

## **DRAFT Meeting Summary | December 13-14, 2010**

### **Altamont Scientific Review Committee**

Developed by the Center for Collaborative Policy  
Reviewed but not yet approved by the SRC

#### **SRC Members Present:**

**Joanna Burger**

**Jim Estep**

**Sue Orloff**

**Shawn Smallwood**

**Julie Yee**

## **Key Outcomes**

### **Monitoring Report (M21)**

The SRC accepted the draft final APWRA 2005-09 Monitoring Report (M21), while asking that the Monitoring Team:

- Provide sufficient explanatory and clarifying text to the report's figures and tables so that they can stand alone;
- Explain multiple biases in the analysis with examples (e.g., installed to installed, address to address); and
- Duplicate the fatality tables with upper and lower bounds and explanations.

### **New Monitoring Program Detection Probability Study**

The SRC made the following recommendations for the detection probability study that began in October 2010:

- The Monitoring Team should pursue the goal of developing methods to increase the accuracy of fatality estimates going forward, while ensuring that the data are as comparable as possible to the 2005-2009 period;
- Tighten the pre-to-primary and secondary-to-follow-up intervals to 0-1 days;
- Limit the interval between primary and secondary searches to 0-15 days, while varying it within that timeframe;
- Leave carcasses on the ground for 90 days;
- Conduct a simulation analysis to determine if data collection will produce a viable analysis (Julie Yee will work with the Monitoring Team on this effort);
- Do pre- searches and follow-up searches as often as possible; and
- Use carcasses of known age, such as fresh carcasses

### **2011 Studies**

After considering the relative contributions to science, management and repowering of an expanded search radius study and some type of burrowing owl study, the SRC agreed to recommend that available monitoring funds be allocated to a burrowing owl study incorporating the following elements:

- An analysis of existing historic fatality data to identify burrowing owl fatality hot spots, clusters and potential related environmental attributes from available GIS layers;
- Development by the SRC and Monitoring Team prior to March 2011 of the design of a pilot study on burrowing owl behavior; and
- With planning to be accomplished prior to the end of March 2011, a limited distribution and abundance study in lower terrain, with report back to the SRC.

### CalWEA Study

The SRC agreed to request from the CalWEA study team a string map and text information on the locations of CalWEA pilot study carcass placement locations, and recommended that the County develop a memorandum of agreement with the CalWEA Study team with the goal of collaborating, and minimizing potential impacts of the CalWEA Study on the Monitoring Program, such as impacts to APWRA scavenging and carcass numbers.

### Action Items & Meeting Follow-Up

Party	Due Date	Action
Facilitators	Done	Develop SRC/MT roster
Facilitators	Done	Poll SRC for possible January-February-March conference call/in-person meetings
Monitoring Team	TBD	Revise & produce final 05-09 Monitoring Report
Monitoring Team	12/15	Provide 09-10 fatality data to public
SRC & public	1/31	Review & provide feedback and/or edits on 09-10 fatality data
Monitoring Team	March	Provide 09-10 fatality data report with accompanying SRC comments table
Monitoring Team	TBD	Revise detection probability study based on input
MT – Jesse Schwartz	March	Conduct analysis of existing historic fatality data to identify burrowing owl fatality hot spots, clusters and potential related environmental attributes from available GIS layers
MT & Sue Orloff	March	Develop prior to March 2011 a design of a pilot study on burrowing owl behavior ( <i>Owners:</i> SRC with MT, Sue Orloff lead)
MT, Shawn Smallwood & Jim Estep	March	Design a limited distribution and abundance study in lower terrain, with report back to the SRC (MT to collaborate with Shawn Smallwood and Jim Estep to refine).
Facilitators	Done	Finalize avian term doc edits and deliver to Alameda County
Facilitators	January 3, 2011	Remove 09 Monitoring Report from SRC website (what's new section)
Sandra Rivera	January	Recirculate diagram about environmental review process
Julie Yee		Work with MT to initiate simulations to examine QAQC data analysis

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## Meeting Account

### Announcements & Updates

Sandra Rivera of Alameda County gave the following updates:

- NextEra, Audubon and CARE reached an agreement with the Attorney General's Office. Tara Mueller will speak to the settlement on the meeting's second day.
- Contracts for SRC members end December 31 and need to be renewed. She asked SRC members to prepare individual budgets. The Monitoring Team Contract has been amended to extend through March 2011.
- The State Department of Fish and Game has provided a \$227,000 grant for the Conservation Plan process.

## Monitoring Report

### Related Documents

[M21 Monitoring Report](#)

[M63 Altamont Pass Bird Fatality December 2010 Presentation Slides](#)

[P189 Smallwood Report of Avian Fatality Patterns](#)

[P190 Smallwood Review of December 2010 Monitoring Report](#)

Sandra Rivera of Alameda County said the original intent was for this draft of the Monitoring Report to be the final version. However, that decision will be made based on the SRC discussion at this meeting.

Doug Leslie of the Monitoring Team gave a PowerPoint presentation on the December 2010 Monitoring Report. He highlighted the following changes in this version:

- The focus is on comparing current study and baseline data, and the report does not attempt to estimate total fatalities (Sandra Rivera and SRC members later clarified that this estimate is required by the Settlement Agreement and the conditional use permit);
- There is no analysis using operating groups;
- The small raptor carcass removal curve was developed based on Smallwood 2007, with large and medium raptor removal rates drawn from the Monitoring Team scavenger removal trial; and
- The Monitoring Team has developed a table of how it responded to SRC comments on earlier drafts of the report. This will be made available shortly. The Team has not done a comparison of CEC and power company data, which was one SRC request.

In March, the Monitoring Team will produce an annual report on fatality data for the 2009-10 bird year.

### **SRC Comments and Questions**

SRC Members raised the following points in reviewing the report:

- It would be helpful if report tables were designed so they could be printed in black-and-white.
- Figure 2-3: the axis labeled as mean number of strings searched should have been labeled as the monthly search interval.
- Tables and figures should be designed so their content is clear to stakeholders and others who have not actively participated in meetings and discussions. It would be helpful to add explanatory text to each table and figure so that they could be standalone documents.
- Table 3-5: are the ranges shown standard errors or standard deviation? This information should be in each table.
- There was a concern expressed that the numbers of golden eagle fatalities listed are smaller than the actual number of found golden eagle carcasses, and that this raised questions.
- Include in the report the table of installed versus addresses and a discussion with examples, such as the Contra Costa example, to illustrate the potential biases and their different directions, and to make transparent the direction of the bias that the report is choosing.
- Discuss in the report that the estimated number of fatalities is used primarily to compare with the baseline to determine if the 50% reduction has been achieved, but because of the data complexity and uncertainty regarding detection probability, the estimated number of fatalities may not be accurate.
- It is important that editors without content knowledge not unduly influence the language of the final report.
- Add a timeline graph showing what number and percentage of turbines were removed when through attrition, tier rankings and hazardous turbine removals.
- Table 3-2: Break the data into individual years, with a separate line for each year.
- Look at turbines adjacent to those removed to examine if HRT turbine removal has been effective, or if fatalities were transferred to the next turbine.

- Much data were presented unadjusted and it would be preferable to use adjusted data.
- Pages 2-6, Tables 2-4 and 2-5: the tables show an inconsistency in the numbers of native species.
- Table 2-5: Clarify that the label "native" includes both natives and unknown species.

Jesse Schwartz of the Monitoring Team sought a recommendation from the SRC on whether to use nameplate (also referred to as "addresses," "full nameplate," "permitted" or "permitted built capacity") versus installed capacity for two analyses, the fatality per megawatt calculated on a per-string basis and the expansion of fatality data from monitored turbines to the full Altamont Pass Wind Resource Area to develop an estimate of avian mortality for the entire area. "Nameplate" is defined as full capacity assuming that all the permitted turbines are present and functional. He referred to a table in the PowerPoint presentation that lays out potential biases for each approach, and advocated for using installed capacity for both calculations, because this represents most closely the real situation on the ground. He provided an example using Contra Costa turbines, which showed that using addresses would result in a bias because no turbines that were monitored were removed, while a large number of non-monitored turbines were removed.

Three SRC members indicated support for using installed capacity for both calculations in future reports. One SRC member supported a previous SRC recommendation to use both approaches. Another SRC member indicated support for showing both ranges to illustrate that different approaches would produce different biases in possibly opposite directions.

### **Public Comment**

Mike Lynes of Golden Gate Audubon said tables such as 3-6 need to have explanatory notes at the top. Stakeholders and the press will otherwise misuse the information.

Jim Hopper of AES, referring to the Contra Costa example, asked how the change in search interval in the current study would be handled. Jesse Schwartz responded that the adjustment rates will account for those changes.

### **SRC Recommendations on December 2010 Monitoring Report**

After the discussion, SRC members agreed that the report would achieve its main goal as is, with minor modifications, and the Monitoring Team could then move on to its next piece of analysis, and use SRC suggestions in future reports.

The SRC as a body accepted the draft final APWRA 2005-09 Monitoring Report (M21), while asking that the Monitoring Team:

- Provide sufficient explanatory and clarifying text to the report's figures and tables so that they can stand alone;
- Explain multiple biases in the analysis with examples (installed to installed, address to address); and
- Duplicate the fatality tables with upper and lower bounds and explanations.
- Define terms clearly

### **SRC Suggestions for Future Analyses**

SRC members said the monitoring program has been the largest study of wind development in the world, and more should be able to be gleaned from the data to help address avian fatalities. Monitoring Team members asked the SRC what additional types of analyses they would suggest could be undertaken, moving forward, with this data set. SRC members said they could provide a list of the Monitoring Team to review and consider what might be feasible. Suggestions are listed below:

### **Monitoring Report**

#### **SRC Recommended Analyses of 05-09 Data for Future Reports**

- Bird abundance correlations
- Timeline graph:
  - Turbine removals
  - Percentages
  - For tier, HRT and attrition
- Seasonal analysis by year of adjusted numbers
- Analysis of fatality rates at turbines next to removed turbines
- Operating data versus mortality
- Behavior or use data incorporated
- Rodent control information gathering -- qualitative or quantitative as necessary
- Burrowing owl distribution and abundance
- Searcher detection error by aging of carcasses
- Carcasses by radius -- look at existing data
- Analysis of adjacent turbine effects
- Partial bird year adjustment -- distribution curve

#### **Public Recommendations:**

- Rodent control
- Geographic distribution of fatalities by seasons

#### **Public Comment**

Jim Hopper of AES said the Adaptive Management Plan is not yet finalized, so now would be the time to talk about additional studies of the existing data.

Joan Stewart of NextEra asked if the suggested analyses would be under the existing Monitoring Team contract. In response, Doug Leslie said he was not promising additional deliverables at this point.

#### **Next Steps**

- The Monitoring Team will revise and produce final 05-09 Monitoring Report

## **Review of New Monitoring Program**

### **Related Documents**

[M61 2010 Q1 Monitoring Memo](#)

[M64 2009-10 Preliminary Data December 2010 Presentation Slides](#)

[M65 New Monitoring Program December 2010 Presentation Slides](#)

[P191 Smallwood Comments on APWRA Monitoring Program Update](#)

### **Review of October 2009- September 2010 Preliminary Data**

Jesse Schwartz of the Monitoring Team gave a presentation on preliminary data for the 09-10 bird year ([M64\\_2009-10 Preliminary Data December 2010 Presentation Slides](#)).

Unadjusted unfiltered results indicate similar fatality rates to the 2008-09 year for golden eagles, American kestrels and burrowing owls, but about a 50% decrease in red tail hawk fatalities. Adding the 09-10 data allows, for the first time, a plot of daily unfiltered fatalities per search per turbine address, using all data since January 2005, to produce a linear regression line, which he said is a signal of significance. Once there has been a public and SRC review of the data, the data will be filtered, analyzed and folded into a report to be released to the public in March.

### **SRC Questions and Comments**

In discussion, SRC members raised the following issues:

- What is the definition of a "medium" raptor? Monitoring Team members said they would have to query the database, but believed it was either northern harrier or prairie falcon.
- It is important for the analysis to look at whether the number of fatalities is affected by management actions.
- The plot of unfiltered fatalities since 2005 does not show the 2006 peak in fatalities.

### **Status of Data Availability**

The 09-10 data should be available to the public very soon, through the SRC website. The Monitoring Team is asking the public to review the data to assess the accuracy of the fatalities in the search data, and the 09-10 turbine removals. Public data review will occur until January 31. The data will be available as downloaded Excel spreadsheet files with a date stamp that members of the public can modify. The Monitoring Team's intent is to produce data for public review on a quarterly basis.

### **Public Comment**

Renee Culver of NextEra asked how members of the public can check the data. Jesse Schwartz said individuals can save a copy of the spreadsheet, edit it, and e-mail it to him at [jesseschwartz@icfi.com](mailto:jesseschwartz@icfi.com). The public will not be able to directly alter or manipulate the Monitoring Team's data.

Craig Weightman of the Department of Fish and Game asked if the 05-08 data is still available. Jesse Schwartz said it remains available on the website.

### **Implementation of New Monitoring Approach & Detection Probability (QAQC) Study**

Jesse Schwartz of the Monitoring Team gave a presentation on the first rotation of the new monitoring program, which began implementation in mid-October (see [M65\\_New Monitoring Program December 2010 Presentation Slides](#)). He and Project Manager Doug Leslie discussed the status of monitoring to date. At this time, searchers are using their new electronic data collection equipment, but they are also continuing to use their old data gathering methods during this transition period to ensure data quality while the inevitable

bugs are worked out. The new system seems to be working. Searchers are slowed down as they learn the new techniques, but they have not reported many difficulties.

Monitoring and QAQC is occurring through a double-blind approach with two teams unaware of each other's activities. The two-team sampling approach is being used in Alameda County, but not Contra Costa County. The process began with clearing searches, in which aged carcasses were removed. Double sampling involves a primary and secondary search. There are also pre-surveys and follow-up searches by supervisors, as time and schedule allows. The intention is to do double sampling on 25% of monitoring capacity and follow-up searches on 5%. The goal is to keep each team as blind to the activities and findings of the other team as possible.

### **SRC and Public Questions and Comments**

Members of the SRC and the public raised the following issues:

- How will the new data recording be used with bird utilization surveys? Jesse Schwartz responded that that is not yet occurring, and that information is being gathered by hand, because an application created by Lee Neher is not working. His long-term goal is to use video real-time recording with voice notes. Two SRC members said they didn't think that method would be practical.
- What is the cost of the detection probability study? It is being funded by the reduction by one third of the number of turbines monitored.
- Joan Stewart of NextEra told the group that NextEra is in the process of getting permits in Contra Costa County to repower its turbines, and is aiming to take out the old turbines between March and May.

The Monitoring Team sought SRC thoughts on what to prioritize in the detection probability (QAQC) design. One question is whether to continue randomizing both the primary and secondary searches, and whether the secondary searches should be allocated randomly to one week, two weeks, three weeks, and four weeks after the primary search.

- An SRC member asked why the primary searches need to be randomized. Jesse Schwartz said it might be possible not to do so. The issue is whether he can manage to sequence enough double surveys. If the searchers are not monitoring Contra Costa turbines, there might be enough time to make that workable.
- An SRC member was concerned that the randomization creates variability in timing between the first and second search. Jesse Schwartz acknowledged that and agreed. He said his primary concern is randomizing the second search interval, because it raises questions about the concept of the interval, and how a one-day interval would differ from a seven-day, 15-day, or 21-day interval. Two SRC members agreed. He said he is concerned that the lapse in time in the second search weakens the link, and recommended that the goal should be to make the second search one day afterwards.

The group had a focused discussion on preliminary results of the detection probability survey, illustrated on slide 19, and an illustration of possible results, shown on slide 15. Preliminary results mirror the KB study issues: of 11 fatalities found in the primary search, only four were detected in the secondary search, with 83% still in the field.

During the discussion, different members of the Monitoring Team described their concept of the purposes and approach of the detection probability study differently. Jesse Schwartz said he sees search interval is playing an important role in detection probability, and is concerned that variable intervals will introduce greater uncertainty. Federal guidelines recommend a two-week interval because detection probability may start to fade away if longer intervals are used. Brian Karas said he sees carcass age and scavenging as being key factors as well as the ability of searchers to detect carcasses, and the purpose of using different intervals is to capture different detection events in regards to carcass age. Doug Leslie said he sees searcher efficiency and scavenger removal as being intertwined.

The following points were raised by SRC members:

- A larger interval increases the level of uncertainty and potentially introduces another level of error.
- The experiment may not actually be an exercise in mark-recapture.
- One consideration is whether the data will be comparable to data collected from 2005 to 2009. Is it more important to look backward and ensure comparability, or to look forward and improve the science of searcher detection to inform repowering?
- One SRC member said the main goal of this endeavor, at the broadest level, is to answer the question of how many fatalities are occurring. Another SRC member said comparative measures of change are needed.
- Two SRC members favored the approach of removing carcasses after 90 days, and treating the study as exploratory. It will be important to conduct pre- and post-surveys so there is no ambiguity about whether carcasses are actually present.
- Given limited personnel and time, a follow-up search is more important than a pre-survey.
- It's not clear at present how the data will be used in an analysis, so it would be helpful to do simulation analyses to ensure that the collected data will result in a viable analysis.

### **Public Comment**

Renee Culver of NextEra asked how the 90-day limit for carcasses would work, and whether a secondary find would become a primary find if it is picked up at the end of 90 days. When is a carcass treated as a fatality for the purposes of the monitoring program? Monitoring team members said the team only uses a carcass found during a primary search as a fatality. The rest are for the experiment. The carcass could be found during the next primary search. After one rotation, searches would no longer be blind. Every fatality is then tracked and cleared individually.

### **SRC Agreement on Detection Probability (QAQC) Study**

The SRC made the following recommendations for the detection probability study that began in October 2010:

- The Monitoring Team should pursue the goal of developing methods to increase the accuracy of fatality estimates going forward, while ensuring that the data are as comparable as possible to the 2005-2009 period;
- Tighten the pre-to-primary and secondary-to-follow-up intervals to 0-1 days;
- Limit the interval between primary and secondary searches to 0-15 days, while varying it within that timeframe;

- Leave carcasses on the ground for 90 days;
- Conduct a simulation analysis to determine if data collection will produce a viable analysis (Julie Yee will work with the Monitoring Team on this effort);
- Do pre- searches and follow-up searches as often as possible; and
- Use carcasses of known age, as fresh as possible.

SRC members were asked about how they felt about randomizing primary and secondary searches as far as order and interval. After some discussion, SRC members concluded that this is an issue that the Monitoring Team can handle internally.

### **Next Steps**

- The Monitoring Team, in coordination with CCP, will provide 09-10 fatality data to public through the SRC website
- SRC members and the public can review & provide feedback and/or edits on the 2009-10 fatality data until January 31
- The Monitoring Team in March will produce a 2009-10 fatality data report with an accompanying SRC comments table
- The Monitoring Team will revise the detection probability study based on the meeting's discussion and SRC recommendations

### **Additional Discussion**

On the meeting's second day, one SRC member sought clarification about the detection probability study, in relation to the timeframe between primary and secondary searches, as well as between secondary and follow-up searches. If the time span is varied between the primary and secondary searches, it's not technically a double observer study. And it would not be a mark-recapture study, because the study does not have a prescribed set of multiple observations happening in a short time span. She said she is comfortable with the study if the time span varies up to a two-week period between the primary and secondary search, because it allows one to gather data on the detection of known-age trial carcasses, placed during pre-searches, as a function of carcass age. However, she was not comfortable with the lack of development of an analytical technique for this study, and suggested simulation studies to help evaluate any analytical techniques.

## **New Monitoring Program: Implementation of Other Studies**

### **Related Documents**

[M62 Budget for Other Studies Memo](#)

[P90 SRC Burrowing Owl Study Plan](#)

[M59 Subcommittee Notes 10-04-10](#)

### **Context: Available Funding & Staffing Constraints**

Doug Leslie, Monitoring Team Project Manager, said the number of turbines monitored has been reduced, so that funding can be allocated to other worthwhile efforts. The budget is structured around having seven people in the field. At past meetings, the SRC has identified the detection probability or QAQC study, a burrowing owl study, and a search radius study

as priorities. The Team has resources equal to one full-time equivalent person to devote to other studies. At the present time, the implementation of double sampling is utilizing all seven field personnel, but in about 1.5 months, there should be extra time available to begin study work. He would prefer that resources be devoted to looking at burrowing owls.

### **Search Radius Study**

In regards to a search radius study, Doug Leslie held a meeting with the SRC analysis subcommittee of Julie Yee and Shawn Smallwood to gather information, and has conducted more analysis since then on what would be needed to conduct the study. His understanding is that the objectives would be to identify an accurate number of missed carcasses and to inform repowering, as there is not a clear agreement on what the search radius should be for new repowered turbines, and choosing the wrong radius could create an institutionalized bias. He is concerned that the existing 34 Diablo Winds repowered turbines are much smaller than new repowered turbines will be, so data gather from looking at them may not be applicable. In addition, sample size requirements would require searching all of the turbines for the better part of a year to achieve a minimum sample. Ideally, a search radius analysis would be part of a larger study plan that would be brought in as turbines are repowered. Once the Contra Costa turbines are removed, the Monitoring Team will have more resources available.

### **SRC and Monitoring Team Discussion on Search Radius Study**

In discussion, SRC members identified the following **objectives** for a search radius study:

- To generate hypotheses to provide ideas about how to establish an optimal search radius for repowered turbines
- To explore whether search radius is a function of tower height or turbine size, or other factors
- To begin developing data currently unavailable on potentially wider search radii, as the asymptote has not yet been reached in current studies -- data stops when the radius is reached
- To find the asymptote when fatalities fall off
- To identify what proportion of carcasses are being missed with the existing search radius, to establish a standard search radius
- To explore differences in this function among different species
- To examine the impact of topographic features such as cliffs and valleys and test different detection probabilities

SRC members identified the following potential **constraints**:

- Diablo Winds might help in finding a relationship with tower height, but would only inform up to that height, unless the data is extrapolated, which might be difficult.
- Some of the Diablo Winds turbines have an issue with adjacency of other turbines, making it difficult to ascertain which turbine caused a nearby fatality.

Monitoring Team and Alameda County representatives identified the following potential **constraints**:

- The study may result in too few fatalities to generate reliable statistics.
- A burrowing owl study would inform siting of repowered turbines, while a search radius study would only impact post-construction analyses

Some SRC members suggested that post-construction pilot studies on repowered turbines could be used to establish an optimal search radius.

One SRC member said the budget on post-construction studies will be limited by the Attorney General's Office settlement agreement.

### **Public Comment**

Jim Hopper of AES suggested searching turbines without adjacency issues.

### **SRC and Monitoring Team Discussion on Burrowing Owl Study**

In discussion, the SRC identified the following **objectives** for a burrowing owl study:

- To validate or invalidate the extremely high number of burrowing owl fatalities estimated in the monitoring report.
- To inform siting of repowered turbines
- To inform the impact on burrowing owls of seasonal shutdown, to evaluate the effectiveness of this management action and potentially aid analysis of current study data
- To provide information on burrowing owl mortality in general
- To identify where burrowing owls go at night, and whether they frequent turbines during this time period, or forage in certain types of terrain
- A behavior study should look at the effect of tower height
- To identify risky behaviors of burrowing owls that might account for their high mortality.

The following potential **constraints** were identified:

- The window for this study to inform repowering is short, as turbine siting will occur very soon -- therefore, all the work will need to be done as soon as possible.
- With 1 FTE, there is insufficient staff to do an optimal study. A much higher level of effort is needed. Even with 2 FTE, two people for half a year might need to be deployed.
- It would be important to understand burrowing owl behavior at night, which would require the use of night vision cameras.
- Burrowing owl distribution may change over time in the APWRA.

In discussion, among SRC and monitoring team members, the following points were raised:

- The behavioral portion of the burrowing owl study outlined in P90 would not be as expensive as the distribution and abundance aspect of that study
- There would be efficiencies in studying distribution and abundance because the Monitoring Team already has a roving crew. In April, there would be opportunities to adapt and modify the study.
- Perhaps a master's student could be found to help with the effort.
- A distribution and abundance study might help in avoiding siting turbines in high density burrowing owl areas.
- A GIS analysis of existing data gathered over the last 10 years, using models and plots of hotspots, could develop information on whether mortality patterns have

changed over time or remain the same. The Monitoring Team could do this fairly quickly. This analysis should be presented spatially, possibly by month.

- One SRC member saw large mortality spikes in certain areas in 2006.
- How would the data be useful if mortality changes over time?
- One possibility would be to look at patterns of distribution, and if burrowing owls prefer certain types of terrain and foraging areas. Perhaps conduct a habitat selection study.
- Obtaining funding for burrowing owl studies has been challenging; there is some concern that collars, if a telemetry-based study for habitat use were conducted, could influence owl behavior.
- One SRC member was concerned that finding hotspots would not be sufficient to inform repowering. There would need to be more rigor in the study.

### **Public Comment**

Mike Lynes of Golden Gate Audubon said that the settlement agreement anticipates this issue and NextEra is committed to using the best available science for siting.

Renee Culver of NextEra said she understood that burrowing owl population dynamics, with population increases and crashes, would complicate a single-year study.

Doug Bell of the East Bay Regional Park District said at the repowered Buena Vista turbines, according to that project's monitoring report, there have been zero burrowing owl deaths and zero burrowing owls in the vicinity of the turbines, while populations do exist at control sites. Therefore, there are areas without the species. In response, SRC member Shawn Smallwood confirmed that in three years of monitoring at Buena Vista, there have been zero burrowing owl fatalities. The previous generation of Buena Vista turbines, which were more spread out, did kill burrowing owls.

### **Continued SRC and Monitoring Team Discussion**

Doug Leslie described his proposed burrowing owl study design, which involves systematic searches for burrowing owls and potential burrowing owl burrows based on a stratified random sampling scheme in which a grid would be established for the valley floor, lower, middle and upper slopes to document distribution and abundance. Burrowing owl presence can be inferred from signs of occupancy at a burrow. It would include regular and incidental searches, with one full-time equivalent searching selected areas using a random stratified approach.

Two SRC members were concerned that the Monitoring Team proposed study design would be too opportunistic. It would need to be rigorous enough to identify distribution and abundance, and conditions likely to indicate burrowing owls. Some indication of temporal patterns is necessary

### **Public Comment**

Joan Stewart of NextEra said under the settlement agreement, NextEra is obligated to provide funding to PIER for research. A search radius study for Vasco Winds (NextEra's planned Contra Costa County repowering project) could be funded from PIER separately, so the Monitoring Team would not have to use older turbines. In response, one SRC

member said that is true, but the study proposal would have to be chosen in a competitive process. A Monitoring Team member added that the HCP technical advisory committee would also be making recommendations.

### **SRC Decision on Priorities for Other Studies**

After weighing the utility of a burrowing owl study or search radius study to inform repowering, SRC members agreed to prioritize a burrowing owl study. Discussion then continued to refine the burrowing owl study approach.

### **Public Comment**

In response to a question, Doug Bell of the East Bay Regional Park District said the cost for burrowing owl surveying was very expensive. The cost depended to a certain extent on the investigator's standards in regards to multiple visits, time on site, etc.

Renee Culver of NextEra asked about the cost and value of looking for abundance before March, and whether it might be better during this time of year to focus on distribution. It involves a very intense footprint survey for burrowing owl, which will come into account during repowering, she said.

The following points were raised in SRC discussion:

- A stratified sampling approach might not work. Records of burrowing owls on entire slopes would be needed. A watershed-level approach, including slope attributes, would be preferred, as outlined in P90. Data should be comparable to Vasco Caves.
- The question is what is sufficient to meet the objective. Multiple visits to burrows would not be necessary. However, sufficient information would need to be gathered to identify the range of the species.
- Would a lack of burrows indicate a safe location for a turbine? The issue is where the owls would go at night.
- The question of winter versus breeding populations needs to be considered.
- The questions that need to be answered are what would make owls vulnerable and where is there high mortality? Information could be gathered to lead to further study.
- The point about timing is good. The question about a behavior study is how it would inform repowering and help site turbines, in the absence of distribution and abundance information.
- The study might uncover information about foraging activity in regards to topography, slope height and vegetation height that could help in turbine siting.
- It is important that the study not be too experimental, and that it be likely that it will collect quality data.
- Beginning a study in March would be the right time of year.

### **SRC Recommendation on Other Studies for 2011**

The SRC agreed to recommend that available monitoring funds be allocated to a burrowing owl study incorporating the following elements:

- An analysis of existing historic fatality data to identify burrowing owl fatality hot spots, clusters and potential related environmental attributes from available GIS layers; including a temporal and seasonal analysis.

- Development by the SRC and Monitoring Team prior to March 2011 of the design of a pilot study on burrowing owl behavior; and
- Prior to the end of March 2011, a limited distribution and abundance study in lower terrain, with report back to the SRC.

### **Timeline for Next Steps, Implementation**

CCP will work with the Monitoring Team to identify the timeline needed for SRC involvement in the pilot study design in order to ensure that the Monitoring Team can move forward according to schedule.

## **Attorney General's Office APWRA Settlement Agreement**

### **Related Documents**

[S30 2010 Attorney's General Official APWRA Settlement Agreement](#)

[S31 Mueller Presentation on APWRA Repowering Agreement](#)

Tara Mueller of the California Attorney General's Office gave a presentation on the recently agreed-to settlement involving her office, NextEra, five Audubon Chapters and CARE (see S31 for the content of her presentation).

SRC members and members of the public had the following questions and comments:

- What is the relationship between approvals and installation and operation of repowered turbines? The agreement says NextEra has to implement repowering upon obtaining approvals.
- Smallwood and Neher is not peer-reviewed, but is considered to be the best scientific data at this point. In response, parties to the agreement said it requires that peer-reviewed methods be used. The agreement is not designed to preclude any information, but to provide standards and require the best available information to be used.
- What is the definition of "enforceable"? Clear, concise and concrete. Actions would be enforced by the other parties to the agreement.
- There is no information at all about bats in the Altamont Pass. The requirements for once a month post-construction monitoring for bats is insufficient to find the animals. In response, settling parties said the SRC will have a say on issues such as this. Zack Walton of Downey Brand, representing NextEra, said repowering will go through a CUP, CEQA, and endangered species processes with DFG and USFWS. The hope is that permits are as consistent with the agreement as possible, but additional requirements may be imposed by those processes.
- Is the \$300,000 annual monitoring ceiling sufficient? In response, Zack Walton said NextEra looked at the cost of the existing monitoring program and added a condition, and believes it should be more than adequate. It includes an inflation adjustment.
- The impacts to species would be ongoing, so what is the rationale for a one-time fee rather than an annual fee based on production? In response, Mike Boyd of CARE said he believes the agreement is flexible enough for decision-making bodies to change that, on the basis of uncovered facts. Monitoring is long enough to account for interannual variation. The agreement is the result of give-and-take. His concern

- was ensuring that the agreement is enforceable. NextEra has committed that if they don't repower, they will pull their turbines out. Zack Walton said NextEra was looking to gain regulatory certainty, and, in exchange, has agreed to the most aggressive schedule for repowering and believes that repowering should be done right.
- What about other methods that the SRC might recommend -- is seasonal shutdown possible? In response, Zack Walton said that technologically, the new repowered turbines are capable of being shut down.
  - Are other wind companies involved in discussions? The attorney general's office isn't in a position to comment.
  - Andrea Weddle of the Alameda County Counsel's Office said Alameda County is not a party to the agreement, and was not in a position to participate. Until Alameda County completes the CEQA and new CUP processes, the 2007 Settlement Agreement and the existing CUP are in place and will be enforced. Through its review, Alameda County could decide that it does not like all or some of the agreement's provisions. The County will work with all parties, and, if the County's approvals don't mesh with the agreement, will enforce County provisions.
  - How will monitoring happen -- will there be two independent monitoring efforts? Tara Mueller said there will be, and that is a complication. In addition, the arm of the State of California that is a party to the agreement is the State Attorney General's Office, not the Department of Fish and Game, which has regulatory oversight on state endangered species issues.

Tara Mueller provided her contact information for those seeking further information about the agreement:

- 510-622-2136
- [tara.mueller@doj.ca.gov](mailto:tara.mueller@doj.ca.gov)

## Compliance Report

### Related Documents

[P192a Karas Alameda County APWRA Compliance Summary](#)

[P192b Karas Table 9 Turbine Checked for 12 Months of Unproductive Status](#)

Compliance Monitor Brian Karas reviewed the results of his monitoring of compliance with the SRC's tier and hazardous turbine removal recommendations.

## Definition of Avian & Topographic Terms

### Related Documents

[P160 SRC - NCCP Definitions](#)

The SRC subcommittee of Jim Estep and Joanna Burger revised [P160 SRC - NCCP Definitions](#) based on input received from other SRC members at the July 2010 meeting. The SRC accepted the document with one change, a recommendation from the July meeting that had not been included, to place an approximate sign (~) in front of slope numbers.

## CalWEA Study Update

Brian Karas, as a representative of the CalWEA study team, gave an update on the status of the study. The pilot study has begun on strings that are not currently being monitored by the Monitoring Team.

Monitoring Team project manager Doug Leslie said the CalWEA team had not communicated sufficiently with the Team. Monitoring Team member Jesse Schwartz said he was concerned that, with the lack of coordination, the CalWEA pilot study has commenced and the Team has not had an opportunity to confirm that that study's placement of carcasses would have no impact on monitoring. For example, it could draw scavengers to its carcasses and thereby increase burrowing owl fatalities. He suggested that a memorandum of agreement between the two teams would be the best approach to proceed with.

SRC members agreed that an issue is how far CalWEA carcasses are from monitored fatalities, as there is potential that they could draw scavengers from monitoring program carcasses. They agreed they would like information on CalWEA study locations.

Further, the SRC should have periodic updates on the project.

### SRC Agreement on CalWEA Study

The SRC agreed to:

- Recommend that CalWEA be asked to provide map and location information about its study sites
- Favored seeking a way to work with CalWEA or reduce any potential impacts
- Recommended that Alameda County attempt to develop a memorandum of agreement with the CalWEA study principals

## SRC in 2011: Meetings, Topics, Process

Sandra Rivera of Alameda County reviewed the items that would be on the agenda for the SRC in 2011:

- SRC input into the APWRA EIR.
- Potential discussion or action on changes to the draft Adaptive Management Plan in the wake of the new agreement among some settling parties. Alameda County is looking how to integrate it. If there are areas that are not consistent with SRC recommendations, it will go before the East County Board of Zoning Adjustments.
- An annual hazardous turbine review, as proposed in the language of the draft Adaptive Management Plan
- The Monitoring Team's annual review of avian mortality
- Other potential studies, such as the burrowing owl study

### SRC & Monitoring Team 2011 Improvements

Members of the SRC and the Monitoring Team had a wide-ranging discussion of changes they'd like to see in 2011. In their discussion on how to improve SRC/Monitoring Team communications, SRC and Monitoring Team members suggested the following changes:

- There is sometimes slow Monitoring Team response to comments. To ensure that communication occurs, provide a written response, followed by a phone call
- All parties are encouraged to use the SRC Meeting Outcomes from each in-person meeting as an information resource on key meeting outcomes
- The Monitoring Team is encouraged to let the SRC know when ideas that are suggested are not workable. Some ideas work, and some don't.
- Hopefully there can be a greater effort at communication around potentially confusing topics.
- It would be helpful to develop a roster of contact information for each SRC and Monitoring Team member
- The facilitators will send out action items to SRC and Monitoring Team members right after meetings
- It is useful and helpful to have the Monitoring Team at the table with the SRC. However, there needs to be a five-way discussion first, and then there can be an eight-way discussion afterwards.
- SRC members need to schedule time to review materials, so it is helpful to know that a report will be coming out, and have it more than one week in advance of the meeting so it can be reviewed in a timely fashion.
- One Monitoring Team member suggested greater e-mail communications among the two groups. However, because of the limitations of the Brown Act, collective conversations need to occur during publicly noticed meetings, so that is not possible.
- Members of the Monitoring Team, however, are encouraged to telephone individual members of the SRC, or members of an SRC subcommittee, if clarification is needed for the purposes of accomplishing a task.
- In-person meetings, rather than conference call meetings, are best for complex discussions
- It would be helpful to produce SRC Subcommittee notes in a more speedy fashion
- To speed their publication, meeting summaries can be approved on conference call meetings, not only at in-person meetings
- It would be helpful if the Monitoring Team took notes on complex discussions, when the facilitation team might not capture scientific subtleties of the discussion.
- The SRC presently schedules a discussion at each in-person meeting to produce the SRC meeting outcomes information release. In the future, the Monitoring Team will participate as a form of check-in at the end of meeting to ensure that all parties are agreed on the meeting outcomes.
- In regards to posting of documents on the SRC website, a decision on whether to archive each version of the document will be made on a case-by-case basis. In some cases, there is concern that early versions of a document posted on the website would lead to greater confusion on the part of the public and media. In those cases, earlier versions are removed, and only the most current version of the document is maintained on the website. However, all versions are public documents and are available through Alameda County.
- Relevant members of the Monitoring Team need to remain for the whole meeting.

## Future SRC Meetings

### In-Person Meeting

SRC members identified the following tentative time frame for the next in-person meeting:

- Between late February and April

### Conference Call Meeting

- SRC members will be polled for their availability for a February conference call prior to the in-person meeting

## Documents Circulated at Meeting

[M21 Monitoring Report](#)

[M63 Altamont Pass Bird Fatality December 2010 Presentation Slides](#)

[P189 Smallwood Report of Avian Fatality Patterns](#)

[P190 Smallwood Review of December 2010 Monitoring Report](#)

[M61 2010 Q1 Monitoring Memo](#)

[M64 2009-10 Preliminary Data December 2010 Presentation Slides](#)

[M65 New Monitoring Program December 2010 Presentation Slides](#)

[P191 Smallwood Comments on APWRA Monitoring Program Update](#)

[M62 Budget for Other Studies Memo](#)

[P90 SRC Burrowing Owl Study Plan](#)

[M59 Subcommittee Notes 10-04-10](#)

[S30 2010 Attorney's General Official APWRA Settlement Agreement](#)

[S31 Mueller Presentation on APWRA Repowering Agreement](#)

[P160 SRC - NCCP Definitions](#)

[P192a Karas Alameda County APWRA Compliance Summary](#)

[P192b Karas Table 9 Turbine Checked for 12 Months of Unproductive Status](#)

P100\_SRC Document List with Reference Numbers

## SRC Meeting Participants

### SRC Members Days 1 & 2

Joanna Burger

Jim Estep

Sue Orloff

Shawn Smallwood

Julie Yee

### Staff

Sandi Rivera, Alameda County, Days 1-2

Andrea Weddle, Alameda County, Day 2

Mary Selkirk, Facilitator, Days 1-2

Ariel Ambruster, Associate Facilitator, Days 1-2

### Monitoring Team

Doug Leslie, Days 1-2

Jesse Schwartz, Days 1-2

Brian Karas, Days 1-2

**Others**

**(Meeting sign-in is optional)**

Doug Bell, EBRPD, Day 2

Janine Bird, San Jose State University, Day 1

Michael Boyd, CARE, Day 2

Renee Culver, NextEra, Days 1-2

Jim Hopper, AES/SeaWest, Day 1-2

Nanette Leuschel, Ralph Properties II, Day 1

Mike Lynes, Golden Gate Audubon, Days 1-2

Ryan McGraw, AWI, Day 2

Bob Power, Santa Clara Valley Audubon, Day 2

Joan Stewart, NextEra, Days 1-2

Zack Walton, Downey Brand, Day 2

Craig Weightman, CDFG, Days 1-2

Michelle Wiles, AWI, Day 2

## List of SRC Agreements Developed December 13 & 14

(Compiled from this document)

### **SRC Recommendations on December 2010 Monitoring Report**

After the discussion, SRC members agreed that the report would achieve its main goal as is, with minor modifications, and the Monitoring Team could then move on to its next piece of analysis, and use SRC suggestions in future reports.

The SRC as a body accepted the draft final APWRA 2005-09 Monitoring Report (M21), while asking that the Monitoring Team:

- Provide sufficient explanatory and clarifying text to the report's figures and tables so that they can stand alone;
- Explain multiple biases in the analysis with examples (installed to installed, address to address); and
- Duplicate the fatality tables with upper and lower bounds and explanations.
- Define terms clearly

### **SRC Agreement on Detection Probability (QAQC) Study**

The SRC made the following recommendations for the detection probability study that began in October 2010:

- The Monitoring Team should pursue the goal of developing methods to increase the accuracy of fatality estimates going forward, while ensuring that the data are as comparable as possible to the 2005-2009 period;
- Tighten the pre-to-primary and secondary-to-follow-up intervals to 0-1 days;
- Limit the interval between primary and secondary searches to 0-15 days, while varying it within that timeframe;
- Leave carcasses on the ground for 90 days;
- Conduct a simulation analysis to determine if data collection will produce a viable analysis (Julie Yee will work with the Monitoring Team on this effort);
- Do pre- searches and follow-up searches as often as possible; and
- Use carcasses of known age, as fresh as possible.

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The SRC agreed to recommend that available monitoring funds be allocated to a burrowing owl study incorporating the following elements:

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