

## NOTES | 4/08/2008

### Altamont Pass Wind Resource Area Scientific Review Committee Conference Call

Prepared by the Center for Collaborative Policy  
Reviewed and Approved by the SRC 8/14/2008

#### Agenda Items

- Preparation for April Meeting
- Statistical Questions and Discussion with the Monitoring Team

#### Preparation for April Meeting

The facilitator conducted some housekeeping for the upcoming April 23-24 in-person meeting:

- Shawn Smallwood will send out citations for relevant biological literature on bats.
- SRC members agreed to a short presentation by scientist Jack Barclay on his research on burrowing owl distribution and abundance. They also asked if the abstract and PowerPoint from his Wildlife Society presentation could be made available prior to the meeting.
- Shawn Smallwood said an email discussion on Julie Yee's zero values paper could also be made available for that meeting.

#### Statistical Questions and Discussion with the Monitoring Team

##### (1) Comparing Methods: Monitoring Team (M21), Smallwood (P76) and Yee (P85)

Related Documents:

[M21 2008 Altamont Bird Fatality Report](#)

[P76 Smallwood Mortality Estimates APWRA 2005-2007](#)

[P85 Yee: Estimating Method in Sept. 2007 Analysis](#)

##### Overview

The SRC agreed to continue using both a modeling approach and a classic survey approach to analyzing mortality data. The SRC agreed to a two-pronged process. (1) Agreement will be reached on common assumptions, inclusions, and exclusions to the data. This would be applied to all data so that various analyses will be using the same data set. (2) The SRC will then agree on approaches to analyzing the data (expansions, as one Monitoring Team statistician calls it). The process for achieving the first objective will be for the SRC and the Monitoring Team to reach agreement on the decision trees.

SRC members discussed the similarities and differences in methods and results among the Monitoring Team, Smallwood, and Yee approaches to analyzing APWRA mortality survey data. The aim of the discussion was to understand why the different methods might be producing different results, and to achieve an “apples-to-apples” comparison between Monitoring Team analyses and baseline. The SRC noted that results were similar.

##### Smallwood Analysis

Shawn Smallwood said his analysis in P76 used different methods and assumptions than his 2004 study; the (P76) methods were more consistent with his Journal of Wildlife Management paper. His inclusion/exclusion rules were different than those used by the Monitoring Team.

Under his new approach, APWRA-wide burrowing owl mortality was greater than estimated in the 2004 report, and golden eagle mortality was nearly the same. The Smallwood and Monitoring Team results were close although the American kestrel figure differed.

Shawn Smallwood said he regards his mortality comparison of the subset of 82 MW rated turbines searched during both the monitoring programs (2004 CEC and current MT) as more comparable, but is concerned that the larger analysis of 2500 turbines includes some turbines that were only sampled twice, which probably biased the 2004 estimates too low. While the 82-MW subset (82 MW) of turbines is directly comparable, it was not an APWRA-wide random sample.

### **Yee Analysis**

Julie Yee's analysis (P85) differed from the other two analyses in two major ways:

- 1) Yee had a different inclusion rule: she included all data
- 2) Yee used a model-based approach while the other two "correct" or filter the number of fatalities

In Yee's approach, she defined a statistical model using some parameters to represent overall average mortality and ran a statistical modeling procedure to produce estimates of these parameters.

Her analysis led to much lower mortality. She had expected higher mortality because her analysis included background mortality. Yee thinks her method is closer to the method that should be used although there are still issues that need to be resolved. One difference between Julie Yee's analysis and the other two is that the former analyzes data through May 2007 while the latter analyzes data through fall 2007. Because Yee's analysis missed a large pulse of fatalities, her mortality estimates were lower.

### **Summary on Data Inclusion / Exclusion**

Jesse Schwartz of the Monitoring Team said an important outcome is agreement on the methodology for inclusions, exclusions, and statistical expansion. The Monitoring Team has developed two graphical decision trees detailing the analytical steps taken by the Monitoring Team in handling the data: one detailing steps taken for cause of death and another for fatality data filtering. The Monitoring Team and the SRC can review and approve the decision trees as the agreed-upon method for inclusion and exclusion that would be applied to all data.

### **Public Comment**

Bill Warren-Hicks said he agreed with Jesse Schwartz that the first priority should be getting the data right. He believes both Julie Yee's method as a modeling method and the Monitoring Team's classic survey approach are appropriate. If they are based on the same conceptual model, they should arrive at similar results. He thinks both are really good. The two methods become checks on each other and give participants a conversational base to talk through the issues.

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

Jesse Schwartz summarized that once the data are “stabilized” by the criteria for inclusions and exclusions, analytical choices will be necessary, such as looking at the raw data; correcting the data modified for scavenger removal, searcher detection and other corrections; and considering other modeling approaches. The operational data (power output) will provide further refinement. The analysis will then be expanded from the surveyed turbines to Altamont-wide. Then the analysis could produce a grand mean across years or address density-dependent issues such as population variability using data on population abundance and distribution.

Alameda County will host the public database. The Monitoring Team is “cleaning up” the data base so records are consistently presented. The relational database is up and running at ICF Jones & Stokes. The next step is for the Monitoring Team and SRC to look at the decision trees and finalize the logic path. Shawn Smallwood will need to look at the decision trees and clarify the decision process used for the 2004 CEC data.

SRC members indicated support for developing the decision-tree approach. The Monitoring Team will circulate the decision trees for consideration at the April meeting.

### **(2) Fatality Data Issue: Managing fatalities that represent multiple search intervals due to back-dating and avoiding double-counting**

Related Documents:

[M24 Karas The Life of a Carcass](#)

Brian Karas from the Monitoring Team presented his thinking about the effect of different search intervals and scavenging scenarios on the analysis. Perhaps 40% of fatalities in a search area may have been missed on the first search. A carcass spread 50 m is easier to find than at a single spot. The probability of detection changes based on the probability of the fatality being changed over time by scavenging or winds.

#### **Public Comment**

Bill Warren-Hicks said that Karas’ thoughts represent expert opinion and raised the issue of double-counting. He asked how comfortable Brian Karas was that when searchers find bones, they have been there longer than one sampling interval. Karas responded that the bones would be excluded. (It is easy to miss bones, as scavengers can excavate, move and/or bury them.) Bill Warren-Hicks expressed concern about how the equations are adjusted for the probability that the fatality could have occurred in the previous interval. There needs to be a mathematical way to treat a potential double count. Julie Yee's model does a good job of addressing the issue of the estimated time of death.

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

Another possible double-counting issue is multiple-part fatalities, if searchers find one part at one time and another part later. The Monitoring Team has a thorough additional-parts protocol, checking to see what was found before to see if the new find should be assigned to the previous fatality. This is partly based on condition of the carcass, distance apart, and the

parts found. One member suggested that this issue is the next big one to work on. She doesn't have answers at this point, but thinks the potential to do something about it exists. Another member expressed skepticism about the estimated miss rates and double-counting rates.<sup>1</sup>

#### **Wind Walls in the Database**

Monitoring Team members asked the SRC for thoughts on how to treat wind walls that represent two different string numbers representing turbines of different heights but are located around one place. Or, when hazardous turbines have been removed to create a gap in what was a continuous string. Further, some parts of a string are wind walls, while others are not.

One SRC member said it is case dependent. Understanding the effects of wind walls and making recommendations is important.

Jesse Schwartz suggested that a "wind wall" field be added to the database and relate it to turbines and strings. Making spatial relationships apparent in the database is important. The string number and turbine number will remain the same.

#### **Monitoring Former Hazardous Turbine Locations (Pads)**

The Monitoring Team asked the SRC whether it should continue searching addresses of turbine towers that have been removed. The Team proposed to continue searching to see how mortality has changed in that area.

SRC members agreed with the proposal to continue searches. Two issues of particular interest are the end of a string particularly those leading to a draw and towers removed to create a gap.

Monitoring Team members will reference a fatality to the located address and note the closest functional turbine and its number. A data category will have to be added to the protocol, as a pad is not now considered an object.

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<sup>1</sup>Smallwood prepared a paper on this issue. See [P97\\_ Smallwood Misapplication of Adjustment Terms re Missed Fatalities](#)

**ATTENDEES**

**SRC**

Joanna Burger  
Jim Estep  
Sue Orloff  
Shawn Smallwood  
Julie Yee

**Monitoring Team**

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Jesse Schwartz  
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