

## **SRC/Monitoring Team E-Mail Discussion on DIP**

**Shawn Smallwood**

### **Review of Monitoring Implementation Plan**

Shawn Smallwood

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I reviewed the recently circulated documents pertaining to the implementation plan for the proposed new fatality monitoring effort in the Altamont Pass. What I reviewed, however, appeared to be only part of an implementation plan. Perhaps my memory is wrong (it's been nearly two months since our last meeting, and I have not seen a draft of our meeting notes), but I expected to see more than a map book and an Excel spreadsheet. SRC members made numerous comments on earlier drafts of M-53, so I thought the comments would have resulted in a final draft of M-53 (again, my memory could be wrong about this). I expected to see a detailed budget that also showed how a burrowing owl study would be funded from the cost savings resulting from the new sampling design. I expected to see a map of turbines to be monitored (this was provided). I expected to see a field protocol detailing how the double surveys would be implemented and the data analyzed. I expected to see an explanation of how repeat searches would be managed to estimate trends in searcher detection rates as found carcasses decay. I expected to see a description of the expanded search areas around select turbines. I also expected to see how the electronic data loggers would be used, and how other plan elements would actually work.

However, the only implementation plan was the selection of turbines for monitoring. Whereas the map books were handy, the Excel spreadsheet was confusing. In the spreadsheet's turbine list, what were the meanings of the column headings 'Sample Type Design' and 'Turbine Sample Type?' How was I supposed to read the turbine list? I could have used a more thorough written description of the plan than was provided in the accompanying memo. For example, I would like to know how the NREL core turbines were treated in the stratified random selection, and whether they were all selected as fixed monitoring stations or whether some were left out or some were allocated to the rotating panels.

If I correctly interpreted the information on the Turbine Types worksheet, it appears that the monitoring team would not monitor any of the Diablo Winds turbines. I thought the SRC and monitoring team agreed to search expanded areas around some of those turbines. Why is this effort not part of this monitoring plan?

It appears that only 2 of the 41 KVS-33 turbines would be searched. This does not seem sufficiently representative of this turbine type.

It appears that none of the WEG 250 KW turbines would be searched. Why? The SRC recommended that they be searched.

Only 11 of 421 KCS56-100 turbines would be searched in contra Costa County. Are the other 410 turbines being omitted from consideration because they might be repowered? If so, I suggest that this is not a prudent course of action because there is no guarantee that those turbines will be repowered. An EIR has yet to be circulated. I recommend that those turbines be appropriately sampled until they are removed.

I noticed that none of the Nordtanks are to be monitored in Contra Costa County. Has the monitoring team tried asking Northwind Energy whether access can be granted for monitoring this time around?

String 95.2 was split out from the other turbines composing string 95. String 95 is certainly difficult to work with, but there is no separation between the turbines of 95.2 and the other turbines of string 95. Fatality searches at 95.2 will overlap other operating turbines in string 95. How will fatalities at the south end of 95.2 be attributed to nearest turbines?

Where is the budget for this proposed new monitoring plan? I expected to see a budget by early September.

Which turbine strings are going to be included in the double surveys beginning October 1? How will the second surveys be timed relative to the first surveys? Who is going to supervise this effort?

How exactly are the searcher detection rates going to be estimated?

How is the monitoring team going to analyze the data from the double sampling effort. In M-53V, the monitoring team wrote the following: *“One advantage of the proposed approach is that the double sampling protocol emulates a mark-recapture design. This allows for a direct estimate of detection probability using mark-recapture analysis. Cormack (1964), Jolly (1965), and Seber (1965) (CJS) developed mathematical and statistical methods for estimating survival in the field based on a “mark-recapture” design. The CJS design involves “marking” a number of animals in the field, and then subsequently searching for them again.”* However, I don’t believe Cormack, Jolly, or Seber anticipated the use of capture-recapture estimators on decaying carcasses. I believe they anticipated capture and recapture of live animals, and that these capture attempts would be nearly instantaneous relative to the lifespans of the animals involved. Carcasses, however, quickly change in appearance as they weather and decay. Recapture probabilities will likely change quickly over time, and two weeks should not be regarded as anywhere close to instantaneous with respect to the “lifespan” of the carcass. I hoped

that the monitoring team would explain how capture-recapture estimators can be used in this context.

The new monitoring plan is due to be implemented in 9 days. I'm concerned that the SRC remains unaware of the monitoring team's preparedness to implement a new monitoring plan. The turbine selection process looks good to me on the whole, but turbines to be monitored should have been selected from Vasco Winds, from the WEGs, and from more of the KVS-33 turbines. Study elements recommended by the SRC remain unaddressed, including the expanded search area at some turbines.

## **Joanna Burger**

Monitoring Implementation Plan - Comments by J. Burger

I am dismayed by the monitoring implementation plan distributed, unless I somehow did not get it all, or print it all.

I thought we were going to get a complete plan, not just the spread sheets.

My main concern, however, is the actual implementation. There are only a few days left before this goes into effect and I am concerned that the SRC comments do not seem to have been incorporated, especially with regard to the inclusion of certain types (and companies) of towers.

On the our main concerns was getting data in order to evaluate the new generation towers and repowering, yet it seems that Diablo winds will not be examined. This seems to be a critical element that I thought the SRC had recommended and considered at great length.

I also did not find the budget. Either it was not attached to what I received or I did not get it.

The double sampling still is a problem from the point of view of both selection and data analysis. What are the hypotheses being tested, and how can they be tested?

The time lag for this report is problematic, especially given when they want to start implementation. I realize that they have a lot of different projects and products to complete, and this required a lot of effort, but the SRC recommendations do not seem to have been followed.

## **Doug Leslie**

At this point I would like to address a few points that clearly are in need of clarification based on the comments from Shawn and Joanna. First of all, the Detailed Implementation Plan and the Study Plan are two completely different things. The DIP is described in the Study Plan, and it is supposed to be derived through a workshop process (which there was not time for). The idea behind it is that we need to select turbines

carefully so that we DO NOT select turbines that will be removed or shut down in the middle of the sample period. Therefore, I would not expect the SRC to have too many comments on this, as they are not the keeper of the turbines. The information we need can and should come mainly from the Companies, and it should come in the form of "don't sample that string, the turbines are broke and we aren't going to fix them", or something to that effect.

As part of the DIP process, we were informed by NextEra that they plan to remove all of their turbines in Contra Costa County (for purposes of re powering) during the summer of 2011. They strongly believe this timeline will be accomplished. For this reason, we excluded them from the design. This is what the DIP is for. However, Shawn at least thinks this is not a good idea, so we should certainly debate that, and that is an area where I absolutely would expect the SRC to have very relevant comments on the DIP.

The new monitoring plan cannot be implemented without the DIP. It can be implemented without a third version of the Study Plan. Putting together the DIP was no small feat. It required a great deal of effort, which is why we prioritized that over finalizing the Study Plan.

With respect to the other comments, by and large they are great comments. However, in my view, many of them are more appropriately provided during the first TWO reviews of the first TWO drafts of the study plan. Clearly, another review of the study plan would be ideal, and a great idea. I am all in favor of more SRC review of study plans. I believe it was my idea to write the thing and get it reviewed twice in the first place. However, it was clear to me at least (although perhaps not to anybody else) at the end of the last meeting that there was not going to be time for another review of another draft of the study plan before implementation. We went through everybody's schedule and couldn't even get a conference call until the end of September.

With respect to the inclusion or exclusion of turbine types, we certainly did implement what the SRC recommended, although I readily admit it is possible that I misunderstood. We intentionally excluded the Diablo turbines **because** it was recommended by Shawn to do so in an earlier draft of the Study Plan. And after discussion, it was my understanding that we would leave them out, unless there was money left in the budget and it was a high enough priority to do a "search radius" study. I don't care if they are in or out. I did what I thought I was told. Now if you want to debate carcass removal curves....well.....(lame attempt at humor for those who may not have been at those meetings)

Shawn also commented on other turbine groups. Written comments on the first draft of the Study Plan with respect to the turbines explicitly excluded were incorporated or addressed in the second version of the study plan, and I do not recall the SRC directing us to make any changes there, with the exception of the Diablo turbines.

Shawn's comments included the following:

"It appears that only 2 of the 41 KVS-33 turbines would be searched. This does not seem sufficiently representative of this turbine type."

This group of turbines was explicitly excluded in the Study Plan, and NO comments were ever received about NOT excluding them. There are two turbines in the current design because they are in the middle of a turbine string of another turbine type.

"It appears that none of the WEG 250 KW turbines would be searched. Why? The SRC recommended that they be searched."

A comment was made on the first draft of the Study Plan concerning this group of turbines. We provided a robust justification for their exclusion in the second draft of the Study Plan. No recommendation from the SRC was made to put these turbines back in that I am aware of, and no rationale for including them was given either. We therefore left them out, as the Study Plan said we would.

The monitoring team has prepared a new scope and budget. The budget includes funding at the same level that occurred under the old monitoring plan. The carcass search budget was reduced substantially (but still includes the avian use surveys, which continue in the same manner as previously done), but this is partially offset by the QA/QC study, which requires a number of double searches.

In putting together the exact schedule for turbine searches that includes the QA/QC protocol, it became clear that we would run into logistical difficulties due to the requirements of the double blind design (i.e. we need two search teams and there can be no crossover of personnel between the two). So, we needed additional staff we could call on to fill in for sick or injured or vacationing crew members because we can't swap individual across teams. To accommodate this, we included a burrowing owl - background mortality study in the scope of work and budget.

The next highest priority articulated by the SRC was the burrowing owl study. We have a preliminary design that dedicates one FTE to conducting burrowing owl searches throughout the APWRA, using a stratified random design to search areas away from turbines, with search areas being selected from BLOBS (to ensure geographic stratification) and from different topographic positions (valley floor, lower, middle, or upper slope, with ridge top being excluded because they are already searched during turbine searches). These searches would be conducted using transects spaced the same as those used in turbine searches. In this way, we can evaluate background mortality away from turbines.

Of course, the burrowing owl/background mortality portion of the scope and budget has not been reviewed by the SRC and should be. And of course, if the SRC decides some other study is more appropriate and a higher priority, we can change that.

We will be completing the study plan next week. Also of note, we will not switch over to the new study design until mid-October, because the search crews are currently in the middle of a rotation and we thought it best to finish it.

I hope this clarifies things a bit. Feel free to call me directly with questions or concerns.

Thanks,

-doug

## **Shawn Smallwood**

Doug,

Thanks for the clarifications. I'm not going to say much in response because I think this dialogue might get into a Brown Act conflict. I'm just going to say that the SRC did indeed recommend including all the turbine models other than the windmatics, Howdens, and Polenkos. I also made this recommendation in my written comments. As for the Diablo Winds turbines, those were brought back into the monitoring fold because we were going to use some of them for the extended search radius. I think it was your idea to do that, and we agreed.

I agree with you that certain comments should have been made during the two review periods on the study plan. I wish I'd have thought to make those certain comments then, but nevertheless I don't think it's a good idea to dismiss them now, before it is too late. We need to understand whether we can use a capture-recapture approach to analyze data from the double survey effort.

I didn't understand your clarification of the double sampling approach. I couldn't understand whether you were saying the approach is being dropped for logistical reasons, or whether it is being changed.

I was unaware that the monitoring team was developing proposals for background mortality surveys and burrowing owl surveys. Please be aware that the SRC already spent time developing study plans to address background mortality and burrowing owl mortality. It might be a good idea to work with the SRC on these projects.

The SRC hasn't seen a budget, and I couldn't understand your clarification regarding the budget.

I appreciate how frustrating it must be to work with a scientific review committee of five people, who are also constrained by the Brown Act and scheduling. We've arrived at a pivotal moment in the Avian Protection Plan, however, and the SRC needs to be fully behind the new monitoring protocol. It was a bit shocking to see a DIP that excluded most of the KVS-33s, all of the WEGs, and all of Vasco Winds. As for Vasco Winds, whether to monitor those hundreds of turbines should have been the SRC's call, not NextEra's call.

Shawn

## **Doug Leslie**

Shawn, thanks for your comments. I do want to clarify again though, as there appears to be confusion about this still, what the role of the DIP is. Regarding the last item about removing the contra costa county turbines, removing them was NOT "NeXtera's call". We removed them from the sampling scheme after receiving information from Nextera about their plans to remove the turbines. This is information that we solicited from them as part of the DIP process. We sent the DIP to you and the rest of the SRC for your input and review, again, as part of the DIP process. The materials sent to you are NOT final.

We are soliciting your review on the turbines selected - again as part of the DIP process. This is a time consuming thing. In the study plan, we envisioned the DIP process happening all at once, with both the SRC and the companies at the table reviewing the initial selection of turbines (selected according to criteria identified in the Study Plan).

Because there was not enough time to do that, we put together the initial selection of turbines without input from either the SRC or the companies (which is what we would have done anyway), and sent those materials to both the SRC and the companies at the same time for review. We just happened to find out from Nextera (I think Renee Culver mentioned it to Brian and Brian brought it up in our meeting when we were putting this thing together, so we called Renee to ask her about it and she confirmed that Nextera would have those turbines removed this summer), so they were taken out of the initial design.

If the SRC decides they want them put back in, then that is what we will do. And then the DIP will be complete, and we can go back o arguing about the study plan!

## **Shawn Smallwood**

Thanks, Doug. I'm relieved to read your assurance that the DIP is not final. Perhaps the reason I felt like it was final is because there's so little time between now and the implementation of the new monitoring protocol. Other than the issues I pointed out, however, I felt that the DIP looked pretty good and the map books were well prepared.

I hope NextEra will remove their KCS56-100 turbines this summer. I endorse their plan to do so. Until an EIR has been circulated and certified, however, I can't support the exclusion of those turbines from the monitoring plan.

Shawn

## **Sue Orloff**

Doug and others,

I agree with Shawn that just because turbines are being targeted for repowering should not eliminate them from being monitored. Monitoring turbines in an area to be repowered could allow for a spatially controlled comparison between pre- and post-repowering. I thought the study plan for future monitoring was flexible enough to accommodate this type of assessment (rotating sample can address the loss of sites from turbine removals). Besides, the entire Altamont will likely be repowered eventually (one of the sites mentioned in the NOP will begin construction as early as 2012), so excluding sites that will be repowered does not really make sense.

Burrowing owl study: I may be misinterpreting your email (from Doug Sept. 23), but the burrowing owl study you mentioned does not sound at all like the study the SRC recommended. Background mortality was not a high priority aspect of that study. The study design that you explained will not provide any information on the causes or mechanisms of the high burrowing owl mortality rates along the turbine rows. Searches conducted away from the turbine rows will not detect fatalities caused by raptors opportunistically using the turbines as perches to predate burrowing owls. If there is extra money or time, why not implement the proposed SRC burrowing owl study (which we still need to update). Thanks

Sue Orloff