Rapid Ecoregional Assessments: Opportunities for Development, Restoration, and Conservation

Climate Change Vulnerability Assessment Training
June 29, 2015 - Janine Book, BLM

Landscape Approach (why?)

- Components of BLM’s Landscape Approach:
  - Rapid Ecoregional Assessments
  - Monitoring
  - Data/Science Integration
  - Field Implementation
  - Ecoregional Direction

What is an REA?

An REA is a rapid assessment of an ecoregion’s conservation elements, the change agents that impact them, and their current and future status.
What is an REA?

- REAs geospatially describe the location of "conservation elements" potentially vulnerable to "change agents" in the future:
  - Vegetation communities vulnerable to change agents
  - Aquatic and terrestrial species and high biodiversity sites vulnerable to change agents
  - Distribution of dominant native plant and invasive species change as a result changes in temperature and precipitation

- REAs highlight and map areas of high ecological value, and gauge potential risks to those areas from climate change, wildfires, invasive species, energy development, and urban growth.
- REAs are limited to currently available information and existing data – no new research, inventory, or monitoring – hence "rapid" (when?)
- REAs are targeted toward addressing specific management questions

What REAs Do and Don’t Do

- REAs do not allocate resource uses or make management decisions.
- REAs provide science based information and tools for land managers and stakeholders to consider in subsequent resource planning and decision-making processes.
REA Breakdown (what?)

- Conservation Elements
  - Representative ecological systems
  - Vulnerable species assemblages
  - Vulnerable landscape species habitats
- Change agents
  - Wildland fire effects
  - Development effects
  - Invasive species effects
  - Climate change effects
- Management Questions
  - Assess current ecological integrity
  - Change effects near-term (5 to 20 years)
  - Climate change effects near-term and long-term (possibly 15 and 50 years)

Conservation Elements

- In other Words:
  - Native Fish, Wildlife, or Plants of Regional Concern
  - Regionally-Important Terrestrial Ecological Features, Functions, or Services
  - Regionally-Important Aquatic Ecological Features, Functions, or Services

Change Agents

- Will identify:
  - Areas that have been changed by wildfire or with potential to change from fire
  - Areas that are developed, areas with planned development and areas with development potential.
  - Areas where invasives are or could be present and areas susceptible to invasion
  - Areas that are most susceptible to seasonal changes in temperature or precipitation as a result of changes in climate
Management Questions

- Core Management Questions
  - Where are the CEs?
  - Where are the CAs?
  - Where do the CAs intersect with the CEs?
  - How do the CAs affect the spatial distribution of CEs?

- Integrated MQ Themes
  - Where are the priority areas?
  - Where are the potential areas for conservation?
  - Where are the potential areas for restoration/management?
  - Where do the CAs pose the greatest threats?

Choose your boundary wisely (where?)

- The EPA maintains a system of Level III Ecoregions as derived by Omernik (1987).
- These Ecoregions are areas with generally similar ecosystems and with similar types, qualities, and quantities of environmental resources.
- The Ecoregion boundaries were determined by examining patterns of vegetation, animal life, geology, soils, water quality, climate, and human land use, as well as other living and non-living ecosystem components.
REAs Currently Underway

SGP REA Study Area

- The target Level III ecoregions for the SGP REA are the Central Great Plains, High Plains, and Southwestern Tablelands.
- LPC management will benefit, as will management of other sensitive species
- Opportunity to partner with States, share data and resources. Money is available to fund state participation.
Land Ownership (who?)

Teams

- Assessment Management Team (AMT)
  - Composed of government managers - provides overall direction
- Technical Teams
  - Composed of technical specialists within the ecoregion
- Partners/Stakeholders:
  - LCCs
  - State & Federal Agencies
  - Others

WE CANNOT DO IT ALONE. PARTNERSHIPS ARE CRITICAL
**Process (how?)**

- Identify Assessment Management Team, Technical Teams, Stakeholders, and Partners
- Identify Conservation Elements, Change Agents, and Management Questions
- Identify, Evaluate and Recommend Potential Datasets
- Identify, Evaluate and Recommend Models, Methods and Tools
- Conduct Analysis and Generate Findings
- Prepare REA Document

**AMT Membership**

- Chuck Schmidt
  - BLM
- Tom Heinlein
  - BLM
- Billy Tarrant
  - TX Parks & Wildlife
- Matt Wunder
  - NM Game & Fish
- Richard Hatcher
  - ODWC
- Steve Tryon
  - BLM
- Keith Sexson
  - KS-DWP
- Jon Ungerer
  - NRCS

**Stakeholders**

- Interested parties where the REA will provide information/utility
  - Native American Tribes
  - State and Federal Agencies Beyond Partners
  - NGO State and Regional Offices
  - LCC Members
  - Conservation Districts
  - Cooperative Extensions and Universities
  - Interested Citizens
Rapid Ecoregional Assessment

Technical Team / Partners

Conservation Elements

- Technical Team Meetings and email solicitation
  - Communities list was approved at first AMT and went through very few changes, mostly debate on naming convention.
  - Species - Started with GPLCC list
  - Each Partner Rep on the Tech Team rated these and added their own.
  - List grew to ~82 species
  - Tech Team members assigned a score to these ~82 species

Conservation Elements

- Once complete we looked at results and allowed for another round of additional suggestions based on comments made during meetings.
  - List grew to ~132 species
  - We then rescored.
  - Dropped everything with a score less than 7.
  - Decided to add necessary assemblages to account for numerous like organisms on list that were highly rated.
  - All together reduced to 6 Communities and 13 Species or Assemblages.
Conservation Elements

Rapid Ecoregional Assessment

Comparison of REA and LCD

Species GP

Terrestrial
• Grassland
• Savanna
and sand

Burrowing Owl
Black-tailed prairie dog
American bison
American burying beetle
Black-footed ferret
Mountain Plover
Ferruginous Hawk
Long-billed Curlew
Red Assemblage

Comparison of REA and LCD

LCC SGP REA Species GPLCC SGP REA

X Short Grass Prairie,
• shrub lands
• dunes
X Mixed Grass Prairie

Aquatic
X Playas
X Saline Lakes
X Non-playa wetlands
X Prairie rivers, streams, and riparian corridors
X Playas & Saline Lakes
X Lakes & Reservoirs
X Prairie rivers & streams
X Riparian & Wetlands

Northern Pintail
X Sandhill Crane
X Least Sandpiper
X Western Sandpiper
X Long-billed Dowitchers
X Snowy Plover
X Wilson’s Phalarope
X Arkansas River shiner
X Piping Plover
X Interior Least Tern
X Whooping Crane
X Bell’s Vireo
X Arkansas darter
X Topeka shiner
Paddlefish
X Freshwater Mussel Assemblage

Comparison of REA and LCD

LCC Landscape Design Pilot

• Current
  • Priority Habitats & Species
• Drivers
  • Tillage
  • ODML Development
  • Climate Change
  • Changes in CDP
  • Shrub Encroachment
  • Groundwater Depletion
  • Wind Development
• Future Landscape

SGP REA

• Conservation Elements
  • Communities, Species, Assemblages
• Change Agents
  • Development
  • Invasive Species
  • Climate Change
  • Fire

• Results of Management Questions
Example REA Product: Maps

Management Issues – Short-grass Prairie

- Loss of short-grass prairie due to development
- Degradation/alteration due to inappropriate grazing practices, invasive species, fire exclusion
- Drought impacts on short-grass prairie
- Climate change impacts on plant communities

Potential Management Questions

<table>
<thead>
<tr>
<th>CE Management Question</th>
<th>No added value?</th>
<th>Should we pursue?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Arkansas River Shiner</td>
<td>Reduced water flow and altered water quality; impacted by dewatering and impoundments</td>
<td>Yes, because only question that was asked about ARS</td>
</tr>
<tr>
<td>2. Black-tailed Prairie Dog</td>
<td>Where does sylvatic plague impact BTPD species?</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Black-tailed Prairie Dog</td>
<td>Loss of prairie genetic isolation</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Lesser Prairie-Chicken</td>
<td>What area exhibits ideal LPC habitat in terms of vegetation composition (nesting and brooding habitats)?</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Lesser Prairie-Chicken</td>
<td>Where does shinnery-oak control efforts overlap LPC habitat?</td>
<td>Yes</td>
</tr>
<tr>
<td>6. Lesser Prairie-Chicken</td>
<td>What areas are under management decisions to improve conditions for the continued existence of habitat and viable LPC populations? What degraded areas can be incorporated into management schemes?</td>
<td>Yes, the second part. I believe the first part is already answered by the Five State Plan</td>
</tr>
<tr>
<td>7. Mixed-grass Prairie</td>
<td>Where are shinnery oak stands being impacted by herbicides?</td>
<td>Herbicide use is a management tool mostly positive so not an issue here. I believe already asked a different way in number 5</td>
</tr>
<tr>
<td>8. Mixed-grass Prairie</td>
<td>Where are areas of occupied and suitable dunes sagebrush lizard habitat being protected by current management decisions?</td>
<td>May be possible but only if this data is provided by the partners. May be too fine of a scale</td>
</tr>
<tr>
<td>9. Mixed-grass Prairie</td>
<td>Where are currently impacted dunes sagebrush lizard habitat areas with potential for recovery located?</td>
<td>May be too fine of a scale</td>
</tr>
<tr>
<td>10. Short-grass Prairie</td>
<td>What grazing allotments can be targeted for large scale fence modifications in short-grass pronghorn antelope habitat?</td>
<td>Not a CE and too fine of a scale here</td>
</tr>
<tr>
<td>11. Short-grass Prairie</td>
<td>Where are high value CRP lands?</td>
<td>Yes</td>
</tr>
<tr>
<td>13. General CAs</td>
<td>What areas are available for energy development with limits on surface use?</td>
<td>Wrong Scale</td>
</tr>
<tr>
<td>14. General KEAs</td>
<td>Where are aquifers and their recharge basins? What is the current and projected land use in these areas?</td>
<td>Problem is aquifers not a CE</td>
</tr>
<tr>
<td>15. Integrated MQs</td>
<td>What areas have the greatest species richness, including seasonal use areas?</td>
<td>Out of scope for REA</td>
</tr>
<tr>
<td>16. Integrated MQs</td>
<td>Where are the areas identified or designated for conservation?</td>
<td>Yes</td>
</tr>
<tr>
<td>17. Integrated MQs</td>
<td>Where are areas in which groundwater extraction has the potential to change surface flow?</td>
<td>Probably too ambitious of a question</td>
</tr>
<tr>
<td>18. Integrated MQs</td>
<td>What areas represent opportunities to acquire high quality habitat, through fee acquisition or conservation easement?</td>
<td>Wrong Scale</td>
</tr>
</tbody>
</table>
Any Questions?
Contact - Janine Book, Project Manager
918-621-4183

PLAYA LAKES
• Protecting nature. Preserving life