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# CALIFORNIA CONDOR, GOLDEN EAGLE, & WIND ENERGY WORKSHOP PROCEEDINGS



DECEMBER 1-2, 2011

*Sponsored by the U.S. Department of the Interior, U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, and the CA Department of Fish and Game*

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# WORKSHOP OVERVIEW

The U.S. Department of the Interior, the U.S. Fish and Wildlife Service, the Bureau of Land Management, and the California Department of Fish and Game hosted a workshop to share information on laws and regulations protecting California condors and golden eagles and to discuss and explore the challenges associated with wind energy development in the Tehachapi and Southern Sierra Mountains and potential paths forward. A total of 70 people participated over the course of the two-day workshop representing wind energy development companies, environmental non-governmental organizations, local government and federal and state agencies.

## WORKSHOP OBJECTIVES

The objectives set for the workshop are listed below along with some bullets outlining how those objectives were met.

- Information sharing about California condor and golden eagle regulations and the associated challenges with wind energy development in the Tehachapi and Southern Sierra Mountains
  - Industry, environmental NGOs and agencies shared information through presentations for the group.
- Understanding of the respective interests of participating stakeholders
  - Participants sat at assigned “mixed” tables to facilitate cross-stakeholder dialogue and new understanding of respective interests
  - Table level discussion followed each substantive presentation
  - Small group breakout sessions provided opportunity for information sharing and new understanding of concerns and interests
- Identification by participants of ideas, approaches, and resources available to address the various issues they face
  - Participants were asked to voluntarily fill out a “Future Effort” worksheet for both condor and eagle issues detailing what topics they would be willing to work on in the future and what resources they might bring forward to the effort(s). 23 worksheets were returned and the results are summarized in Attachment 1.

At the end of each day participants were asked to select which of the proposed action items identified in the break-out sessions they considered to be the highest priority. Proposed actions were separated into two categories, research and non-research. The outcomes of the participant rankings are below:

## PARTICIPANT PRIORITY ACTIONS

Top 6 Condor Research Actions	
1 <i>Tie</i>	Conduct cumulative analysis of the potential impacts of current and proposed projects in the Tehachapi’s on the California condor
1 <i>Tie</i>	Implement standardized monitoring protocols for existing wind farms
2	Research relative threats to condors to identify highest threats
3	Analyze existing condor data to determine elevation use and activity in relation to wind speed, time of day, and weather
4	Research hazing techniques or other deterrents (e.g., audible, visual) that would discourage condors

	from entering wind energy facilities
5	Research/develop creative turbine design to reduce threat including a) vertical axis; b) blade construction and design (including colorized blades), and c) shrouded design (for repowered turbines)
6 <i>Tie</i>	Determine the risk to the current condor population relative to current saturation of wind energy areas and transmission infrastructure (electric distribution)
6 <i>Tie</i>	Investigate the feasibility of feeding manipulations to influence condor flock movement (feeding stations; livestock removal; carcass management)

#### Top 6 Condor Non-Research ('Other Topic') Actions

1	Identify high-risk areas to define "no-go" areas for wind energy development
2	Update the recovery plan to guide the determination if take can be compensated for and if so, in what form and level would it occur through a HCP/NCCP
3 <i>Tie</i>	Prepare a white paper detailing known information on radars (use of, challenges, different types/bands and what they are most appropriately used for)
3 <i>Tie</i>	Need consistency in assessing risk to condors (between agencies, within agencies, industry, etc.)
4	Establish centralized database with biological data to inform siting
5	Map siting areas as high/medium/low risk to condors and incentivize turbine siting (macro siting) (i.e., faster permitting, tax incentives, monitoring incentives, etc.)
6	Use USGS (forthcoming) report to develop regional strategic repowering plan for the Tehachapis

#### Top 6 Eagle Research Actions

1	Analyze existing data to estimate, posthaste (within 1 year): a) the population relevant to the Tehachapis (to begin to answer the questions of significance); and b) relative sources of mortality (to identify the most fruitful areas for developing compensation mitigation programs)
2	Conduct studies to gain a better understanding of population size, demography and sources of mortality
3	Conduct cumulative analyses of past, present and future projects
4	Research the relative benefits of existing mitigation
5	Implement a long-term population trend monitoring program
6	Gather mortality data according to a standardized protocol at existing projects including at projects that are not currently required to gather this type of data

#### Top 5 Eagle Non-Research ('Other Topic') Actions

1	Avoidance: a) Map 'no go' areas for development; and b) implement greater permit restrictions in high risk areas
2	Use and assess existing eagle data (mine sources; inventory; organize; select a system to store data)
3 <i>Tie</i>	Coordinate survey efforts (reduce duplication to reduce impacts)
3 <i>Tie</i>	Quantify overall level of take (cumulative impacts from all threats versus individual take)

4 <i>Tie</i>	Early, active engagement of stakeholders and CPUC, environmental due diligence for transmission lines
4 <i>Tie</i>	Determine types and level of curtailment that industry can sustain (at the project and turbine level)
5	Identify sources of lead in the environment (e.g., lead shot in carcasses) and strategize opportunities to reduce lead availability to wildlife

## DAY ONE

### WORKSHOP DAY ONE – CONDOR FOCUS

#### WELCOME

Steve Black, Counselor to the Secretary, U.S. Department of the Interior, welcomed participants to the workshop. He said that despite differences in perspectives, all have a shared common goal. The Tehachapi and Southern Sierra Mountains are a great wind resource in California. All want to develop clean energy in a responsible way and stakeholders need to work together to overcome challenges. Mr. Black recognized David Cottingham, Special Advisor to the Director of the U.S. Fish and Wildlife Service (USFWS) was in attendance and noted that he is the point person in Washington, DC on renewable energy for the USFWS. He explained that more certainty is desired for future energy development and the collaboration of all interested parties is needed to overcome differences key to reaching this goal.

Kevin Hunting, Chief Deputy Director, California Department of Fish and Game (CDFG), also welcomed participants. He said it was great to see all parties in attendance to discuss the issues and consider how to move forward. Much work moved forward under the Schwarzenegger administration, and now the Brown administration continues to strive to strike a balance between the conservation and energy development interests. Mr. Hunting thanked USFWS for taking the initial lead in developing the workshop.

#### WIND ENERGY, CALIFORNIA CONDORS, AND EAGLES: WORKSHOP CONTEXT

Alexandra Pitts, Deputy Regional Director, Region 8, USFWS, outlined her goal to provide context as to why participants were gathered together for the workshop. The USFWS sees the promise of renewable energy as one avenue to overcoming problems associated with impacts from carbon based energy development and use. She said that although stakeholders are coming from different perspectives, we all want to make a positive impact on the world.

Ms. Pitts went on to explain that from her perspective, industry was in attendance because they want to increase renewable energy development which reduces the amount of carbon use. Conservation groups were in attendance because they want to ensure that energy development does not adversely impact wildlife. Agencies were in attendance not only because there is a mandate to work on these issues, but

also because staff understand and believe renewable energy has the potential to help reduce emissions and environmental impacts.

Ms. Pitts said that the increased focus on renewable energy over the past decade led to the creation of multi-agency collaboratives including the Renewable Energy Action Team (REAT) and the Renewable Energy Policy Group (REPG). The REAT has been meeting monthly and has created strong working relationships; much credit goes to California's governors for driving the process. These efforts have resulted in streamlining review and addressing impacts to key species. A longer-term opportunity is the Desert Renewable Energy Conservation Plan (DRECP) planning process. She emphasized that the effort is not easy as there are many challenging issues -- migratory bird protection, solar and wind needs, Endangered Species Act (ESA) regulatory needs, and assorted complications -- but the participants continue to forge ahead. While many renewable energy projects are under development, wind energy projects are increasingly difficult due to regulatory concerns. Potential impacts to condors and eagles are challenging and processes are needed to ensure adequate review of proposals. Complicating the situation are the different applying to condors and eagles. Further, the Tehachapi Mountains are at the center of the concern due to historic condor flight patterns in the area. All parties are needed to help craft solutions and to make progress. The question before stakeholders is how to work together in a new way to move forward. Ms. Pitt's went on to challenge all in attendance to work together to overcome the past. She closed by saying that paths forward have been unclear, but collaborative efforts are key to determining the future.

(Please visit <http://www.fws.gov/cno/energy.html> and scroll down to workshops to view Ms. Pitts' PowerPoint.)

## **REVIEW OF AGENDA & DESIRED WORKSHOP OUTCOMES**

Sarah Rubin, facilitator, Center for Collaborative Policy, California State University, Sacramento, asked participants to spend 5 minutes introducing themselves to the others at their table. She then asked all attendees to do self introductions to the full room. Ms. Rubin then reviewed the agenda and objectives for the two day workshop. Each participant had a workbook that would be used during the various exercises throughout the session. She reviewed the proposed ground rules, and all attendees agreed to abide by the proposed list. Next she touched on a few key elements of collaborative process work such as focusing on interests rather than positions. Finally, Ms. Rubin noted that each table had index cards. If anyone wanted to make a note about any project, effort or concern they were to jot it down and give it to her.

## **PRE-WORKSHOP PARTICIPANT POLL CONDUCTED**

Ms. Rubin explained that she conducted a pre-workshop participant poll to gain understanding of stakeholder interests and concerns. This included six hour-long confidential phone conversations (3 Industry; 3 NGO) along with an online survey. The online survey had approximately 17 respondents.

## **Response highlights:**

*What would make the workshop a worthwhile use of your time?*

- Better understanding of the roles Agencies, Industry & NGOs can play
- Some consensus that there is a way to allow for wind energy development & to protect avian species
- Open idea and information exchange

*What topics would you like to see discussed in depth?*

- Research
- Monitoring
- Take permits
- Siting
- Financial considerations
- Avoidance efforts
- Habitat
- Maximizing Avoidance
- Standardized reporting/monitoring
- Habitat mitigation
- Alternative compensation solutions
- 'Carrots' and 'Sticks'

*What do you think each 'side' needs to understand about the other?*

- **Agencies** could gain a better understanding of business constraints associated with developing large scale renewables.
- **Industry** needs to better understand the biological and economic value of the wild spaces they are industrializing and acknowledge the importance of pre-commitment siting.
- **Environmental Groups** need to understand technology and financial constraints including the implications of unknown turbine operational adjustments.

Ms. Rubin asked participants to spend 5 minutes discussing the poll findings with the others at their table.

(Please visit <http://www.fws.gov/cno/energy.html> and scroll down to workshops to view Ms. Rubin's PowerPoint.)

## **WIND INDUSTRY DEVELOPMENT – THE CURRENT MARKETPLACE**

John Anderson, Director, Siting Policy, American Wind Energy Association, began by saying he was pleased to be with the group. Mr. Anderson said that everything we do as a society has an impact on the natural environment. What we are left with at the end of the day is making choices as to how to minimize impacts. Industry believes that renewable energy, and wind in particular, holds much promise. Industry has shown a willingness to work collaboratively and to work to reduce impacts. The Sage-Grouse Research Collaborative and east coast bat mortality process are examples of the culture of the industry. Science has stated that 3 out of 1,000 bird deaths could be attributed to wind. Wind has been determined to be the least damaging form of renewable energy, but there is still more to be done.

Mr. Anderson went on to say that land-use and species permits are only part of the puzzle. He said the use of an acronym "WIPER" is very helpful.

- **W**ind resource is needed.

- Interconnection is necessary for transmission.
- Permitting requirements are extensive.
- Environmental factors require much analysis.
- Renewable energy market has to be there to purchase the energy.

With respect to the last bullet, he noted that cheap natural gas is presenting a challenge for wind energy development at this time. Next Mr. Anderson focused on avian impacts. Upwards of \$2 million can be spent over 2-3 years to undertake proper analysis, but risk will always remain. Mr. Anderson talked about the challenges around financing and lending in the face of unknown production numbers and mitigation costs. He then thoroughly reviewed the industry's perspective regarding impacts compared to other forms of energy production (e.g., no emissions of any kind, no strip-mining, no 'fracking' impacts, no radioactive waste streams, safer for workforce).

Mr. Anderson explained industry desires take coverage for eagles as well as certainty regarding condor planning. What types and levels of risk to condors does wind energy pose and how can we overcome the hurdles? He said that California has mandated that by 2020, 1 out of 3 kilowatts must come from renewable sources (wind, solar, and geothermal), 75% must come from within California and that curtailment is neither practical nor a silver bullet. Curtailment reduces the production over which the initial capital expenditures can be spread. Wind turbines are very sensitive machines and are sensitive to how they are operated. It may not be feasible to "stop and go" machines as much as some folks believe. Mr. Anderson said that there is an assumption that wind energy takes significant numbers of birds, which is incorrect.

Focusing in on eagles and condors, Mr. Anderson then said that industry needs to understand where the USFWS is going relative to eagles and condors, and time is of the essence.

Mr. Anderson concluded his presentation with a focus on radar. While radar is a useful tool, the technology is still in its infancy; therefore, at this time, it would be improper to rely solely on it. More research and testing are needed before full deployment, and Industry is willing to assist with the effort.

After Mr. Anderson concluded, attendees were asked to spend 10 minutes discussing the presentation, using their workbook as desired to jot down notes.

(Please visit <http://www.fws.gov/cno/energy.html> and scroll down to workshops to view Mr. Anderson's PowerPoint.)

## **ENVIRONMENTAL NON-GOVERNMENTAL PERSPECTIVE**

Garry George, Audubon California, began by saying how thankful he was that all were in attendance, with a special thanks to Kern County for providing maps and data. He then talked about the unique ecosystem of the workshop area of focus, the Tehachapi mountain range, as this area is one of the highest in biodiversity in California.

Mr. George talked about the conservation efforts in which he, as a member of Audubon California and other environmental non-governmental organizations (NGOs), has been involved. His first example was the Tejon Ranch. An agreement was reached in 2010 involving 242,000 acres. He noted that the Center for Biological Diversity CBD decided to not sign due to concerns over impacts to condors. Next he talked about the Kern River Preserve, 3,434 acres, which provides habitat for many species.

Mr. George reviewed some condor related statistics, noting the public funds spent are estimated to be \$20 million with possibly two times this amount spent by the NGO community. Condors mean a lot to conservation groups as they are a large, visible symbol of how the Endangered Species Act can be successful – that extinction can be prevented. He noted that the habitat that supports condors also protects a suite of other rare and common species. Mr. George discussed how conservation groups are continually working to reduce threats to the species – lead reduction, ingestion of trash, loss of habitat, climate change, etc.

Mr. George discussed the golden eagle, explaining that the public equates the golden eagle with the bald eagle. Golden eagles are symbols of diversity and wild spaces, and are a visible indicator of natural environmental health. Conservation groups work to reduce impacts to golden eagles such as lead poisoning, climate change, and nest abandonment from human recreation, etc. He then noted that other migratory birds are also impacted by wind projects.

Mr. George talked about lessons learned from Altamont Pass in northern California. It took six years and \$600,000 in litigation costs to resolve differences. He indicated repowering does provide opportunities for improvement and then questioned why it took the non-profit community to get the regulatory agencies to stand-up and focus on these issues.

The conservation community feels strongly that avoidance is critical, minimization is next, and mitigation should be the last resort. He said that some within the industry have avoided projects where there was concern about high impacts to biological resources, and they should be commended. Mr. George began to close out his presentation by likening the current situation to “carrots” and “sticks.” He explained that conservation groups would like to see incentives (“carrots”) created to help industry decide when and where to abandon a project. They would like standardized thresholds to be developed to identify acceptable risk as well as more regional planning efforts, like the DRECP. Further, more research and development on avoidance is critical. He asked where the funding should come from. There is a need for rapid evaluation of regional cumulative impacts and public sharing of results. In addition, there is a vital need for design and operational flexibility to be built into projects; not as an afterthought. The “sticks” that Mr. George went over included: enforcement of laws to incentivize avoidance; litigation; and public opinion. In closing, Mr. George reviewed the tools conservation groups have including policy advocacy, strong science, conservation expertise, public opinion, and litigation as a last resort.

After Mr. George concluded, attendees were asked to spend 10 minutes discussing the presentation, using their workbook as desired to jot down notes.

(Please visit <http://www.fws.gov/cno/energy.html> and scroll down to workshops to view Mr. George’s PowerPoint.)

## CONDOR BIOLOGY, WIND ENERGY AND ASSOCIATED CHALLENGES

Ashleigh Blackford, Wildlife Biologist, Region 8, USFWS, began by reviewing the status and biology of condors. They are large, heavy birds (17-25 lbs) that rely on wind to travel. Condors are extremely social birds that only have one egg per year, and require up to one year in parental care once the chick has fledged. Furthermore, condors have a long maturation period (average 7 years for males and 6 years for females). After a continuous decline in the wild population, the last wild condor was captured and brought into captivity in 1987. The subsequent captive breeding program has been very successful, and released birds are beginning to reoccupy their historic range. A subset of the population is fitted with GPS transmitters so tracking is possible. Ms. Blackford then showed a series of slides illustrating their range expansion from 2005-2011 in the Tehachapi and southern Sierra Nevada mountains. She noted that the range is also expanding in the Big Sur and Pinnacles areas.

Ms. Blackford explained that the condors are returning to some of their historic roosting sites as well as using new man-made features in environment. She explained briefly about how the condors were tracked and touched on some of the limitations of the systems. Although all of the birds have VHF tail mounts, only a subset of the population has GPS wing mounted devices. There is a 24-hour delay in reporting of GPS data. In addition, some birds cannot wear the wing mounted GPS units for physical reasons (e.g., skin elasticity issues).

As of today (December 1, 2011) there are 394 condors. The current captive population is 189 birds, and the wild population in Arizona, California, and Baja California is 205 birds. In California, there are 14 breeding pairs; 3 chicks have fledged this year and 3 are still in the nest. Management of the nests (e.g., removing micro-trash) is still a necessity to improve the survival of the chicks.

Ms. Blackford then addressed the California Condor Wind Working Group, which was formed under Section 4(f)(2) of ESA to provide advice to the Region 8 Director of the USFWS. The group is working to recommend actions that can be taken to minimize risks to the condor from wind energy development. Analysis and modeling are underway as part of this effort. The U.S. Geological Survey (USGS) has been contracted to develop a model which will evaluate how condors are using their environment today (e.g., wind, roosting, nesting, and foraging habitat) in an effort to determine the probability that condors will use new areas as the population continues to expand and recover. The USGS peer-reviewed manuscript is scheduled to be released in December 2012.

Kevin Hunting, Chief Deputy Director, California Department of Fish and Game, took the podium to talk about California condor protection under State laws. He explained that condors are protected under both the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA). They are also listed as a fully protected species under the California Fish and Game Code. California Senate Bill 618 (2011) gave CDFG the authority to issue a permit for the incidental take of a fully protected species, as long as the species is adequately covered by a natural community conservation plan approved by CDFG under the Natural Community Conservation Planning Act.

Mike Fris, Assistant Regional Director, Region 8 USFWS, then talked about federal protection of the California condor. He talked about the condor as protected under the ESA. Sections 7 and 10 of the ESA allow for lawful take of a listed species under certain circumstances. He acknowledged that there is an urgency to discuss whether wind projects within the range of the condor can be permitted under ESA. Thus far, feasible technical options that would avoid lethal take of condors have not been found. The agencies know the sense of urgency within the wind energy development community is high, but authorizing lethal take of condors is currently not feasible because of the low numbers of birds in the wild. All stakeholders face a daunting challenge. How can we avoid take? The USFWS is at a crossroads and needs the help of all interested parties moving forward.

(Please visit <http://www.fws.gov/cno/energy.html> and scroll down to workshops to view Ms. Blackford's PowerPoint. Mr. Hunting's discussion was of slide 39 of this presentation, and Mr. Fris' began on slide 40.)

## **SMALL GROUP DIALOGUE AND BRAINSTORMING SESSIONS ON CONDOR TOPICS**

Ms. Rubin explained how the small group session would proceed. Participants had over an hour to rotate to as many or as few small group sessions as they wished per their interest. Each session included discussion questions provided in the session workbook, and a facilitator was provided at each table to guide the conversation when needed and to take notes. Participants were invited to suggest specific actions related to the topic at hand. The condor small group session topics were:

### **1. REDUCTION OF THREATS**

- a. In what areas can industry and environmental groups collaboratively contribute in order to achieve greater success in supporting recovery of the condor?
- b. To what extent would threats in other areas need to be reduced to allow for wind energy projects to move forward within the condor range?

### **2. PROJECT PLANNING**

- a. How can collaboration be improved in the pre-project siting, project planning, and permitting process?
- b. Is there opportunity to minimize and avoid projects perceived to be high risk?

### **3. RADAR**

- a. What are the types of studies needed to learn more about how radar can assist in minimizing condor/wind energy conflicts?
- b. What are the potential limitations of this technology?

### **4. AVOIDING & MINIMIZING RISK (NON-RADAR)**

- a. Other than radar, what are other means of avoiding high risk scenarios and lethal take?
- b. What are the limitations of each of these other means?
- c. What additional studies are needed to validate the effectiveness of these options?

## 5. MONITORING/MANAGEMENT RESEARCH QUESTIONS

- a. What population monitoring and management research questions need to be answered in the short term (pre-DRECP) to help us understand the risk to condors from wind projects recently permitted, proposing construction or currently operating?

## 6. COMPENSATION FOR TAKE

- a. How would you recommend compensating for the lethal take of a condor?

## SMALL GROUP REPORTS

Each table level facilitator reported a short high-level summary of the general conversation to the full group. In addition, key action items were reported. The summaries below include details from the notes taken during the sessions as well as the reported proposed actions.

### Group 1: Reduction of Threats/Recovery – Facilitator Larry Rabin

The group generally acknowledged that more research is needed to help all interested parties better understand threats to condor and the extent to which threats will need to be reduced to facilitate condor recovery. The group participants also emphasized the need for better information sharing.

Discussion included:

- The need to reconstitute the condor recovery team in order to update the recovery plan
- Less management as an objective
- Research needs to be done to:
  - Explore technological improvements for better tracking
  - Better understand condor population dynamics range wide (not just in the Tehachapi area)
  - Understand how wind energy development might change condor migratory patterns/pathways
  - Improve turbine technology (e.g., develop technology which would allow for feathering without any negative impacts to the turbines themselves)
  - Monitor altitude of condor during tracking (via GPS)
- Explore leveraging of funds from different sources to create a large pool of funds for research. Funds could be pooled from
  - Individual wind energy companies
  - AB32 as a revenue source
  - American Wind Wildlife Institute (AWWI)
- Better data sharing (infrastructure for data base)
- Overlap condor habitat – use 3-D data with wind data
- Create a fund to use for condor recovery – to leverage funds from federal/state/individual companies, AWWI, etc. for recovery actions
- Lead bans – education campaign
- Are there deterrents for condor (e.g., hazing)
- Threats: land acquisition/habitat restoration in areas away from wind energy
- Minimize development in their habitat
- Challenge: knowing how much threat reduction would be necessary given incomplete information

- Perform baseline study of all threats to understand relative impacts so as to channel limited funds more effectively to address the biggest threats (range wide)
- Threats need to be reduced to the extent possible
- Standardized criteria for allowing development to move forward

Proposed Research Actions:

1. Research relative impacts of threats to condors to identify the biggest threats

Proposed Non-Research Actions:

1. Leverage funds for research
2. Minimize threats by: a) land acquisition; b) habitat restoration; c) minimize development; d) education (lead)
3. Centralized database with biological data to inform siting
4. Reconstitute condor recovery team

Group 2: Project planning – Facilitator Julie Vance

Discussion included:

- Survey protocol for California condor (more formalized)
- Accessibility of existing data
- Common understanding of siting process
- Common understanding of how risk is perceived by all parties
- What are the cumulative impacts? Need to look at the density of the wind projects and their risk
- Collaboration by industry to enhance habitat set aside for condor (consider roosting sites)
- Better understanding of how wind resource areas (WRAs) occur with condor areas
- Different technology (turbine type) in high risk areas
- Communication – need agency response quicker
- Communication – industry with NGOs and agency
- Use of pre-application meeting (REAT)
- Concern regarding proprietary information/competition
- DRECP and California condor working group lagging behind development proposals
- Conflicting government programs (expiring tax incentives/American Recovery and Reinvestment Act (ARRA)?)
- Ok with “no go “ zones – but doesn’t make “go” zones
- Agencies don’t have on the ground information until the project survey is completed
- Which NGOs with which to coordinate?
- Early consultation is very helpful
- Clear criteria for industry regarding biological assessment
- Database to access existing information. Who is responsible?
- Need to share data
- Different interpretation within industry regarding desktop prospecting (this is the initial process by which industry identifies potential wind project sites based on wind speed, access to transmission,

etc.) - how to assess biological risk early on (without complete confidentiality) - need transparent set of criteria from agencies

- Because there are so few condor biologists, if industry hires or consults with one of these biologists then the NGOs and Agencies could consider them "tainted"
- Inconsistency in interpretation of biology between and among agencies and the companies
- Condor – risk in areas not currently occupied (mapping effort including thermal wind layer from California Condor Wind Energy Working Group's USGS study)
- Confidentiality issues with information on private property; need way to have confidential discussion/get feedback

#### Proposed Research Actions:

1. Conduct cumulative analysis of current and proposed projects in Tehachapi's

#### Proposed Non-Research Actions:

1. Ability to talk about projects early and confidentially
2. Need consistency to assess risk (between agencies, within agencies, industry, etc.)
3. Identify high risk areas to define "no go" areas
4. Provide guidelines for best technology
5. Need common understanding of siting criteria

#### Group 3: Radar – Facilitator Austin McInerney

There was a strong desire for better understanding of radar technology, especially in regards to what studies have been completed to date, and applicability of radars to effectively identify large birds.

Questions raised included:

- How effective is radar at discriminating between various bird species?
- How would radar work in relationship to military and commercial operations and existing bandwidth?
- How quickly and in what way can facility operations be modified in response to radar detections?
- What hazing techniques are appropriate and effective for use when radar detects condors?
- Are there health issues associated with radar use?

#### Proposed Research Actions:

1. Better understand what hazing techniques are effective and in what way wind energy facilities can respond to radar detections
2. Better understand potential health implications of radar use and potential effects of hazing on surrounding communities and wildlife

#### Proposed Non-Research Actions:

1. Prepare White Paper on current state of technology
2. Coordinate with radar equipment manufacturers and military to further develop applicability of technology for wind use

3. Hold radar symposium with radar manufactures and military participation to discuss issue and build understanding

#### Group 4: Avoiding and Minimizing Risk – Facilitator Jodie Monaghan

Participants actively engaged in discussing effective methods of minimizing risk. The group generally agreed that, short of turning the turbines off, there is no effective method of avoiding risk.

Discussion included:

- Carrion removal programs
- Condor spotter training
- Check telemetry data to test effectiveness of spotters
- Balance grazing reduction
- Livestock best management practices (BMPs)
- Eliminate stock ponds as an attractant (BMPs)
- Improve grazing locations, but separating them from wind energy zones
- Blade construction and design – alternative turbine design including colorization of blades
- Siting locations/micro-siting
- Methods of hazing
- Make turbines less attractive, more visible
- Repowering with design to reduce risk (i.e., shrouded design)
- Establish hunting buffers around turbines, restricting hunting
- Better micro-trash removal
- Neighbors need to coordinate and cooperate regarding operations/management
- Better removal of anti-freeze spills

#### Proposed Research Actions

1. Active condor management including turbine management, condor vector management, turbine operations based on condor biology
2. Creative turbine design to reduce threat including: a) vertical axis; b) blade construction and design (including colorized blades); and c) shrouded design (for repowered turbines)
3. Is there a correlation between cattle grazing and preferred use by condors?

#### Proposed Non-Research Actions:

1. Livestock BMPs including limiting grazing (no 1<sup>st</sup> year heifers or calves) and elimination of stock ponds
2. Map wind energy siting areas as high/medium/low risk and incentivize turbine siting (macro-siting) (i.e., faster permitting, tax incentives, monitoring incentives, etc.)
3. Methods of hazing
4. Reconstitute condor recovery team (with diverse stakeholders to address current issues)

## Group 5: Monitoring/Management – Facilitator Darrin Thorne

Discussion included:

- Elevation data uncertainties
    - Re-evaluate data 0-2000 feet?
    - ID spatial and temporal scale with which to assess data
  - What are the technological limitations? (stopping turbines)
    - Is there flexibility?
  - Need projections of condor distribution when/if recovered
    - What are attributes that attract condors?
  - Data related:
    - Need different/new data – more frequent data intervals would be helpful
    - Real time transponders?
  - Technology to detect condors versus other species (radar?)
    - Radar that detects a harmonic unit attached to a condor?
  - Are there periods of high/low risk for condor collisions? (can existing data inform this?)
  - Are there weather variables that are associated with risk?
    - Use weather station information associated with condor location information
  - Global Satellite Modem (GSM) data can be clunky – vendors to assess limitation and possibly refine
  - Need a realistic budget for condor data needs
  - Need standardized monitoring for existing farms
  - Model individual behavior by season and time of day
1. Analyze existing condor data to determine elevation use and activity in relation to wind speed, time of day, and weather. Intensive data management is necessary to analyze elevation data.
  2. Project expanding population – why do condors move up the west side of the San Joaquin Valley versus the east?
  3. Research condor deterrents (audible and other hazing techniques)
  4. Implement standardized monitoring protocols for existing wind farms
  5. Research feeding manipulations:
    - a. Can food be managed to focus condors in appropriate areas (e.g., fewer feeding stations, remove carrion, etc.)?
    - b. Eliminate livestock as possible management tool? (in key areas)
    - c. Need information related to feeding behavior and what they're eating (e.g., smaller carrion means more time on the ground)

### Proposed Non-Research Actions:

1. Update recovery plan as condors expand

## Group 6: Compensation for Take – Facilitator Sarah Rubin

Participants valued having an open conversation on a topic that is normally not discussed. Overall, the need for continued discussion around the possibility of unauthorized take appeared significant.

Conversation topics included:

- Is it possible to establish populations elsewhere? (no net loss)
- What would be the appropriate numerical target to conserve the species?
- Is it possible to put a price on a bird? This money could be put into a 'bank' and could fund research.
- Is it possible to "over-correct" for other issues? (like a total ban on lead)
- How would you equate the value of a given mitigation effort in comparison to take? For example, could reducing lead levels in 20 birds compensate for 1 kill?
- Are there other models that could be looked at for ideas such as the way oil companies compensate for oil spills at high rates?
- It would be helpful to begin to have some understanding of what might be possible – for example, a permit for 1 kill per 10 years -- where mitigation costs are paid up front and if a second bird is killed the project is shut down
- A catastrophic event is possible, so talking through the consequences would be valuable
- Pair Section 7 folks with Recovery folks to improve overall communication and consistency

#### Proposed Research Actions

1. Determine the risk to the current condor population relative to current saturation of wind energy areas and transmission infrastructure (electric distribution)

#### Possible Non-Research actions

1. What happens when unauthorized take happens?
  - Convene a pre-determined team to evaluate (who should be on this team?)
  - Pre-determined actions are taken (which would need to be figured out)
2. Update the recovery plan to guide the determination if take can be compensated for and if so, in what form and level would it occur through a HCP/NCCP.
3. Cooperation among companies should be formalized within the condor range to develop a compensating mechanism.
4. Look at how industry can actively contribute to the recovery of the species.

After the small group reports, a limited number of additional comments were taken in the large group session.

#### **Other Feedback Received During the Large Group Session**

- Turning off turbines may not be the answer as condors may still fly into stationary features.
- Education for compliance with the lead ammunition ban is needed.
- Repowering specific to the Tehachapi Mountains. There is a need to look at existing development to determine if there is a method for reducing impacts. Risk factors which have now been identified could be taken into consideration.
- "Regional repowering" needs to be considered.
- Would barking or loud noises be considered "harassment" under ESA?

- Need to quantify location, duration, and time for when condors are in area in order to determine when not to run turbines. Blanket “non-operation” times do not work for industry so need to know more specificity.

## DOT VOTING/POLLING EXERCISES

Action items were divided into two categories: Research and Non-Research. Duplicative entries were combined. Participants were asked if anything major was missing before they were polled on their priorities. It was noted verbally and in writing that action would not necessarily be taken on any of the proposed actions nor were these meant to be “agency actions,” but rather collective actions that could be helpful.

Participants were given strips of sticker dots in two colors – one color for research items and one for non-Research topics. Two exercises were conducted; the goal of the exercises was to gauge preferences of workshop participants in the moment.

First, participants were asked to note their six top research priorities and six top ‘other’ priorities. These dots were tallied and the results listed. The second exercise asked participants to consider a resource constrained environment where only one action could be taken up in the immediate future. Results are shown below.

## DOT VOTING/POLLING RESULTS: CONDOR

If you could chose only one California condor related action to pursue...	
<b>Research Action</b>	➤ Research relative threats to condors to identify highest threats
<b>Non-Research Action</b>	➤ Update the recovery plan to guide the determination if take can be compensated for and if so, in what form and level would it occur through a HCP/NCCP.

Top 8 Condor Research Actions	
1	Conduct cumulative analysis of the potential impacts of current and proposed projects in the Tehachapi’s on the California condor
<i>Tie</i>	
1	Implement standardized monitoring protocols for existing wind farms
<i>Tie</i>	
2	Research relative threats to condors to identify highest threats
3	Analyze existing condor data to determine elevation use and activity in relation to wind speed, time of day, and weather
4	Research condor hazing techniques or other deterrents (e.g., audible, visual) that would discourage condors from entering wind energy facilities
5	Research/develop creative turbine design to reduce threat including a) vertical axis; b) blade construction and design (including colorized blades), and c) shrouded design (for repowered turbines)
6	Determine the risk to the current condor population relative to current saturation of wind energy areas and transmission infrastructure (electric distribution)
<i>Tie</i>	
6	Investigate the feasibility of feeding manipulations to influence condor flock movement (feeding

<i>Tie</i>	stations; livestock removal; carcass management)
7	Research expanding condor populations and id why condor expanding in certain areas
8	Active condor management including: turbine management; condor vector management; turbine operations based on condor biology
<i>Tie</i>	
8	Research potential health implications from radar use (workers; surrounding neighbors)
<i>Tie</i>	

[All the proposed research topics were ranked. So there are no additional topics referenced.]

<b>Top 8 Condor Non-Research Actions</b>	
1	Identify high-risk areas to define “no-go” areas for wind energy development
2	Update the recovery plan to guide the determination if take can be compensated for and if so, in what form and level would it occur through a HCP/NCCP
3	Prepare a white paper detailing known information on radars (use of, challenges, different types/bands and what they are most appropriately used for)
<i>Tie</i>	
3	Need consistency in assessing risk to condors (between agencies, within agencies, industry, etc.)
<i>Tie</i>	
4	Establish centralized database with biological data to inform siting
5	Map siting areas as high/medium/low risk to condors and incentivize turbine siting (macro siting) (i.e., faster permitting, tax incentives, monitoring incentives, etc.)
6	Use USGS (forthcoming) report to develop regional strategic repowering plan for the Tehachapis
7	Cooperation among companies should be formalized within the condor range to develop a compensating mechanism.
<i>Tie</i>	
7	Leverage funds for research
<i>Tie</i>	
8	Reinstitute condor recovery team (with diverse stakeholders to address issues)
<i>Tie</i>	
8	Reconvene condor recovery team (without focus of including stakeholders)
<i>Tie</i>	

**Additional Condor Actions on Non-Research Topics List:**

- Look at how industry can actively contribute to the recovery of the species
- Coordinate with radar equipment manufacturers and military to further develop applicability of technology for wind use
- Hold a radar symposium with manufacturers and military to develop shared understanding
- Need to address what would occur in the event of unauthorized take (create a predetermined team to evaluate event; who should be on team? Work on possible pre-determined actions)
- Provide guidelines for best technology
- Need common understanding of siting criteria
- Ability to talk about projects early – and confidentially
- Minimize threats by: a) land acquisition; b) habitat restoration; c) minimize development; d) education (lead)
- Livestock BMPs including: a) limiting grazing (no 1<sup>st</sup> year heifers or calves); b) elimination of stock ponds

## WHAT'S NEXT/SPECIFICS

Participants were directed to their workbooks to individually complete a worksheet seeking information on their interest in participating in future efforts. They were asked (1) on what issues would they consider spending time in the future, (2) of the items that received high numbers of dot “votes,” which would they like to be involved with in the future, and (3) what resources might they bring to these efforts. Completion of the worksheet was voluntary. A compilation of the responses received (without attribution) is summarized in attachment 1.

## WRAP UP & ADJOURN

Ms. Rubin wrapped up the meeting by reminding participants of the new room they would be using the next day and asked stakeholders to provide some initial evaluative feedback.

Feedback on Day 1	
Worked Well	Could be Improved
Assigned seating	Tough to focus on condors alone
Everyone was polite	
The breakouts and moving around	
Facilitation	
Species focus	
Hearing practical concerns	
People were open and honest	
Level of people participating	

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## DAY TWO

### WORKSHOP DAY TWO – GOLDEN EAGLE FOCUS

#### WELCOME

David Cottingham, Special Advisor to the Director, USFWS, welcomed participants back for the second day of the workshop. Mr. Cottingham said that he understands that there is a lot of anxiety around the issues being discussed, but identifying that there is anxiety is a step in the right direction; it is the first step towards developing constructive conservation strategies to support the wind development throughout California. Whenever we hear the Secretary or President speak about renewable energy, it is in the context of meeting the conservation standards.

## **GOLDEN EAGLE BIOLOGY, WIND ENERGY AND ASSOCIATED CHALLENGES**

Tom McCabe, Assistant Regional Director, Conservation Partnerships, Region 8, USFWS, reviewed golden eagle biology and challenges associated with wind energy development. The first part of his presentation focused on the biology and status of the golden eagle. It is a long-lived, top level predator which is slow to reach sexual maturity. Their nesting habitat in the Tehachapi's is on cliffs and large tree top areas. Their foraging habitat is variable and they primarily feed on small mammals. Threats to the golden eagle include poisoning, collisions, electrocution, loss of habitat, declining prey base, and human disturbance. Next Dr. McCabe noted that population status not fully understood. There are few published data on golden eagle abundance, but the data that are available suggest a declining population in western northern America. There are data gaps such as survival and causes of mortality, population size and trend, seasonal movements, habitat use patterns, migration patterns, and genetic structure. All of these areas need to be better understood.

The golden eagle is a fully protected species under CDFG code and is also protected by federal laws including the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Dr. McCabe explained that per the 2009 FWS rule on take permits under the Bald and Golden Eagle Protection Act, eagle take will only be authorized where it is "compatible with the preservation of the eagle." The rule defines this as "consistent with the goal of increasing or stable breeding populations." He then talked about two new permit types described under the 2009 rule. One type is intentional take of eagle nests, and it was established to alleviate safety hazards to people or eagles. In this situation, only inactive nests are allowed to be taken except in safety emergencies. Second is the incidental take of eagles, which can include lethal take as well as take from disturbance. The 2009 rule established the permitting standards for incidental take. Take permits will be authorized based on implementation of "Advanced Conservation Practices" to reduce eagle take to a level where remaining take is unavoidable; all permittees are required to avoid and minimize the potential take to the degree practicable. Dr. McCabe also talked about programmatic take – which is recurring and not in a specific, identifiable timeframe or location. The USFWS can issue programmatic permits to address ongoing take. One of the criteria for programmatic take permits is that Advanced Conservation Practices need to be implemented to avoid and minimize take to the maximum degree technically achievable, so any remaining take that occurs is unavoidable.

The FWS 2009 rule requires a sequential approach -- avoid; minimize; rectify; reduce or eliminate over time; compensate.

Dr. McCabe reviewed USFWS siting and permitting tools, detailing the USFWS Wind Energy Guidelines and Eagle Conservation Plan Guidance which provides assistance in a number of areas (facility siting, adaptive management processes, etc.). He noted that the revised Plan should be released to the public in early 2012.

Mr. Bill Condon, CDFG Renewable Energy Program Manager, then talked about California state protection and permitting. The golden eagle is listed as a fully protected species and permits are only authorized for necessary scientific research. The only exception is under the recently amended DFG Code Section 2835,

which does allow CDFG the option of issuing a permit for the incidental take of fully protected species within the context of a Natural Communities Conservation Plan. CA Senate Bill 618 provided this revision to the DFG Code Section 2835. Mr. Condon said that Section 2835 of the Fish & Game Code is very informative and attendees were encouraged to review this section. He also addressed the question of whether research can be used as a form of project mitigation and noted that the Fish and Game Code Section 3511 specifically excludes necessary scientific research that requires authorized take as part of specified mitigation for a project. Mr. Condon closed his presentation with a review of challenges with respect to the golden eagle including limited funds, data and staff.

## **ONGOING EAGLE RESEARCH AND OTHER EFFORTS**

Bronwyn Hogan and Carie Battistone, CDFG, asked participants to turn to their workbook to review the list of ongoing eagle research effort that had been compiled. They asked stakeholders for feedback, corrections or additions to the list. The following comments were made:

- Contact person for the American Wind Wildlife Institute is wrong. Needs updating. Correct info is on second page.
- Kern County plans on expanding its website to include all project applicant data. The County has requested that all applicants sign a full disclosure statement in order to allow for full posting of information on website. In addition, the County will be hiring a consultant to help organize and post monitoring data in a user-friendly manner.
- 2 years of protocol level project survey information is also available from BLM.
- There were a couple of comments related to where data will be kept and how a centralized location would be helpful.
- Work is underway at Patuxent Wildlife Research Center to compare survey data from breeding bird surveys with other survey information and to identify relationships, if they exist, to determine breeding patterns.
- It was noted that the list of activities in the book was incomplete. And some of the activities that were labeled as industry/agency efforts were actually not dual efforts.

## **SMALL GROUP DIALOGUE AND BRAINSTORMING SESSIONS ON EAGLE TOPICS**

Participants had an hour to rotate to as many or few small group sessions as they wished per their interest. Each session included discussion questions. A facilitator was provided at each table to guide the conversation when needed and to take notes. Participants were invited to suggest specific actions related to the topic at hand.

- DATA SHARING
  - How can the information be transferred more effectively?
- PERMITS - thinking cumulatively
  - To what extent would threats within the Bird Conservation Region (permitting area) need to be reduced to achieve the Eagle Act permitting standards (no net loss)?

- PRIORITIZATION OF RESEARCH
- RADAR
  - What are the types of studies needed to learn more about how radar can assist in minimizing eagle/wind energy conflicts? What are the potential limitations of this technology?
- PROJECT PLANNING
  - How can collaboration be improved in the pre-project siting, project planning, and permitting process?

## SMALL GROUP REPORTS

Each table level facilitator reported a short high-level summary of the general conversation to the full group. In addition key action items were reported. The summaries below include details from the notes taken during the sessions as well as the reported proposed actions.

### Group 1: Data Sharing Sub Group – Facilitator Jim Nelson

The group identified several things that are currently working including the DFG’s California Natural Diversity Data Base (CNDDDB), the collection of large amounts of data by industry, and more specifically the collection of data confirming presence of golden eagles. Several items were identified as not working well including getting industry’s data incorporated into shared data bases (e.g., CNDDDB, Bios, etc.). Industry data are often presented in formats that are not easily incorporated (e.g., .PDF vs. spreadsheet), and use inconsistent reporting formats. Also there is little access to data being collected on operational wind projects and there is a lack of clarity as to what may be done upon project decommissioning. Also, it was brought up that the data quality varies substantially. While some robust datasets exist, the efforts to extrapolate from one area to another (e.g., Altamont versus Tehachapi) are simply not appropriate due the difference in characteristics of the sites, and lack of understanding on the comparability of bird behavior. It was noted that the CA-NV Golden Eagle Working Group has recently initiated discussions on data collection (monitoring and research), compilation, coordination, and storage issues.

#### Proposed Research Actions

1. Analyze existing data to estimate, posthaste (within 1 year): a) the golden eagle population relevant to Tehachapi (to begin to answer the questions of significance); and b) relative sources of mortality (to identify most fruitful areas for developing compensation programs)
2. Develop and test compensation programs (lead abatement) and development mitigation ratios (e.g., \$x to lead abatement program = 1 eagle)

#### Proposed Non-Research Actions:

1. Use existing data better

- a. To do this, the existing data set must be collected, inventoried, organized, and incorporated into a shared database. The discussion on which platform is best suited for this purpose would require additional follow-up.
  - b. Existing databases include CNDDDB/Bios (CDFG); Natural Resource Information System (NRIS) (USFS database); BLM Database; Terra-Gen; AWWI database (in development stage); and Kern County's database. Each of these serves a slightly different purpose and houses various types of data (not just golden eagle centric).
2. Resolve data collection methods
    - a. This is needed to deal with cost, level of effort, time and timing, and accuracy
  3. Coordinate survey efforts where possible
    - a. This is needed to reduce duplication of efforts, reduce overall costs, and impacts to birds
  4. Create a forum to share eagle information, not just data, but analyses of data as well
  5. Resolve industry's concerns about data sharing, including: security, accessibility, and liability

## Group 2: Permitting Standards – Facilitator Jodie Monaghan

### Discussion included:

- Retrofit power poles (including consideration of retention of wooden poles)
- Seasonal restriction of construction activities in proximity to golden eagle nesting habitat
- Incentivize research to define conditions of the permit
- Higher mitigation ratios
- Eliminate adverse recreational activities near nest sites during nesting season
- Avoid putting projects in high conflict areas (projects versus eagles)
- Site turbines to minimize impacts to eagles
- BMPs for operations (time of day; seasonal; speed)
- Link/prove BMPs through research and data sharing
- Create nesting substrate
- Improvement of breeding success probability
- Issue: mitigation for power lines for wind projects
- Road kill removal
- Enforcement of unauthorized take of eagles
- Enforcement agencies need for additional funds to enforce existing laws
- Identification of additional acceptable mitigation concepts
- Funding rehabilitation centers
- Avoidance: map "no go" areas; require greater permit conditions for high risk areas
- Addressing the issue of lead poisoning by reducing the use of lead shot is critical. The wind industry does not have the authority to address this issue. The agencies must do it
- Identifying area specific threats to the species near specific project areas (hunting, OHV, etc.).
- More flexibility in what counts for mitigation (thinking cumulatively)
- Need to define level of take reduction needed to address cumulative impacts
- Agencies should consider a Permit fee to help cover the costs of impacts analyses.

- Eagle Act Permit duration should be changed to match duration of projects (30 years) with matching mitigation to be reviewed periodically
- General effectiveness monitoring should be conducted to assess the effectiveness of mitigation
- How do we quantify the overall level of take of golden eagles?

Proposed Research Actions:

1. Link/prove BMPs are effective through research and data sharing

Proposed Non-Research Actions:

1. Develop a lead reduction (lead shot) program to reduce lead poisoning impacts
2. Avoidance: map “no go” areas; require greater permit conditions for high risk areas
3. Quantify overall level of take (cumulative impacts from all uses versus individual take)

Group 3: Prioritization of Research – Facilitator Larry Rabin

Discussion included:

- Clarify short versus long term needs
- Assess what research is fundable
- Look at existing and available data to reduce duplication of efforts
- Assess important data gaps
- Focus data collection on local needs
- Analyze existing data including population and mortality sources
- Obtain/utilize tribal data
- Collect Law Enforcement data in a way to allow for understanding of mortality causes
- Need central location to house data collected at the local level
- Stakeholders who recently met in Colorado created a prioritized research list. Let’s not start from scratch over and over in asking about research questions.

Research need to know:

- Better understanding of population size, demography and sources of mortality
- How do fatalities at wind farms affect demography and population size?
- Developing better predictive models of fatality/risk reduction
- How do eagles use/choose territories?
- Effects of different telemetry devices on birds/behavior
- Can curtailment be effective at reducing or eliminating eagle mortality?
- Understanding of microhabitat preferences
- Microhabitat use as related to microclimate (using met tower data)
- Research evaluation of relative benefits of different mitigation options (existing options as well as potential new options)
- Using DNA from eagle feathers to assist in assessing how connected eagle populations are within the State.

#### Proposed Research Actions:

1. Better understanding of population size, demography and sources of mortality
2. Study telemetry to validate radar data
3. Research evaluation of relative benefits of different mitigation options (existing options as well as potential new options)
4. Conduct long term population trend monitoring program
5. Identify and map critical nesting and habitat needs

#### Proposed Non-Research Actions:

1. Incentivize research to define conditions of a permit
2. Develop BMPs for operations (time of day; seasonal; turbine speed)
3. Share recent industry results and standardize data sharing platform

#### Group 4: Radar – Facilitator Austin McInerney

Radar technology is in its infancy and while promising, requires more development before it can be widely deployed and relied upon to accurately detect eagles. Many different efforts are currently underway by industry to better understand radar's effectiveness and potential utility under various environmental conditions. Questions exist around a number of topics, including:

- How well can radar technology differentiate between various bird species?
- Need for guidance to determine where using radar will be effective (i.e., appropriate)
- What types of hazing methods are effective at deterring eagles and are also allowable by regulatory agencies?
- What are the costs of using radar and what size and types of facilities will be able to afford radar use?

#### Proposed Research Actions:

1. Study how telemetry might be used to validate radar data
2. Determine what types and level of curtailment wind facilities can financially sustain
3. Determine what types of hazing are effective
4. Have regulatory agencies decide whether or not hazing is considered harassment

#### Proposed Non-Research Actions:

1. Share recent industry radar results with interested parties
2. Consider jointly funded radar tests and testing facility for collaborative evaluation and refinement of radar technology

#### Group 5: Project Planning - Facilitator Sarah Rubin

A diverse discussion occurred over the course of the hour as the group started very small, with just a few participants, but over time grew to be quite large with fruitful discussion between those representing industry and the conservation community. Project planning and siting is quite complex for many reasons;

one area of interesting discussion was the highly competitive nature of the market and the need for confidentiality for a company, whereas environmental NGO stakeholders have great interest in more transparency and communication around siting and related risk.

Discussion included:

- Analysis of how golden eagles use the terrain., including resident eagles as well as floaters
- Industry needs to adhere to the intent of the FWS Wind Energy Guidelines regarding siting
- Better baseline assessment of the eagle population is needed to understand cumulative impacts
- There should be a comparison of proposed project(s) with other local or regional populations
- Eagle surveys should be conducted earlier in the project planning process, when met towers are installed to collect wind resource data; more informed decisions would result if data was collected at the same time.
- Each wind project should plan for operational curtailment/modification up front to address the need to minimize take of eagles.
- BLM needs to change its policy such that it assesses type 2 met project proposals as if they are wind development
- Developers should formalize confidential consultation with wildlife agencies early; industry should listen to the early feedback they receive.
- BLM needs to publically notice Categorical Exclusions for type 2 towers
- Analysis is needed on eagle migration patterns for the pacific flyway and beyond
- Analysis is needed to mine what the contribution to eagle genetic diversity is from floaters
- Need to assemble regional biological information to help inform individual project decisions
- Early, active engagement of stakeholders and CPUC, environmental due diligence for transmission lines
- Cumulative analysis of existing projects should be conducted; what's on the ground and approved (including how many turbines, where is there power capacity)
- Industry should be asked to provide survey and mortality data on projects that are not currently required to provide data.
- Projects should be required to compare their pre-survey data with post-mortality operational data to improve the risk assessment utilized by the FWS to predict project impacts
- A regional HCP/NCCP is needed for golden eagles
- What percentage of met towers are up versus projects built
- Standardize the amount of time and data needed to make an informed decision about siting a project
- Project level surveys should include an assessment of "floater eagles" using the area
- Figure out a way for existing projects to begin to disclose available data to help inform future decisions
- Gather post-construction mortality data according to standardized protocols (for existing and future projects) to allow for more direct comparison of project impacts

Proposed Research Actions:

1. Analysis of eagle migration within the Pacific Flyway and beyond

2. Inventory of existing projects; what's in the ground and approved (basic inventory)
3. Cumulative analysis of past, present and future projects
4. Gather mortality data according to standardized protocols (for existing and future projects including where not currently required)
5. In the Tehachapi area, percentage of met towers up versus projects built

Proposed Non-Research Actions:

1. BLM should publically notice Categorical Exclusions for type 2 towers
2. Formalize early confidential consultation of industry with wildlife agencies
3. Have projects compare pre-survey information with project operation monitoring data (mortality data)
4. Companies should start planning for operational curtailment/modification in project planning up front to address the need to minimize take of eagles.
5. Regional HCP/NCCP for golden eagle
6. Early, active engagement of stakeholders and CPUC, environmental due diligence for transmission lines
7. Standardize amount of time to make an informed project decision: a) require survey including floaters; b) compare project with other local populations
8. Standardize the minimum pre-project survey time
9. Comply with the intent of the early tiers of the Wind Guidelines

## DOT VOTING/POLLING EXERCISES

Action items were divided into two categories: Research and Non-Research. Duplicative entries were combined. Participants were asked if anything major was missing before they were polled on their priorities. As noted on day 1, action would not necessarily be taken on any of the proposed actions, and the actions are meant to be potential “collective” actions rather than “agency actions.”

Participants were given strips of sticker dots in two colors – one color for research items and one for other topics. Two exercises were conducted. The goal of the exercises was to gauge preferences of workshop participants in the moment. First, participants were asked to note their six top research priorities and six top non-research priorities. These dots were tallied and the results listed. The second exercise asked participants to consider a resource constrained environment where only one action could be taken up in the immediate future. Results are shown on the following page.

## DOT VOTING/POLLING RESULTS: GOLDEN EAGLE

If you could chose only one golden eagle related action to pursue...	
Research Action	
➤	Analyze existing data to estimate, posthaste (within 1 year)
	a. The population relevant to Tehachapi (to begin to answer the questions of significance);
	b. Estimate relative sources of mortality (to identify most fruitful areas for developing compensation mitigation programs)

**Non-Research Action (there was a tie)**

- Avoidance: (a) Map ‘no go’ areas; (b) greater permit restrictions in high risk areas
- Use and assess existing data (mine sources; inventory; organize; select platform)

**Top 6 Eagle Research Actions**

1	Analyze existing data to estimate, posthaste (within 1 year): a) the population relevant to the Tehachapis (to begin to answer the questions of significance); and b) relative sources of mortality (to identify the most fruitful areas for developing compensation mitigation programs)
2	Conduct studies to gain a better understanding of population size, demography and sources of mortality
3	Conduct cumulative analyses of past, present and future projects
4	Research the relative benefits of existing mitigation
5	Implement a long-term population trend monitoring program
6	Gather mortality data according to a standardized protocol at existing projects including at projects that are not currently required to gather this type of data

**Additional Eagle Actions on Research List:**

- Link/prove BMPs through research and data sharing
- Study telemetry to validate radar data
- Determine effective hazing methods
- In Tehachapi area, percentage of met towers up versus projects built
- Analysis of Pacific Flyway and beyond for golden eagles migration information
- Inventory of existing projects; what’s in the ground and approved (basic inventory)
- Develop and test compensatory mitigation programs (e.g., lead abatement) and development mitigation ratios (e.g., \$x to lead abatement program = 1 eagle)
- Identify and map critical nesting and habitat needs regionally

**Top 5 Eagle Non-Research Actions**

1	Avoidance: a) Map ‘no go’ areas for development; and b) implement greater permit restrictions in high risk areas
2	Use and assess existing eagle data (mine sources; inventory; organize; select a system to store data)
3	Coordinate survey efforts (reduce duplication to reduce impacts)
<i>Tie</i>	
3	Quantify overall level of take (cumulative impacts from all threats versus individual take)
<i>Tie</i>	
4	Early, active engagement of stakeholders and CPUC, environmental due diligence for transmission lines
<i>Tie</i>	
4	Determine types and level of curtailment that industry can sustain (at the project and turbine level)
<i>Tie</i>	
5	Identify sources of lead in the environment (e.g., lead shot in carcasses) and strategize opportunities to reduce lead availability to wildlife

### **Additional Eagle Actions on 'Non-Research' List**

- Create forum to share data analysis
- Resolve industry concerns about data sharing (security; liability; accessibility)
- Resolve data collection methods (cost; effort; time; accuracy)
- BLM should publically notice Categorical Exclusions for type 2 towers.
- Formalize early confidential consultation of industry with wildlife agencies
- Have projects compare pre-survey info with project operation monitoring data (mortality data)
- Standardize the minimum pre-project survey time
- Comply with the intent of the early tiers of the wind guidelines - state or federal
- Explore new sources for mitigation
- Jointly funded tests and testing facilities
- Discussion with regulatory agencies about whether hazing is harassment
- Can hazing be permitted?
- Companies plan for operational curtailment/modification in project planning
- Regional Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP) for golden eagle
- Incentivize research to define conditions of a permit
- BMPs for operations (time of day; seasonal; turbine speed)
- Share recent industry results (standardize platform)

### **WHAT'S NEXT/SPECIFICS**

Participants were directed to their workbooks to individually complete a worksheet seeking information on their interest in participating in future efforts. They were asked (1) on what issues would they consider spending time in the future, (2) of the items that received high numbers of dot "votes," which would they like to be involved with in the future, and (3) what resources might they bring to these efforts. Completion of the worksheet was voluntary. A compilation of the responses received (without attribution) is summarized in attachment 1.

### **WRAP UP & ADJOURN**

Alexandra Pitts, Deputy Regional Director, Region 8, USFWS, wrapped up the meeting by thanking all the stakeholders for their time, energy and effort over the course of the two-day workshop to address the many challenges all collectively face. She again thanked the agency partners, CDFG and BLM. She also communicated her condolences as a USFWS biologist who was out in the field the previous day had been killed in the southern California storm and reminded everyone that real people are out doing this research and we must always be mindful of safety.

Ms. Rubin asked participants if they would like to share any closing thoughts:

Closing Feedback on Day 2	
Side conversations have been good	Would like to see where we go from here
Was very skeptical in planning the session, but outcomes have exceeded expectations	Desire for workgroup to be formed to pursue next steps. Common need that requires participation by all interested parties
Appreciated being invited to participate. Very informative and helpful in understanding issues	Devil is in the details. Still need to work through the details, but workshop has been a really good start
Desire for strict timeline for how to move forward. Considering state requirements for achieving state mandated goals. Much work to be done. Need for California based resources and process for moving forward	

## ATTENDEES

- Jeff Aardahl, Defenders of Wildlife
- Eileen Allen, California Energy Commission
- Ileene Anderson, Center for Biological Diversity
- John Anderson, American Wind Energy Association
- Susan Antenen, Conservation Biology Institute
- Keith Babcock, California Environmental Consultants & Civil Engineers
- Carie Battistone, California Department of Fish and Game
- Steve Black, U.S. Department of the Interior
- Ashleigh Blackford, U.S. Fish and Wildlife Service
- Barbara Boyle, Sierra Club
- Rene Braud, Pattern Energy Group
- Amedee Brickey, U.S. Fish and Wildlife Service
- Christina Calabrese, EDP Renewables
- Mark Casper, Terra-Gen Power
- Bill Condon, California Department of Fish and Game
- David Cottingham, U.S. Fish and Wildlife Service
- Laura Crane, The Nature Conservancy
- Dan Crum, U.S. Fish and Wildlife Service
- Brendan Cummings, Center for Biological Diversity
- JR DeLaRosa, California Governor's Office
- Kim Delfino, Defenders of Wildlife
- James Diven, Renewable Energy Systems Americas
- Cheryll Dobson, U.S. Fish and Wildlife Service

- Wayne Donaldson, State Office of Historic Preservation
- Ryan Drobek, Center for Energy Efficiency and Renewable Technologies
- Diane Elam, U.S. Fish and Wildlife Service
- Dr. Wally Erickson, WEST
- Amy Fesnock, Bureau of Land Management
- Nancy Fleenor, Forest Service
- Mike Fris, U.S. Fish and Wildlife Service
- Kelly Fuller, American Bird Conservancy
- Garry George, Audubon California
- Joe Grennan, Renewable Energy Systems Americas
- Dave Hacker, California Department of Fish and Game
- David Harlow, Desert Renewable Energy Conservation Plan
- Joshua Hart, Inyo County
- Steve Henry, U.S. Fish and Wildlife Service
- Bronwyn Hogan, California Department of Fish and Game
- Chuck Holloway, LA Water and Power
- Kevin Hunting, California Department of Fish and Game
- Jim Kenna, Bureau of Land Management
- Patti Krueger, U.S. Forest Service
- Ren Lohofener, U.S. Fish and Wildlife Service
- Noah Long, National Resources Defense Council
- Kevin Martin, Terra-Gen Power
- Tom McCabe, U.S. Fish and Wildlife Service
- Natalie McCue, Pattern Energy Group
- Annie Mudge, California Wind Energy Association
- Chris Mynk, Kern County
- Dr. Laura Nagy, Tetra Technologies
- Danielle Osborn Mills, Center for Energy Efficiency and Renewable Technologies
- Lorelei H. Oviatt, Kern County
- Mike Pappalardo, NextEra Energy Resources
- Winifred Perkins, NextEra Energy Resources
- Alex Pitts, U.S. Fish and Wildlife Service
- Tom Pogacnik, Bureau of Land Management
- Larry Rabin, U.S. Fish and Wildlife Service
- Nancy Rader, California Wind Energy Association
- John Randall, The Nature Conservancy
- Diane Ross-Leech, Golden Gate Audubon
- Roberto Sarmiento, LA Water and Power

- Janea Scott, U.S. Department of the Interior
- Varner Seaman, EDP Renewables
- Mark Sedlacek, LA Water and Power
- Jerre Stallcup, Conservation Biology Institute
- Marie Strassburger, U.S. Fish and Wildlife Service
- Joan Taylor, Sierra Club
- Mark Tholke, EnXco
- Darrin Thome, U.S. Fish and Wildlife Service
- Julie Vance, California Department of Fish and Game
- Johanna Wald, Natural Resources Defense Council
- Jim Walker, EnXco
- Zackary Walton, SSL Law Firm
- Stu S. Webster, Iberdrola Renewables

## ATTACHMENT 1: SUMMARY OF 'FUTURE EFFORT' WORKSHEET RESPONSES

### CONDORS: Future Effort

#### I would consider spending time in the future on the following issues:

- Clarification/mutual understanding of process employed early on to decide where to site wind projects in historic condor range
- Identifying high risk areas
- Improving/ensuring consistency to assess risk
- Updating recovery plan/reconstituting recovery team
- Development projects through the NEPA/CEQA process
- Recovery team process is critical for developing and acquiring a comprehensive holistic management approach only if it involves all stakeholders
- Where wind turbines are least threat to condors
- Consistency of siting criteria with industry and land managers
- Reduction of threats
- DRECP
- Identification of relative threats to condor so as to prioritize expenditure of mitigation/construction dollars (this should be done via DRECP) (#2)
- Radar white paper
- Protecting the Condor throughout its range from the host of threats; working on the DRECP, development projects, including wind projects through NEPA/CEQA process
- Radar use and evaluation
- Data compilation and centralization

#### More specifically, looking at the items that received a high number of dot "votes", what would you, or your organization, like to be involved with?

- ID areas of high risk to condors as 'no go'

- Continue to engage thru REAT/DRECP
- Identify high risk area – should be done in DRECP in long term;
- Consistency to access risk
- Recovery team
- Identification of “no-go” wind development areas
- Recovery planning
- Ensuring wind projects avoid high risk areas and implement standardized monitoring and public reporting protocol.
- Development and testing of strategies to deter/haze condors in turbine areas in combination with operational management strategies (including warranty issues) (#4)
- In no specific order: standardized monitoring protocols; identifying high risk/no go areas; grazing issues, rodenticides, leads etc.
- Technology research, exploring radar technology and its effectiveness, research condor and golden eagle behavior, population assessment, mitigation, and conservation

#### What resources might you bring to the effort(s)?

- Staff twice, biological expertise, interest-based negotiation skills
  - Potentially GIS capability, policy analysis; contact with and knowledge of people on the ground
  - Leadership in the conservation community
  - Specific knowledge of wind development, siting, management, power interconnections, the grid, PPAs, biology, environmental laws, regulations and policy
  - Planning perspectives re: large projects analysis
  - Screening criteria for siting projects
  - Access to request/support appropriated funds
  - Information, data, participation
  - Public outreach
  - Wind industry involvement in these issues
  - NGO perspective – solutions oriented
  - 1) Preconstruction data in the Tehachapi resource area in golden eagles 2) Radar data to help study and prepare white paper on Radar 3) centralize data to inform siting
-

## **EAGLES: Future Effort**

### **I would consider spending time in the future on the following issues:**

- Protecting golden eagles throughout their range from the host of threats; working on the DRECP
- All golden eagle issues
- # 1 Research – “Analyze existing data to estimate, posthaste (e.g., within 1 year)
  - a. The population relevant to Tehachapi (to begin to answer the question of significance)
  - b. The relative sources of mortality from all sources (to identify fruitful areas for mitigation) and develop mitigation programs including ratios (x\$ → program = 1 eagle)
- Potentially through DRECP: mapping high risk areas/avoidance, transmission lines, intent of wind guidelines, obtain information about existing facilities
- Organize a working group of agencies, NGOs, and industry reps to identify funding sources and implement action items identified in this workshop
- I am actually in the Golden eagle working groups
- Collaborate on data synthesis and analysis through the golden eagle working group
- Collaborate on development of consistent mitigation, minimization and avoidance approaches
- Impacts, no go/go areas, assessment of mitigation
- Devoting DFG staff time in helping to organize follow up workshop on a subset of priority research and implementation (“other”) items that would culminate in specific tasks and assignments
- Development of take permit criteria
- Data sharing and mitigation effectiveness research
- DRECP

### **More specifically, looking at the items that received a high number of dot “votes”, what would you, or your organization, like to be involved with?**

- Standardize/integrate monitoring protocols; identifying current high-risk/no go areas; future of golden eagles in light of climate change; grazing issues; pesticide issues
- All aspects of golden eagle working group
- California Wind Energy Association will coordinate industry funded and conducted study with involvement of agencies and NGO’s
- Avoidance and transmission lines
- Both top vote items
- Transmission line setting through transparent stakeholder engaged process
- Collaborative efforts on Golden Eagle surveys, data sharing

### **What resources might you bring to the effort(s)?**

- NGO solutions oriented perspective
- Forest service related issue and information
- Money and time
- Maybe able to help influence funding on working group type efforts that relate directly to DRECP process and schedule
- Staff time through REAT and DRECP
- Sound legal mind
- Facilities for research, reports, funding, studies