SLIDES: Energy by Design: Possible BMP for Mitigation Planning

Dave Gann

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Energy by Design:
Possible BMP for Mitigation Planning

Dave or Megan - TBD – October 14, 2009
Objective: no net loss for priority species and vegetation
Dramatically improve mitigation; reduce negative impacts and deliver no net loss or in some cases a net gain for nature

Follow “mitigation hierarchy”
Avoid, minimize, restore and then offset

Better “early warning” and planning
Reduce development-conservation conflicts

More effective use of offsets
Conservation actions that compensate for residual, unavoidable harm to natural resource values
Degree of impact mitigation using avoid $\rightarrow$ minimize $\rightarrow$ restore $\rightarrow$ offset

“Early warning” & planning: development projects and conservation priorities

Biodiversity breakeven point (Zero impact; No net loss)

Anticipated Impact (net loss)

Avoided impacts

Residual Impacts (net loss)

Avoidance only

Avoidance + Min/restore

Residual Impacts (net loss)

Minimize/Restore

Avoided impacts

No net loss

Net gain

Selection of offset portfolio & accounting for no net loss

Adapted from Kiesecker et al. 2009


## Sample projects

<table>
<thead>
<tr>
<th>Location</th>
<th>Mitigation Emphasis</th>
<th>Industry partner</th>
<th>Potential Application</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO - Hiawatha Field</td>
<td>On- and offsite</td>
<td>Questar</td>
<td>Hiawatha EIS</td>
<td>In progress</td>
</tr>
<tr>
<td>CO - Southwest</td>
<td>Offsite</td>
<td>BP</td>
<td>Wildlife Mitigation Plan</td>
<td>In progress</td>
</tr>
<tr>
<td>WY - Jonah Field</td>
<td>Offsite</td>
<td>BP</td>
<td>Expenditure of mitigation $</td>
<td>Complete</td>
</tr>
<tr>
<td>WY - Continental Divide – Crestone Field</td>
<td>On- and offsite</td>
<td>BP</td>
<td>EIS</td>
<td>In progress</td>
</tr>
<tr>
<td>UT – Uinta Basin</td>
<td>On- and offsite</td>
<td>Questar</td>
<td>?</td>
<td>Planned</td>
</tr>
</tbody>
</table>
Sample targets

- Greater sage-grouse
- Ferruginous hawk
- Wyoming pocket gopher
- Elk seasonal habitats
- Many others
Assemble a Team of Experts

ID Target Species & Systems
- Michael A. Smith (U of Wyoming)
- Rhen Etzmiller (BLM)
- Debbie Johnson (BLM)
- David Simons (BLM)
- Mary Read (BLM)
- Eldon Allison (BLM)
- Andy Warren (BLM)

ID Spatial Extent of Project
- Cheryl Newberry (BLM)
- Tim Woolley (WY G&F)
- Greg Hiatt (WY G&F)
- Scott Smith (WY G&F)
- Joseph Kiesecker (TNC)
- Holly Copeland (TNC)
- Amy Pocewicz (TNC)

Gather Spatial Data for Targets
- Steve Moore (Consultant)
- Douglas A. Keinath (WYNDY)
- Jason Sutter (Hayden-Wing)

Examine Development Scenario
- Don Schramm (Rock Springs Grazing Board)

Determine Impacts & Goals
- Dick Loper (Consultant)

ID “On-site” Sensitive Features

ID Offset Portfolio

Determine Offset Valuation

Approach

Validate Model Results
Assemble a Team of Experts

ID Target Species & Systems

ID Spatial Extent of Project

Gather Spatial Data for Targets

Examine Development Scenario

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Validate Model Results

Target Name
- Basin Grassland
- Black-footed ferret habitat
- Burrowing Owl
- Ferruginous hawk
- Greasewood Fans and Flats
- Great Basin spadefoot habitat
- Juniper Woodland
- Mixed Desert Shrub
- Mountain Big Sagebrush-Mixed Mountain Shrub
- Mountain Plover Habitat
- Mule deer crucial winter
- Mule deer migration corridor
- Nelson’s milkvetch
- Nelson’s milkvetch habitat
- Northern leopard frog
- Northern leopard frog habitat
- Penstemon gibbensii (Gibben’s penstemon)
- Playa
- Pronghorn crucial winter
- Pronghorn migration corridor
- Pygmy Rabbit
- Pygmy rabbit habitat
- Riparian-Wet Meadow
- Rorippa calycina (Persistent Sepal Yellowcress)
- Sage-grouse breeding areas
- Sage-grouse severe winter locations
- Sage-grouse severe winter habitat
- Saltbush Fans and Flats
- Vegetated Sand Dunes
- Wyoming Big Sagebrush-Basin Big Sagebrush
- Wyoming pocket gopher locations
- Wyoming pocket gopher habitat
Assemble a Team of Experts

ID Target Species & Systems

**ID Spatial Extent of Project**

Gather Spatial Data for Targets

Examine Development Scenario

Determine Impacts & Goals

ID “On-site” Sensitive Features

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Determine Offset Valuation Approach

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Validate Model Results

Development: 40 acre spacing

Potential Impacts: 22,867 acres of Pygmy Rabbit habitat
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**ID Offset Portfolio**
Determine Offset Valuation Approach
Validate Model Results
### Offset Accounting Framework

<table>
<thead>
<tr>
<th>Hectares of impact = Goal</th>
<th>2000 ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offset portfolio</td>
<td>Site A</td>
</tr>
<tr>
<td>Hectares of suitable habitat</td>
<td>3000 ha</td>
</tr>
<tr>
<td>Conservation action</td>
<td>Protection</td>
</tr>
<tr>
<td>Expected background rate of loss (res dev)</td>
<td>10%/yr</td>
</tr>
<tr>
<td>Probability of success</td>
<td>90%</td>
</tr>
<tr>
<td>Timing (yrs to conservation maturity)</td>
<td>0 yrs</td>
</tr>
<tr>
<td>Actual offset hectares</td>
<td>1659 ha</td>
</tr>
<tr>
<td>% of goal</td>
<td>83%</td>
</tr>
<tr>
<td>Offset to impact ratio</td>
<td>1.8 to 1</td>
</tr>
<tr>
<td>Cost per hectare</td>
<td>$1,500/ha</td>
</tr>
<tr>
<td>Total cost for offset</td>
<td>$4.5 million</td>
</tr>
<tr>
<td>Cost per offset hectare delivered</td>
<td>$2,700/ha</td>
</tr>
</tbody>
</table>
Summary

EBD: Goal-based, science-based, systematic, transparent, multi-stakeholder

Potential application to industry planning, EISs, Wildlife Mitigation Plans, Comprehensive Drilling Plans, etc.

Best practice for mitigation planning? TBD