

DRAFT Meeting Summary | February 16-17, 2011

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

(This list was developed by the SRC & Monitoring Team at the end of the meeting.)

Monitoring Report (M21)

- The SRC asked the Monitoring Team to provide hard copies of the January 2011 Final APWRA 2005-09 Monitoring Report (M21);
- The SRC agreed that M21 is finalized and requires no more input from the SRC; and
- The SRC agreed that if, after reviewing the document, an SRC member has a serious concern, that individual will call for an SRC conference call meeting to discuss the issue.

Burrowing Owl Study Design

The SRC revised and accepted the burrowing owl study hypothesis framework (original version, M67; revised version, P203).

The SRC agreed that key objectives of burrowing owl studies are the following:

- To inform repowering;
- To test several hypotheses, including:
 - Burrowing owl mortality is related to proximity of burrows to turbines
 - Burrowing owl mortality is associated with specific positions of active turbines relative to occupied burrows (i.e. distance, directions, and/or slope)
 - Mortality increases with increasing density of burrowing owls
 - Mortality is influenced by topography
 - Burrowing owl deaths are indirectly turbine related
 - Burrowing owl mortality is partly dependent on behavior
 - Predators use turbines to hunt for burrowing owls
 - Perch-hunting predators hunt from turbines and kill burrowing owls at their burrows
 - Predators flush burrowing owls into the rotor swept area

To meet these objectives, the SRC recommended the following burrowing owl studies in order of priority, pending development of a detailed work plan and budget:

- 1) A distribution and abundance study based on [P198 Smallwood Proposal to Sample Burrowing Owls across APWRA](#);
- 2) An analysis of existing historic fatality data to develop information on presence of burrowing owl populations in the Altamont, including an analysis of seasonal and yearly variation of fatalities that might shed light on the degree to which populations at various sites vary or remain constant; and
- 3) The summer set of behavioral observations detailed in [P194 SRC Burrowing Owl Behavior Pilot Study Proposal](#) to assess the utility of techniques for later research.

In making this recommendation, the SRC emphasized the importance of ensuring that the distribution and abundance and behavior studies be undertaken by qualified researchers.

QAQC Study

The SRC heard and discussed presentations on:

- o Current QAQC analysis by the Monitoring Team; and
- o An alternate approach to establishing detection probability and simulations to generate a predictive detection probability rate. SRC members expressed enthusiasm about this approach.

Action Items & Meeting Follow-Up

Party	Due Date	Action
SRC	1 PM March 16	Next Conference Call Meeting
SRC	April 4-5	Tentative In-Person Meeting
Monitoring Team		Provide hard copies of January 2011 M21 Report to SRC
Alameda County		Send latest Adaptive Management Plan documents to SRC
Monitoring Team	April 1	Release draft bird fatality annual report focusing on 3-year rolling average
SRC		Take ethics training
CCP		Distribute meeting action items shortly after meetings
CCP		Work to speed up completion of meeting summaries
Monitoring Team	March 3	Produce first-quarter data (October-January) for public review
Shawn Smallwood, Jim Estep & Monitoring Team	By Feb. 24, if possible	Meet to develop more detailed burrowing owl distribution and abundance study design
Monitoring Team	March 15	Complete analysis of historical fatality data re burrowing owls
Monitoring Team & Subcommittee (Smallwood, Estep)	March 15	Complete a detailed burrowing owl study design and work plan, for April 1 implementation
Julie Yee, Brian Karas, Jesse Schwartz, Doug Leslie	ASAP if possible, or March 15	Refine simulation study and alternate QAQC approach to explore how it might inform detection probability study

[Table of Contents to be added]

Meeting Account

Announcements & Updates

Sandra Rivera of Alameda County gave the following updates:

- It's important to remember that the County and SRC are still bound by the Settlement Agreement, which will remain in place until it is amended, so that has to be balanced with the Attorney General's Office settlement agreement.
- The Adaptive Management Plan will go before the East County Board of Zoning Adjustments on February 24. It is the same plan that was before the SRC, except that dates have been modified for NextEra. The documents will be e-mailed to SRC members once the packet is complete.
- SRC members need to complete their ethics training and submit the recertification to the County.
- In regards to the EIS/R and Conservation Plan, the County is exploring with the resource agencies various approaches to meet the Settlement Agreement conservation goal, because of the timeline issues. As for resource agency participation, the wind companies have committed to paying for staff time. The State Department of Fish and Game is active, but there has been limited participation to date by the US Fish and Wildlife Service. The goal is to bring them onboard in the next month. The HCP/NCCP path required by the CUP and the Settlement Agreement may be changing, and if so, that will come back to the SRC.

An SRC member asked about a new alternative, the permitting process for take of golden eagle now available under the Bald and Golden Eagle Protection Act. Rivera said that alternative is being considered by the county and resource agencies.

Report from the Monitoring Team

Related Documents

[M21 Monitoring Report](#)

[M66 Monitoring Report SRC Comment Table](#)

Monitoring Report

Doug Leslie of the Monitoring Team said the final Monitoring Report ([M21 Monitoring Report](#), Altamont Pass Wind Resource Area Bird Fatality Study) has been completed. The report is available on the SRC website. The report is the same as that reviewed in December, except that a new table has been added about caveats on the estimated total number of fatalities. The Monitoring Team has also produced a table (M66) listing Monitoring Team responses to SRC comments on earlier drafts of the report. The table refers to pages from the December 2010 version of the report.

SRC Comments and Questions

SRC Members raised the following points about the report and comment table:

- The comment table is a great idea and useful format, but should be done in a more timely fashion.
- However, there needs to be a coherent process of review so that it has utility.
- Responses to SRC comments should be clear and as detailed as necessary to indicate that the comment was sufficiently addressed.
- The "comment noted" reply, similar to replies often seen in response to public comments on CEQA documents, leaves the impression that a comment is not taken seriously. Additional information needs to be provided.
- The table would have utility if it was distributed on a timely basis, as it would allow for dialogue between the SRC and the Monitoring Team
- It may not be worth doing again, given the amount of time it took to put it together, if it can't be produced in a timely way
- It might be helpful to highlight major points in the table that will influence future reports, or major issues in which there was strong Monitoring Team disagreement with the SRC

Sandra Rivera of Alameda County said the table came about as a way to address SRC concerns that their questions and comments had not been responded to. She agreed that it would have been better if it was distributed with the December draft. The intent is so that the SRC can see the thinking of the Monitoring Team, and to show that the Monitoring Team is making a decision on each comment.

Doug Leslie said the Team plans to produce another report at the end of March that will look at current study data only, will include 09-10 data, and will focus on the three-year rolling average as the new baseline. It will mention the 50% goal, but will not analyze it.

Some SRC members were concerned that they had not had an opportunity to review the final report prior to it being made available to the public. Sandra Rivera said there was agreement between the SRC and the Monitoring Team on key aspects of the report. The report does not need to have full SRC approval, as the Monitoring Team is supposed to be the independent biologists for Alameda County. The SRC reviews their products, asks questions and makes recommendations in regards to their work. The SRC discussed the possibility of adding an addendum if there were serious issues remaining.

Public Comment

Renee Culver of NextEra said, in regards to timelines, that it would be helpful if meeting summaries could be distributed to the public on a timelier basis. It is difficult to follow action items and the work of the SRC when summaries take six months to be released. Facilitators said they will work to speed the completion of summaries.

Joan Stewart of NextEra said, as the ultimate customer of the report, she would like it to be done and move on. She is not expecting the report to have SRC approval.

SRC Recommendations on the final (January 2011) M21 Monitoring Report

- The SRC asked the Monitoring Team to provide hard copies of the January 2011 Final APWRA 2005-09 Monitoring Report (M21);
- The SRC agreed that M21 is finalized and requires no more input from the SRC; and

- The SRC agreed that if, after reviewing the document, an SRC member has a serious concern, that individual will call for an SRC conference call meeting to discuss the issue.

09-10 Fatality Data

Doug Leslie said the 09-10 fatality data is available on the website for public and SRC review.

Monitoring Team Budget

Doug Leslie recommends allowing for two more search rotations before evaluating the QAQC Study approach. Given that, he said that one FTE, or 40 hours a week is available for other work such as a burrowing owl study.

In discussion among SRC and Monitoring Team members, the following issues were raised:

- Two half-time people might provide more flexibility than a full-time person
- It is important that avian behavior data be entered -- that's another potential cost issue. In response, Doug Leslie said the Team is obligated to enter that data and calculate bird use, and will do so.
- The elimination of monitoring Contra Costa turbines will likely also provide further resources.
- Personnel are an issue, since the needs for this study may not be met by “left over” help from the MT.

Next Steps

- The Monitoring Team by mid-March will put out for public review fatality data for the first quarter of the new bird year (October 2010 to January 2011).

Burrowing Owl Study Design

Related Documents

[M67 Burrowing Owl Mortality Hypotheses](#)

[P194 SRC Burrowing Owl Behavior Pilot Study Proposal](#)

[P195 SRC BUOW Cost Estimate Sheet](#)

[P198 Smallwood Proposal to Sample Burrowing Owls across APWRA](#)

[M68 Burrowing Owl Patterns Feb 2011 Presentation Slides](#)

[P200 Smallwood 2-17-11 Presentation on Siting Hazard Model](#)

Doug Leslie, Monitoring Team Project Manager, suggested it would be worthwhile for the SRC and Monitoring Team to engage in a discussion on the overall context and desired outcomes of a burrowing owl study, the scientific questions that would be answered and the hypotheses that would be tested. As an example, he presented M67, which lays out his thinking on various hypotheses related to the burrowing owl mortality question. Key questions that it would be helpful to clarify prior to deciding on a design would be:

1. What is the key uncertainty the study is meant to address?
2. What is the hypothesis that will be tested by the study?
3. How does the study inform repowering decisions?
4. Does the study address the 50% reduction metric?

SRC Discussion

In discussion, individual SRC members raised the following points (underlined phrases indicate proposed study questions):

- Over the last four years, the SRC has gone through this process, but has not formalized it in this way. This is appreciated.
- This is helpful in laying out hypotheses in a coherent fashion and providing an opportunity for rethinking. A number of the hypotheses are addressed by the study design.
- It would be helpful to reframe some of the hypotheses to eliminate a bias in the way they are phrased -- estimates could be biased high or low.
- A key research question is: Are burrowing owl fatalities related to turbines, or not?
- This could be reformulated as: What proportion of detected burrowing owl fatalities is turbine-related?
- Perhaps not what proportion, but whether any factor is related.
- The behavior study is getting at the following question: What are the factors contributing to the risk of turbine-related fatalities? That is the most useful question to answer, because it relates to the question of what actions can be taken.
- Another way to think of the issue is that, perhaps, the wind turbines are preserving a lot of wonderful burrowing owl habitat, and thereby supporting the populations, while killing some of them. That would be a much broader question.
- In regards to repowering, the key question is: What is the relationship of the proximity of turbines to burrowing owl use areas and fatalities? There are a lot of mechanisms in relation to old-generation turbines that are not understood. The question is how to get information about the mechanics, given the many uncertainties.
- The study would need to be done with repowered turbines, or it may not help answer questions related to repowering.
- Perhaps a spatial analysis study might better answer the question, rather than a behavioral study. The distribution and abundance proposal the SRC developed would get at this question.
- Buena Vista just finished three years of monitoring, and not a single burrowing owl fatality was recorded, although there are burrowing owl burrows in the area. There needs to be an effort to site turbines to avoid killing burrowing owls. There may be a spatial relationship with burrowing owl burrows and wind turbine strings, a correlation spatially between where they are and where the owls get killed.
- Three SRC members agreed that a key question is linking what is happening on the landscape to repowering.

Public Comment

Renee Culver of NextEra asked that the phrase "for old generation turbines" be added as a qualifier to many of the hypotheses. Behavior around short turbines may not equate to the new generation turbines.

Joan Stewart of NextEra said another issue is the infrastructure in the environment, including power lines, transmission lines and lattice structures. At Vasco Winds, most of the power lines will be removed.

Continued Discussion

Jesse Schwartz of the Monitoring Team proposed that the amount of background mortality could be estimated. If distribution and density was known, then non-turbine related mortality could be modeled. There is a steep body of literature on estimating natural mortality.

The following issues were raised during SRC discussion:

- SRC members had different opinions about whether an important question is if fatalities are related to turbines or not. On the one hand, it would not be fair to punish wind farm facilities for mortality that is not related to them. Perhaps burrowing owls are more attracted to these areas. On the other hand, one analysis of the data, including data on shutdowns at the Santa Clara and Tres Vaqueros turbines, saw a clear turbine effect on burrowing owls. The 06-07 year was the worst for burrowing owl mortality, and perhaps could have been related to a large influx of migrants.
- If predators perch on turbines, it might be possible to retrofit the turbines to eliminate the potential for perching.
- One concern is the type and amount of data that will be collected under a particular study design, and whether it will be sufficient to make a determination – if the study wouldn't get there, it might be a better use of resources to undertake another approach.

SRC and Monitoring Team members spent time revising M67 to reflect SRC input and views on key questions and hypotheses. The resulting document was distributed as a new version of M67. It has been posted on the SRC website as P203 SRC Revisions to M67 Burrowing Owl Mortality Hypotheses. Major changes include adding a number of hypotheses and revising the problem statement as follows:

Problem Statement

Estimates of the number of burrowing owls killed at old generation turbines are high. Reasons/mechanisms/causes are largely unknown. Actions to reduce fatalities are unclear.

Public Comment

Renee Culver of NextEra said that Diablo Winds is not a discrete site – it has power lines, lights at night, and old generation turbines mixed in with repowered turbines, so might be challenging to use as a site representing a repowered environment. In response, an SRC member added that in addition, Diablo turbines are a quarter of the size of the new repowered turbines that will be installed.

In addition, Renee Culver of NextEra said that estimates are biased due to sampling not being representative of the entire APWRA.

Jim Hopper of AES/SeaWest expressed a concern about whether there could be double counting of feather spots if a carcass is moved and eaten at multiple locations. In response, a Monitoring Team member said it is very rare to find more than two carcasses at any particular string, so that would be unlikely to occur at a significant rate.

Renee Culver of NextEra asked if burrowing owls take bats as prey. An SRC member said he hadn't heard of that, but the birds are known to gather items to display in front of their burrows, so it might be possible.

Presentation by Jesse Schwartz on Historical Burrowing Owl Mortality at Monitored Sites in the APWRA

Jesse Schwartz of the Monitoring Team gave a presentation on an analysis of historical burrowing owl mortality data collected by the Monitoring Team (see M68_Burrowing Owl Patterns Feb 2011 Presentation Slides) to help inform the SRC's deliberations. He found two strings in which burrowing owl mortality was somewhat high, in the range of 7 to 11 fatalities, but most strings have a minimal number of mortalities.

SRC Discussion

In discussion, SRC members said it would be helpful to have a map to review the spatial and temporal pattern of mortalities. One Monitoring Team member said it might be helpful to look at whether burrowing owl fatalities shifted year-to-year. SRC members said any potential fatality hotspots uncovered by a data analysis could be used for the behavioral study design.

Presentation by Shawn Smallwood on His Siting Hazard Model for the Four Species

SRC Member Shawn Smallwood gave a presentation he presented at the raptor symposium last year on the model he is developing to create avian hazard maps to inform siting of repowered turbines (see P200_Smallwood 2-17-11 Presentation on Siting Hazard Model). For the four focal species, he used bird activity data and topographic features, combined with fuzzy logic models, to develop hazard maps showing areas of high, moderate and low avian collision hazard. During his presentation he noted that there are several biases caused by overlap of surveyed areas, hidden airspace, distance and detection rates, but he also explained how he accounted for these biases.

SRC Discussion

In response to a question, Smallwood said that he did not randomly select observation points, but used the best vistas. One SRC member suggested that a random sampling approach could be used to select among those. Smallwood also clarified that the site where he developed his study is different from much of the rest of the Altamont, in that the hills tend to be larger and the canyons deeper, which changes the visibility.

Monitoring Team Burrowing Owl Sighting Data

Monitoring Team Member Brian Karas updated the SRC on the burrowing owl sighting data the Monitoring Team has been incidentally collecting. The data collection began in March 2010 and has continued. It includes information gathered as part of the standard protocol for turbine string searches, as well as birds observed during drive-bys. Active burrows are identified within the 50-meter search radius for turbines. Sightings might be beyond that radius. Sightings and active burrows are seen all year. He suggested that there might be different risks for burrowing owls at different times of year. Monitoring Team Project Manager Doug Leslie noted that not all crewmembers collected the data continuously, but it will be formally gathered from now on.

Karas also discussed the largest string in the APWRA, which is not located within burrowing owl habitat, but is surrounded by prime owl habitat. There are fatalities all along the string, raising questions about whether predators are bringing up carcasses, or whether this relates to nighttime behaviors.

Public Comment

Jim Hopper of AES/SeaWest asked about the January spike, and whether the spike in fatalities is only found at that time. Brian Karas said he only finds it in January.

SRC Selection of Key Burrowing Owl Study Hypotheses

A majority of SRC members favored **Hypothesis 2.b.: BUOW mortality is related to proximity of burrows to turbines**. SRC members said testing this hypothesis was most likely to help inform repowering. The issue also may be strongly related to rotor height, which needs to be considered in regards to repowering.

A majority also favored **Hypothesis 2.c.: BUOW deaths are indirectly turbine-related**, as a key unknown is what is killing burrowing owls. One SRC member qualified support for this hypothesis based on whether a study could be designed to inform repowering.

In addition, individual SRC members favored the following hypotheses:

- **1.a.i.-- Burrowing Owl detection probability is higher than it is for other birds, resulting in estimates that are over-adjusted and thus biased high**
- **2.a. -- BUOW deaths are directly turbine-related (turbine strikes)**

The following points were raised in SRC and Monitoring Team discussion:

- One concern about the behavioral hypotheses is how information gathered from that study might be used to answer the questions. How would it allow the SRC to develop strategies within the repowering effort? How would it help in reducing mortality at existing towers?
- A goal is to be able to predict where burrowing owls are in the APWRA, based on as many observations as possible from similar landscapes.
- Questions about distances and topographic relationships are more related to a distribution and abundance study, rather than a behavioral study.
- There would be utility in looking at predators versus turbines as the cause of mortality, to address the 50% reduction issue
- It would be difficult to extrapolate from a couple observations of a predation event to develop a proportion to use in analysis. A rate would be needed for the 50% assessment.
- The behavioral study could be used to develop an informed expert opinion on how fatalities might occur, or whether owls engage in risky behaviors.
- One Monitoring Team member said, in daily searches and thousands of hours of watching American kestrels, he had not seen a single predation event, even though scientists know that this species is predated. Searchers also see risky flight behaviors. It's very difficult to draw any conclusions from the observations so far. The behavioral study would be a very interesting natural history anecdotal study.
- Knowing where burrowing owls are or predicting where they might be would be an important first step. A model could be developed and tested.

Public Comment

Renee Culver of NextEra said she feels the most important question to answer would be identifying where burrowing owls are.

Further SRC Discussion

SRC members suggested pursuing the distribution and abundance study as laid out in P198 and looking at the historical fatality data on burrowing owl populations. Current sampling should be looked at to see how much has changed over time. Do hotspots shift over time? To what extent can the data show presence or absence? In addition, if there is funding remaining, the first set of behavioral studies could be undertaken.

SRC Decision on Burrowing Owl Study Design

The SRC revised and accepted the burrowing owl study hypothesis framework (original version, M67; revised version, P203).

The SRC agreed that key objectives of burrowing owl studies are the following:

- To inform repowering;
- To test several hypotheses, including:
 - Burrowing owl mortality is related to proximity of burrows to turbines
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 - Predators flush burrowing owls into the rotor swept area

To meet these objectives, the SRC recommended the following burrowing owl studies in order of priority, pending development of a detailed work plan and budget:

- 1) A distribution and abundance study based on [P198. Smallwood Proposal to Sample Burrowing Owls across APWRA](#);
- 2) An analysis of existing historical fatality data to develop information on presence of burrowing owl populations in the Altamont, including an analysis of seasonal and yearly variation of fatalities that might shed light on the degree to which populations at various sites vary or remain constant. The information would be mapped visually and analyzed both by #/strings/year and #/megawatt/year; and
- 3) The summer set of behavioral observations detailed in [P194. SRC Burrowing Owl Behavior Pilot Study Proposal](#) as a pilot study to assess the utility of techniques for later research.

In making this recommendation, the SRC emphasized the importance of ensuring that the distribution and abundance and behavior studies be undertaken by qualified researchers,

with burrowing owl experience, and whose time is fully dedicated to the burrowing owl study.

Public Comment

Renee Culver of NextEra reminded the group of the mantra about old generation turbines and said it is important to be clear about what is being measured and how the data are being analyzed.

Joan Stewart of NextEra added that, in addition, it is important to be clear about how the work will contribute to repowering.

Next Steps

- A Subcommittee of Shawn Smallwood and Jim Estep will work with the Monitoring Team to refine the study design. **Intended Outcome:** The Subcommittee and Monitoring Team will complete a detailed study design and work plan to distribute by **March 15**, for implementation April 1.
- The historical analysis is to be complete March 15

QAQC (Detection Probability) Study Update

Related Documents

[M69 QAQC Q1 Prelim Results Feb 2011 Presentation Slides](#)

[P199 Yee & Karas QAQC A Detection Probability Exercise](#)

QAQC Study Preliminary Results

Jesse Schwartz of the Monitoring Team gave a presentation on preliminary results of the first quarter of the QAQC study (See [M69 QAQC Q1 Prelim Results Feb 2011 Presentation Slides](#)). One key issue is that searcher efficiency appears to be highly variable. It appears that two members of the team are very, very good at finding birds, and this creates a twofold difference in detections over others on the team. He said the mark-recapture approach may not work. To adapt and adjust the study, he recommended beginning dog trials within the current budget, because of better results that would be achieved in detection.

Doug Leslie, Monitoring Team Project Manager, suggested that SRC members think about this, and the subject will be raised again for discussion after two more rotations of the QAQC study.

SRC Questions and Discussion with Monitoring Team

In response, SRC members raised the following questions and issues:

- It would be helpful to know the cost and budget of the study.
- What is the origin of the 16 placed carcasses? A: The freezer -- they were found in the APWRA. They include partial carcasses and feather spots and are not all raptors. This is a major issue because using old instead of fresh carcasses changes the removal curve. How will you get at detection probability? A: The Monitoring Team agrees, however, fresh carcasses are not available.

At least one SRC member said it would be preferable not to place any carcasses rather than placing carcasses of unknown time since death. To make a removal curve, the researcher needs to know how old the carcass is. The study is therefore of no use other than to test the logistics of the study.

- The Monitoring Team may be able to get fresh carcasses from the Sacramento County Airport, and will record whether a carcass is fresh, aged, or a feather spot.
- SRC members were interested to determine whether there is variability for each searcher, or only between searchers.
- Moving to dogs would make the data incomparable to baseline or other Monitoring Program studies.
- One SRC member disagreed with the results, which indicated that searcher detection at the Altamont is lower than the rest of the country.
- There are also cost and schedule problems with starting to use and validate dogs in the Altamont.

Public Comment

Renee Culver of NextEra said the information was very interesting. She said it would be helpful to show a graphic for each carcass showing where it is dropped and how often it is missed. This might get to the environmental differences that affect searcher efficiency.

QAQC Simulation Approach

At the December meeting, the SRC agreed that SRC member Julie Yee would work with the Monitoring Team to develop simulations as a way of testing whether the QAQC study would likely generate useful results.

Julie Yee described the simulation she developed (the exercise is described in [P199 Yee & Karas QAQC A Detection Probability Exercise](#)), based on a simplified approach to the QAQC study developed by Monitoring Team Member Brian Karas. She used an open-source program called R. The simulation can be run many times to determine whether the approach will get to the truth. The two worked on the project between the first and second days of the in-person meeting.

SRC Discussion

In discussion, SRC members raised the following issues:

- SRC members said it would be helpful for Julie Yee to pursue this approach. It would also be useful to see it with the current design.
- One SRC member supported Brian Karas' simplified QAQC design, suggesting it is preferable to the existing approach as it is simple, effective, and would add very little cost to the monitoring effort. The current approach is complicated and expensive and may not yield useful results.

Next Steps

- Julie Yee and Brian Karas will work with Doug Leslie and Jesse Schwartz to refine the alternate approach and simulation study to explore how it might inform the Detection Probability component of the QAQC program. **Intended Outcome:** Work product to be developed ASAP, but by March 15, 2011.

Future SRC Meetings

Tentative In-Person Meeting

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

- April 4-5, 2011

Agenda Items:

QAQC Study
Annual Report

Next meeting after:

- HRT field trip – to be planned

Conference Call Meeting

- March 16, 2011, 1 p.m. (4 p.m. Eastern Standard Time)

Agenda Items:

Burrowing owl study design and budget, including completed analysis of historical data

Milestone

- April 1: draft annual report released by Monitoring Team with focus on 3-year rolling average

Documents Circulated at Meeting

[M66 Monitoring Report SRC Comment Table](#)

[M67 Burrowing Owl Mortality Hypotheses](#)

[P194 SRC Burrowing Owl Behavior Pilot Study Proposal](#)

[P195 SRC BUOW Cost Estimate Sheet](#)

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[P200 Smallwood 2-17-11 Presentation on Siting Hazard Model](#)

[M69 QAQC Q1 Prelim Results Feb 2011 Presentation Slides](#)

[P199 Yee & Karas QAQC A Detection Probability Exercise](#)

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

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)

Renee Culver, NextEra, Days 1-2

Emre Ergas, NextEra, Day 1

Jim Hopper, AES/SeaWest, Day 1-2

Mike Lynes, Golden Gate Audubon, Days 1-2?

Bob Power, Santa Clara Valley Audubon, Day 2

Joan Stewart, NextEra, Days 1-2

Loan Tran, NextEra, Day 2

Mark Welther, Golden Gate Audubon, Day 2

List of SRC Agreements Developed February 16 & 17

(Compiled from this document)

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- 4) A distribution and abundance study based on [P198 Smallwood Proposal to Sample Burrowing Owls across APWRA](#);
- 5) An analysis of existing historical fatality data to develop information on presence of burrowing owl populations in the Altamont, including an analysis of seasonal and yearly variation of fatalities that might shed light on the degree to which populations at various sites vary or remain constant. The information would be mapped visually and analyzed both by #/strings/year and #/megawatt/year; and
- 6) The summer set of behavioral observations detailed in [P194 SRC Burrowing Owl Behavior Pilot Study Proposal](#) as a pilot study to assess the utility of techniques for later research.

In making this recommendation, the SRC emphasized the importance of ensuring that the distribution and abundance and behavior studies be undertaken by qualified researchers, with burrowing owl experience, and whose time is fully dedicated to the burrowing owl study.