

Meeting Highlights | December 4-6, 2006

Altamont Scientific Review Committee

Overview

- The SRC held a technical workshop to receive stakeholder feedback on the avian monitoring protocols under development.
- The SRC developed recommendations for the county on the recommended approach for the Altamont avian monitoring program.
- The SRC reviewed wind company compliance with the conditional use permits, requesting more information and recommending that companies move forward with moving rock piles.
- The SRC reviewed the avian monitoring consultants' contract and scope of work and issued recommendations to the county to modify the team configuration and strategies to reduce costs.
- The SRC recommends that the wind companies should use the June 2005 classification and *professional judgment* based on field experience and on-the-ground knowledge for determining turbines to be reviewed.
- The SRC is open to serving as the Technical Advisory Committee for Contra Costa County to monitor the Buena Vista repowering project.

Action Items and Meeting Follow-Up

Compliance Reporting	
Companies	Request map and turbine numbers for Exhibit G, Item 1 Tier 1 Turbine Removals by Jan 15
FPLE	Provide additional explanation on turbine removals and relocation (which turbines and why) by Jan 15
County Staff	Consult with F&G and FWS regarding optimal dates to move rock piles by Jan 26
Smallwood	Circulate rock pile shape file by 2/1
AWI	Report on experimental Hodos painting scheme and discuss with SRC at Feb meeting (TBD)
AIC	Report on seasonal shut-down actions by Jan 15
Facilitator	Add terminology to chart by Jan 15
County Staff AIC & FPLE	Request that AIC and FPLE report actions in response to permits in chart format by January 15
County Staff	Report on process to change conditional use permits by Feb 5
MISC	
Facilitator	Circulate 92 Orloff study electronically
Facilitator	Explore automatic email when web site is updated or changed with web master (to interested parties)
Monitoring Team (MT)	Provide Bird Use Data Sheets by Jan 19 (and more detail on methods)
MT	Report on variables used to develop the average search rate by Jan 19

MT	By Jan 15, report on seasonal shutdown for previous year (item 4 from Exhibit G)
County Staff	Develop requirement for wind companies to begin providing power output data from Oct 2005 into the future. Develop confidentiality agreement between wind companies and analytical team and SRC with regards to this data
SRC	Review Bird Use Data Sheets (Feb)
Walton	Explore Golden Eagle permit to leave eagles on ground to study scavenger rate
Facilitator	Circulate Buena Vista Repowering Protocol
Staff	Develop document number system so SRC can reference documents
SRC	Complete Ethics Training by ____

SRC Governance

Organization

The SRC discussed that if someone is unable to participate in a meeting or conference call, no major decisions should be reached unless all members are present. The facilitator will take notes during the meetings or conference calls and circulate notes for everyone's review. Recent conference calls, held in the October-November timeframe were set up to ensure that the monitoring team had an opportunity to clarify SRC direction to be able to prepare the draft protocols for the December meeting. In other words, nothing was being decided that could not be re-visited at the December SRC meeting.

SRC Goals for the Meeting

The SRC goals for this meeting were to:

- Discuss the preliminary results for 2005-2006 data
- Develop recommendations for Altamont-Wide monitoring program

Compliance Reporting

The SRC reviewed a table summarizing actions taken by the companies in response to the conditional use permits. The table is posted on the Altamont SRC web site at http://www.altamontsrc.org/alt_compliance_reporting.php.

Terminology for Compliance Reporting

Blade

Tower

Turbine = blade + motor + tower

Item 1—Removing or Relocating Tiered Turbines

Questions for FPLE

- What tier were the turbines that were removed or relocated?
- Why were turbines removed or relocated?
- What report was used to determine tiers (June?)

- Where were relocated turbines relocated?

Item 2B

The goal of item 2B is to remove derelict turbines that are not operational and will not be operational in the future.

The County should consider changing “towers” to “pylons”. The goal is to have non-perching pylons or towers, i.e. minimal or no perching capacity on structures. End-row turbines tend to be lattice towers. The County should recommend companies removing lattice towers at the end of the row to reduce perching opportunities.

The SRC’s preference is non-perching pylons or towers or removing the towers entirely.

Item 2C--Rock Piles

Rock piles should be moved down the slope to a minimum distance of 100 meters. When moving piles is not feasible or doesn’t “make sense,” turbine owners should discuss it with the SRC.

SRC Recommendation on Rock Piles

By Sept 1, 2007, rock piles should be 100 meters from turbines. Wind companies should note exceptions due to slop or other factors and schedule time at the SRC meeting to provide an explanation and photo.

Note: Staff will discuss the timing with FWS and CADFG. The SRC is concerned about tiger salamander, burrowing owls, and red-legged frogs. SRC thinks June 1 – September 1 is the optimal time to move the rock piles.

Follow-Up Required

- Request map and turbine number from companies in response to Exhibit G, Item 1
- County needs to update “Required Action” in Item 1: replace “BioResource Consultants, Inc.” with “Smallwood and Spiegel, June 2005.” Also, change 2% to “1%.”
- Staff follows up with FWS and F&G regarding optimal dates to move rock piles.
- Request that AWI report on its experimental design for Hodos painting scheme. Invite AWI representatives to discuss with SRC at its February meeting.
- Request that AIC report on seasonal shutdown actions.
- Add terminology to chart.
- Bartlett update chart.
- County request that AIC and FPLE report actions in chart format.
- Changes to Conditions:
 - County needs to add date for all “within 180 days of approval.”
 - 2B: Policy on removing end-row lattice towers and clarifying policy on derelict turbines.
 - Set date and policy clarification on rock piles.

Altamont-Wide Protocols

All the turbines sampled in 2005-2006 were shut down at some point for the seasonal shut down.

Behavior Use and Relative Abundance Data

Behavior use determines where birds are flying and types of behavior for different seasons. Behavior types might include hovering and then drifting to the turbine. Relative abundance estimates the proportion of individuals in the avian community using in the APWRA that are of a particular species. Relative abundance data is important to understand how many raptors are using the area. The SRC expressed concern about implications if a 45% reduction was achieved and data demonstrates a decrease in raptor use in the area.

SRC Recommendation on Behavior Use and Relative Abundance

For now, the SRC recommends that the monitoring team complete a relative abundance study to measure the number of birds of each species in the APWRA. Behavior use studies are not currently recommended by the SRC but can be designed and tied to specific management actions as they are implemented.

Relative Abundance Study Recommendations

- Species: Restricted to raptors
- Time per Survey: 10 minutes.
- Frequency: two times per month
- Time of Day: Time of day should be rotated. Activity is a function of wind; birds come out when wind is present. Surveys should begin 2 hours after sunrise or later.
- Habituation: Observer sits on the observation point for 10 minutes to allow habituation and then does the count.
- Relative abundance study does not need to be done as part of the regular fatality monitoring program
- View Shed / Vantage Point: Selection of an observation point that allows the observer to see 360 degrees may not be the optimal viewing. A vantage point to see the birds where viewer is not disturbing the birds is critical. Observer needs to select the viewpoint based on optimal raptor viewing.
- Need the observer to document the observation point using GPS.

Follow-Up and Additional Discussion Required

- MT: Confirm with consultants how 67 plots were derived.
- MT: Need more information from MT on existing practices and who's conducting the searches
- Concerned about not being able to establish relation between spatial analysis and mortality.
- Discuss cost implications of study parameters

- Discuss how/when observations occur. (Orloff did three 10 minute sessions in each plot. WEST has been doing once per month for 30 minutes.)

Sample Size

The SRC has had extensive discussions about the statistical capability of detecting the change required through the conditional use permits.

Turbine attrition is another factor in the sample size. Over time, turbines become inoperable or the wind companies may have to remove them for one reason or another. For this reason, the SRC recommends starting with a sample size larger than 2000 to ensure that 2000 turbines will be available throughout the duration of the study. Once data has been collected for a few years, reducing the sample size may be possible.

Time and Cause of Death

The SRC discussed data collection protocols with regards to documenting the time and cause of death. They agreed to the following guidelines, but will need to discuss this further.

1. Describe what's found (bird condition, etc.)
2. Develop guidelines with data check boxes
3. Document extenuating circumstances
4. Take 4-5 photos of each bird found
5. Senior person confirms cause of death on data form as final step. Field staff would not provide preliminary judgment on cause of death

Search Rate

The average number of turbines that can be searched per hour is used to develop the budget and cost estimates for the monitoring program. The search rate varies by terrain, weather, staff experience, distance between turbines, and other factors. The budget reviewed during the meeting estimated 2 turbines/hour. The SRC thought that 3 turbines per hour might be more realistic. The SRC requested that the Monitoring Team carefully detail the variables behind turbine search rate and to use 2.5 turbines for hour in the near term.

Additional Discussion on Protocols Necessary

- Statistical power – carcass removal trials
- Carcass removal survey protocol for small birds

Questions on Protocols

- How many in sample size will include derelict turbines?
- How to address multiple strategies?

Considerations for Protocols

- Condition 2B—Derelict Turbines, how to measure change associated with end-row pylons?
- Removal of derelict turbines

Follow-Up Required

- SRC to review protocol for data sheets and actual data sheets for mortality estimates and observational surveys.
- SRC and Monitoring Team to decide if field staff to provide preliminary judgment on cause of death.
- Monitoring Team report on variables included in developing the search rate of turbines/hours.

SRC Recommendations on Protocols

- Will measure 45% reduction in pooled species
- Will examine individual species % reduction, but at lower level of precision than pooled species (Red-Tailed Hawks fatalities will be difficult to reduce.)
- Adaptive management in year 4 and beyond
- Initiate study with enough turbines beyond the 2000 to ensure the sample size will remain 2000 over the course of the study.

Sample Design on American Kestrels and Burrowing Owls

Once again, the turbine search rate affects the budget for this sample design, as seen below:

- 5 turbines/hour search rate, study costs ~ \$260,000
- 3 turbines/hour search rate, study costs ~ \$380,000

The SRC discussed that where burrowing owls concentrate is relatively small and flat. American kestrels can be found in that area as well. For this reason, the SRC recommends that the Monitoring Team develop the cost estimate using a 5 turbine/hour search rate.

SRC Recommendations on Sample Design

- 200 turbines recommended American Kestrel/Owl for study

SRC Recommendations on Sample Design Budget

- Assume 5 turbines/hour. This rate seems achievable given concentrated location of the birds, short grass where these birds are found, and relatively flat terrain.
- Task 1 – Reduce hours
- Task 3 – Field Studies: Clarify why lodging and meals are in budget since monitors will be living in a rented house.
- Task 4—GIS/Mapping/Spatial Analysis: Make a small line item under Task 6
- Task 5—Data management: 8 hours per quarter maximum
- Task 6—Redundancy, please see other recommendations
- Task 7—One person should write this report.

Board Meeting Minutes on \$2 million Cap

For purposes of understanding its charge, the County read the Board of Supervisors meeting minutes related to the \$2 million cap for the avian monitoring contract. The Board:

- Authorized \$610,000 short-term contract
- Reiterated commitment to \$2 million cap for 3-year contract
- If 3 firms do not come to terms or agree, the SRC will come to the Board with recommendation for single firm at the appropriate meeting.

Protocol Year and Data Year Corresponding with Management Actions

The SRC has begun to clarify what data the SRC will consider and develop in response to the conditional use permits. This table summarizes the SRC thinking to date. It will be developed more fully in 2007.

45% Pooled & Individual Trend Analysis	Data Year	Implemented Management Actions (to be completed)
Baseline Year	1998-2003 CEC 2004 Study ¹	Rodent Control 2003: rodent control ceased
Year 0	Oct 05-Dec 06	Seasonal shut-down for 2 months
Year 1 (SRC established)	2006-2007	Seasonal shut-down for 2 months
Year 2	2007-2008	
Year 3	2008-2009	

Tiered Classification

The SRC discussed the three Smallwood and Spiegel studies developed in 2005 (January, March and June). SRC member Julie Yee completed a Kappa agreement test on the three studies and found that the March and June studies had an extremely high level of agreement. The objective was to test and measure agreement among the three risk classifications in response to questions about possible biases depending on turbine size.

Analyses in Altamont Pass thus far demonstrate that the size of the turbines matter and so do other environmental variables, such as canyon location, end row, and tower type.

SRC Recommendation on Tiered Classification

The wind companies should use the June 2005 classification and *professional judgment* based on field experience and on-the-ground knowledge. If a wind company has reasoning to believe different turbines might be considered or certain turbines could create other problems, such as additional end points and the like, the company should approach the SRC with an explanation.

¹ Data might be re-analyzed or adjusted.

Repowering

The SRC discussed two reports on the Diablo Winds repowering project. “Diablo Winds” refers to 31 new 660 kw turbines. FPLE, the project sponsor, will monitor the project for 2 years. FPLE representative Joanne Stewart and WEST representatives Wally Erickson and Dale Strickland, who prepared the Diablo monitoring report also participated in the discussion. SRC member Shawn Smallwood was the author of the second report reviewed by the SRC.

Diablo has seen a decline in bird utilization. One potential explanation for this difference is that the 2004 CEC study used a 300 m view shed and WEST and Orloff used an unlimited view shed. However, WEST and Orloff used different time intervals for their bird use studies. WEST will further analyze this in its final report.

Red-tailed hawk mortality increased. This is a relatively small sample size so the mortality could change as the study continues. This issue concerns the SRC and will be watched in other studies.

One issue that emerged is that power output data, previously unavailable to scientists, could be critical to understand the relationship between power output, cut-in and cut-out speeds and bird mortality. For example, some research indicates that bats at other wind farms are being killed more at lower power generation. The SRC recognizes that power output data is sensitive information. The SRC thinks this data is critical to understanding mortality and would like to receive this information from the wind farm companies with a confidentiality agreement between turbines owners and the analytical team. The SRC is requesting data from Oct 2005 into the future and will later revisit the need for data for 1998-2003.

The SRC will hear more about repowering plans at its next meeting in February and anticipates that some of the turbines sampled in the monitoring program will be repowered.

SRC Recommendation on Power Output Data

Counties change permits to require companies to provide power output data for analysis. Data should be weekly from Oct 2005 to current, from now into the future.

Develop a confidentiality agreement between wind farm companies and analytical team to review and analyze wind power information.

Buena Vista Repowering Project

Babcock & Brown (B&B) is sponsors of a repowering project known as Buena Vista in the Contra Costa portion of Altamont Pass. Buena Vista includes 38 turbines grouped together. B&B is required to do monitoring on the project with 15-day search intervals. On behalf of Contra Costa County, B&B has requested that the Altamont Pass SRC serve as the Contra Costa County technical advisory committee (TAC). The Contra Costa permits require some additional members, including a Contra Costa County representative. The SRC has agreed to serve as the Contra Costa TAC, but as the same,

but different entity. The SRC would be under contract with Contra Costa County (not B&B) for this portion of its work, and the TAC would have a slightly different membership to include the Contra Costa County representative and potentially someone from California Department of Fish & Game and from US Fish & Wildlife Service.

SRC Initial Recommendations on Buena Vista Protocols

The SRC assumes that B&B is using the protocols developed by WEST, Inc. and Shawn Smallwood. In addition to those protocols, the SRC recommends the following:

- Don't remove the carcasses at 15 days. See what happens at 30 days so the SRC can compare it to the (Alameda County) Altamont-wide 30-day search interval.
- Recommend that, if possible, the search person be the same for the 15 and 30-day search so the searcher can find what remains of the carcass, if anything.

SRC Outcomes on Buena Vista

- SRC open to serving as Contra Costa TAC

Follow-Up Required

The County will follow up with Contra Costa County to set up an agreement to facilitate the SRC serving as the TAC.

Potential Settlement of Lawsuits

The County informed the SRC that a settlement was being developed although the details were confidential. The County suggested that the targeted reduction would be 50%, therefore higher than the 45% reduction that was the basis of SRC discussions to date. The SRC discussed whether to make immediate changes to its calculations and decided to proceed with decisions based on the 45% but allow for 50% in the future.

February SRC Meeting Agenda Items

- Invite FPLE to speak about repowering
- Invite AWI to discuss Hodos painting scheme and evaluation of effect
- Management strategies: In-depth discussion
- Program for experimental studies
- Baseline and data "years"
- Protocols
 - MT--Confirm how 67 plots for protocols were derived
 - MT--Report on existing search practices and personnel conducting searches
 - Review data sheets and procedure for documenting cause of death on data sheets
 - Statistical power of carcass removal trials
 - Carcass removal survey protocol for small birds

- How to measure change associated with end-row pylons and/or removing derelict turbines
- Consider writing down protocols for determining cause of death.

SRC Meeting Participants

Note: Technical workshop attendance documented separately.

SRC Members Day 1, 2 & 3

Joanna Burger

Jim Estep

Sue Orloff

Shawn Smallwood

Julie Yee

Staff

Gina Bartlett, Facilitator, Days 1-3

Chris Bazar, Alameda County, Day 3

Sandi Rivera, Alameda County, Days 1-3

Others

Wally Erickson, WEST, Inc. (Days 1-2, preliminary draft results, protocols, repowering)

Dale Strickland, WEST, Inc. (Days 1-2, preliminary draft results, protocols, repowering)

Joanne Stewart, FPLE and AIC (Day 2, Repowering)

Appendix: List of SRC Recommendations developed Dec 4, 5 & 6

Compiled from this document.

SRC Recommendation on Rock Piles

By Sept 1, 2007, rock piles should be 100 meters from turbines. Wind companies should note exceptions due to slop or other factors and schedule time at the SRC meeting to provide an explanation and photo.

SRC Recommendation on Behavior Use and Relative Abundance

For now, the SRC recommends that the monitoring team complete a relative abundance study to measure the number of birds in Altamont. Behavior use studies will be designed and tied to specific management actions as they are implemented.

SRC Recommendations on Protocols

- Will measure 45% reduction in pooled species
- Will examine individual species % reduction, but at lower level of precision than pooled species (Red-Tailed Hawks fatalities will be difficult to reduce.)
- Adaptive management in year 4 and beyond
- Initiate study with enough turbines beyond the 2000 to ensure the sample size will remain 2000 over the course of the study.

SRC Recommendations on Sample Design

200 turbines recommended for study on Burrowing Owl and Kestrel

SRC Recommendation on Tiered Classification

The wind companies should use the June 2005 classification and *professional judgment* based on field experience and on-the-ground knowledge. If a wind company has reasoning to believe different turbines might be considered or certain turbines could create other problems, such as additional end points and the like, the company should approach the SRC with an explanation.

SRC Recommendation on Power Output Data

Counties change permits to require companies to provide power output data for analysis. Data should be weekly from Oct 2005 to current, from now into the future.

Develop a confidentiality agreement between wind farm companies and analytical team to review and analyze wind power information.

SRC Outcomes on Buena Vista

SRC open to serving as Contra Costa TAC