ESDs-
HELPING US BE MORE EFFICIENT

Leticia Lister
Supervisory Rangeland Management Specialist
BLM, Las Cruces District Office
11/2010

Otero Mesa, L. Phillips, 9/2010
BLM, Las Cruces District Office
The LCDO manages:

- 5.4 million acres of public lands (surface management)
- 6 counties
- 604 grazing allotments
- 147 special status species
- 22 federally listed threatened and endangered species
- Critical habitat for 3 SSS.
Some of the uses of ESDs by the LCDO Range Staff?

• Assist in site selection for vegetation treatments.

• Assist in site selection for rangeland health assessments.

• Assist in site selection for monitoring.

Valiente Peak Allotment, C. Cusack, 8/2010
Some of the resources we use for site selections:

- Soil Surveys
- ESDs/STMs
- 1938 Vegetation Maps
- 1980’s SVIM
- Rangeland Ecological Assessment (REA)
- State Mapping
1938 Range Survey Map - Vegetation Polygons
REA vs. State Mapping

REA (Phase I)

• Very broad scale mapping (developed at 1:100,000 scale).
• Interpretation of ESD states were based on expert opinions and no field validation was completed.
• Good for looking at the “big picture.”

State Mapping (Phase II)

• Finer scale mapping using satellite imagery.
• Field validation.
• More reliable on a project specific basis.
Existing reference layers and ground (point) data overlaid on 2005 DOQQs are used in combination with technician’s knowledge of an area to delineate polygons into states and assign the appropriate ecological site and state codes.

The SWA layer is represented in blue.

The REA layer in Red.

JER plots and traverse points are in green.

Slide produced by L. Burkett, ARS.
The resulting state map is higher resolution than Soil Surveys or SWA. The data used to create the state map is more recent than SVIM data. The state mapping table can be used to calculate how much of an allotment is in each ecological site and state. The data can be directly connected to ecological site descriptions (ESDs) and state an transition models (STMS; not seral stage). ESDs and STMS are part of the NRCS toolbox (online). NRCS has created reference sheets attached to each ecological site for use during IIRH assessments. The state map geodatabase can be updated.

1 = Grassland
2 = Altered grassland
3 = Grass/Shrub mix
4 = Shrub-invaded grassland
5 = Shrub-dominated
6 = Shrubland
7 = Bare

Examples:
Loamy 147: largest area is encompassed by tobosa grassland, with banded patches of shrub-invaded grassland and bare areas

Shallow sandy 124: most of the polygon consists of black-grama grassland. Polygon contains patches of altered grassland and shrub-invaded grassland

Slide produced by L. Burkett, ARS.
Assisting with Field Validation of State Mapping while doing Scurfpea Surveys
Southwell Allotment, 8/2010
ESDs – as mapped from 1980s SVIM data.

ESDs – as mapped from ARS’s State Mapping
Seral Stages – as mapped from 1980’s SVIM data.

States – as mapped from ARS’s State Mapping.
Restoration Potential – State Mapping
So....

• The above resources provide us with a better “picture” of what is happening on the ground.

• In addition, we are able to do our homework before going to the field, thus making our field visits more focused and meaningful....more efficient.

• We have been able to go back to older treatments and answer questions about our site selection. Are we treating in the right place?
We know we can spray.

Box Canyon Allotment, L. Phillips, 7/26/2010

Mesquite Treatment (Jornada), L. Hauser, 6/2010

We know we can kill brush.

Treated/Untreated Mesquite (Jornada), L. Hauser, 6/2010
But we also need to know......

• What impacts are we having on non-target plant species?
• What impacts are we having on wildlife species?
• Are we creating an environment for other unfavorable species?
• Are there any long term impacts?
• Etc.
Flourish of tasajillo following creosote brush control project....
We can mitigate some of the concerns by project design, like buffering draws around raptor nests.
Taking out the bias from monitoring site selection

- Used an ID team of BLM resource specialists and Jornada ARS scientists to develop our Restore NM Monitoring Protocol.
- Monitoring Methods – Belt Transects and LPI
- Calibrating
- Methods are quick and repeatable
- Using paired plots
- Use of Random Points to find site locations (1:250 ac.)
- # of Plots established – 1:2000 ac. of treatment.
- Site selection is based on site representation of the dominant ESD.
Example of random points generated
Vegetation Treatments and Established Monitoring Sites
Paired monitoring plots are established where feasible. Leave out areas are built into the treatment design.
## Monitoring Results:

<table>
<thead>
<tr>
<th></th>
<th>03067 Rincon</th>
<th>03068 Upham</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1TRT</td>
<td>1CTL</td>
</tr>
<tr>
<td>Canopy Cover</td>
<td>59.8</td>
<td>26.8</td>
</tr>
<tr>
<td>Bare Ground</td>
<td>21.5</td>
<td>46.8</td>
</tr>
<tr>
<td>Basal Cover</td>
<td>2.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Total Ground Cover</td>
<td>44.5</td>
<td>39.2</td>
</tr>
<tr>
<td>Ground Cover Between Plant Canopy</td>
<td>18.8</td>
<td>26.5</td>
</tr>
<tr>
<td>Ground Cover Under Plant Canopy</td>
<td>25.8</td>
<td>12.8</td>
</tr>
<tr>
<td>Total Litter</td>
<td>37.5</td>
<td>29.5</td>
</tr>
<tr>
<td>Litter Between Plant Canopy</td>
<td>15.5</td>
<td>18.0</td>
</tr>
<tr>
<td>Litter Under Plant Canopy</td>
<td>22.0</td>
<td>11.5</td>
</tr>
<tr>
<td></td>
<td>03067 Rincon</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>1TRT</td>
<td>1CTL</td>
</tr>
<tr>
<td>Canopy Basal</td>
<td>Canopy Basal</td>
<td>Canopy Basal</td>
</tr>
<tr>
<td>LATR2</td>
<td>12.5 2.0</td>
<td>14.5 0.5</td>
</tr>
<tr>
<td>PRGL2</td>
<td></td>
<td>0.5 0.0</td>
</tr>
<tr>
<td>Other Shrubs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual</td>
<td>0.5 0.0</td>
<td>1.0 0.0</td>
</tr>
<tr>
<td>Perennial</td>
<td>2.0 0.0</td>
<td></td>
</tr>
<tr>
<td>Grasses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual</td>
<td>49.5 1.0</td>
<td>13.5 0.0</td>
</tr>
<tr>
<td>Perennial</td>
<td>5.5 0.0</td>
<td></td>
</tr>
</tbody>
</table>

Species:
- LATR2
- PRGL2
- Other Shrubs
- Forb
- Annual
- Perennial
- Grasses
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Grasses Density (plants/ha)</td>
<td></td>
</tr>
<tr>
<td>03067_1TRT</td>
<td>3150</td>
</tr>
<tr>
<td>03067_1CTL</td>
<td>300</td>
</tr>
<tr>
<td>Treatment</td>
<td>Density (plants/ha)</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>03068_1TRT</td>
<td>2400</td>
</tr>
<tr>
<td>03068_2TRT</td>
<td>11650</td>
</tr>
<tr>
<td>03068_2CTL</td>
<td>100</td>
</tr>
<tr>
<td>Treatment</td>
<td>Total Shrub Density (plants/ha)</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>03067_1TRT</td>
<td>6900</td>
</tr>
<tr>
<td>03067_1CTL</td>
<td>2950</td>
</tr>
<tr>
<td>Total Shrub Density (plants/ha)</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td>03068_1TRT</td>
<td>3150</td>
</tr>
<tr>
<td>03068_2TRT</td>
<td>2000</td>
</tr>
<tr>
<td>03068_2CTL</td>
<td>6650</td>
</tr>
</tbody>
</table>
Conclusions

• ESDs are the backbone of the range program.

• Our relationship with academia/scientists has resulted in a partnership whereby all parties have benefitted….we have a great resource, they have access to our data.

• These resources, all stemmed from ESDs, are helping us be more efficient.