

DOCKETED

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**Ivanpah Solar Electric Generating System (Ivanpah)
Avian & Bat Technical Advisory Committee (TAC) Meeting**
March 6, 2015 (Continued April 10, 2015) – Meeting Notes

TAC Meeting on March 6, 2015 at Ivanpah Solar Electric Generating Station, Nipton, California

TAC Members Present: Roger Johnson – TAC Co-chair – CEC
Mike Ahrens – TAC Co-chair – BLM, Needles Field Office
Amedee Brickey – TAC Member- USFWS
George Piantka – TAC Member – Solar Partners
Mitch Samuelian – TAC Member – Ivanpah Operations

Via teleconference: Magdalena Rodriguez, TAC Member, CDFW

Invited Guests: Lara Kobel – BLM, Needles Field Office
Geoff Lesh – CEC
Doug Davis – NRG Operations
Karl Kosciuch – WEST, Inc.
Brian Boroski – H.T. Harvey & Associates (H.T. Harvey)
Dave Johnston – H.T. Harvey
Amanda Schieb – Designated Biologist – Ivanpah Solar
Cyrus Moqtaderi – Field Supervisor, WEST, Inc.
Marc Sydnor – Sydnor and Associates – Scribe

Via teleconference: Gabe Reyes, H.T. Harvey
Wally Erickson, WEST, Inc.

Joining teleconference at 10:30 AM:

Manuela Huso – USGS
Thomas Diestch - USFWS

Introductions

- Attendee introductions (TAC members and invited guests).

Review of Agenda

- USFWS and USGS will join the meeting at 10:30 to discuss the Annual Report.

Review of Dec. 2014 meeting notes and follow up action items

- Item #1: Request for additional information on the avian sonic deterrence system – Provided by Ivanpah to the TAC on February 10, 2015.
- Item #2: Request for additional information on the sonic bat deterrence system - Provided by Ivanpah to the TAC on February 10, 2015.
- Item #3: Request to determine the need for additional canine trials – H.T. Harvey indicated no additional canine searchers are planned. Human searcher trials will be discussed as part of the Annual Report review.

Review 2014 Annual Report

CEC Comments to Annual Report:

- CEC indicated the Annual Report Summary would better serve readers if the focus was on the mortality estimates and the description of the unadjusted field data (e.g. detections) was reduced or clarified.
- CEC requested clarification on the potential for feather spots to decrease versus increase mortality estimates, whether persistence rates for feather spots have been measured, and whether feather spot persistence has been accounted for in the estimator.
- CEC asked about the decision to not include histograms depicting the distribution of unadjusted fatality detections related to the towers.
- CEC requested an explanation for the fatality estimates in the Summer Report versus the Annual Report.
- CEC also desired that finer scale temporal and/or spatial comparisons be included in the analysis.

TAC Discussion:

- H.T. Harvey concurred that the goal of the Annual Report is to produce an easily comprehensible report that meets the CEC's Condition of Certification (BIO-21). BIO-21 requires reporting on the unadjusted numbers of detections (i.e. field data input into the fatality estimator). In addition, knowing the unadjusted numbers of detections assists the reader in understanding the extrapolation into the estimates, as well as species composition. Therefore, discussions of survey detections as well as the final estimates are both important.
- H.T. Harvey explained that the carcass persistence trials account for the persistence of feather spots and the searcher efficiency trials account for the rate of detection for feather spots; thus, the estimator model accounts for potential under-counting. However, the estimator does not account for the potential for over-counting, where more than one feather spot could occur from a single fatality.
- H.T. Harvey explained that radial graphs showing the number of detections in distance bands from the tower were not included to focus on the required elements of the Plan and BIO-21. Furthermore, the Plan was not designed to subjectively aggregate the data in distance bands from the towers and the depiction of the unadjusted detections in this manner has the potential to result in false inferences.
- H.T. Harvey explained that additional data collected in the fall to estimate searcher efficiency and scavenger rates was used to improve the estimates for these parameters in the Annual Report. Documentation of the procedure to update the estimates was included in the Appendix of the Annual Report.
- H.T. Harvey explained that improvements in parameter estimates were made where feasible; however, to include finer scale temporal and/ or spatial comparisons, additional detections would be necessary to provide sufficient statistical power.

USFWS/USGS Comments on the Annual Report

Manuela Huso and Thomas Dietsch join call at 10:30.

- USFWS/USGS indicated that the Annual Report was reviewed based the concept that this was a standalone document instead of a summary of seasonal findings, and indicated that most of their comments were addressed once the background from the seasonal reports was provided to them.
- USFWS/USGS stated that calculation of the searcher efficiency should examine interactions between carcass size, area, etc.
- USFWS/USGS stated that incidentals in the estimates were treated as well as can be expected and the approach should be explained in the report.
- USFWS/USGS suggested that reporting emphasis be placed on the estimates and not the detections.

- USFWS/USGS would like to understand if change in search interval may bias results by taxa and suggested that it may be appropriate to adjust the search interval according to scavenger rates.
- USFWS/USGS recommended increasing the number of trial carcasses to determine searcher efficiencies and scavenger rates.
- USFWS inquired as to the use of a 95% confidence interval instead of 90%.
- USFWS requested clarification on the estimated numbers where the tables reflected a number with the lower confidence interval below the number of detections reported.
- USFWS suggested including a summary of estimated fatalities from known and unknown causes in a single table.

TAC Discussion:

- Discussed that it would be useful to include links to previous seasonal reports in the Annual Report.
- Discussed the benefit of collecting additional searcher efficiency data.
- Discussed including documentation, or a reference, describing the handling of the incidental detections.
- Suggested that emphasis be placed on the estimates rather than the detections.
- Discussed adjusting the search interval; however, the TAC determined not to adjust the Plan without additional thought and analysis; sampling intervals currently in the Plan are typical, with higher frequency in the migratory seasons.
- Discussed the number of carcasses and variability of the site conditions that would benefit from separate searcher efficiency and carcass persistence trials - generally, the vegetated versus non-vegetated areas appear to be the main differentiation; however, the power block may also necessitate differentiation.
- Discussed the confidence interval and determined to retain the 90% interval, which is often used in field studies and is typical for fatality estimation and the level stated within the Plan.
- Discussed the fact that the estimator can return a value below the detections as an artifact of the differentiation in the percent of the areas searched; when this occurs, the values need to be manually adjusted to reflect the number of detections; however, this adjustment does not apply to the upper confidence limit.
- Discussed the addition of a table for known and unknown estimates.

Follow-up Action Items:

- H.T. Harvey will revise the Annual Report to include links and references where necessary and incorporate suggestions by the TAC, as appropriate.
- WEST, Inc. will examine existing searcher efficiency and carcass removal data and provide a proposal to the TAC for upcoming trials.

Update on Avian Monitoring

- H.T. Harvey Presentation on Fall Quarter Monitoring Report:
 - H.T. Harvey provided a summary of the various elements covered in the Fall Quarter Monitoring Report.
 - 38 bird species were recorded during point count surveys; species richness and abundance were higher within the desert bajada grids than within the heliostat grids.
 - Six raptor and three other large bird species were observed during raptor surveys.
 - Fall detections increased as expected during migratory period.
 - The pattern of detections remains consistent with singed effect concentrated near the tower (<260 meters).
 - Migratory bird mortality was classified as low in accordance with the ABMMP.
- H.T. Harvey Presentation on the partial Winter Quarter monitoring results (Through February 13, 2015)

- 26 bird species were recorded during point count surveys; species richness and abundance were higher within the desert bajada grids than within the heliostat grids.
- Seven raptor and two other large bird species were observed during raptor surveys.
- Winter detections increased; likely in part due to extended fall migratory period.
- The pattern of detections remains consistent with singed effect concentrated near the tower (<260 meters).

TAC Discussion:

- Offsite transects were discussed to determine whether these surveys should be discontinued. The group agreed the offsite transects are not designed to understand background mortality, and discussed that there is uncertainty regarding background mortality rate. However, some studies have indicated that on average 2 birds/ acre to 3 birds/ acre per year may be detected as a result of background mortality. The per acre estimates of unknown detections at the facility are consistent with what has been reported elsewhere. The current offsite transects will be continued, but existing detections from unknown causes may need to be looked at in a more rigorous manner and other studies in the desert may be useful in understanding background mortality.
- Discussed the 100% search areas and how the percent area searched affects the precision of the model estimates. While the 100% search area might improve the precision, uncertainty in the searcher efficiency and scavenger rate estimates decreases precision.
- Because 65% of the large birds observed were ravens, the TAC discussed whether this data could be differentiated by tower. Differentiation in the number of ravens at each tower would best be determined by examining data from the Raven Management Plan.
- There were five bat detections, with four in Units 1 and 2 and only 1 in Unit 3, where the pilot sonic bat deterrent system was installed. The single detection represented a reduction in bat mortality at Unit 3.

Discussion of Request to Install Permanent Ultrasonic Bat Deterrence on Units 1, 2 & 3

TAC Discussion:

- Ivanpah has proposed to install bat sonic deterrence deterrent devices in all ACC units to decrease bat mortality.
- CEC, BLM, CDFW and USFWS concur.

Discussion of Proposal to Test Avian Sonic Deterrent on Unit 1

CEC Comments on Ivanpah Proposal to Deploy Avian Sonic Deterrence:

- CEC suggested that the deterrence system be installed in Unit 3 to be able to discern the effects from an existing test in Unit 1 of the chemosensory deterrent.
- CEC suggested that the speakers for the deterrent be targeted and requested specific information on the number of speakers, and where the speakers will be located.
- CEC questioned whether the speakers will be activated at the same time and whether deterrence will be randomized.

TAC Discussion:

- The project explained that the sonic test deterrent is intended to affect migratory birds, whereas the chemosensory deterrent is intended to affect resident birds, so different groups of birds populations are targeted by each deterrent. The use of both deterrents at Unit 1 is expected to provide greater statistical power for reductions in mortality in comparison to other units and to previous monitoring at Unit 1.

Thus, Unit 1 was proposed instead of Unit 3, where mortalities are lower. The project would also like to test a complementary suite of deterrents at one location and not confound the existing surveys at the other units. TAC concurs with testing at Unit 1.

- The project described that the four speakers of the sonic deterrent system are targeted and will be located on the sides (not corners) of the towers.
- The project explained that speakers will be activated simultaneously and deterrence noises are randomized, but also targeted to the avian species that are most effected by flux as determined by the survey results.

Follow-up Action Item:

- CEC to provide authorization for deployment of avian sonic deterrence system for testing.

Additional Topics

CEC: The CEC would like to understand more about the unknown detections at the facility.

TAC Discussion:

- Driver of unknowns appears to be feather spots; 47.25% of all unknowns are feather spots, 27.4% of all unknowns fatalities are mourning doves.
- TAC discussed whether additional necropsies can be performed on carcasses with unknown causes of mortality.

Follow-up action Item:

- Ivanpah to investigate where and how to obtain necropsies of avian specimens where the cause of death is unknown.

Next Meeting

April 10th follow-up via WebEx or in Sacramento for finalization of reports 10:00 am to 12:00 pm.

TAC Meeting Continued on April 10, 2015 via Web-Ex:

TAC Members: Roger Johnson – TAC Co-chair – CEC
Amedee Brickey – TAC Member- USFWS
Magdalena Rodriguez - TAC Member, CDFW
George Piantka – TAC Member – Solar Partners
Mitch Samuelian – TAC Member – Ivanpah Operations

Invited Guests Geoff Lesh – CEC
Doug Davis – Ivanpah Operations
Brian Boroski – H.T. Harvey & Associates (H.T. Harvey)
Marc Sydnor – Sydnor and Associates – Scribe
Wally Erickson, WEST, Inc.
Daniel Riser-Espinoza, WEST, Inc.

Location: WebEx
Time: 10:00 – 12:00

Introductions:

- Attendee introductions (TAC members and invited guests).

Review of Agenda

- Follow up to finalize Fall and Annual Report.

Review of March 6, 2015 meeting notes and follow up actions

- TAC accepted meeting notes from March 6, 2015.
- Annual Report revisions and searcher efficiency/scavenger trials discussed below.
- CEC provided authorization for testing of avian sonic deterrence system.

Review Revised 2014 Fall Report

- BLM approved Fall Report by via email.
- Fall Report approved in meeting by USFWS, CEC, CDFW.

Review Revised 2014 Annual Report

- BLM approved Annual Report via email.

CEC Comments on Annual Report:

- Recommended that species richness descriptions be clarified in the executive summary.
- Recommended that the timing of when the deterrence/BMPs measures were deployed be clarified.
- Recommended that avian sonic deterrent measure status be clarified to indicate it was considered but not yet installed in 2014.

USFWS Comments on Annual Report

- Recommended that confidence intervals be presented in the executive summary when estimates are given.
- Recommended that the carcass persistence trial recommendation be revised to conform with USFWS/USGS recommendations.

TAC Discussion

- Discussed when presentation of BMP/Deterrence measures is appropriate in the report.
- Discussed that WEST, Inc. has implemented increased searcher efficiency and scavenger trials.

Follow-up Action Item:

- H.T. Harvey to revise Annual Report to reflect recommendations.

Additional Topics

- Avian sonic deterrence installed on Unit 1 tower on March 12, 2015.
- Raptor and large bird observations at Unit 1 are examining bird behavior at the tower.
- Winter surveys are complete and report is in process.

Next Meeting

June 25, 2015 in Sacramento at CEC.