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 → minimize → restore → offset

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

Anticipated Impact (net loss)

Avoided impacts

Residual Impacts (net loss)

Avoidance only

Avoidance + Min/restore

Avoidance + Min/restore + Offset

Selection of offset portfolio & accounting for no net loss

Net gain

No net loss

Biodiversity breakeven point (Zero impact; No net loss)


<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

ID Spatial Extent of Project

Gather Spatial Data for Targets

Examine Development Scenario

Determine Impacts & Goals

ID “On-site” Sensitive Features

ID Offset Portfolio

Determine Offset Valuation

Approach

Validate Model Results

Name

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Dick Loper
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Organization

U of Wyoming
BLM
BLM
BLM
BLM
BLM
BLM
BLM
BI
WY G&F
WY G&F
WY G&F
TNC
TNC
TNC
Consultant
WYNDD
Hayden-Wing
Consultant
Rock Springs Grazing Board
Assemble a Team of Experts

**ID Target Species & Systems**
- 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

**ID Spatial Extent of Project**

**Gather Spatial Data for Targets**

**Examine Development Scenario**

**Determine Impacts & Goals**

**ID “On-site” Sensitive Features**

**ID Offset Portfolio**

**Determine Offset Valuation**

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Development: 40 acre spacing

Potential Impacts: 22,867 acres of Pygmy Rabbit habitat
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## Offset Accounting Framework

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