



## 2008 Species Survey Report

Prepared for: US Fish and Wildlife Service and California Department of Fish and Game  
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*I certify that the information in this survey report and attached exhibits fully and accurately represents my work.*

A handwritten signature in cursive script that reads "Peter Famolaro".

Date: June 24, 2009  
USFWS Permit: TE813431-4

### I. Introduction

This report describes species monitoring and management efforts for the 2008 calendar year and is intended to fulfill annual reporting requirements pursuant U.S. Fish and Wildlife Service (USFWS) Recovery Permit TE813431-4 and California Department of Fish and Game (CDFG) Memorandum of Understanding (MOU) (2005). Sweetwater Authority's biologist, Peter Famolaro, is the principal investigator for these respective federal and state authorizations. In 2008, work under these permits included surveys for least Bell's vireo (*Vireo bellii pusillus*) and willow flycatcher (*Empidonax traillii*), as well as brown-headed cowbird trapping (*Molothrus ater*). All work was performed within the Sweetwater River watershed in southern San Diego County, California (Exhibit 1).

## 2008 Species Survey Report

In 2008, the Sweetwater Authority contracted the U.S. Geological Survey Western Ecological Research Center (USGS WERC) to assist in least Bell's vireo and willow flycatcher surveys. As such, USGS's work is also described in this annual report. All work by USGS WERC was performed pursuant to authorizations held by Barbara Kus PhD (USFWS Recovery Permit TE-829554, CDFG 2006).

### II. Purpose

Species surveys and related activities described in this report are performed primarily for project compliance purposes agreed to by the Sweetwater Authority. The projects and related sites are listed below:

- Sweetwater Reservoir Habitat Management Program (HMP): USFWS Biological Opinion 1-6-93-F-42 and CDFG Memorandum of Understanding No. 2081-1994-088-5, (USFWS 1994 and 1999, CDFG 1996) – Site B
- Urban Runoff Diversion System Phase II (URDS II): USFWS Biological Opinion 1-6-95-F-41 and CDFG Addendum to Memorandum of Understanding 2081-1994-088-5, (USFWS 1996a and CDFG 1997) – Site B
- Loveland Reservoir Land Exchange and Recreational Fishing Easement: USFWS Informal Consultation 1-6-96-I-326 (USFWS 1996b) – Site D

Through implementation of these required survey efforts, the data collected provides valuable species abundance and distribution information. It also provides natural history data for use by the federal and state wildlife regulatory agencies, as well as local agencies involved in the protection, management, and recovery of these species (e.g., Sweetwater Authority). In addition to projects referenced above, efforts are expanded to survey additional areas within Sweetwater Authority ownership (e.g. Old Orchard – Site A) and/or support species investigations off our properties when requested by a neighboring land managers (e.g. San Diego National Wildlife Refuge [SDNWR] – Site C) or otherwise obtainable while performing to other duties.

### III. Site Descriptions

In 2008, work performed under the USFWS and CDFG authorizations was confined to the Sweetwater River watershed, San Diego County, California, and occurred at four locations (Exhibit 1). A brief description of location, vegetation community, and habitat conditions of each of the four sites is provided below.

#### 1. Site A: Sweetwater Reservoir, Old Orchard

Site A is approximately 10 acres and located within Sweetwater Authority ownership along the south shoreline of the Sweetwater Reservoir, approximately 1.6 miles east of the Sweetwater Reservoir Dam. Site elevation ranges between 240 to 300 feet above mean sea level (MSL). The Old Orchard site is a relic homestead area, containing a few remnant citrus trees and building foundations. With the exception of the reservoir shoreline, the site is predominantly upland and covered in dense short-pod mustard (*Hirschfeldia incana*). Clusters or scattered

individuals of eucalyptus (*Eucalyptus* sp.), Peruvian pepper trees (*Schinus molle*), and salt cedar (*Tamarix* sp.) occur as well. The overall habitat quality is considered to be low.

## **2. Site B: HMP and URDS II Study Area**

Site B is located in the eastern limits of Sweetwater Reservoir covering the floodplain and confluence of the Sweetwater River and Reservoir. This 150 acre site also includes upstream areas of the Sweetwater River up to the URDS II low flow diversion barrier (also known as the Sweetwater River Narrows), as well as the extreme downstream limits of Hansen's Creek along Jamacha Boulevard. The elevation of this site is approximately 240 feet above MSL. The majority of Site B occurs within Sweetwater Authority ownership, except for the Sweetwater River Narrows that are owned and managed by the SDNWR, Otay-Sweetwater Unit. Sand mining activity occurred over much of this site until the late 1980's when the Sweetwater Authority established it as a least Bell's vireo preserve and committed to manage it under the HMP.

Willow forest and scrub is the predominant vegetation community on site. Closer to the Reservoir, tree cover is almost exclusively made up of Goodding's black willow (*Salix gooddingii*). Moving east and within the Hansen's Creek tributary, diversity increases to include such species as; sandbar willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), Fremont's cottonwood (*Populus fremontii*), mule fat (*Baccharis salicifolia*), and elderberry (*Sambucus mexicana*). Open water and freshwater marsh habitat, dominated by cattails (*Typha* sp.) and rush species (*Scripus* sp.), occurs within the abandoned sand mining ponds on the Sweetwater Authority property and several smaller perennial pools within the river course of the Sweetwater River Narrows.

Non-native invasive plants, including salt cedar and giant reed (*Arundo donax*), are prevalent but are being treated with herbicide and/or otherwise targeted for removal. Overall habitat quality ranges from high to low due to reasons described below.

The 2007 Harris Fire entered the forested area on the Sweetwater Authority property and caused catastrophic damage to over 60 acres within the HMP area (Sweetwater Authority 2008). Many areas are recovering well, but a large portion of old growth habitat is not. These degraded areas are now characterized by dense short-pod mustard with only scattered Goodding's black willows that are re-sprouting from the tree trunk bases. Riparian hydrology is lacking from these areas due to previous sand mining activities, and correcting several underlying topographical problems appears critical to future recovery of this area.

## **3. Site C: San Diego National Wildlife Refuge, East of State Route 94**

To the east, Site C is located within the densely forested area between State Route 94 and the Rancho San Diego Golf Course. The contiguous habitat area within these limits exceeds 100 acres, but only a small portion of this site was visited for least Bell's vireo band recovery/recapture activities described in this report. Site elevation is approximately 340 feet above MSL. The survey was confined to the south side of the active river channel within willow

and mixed oak-willow forest habitat. The site includes a diverse riparian forest similar to areas described for Site B, with the addition of mature stands of coast live oak (*Quercus agrifolia*) occurring along the extreme southern boundary of the forested area. Overall habitat quality for this site is considered high.

#### **4. Site D: Eastern Loveland Reservoir**

Site D is located in extreme eastern end of Loveland Reservoir in the vicinity of Japatul Road. The approximately 20 acre habitat area includes portions of the Sweetwater River, Peterson Creek, and Hidden Glen Creek where they enter the Reservoir. The site occurs within the foothills of San Diego County and elevation ranges between 1350 and 1380 feet above MSL. Habitat is characterized as willow riparian forest and includes a mixture of Goodding's black willow, red willow, arroyo willow, and sandbar willow, along with mule fat and coast live oak. Salt cedar and giant reed occur generally in low abundance. The Peterson Creek and Hidden Glen Creek segments burned in the 2001 Viejas Fire but have since completely recovered. Habitat limits are dynamic in that willow habitat within the reservoir high water mark exists only in low water years. In 2008, reservoir conditions were low so the habitat area was expanded well into the reservoir delta. Because some of the habitat occurs unreliably, overall habitat conditions are considered to be moderate to high.

#### **IV. Methods**

Least Bell's vireo surveys described herein were conducted to determine the abundance, distribution, and breeding status of all territorial male least Bell's vireos within the study areas. Survey dates and personnel are listed in Exhibit 2. Pete Famolaro (Sweetwater Authority) was the principal field investigator, and Jeff Ritterson (USGS-WERC) was as an independent field investigator working under USGS's approvals. For sites B and D, all available habitat was surveyed a minimum of three times. Sites A and C were only visited two and one times, respectively, as the purpose of these efforts was to identify banded least Bell's vireo.

Surveys were generally performed in the morning hours, although a few surveys extended into the early afternoon as fair weather permitted (i.e. avoiding periods of rain, severe heat, cold, or windy conditions). Discrete least Bell's vireo territories were determined by observations of territorial behavior, such as counter-singing males; location of active nests; and/or observations of unique color-banded individuals. Pair status was determined by direct observation of a female or by positive confirmations of breeding, including a nest identified with eggs/chicks or by the presence of newly fledged young with one or both parents. Confirmation of breeding success was determined by the occurrence of a successful nest and/or by the presence of newly fledged young with one or both parents.

Comprehensive least Bell's vireo nest monitoring was generally not performed in 2008, rather nests were identified and checked incidental to survey activities. Nest checks were used to determine the breeding status of territorial males and/or to inspect for brown-headed cowbird brood parasitism. Nest checks and/or monitoring visits were in accordance with state and federal

permit requirements and Ralph et. al. (1993) to minimize disturbance to the parents and the potential for attracting predators or cowbirds.

Taped vocalization of least Bell's vireo were used as necessary to aid in band resightings, capture/ recapture activities, and/or to confirm species absence in a formerly occupied territory. Capture and banding of least Bell's vireo was performed in accordance with the USGS Bird Banding Lab and North American Banding Council practices for the safe handling of birds. Adults were captured with mist nets and banded per the following combination: one green anodized USFWS metal band and one colored plastic leg band on the opposite leg.

Coinciding with their expected migration period in May, willow flycatcher surveys were performed concurrent with those for least Bell's vireo. No willow flycatcher taped vocalizations were used in these joint surveys, rather surveyors were attentive to any visual or auditory evidence of this species.

### **V. Results and Discussion**

A summary of all identified least Bell's vireo territories in 2008 is provided as Exhibit 3 and are further described by each site below. Similarly, identified least Bell's vireo nests and banded bird resightings or recaptures from all sites are described in Exhibits 4 and 5, respectively. No willow flycatchers, migrant or spring resident, were identified at any of the sites in 2008.

#### **1. Site A: Sweetwater Reservoir, Old Orchard**

In 2008, two least Bell's vireo territories were identified at the Old Orchard site (Exhibit 6). Neither could be confirmed as paired and no nesting behavior was observed. One male was banded, returning to the same site where he was originally banded in 2006.

#### **2. Site B: Upper Sweetwater Reservoir Habitat Management Program and URDS II Study Area**

Fifty-one least Bell's vireo territorial males were present in 2008 in upper Sweetwater Reservoir Habitat Management Program and URDS II study area (Exhibit 7). Of these, 47 were confirmed as paired and four were recorded as unpaired male or male of unknown breeding status. An additional transient male was recorded but is not included in the total. The overall number of territorial males decreased by 4% from the previous year and was 7% below the ten year running average of 55 males (Exhibit 8). Twenty of the 47 pairs were successful in fledging one or more offspring. The number of successful pairs is considered a minimum value since focused reproductive monitoring was not performed as part of these surveys.

A total of 42 nests were identified for the site in 2008. Only three of these were confirmed to be successful, eleven failed, and the outcome of 26 nests was undetermined. Two others were determined to be bachelor nests. As mentioned previously, nests were checked only incidental to survey activities, and as such a complete and accurate assessment of success was not possible. It is likely that several of the nests whose outcome remained undetermined were in fact successful, particularly due to 20 identified success pairs mentioned above. For those nests followed, no

evidence of brown-headed cowbird parasitism was identified. Most identified nest failures were due to predation. At least two nests were completely abandoned with full egg clutches. Both cases were from the same pair who resided in an extremely degraded habitat (i.e. sparse resprouting willow stumps and dried short-pod mustard). It is possible the pair was not able to nourish themselves sufficiently to spend time incubating.

Twenty banded birds were encountered in the site in 2008, 16 male and four female (Exhibit 5). All were previously banded at the Sweetwater Reservoir site and ranged in age from 2<sup>nd</sup> year to after-6<sup>th</sup>-year. In addition to these, two new birds were captured and marked with unique band combination for further tracking purposes. All birds were safely released after capture. No leg injuries were detected for any banded birds at the site.

Despite the severe damage caused by the 2007 Harris Fire, the number and distribution of least Bell's vireo territories established within Upper Sweetwater Reservoir HMP site was relatively similar to pre-burn years. Vegetative cover was much reduced and birds apparently had little foraging habitat, particularly in the older growth forested areas that were hardest hit by the fire. Fortunately, the adjoining riparian habitat on the SDNWR was spared from the fire and maintained high least Bell's vireo occupancy.

### **3. Site C: San Diego National Wildlife Refuge, East of State Route 94**

At the request of SDNWR staff, a field reconnaissance of Site C was performed to further investigate banded least Bell's vireo (2 male and 1 female) that were previously found by John Martin, SDNWR biologist. Three least Bell's vireo territories were visited and a fourth was detected but not investigated. Two were identified as paired and two others were of unknown breeding status (Exhibit 9). One of the two pairs had at least two fledged young.

Band confirmations were made for the two males (Exhibit 5), but the female was not detected during this focused field reconnaissance. An additional female was banded during this effort, as she was captured incidental to attempts to catch her banded mate. Of the two confirmed banded males, one male was previously banded from the Upper Sweetwater Reservoir site in 2005. The other was marked the previous year, 2007, at the Fallbrook Naval Weapons Station in the Santa Margarita River watershed (John Martin pers. comm.). No band related leg injuries were encountered for any of these banded birds.

### **4. Site D: Eastern Loveland Reservoir**

Surveys of the eastern limits of the Loveland Reservoir property yielded four least Bell's vireo territorial males. Three were found along Peterson Creek and one along the Sweetwater River (Exhibit 10). Two of these males were paired, and the remaining two males were of unknown breeding status. None of the birds had leg bands and no nests were identified.

For Peterson Creek, least Bell's vireo numbers in 2008 were relatively similar to prior occupancy, where one to two territories have been detected irregularly since 1996. This was the

first time our surveys detected least Bell's vireo in the Sweetwater River portion of the survey area.

Since no nests were detected, a determination of brown-headed cowbird brood parasitism cannot be made. Brood parasitism on least Bell's vireo has been encountered several times at this site in previous years, however, and these pressures are suspected to continue.

### **VI. Brown-headed Cowbird Trapping**

Cowbird trapping was performed by P. Famolaro, Cesar Alcaraz (Sweetwater Authority – Habitat Maintenance Crew Supervisor), and Nicholas Molsberry (Sweetwater Authority – Biology Intern). Trapping consisted of placement and operation of three modified Australian crow traps in the vicinity of Sweetwater Reservoir and the SDNWR from March 15 to July 15 (Exhibit 11). Trapping conformed to the accepted protocol (Griffith Wildlife Biology 1994), involving a daily trap checks and trap maintenance to ensure the safe release of non-target birds and the humane treatment of cowbirds. All cowbirds and European starlings (*Sturnus vulgaris*) were euthanized and donated as feed to Project Wildlife's raptor care and rehabilitation program.

Cowbird trapping data and summary results are provided as Exhibits 12, 13, and 14. In 2009, cowbird captures occurred within typical annual variations recorded since 1997. The majority of cowbirds were captured at the Bright Valley Farms Stables (i.e. Trap 3), and relatively fewer birds were caught in the vicinity of riparian nesting areas. The trapping program continues to be an effective means of controlling cowbird parasitism within the study site, as shown by the very low parasitism rate (0.85%,  $n = 591$ ) since 1996. The number of traps and their spacing every three to four miles is still believed to be an adequate and efficient trapping strategy as compared to a more concentrated arrangement of traps. The trap arrangement is presumably also benefitting other passerine nesting areas on Sweetwater Reservoir and the adjacent SDNWR.

### **VII. Conclusions**

The Sweetwater Authority has supported species monitoring efforts for over a decade. Species surveys and related activities performed pursuant to state and federal authorizations have been beneficial to both local and regional species recovery efforts. Determining species presence/absence, distribution, and populations trends are useful for regional population monitoring efforts, project specific environmental assessment, and/or permit compliance monitoring. Additional data, such as nesting accounts, breeding productivity, habitat use and preference, band recovery information, or brown-headed cowbird brood parasitism accounts; are useful in many adaptive management applications and contribute to the pool of knowledge available to others involved in species recovery and management. Continuation of these efforts is recommended as there are beneficial to recovery of the species.

Specific to the fire damaged habitat in the HMP area, the Sweetwater Authority is committed to recovery of least Bell's vireo habitat within the HMP. Successful recovery may be contingent on repairing underlying hydrological and topographical deficiencies left by prior sand mining activities. To this end, the Sweetwater Authority has initiated a comprehensive study to consider

options for habitat recovery. The study will result in a final habitat recovery conceptual design and is intended to take approximately 12 months to complete. Sweetwater Authority will enlist the collaborative feedback of the wildlife regulatory agencies during this process.

For the eastern Loveland site, brown-headed cowbird trapping is recommended. Although no brown-headed cowbirds were detected in 2008, evidence of brood parasitism on least Bell's vireo has been detected several times at this site in prior years. As such, trapping would likely benefit reproductive output and population establishment of the species at this site.

The lack of willow flycatchers within apparently suitable habitat is perplexing but is likely due to extremely low remaining populations remaining in the state. Due to their absence, there are no recommendations for recovery at this time. Sweetwater Authority intends to incorporate willow flycatcher habitat elements into the conceptual habitat design process for the HMP. Improved habitat features may show some benefit to the species should it return to this site.

### **VIII. References Cited**

- California Department of Fish and Game. 1996. California Endangered Species Act Memorandum of Understanding by and Between Sweetwater Authority and California Department of Fish and Game Regarding Upper Sweetwater Reservoir Habitat Management Program and California Endangered Species Act Management Authorizations. Tracking No. 2081-1994-088-5. Signed February 14.
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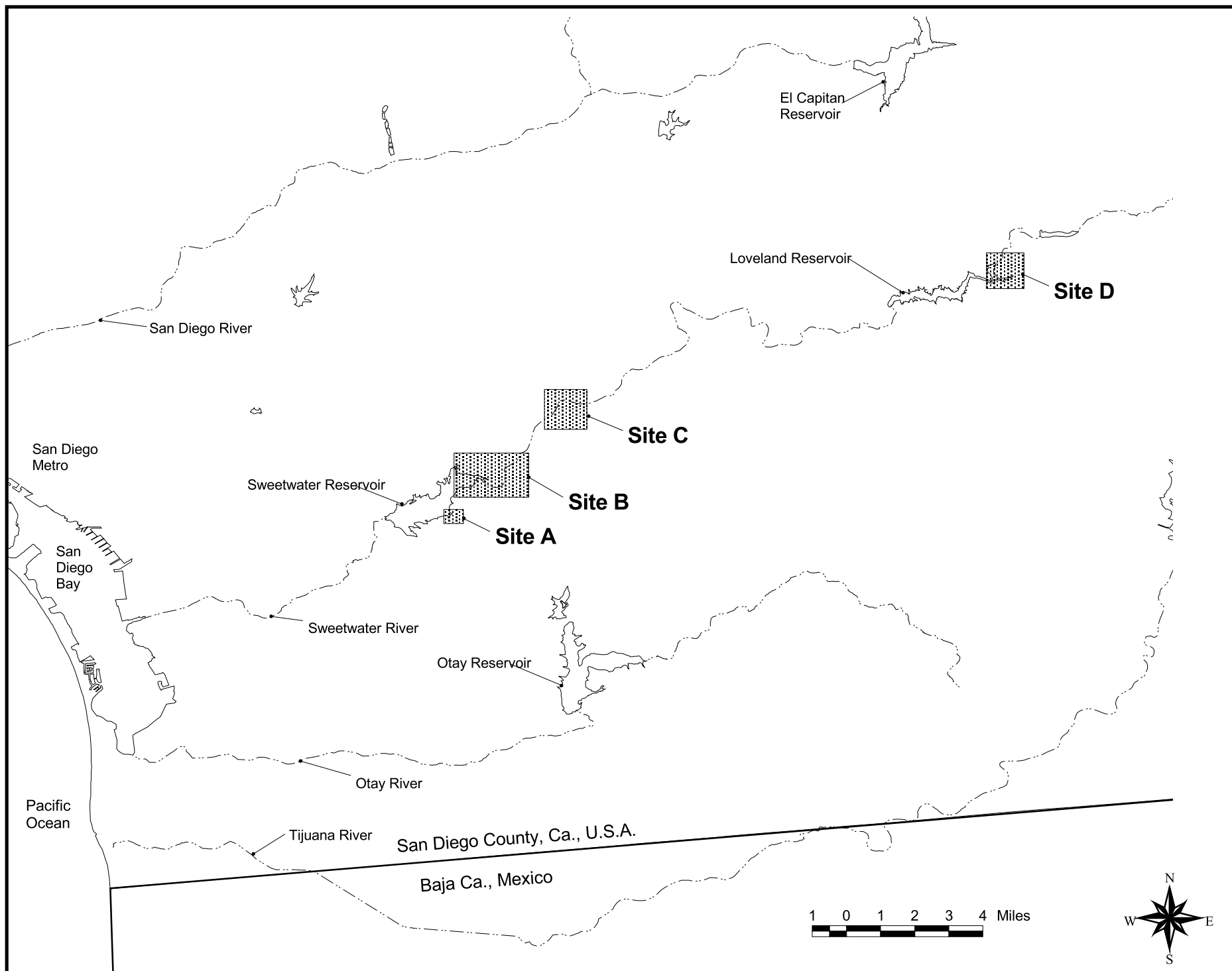


Exhibit 1: Regional Location of the Study Sites (2008)

**Exhibit 2:**  
**2008 Survey Dates, Time, and Personnel**  
**Sweetwater River Watershed, San Diego County, California**

Date	Personnel	Site(s)	Time Start	Time End	Hours
3/31/2008	PF, JR	Site B	9:00 AM	11:45 AM	2.75
4/3/2008	PF, JR	Site B	7:15 AM	12:15 PM	5.00
4/7/2008	PF, JR	Site B	6:45 AM	11:45 AM	5.00
4/10/2008	PF, JR	Site B	7:15 AM	11:45 AM	4.50
4/14/2008	PF, JR	Site B	6:45 AM	11:15 AM	4.50
4/16/2008	PF, JR	Site B	8:30 AM	10:45 AM	2.25
4/21/2008	JR	Site B	6:20 AM	10:53 AM	4.55
4/21/2008	PF	Site A	10:30 AM	12:00 PM	1.50
4/22/2008	PF	Site B	11:45 AM	1:30 PM	1.75
4/24/2008	JR	Site B	6:54 AM	9:51 AM	2.95
4/24/2008	PF	Site A	8:30 AM	11:00 AM	2.50
4/25/2008	JR	Site B	7:54 AM	9:51 AM	1.95
4/25/2008	PF	Site B	6:45 AM	11:15 AM	4.50
4/28/2008	JR	Site B	7:31 AM	11:52 AM	4.35
4/28/2008	PF	Site B	8:45 AM	9:15 AM	0.50
4/30/2008	PF	Site B	?	?	4.00
5/1/2008	PF	Site B	8:45 AM	12:45 PM	4.00
5/1/2008	JR	Site B	7:11 AM	11:30 AM	4.32
5/6/2008	PF	Site B	9:00 AM	12:15 PM	3.25
5/6/2008	JR	Site B	6:49 AM	11:04 AM	4.25
5/7/2008	JR	Site B	6:24 AM	11:08 AM	4.73
5/9/2008	JR	Site B	6:40 AM	12:00 PM	5.33
5/12/2008	JR	Site B	6:23 AM	10:38 AM	4.25
5/12/2008	PF	Site B	8:30 AM	11:00 AM	2.50
5/13/2008	PF, JM	Site C	11:00 AM	2:00 PM	3.00
5/15/2008	PF, JR	Site D	7:30 AM	11:15 AM	3.75
5/16/2008	JR	Site B	6:19 AM	10:57 AM	4.63
5/19/2008	JR	Site B	6:31 AM	11:51 AM	5.33
5/20/2008	PF	Site B	?	?	0.50
5/23/2008	JR	Site B	7:07 AM	11:51 AM	4.73
5/29/2008	JR	Site B	7:00 AM	10:21 AM	3.35
5/30/2008	JR	Site B	6:45 AM	10:17 AM	3.53
6/2/2008	JR	Site B	6:53 AM	10:26 AM	3.55
6/4/2008	PF	Site B	?	?	0.50
6/9/2008	JR	Site D	6:35 AM	9:27 AM	2.87
6/12/2008	JR	Site B	6:50 AM	10:42 AM	3.87
6/13/2008	JR	Site B	6:53 AM	10:24 AM	3.52
6/18/2008	PF	Site B	8:00 AM	9:30 AM	1.50
6/20/2008	JR	Site B	6:20 AM	10:03 AM	3.72

Date	Personnel	Site(s)	Time Start	Time End	Hours
6/23/2008	JR	Site B	6:15 AM	10:44 AM	4.48
6/25/2008	PF	Site B	8:00 AM	10:00 AM	2.00
6/26/2008	JR	Site B	6:16 AM	11:57 AM	5.68
6/27/2008	PF	Site B	8:30 AM	11:30 AM	3.00
6/30/2008	PF	Site B	9:00 AM	10:30 AM	1.50
6/30/2008	JR	Site B	6:48 AM	10:53 AM	4.08
7/2/2008	JR	Site B	6:45 AM	8:55 AM	2.17
7/2/2008	JR	Site D	6:32 AM	9:09 AM	2.62
7/8/2008	JR	Site B	7:07 AM	11:53 AM	4.77
7/14/2008	JR	Site B	6:37 AM	11:00 AM	4.38
7/16/2008	JR	Site B	6:18 AM	11:45 AM	5.45
<b>TOTAL</b>					<b>133.53</b>

Observers

PF = Pete Famolaro, Sweetwater Authority

JM = John Martin, San Diego National Wildlife Refuge

JR = Jeff Ritterson, USGS Western Ecological Research Center

Sites

Site A = Sweetwater Reservoir, Old Orchard

Site B = Sweetwater Reservoir HMP and URDS II Study Area

Site C = San Diego National Wildlife Refuge, east of SR 94

Site D = Eastern Loveland Reservoir

**Exhibit 3:**  
**2008 Least Bell's Vireo Territory Summary**  
**Sweetwater River Watershed, San Diego County, California**

<b>Territory</b>	<b>Site</b>	<b>Lat</b>	<b>Long</b>	<b>Pair status</b>	<b>Success</b>	<b>Male bands</b>	<b>Female bands</b>	<b># Fledged</b>	<b>Notes</b>
A3	Site B	1838561.84	6338772.13	Paired	Yes	NB	NB	2	Nest A3NA
A4	Site B	1838241.45	6339050.48	Paired	U	NB	U		
A5	Site B	1838469.06	6338999.90	Paired	U	PW-ga	NB		Nest A5NA
A6	Site B	1838383.07	6339273.02	Paired	Yes	NB	-ga	at least 1	
A7	Site B	1838190.87	6339657.42	Paired	Yes	NB	NB	2	Nest A7NA
B1	Site B	1838605.62	6340431.28	Paired	Yes	NB	NB	at least 1	Nest B1NA
B1.5	Site B	1838893.92	6340456.57	Paired	U	NB	U		
B10	Site B	1838372.96	6340871.32	Paired	U	NB	NB		Nest B10NA
B2	Site B	1838317.32	6340623.48	Paired	U	LBV-ga	NB		Nest B2NA
B3	Site B	1838453.89	6341134.33	Paired	Yes	ga-BRLG	NB	2	Nest B3NA
B4	Site B	1838271.80	6341048.34	Paired	U	ga-?	NB		
B5	Site B	1838069.49	6341038.23	Paired	U	ga-PLG	NB	at least 1	Nest B5NA
B8	Site B	1837988.56	6340840.97	Paired	U	NB	NB		Nest B8NA
B9	Site B	1838307.21	6340441.40	Paired	U	LGDP-ga	NB		Nest B9NA
C1	Site B	1838322.23	6340065.51	Paired	U	ga-nLGLB	DGDP-ga		Nest C1NA, male replaced by C1.1

**Exhibit 3:**  
**2008 Least Bell's Vireo Territory Summary**  
**Sweetwater River Watershed, San Diego County, California**

<b>Territory</b>	<b>Site</b>	<b>Lat</b>	<b>Long</b>	<b>Pair status</b>	<b>Success</b>	<b>Male bands</b>	<b>Female bands</b>	<b># Fledged</b>	<b>Notes</b>
C1.1	Site B	1838279.51	6340125.50	U	U	-ga	DGDP-ga		C1 female with new banded male, same territory (6/13/2008)
C10	Site B	1837315.86	6340992.71	Paired	U	ga-LPLG	NB		Nest C10NA, Nest C10NB
C12	Site B	1836956.75	6341463.09	Paired	Yes	ga-LGY	NB	1	Nest C12NA, Nest C12NB
C12.5	Site B	1836971.92	6341245.60	Paired	U	NB	NB		Nest C125NA
C15	Site B	1836572.35	6342075.09	Paired	Yes	NB	NB	3	Nest C15NA
C3	Site B	1837836.82	6340497.03	Paired	Yes	NB	NB	2 or 3	Nest C3NA
C6	Site B	1837189.41	6340416.11	Paired	U	ga-BP	NB		Nest C6NA
C8	Site B	1837386.67	6340724.64	Paired	Yes	NB	NB	2	Nest C8NA, Nest C8NB
D2	Site B	1838317.32	6341346.76	Paired	Yes	NB	NB	at least 1	Nest D2NA
D2.5	Site B	1838099.83	6341387.22	Paired	Yes	NB	NB	at least 1	Nest D25NA
D3	Site B	1837659.80	6341498.49	Paired	U	<u>ga-PB</u>	NB		Nest D3NA, Nest D3NB
D5	Site B	1837862.11	6342070.04	Paired	Yes	<u>RW-ga</u>	NB	at least 1	Nest D5NA
E10	Site B	1836774.67	6342687.10	Paired	U	NB	NB		
E12	Site B	1836602.70	6343162.54	Paired	U	NB	NB		Nest E12NA
E13	Site B	1836284.05	6343000.69	Paired	U	DPLP-ga	NB		

**Exhibit 3:**  
**2008 Least Bell's Vireo Territory Summary**  
**Sweetwater River Watershed, San Diego County, California**

<b>Territory</b>	<b>Site</b>	<b>Lat</b>	<b>Long</b>	<b>Pair status</b>	<b>Success</b>	<b>Male bands</b>	<b>Female bands</b>	<b># Fledged</b>	<b>Notes</b>
E3	Site B	1837538.41	6342408.91	Paired	Yes	NB	NB	at least 1	
E4	Site B	1837159.07	6342515.13	Paired	Yes	NB	NB	2	
E4.5	Site B	1837042.73	6342080.15	Paired	U	NB	NB		Nest E45NA, Nest E45NB
E5	Site B	1836744.32	6342363.39	Paired	U	NB	NB		
E7	Site B	1837442.31	6342828.72	Paired	U	PB-ga	DG-ga		Nest E7NA
E9	Site B	1836870.77	6342955.17	Paired	U	NB	NB		
F12	Site B	1838964.73	6344088.13	Paired	Yes	NB	NB	1	Nest F12NA, Nest F12NB
F14	Site B	1839339.02	6343926.28	Paired	U	RY-ga	NB		Nest F14NA
F4.5	Site B	1836901.11	6343627.87	Transient	U	U			
F6	Site B	1837553.58	6343718.91	Paired	U	NB	NB		Nest F6NA, Nest F6NB
F7	Site B	1837958.21	6343895.93	Paired	Yes	DPP-ga	NB	1	Nest F7NA, Nest F7NB
F8	Site B	1838352.73	6343931.34	Paired	U	BP-ga	U		
F9	Site B	1838544.93	6344209.52	U	U	NB			
G1	Site B	1839915.62	6344037.55	Paired	U	NB	-ga		Nest G1NA
G2	Site B	1840178.63	6344214.58	Paired	U	NB	NB		

**Exhibit 3:**  
**2008 Least Bell's Vireo Territory Summary**  
**Sweetwater River Watershed, San Diego County, California**

<b>Territory</b>	<b>Site</b>	<b>Lat</b>	<b>Long</b>	<b>Pair status</b>	<b>Success</b>	<b>Male bands</b>	<b>Female bands</b>	<b># Fledged</b>	<b>Notes</b>
G2.5	Site B	1840421.40	6344614.15	U	Yes	NB	U	at least 1	
G3	Site B	1840841.21	6345160.41	Paired	Yes	NB	NB	at least 1	
G4	Site B	1840952.48	6345529.63	Paired	U	NB	U		Nest G4NA
G5	Site B	1841711.17	6345898.86	Paired	Yes	NB	NB	at least 2	Nest G5NA
G6	Site B	1842292.82	6346298.43	U	U	NB			
I1	Site B	1840819.28	6338410.92	Paired	Yes	U	U	at least 1	
I2	Site B	1841380.65	6338567.58	U	U	U			
J17	Site C	1850038.21	6352245.60	Paired	U	NB			Nest J17NA
J20	Site C	1848523.93	6351098.86	Paired	Yes	BLP-ga	<u>DPDG-ga</u>	at least 2	
J26	Site C	1849876.49	6351334.09	U	U	-Pgogo			
J7	Site C	1850093.62	6352648.85	U	U	U			Heard but not investigated
O1	Site A	1832829.54	6336961.80	U	U	NB			
O2	Site A	1832464.00	6337157.63	U	U	LGR-ga			
PC1	Site D	1869119.52	6410291.38	U	U	NB			
PC2	Site D	1868694.17	6409538.16	Paired	Yes	NB	NB	at least 1	

**Exhibit 3:**  
**2008 Least Bell's Vireo Territory Summary**  
**Sweetwater River Watershed, San Diego County, California**

<b>Territory</b>	<b>Site</b>	<b>Lat</b>	<b>Long</b>	<b>Pair status</b>	<b>Success</b>	<b>Male bands</b>	<b>Female bands</b>	<b># Fledged</b>	<b>Notes</b>
PC3	Site D	1868601.23	6409455.94	Paired	U	NB	NB		
SR1	Site D	1869419.85	6407675.72	U	U	U			

Sites

Site A = Sweetwater Reservoir, Old Orchard  
 Site B = Sweetwater Reservoir HMP and URDS II Study Area  
 Site C = San Diego National Wildlife Refuge, east of SR 94  
 Site D = Eastern Loveland Reservoir

Band information

DP = dark pink, LP = light pink, DG = dark green, LG = light green, LB = Light Blue  
 MV = mauve, P = purple, W = white, Y = yellow, B = black, BR = brown, R = Red  
 ga = green anodized USFWS band  
 gogo = gold anodized band  
 n = narrow striped color bands  
 NB = not banded

Order for split color bands is left to right = top to bottom (e.g. DPWH split indicates the dark pink color is towards the intertarsal joint and white is near the foot).

Underline denotes newly banded, band added or changed.

U - Unknown or undetermined

Lat/Long Coordinates in NAD 1983, US Survey Feet



**Exhibit 4:**  
**2008 Least Bell's Vireo Nest Information**  
**Sweetwater River Watershed, San Diego County, California**

Territory	Nest ID	Site	Host Plant	Habitat Type	Clutch size	Month/Day (Status)	# unhatched eggs	Outcome	Nest height (inches)	Cowbird parasitized	Notes	Observer(s)
A3	A3NA	Site B	U	U	3	6/12(I)		U	U	No	6/12 (3 eggs)	JR
A5	A5NA	Site B	SAGO	WW	4	4/28 (H-4)		U	U	No		PF
A6	A6NA	Site B	U	U	3	5/12(I)		U	U	No	5/12 (3 eggs)	JR
A7	A7NA	Site B	BASA	WW	4	4/25(I)		U	U	No	4/25 (4 eggs)	PF
B1	B1NA	Site B	BASA	WW	4	4/16(I), 4/25(I)		U	U	No	4/16 (male incubating 4 eggs); 4/25 (4 eggs)	PF
B2	B2NA	Site B	BASA	WW	4	4/25(H-3), 4/30(H-8)		U	U	No	4/25 (4 chicks); 4/30 (4 chicks)	PF
B3	B3NA	Site B	BASA	WW	4	4/16(I), 4/21(I), 4/25(H-2)		U	U	No	4/16 (male incubating 4 eggs); 4/21 (4 eggs); 4/25 (4 chicks)	PF, JR
B5	B5NA	Site B	BASA	WW	4	4/21(I), 4/25(I), 5/16		Success	U	No	4/21 (4 eggs); 4/25 (female incubating 4 eggs); 5/16 (Fledged, 1? recorded)	PF
B8	B8NA	Site B	ARDO	WW	4	4/25(I)		U	U	No	4/25 (male incubating 4 eggs)	PF
B9	B9NA	Site B	SAGO	WW	4	4/16(I), 4/30(H-4)		U	U	No	4/16 (female incubating 4 eggs); 4/30 (4 chicks)	PF
B10	B10NA	Site B	? (charred)	WW	3	5/19 (H-9); 5/20		U	U	No	5/16 (3 chicks); 5/19 (2 chicks, 1 missing); 5/20 (2 chicks)	PF, JR
C1	C1NA	Site B	BASA	WW	4	4/22(I), 5/1(H-7)	1	U	U	No	4/10 (3 eggs); 4/22 (4 eggs); 5/1 (3 chicks, 1 unhatched egg)	PF, JR
C10	C10NA	Site B	BASA (charred)	WS	NA	4/7(B), 4/10(?), 5/1		NA	U	No	4/7 (cup ~5% complete, male building, no female detected); 4/10 (no change in nest condition, no female detected); 5/1 (nest never completed and deteriorated = bachelor nest)	PF, JR
C10	C10NB	Site B	SAGO (charred)	WS	4	5/1(I)		U	U	No	5/1 (female incubating 4 eggs)	PF
C12	C12NA	Site B	ROCA	WS	U	5/1(H-5)		U	U	No	5/1 (2 chicks, both parents feeding, full clutch undetermined)	PF
C12	C12NB	Site B	U	U	3	6/20(I)		U	U	No	6/20 (3 eggs)	JR
C12.5	C12.5NA	Site B	SAME (charred)	WS	U	5/1(L)		U	U	No	5/1 (female lining)	PF

**Exhibit 4:**  
**2008 Least Bell's Vireo Nest Information**  
**Sweetwater River Watershed, San Diego County, California**

Territory	Nest ID	Site	Host Plant	Habitat Type	Clutch size	Month/Day (Status)	# unhatched eggs	Outcome	Nest height (inches)	Cowbird parasitized	Notes	Observer(s)
C15	C15NA	Site B	BASA	WS	3	4/10(L), 4/28(I), 5/12		Failed	31	No	4/28(3 eggs); 5/12(nest on ground, no egg shell fragments, measured to remaining nest material still hanging)	PF
C3	C3NA	Site B	BASA	WW	4	4/22(H-2), 5/1		Failed	13	No	4/10(female incubating 4 eggs); 4/22 (4 chicks); 5/1 (nest intact w/o feather dust, no fledges detected)	PF, JR
C6	C6NA	Site B	BASA - BRNI (old)	RUD	3	5/1 (H-0)		U	U	No	5/1 (2 chicks, 1 egg, nest hanging precariously on BRNI side, supporting twig weaved in)	PF
C8	C8NA	Site B	U	U	1	4/21(I)		Failed	U	No	4/21(1 egg)	JR
C8	C8NB	Site B	BRNI (new)	RW	U	5/1(B)		U	U	No	5/1 (cup ~75% complete, supported only on one side)	PF
D2	D2NA	Site B	BRNI (old)	WW	NA	4/16(B), 4/30		NA	U	No	4/16 ( poor construction, "shape narrow and loosely woven", no female detected); 4/30 (no change in nest condition = bachelor nest)	PF
D2.5	D2.5NA	Site B	SAGO	WS	U	4/16(L)		U	U	No		PF
D3	D3NA	Site B	TAM or BASA? (charred)	RUD	4	5/6	4	Failed	U	No	5/6 (nest in small TAM or BASA, "too charred to distinguish", 4 eggs, split color (half pinkish, half white) = separated, pair only at nest site only once over 40 minutes and never incubating, eggs very cold, pair subsequently observed building nest D3NB)	PF
D3	D3NB	Site B	BASA	WS	3	5/6(B), 6/4 (I)	3	Failed	U	No	5/6 (cup ~75% complete); 6/4 (should of hatched by now but male is still incubating, eggs split color = separated like D3NA)	PF
D5	D5NA	Site B	SAGO (charred)	WS	4	4/4(B), 4/28(H-3), 5/12		Success	34.5	No	4/4 (cup ~5% complete, very exposed loction); 4/28 (4 chicks); 5/12 (nest in tact with feather dust, fledges ~40' away)	PF, JR
E12	E12NA	Site B	BASA	WS	4	4/7(L), 4/24(I)		U	U	No	4/7 PF/JR; 4/24 (female incubating 4 eggs)	PF, JR
E4.5	E4.5NA	Site B	BASA	WS	U	4/3(B), 4/28		Failed	U	No	4/3 (cup ~10% complete); 4/28 (nest on ground, 1 cracked egg/fragment below)	PF, JR
E4.5	E4.5NB	Site B	TODI	WS	2	4/28(I), 5/6		Failed	U	No	4/28(I); 5/6 (nest pulled apart)	PF, JR
E7	E7NA	Site B	BASA	WS	4	4/7(L), 4/25		Failed	U	No	4/25 (nest on ground, 4 unbroken eggs)	PF, JR
F12	F12NA	Site B	U	U	U	5/7(H-7), 5/30		U	U	No	5/7 (2 chicks, full clutch undetermined); 5/30 (either fledged or failed, nest in tact)	JR

**Exhibit 4:**  
**2008 Least Bell's Vireo Nest Information**  
**Sweetwater River Watershed, San Diego County, California**

Territory	Nest ID	Site	Host Plant	Habitat Type	Clutch size	Month/Day (Status)	# unhatched eggs	Outcome	Nest height (inches)	Cowbird parasitized	Notes	Observer(s)
F12	F12NB	Site B	SALAS	WS	U	6/25		Failed	U	No	6/25 (1 egg, separated color, very cold, full clutch undetermined)	PF
F14	F14NA	Site B	U	U	3	6/2(I)		U	U	No	6/2 (3 eggs)	JR
F6	F6NA	Site B	BASA	WS	U	4/25		U	U	No	4/25 (male on nest, good construction/shape, but no eggs)	PF
F6	F6NB	Site B	U	U	2	5/30(I), 6/23		Failed	U	No	5/30 (2 eggs), 6/23 (failed, no description)	JR
F7	F7NA	Site B	BASA	WS	U	4/14(L), 4/25		Failed	38.5	No	4/25 (picked clean, 1 egg shell fragment below)	PF
F7	F7NB	Site B	BASA	WS	U	4/25(L)		U	U	No		PF
F8	F8NA	Site B	U	U	3	5/7(I), 5/30(FD)		Success	U	No	5/7 (3 eggs); 5/30 (2 nestlings, both observed fledging from nest)	JR
G1	G1NA	Site B	TAM	WS	2	6/25(I)		U	U	No	6/25 (male and female incubating, 2 eggs)	PF
G4	G4NA	Site B	SAGO / TODI	WW	U	4/14(B)		U	U	No	4/14 (nest building observed from distance in SAGO/TODI patch, nest appears <5% complete)	PF, JR
G5	G5NA	Site B	U	U	3	5/9(I), 6/2		U	U	No	5/9 (3 eggs); 6/2 (outcome unknown)	JF
J17	J17NA	Site C	QUAG	RW		5/13(B)		U	U	No	5/13 (cup base being formed)	PF, JM

**Status**

B = Building  
L = Lining  
E = Egg laying (- number of egg present)  
I = Incubating  
H = Hatchlings (- estimated age in days)  
FD = Fledge day  
? = Status uncertain

U = Unknown or undetermined

PF = Peter Famolaro, Sweetwater Authority  
JM = John Martin, San Diego National Wildlife Refuge  
JR = Jeff Ritterson, USGS

**Host Plant**

ARDO = Arundo donax  
BASA = Baccharis salicifolia  
BRNI = Brassica nigra  
QUAG = Quercus agrifolia  
ROCA = Rosa californica  
SAGO = Salix gooddingii  
SALAS = Salix lasiolepis  
SAME = Sambucus mexicana  
TAM = Tamarix sp.  
TODI = Toxicodendron diversilobum

**Habitat Classification**

CSS = Coastal Sage Scrub  
RUD = Ruderal  
WW = Willow Woodland  
WS = Willow scrub and/or mule fat scrub

**Sites**

Site A = Sweetwater Reservoir, Old Orchard  
Site B = Sweetwater Reservoir HMP and URDS II Study Area  
Site C = San Diego National Wildlife Refuge, east of SR 94  
Site D = Eastern Loveland Reservoir

**Exhibit 5:**  
**2008 Least Bell's Vireo Band Returns and Recaptures**  
**Sweetwater River Watershed, San Diego County, California**

Band Number	Color Combination	Sex	Age	2008 Territory	Lat	Long	Notes
1850-01050	PW-ga	M	A6 <sup>th</sup> Y	A5	1838469.06	6338999.90	Banded as AHY 6/17/2003, returning 2004 - 2008
	-ga	F	AHY	A6	1838383.07	6339273.02	Recapture not attempted
2230-02339	LBY-ga	M	ASY	B2	1838317.32	6340623.48	Banded as AHY 5/2/2007, returning 2008
1850-01080	ga-BRLG	M	A5 <sup>th</sup> Y	B3	1838453.89	6341134.33	Banded as AHY 5/7/2004, returning 2005 - 2008
	ga-?	M	AHY	B4	1838271.80	6341048.34	Combo not verified, possibly ga-LPB (1850-01088)
1850-01090	ga-PLG	M	A5 <sup>th</sup> Y	B5	1838069.49	6341038.23	Banded as AHY 5/26/2004, returning 2005 - 2008
2230-02338	LGDP-ga	M	ASY	B9	1838307.21	6340441.40	Banded as AHY 5/2/2007, returning 2008
1850-01089	ga-nLGLB	M	A5 <sup>th</sup> Y	C1	1838322.23	6340065.51	Banded as AHY 5/25/2004, returning 2005 - 2008
	-ga	M	AHY	C1.1	1838279.51	6340125.50	Replacing C1 male mid season; Recapture not attempted
2230-02322	DGDP-ga	F	A4 <sup>th</sup> Y	C1	1838322.23	6340065.51	Banded as AHY 6/13/2005, returning 2007 - 2008
1850-01094	ga-LPLG	M	A5 <sup>th</sup> Y	C10	1837315.86	6340992.71	Banded as AHY 7/29/2004, returning 2005 - 2008
1850-01096	ga-LGY	M	A5 <sup>th</sup> Y	C12	1836956.75	6341463.09	Banded as AHY 7/29/2004, returning 2005-2008
2230-02335	ga-BP	M	ATY	C6	1837189.41	6340416.11	Banded as AHY 7/25/2006, returning 2007 - 2008
2230-02325	DPLP-ga	M	ATY	E13	1836284.05	6343000.69	Banded as AHY 5/9/2006, returning 2007 - 2008
2230-02305	DG-ga	F	A4 <sup>th</sup> Y	E7	1837442.31	6342828.72	Banded as AHY 4/12/2005, returning 2006 - 2008
2230-02323	PB-ga	M	A4 <sup>th</sup> Y	E7	1837442.31	6342828.72	Banded as AHY 6/27/2005, returning 2006 - 2008
2230-02320	RY-ga	M	A4 <sup>th</sup> Y	F14	1839339.02	6343926.28	Banded as AHY 5/24/2005, returning 2006 - 2008
1850-01047	DPP-ga	M	A6 <sup>th</sup> Y	F7	1837958.21	6343895.93	Banded as AHY 4/25/2003, returning 2004 - 2008
2230-02321	BP-ga	M	A4 <sup>th</sup> Y	F8	1838352.73	6343931.34	Banded as AHY 6/7/2005, returning 2006 and 2008
	-ga	F	AHY	G1	1839915.62	6344037.55	Recapture not attempted
1850-01100	BLP-ga	M	A4thY	J20	1848523.93	6351098.86	Resight by J. Martin (SDNWR) and P. Famolaro 5/13/2008
2460-19524	-Pgogo	M	SY	J26	1849876.49	6351334.09	Banded as HY 7/02/2007, Fallbrook Naval Weapons Station, recaptured by P. Famolaro and J. Martin on 5/13/2008

Sites

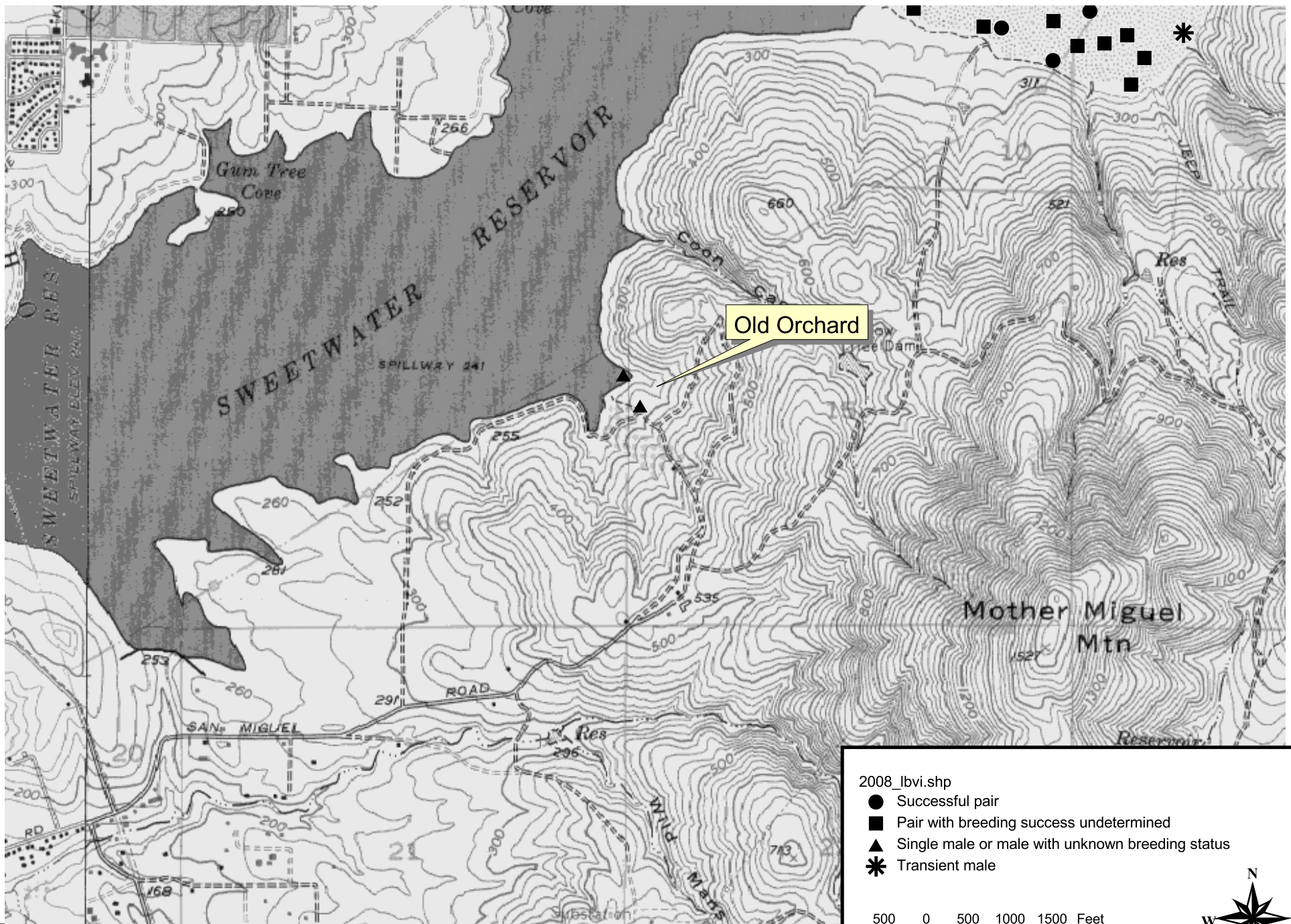
Site A = Sweetwater Reservoir, Old Orchard  
Site B = Sweetwater Reservoir HMP and URDS II Study Area  
Site C = San Diego National Wildlife Refuge, east of SR 94  
Site D = Eastern Loveland Reservoir

Order for split color bands is left to right = top to bottom (e.g. DPWH indicates the dark pink color is towards the intertarsal joint and white is near the foot).

Underline denotes band added or changed.

DP = dark pink, LP = light pink, DG = dark green, LG = light green, LB = Light Blue  
MV = mauve, P = purple, W = white, Y = yellow, B = black, BR = brown, R = Red  
ga = green anodized USFWS band, gogo = gold anodized band  
n = narrow striped color bands (e.g. nLGLB)

Lat/Long Coordinates in NAD 1983, US Survey Feet



2008\_lbvi.shp

- Successful pair
- Pair with breeding success undetermined
- ▲ Single male or male with unknown breeding status
- \* Transient male

500 0 500 1000 1500 Feet

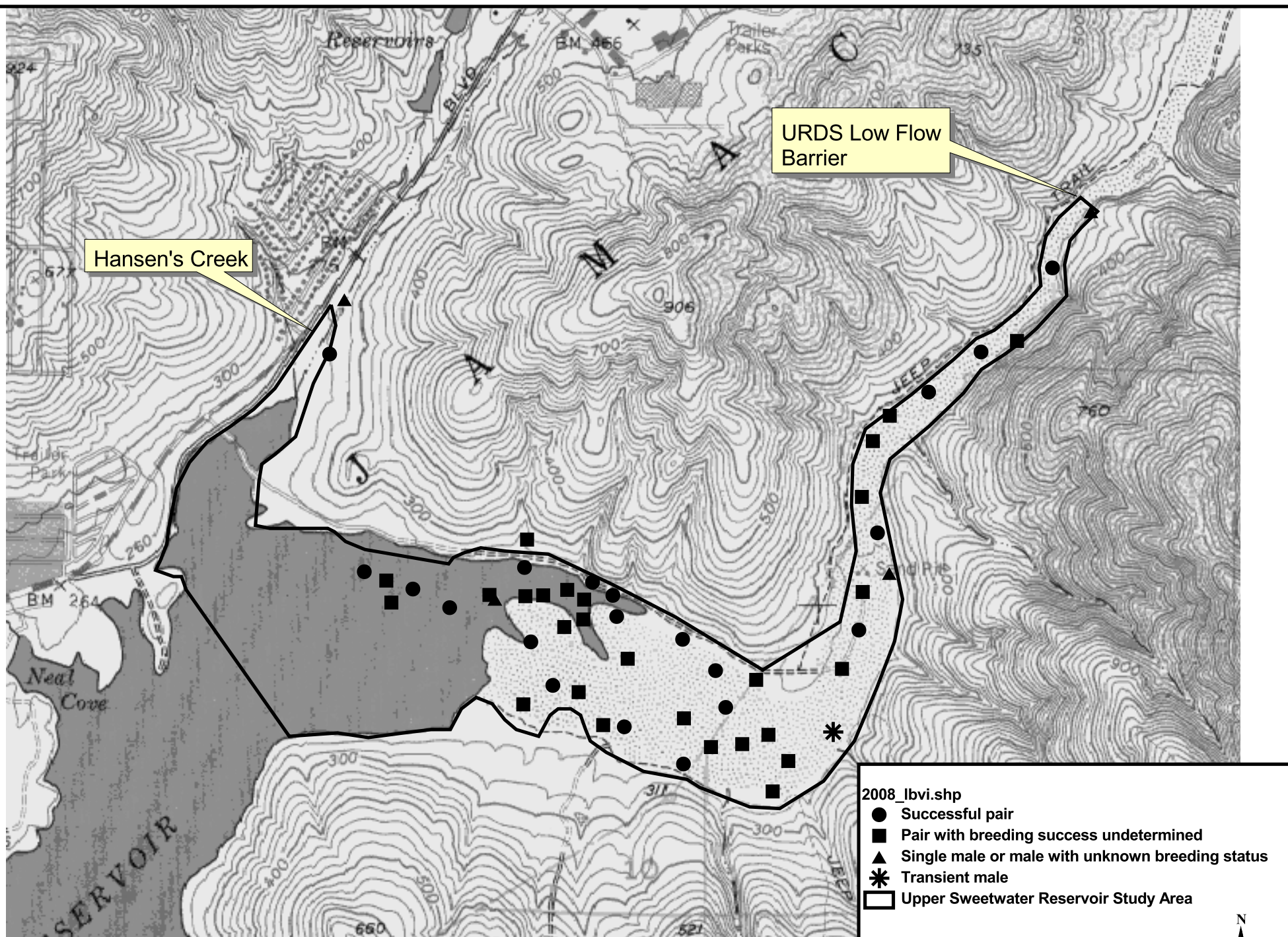


USGS Quads: National City and Jamul Mountains, Ca.



**Exhibit 6: Least Bell's Vireo Territories (2008),  
Site A - Sweetwater Reservoir, Old Orchard**





**Exhibit 7: Least Bell's Vireo Territories (2008),  
Site B - Sweetwater Reservoir HMP and URDS II Study Area**

500 0 500 1000 1500 Feet

USGS Quad: Jamul Mountains, Ca.



Exhibit 8:  
Least Bell's Vireo (*Vireo bellii pusillus*) Annual Summary  
for Site B, Sweetwater Reservoir HMP + URDS II Study Area

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995 <sub>1</sub>	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Territorial males	19	17	25	39	38	27	28	28	32	39		40	45	54	58	51	52	59	48	51	64	68	50	54	51
Transient males																							3		1
Confirmed pairs				25	32	23	25	22	29	30		29	34	50	54	46	51	54	36	44	58	64	30	53	47
Confirmed successful pairs <sub>2</sub>				80%	81%	74%	76%	86%	83%	83%		90%		88%	76%	78%	73%	89%	47%	86%	69%	75%	40%	74%	
Nests identified												13	35	52	59	51	79	85	38	36	57	73	35	45	42
Bachelor nests																	2	6	4	0	2	0	1	1	2
Nests monitored													21	44	59	50	77	79	26	34	52	63	29	43	14
Nest success <sub>3</sub>													24%	52%	56%	62%	48%	62%	38%	68%	62%	56%	41%	60%	21%
Fledged young <sub>4</sub>															107	97	105	162	26	61	66	89	21	79	30
Pair productivity (fledges/pair)															2.43 (n=44 pairs)	2.43 (n=40 pairs)	2.10 (n=50 pairs)	3.18 (n= 51 pairs)	1.24 (n=21 pairs)					2.37 (n=19 pairs)	
Nest productivity (fledges/nest)															1.80 (n=59)	1.98 (n=49)	1.38 (n=76)	2.05 (n=79)	1.00 (n=26)	2.18 (n=28)	1.57 (n=42)	1.62 (n=55)	1.16 (n=18)	1.80 (n=25)	
Parasitised nests													2	0	0	0	0	0	0	0	0	1	2	0	0

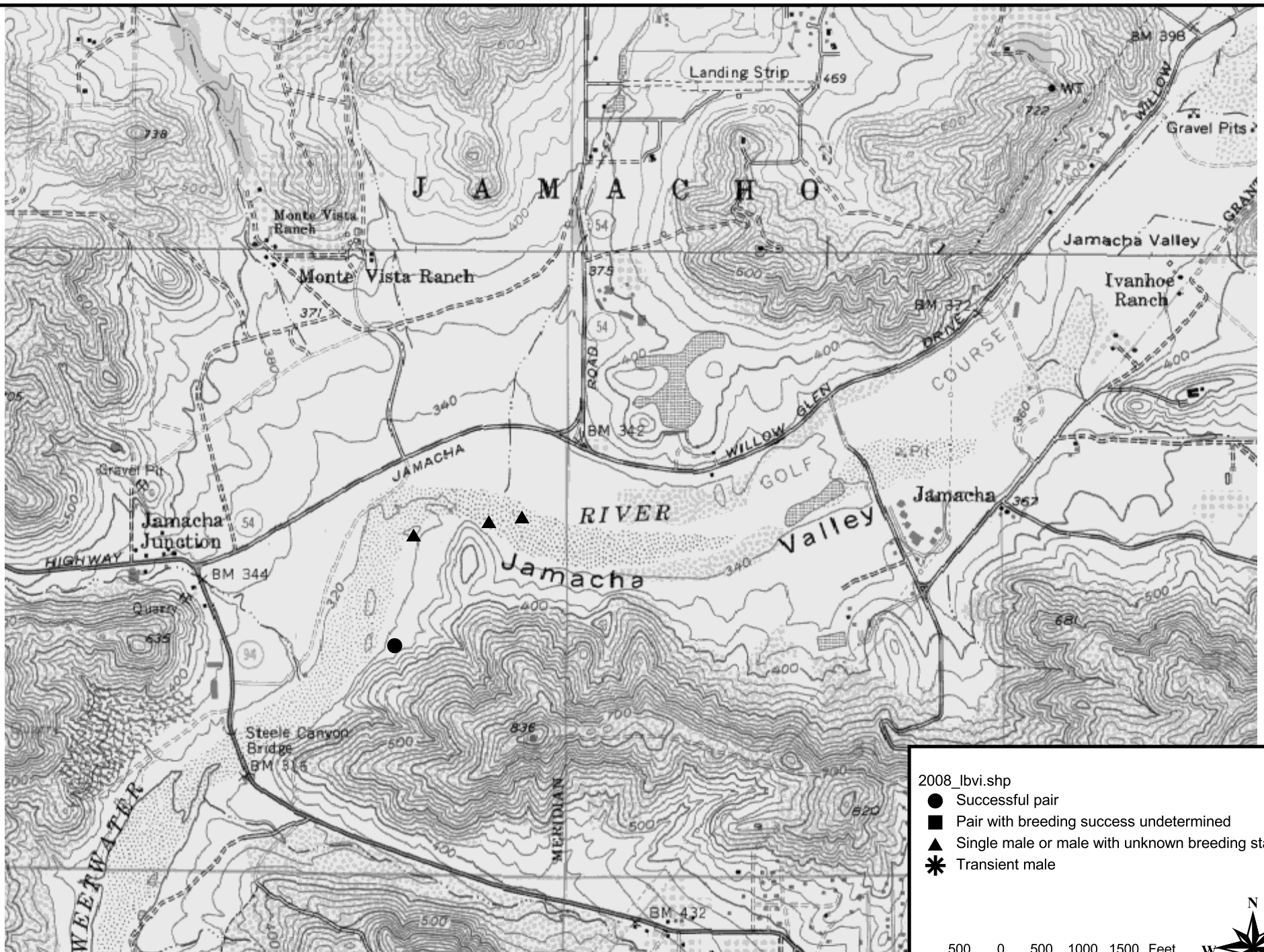
<sub>1</sub> 1995 survey only included the HMP study area (i.e. Sweetwater Authority property)  
<sub>2</sub> Based on monitored subset of the total population  
<sub>3</sub> One or more fledges produced per pair or per nest  
<sub>4</sub> Minimum values since comprehensive monitoring was not performed

Data Sources

1984+1985: E. Copper and B. Jones (Westec Services Inc.)  
1986 G. Collier and B. Jones; B. Kus and K. Miner (SDSU)  
1987-1993 B. Kus (SDSU)  
1995 M. Dodero, P. Famolaro, R. Stephenson (RECON)  
1996 P. Famolaro (Sweetwater Authority)  
1997 P. Famolaro (Sweetwater Authority), B. Kus (SDSU) banding  
1998: P. Famolaro (Sweetwater Authority), K. Schenck (SDSU), B. Kus, (SDSU) banding, P. Beck (SDSU) banding  
1999: P. Famolaro (Sweetwater Authority), R. Fox (City of San Diego), L. Tikkanen (SDSU)

2000+2001: P. Famolaro (Sweetwater Authority), L. Tikkanen Reising (SDSU)  
2002: P. Famolaro (Sweetwater Authtoriy), K. Peltz (SDSU)  
2003: P. Famolaro, C. Noddings (Sweetwater Authority)  
2004: P. Famolaro (Sweetwater Authority), L. Tikkanen Reising (Reising Enterprises)  
2005: P. Famolaro (Sweetwater Authority), K. Strum (USGS)  
2006: P. Famolaro (Sweetwater Authority), J. Lovio (independent biologist)  
2007: P. Famolaro (Sweetwater Authority), T. Mason (USGS)  
2008: P. Famlaro (Sweetwater Authority), J. Ritterson (USGS)





**Exhibit 9: Least Bell's Vireo Territories (2008),  
Site C: San Diego National Wildlife Refuge, East of State Route 94**

2008\_lbvi.shp

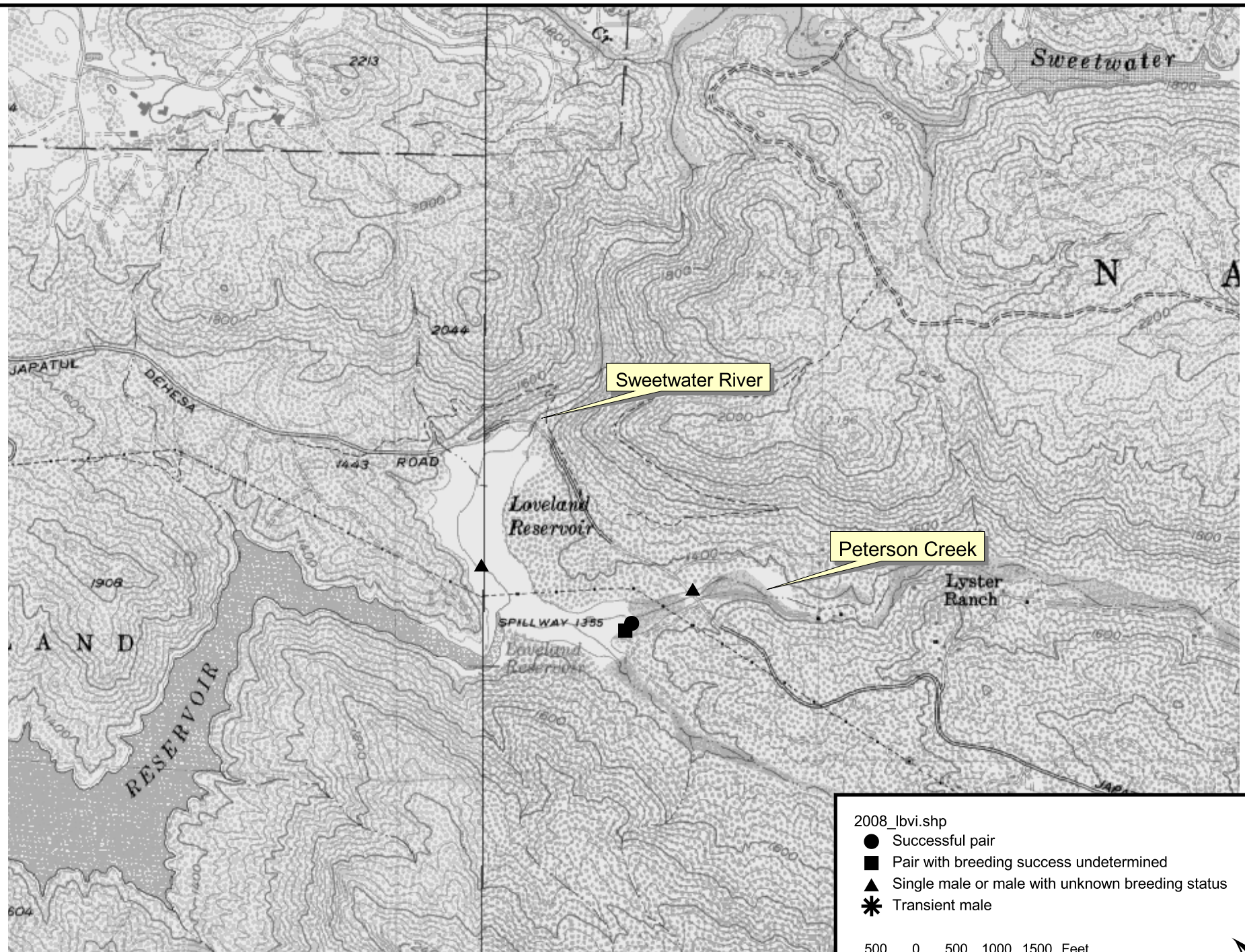
- Successful pair
- Pair with breeding success undetermined
- ▲ Single male or male with unknown breeding status
- \* Transient male

500 0 500 1000 1500 Feet



USGS Quads: Jamul Mountains and El Cajon, Ca.

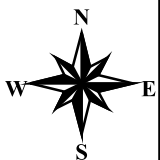




2008\_lbvi.shp

- Successful pair
- Pair with breeding success undetermined
- ▲ Single male or male with unknown breeding status
- \* Transient male

500 0 500 1000 1500 Feet

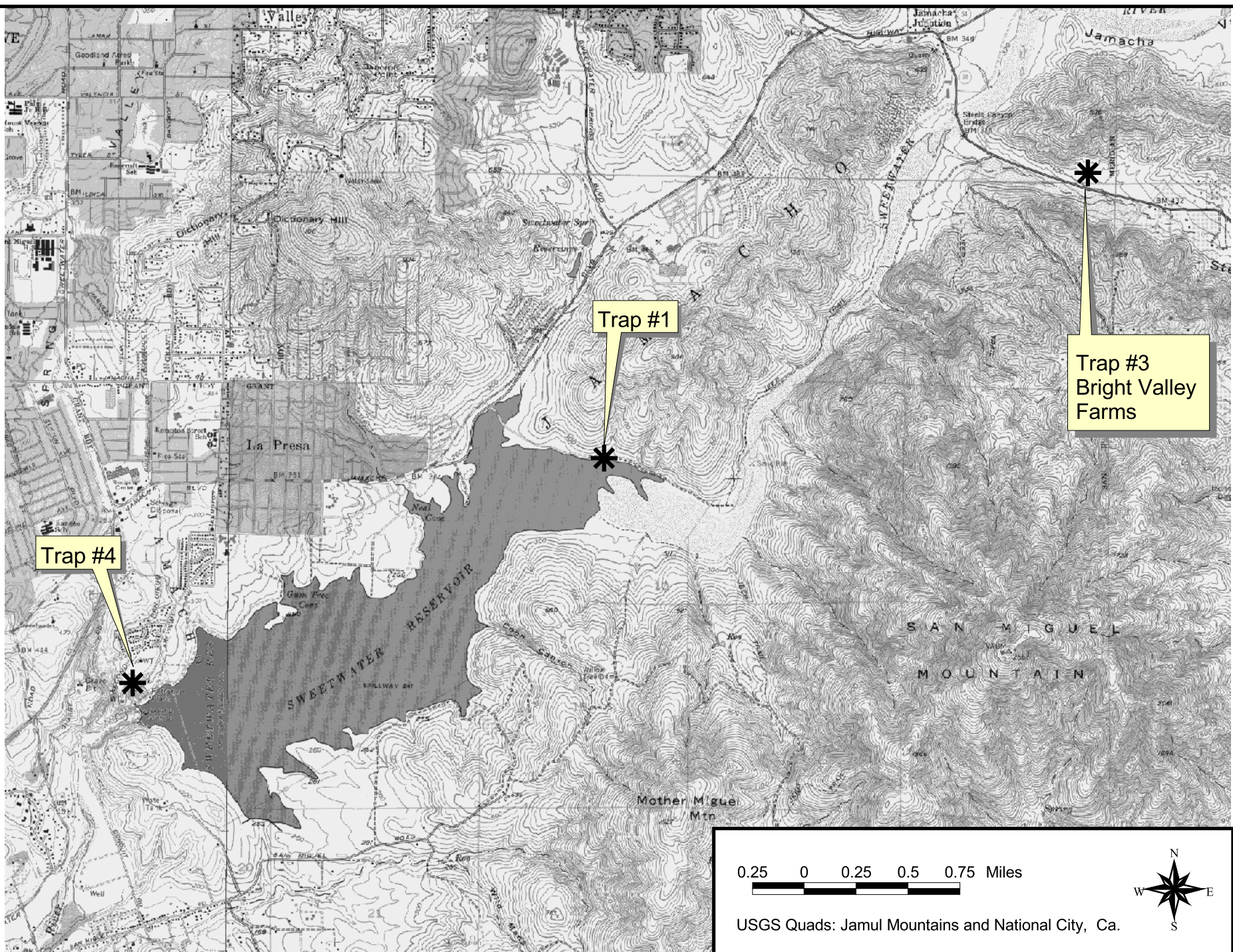


USGS Quads: Alpine and Viejas Mountain, Ca.



**Exhibit 10: Least Bell's Vireo Territories (2008),  
Site D: Eastern Loveland Reservoir**





**Exhibit 11: Cowbird Trap Locations (2008)**

**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
20-Mar	4					0				1									1		1	
21-Mar	1					0													0		0	
21-Mar	3					0													0		0	
21-Mar	4			2		2													0		0	
22-Mar	1					0													0		0	
22-Mar	3					0													0		0	
22-Mar	4		1			1													0		0	
23-Mar	1					0													0		0	
23-Mar	3					0													0		0	
23-Mar	4					0													0		0	
24-Mar	3					0													0		0	
24-Mar	1					0													0		0	
24-Mar	4					0				2									2	1	1	1 CALT - DOA
25-Mar	3					0													0		0	
25-Mar	1					0													0		0	
25-Mar	4		1			1				1									1		1	
26-Mar	3		1	2		3													0		0	
26-Mar	1					0													0		0	
26-Mar	4					0				1									1		1	
27-Mar	3					0													0		0	
27-Mar	1					0													0		0	
27-Mar	4					0				1									1		1	
28-Mar	3					0													0		0	
28-Mar	1					0													0		0	
28-Mar	4					0				2									2		2	
29-Mar	1					0													0		0	
29-Mar	3					0							2						2		2	
29-Mar	4					0				1									1		1	
30-Mar	1					0													0		0	
30-Mar	3					0													0		0	
30-Mar	4					0				2									2		2	
31-Mar	1					0													0		0	
31-Mar	3					0													0		0	
31-Mar	4					0				1									1		1	
1-Apr	1					0				2									2		2	
1-Apr	3					0				1									1		1	
1-Apr	4					0				2									2		2	

**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
2-Apr	3					0													0		0	
2-Apr	1					0													0		0	
2-Apr	4					0				1									1		1	
3-Apr	1					0													0		0	
3-Apr	3					0													0		0	
3-Apr	4					0				1									1		1	
4-Apr	1					0													0		0	
4-Apr	3					0													0		0	
4-Apr	4					0				2									2		2	
5-Apr	3					0				1									1		1	
5-Apr	1					0													0		0	
5-Apr	4					0				1									1		1	
6-Apr	3					0													0		0	
6-Apr	1					0													0		0	
6-Apr	4					0	1			1									2		2	
7-Apr	1					0													0		0	
7-Apr	3					0													0		0	
7-Apr	4					0				1		2		1					4		4	
8-Apr	3					0													0		0	
8-Apr	1					0													0		0	
8-Apr	4		1			1													0		0	
9-Apr	4					0													0		0	
9-Apr	1					0													0		0	
9-Apr	3					0				1									1		1	
10-Apr	1					0													0		0	
10-Apr	3					0													0		0	
10-Apr	4					0				1									1		1	
11-Apr	3					0													0		0	
11-Apr	1		2			2													0		0	
11-Apr	4					0				1									1		1	
12-Apr	3					0													0		0	
12-Apr	1					0													0		0	
12-Apr	4					0													0		0	
13-Apr	3					0													0		0	
13-Apr	1					0													0		0	
13-Apr	4					0													0		0	
14-Apr	1					0													0		0	

**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
14-Apr	3					0													0		0	
14-Apr	4					0													0		0	
15-Apr	3		1	1		2													0		0	
15-Apr	1		1			1													0		0	
15-Apr	4					0													0		0	
16-Apr	3					0													0		0	
16-Apr	1					0													0		0	
16-Apr	4					0													0		0	
17-Apr	3			1		1													0		0	
17-Apr	1					0													0		0	
17-Apr	4					0													0		0	
18-Apr	3			1		1													0		0	
18-Apr	1					0													0		0	
18-Apr	4					0													0		0	
19-Apr	3					0													0		0	
19-Apr	1					0													0		0	
19-Apr	4					0													0		0	
20-Apr	3					0													0		0	
20-Apr	1		1	1		2													0		0	
20-Apr	4					0						1							1		1	
21-Apr	1					0													0		0	
21-Apr	3		2			2													0		0	
21-Apr	4					0													0		0	
22-Apr	3		1			1													0		0	
22-Apr	1					0													0		0	
22-Apr	4					0													0		0	
23-Apr	3		1			1													0		0	
23-Apr	1					0													0		0	
23-Apr	4					0													0		0	
24-Apr	3					0													0		0	
24-Apr	1					0													0		0	
24-Apr	4					0													0		0	
25-Apr	1					0													0		0	
25-Apr	3					0													0		0	
25-Apr	4					0													0		0	
26-Apr	3					0													0		0	
26-Apr	1					0													0		0	



**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
26-Apr	4					0													0		0	
27-Apr	1					0													0		0	
27-Apr	3		2	2		4						2							2		2	
27-Apr	4					0													0		0	
28-Apr	3					0													0		0	
28-Apr	1					0													0		0	
28-Apr	4					0													0		0	
29-Apr	3		1	2		3													0		0	
29-Apr	1					0													0		0	
29-Apr	4				1	1													0		0	
30-Apr	3					0													0		0	
30-Apr	1					0										1			1		1	
30-Apr	4					0				1									1		1	
1-May	1					0													0		0	
1-May	3					0													0		0	
1-May	4					0													0		0	
2-May	1					0													0		0	
2-May	3					0													0		0	
2-May	4		1			1													0		0	
3-May	3					0													0		0	
3-May	1					0													0		0	
3-May	4					0													0		0	
4-May	1					0													0		0	
4-May	3		1			1													0		0	
4-May	4					0													0		0	
5-May	3					0													0		0	
5-May	1					0													0		0	
5-May	4					0													0		0	
6-May	3					0													0		0	
6-May	1					0													0		0	
6-May	4		1			1													0		0	
7-May	3		1			1													0		0	
7-May	1			1		1													0		0	
7-May	4					0													0		0	
8-May	3					0						1							1		1	
8-May	1					0													0		0	
8-May	4					0													0		0	

**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
9-May	1					0													0		0	
9-May	3		2			2													0		0	
9-May	4					0													0		0	
10-May	3					0													0		0	
10-May	1					0													0		0	
10-May	4					0						1							1		1	
11-May	3					0													0		0	
11-May	1					0													0		0	
11-May	4					0													0		0	
12-May	1					0													0		0	
12-May	3					0													0		0	
12-May	4					0													0		0	
13-May	3					0													0		0	
13-May	1		1			1													0		0	
13-May	4					0													0		0	
14-May	3					0						1							1		1	
14-May	1					0													0		0	
14-May	4		1			1													0		0	
15-May	3					0													0		0	
15-May	1					0													0		0	
15-May	4					0													0		0	
16-May	1					0													0		0	
16-May	3					0				2									2		2	
16-May	4					0													0		0	
17-May	3					0													0		0	
17-May	1					0													0		0	
17-May	4					0													0		0	
18-May	3					0													0		0	
18-May	1		1			1				1									1		1	
18-May	4		1			1													0		0	
19-May	1					0													0		0	
19-May	3					0				1									1		1	
19-May	4					0							1						1		1	
20-May	1					0													0		0	
20-May	3					0													0		0	
20-May	4					0													0		0	
21-May	1		1	1		2													0		0	

**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
21-May	3					0													0		0	
21-May	4					0													0		0	
22-May	3					0													0		0	
22-May	1					0													0		0	
22-May	4					0													0		0	
23-May	1					0													0		0	
23-May	3					0													0		0	
23-May	4					0				1									1		1	
24-May	3					0													0		0	
24-May	1					0													0		0	
24-May	4					0				3									3		3	
25-May	3					0						1							1		1	
25-May	1					0													0		0	
25-May	4					0													0		0	
26-May	1					0													0		0	
26-May	3					0				1		2							3		3	
26-May	4					0				1									1		1	
27-May	1		1			1					2	1							3		3	
27-May	3		3			3													0		0	
27-May	4					0				2									2		2	
28-May	1					0						1							1		1	
28-May	3					0						1							1	1	0	1 HOFI - DOA
28-May	4		1			1				2									2		2	
29-May	3					0				2									2		2	
29-May	1		1		1	2													0		0	
29-May	4					0													0		0	
30-May	3					0													0		0	
30-May	1					0													0		0	
30-May	4					0						1							1		1	
31-May	3					0													0		0	
31-May	1					0													0		0	
31-May	4					0				1									1		1	
1-Jun	3					0													0		0	
1-Jun	1					0													0		0	
1-Jun	4					0				1					2				3		3	
2-Jun	3					0		1											1		1	
2-Jun	1					0													0		0	



**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
2-Jun	4					0				3									3		3	
3-Jun	1					0													0		0	
3-Jun	3					0				1									1		1	
3-Jun	4					0									3				3		3	
4-Jun	3					0		1				1							2		2	
4-Jun	1					0													0		0	
4-Jun	4					0				4									4		4	
5-Jun	4					0				2					2				4		4	
5-Jun	3					0				1									1	1	0	1 CALT - DOA
5-Jun	1		1			1													0		0	
6-Jun	3					0													0		0	
6-Jun	1					0													0		0	
6-Jun	4					0				2									2		2	
7-Jun	3					0													0		0	
7-Jun	1					0													0		0	
7-Jun	4					0				2					2				4		4	
8-Jun	3					0													0		0	
8-Jun	1					0													0		0	
8-Jun	4		1			1				2									2		2	
9-Jun	1					0													0		0	
9-Jun	3					0													0		0	
9-Jun	4					0				1		1							2		2	
10-Jun	3					0													0		0	
10-Jun	1					0													0		0	
10-Jun	4		1			1			1	2	2	3							8	1	7	1 BUOR - DOA
11-Jun	3					0				2									2		2	
11-Jun	1					0													0		0	
11-Jun	4					0				2		1							3		3	
12-Jun	4					0				2									2		2	
12-Jun	3					0													0		0	
12-Jun	1			1		1													0		0	
13-Jun	1					0													0		0	
13-Jun	3					0													0		0	
13-Jun	4					0				1									1		1	
14-Jun	1					0													0		0	
14-Jun	3					0						2							2		2	
14-Jun	4					0				5									5		5	

**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
15-Jun	1				1	1													0		0	
15-Jun	3					0						4							4		4	
15-Jun	4					0				4									4		4	
16-Jun	3					0						2							2		2	
16-Jun	1					0				1									1		1	
16-Jun	4		1			1				3									3		3	
17-Jun	1					0				2									2		2	
17-Jun	3					0													0		0	
17-Jun	4					0				3					2				5		5	
18-Jun	1			1		1				1									1		1	
18-Jun	3					0						1							1		1	
18-Jun	4					0				2				1					3		3	
19-Jun	1					0				2									2		2	
19-Jun	3		1			1		1				5							6		6	
19-Jun	4					0				1		4			1				6		6	
20-Jun	3					0						3							3		3	
20-Jun	1					0													0		0	
20-Jun	4					0				2		1							3		3	
21-Jun	1				3	3				1									1		1	
21-Jun	3					0		1				2							3		3	
21-Jun	4					0				1	6								7		7	
22-Jun	3					0						3							3		3	
22-Jun	1					0													0		0	
22-Jun	4					0				1									1		1	
23-Jun	3				1	1						6							6		6	
23-Jun	1					0													0		0	
23-Jun	4		1			1				1		1			1				3	1	2	1 HOFI - DOA
24-Jun	1					0													0		0	
24-Jun	3					0				1		2							3		3	
24-Jun	4					0				3									3		3	
25-Jun	1					0													0		0	
25-Jun	3					0				1		4							5		5	
25-Jun	4					0				1		4							5		5	
26-Jun	1					0													0		0	
26-Jun	3					0				1		2							3		3	
26-Jun	4					0			1	1		6							8		8	
27-Jun	1					0				1									1		1	

**Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)**

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
27-Jun	4					0				1		8		2					11		11	
27-Jun	3			1		1		1		3									4		4	
28-Jun	3					0													0		0	
28-Jun	1					0				1									1		1	
28-Jun	4					0				4		5							9		9	
29-Jun	3					0				1		1							2		2	
29-Jun	1					0				1									1		1	
29-Jun	4					0				1		10							11		11	
30-Jun	1				1	1				2									2		2	
30-Jun	3					0													0		0	
30-Jun	4					0				1		5							6		6	
1-Jul	1				1	1				3									3		3	
1-Jul	3		1			1				1		4							5		5	
1-Jul	4					0				1		7							8		8	
2-Jul	1				1	1				2									2		2	
2-Jul	3					0						5							5		5	
2-Jul	4					0				3		5							8		8	
3-Jul	3					0				1		4							5		5	
3-Jul	1					0				1									1		1	
3-Jul	4					0				2		7							9		9	
4-Jul	3		1			1						5							5		5	
4-Jul	1					0				2									2		2	
4-Jul	4					0				1		13							14		14	
5-Jul	3				1	1		2				3							5		5	
5-Jul	1					0				2									2		2	
5-Jul	4					0				1		2							3		3	
6-Jul	3					0						1							1		1	
6-Jul	1					0				2									2		2	
6-Jul	4		1			1				2				3					5		5	
7-Jul	1				2	2				2									2		2	
7-Jul	3					0						2							2		2	
7-Jul	4					0				3		3		3					9		9	
8-Jul	1					0				1		1							2		2	
8-Jul	3					0						6							6		6	
8-Jul	4					0				2		1							3		3	
9-Jul	3		1			1						16							16		16	
9-Jul	1					0				2									2		2	

# Exhibit 12: Brown-headed Cowbird (*Molothrus ater*) Trapping Data, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)

Date (2008)	Trap	Banded BHCO	BHCO Males	BHCO Fem.	BHCO Juv.	Total BHCO	BHGR	BRBL	BUOR	CALT	EUST	HOFI	HOOR	HOSP	NOMO	RWBL	YBCH	ZEFI	Total NT	NT Dead	NT Released	Notes
9-Jul	4					0				2		6							8		8	
10-Jul	3					0				1									1		1	
10-Jul	1					0											1		1		1	
10-Jul	4					0				1		3		1					5		5	
11-Jul	1					0				1									1		1	
11-Jul	3				1	1				2		11							13		13	
11-Jul	4					0				2		7						1	10		10	
12-Jul	3					0						6							6		6	
12-Jul	1					0				1									1		1	
12-Jul	4			3		3				1		5							6		6	
13-Jul	3					0				2		2							4		4	
13-Jul	1					0				2									2		2	
13-Jul	4					0				2		2	2						6		6	
14-Jul	1					0				1									1		1	
14-Jul	3					0				2		15							17	1	16	1 HOFI - dead due to net collison
14-Jul	4					0				1		2							3		3	
15-Jul	3					0				1		3							4		4	trap deactivated
15-Jul	1					0													0		0	trap deactivated
15-Jul	4					0				1		2							3		3	trap deactivated
<b>Totals</b>		<b>0</b>	<b>43</b>	<b>21</b>	<b>13</b>	<b>77</b>	<b>1</b>	<b>7</b>	<b>2</b>	<b>185</b>	<b>10</b>	<b>253</b>	<b>2</b>	<b>12</b>	<b>13</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>488</b>	<b>6</b>	<b>482</b>	<b>1 BUOR, 2 CALT, 3 HOFI dead</b>

## Trap Locations\*

Trap 1 = N 1838702.63, E 6339852.18

Trap 3 = N 1845798.93, E 6352633.71

Trap 4 = N 1833333.27, E 6328110.89

\* NAD 83, CA Zone 6, U.S. Survey Feet

NT = Non-target species

BHCO = Brown-headed cowbird (*Molothrus ater*)

BHGR = Black-headed grosbeak (*Pheucticus melanocephalus maculatus*)

BRBL = Brewer's blackbird (*Euphagus cyanocephalus*)

BUOR = Bullock's oriole (*Icterus bullockii*)

CALT = California towhee (*Pipilo crissalis*)

EUST = European starling (*Sturnus vulgaris*)

HOFI = House finch (*Carpodacus mexicanus*)

HOOR = Hooded oriole (*Icterus cucullatus*)

HOSP = House sparrow (*Passer domesticus*)

NOMO = Northern mockingbird (*Mimus polyglottos*)

RWBL = Red-winged blackbird (*Agelaius phoeniceus*)

YBCH = Yellow breasted chat (*Icteria virens*)

ZEFI = Zebra finch (*Taeniopygia guttata*)

# Exhibit 13: Brown-headed Cowbird Trapping Summary Results, Vicinity of Sweetwater Reservoir, San Diego County, CA (2008)

## Brown-headed cowbird captures (excludes banded cowbirds)

Trap ID #	Males	Fem.	Juv.	Total	Trap days
1	10	5	10	25	117
3	20	10	3	33	117
4	13	6	0	19	118
<b>Total</b>	43	21	13	77	352

## Native Non-targets captures

	BHGR		BRBL		BUOR		CALT		HOFI		HOOR		NOMO		RWBL		YBCH		Totals	
Trap ID #	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P
1							37		3						1		1		42	0
3			7				29	1	129	2									165	3
4	1				1	1	117	1	118	1	2		13						252	3
<b>Totals</b>	1	0	7	0	1	1	183	2	250	3	2	0	13	0	1	0	1	0	459	6

## Exotic non-target captures

Trap ID #	EUST	HOSP	ZEFI	Totals
1	2			2
3				
4	8	12	1	21
<b>Total</b>	10	12	1	23

## Trap Locations\*

Trap 1 = N 1838702.63, E 6339852.18

Trap 3 = N 1845798.93, E 6352633.71

Trap 4 = N 1833333.27, E 6328110.89

\* NAD 83, CA Zone 6, U.S. Survey Feet

R = Released

P = Predated or mortality

BHGR = Black-headed grosbeak (*Pheucticus melanocephalus maculatus*)

BRBL = Brewer's blackbird (*Euphagus cyanocephalus*)

BUOR = Bullock's oriole (*Icterus bullockii*)

CALT = California towhee (*Pipilo crissalis*)

EUST = European starling (*Sturnus vulgaris*)

HOFI = House finch (*Carpodacus mexicanus*)

HOOR = Hooded oriole (*Icterus cucullatus*)

HOSP = House sparrow (*Passer domesticus*)

NOMO = Northern mockingbird (*Mimus polyglottos*)

RWBL = Red-winged blackbird (*Agelaius phoeniceus*)

YBCH = Yellow breasted chat (*Icteria virens*)

ZEFI = Zebra finch (*Taeniopygia guttata*)

**Exhibit 14: Brown-headed Cowbird Trapping Summary Results, Vicinity of Sweetwater Reservoir, San Diego County, CA (1997-2008)**

<b>Trap days</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>AVG</b>
Trap day = 1 trap operated for 24 hour period	326	345	322	326	368	324	285	361	261	302	303	352	323
<b>Cowbirds removed</b>													
Males	47	43	37	31	44	48	29	56	40	64	45	43	44
Females	23	29	25	18	53	34	41	46	38	34	46	21	34
Juveniles (HY)	1	10	2	2	9	2	2	6	1	7	0	13	5
Total	71	82	64	51	106	84	72	108	79	105	91	77	83
<b>Cowbirds removed/trap day</b>	0.22	0.24	0.20	0.16	0.29	0.26	0.25	0.30	0.30	0.35	0.30	0.22	0.26
<b><u>Banded cowbirds</u></b>													
Total male releases	1	82	69	129	103	51	58	7	9	86	0	0	50
Unique males	1	5	15	8	3	5	2	3	3	3	0	0	4
Total female releases	0	0	0	0	0	0	0	0	0	0	0	0	0
Unique females	0	0	1	0	0	0	0	0	0	0	0	0	0
Females removed	0	0	1	0	0	0	0	0	0	0	0	0	0
<b>House sparrows</b>	42	16	0	0	2	2	0	1	0	3	1	11	7
<b>European starlings</b>	1	0	0	1	1	0	7	1	29	15	1	10	6
<b>Other exotics</b>	1	0	0	0	0	0	0	0	0	0	0	1	0
<b><u>Non-target Captures</u></b>													
Total	301	299	755	522	348	843	735	1107	692	1005	473	471	629
Non-target releases	294	296	749	510	344	836	724	1103	686	992	469	465	622
Non-target deaths	7	3	6	12	4	7	11	4	6	13	4	6	7
Non-target mortality	2.3%	1.0%	0.8%	2.3%	1.1%	0.8%	1.5%	0.4%	0.9%	1.3%	0.8%	1.3%	1.2%
Non-target captures/day	0.92	0.87	2.34	1.60	0.95	2.60	2.58	3.07	2.65	3.33	1.56	1.34	1.98
Non-target captures/ Cowbirds removed	4.24	3.65	11.80	10.24	3.28	10.04	10.21	10.25	8.76	9.57	5.20	6.12	7.78