Landscape-Scale Management Planning: Disturbance Response Groups & Ecological Sites

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Scale Issues & Ecosites

- **MLRA 25**
  - 9.6+ million ac
  - 69 eco sites

- **MLRA 28B & 28A**
  - 18.7+ million ac
  - 160+ eco sites

- **MLRA 24**
  - 7.6+ million ac
  - 54 eco sites

- **MLRA 23**
  - 3.6+ million ac
<table>
<thead>
<tr>
<th>MLRA</th>
<th>Acres Burned 2011</th>
<th>Acres Burned 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>724</td>
<td>793,333</td>
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<tr>
<td>24</td>
<td>112,809</td>
<td>80,383</td>
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<tr>
<td>25</td>
<td>39,352</td>
<td>145,331</td>
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<tr>
<td>28B</td>
<td>2,290</td>
<td>107,909</td>
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</tbody>
</table>
Greater Sage Grouse Habitat
Planning Challenges
Core Habitat
> 1 million acres
2 MLRA’s
2 States; multiple BLM Offices
Budgets
Developing Disturbance Response Groups
Disturbance Response Groups

Key Concepts

• Group of ES’s that respond similarly to……..
  – Rate of response may vary
  – End point is same

• *STM is essentially the same*

• ‘Ecological Dynamics’ describes minor differences
State-and-Transition MODEL

Ecological Process Based Model

MINIMUM SCALE FOR STATE = ECOLOGICAL SITE
STM Development Process
Disturbance Response Groups

- Assemble the core TEAM

- Invite others to participate in office / field events

- Teach the STM concepts to the core TEAM
  - Multiple times; office & field
Experience

Range Ecologist / STM

Range / Plant  GIS  Soils  Range / Plant
What is “process-based” thinking?

• Understanding that what we see is created by the functional capacity of ecological processes

• STM describe ecological dynamics
What is “process-based thinking?"

- What is driving the creation and maintenance of what I see?
- Process = amount per time (rate)
  - Infiltration rate
  - Nutrient cycling
  - Energy capture
  - Soil erosion
  - Etc.
Ecological Dynamics
Response to Disturbance

• Response to disturbances
  – Specie specific?
    • Know individual plant response
  – Dynamic soil properties
    • Vary by soil texture?

• Resilience
  – Climate
  – Soils
  – Plants
STM Development Process
Disturbance Response Groups

• MLRA or LRU scale
  – Build understanding of the climate, soils, plants
    • Soil scientist teach geology, soils, etc
    • GIS specialist create data layers of soil map units; fire events; roads; public / private land; etc.
STM Development Process

• Range sites
  – Describe Reference Condition = State 1
  – Describes landscape, climate, soils, plants, production
  – Describes response to disturbance

• Team analyzes each site & determines how it responds to disturbance

• Group sites
STM Development Process
Disturbance Response Groups

• Grouping process leads to building blocks for STM
  – Discussion involves
    • Soils and soil differences within groups
      – resilience
    • Plant species response to numerous disturbances
    • Response to repeated disturbance

• Modal site
  – greatest amount of acres mapped or
  – typical disturbance response of the group
Scale Issues & Ecosites

- **MLRA 25**
  - 69 eco sites
  - 12 DRG’s
  - 115 field notes

- **MLRA 28B & 28A**
  - 160+ eco sites
  - 32 DRG’s
  - 310 field notes

- **MLRA 24**
  - 54 eco sites
  - 11 DRG’s
  - 74 field notes

- **MLRA 23**
  - 85 eco sites
  - 24 DRG’s
  - 78 field notes to-date
MLRA 24 NV
Disturbance Response Groups

Group 1 ≈ 1.9 M ac
Wyoming Sage Loamy 8-10 Modal
≈ 1.0 M ac

Group 2 ≈ 1.6 M ac
Salt Desert Shrub Loamy 5-8 Modal
≈ 1.5 M ac
Sagebrush Cover Change

Squaw Valley 2003 Vegetation

Squaw Valley 2012 Vegetation

Legend
- Sage-grouse Lek

Vegetation
- aspen
- cheatgrass
- perennial grass
- rock outcrop
- short sagebrush
- tall sagebrush
- wet meadow
80% of ranch has burned 1 time; 30% 2 times; 9% 3 times

Squaw Valley Burn History
1990-2012
Cost of Rehabilitation

Seeding = $1 million
1. What phase before fire?
2. Management after fire?
2.2a = with time Sagebrush will Re-establish
Conclusion

• DRG’s Landscape Scale / ES scale model
• Incorporate Expert Knowledge & Data
• STM robust tool for decision making
Management Applications

- Wildlife habitat
- Monitoring – BLM AIM strategy
- Grazing Management
- Emergency Stabilization / Monitoring
- Drought Decisions
Timeline

• MLRA 24 Models: Complete
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• MLRA 25 Models: June 30, 2015
• MLRA 28A and 28B: Complete
• MLRA 23NV: underway
• MLRA 26: underway
• MLRA 23 Oregon: Complete
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