

DATE 20 November 2003
TO Science Advisory Panel, East Contra Costa County HCP / NCCP
FROM Erica Fleishman
RE **9 December meeting**

Dear Science Advisory Panel,

As you know, our fourth and final meeting will be held Tuesday, 9 December from 11:00 A.M. – 3:00 P.M. at Lake Temescal Regional Recreation Area, Oakland. Lunch will be provided.

Five documents are included in this package.

1. Driving directions to Lake Temescal Recreation Area
2. Tentative meeting agenda, including potential discussion points
3. A CD of the preliminary working draft of the HCP
 - Both PDF and Word versions of the draft are enclosed. Please feel free to mark comments directly on the Word version of the text using Track Changes. Return your comments to me either before or at the meeting.
 - **In particular, please focus on Chapter 6**, which describes the adaptive management strategy
 - You may also wish to pay special attention to Chapter 5, a description of the conservation strategy, which has been revised to incorporate your comments
4. A table summarizing changes in the land cover map that resulted from a higher-resolution mapping effort conducted during spring and summer 2003*
5. A memorandum describing methods used for the higher-resolution mapping effort

Please contact me if you have any questions.

Thanks very much. Looking forward to seeing you on 9 December.

* As you know, in response to your feedback about small-scale landscape features, the planning team successfully sought a \$35,000 grant from Contra Costa County's fish and wildlife propagation fund. The planning team used part of the money to review newly-obtained color aerial photographs from March 2003. These photographs supplement black and white aeriels from 2000 that were used for the first iteration of the land cover map. The planning team also conducted additional field work. As a result, they were able to produce a new land cover map with greater resolution of riparian areas, ponds, wetlands, rock outcrops, alkali grassland, and alkali wetlands. Using the new land cover map, the team then repeated the analytic process. They revised habitat models for individual species. The planning team also revised both the impact analysis, which is used during discussion and negotiation about areas that might be authorized for urban development under the HCP / NCCP, and the conservation strategy.

**East Contra Costa County Habitat Conservation Plan
Science Advisory Panel Meeting #4**

9 December 2003
11:00 A.M. – 3:00 P.M.
Lake Temescal Regional Recreation Area, Oakland

The parking lot for the Lake Temescal Regional Recreation Area in Oakland can be accessed from Broadway. Turn right at the Hwy 24 / Hwy 13 interchange.

We will meet on the second floor of the stone building near the beach (the building with the bathrooms and food concession on the ground floor).

A zoomable electronic map is available at
<http://maps.yahoo.com/py/maps.py?Pyt=Tmap&addr=Lake+Temescal&city=Oakland&state=CA&csz=Oakland>

A map that shows the location of the building is available from the East Bay Regional Park District's web site, <http://www.ebparcs.org/parks/temescal.htm>

Directions from South Bay

- 1) Take 880 North toward Oakland
 - 2) When you reach downtown Oakland, get in the right lanes to get on 980 East
 - 3) Stay in the center lanes to join Hwy 24 east toward Walnut Creek
 - 4) Exit at Broadway (2nd to last exit before the Caldecott Tunnel)
 - 5) Turn left at the stoplight at the bottom of the exit ramp to join Broadway eastbound
 - 6) Stay right to avoid going under Hwy 24 or getting back on Hwy 24
 - 7) The Lake Temescal parking lot and parking kiosk are on the right about 1/4 mile east of the Broadway exit
 - 8) Park in the main lot [the fee collection kiosk will likely be closed (so no fee), but just in case, you should have \$4 in your wallet]
 - 9) We will meet on the 2nd floor of the stone building on the far side of the beach. The entrance to the meeting room is on the side of the building away from the lake.
- *** If you are feeling adventurous, there are 15 spaces right near the stone building which may or may not be vacant. These spaces are reached from a driveway about 100 yards past (east) the main parking lot. Warning: watch out for tire puncturing spikes on the left side!

Directions from West Contra Costa, Berkeley, and North Bay

- 1) Take 80 West toward Bay Bridge
- 2) Get in left lanes to connect to 580 East toward Hayward
- 3) Get in right lanes to connect with Hwy 24 East toward Walnut Creek
- 4) Exit at Broadway (2nd to last exit before the Caldecott Tunnel)
- 5) Turn left at the stoplight at the bottom of the exit ramp to join Broadway eastbound.
- 6) Stay right to avoid going under Hwy 24 or getting back on Hwy 24
- 7) The Lake Temescal parking lot and parking kiosk are on the right about 1/4 mile east of the Broadway exit

8) Park in the main lot [the fee collection kiosk will likely be closed (so no fee), but just in case, you should have \$4 in your wallet]

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Directions from East / Central Contra Costa County and Sacramento

1) Take 680 South toward Walnut Creek

2) Get in the right lanes to take Hwy 24 West toward Oakland / San Francisco

3) Go through Caldecott Tunnel

4) Take the first exit after you emerge from the Tunnel, the Old Tunnel Road exit.

5) At the end of the exit ramp, bear left to head west on Old Tunnel Road

6) Turn left at the first intersection to take a bridge across to the south side of Hwy 24.

7) Turn right at the next intersection to head west on Broadway. Go under overpass.

8) The Lake Temescal parking lot and parking kiosk are on the left about 1/3 mile from the bridge on which you crossed over the freeway.

9) Park in the main lot [the fee collection kiosk will likely be closed (so no fee), but just in case, you should have \$4 in your wallet]

10) We will meet on the 2nd floor of the stone building on the far side of the beach. The entrance to the meeting room is on the side of the building away from the lake.

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East Contra Costa County Habitat Conservation Plan
Science Advisory Panel Meeting #4

9 December 2003
11:00 A.M. – 3:00 P.M.
Lake Temescal Regional Recreation Area, Oakland

Tentative Agenda

- 11:00 – 11:45
1. Introductions
 2. Review objectives for meeting #4
 3. Review outcomes from previous panel feedback
 4. Update on status of the HCP
 5. Public comment (2–3 minutes)
 6. Interim projects and potential effects
- 11:45 – 12:30
- Conservation strategy**
1. Opportunity to introduce new sources of data or relevant advances in conservation biology and / or ecology of covered species and communities
 2. Public comment (2–3 minutes)
 3. Prioritization of covered species, communities, and land acquisition priorities in the conservation strategy
 - Identification of any major data gaps that could affect design and success of the conservation strategy
 - The revised conservation strategy for the preliminary draft initial permit area focuses land acquisition in Zones 2, 3, and 4 and de-emphasizes land acquisition in Zones 5 and 6. Is this approach warranted biologically?
 - What are the biological trade-offs in emphasizing land acquisition near Mount Diablo (Subzones 4a, 4f, 4g, and 4h) versus in grassland near Byron Airport (Subzone 5a and 5b)?
 - In the cultivated agriculture area (Zone 6), the conservation strategy may include the use of multi-year contracts with farmers to maintain and enhance suitable habitat for Swainson's Hawk (e.g., raise certain kinds of crops, plant trees as windbreaks and nesting habitat), as opposed to permanent conservation easements with crop restrictions. Is this approach biologically valid?
 4. Open discussion regarding conservation planning and reserve design both in general and in the context of the HCP / NCCP
- 12:30 – 1:00
- Lunch break

1:00 – 2:30

Adaptive management and monitoring

1. Ability of adaptive management to guide implementation
 - Will the adaptive management process outlined in Chapter 6, including the role of continued scientific feedback, ensure that good science is applied to implementation of the HCP?
 - If not, how might the process be changed?
 - Is the proposed Implementing Entity (outlined in Chapter 7) likely to serve as an effective institutional “home” for the adaptive management program?
2. Public comment (2–3 minutes)
3. Ability of adaptive management to address data gaps
 - Are there major data gaps in the plan that are likely to influence adaptive management during implementation?
 - Is the plan adequately structured to address these data gaps and other uncertainties during implementation?
4. Ecological relationships and processes most likely to influence adaptive management for covered species and communities
 - What specific hypotheses or management principles are most important to test during the adaptive management process? (i.e., what pilot projects or directed research are most important?)
5. Monitoring: ability of the adaptive management strategy to evaluate the status of covered species and communities and determine whether a management response is warranted
 - What surrogate measures might be monitored to assess the regional status and trends of covered species and communities?
 - What surrogate measures might be measured to monitor the status and trends of ecological processes?
6. Open discussion regarding adaptive management in general and in the context of the HCP

2:30 – 2:35

Break

2:35 – 2:55

1. Unfinished business
2. Next steps and meeting reports
 - Report on the fourth panel meeting
 - Discussion on compiling the outcomes of the four Science Advisory Panel meetings into a summary document organized by subject matter
3. Discussion of the science advisory process

2:55 – 3:00

Further public comment on agenda items and / or new business

Overview of Changes to the Landcover Map Between May 2002 and July 2003 Due to Small Scale Features Mapping and New March '03 Aerials

Land-Cover Type	May-02		Jul-03		Change in Number of Sites or Patches*		Change in Acres	
	Number of Sites or Patches	Amount (Acres)	Number of Sites or Patches	Amount (Acres)	Change (number)	Percent Change (%)	Change (acreage)	Percent Change (%)
Alkali grassland	19	1,977	29	2,322	10	53%	345	17%
Alkali wetland	16	44	20	54	4	25%	10	23%
Annual grassland	170	57,101	145	58,967	-25	-15%	1,866	3%
Aquatic	27	1,744	30	1,809	3	11%	65	4%
Aqueduct	32	277	30	383	-2	-6%	106	38%
Chaparral and scrub	75	2,863	101	3,016	26	35%	153	5%
Irrigated agriculture (total of 4 types)	226	35,620	200	33,028	-26	-12%	-2,592	-7%
<i>Cropland</i>	60	22,713	56	21,777	-4	-7%	-936	-4%
<i>Orchard</i>	92	4,925	79	4,286	-13	-14%	-639	-13%
<i>Pasture**</i>	46	6,905	28	4,811	-18	-39%	-2,094	-30%
<i>Vineyard</i>	28	1,077	37	2,154	9	32%	1,077	100%
Landfill	1	333	1	333	0	0%	0	0%
Non-native woodland	4	48	8	63	4	100%	15	31%
Oak savannah	234	5,835	220	5,903	-14	-6%	68	1%
Oak woodland	148	24,188	121	24,203	-27	-18%	15	0%
Pond	246	136	340	143	94	38%	7	5%
Riparian woodland/scrub	59	219	81	440	22	37%	221	101%
Rock outcrops	13	80	39	119	26	200%	39	49%
Ruderal	157	8,564	197	6,492	40	25%	-2,072	-24%
Seasonal wetland	12	19	9	18	-3	-25%	-1	-5%
Slough/channel	12	373	13	204	1	8%	-169	-45%
Turf	25	918	64	1,468	39	156%	550	60%
Urban	170	29,044	211	34,303	41	24%	5,259	18%
Wetland	114	210	112	194	-2	-2%	-16	-8%
Wind turbines	129	218	129	217	0	0%	-1	0%
Total***	1889	169,811	2100	173,679	146	8%	3868	2%

* growth in number of patches is probably understated because spring 2003 map edits also included map clean-up (such as combining neighboring polygons with same landcover type into one polygon)

** In 2002 landcover map, pasture was mapped as "other irrigated agriculture" and included types other than pasture that had not yet been classified

***growth in acreage is a result of addition of Clayton to inventory area

Data Sources

The primary sources of information for the land-cover mapping in the inventory area were:

- orthorectified black-and-white aerial photographs (provided by Contra Costa County; flown in May 2000) for the entire inventory area (scale in rural areas is 1 inch = 400 feet; scale in urban areas is 1 inch = 200 feet);
- color infrared photographs (scale 1:6,000) taken in June 1987 and 1988; covered inventory area except southeastern corner (provided by Contra Costa Water District);
- USGS streams and roads data (USGS digital line graph data—various dates); and
- California Department of Water Resources Land Use Data (1995).

The ancillary data sources listed below were used to obtain information not available in the primary sources and to check the mapped information for accuracy:

- *East Alameda–Contra Costa Biodiversity Study* (Conservation opportunity mapping in eastern Contra Costa County) (Jones & Stokes Associates 1996);
- habitat mapping within the Los Vaqueros Reservoir watershed (Jones & Stokes Associates 1994);
- color aerial photographs (scale 1:6000) taken in February 1987; covered southeastern corner of inventory area (Jones & Stokes file data);
- soil survey mapping (Soil Conservation Service 1977);
- vegetation maps of CCWD interim service area (Contra Costa Water District 2000);
- geologic maps of the San Francisco–San Jose Quadrangle (California Department of Conservation 1990);
- *Draft Environmental Impact Report for the Cowell Ranch Project General Plan Amendment and Related Actions* (Contra Costa County 1996a);
- current residential development maps (provided by Contra Costa County); and
- personal communications with knowledgeable specialists (Chapter 11).

In addition to using existing data sets, Jones & Stokes biologists conducted field visits. An initial field visit was conducted on December 7, 2001, to develop the land-cover classification and to perform preliminary verification of aerial photograph signatures. Two other field visits, on January 10 and May 26, 2002, were conducted to verify land-cover types and consistency of mapping and to collect additional data for land-cover type descriptions. Initial mapping was verified by visual inspection from locations accessible by public roads. Areas were selected for field verification on the basis of the land-cover types present

and the accessibility of the area. Once field visits were conducted, land-cover mapping was revised on the basis of field findings.

Comments of the HCP/NCCP Scientific Advisory Panel on the draft land-cover maps indicated the need for follow-up field surveys to increase the accuracy of the data set. In particular, the panel identified the need to collect data on the occurrence and extent of “small-scale features,” such as rock outcrops, caves, serpentine areas, small ponds, and vernal pools, that may have been missed during the initial mapping effort. Field surveys were also recommended to increase the accuracy of mapped locations of alkali grasslands and wetlands and to update the mapping from the 2000 air photos. These intensive follow-up field surveys were conducted on April 29, April 30, May 1, and May 13, 2003.

Mapping Procedures

Land-cover types were mapped onto hard copies of the black-and-white photographs (scale 1 inch = 400 feet) by using the available signatures and supplementing them with information derived from the other primary sources discussed above as appropriate. A 10-acre minimum mapping unit was used for all land-cover types, except for riparian, wetland, wind turbine, and rock outcrop land-cover types; these features were originally mapped in 2001 with a 1-acre minimum mapping unit. These features were revised during the small-scale features mapping in spring 2003 and were mapped to the smallest scale possible (<0.25 acre) using the 2000 air photos and extensive field surveys where sites could be accessed from public roads (see additional methods described below). Maps were digitized using AutoCad Release 14. Following the completion of all digitizing, the AutoCad file was converted to a GIS coverage using ArcInfo. ArcInfo was used to edit the coverage and calculate acreage for each land-cover type. The final hard copies of the land-cover maps were then produced using ArcMap.

Ancillary information was used to supplement land-cover information acquired by aerial photograph interpretation. Color aerial photographs (February 1987) were used to spot check signatures in areas not covered by the infrared photographs. Soil Conservation Service (SCS) soils maps were used to identify areas with alkaline soils (Soil Conservation Service 1977). USGS data (2001) were used to complete the stream coverage for most of the area. However, USGS stream data were not available for the northeastern portion of the project area; consequently, streams were mapped on the basis of aerial photograph signatures and USGS topographic maps. Land use maps, permitted development maps, and interviews with city and County staff were used to further refine agricultural and urban land-cover types.

Mapped signatures for specific land-cover types were also compared with field-verified maps prepared for the Los Vaqueros reservoir project (Jones & Stokes Associates 1996) and for large projects in the inventory area (e.g., Contra Costa County 1996; Mundie & Associates and City of Antioch 2002) to verify the accuracy of the current mapping effort. If the land-cover type was not easily identifiable to the lowest classification level from the photographs or other available information, it was mapped at the higher classification level. Wetlands

that could not be classified by type (seasonal or otherwise), for example, were mapped at the highest classification level (i.e., wetlands).

Jones & Stokes biologists conducted extensive field surveys of the inventory area over 4 days between April 29 and May 13, 2003. The surveys were designed to substantially improve the original land-cover data set by:

- updating the land-cover map to reflect current conditions (i.e., to incorporate changes occurring since the May 2000 date of the air photos), particularly for irrigated agricultural and urban land-cover types;
- locating additional alkali grasslands and alkali wetlands based on field conditions (rather than by soil type as mapped by SCS) and verifying the location of previously mapped alkali grasslands and wetlands;
- locating small wetlands (e.g., vernal pools, perennial wetlands, seasonal wetlands) and ponds that may have been missed during the original mapping;
- locating additional riparian woodland/scrub in the field that may have been missed due to the difficulty of discerning that habitat type's signature in air photos;
- locating additional patches of rock outcrops (also difficult to locate on air photos); and
- refining the mapping of ruderal, cropland, pasture, and grassland land-cover types in the field.