

DRAFT Golden Eagle Research Subgroup Notes

January 23, 2012

Participants: Adam Duerr, Amedee Brickey, Brian Latta (on phone), Carie Battistone (on phone), Chris Meador (on phone), Chrissy Howell, Cris Tomlinson (on phone), Dave Bittner (on phone), Doug Bell, Ed West, Elliot Chasin, Grainger Hunt, Heather Beeler, Irene Paul, Jeep Pagel, Jeff Smith, Jim Nelson, John Boone, Ken Levinstein, Laura Nagy, Murrelet Halterman (on phone), Patti Krueger, Rob Doster, Terry Hunt, Tom Darin

Welcome and orientation by Patti Krueger and Jim Nelson.

Purpose and Objectives

1. Identify purpose of the group – why it is formed, how will it inform agencies, longevity
2. Compile research need from all members (agency, industry, research community)
3. Prioritize research needs
4. Discuss options for future topics (symposium, literature review, protocols, methodology)
5. Discuss collaboration and funding opportunities
6. Identify next steps
7. Evaluate meeting

Agenda

- Purposed, objectives, agenda
- Introductions
- Purpose of the group – goals
- What are the top research needs
- Discussion of past published and unpublished work in CA/NV
- Field methods and survey protocols
- Collaboration and funding opportunities
- Follow up actions
- Conclusion/evaluation

Purpose of the group (draft): The purpose of this research subgroup is to create collaborative working relationships among those interested in research on golden eagles. Specifically, the group will address what the research needs/gaps are for CA and NV, strategize ways to implement high-priority research, and assist to standardize methodologies, protocols and terminology.

Other ideas from the group on purpose:

- Capture existing knowledge
- Identify long and short term goals
- Recognize the various needs of the group (industry, agency, research)
- Facilitate applied research to address threats (renewable energy, recreational disturbance, etc.)
- Need to do applied research, basic biology needs to be applied research.
- Further understanding of basic golden eagle biology/ecology (abundance, distribution, demographics, trend, where are they, prey dynamics etc.)
- Define baseline ecological context of eagle biology (by ecoregion)

- Conduct review to capture state of knowledge on eagles (include published and unpublished) [see Taber Alison AWWI effort here]
- Measure management action impacts to eagles
- Contribute to the standards for monitoring Project to meet permit requirements.
- Identify movement dynamics
- Make recommendations to and support the larger GEWG
- Utilize and assess monitoring programs that are in place now

Long-term goals

- Need for applied research that supports decision making for a wide variety of human impacts
- Contribute to standards for monitoring to meet permit standards
- Further our understanding of golden eagle biology (demography, abundance, population trends)
- Management action impacts
- Make recommendations to CA/NV Golden Eagle Working Group
- Develop models and tools
- Evaluate and monitor prey base
- Symposium every 3 years

Short-term goals

- Understanding basic distribution and abundance in CA/NV
- Define Ecoregions; baseline ecological context; prey-base, prey ecology; human impacts and threats
- Information review expanded to include grey literature and unpublished data; address transparency issues
- Identify movement patterns – resident vs. migrants
- Assess monitoring programs and tools
- Evaluate prey base in each Ecoregion

LAWDP has a working wind farm and proposed wind/solar in the works. How much research do they need to collect for that permit and for the proposed projects, how much research should they be gathering? Defining how much research is enough, what the protocols and standards are. Would there be research throughout the life of the project?

The subgroup can assess monitoring programs or tools currently available in an ecoregional context to frame the need for the monitoring tools.

The research subgroup should make recommendation to the wider working group – a science based management framework that can be incorporated in the structure beyond the group.

This group could contribute the needs and the standards for monitoring projects to meet permit requirements. Group could contribute to helping establish those protocols for an information assist to the agencies.

Laura Nagy will draft this up and send to group for review by 1 week - document showing the purpose, long term and short term goals written in English and coherent.

How often to meet? Where? Move meetings around – NorCal, SoCal, NV, ecoregions, FWS regional. Meet remotely as appropriate. Most wanted to meet twice a year (face-to-face).

Tahoe may be good option for future – USFS has facility here. Possibly Reno. Consider a progressive agenda with ecoregion focus.

Symposium concept – invited speakers to share information. Tie into the TWS meeting?
Possibly an Ecoregion focus? Coordinate these meetings with larger GEWG.

Goals of the symposium:

- Big picture of CA and NV
- Central location to encourage participation
- Attract field experts
- OPEN – to encourage attendance
- Inspire citizen science
- Abstracts. Maybe publish overview paper
- Invited speakers with poster session
- Keep simple the 1st time
- Avoid call for papers
- Possible single topic

If meeting regularly we should have central location to place resources, meeting notes, etc.

Might be useful to have a web site or a drop-box created for information sharing?

Distribution list needs to be given out.

Research Needs and Prioritization

It is important to brainstorm concepts for this group, even though this has been done in various other venues. Possibly capture ideas by categories – biology, ecology, threats, mitigation/planning, ecoregions? Group took a few minutes to write down their own ideas of priority research. Amedee passed out a summary from the condor/eagle workshop.

- Compile summary of published/unpublished work (literature review, incl. gray literature)
- Inventory of golden eagles (leading to a monitoring program)
- Population size and trajectory (perhaps by ecoregion)
- How many, where are they on landscape and rate of population increase/decrease
- Human impacts from recreation (e.g. trails)
- Causes of mortality, evaluate risk-level of each, mortality rate, impacts and contribution to population trend
- Population dynamics (survival, productivity, turn-over rate, habitat use, prey interactions, connectivity among subpopulations)
- Impacts to population – human-induced and natural effects
- Extent of solar and impact that has on eagles – don't know how that impacts eagles. Solar is the great unknown with respect to eagles.
- Baseline info on abundance and distribution over large scale areas
- Define ground squirrel areas and related to eagle foraging
- Management impacts to golden eagles
- Effective buffers. A lot of site placement is based on buffers. Needs further discussion - seasonality of distribution and habitat use, relative causes of impacts and mortality.
- Effective mitigation options
- Habitat loss
- Immigration and emigration
- Need to know what is going on with the prey population – prey populations being adversely affected.
- Population mixing – resident vs. migratory, how this varies among Ecoregions.
- Homerange/movement dynamics – how it varies by Ecoregion, resident vs. migrants
- Define term “lambda”

- Eagle use of the airspace in relation to habitat and topography
- Microhabitat use of terrestrial and air space (3-d) use by eagles
- What does occupancy mean for a sustainable population
- Marginal habitats filling gaps
- Climate change effects on prey-base cycles
- Defining and mapping cumulative impacts
- Reproduction rate by ecoregion
- Accurate monitoring of mortality; age-specific; migratory vs. wintering vs. resident birds
- Susceptibility of migrating vs. resident birds to wind associated mortalities, plus vehicles and aircraft
- Effects of rodenticides and lead levels (wintering vs. breeders, by age-class ,etc)
- Sources of contaminants (pesticide and herbicide, Pb)
- Wintering habitat use
- Movement patterns (incl. breeding and wintering)
- Sources of mortality
- Quantify carrying capacity for the prey base population
- Illegal activities effects of population (shootings, disturbance, feather trade, poaching)
- Standardize terminology
- Effectiveness of trapping methods. What does is the most effect method for trapping in a given area and how can we fold that into the research. Potentially expanding the toolbox of methods of trapping and looking at the effect of transmitter placement.
- Impacts to eagles from researchers (trapping, transmitter placement, surveying)
- Define and map cumulative impacts
- Effects of drought and climate change
- Habitat & occupancy modeling.
- Appropriate sample size

AWWI developed a white paper to do a summary of literature and should be publicly available soon.

Group wants to assess if predictive modeling has been done based on where existing birds - can apply this to larger areas. Modeling done on associations based on climate and is available on the web and where they were though to be in the future. Question is if there are effective models to predict eagle locations.

Adam and Grainger will take first try at consolidating list. Will have draft ready by 1 week.

More specific categories were identified:

- inventory
- monitoring
- demography (population dynamics, mortality, movement patterns)
- habitat (prey base)
- movement dynamics (corridors)
- climate change
- anthropogenic effects (disturbance, researcher effects, habitat loss, mortality, changes in pattern of activity)
- effective mitigation

Group was asked to prioritize list by rating top research needs (1 thru 5). Agencies were asked to rate in different color.

Group broke for lunch at 12:00pm.

Reconvened at 12:30pm.

Top rated priorities were:

1. How many, where are they on landscape and status of the population (score = 38)
2. Population trends by Ecoregion(score = 32)
3. Reproduction by Ecoregion, incl. disturbance and adult turn-over (score = 29)
4. Evaluation of relative importance of various mortality agents (score = 27)
5. Biology by Ecoregion (score = 25)
6. Inventory of breeding and nonbreeding eagles (score = 22)
7. Survivorship, turn-over rate of nests, habitat use (score = 15)

Past, Present and Future Work in CA/NV

Need to capture what has been done – published, unpublished, gray lit, reports, databases, historical museum records/samples, etc. Either in form of list or document. Also would be nice to represent what's been done geospatially. Need to list databases and create repository.

Grainger and Patti to draft up a synthesis of data/reports/literature/etc:

- Publish literature
- Grey literature
- Data sources
- People who hold data
- Agency files

Idea of specific eagle symposium to deal with research past and present in CA and NV. Possible coordinate in concert with TWS. Purpose of symposium: get the ones who've been out doing the research in the same room to download info, as well as other who have an interest in learning the species (agency biologists, industry reps), have it in a central location, multi-intrest participation, focus on learning, show where gaps are. Multi-day symposium - invited speakers, poster session, abstract submission. Keep it simple the first go around – how many and where.

Short-term: symposium with abstract

Long-term: working towards a peer-review publications

An overview paper on California would benefit the agencies. Something peer reviewed and published gives what we know and what we don't know.

Symposium team – Jeff Smith, Patti Kruger, Carie Battistone, Heather Beeler

Leadership of taking research subgroup forward – implementing the objectives. Steering committee was formed to help implement the things that are going on. Representation on Steering Committee should be agency, academic, research, industry, and NGO.

Steering Committee - Carie, Jeep, Heather, Adam, Carl, Jeff

Field Methods and Survey Protocols

Driscoll protocol Carie sent out was more expansive with more emphasis on ground, also goes into monitoring prey population. Jeep working with Brian and trying to get something published. We have a lot of guidance of how to study golden eagle nesting territories. What does our sampling regime need to look like across broad regions? USGS is trying look at the question – Mark Fuller and others. Need to look at areas where eagles are not, or marginal habitat. Need to figure out if having observers who are of moderate abilities vs. people who are experts. Need to address use helicopters more thoroughly.

USFWS has been trying to compare BBS and West data to see if they can look at interpretation in trends. Would be nice if this group can weigh in here. Mark Fuller is working on this.

Because USFWS needs to assess long term trends at the BCR scale, study is looking at different data sets to address long term trends. Trying to figure out if can correlate datasets in areas without WEST data. Need to go back to standard statistics of how many numbers of territories - standardize monitoring and then stick with those territories for period of 15-20 years. Group should address sampling when we get together next - review the approaches, address duplication, discuss helicopter vs. ground, share other ideas, and discuss sample size. Thinking long-term to develop monitoring plan.

Frank Issac is good person to deal with monitoring. He's been able to get state, federal, and wind via acitizen science endeavor. Using historic information he developed territory map for Oregon. Frank is good at getting people sending him information. Invite him to the next meeting.

Topic needs further discussion - push to Steering Committee. Address at next meeting or at symposium.

Collaboration and Funding Opportunities

Carie gave update on online coordination tool. Purpose is to avoid duplication and put people in contact with each other. Tool would include:

- Location
- Purpose
- Time frame
- Activities
- Contact
- Comment field

Government websites have limits based on how can post. Might need to have main contact information. Meant to highlight who is working in the area. Some discussion on if this would be useful and if it would be used – little over half the group thought it would be useful.

Is there a mechanism to ensure collaboration for these eagle issues? Contract vs. cost share. NGO/University.

How do we connect research with the funding? One thing is having the group ask what are the questions that need answered.

We might want to have a couple of proposals that are set to go.

Avian Heath and Disease Surveillance and Monitoring Support – FWS has some funds here and will be open soon. Amedee passed out info.

Follow-ups

Action Items:

- Laura Nagy will draft revised purpose statement using comments received and send out to everyone for input.
- Adam Duerr and Grainger Hunt will consolidate research need list and send out to everyone for input.
- Symposium team (Jeff Smith, Patti Kruger, Carie Battistone, Heather Beeler) to meet via phone to discuss details when, where, funding, etc.
- Steering Committee (Carie Battistone, Jeep Pagel, Jeff Smith, Heather Beeler, Adam Duerr, Carl Thelander) to meet to discuss: when next meeting will take place, subjects

for agenda (research priorities, monitoring plan, symposium, etc), annual schedule, ground rules, and roles.

- Patti and Grainger to synthesize literature
- Carie Battistone to send out notes.