the easterly edge of the West Drain, without explanation. Other diagrams, although fuzzy and poorly drawn, appear to place the buffer at the westerly edge of the West Drain, again without explanation. The latter location does not appear reasonable, as it would amount to the city dictating land use outside of its jurisdictional boundary. The 1994 map conflicts with the uniform references found in the text of the various documents reviewed. The most logical location appears to be to the middle of the West Drain, since that is the city boundary and comports with the text references placing the buffer "along" the westerly edge of the plan area—which would be the city boundary.
2. As to the size of the westerly buffer, the ambiguities outlined above create an issue as to whether the buffer is 200 feet or 250 feet in width. While the settlement agreement appears to require processing of a plan amendment to settle the issue, the governing documents trump implementation documents if they conflict. The governing documents are the various editions of the community plan, where references to the westerly buffer width consistently specify 200 feet. The ambiguity found in the implementation documents (the findings and the MMP), which lump the Elkhorn and westerly buffers together at 250 feet each, stemmed from an erroneous reading of the community plan by staff and/or consultants.

AGREEMENT TO SETTLE LITIGATION

BY AND BETWEEN

**NATIONAL WILDLIFE FEDERATION
ENVIRONMENTAL COUNCIL OF SACRAMENTO
FRIENDS OF THE SWAINSON'S HAWK
MOUNTAIN LION FOUNDATION
PLANNING AND CONSERVATION LEAGUE
SIERRA CLUB**

CITY OF SACRAMENTO

**NATOMAS ESTATES, LLC
KERN SCHUMACHER**

MAY 10, 2001

AGREEMENT TO SETTLE LITIGATION

THIS AGREEMENT TO SETTLE LITIGATION (the "Agreement") is entered into as of May 10, 2001 (the "Effective Date"), by and among National Wildlife Federation, Environmental Council of Sacramento, Friends of the Swainson's Hawk, Mountain Lion Foundation, Planning and Conservation League, and Sierra Club (collectively, "Plaintiffs"), the City of Sacramento, a municipal corporation ("City"), and Natomas Estates, LLC, successor in interest to Kaufman & Broad of Sacramento, Inc., and Kern Schumacher (collectively, "Intervenor-Developers"). The City and Intervenor-Developers are referred to collectively below as "Respondents." Plaintiffs, City and Intervenor-Developers are referred to collectively below as "Parties."

RECITALS

A. On December 31, 1997, the U.S. Fish and Wildlife Service ("Service") issued to City an incidental take permit (the "ITP" or "Original ITP") pursuant to Section 10 of the Federal Endangered Species Act, 16 U.S.C. § 1531 *et seq.* ("FESA"), which ITP authorized the take of certain federally-protected species, including the giant garter snake ("GGS"), in accordance with that certain habitat conservation plan commonly known as the Natomas Basin Habitat Conservation Plan, dated November 1997 (the "NBHCP" or "Original NBHCP"). The City had applied for the ITP, based upon the Original NBHCP, to facilitate the development of the North Natomas area as set forth in its 1994 North Natomas Community Plan ("NNCP") and in partial satisfaction of the requirements of the Clean Water Act Section 404 permit issued by the United States Army Corps of Engineers to the Sacramento Area Flood Control Agency ("SAFCA"), as modified, to allow certain flood control improvements within the Natomas Basin.

B. Prior to its issuance of the ITP, the Service prepared, adopted, issued or entered into (a) an environmental assessment ("EA") pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 *et seq.* ("NEPA"), to evaluate, among other things, the environmental impacts of activities occurring under the ITP and a "Finding of No Significant Impact" ("FONSI") concluding that issuance of the ITP would not result in significant environmental

impacts; (b) a biological opinion, issued December 17, 1997 ("BO") pursuant to Section 7 of FESA, concluding that issuance of the ITP would not likely jeopardize the continued existence of GGS or other species covered by the ITP; (c) findings that issuance of the ITP met the standards of Section 10(a)(2)(B) of FESA; and (d) an Implementation Agreement, dated December 8, 1997 (the "IA"), by and among the Service, City, the California Department of Fish and Game ("CDFG") and the Natomas Basin Conservancy (the "NBC"), pursuant to which the terms and conditions of the Original NBHCP would thereafter be carried out.

C. On December 31, 1997, CDFG issued to City a Management Authorization pursuant to Section 2081 of the California Fish and Game Code (the "State ITP") to allow the take, in accordance with the provisions of the Original NBHCP and the IA, of certain species protected under the California Endangered Species Act, Cal. Fish and Game Code § 2050 *et seq.* ("CESA"), including the Swainson's hawk ("SWH").

D. On April 23, 1998, Friends of the Swainson's Hawk, Environmental Council of Sacramento, and the Sierra Club filed a petition for writ of mandate and complaint for declaratory and injunctive relief in the Superior Court for the State of California in the County of Sacramento (98 CS 01131) (the "State Litigation") to challenge the CDFG's decision to issue the State ITP to the City. The plaintiffs in the State Litigation alleged in their petition and complaint that, in so issuing the State ITP, the CDFG violated various provisions of the California Fish And Game Code, including CESA, as well as various provisions of the California Environmental Quality Act ("CEQA"). The plaintiffs in the State Litigation subsequently filed a First Amended Petition for Writ of Mandate, which deleted the allegations and claim in the first petition and complaint that respondents had violated CEQA.

E. On February 12, 1999, Plaintiffs filed suit in the United States District Court for the Eastern District of California (Civ. S-99-274) (the "Federal Litigation") to challenge the Service's decision to issue the ITP to City. Plaintiffs alleged in their complaint that, in issuing the ITP, the Service violated various provisions of federal law, including FESA, NEPA and Section 706 of the federal Administrative Procedure Act, 5 U.S.C. § 706.

F. On February 2, 2000, the Sacramento County Superior Court entered judgment in favor of Respondents and against the plaintiffs in the State Litigation on all claims in the State Litigation. On February 14, 2000, the plaintiffs in the State Litigation filed a Notice of Appeal from the February 2, 2000 judgment. On January 29, 2001, the Third District Court of Appeals stayed the proceedings on appeal in the State Litigation pending resolution of the Federal Litigation.

G. On August 15, 2000, pursuant to cross-motions for summary judgment, the United States District Court issued a *Memorandum of Opinion and Order* (the "August 15 Order") in the Federal Litigation granting Plaintiffs' motion for summary judgment on four counts under the FESA and one count under the National Environmental Policy Act ("NEPA"), and granting the Service's motion (and motions by the City and Intervenor-Developers, all of which had intervened in the case) on two counts under the FESA. On January 26, 2001, the District Court granted Plaintiffs' motion to dismiss the two remaining counts and entered judgment in Plaintiffs' favor on four FESA counts and one NEPA count (the "Federal Judgment"). The Service, City and Intervenor-Developers have appealed the Federal Judgment.

H. In order to ensure the ongoing viability of the NBHCP and allow the resumption of grading and other activities within the area covered by the ITP (the "Permit Area"), the Service and City, together with CDFG, Sutter County, Reclamation District 1000 ("RD- 1000") and the Natomas Central Mutual Water Company ("NCMWC"), have initiated efforts to revise the Original NBHCP (as so revised, the "Revised NBHCP") and the IA to address the August 15 Order and prepare a joint Environmental Impact Report/Environmental Impact Statement in accordance with the requirements of NEPA and CEQA, all intended to result in the issuance of a new ITP (the "New ITP") to the City (together with the issuance of ITPs to Sutter County, RD- 1000 and NCMWC) following an opportunity for public review and comment and compliance with the requirements of Sections 7 and 10 of FESA and other applicable laws.

I. Because it is uncertain when the Revised NBHCP will be completed and the New ITP issued, and because the City's failure to issue grading permits during the 2001 or 2002

grading seasons may result in serious financial and fiscal impacts to City, among others, and may undermine the eventual success of the Revised NBHCP, City and Intervenor- Developers have requested Plaintiffs to enter into a settlement of the Federal Litigation and the State Litigation pursuant to which a limited amount of development may occur within the Permit Area, pursuant to City-issued grading permits, pending completion of the Revised NBHCP and issuance of the New ITP.

J. Because Plaintiffs want to protect and enhance the habitat of threatened species in areas located in the vicinity of City's prior development activities, Plaintiffs are willing to enter into such a settlement of litigation, provided such settlement establishes enhanced conservation of the areas surrounding Fisherman's Lake, establishes preserves in one or two important presently unprotected habitat areas in the Natomas Basin area of Sacramento County, California, and ensures compliance with the protections established in prior environmental documents.

AGREEMENT

NOW THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, IT IS HEREBY AGREED as follows:

1. LIMITED DEVELOPMENT WITHIN PERMIT AREA.

a. In General. Immediately upon the entry of the "Modified Federal Judgment" (defined in Section 5(a) below) and throughout the term of the Agreement, and subject to the limitations set forth more fully below, City may issue "Urban Development Permits" (as defined in the Original NBHCP and IA) to allow the grading, grubbing or other disturbance of up to 1,668 acres of land solely within those portions of the Permit Area described on Exhibit A attached hereto (collectively, the "Allowable Grading Permits"). The areas for which Allowable Grading Permits may be so issued, as described on attached Exhibit A, are collectively referred to herein as the "Interim Development Area." City currently intends to issue any such Allowable Grading Permits in accordance with the priorities described on Exhibit B attached hereto.

b. Acquisition of Mitigation Lands.

(i) *Mitigation Lands Acquired To Date.* Attached hereto as Exhibit C is a description of the number of acres of all lands that, to date, have received grading authorization from the City in accordance with the Original NBHCP and all "Mitigation Lands" (defined below) that, to date, have been "Acquired" (defined below) by the NBC. As set forth more fully in Exhibit C, based upon the 1/2:1 mitigation formula contained in the Original NBHCP and incorporated into this Agreement, the NBC has Acquired 258 acres of Mitigation Lands in excess of the number of acres of Mitigation Lands required to mitigate the impacts of development within the Permit Area under grading permits issued by the City to date. In addition, Lennar Communities has "Acquired" (within the meaning assigned to such term in Subsection (b)(iii) below) for transfer to the NBC an additional 96-acre parcel of Mitigation Lands located adjacent to Fisherman's Lake (the "Lennar Property"). Accordingly, under the 1/2:1 mitigation formula, the NBC has presently Acquired sufficient Mitigation Lands to mitigate the impacts of take of ITP-covered species

that will result from grading activities on an additional 708 acres of land within the NNCP area and the area covered by City's 1988 *South Natomas Community Plan* ("SNCP").

(ii) *1068-Acre Threshold Limitation.* Immediately upon the entry of the Modified Federal Judgment, City shall be authorized to issue Allowable Grading Permits covering up to 1068 acres of land without any additional Mitigation Lands having been Acquired by the NBC. In no event, however, shall City issue Allowable Grading Permits for more than an aggregate of 1068 acres of land until such time as an additional 178 acres of Mitigation Lands (i.e., in addition to the 96-acre Lennar Property and the 258-acre excess already Acquired by the NBC) have been Acquired by the NBC, at which time the NBC will have Acquired 1/2 acre of Mitigation Lands for each acre for which City has issued grading permits under the Original NBHCP and this Agreement. City may thereafter issue Allowable Grading Permits for an additional 600 acres of land (i.e., up to the aggregate 1668-acre cap described in Subsection (a) above); provided, however, that prior to the issuance of any such additional Allowable Grading Permit, 1/2 acre of Mitigation Lands shall have been Acquired by the City or NBC for each acre of land authorized for disturbance under such additional Allowable Grading Permit.

(iii) *Definitions.* For the purposes of this Agreement, the term "Mitigation Lands" shall mean any lands that have been or will be Acquired by the NBC or City under the Original NBHCP or pursuant to the terms and conditions of this Agreement. For the purposes of this Agreement, any particular land shall be deemed to have been "Acquired" by the NBC or the City (or, with respect to Section 1(b)(i) above, Lennar) at such time as (1) such entity has entered into a legally binding purchase and sale agreement covering such land (regardless of whether such agreement provides for the transfer of fee title or a conservation easement in a form approved by the Service) subject only to those standard buyer contingencies (e.g., title, environmental, issuance of title insurance) included in purchase and sale agreements entered into by the NBC prior to the date of this Agreement and no seller requirements that, if left unfulfilled, would cause the termination of the

transaction contemplated by such purchase and sale agreement; or (2) with respect to City only, a court of competent jurisdiction has granted City "possession" of such land in accordance with California's eminent domain laws or a stipulated judgement granting possession to City has been entered in a court of competent jurisdiction. The City shall use its best efforts to close, and to encourage NBC to close, on the purchase of Mitigation Lands in a timely manner. If a closing is not completed within 150 days of the date of the purchase and sale agreement, the subject Mitigation Lands shall no longer be considered "Acquired" and shall not again be considered "Acquired" until the closing has been completed.

(iv) *Transfers to NBC.* All Mitigation Land Acquired by an entity other than the NBC shall be transferred to the NBC in fee title or in the form of a conservation easement approved by the Service. If for any legal reason, including but not limited to provisions of California's eminent domain laws, the City is legally prevented from directly transferring fee title or a conservation easement to the NBC, the City shall enter into a lease or other form of agreement whereunder full management, possession and control of the land is vested in the NBC to the maximum extent permitted by law. The consideration to City for any such agreement shall be limited to non-monetary consideration in the form of management and related services of the NBC in managing the land for habitat and species protection purposes. Plaintiffs' Representative shall be notified in writing, within five (5) business days following the date City or NBC has Acquired any Mitigation Lands under this Agreement, of any such acquisition.

c. Establishment of 200-Acre Mitigation Cushion.

(i) *In General.* City is permitted under this Agreement to issue Allowable Grading Permits for no more than 1668 acres of land. City agrees that it will not thereafter issue any permit that would qualify as an "Urban Development Permit" under the Original NBHCP and would result in the foregoing 1668-acre limit being exceeded, unless and until (1) all Mitigation Lands required under this Agreement to be Acquired by City or the NBC in connection with the issuance of Allowable Grading Permits have been so acquired; (2) a

200- acre "Mitigation Cushion" has been established by City as described below; and (3) the Service and CDFG have issued any and all necessary incidental take authorizations. In particular, with respect to (2) above, prior to the issuance of Urban Development Permits for acreages exceeding the 1668-acre limit, City shall ensure that the total amount of Mitigation Lands that have been Acquired by the NBC exceeds by 200 acres the amount of Mitigation Lands otherwise required to offset the impacts of activities under grading permits issued by the City in accordance with the 1/2:1 mitigation formula contained in the Original NBHCP and incorporated into this Agreement.

(ii) *Location and Funding of Mitigation Cushion.* The selection and acquisition of Mitigation Lands by the City or NBC that are intended to serve as the Mitigation Cushion for this Agreement shall be governed by the requirements established under Section 3 below. If the HCP fees assessed by City under the Original NBHCP or this Agreement (the "HCP Fees") are insufficient to fund the acquisition of lands counting towards the Mitigation Cushion for this Agreement in accordance with such priorities, City or the NBC may use other funds such as grant moneys from private, state or federal sources (to the extent such funds may be used for such purposes).

(iii) *Advance Acquisition of Mitigation Lands to Support Mitigation Cushion.* City shall use its best efforts following the Effective Date to encourage the advance acquisition of Mitigation Lands with the objective of creating the Mitigation Cushion prior to or upon issuance of the Revised NBHCP and New ITP. This obligation shall not, however, act as any restriction on the issuance of Allowable Grading Permits under this Agreement.

d. Additional Development Requirements.

(i) *Compliance with Mitigation Monitoring Plans.* City shall comply with, and shall require each developer or landowner within the Interim Development Area (each, an "IDA Developer") that receives an Allowable Grading Permit to comply with, applicable

provisions of the mitigation monitoring plans adopted for the NNCP (including, without limitation, the requirement for a 250-foot buffer along the northern and western borders of the NNCP), the SNCP and the North Natomas Comprehensive Drainage Plan (1994), respectively, and any mitigation monitoring plan or program that may be adopted by City with respect to the project to be developed by such IDA Developer.

(ii) *Payment of HCP Fees.* City shall not issue any Allowable Grading Permit until such time as the IDA Developer receiving such Allowable Grading Permit has paid to City the full amount of the HCP Fee then in effect, including any increased HCP Fees imposed by City under Subsection (d)(iii) below. City shall not issue any Allowable Grading Permit until such time as any fee increase under subsection (d)(iii) below has become effective or City has otherwise secured a written and unconditional agreement from the IDA Developer to pay such increased fees.

(iii) *Consideration of HCP Fee Increase.* Plaintiffs and City presently expect that certain lands to be acquired by City under this Agreement may be more expensive on a per-acre basis than Mitigation Lands acquired to date by the NBC. Accordingly, to ensure that such lands can be Acquired by the NBC without compromising the NBC's ability to otherwise acquire lands pursuant to the Original NBHCP, City shall, on or before May 30, 2001, consider the adoption of an increase in the HCP Fees in an amount to be recommended by the NBC. City's failure to approve any such increase shall not, however, release City from any of its obligations under this Agreement. If City fails to approve any such increase, it shall use its existing line of credit with appropriate security, or other sources of financing (other than the City's General Fund), to fund the additional costs described in this paragraph.

(iv) *Payment of Catch-Up Fees.* Pursuant to that certain ordinance adopted by the City Council and effective on April 3, 2001, Ord. 2001-013 (the "April 3 Ordinance"), City shall require each IDA Developer that receives an Allowable Grading Permit but has not paid the full amount of the current HCP Fee of \$3,941 per gross acre

because of such IDA Developer's earlier prepayment of HCP Fees in some lesser amount (each, a "Prepaid IDA Developer") to pay a catch-up fee in accordance with the terms of the April 3 Ordinance. Each Prepaid IDA Developer shall also be required to pay, prior to issuance of an Allowable Grading Permit, an amount equal to the Prepaid IDA Developer's fair share, as reasonably determined by City, of the amount of any fee increase, on a per-acre basis, adopted by City pursuant to Subsection (d)(iii) above.

(v) *In Lieu Land Contributions.* In lieu of the land acquisition component of any fee required to be paid pursuant to this Subsection 1(d), any IDA Developer may transfer Mitigation Land to the City or NBC, at the ratio of 1/2 acre of Mitigation Land for each acre authorized by the City to be graded, provided that, in accordance with this Agreement (including the priorities established under Section 3 below), the Mitigation Land has been determined to be suitable for use as habitat by the Service and CDFG or the NBC's Technical Advisory Committee. Plaintiffs' Representative shall have the right, exercisable pursuant to Subsections 3.a.(iii) and (iv), to approve or disapprove (as between Plaintiffs and City or NBC) of an in-lieu contribution of land in Zone 3. No Allowable Grading Permit shall be issued to such IDA Developer until the Mitigation Land has been Acquired by the City or NBC and the IDA Developer has paid other components of the applicable HCP Fees. In the event that the number of acres transferred by an IDA Developer to the City or NBC exceeds the number of acres required to comply with the 1/2:1 mitigation formula set forth in the Original NBHCP, the City shall grant such IDA Developer a credit against the land acquisition component of any HCP Fee to be paid in the future or, at the IDA Developer's option, the City (either directly or through the NBC) shall pay the IDA Developer, in cash, an agreed-upon amount not to exceed the fair market value of the excess acres of land transferred to the City or NBC.

(vi) *Compliance with Revised NBHCP.* City shall not issue any Allowable Grading Permit unless and until the IDA Developer receiving such permit has agreed in writing, in a form acceptable to City, that such IDA Developer will (1) comply with any and

all applicable provisions of the Original NBHCP or the Revised NBHCP, whichever is in effect, the New ITP and revised State ITP and this Agreement and (2) indemnify and hold City harmless from any and all costs and liabilities arising in connection therewith.

2. CONSERVATION OF HABITAT LANDS ADJACENT TO WESTERN BOUNDARY.

a. Protection of Fisherman's Lake Area. Biologists have identified "Fisherman's Lake" (defined below) and surrounding lands as an important habitat area for both GGS and SWH and other species. As recognized in the Original NBHCP, habitat lands acquired in this area, if preserved, protected, enhanced and restored, can contribute significantly to the long-term survival of listed species in the Natomas Basin. Accordingly, this Agreement provides for the acquisition of lands in this area to establish habitat preserves, the management of those preserves by the NBC, and the establishment of certain standards for canal maintenance. As used herein, the term "Fisherman's Lake" shall mean the commonly-understood historical limits of that feature as shown on Exhibit D attached hereto (which generally includes those portions of the West Drain between its southerly "bend," to the North, and El Centro Road to the South and East).

b. West Side Property. City shall not issue any Allowable Grading Permit until such time as at least one parcel of land, with an aggregate size of approximately 100 acres and some frontage along the west side of Fisherman's Lake, has been Acquired by the NBC or the City for conservation purposes (the "West Side Property"). The West Side Property shall be deemed to be "Mitigation Lands" within the meaning of this Agreement. Acquisition by City or the NBC of the Lennar Property shall be deemed to satisfy this requirement. If for any reason, following the City or NBC having Acquired the West Side Property, such property falls out of contract due to the failure of one or more conditions to the close of the transaction anticipated thereby, then City shall immediately suspend the issuance of Allowable Grading Permits until such time as City or NBC has once again Acquired the West Side Property (whether in its original or some other configuration).

c. East Side Protections. The NNCP and the 1999 North Natomas Financing Plan ("NNFP") currently provide for the creation and acquisition of a 200-foot-wide buffer along the East side of Fisherman's Lake within City's boundaries measured from the easterly limit of RD-1000 ownership. City agrees to initiate (1) an amendment to the NNFP to provide for the acquisition of an expanded buffer of 250 feet (i.e., 50-foot increase) along the East side of Fisherman's Lake (to be consistent with the Mitigation Monitoring Plan for the North Natomas Community Plan); and (2) an amendment to the NNCP to provide for the expansion of the width of the NNCP buffer by 600 feet, to a total of 800 feet. City will exercise its best efforts to complete any necessary environmental or other review and present the proposed NNCP and NNFP amendments for consideration by the City Council within six (6) months of the date of this Agreement.

d. Fisherman's Lake Maintenance Obligations. The Parties acknowledge a long-term need to achieve mutually-beneficial management of the Fisherman's Lake area for both habitat and species protection, on the one hand, and effective drainage and flood control, on the other. Although a comprehensive plan to address these needs is beyond the scope of this short-term settlement, City has initiated efforts to work with RD-1000 to develop an interim term plan to define and resolve conflicts in the management of multiple needs and define alternatives and preferred means for achieving cooperative management, including staff assignments, capital and operating revenues and performance measures. These efforts will include the participation of an expert in GGS to be retained by City, and approved by the Service after consultation with a designated representative of Plaintiffs (the "Plaintiffs' Representative"), to provide recommendations for interim maintenance rules. The expert retained in accordance with the foregoing provisions shall lead a study group with representation from USFWS, CDFG, RD-1000, NCMWC, and environmental organizations, to analyze and evaluate current maintenance practices and alternatives, short term and long term, for improved protection of the Giant Garter Snake. A report on the study group effort shall be completed by January 15, 2002. Attached hereto as Exhibit

E is a letter from RD-1000, dated May 10, 2001, which letter describes RD-1000 current canal maintenance practices. City shall continue its efforts to work with RD-1000 and the Service during the term of this Agreement.

3. GUIDELINES FOR ACQUISITION OF ADDITIONAL MITIGATION LANDS.

a. Priorities for Acquisitions of Mitigation Lands.

(i) *Establishment of Priorities.* Any Mitigation Lands required to be Acquired to satisfy mitigation obligations identified in this Agreement related to development pursuant to the Allowable Grading Permits shall be located in the Sacramento County portion of the Natomas Basin in accordance with the following priorities: Adjacent to Fisherman's Lake ("First Priority Location"); in "Zone 1" (defined below) ("Second Priority Location"); in "Zone 2" (defined below) ("Third Priority Location"); and within the Natomas Basin in Sacramento County ("Fourth Priority Location").

(ii) *Definitions.* As used in this Section 3, "Zone 1" shall be defined to include all property described on Exhibit F, attached hereto, as Zone 1 and generally including the area bounded by El Centro Road, Powerline Road and Sacramento River, Interstate 5 and San Juan Road. As used in this Section 3, "Zone 2" shall be defined to include all property described on Exhibit G, attached hereto, as Zone 2 and generally including (1) those lands bounded by the Sacramento County line to the North, Elkhorn Boulevard to the South, Steelhead Creek (NEMDC) to the East, and Power Line Road to the West and (2) those lands bounded by Powerline Road, Highway 99, Elkhorn Boulevard and Interstate 5.

(iii) *Acquisition of Mitigation Lands.* If any such Mitigation Lands cannot be Acquired by City or the NBC within a First Priority Location at a price and upon such terms (including such dates) as the City deems reasonably acceptable, then such Mitigation

Lands may be Acquired within a Second Priority Location. If any such Mitigation Lands cannot be Acquired by City or the NBC within a Second Priority Location at a price and upon such terms (including such dates) as the City deems reasonably acceptable, then such Mitigation Lands may be Acquired within a Third Priority Location. If any such Mitigation Lands cannot be Acquired by City or the NBC within a Third Priority Location at a price and upon such terms (including such dates) as the City deems reasonably acceptable then, subject to the approval of Plaintiffs' Representative (which approval shall not be unreasonably withheld or delayed by Plaintiffs' Representative) as to the specific proposal under consideration, and the Service's and CDFG's subsequent approval in accordance with the Original NBHCP, such Mitigation Lands may be Acquired within a Fourth Priority Location. In no event shall lands acquired outside of the Sacramento County area of the Natomas Basin be deemed to constitute Mitigation Lands for the purposes of this Agreement.

(iv) *Determinations by Plaintiffs' Representative.* Any review by Plaintiffs' Representative of a request by City or the NBC to permit the acquisition of Mitigation Lands within a Fourth Priority location shall take into account the following criteria: the biological suitability of the lands proposed to be Acquired (taking into consideration habitat quality, contiguity with other preserved lands and similar factors); the price and terms upon which such lands are available to City or the NBC; the number of acres of Mitigation Lands already Acquired by City or NBC within First Priority, Second Priority or Third Priority locations (and progress to date towards meeting the 250-acre acquisition requirement set forth in Subsection (a)(v) below); efforts already undertaken by City to acquire Mitigation Lands within First Priority, Second Priority or Third Priority locations; the biological suitability of lands within First Priority, Second Priority or Third Priority locations that are reasonably available to City; and the legal availability to City of its eminent domain authority (including the status of City's efforts to exercise its eminent

domain authority) to acquire additional acreage within First Priority, Second Priority or Third Priority locations.

(v) *250-Acre Zone 1 Mitigation Target.* Regardless of the priority system established under this Subsection (a), in no event shall City issue Allowable Grading Permits for more than 1360 acres within the Interim Development Area until such time as City or the NBC has acquired 250 acres of Mitigation Lands (inclusive of the Lennar Property if Acquired) within Zone 1. This requirement is separate from and independent of the requirements of Subsection 1(b)(ii) above.

b. Use of Eminent Domain. In order to expedite the timeliness of acquisition of Mitigation Lands within a focused area within Zone 1 that is bounded by I-5 to the North, Powerline Road/Sacramento River to the West, the City's municipal boundary to the East (excluding areas East of El Centro) and San Juan Road to the South, City shall use its power of eminent domain to the extent allowable by law to acquire such Mitigation Lands.

c. Management of Mitigation Lands. City and the other Parties intend that all Mitigation Lands acquired pursuant to this Agreement will be managed, preserved, restored and enhanced – and will encourage the NBC to so manage, preserve, restore and enhance such Mitigation Lands – as a part of the Natomas Basin Conservancy preserve system and in accordance with the Original NBHCP or, as and when it is adopted, the Revised NBHCP.

4. OTHER OBLIGATIONS.

a. **Term of Agreement.** City shall be allowed at any time following the entry of the Modified Federal Judgment, and continuing through October 1, 2002, to issue Allowable Grading Permits in accordance with the terms and conditions of this Agreement. This Agreement shall expire on, and shall not be deemed to allow the issuance of any Allowable Grading Permits after, October 1, 2002. Issuance of the New ITP prior to October 1, 2002 shall not be deemed to modify or terminate any of the Parties' rights or obligations under this Agreement. Prior to October 1, 2002, City shall not issue any grading permits for areas within the Natomas Basin except in accordance with the terms and provisions of this Agreement or, as and if they are issued, any Revised NBHCP and associated incidental take permit. City's obligation to Acquire Mitigation Lands (i.e., at a 1/2:1 mitigation ratio) for any lands subject to Allowable Grading Permits issued by City during the term of this Agreement, and its obligation to establish the Mitigation Cushion prior to the issuance of Urban Development Permits for acreage exceeding the 1668-acre limitation established hereunder, shall survive the expiration of this Agreement and the issuance of any Revised NBHCP and associated incidental take permit.

b. **Sphere of Influence Process.** City is currently undertaking an evaluation of areas that might properly be included within its LAFCO-approved sphere of influence and ultimately annexed to the City, including areas located within the area covered by the Original NBHCP but outside the area covered by the ITP (the "SOI Study"). In connection with the SOI Study, City agrees that, consistent with City's action on June 27, 2000 (Resolution 2000-420), City will confirm in the preparation of its SOI Study its interest in creating both a GGS protection zone and a one-mile-wide open space corridor along the Sacramento River which is suitable as habitat for SWH, in which protection zone and open space corridor there would be restrictions on golf courses, soccer fields, ranchette development and similar uses. This provision shall not be construed as a statement of the

City's intent to annex or permit urbanization of any area outside of the NNCP. Plaintiffs do not, by entering into this Agreement, waive their right to oppose the expansion of the City's sphere of influence, or any annexation or urban land use entitlements approved or issued for land outside of, the NNCP.

c. **Restrictions on First-Stage Legislative Entitlements.** City shall, within sixty (60) days following the Effective Date, initiate processing of a resolution providing for restrictions on its approval of "First-Stage Legislative Entitlements" for development of lands (1) located within the proposed Camino Norte, West Lakeside and Greenbriar Farms areas, described on Exhibit H, attached hereto or (2) otherwise located outside of the existing boundaries of the NNCP [The NNCP includes the currently-proposed "panhandle annexation" area] or the SNCP until completion of the SOI Study. As used herein, the term First-Stage Legislative Entitlements shall be defined to mean general plan or NNCP amendments, rezonings (including prezonings and the establishment of PUDs) and development agreements. City acknowledges and agrees that the Camino Norte, Greenbriar Farms and West Lakeside areas are not included within the acreage anticipated to receive incidental take coverage under the Revised NBHCP and New ITP and that, if such areas eventually are issued First Stage Legislative Entitlements by City, any necessary take coverage for such areas would have to be secured from the Service and CDFG.

d. **Amendment of Bikeway Master Plan.** Within six (6) months following the Effective Date, and in connection with its processing of amendments to the NNCP and the NNFP as described in Section 2(c) above, City will initiate an amendment to its "Bikeway Master Plan" delete or relocate off-street bike trails currently shown in the Bikeway Master Plan along the East and West sides of Fisherman's Lake. Such an amendment is intended to result in the restriction of bicycle use within, or the elimination of any off street bike trails from, areas within the Fisherman's Lake buffer.

e. **Amendment of City's Grading Ordinance.** Prior to the issuance of any Allowable Grading Permits, City shall initiate an amendment to its grading ordinance, to the extent necessary, to ensure that any such Allowable Grading Permits are issued and implemented in accordance with the terms and provisions of this Agreement.

f. **Exercise of Discretion by City.** Nothing in Subsection 4(b) above shall prevent the City from processing applications for or conducting environmental review of any First- Stage Legislative Entitlements for any such area; provided, however, that nothing herein shall require City to bring such Legislative Entitlements to the City's Planning Commission or City Council prior to completion of the SOI Study. Moreover, except as otherwise specifically stated herein, nothing in this Section 4, or in Section 2 above or any other provision of this Agreement, shall commit City to exercising its discretionary authority in any particular manner.

g. **Use of Federal Grant Money.** The Service has secured a Section 6 ESA Grant in the amount of approximately \$4 million (the "Grant Funds"). It is the intent of the Parties that these Grant Funds be used to buy and manage land in Zone 1 or, if federal appraisal standards cannot be met within a reasonable period of time, lands located outside of Zone 1 as reasonably determined by the Service and CDFG. In no event shall such Grant Funds be used for purposes inconsistent with the terms of the federal grant.

h. **Role of NBC.** Each of the Parties acknowledges and agrees that the NBC is not a party to this Agreement and shall have no obligation whatsoever under the terms and provisions hereof. Not in limitation of any obligation of the NBC arising outside of this Agreement, each of the Parties agrees to hold NBC harmless from any and all failures by NBC to act in accordance with the intent of the Parties hereunder. NBC, pursuant to the stipulation entered into in the Federal Litigation, is operating under the protection of the Original ITP and has obligations with respect to Mitigation Lands under that ITP as well as the Original NBHCP.

5. DISPOSITION OF LITIGATION.

a. Federal Litigation. To effectuate the terms and provisions of this Agreement, the Parties agree to the following:

(i) *Conditional Dismissal.* The City, on behalf of all appellants in the appeal captioned *National Wildlife Federation, et al. v. Norton, et al.*, Ninth Circuit Case No. 01-15485, except Gale Norton, Secretary of the Interior, appellant in 9th Cir. No. 01-15606, will immediately send a letter by facsimile to the Chief Circuit Mediator for the Ninth Circuit Court of Appeals, informing him that the Federal Litigation is settled, with two conditions, (1) that the settlement must be approved by the U.S. District Court for the Eastern District of California, and (2) that such approval must be obtained by May 17, 2001 (or such later date as may mutually be agreed to by the Parties) (the "Settlement Date"). Based upon these conditions, the City, on behalf of all appellants, will request that the pending appeal be conditionally dismissed, to be reinstated if the Parties have not obtained approval of the settlement by the U.S. District Court by the Settlement Date. The Parties understand that Gale Norton, Secretary of the Interior, appellant in 9th Cir. No. 01-15606, will, after clearance from the Office of the Solicitor General, which clearance is expected by May 14, 2001, request dismissal of her appeal under the same conditions.

(ii) *Stipulation.* No Allowable Grading Permit shall be issued under this Agreement until and unless the Federal District Court enters its "Modified Federal Judgment" (defined below) in accordance with this Agreement. All Parties will promptly file a Stipulation with the U.S. District Court to (a) seek judicial approval of this Agreement by no later than the Settlement Date; (b) modify the Federal Judgment under Fed. R. Civ. Proc. 60(b) in the case captioned *National Wildlife Federation, et al. v. Norton, et al.*, District Court No. CV-99-274-DFL to incorporate terms and provisions of this Agreement into the Federal Judgment (as so revised, the "Modified Federal Judgment") and to grant the Court continuing jurisdiction to enforce the Modified Federal Judgment, and (c)

reinstate the Original ITP for the sole purpose of effectuating the terms of the Agreement, and for no other purpose. The Stipulation is attached as Exhibit I hereto. Notwithstanding any other provision of this Agreement, should the Federal District Court fail or refuse to approve this Agreement and modify the Federal Judgment by the Settlement Date as provided in this Section 5(a), then this Agreement shall be rendered null, void and of no effect.

(iii) *Attorney Fees.* The Parties have been informed that, upon court approval of the Stipulation, the U.S. Department of Justice, on behalf of federal defendants, will initiate the attorneys' fees determination process, and that negotiations regarding those fees will take place in good-faith with Plaintiffs. Plaintiffs retain all rights to seek attorneys' fees, and this Agreement shall not be considered as evidence regarding Plaintiffs' entitlement or lack thereof to attorneys' fees.

b. State Litigation. Those Plaintiffs who are parties to the State Litigation hereby agree that, within five (5) days following entry of the Modified Federal Judgment, they will take all actions necessary to dismiss with prejudice their appeals in the State Litigation. City hereby agrees that it will not exercise its rights under the State ITP except to the extent permitted under this Agreement or, following the expiration of this Agreement, in accordance with any new or revised incidental take authorization issued by CDFG pursuant to the Revised NBHCP. Plaintiffs waive any and all rights to attorneys' fees or costs of litigation associated with the State Litigation; provided, however, that City shall pay to the Sierra Club Foundation (Mother Lode Account) the amount of \$245,000, which funds shall be used exclusively for activities, other than future litigation against the City or any other person or entity, that further the protection of habitat for rare, threatened or endangered species in the Sacramento region consistent with the purposes of Internal Revenue Code Section 501(c)(3).

c. Release and Reservation of Rights. By executing this Agreement, each of the Plaintiffs releases any and all claims it may have against the Service, CDFG or any other

Party under FESA, CESA, NEPA or CEQA or any other local, state or federal law and arising out of or related to this Agreement, the Original NBHCP, the Original ITP, State ITP or related approvals or environmental review, except to the extent that any such claim may arise out of any failure by such other Party to comply with the terms of this Agreement or the "Modified Federal Judgment" (defined above). No Party shall appeal or collaterally attack the Modified Federal Judgment. In no event shall any Plaintiff challenge any action by City, NBC, Service or CDFG that is duly taken by such entity in reliance upon the terms and conditions of this Agreement following the Effective Date except on grounds other than FESA, CESA or wildlife-related CEQA or NEPA matters. Nothing in this Agreement shall preclude Plaintiffs from filing any legal action to challenge the validity of the Revised NBHCP or New ITP

6. GENERAL PROVISIONS.

a. Amendments. This Agreement may not be amended except in a writing duly approved and executed by all of the Parties hereto.

b. Sole and Final Agreement. Except as otherwise specifically provided herein, this Agreement (including the documents attached as exhibits hereto) is intended to be and is the final expression of the agreement between Parties with respect to the settlement of the Federal Litigation and the State Litigation, and is intended as and is the complete, exclusive and entire statement of the terms of the settlement between the Parties with respect to the Federal Litigation and the State Litigation. As such, this Agreement supersedes and fully and completely extinguishes any prior understandings or agreements between the Parties with respect to such settlement, whether oral or written, express or implied.

c. Enforcement. This Agreement may be enforced (and any dispute, claim or controversy regarding the interpretation or application of this Agreement may be resolved) by filing in *National Wildlife Federation v. Norton* an appropriate motion for equitable relief, including injunction, specific performance or declaratory relief, or by requesting a status

conference before the Court in *National Wildlife Federation v. Norton*. In no event shall any party be entitled to monetary damages against City for any failure by City to comply with the terms and provisions of this Agreement.

d. **Dispute Resolution.** The Parties will attempt in good faith to resolve through negotiation any dispute, claim or controversy regarding the interpretation or application of this Agreement. Any Party may initiate negotiations by providing written notice to the Party from whom relief is requested, with notice to the other Parties and the Service and CDFG, setting forth the subject of the dispute and the relief requested. The recipient of such notice shall (and each of the other Parties may) respond within five days with a written statement of its position on, and recommended solution to, the dispute. If the dispute is not resolved by this exchange of correspondence, then representatives of the disputing Parties will meet at a mutually agreeable time and place (either in person or by telephone) within ten days of the date of the initial notice in order to exchange relevant information and perspectives, and to attempt to resolve the dispute. If the dispute is not resolved during such meeting, the Parties may elect to proceed to mediation. In no event shall this dispute resolution process limit the ability any party from seeking judicial relief to enforce this Agreement. Jurisdiction and venue for judicial relief shall be in the Federal District Court for the Eastern District of California, in accordance with Subsection 6(c) of this Agreement.

e. **Warranty of Authority.** By executing this Agreement, each of the Parties covenants, warrants, and represents that he, she or it is fully authorized to enter into this Agreement.

f. **Mutual Cooperation.** Each of the Parties shall execute and deliver to the others all such other further instruments and documents as may be reasonably necessary to carry out the terms and provisions of this Agreement and secure to the others the full and complete enjoyment of their respective rights and privileges hereunder. If during the course of this Agreement any issue arises as to its interpretation, application or implementation that was not anticipated by the Parties during settlement negotiations, each of the Parties

agree to meet promptly to resolve such issue in good faith (and, to the extent necessary, employ the dispute resolution process outlined in Subsection (d) above) with a view towards securing to the others the full and complete enjoyment of their respective rights and privileges hereunder.

g. Notices. Except as otherwise specifically set forth herein, all notices or other communications specifically required or permitted to be given under this Agreement shall be in writing and personally delivered or sent by certified mail, return receipt requested and postage prepaid, or sent by reputable overnight courier (such as Federal Express), or by telefacsimile with confirmation by overnight courier or U.S. Postal Service the following day, to the addresses or telefacsimile numbers set forth below. Any party may at any time change its address, telephone or telefacsimile number for the delivery of notice upon five (5) days' written notice to the other Parties.

NATIONAL WILDLIFE FEDERATION
ENVIRONMENTAL COUNCIL OF SACRAMENTO
FRIENDS OF THE SWAINSON'S HAWK
MOUNTAIN LION FOUNDATION
PLANNING AND CONSERVATION LEAGUE
SIERRA CLUB
Plaintiffs Representative
James Pachl, Esq.
Law Offices Of James Pachl
500 "N" Street, Suite 1403
Sacramento, California 95814
Telephone (916) 446-3978
Telefacsimile (916) 447-8689

with a copy to:

JOHN KOSTYACK, ESQ.
Senior Attorney
National Wildlife Federation
1400 16th Street N.W., Suite 501
Washington, D.C. 20036
Telephone: (202) 797-6879
Telefacsimile: (202) 797-6646

KEITH WAGNER, ESQ.
Mountain Lion Foundation
P.O. Box 1896
Sacramento CA 95812
Telephone: (916) 442-2666
Telefacsimile: (916) 442-2871

CITY OF SACRAMENTO
c/o Ms. Carol Shearly
1231 "I" Street, Suite 300
Sacramento, California 95814
Telephone: (916) 264-5893
Telefacsimile: (916) 264-7185

with copies to:

OFFICE OF THE CITY ATTORNEY
c/o William Carnazzo, Esq.
Chief Assistant City Attorney
980 Ninth Street, 10th Floor
Sacramento, California 95814
Telephone: (916) 264-5346
Telefacsimile: (916) 264-7455

and

MORRISON & FOERSTER
c/o R. Clark Morrison, Esq.
Peter Hsiao, Esq.
101 Ygnacio Valley Road, Suite 450
Walnut Creek, California 94596
Telephone (925) 295-3317
Telefacsimile (925) 946-9912

NATOMAS ESTATES, LLC
c/o Thomas P. Winn
Lennar Communities
2240 Douglas Boulevard, Suite 200
Roseville, California 95661
Telephone: (916) 783-3224
Telefacsimile: (916) 783-3914

with a copy to:

LAW OFFICES OF GREGORY THATCH

c/o Larry Larsen, Esq.
1730 "I" Street, Suite 220
Sacramento, California 95814
Telephone (916) 443-6956
Telefacsimile (916) 443-4632

KERN SCHUMACHER
2200 E. Camelback Road, Suite 101
Phoenix, Arizona 85016
Telephone: (602) 956-2200
Telefacsimile: (602) 956-1503

with a copy to:

LAW OFFICES OF GREGORY THATCH
c/o Larry Larsen, Esq.
1730 "I" Street, Suite 220
Sacramento, California 95814
Telephone (916) 443-6956
Telefacsimile (916) 443-4632

U.S. FISH AND WILDLIFE SERVICE
c/o Field Supervisor
2800 Cottage Way, Rm. W2605
Sacramento, California 95825
Telephone (916) 414-6624
Telefacsimile (916) 414-6712

h. No Third Party Beneficiary. This Agreement is intended solely for the benefit of the Parties and shall not be construed to create any rights in any other person or entity.

i. Execution in Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original and all of which together shall be deemed to be one and the same instrument. Furthermore, this Agreement may be executed and delivered by the exchange of electronic facsimile copies or counterparts of the signed documents, which facsimile copies or counterparts shall be binding upon the Parties; provided,

however, that any electronic facsimile counterpart shall be followed by delivery to counsel for City of an original signed counterpart.

j. **Denial of Wrongdoing and Liability.** Neither the negotiation of this Agreement, nor any action taken to carry out this Agreement, (1) is or may be construed or used as an admission or concession by or against any party of any fault, wrongdoing or liability whatsoever or (2) except as necessary or appropriate to defend this Agreement or any action taken in accordance herewith, may be offered or received in evidence in any action or proceeding against any party in or before any court, administrative agency or tribunal for any purpose.

k. **Headings; Cross-References; Exhibits.** The headings and captions used in this Agreement are for convenience and ease of reference only and shall not be used to construe, interpret, expand or limit the terms of this Agreement. All cross-references in this Agreement, unless specifically directed to another agreement or document, shall refer to provisions in this Agreement and shall not be deemed to be references to any other agreements or documents. Each of the exhibits attached to this Agreement is hereby incorporated into this Agreement by this reference.

l. **No Duress.** This Agreement is executed voluntarily by each of the Parties without any duress or undue influence on the part of, or on behalf of, any of them. Each of the Parties has read and fully understands the meaning of each provision of this Agreement and has relied on the independent advice and representation of legal counsel in entering into this Agreement.

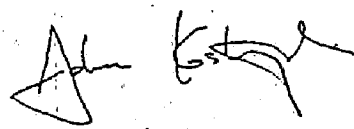
m. **Successors and Assigns.** The terms and conditions of this Agreement shall be binding upon and inure to the benefit of the Parties and their respective successors and assigns.

n. **Construction.** This Agreement has been reviewed by legal counsel for all Parties, and no presumption or rule that ambiguities shall be construed against the drafting party shall apply to the interpretation or application of this Agreement.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed as of the date hereinabove written.

Dated: May 14, 2001

NATIONAL WILDLIFE FEDERATION

By: 

Print Name:

John Kostyack

Dated: May __, 2001

ENVIRONMENTAL COUNCIL OF SACRAMENTO

By:

Print Name:

Dated: May __, 2001

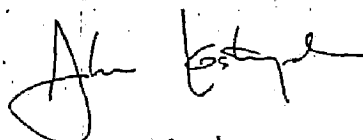
FRIENDS OF THE SWAINSON'S HAWK

By:

Print Name:

Dated: May 14, 2001

MOUNTAIN LION FOUNDATION

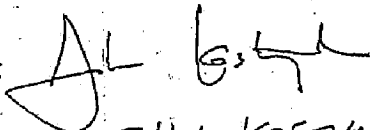
By: 

Print Name:

John Kostyack

Dated: May 14, 2001

PLANNING AND CONSERVATION LEAGUE

By: 

Print Name:

John Kostyack