ESDs-
HELPING US BE MORE EFFICIENT

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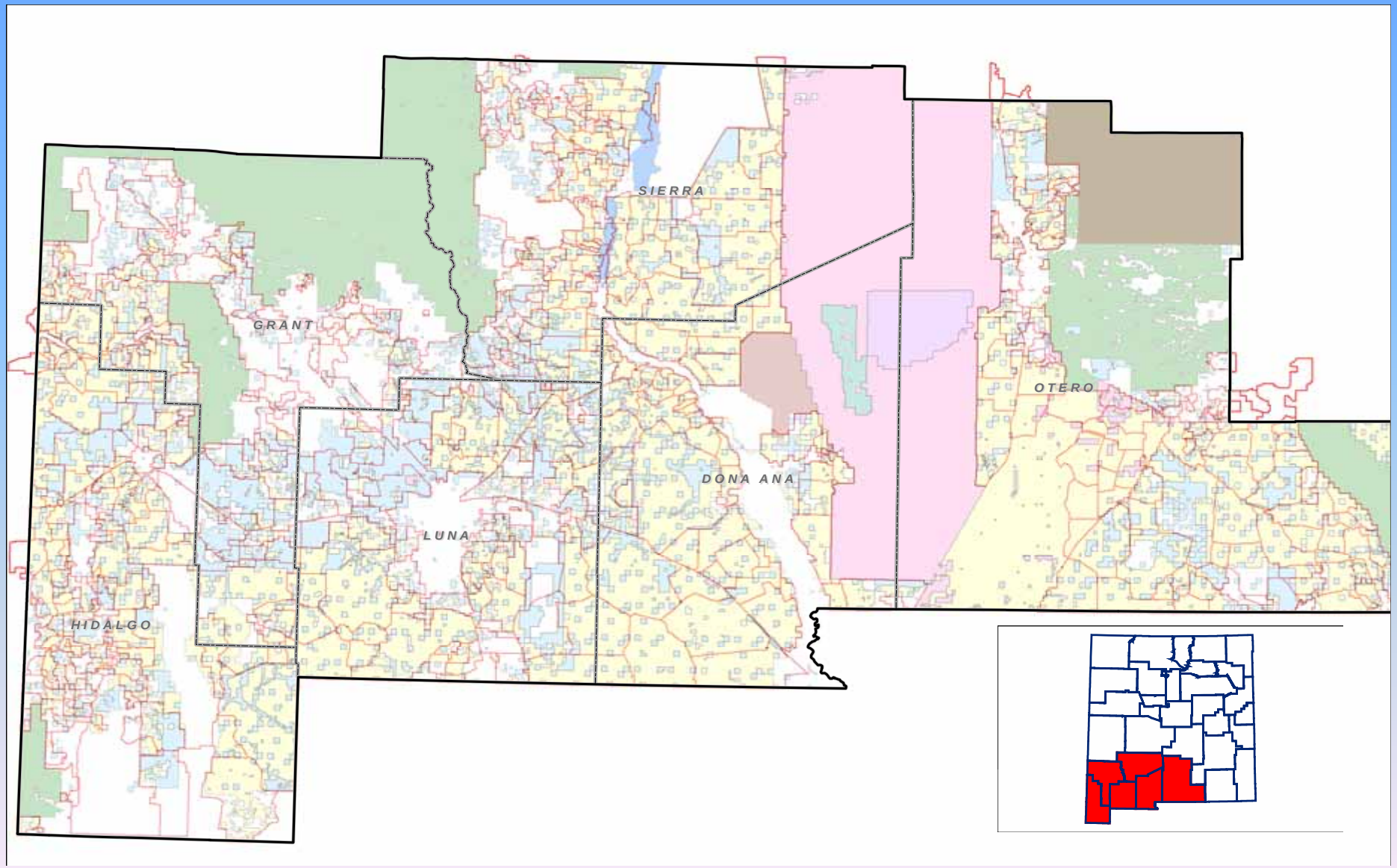
11/2010

Otero Mesa, L. Phillips, 9/2010

BLM, Las Cruces District Office



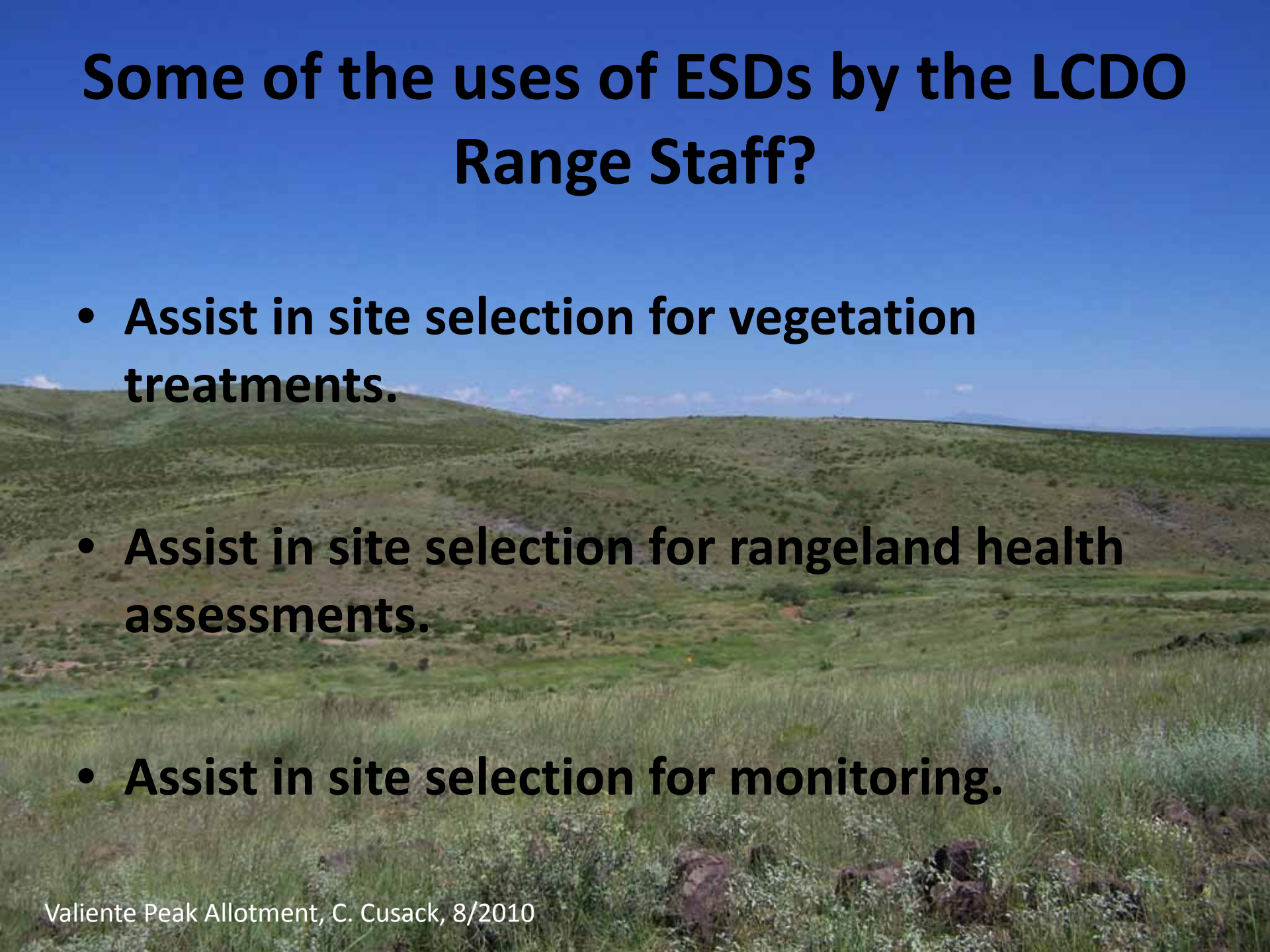
The LCDO manages:

- 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.

Hoppy Place Allotment, C. Cusack, 8/26/2010

Some of the uses of ESDs by the LCDO Range Staff?

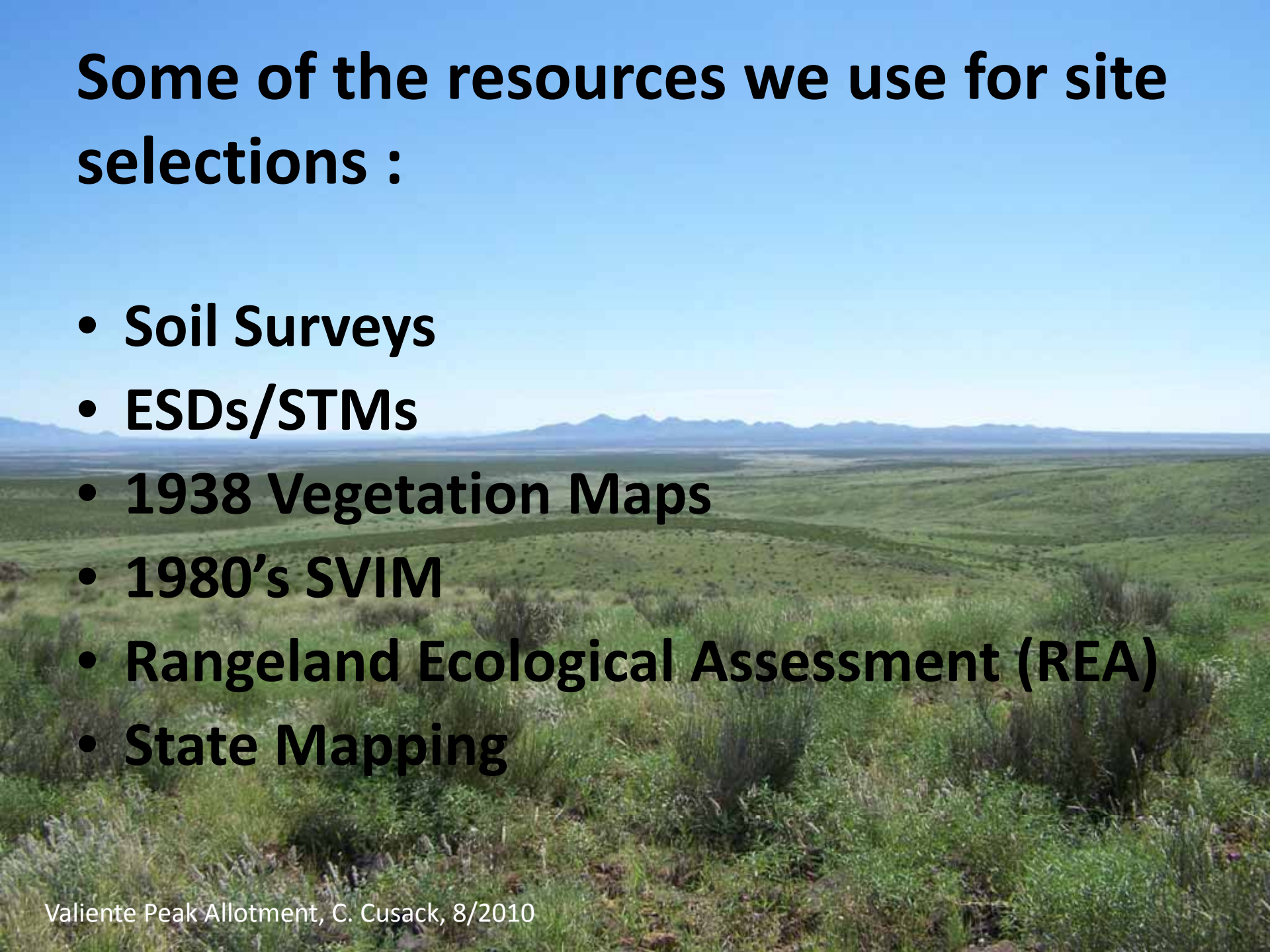
- Assist in site selection for vegetation treatments.
- Assist in site selection for rangeland health assessments.
- Assist in site selection for monitoring.



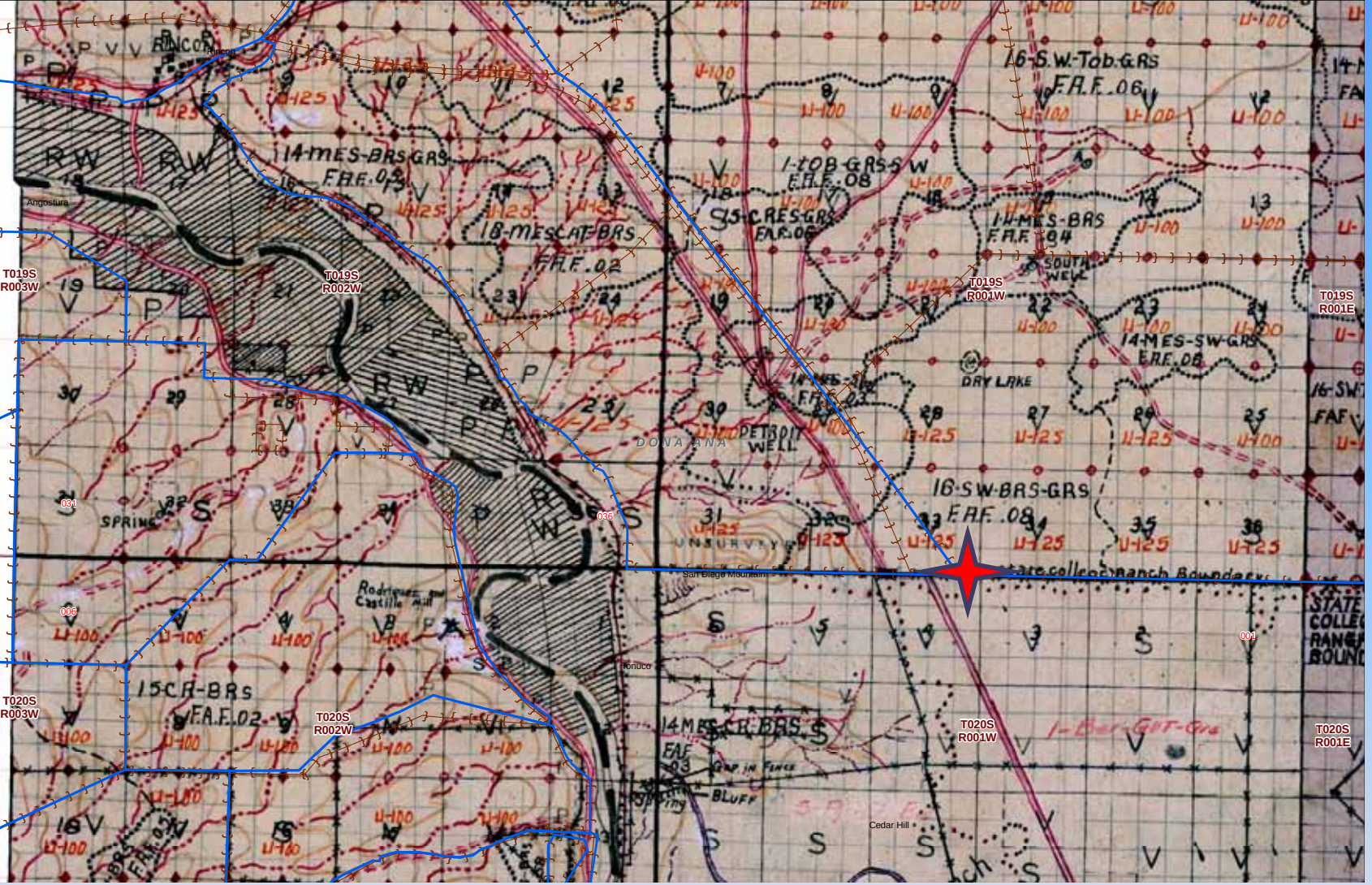
Valiente Peak Allotment, C. Cusack, 8/2010

Some of the resources we use for site selections :

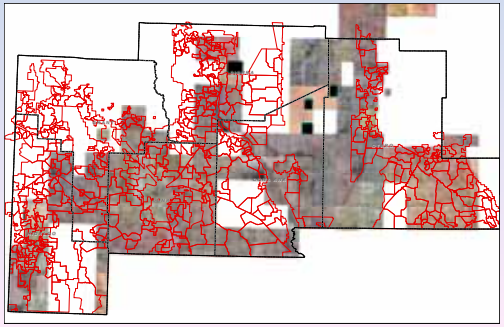
- Soil Surveys
- ESDs/STMs
- 1938 Vegetation Maps
- 1980's SVIM
- Rangeland Ecological Assessment (REA)
- State Mapping



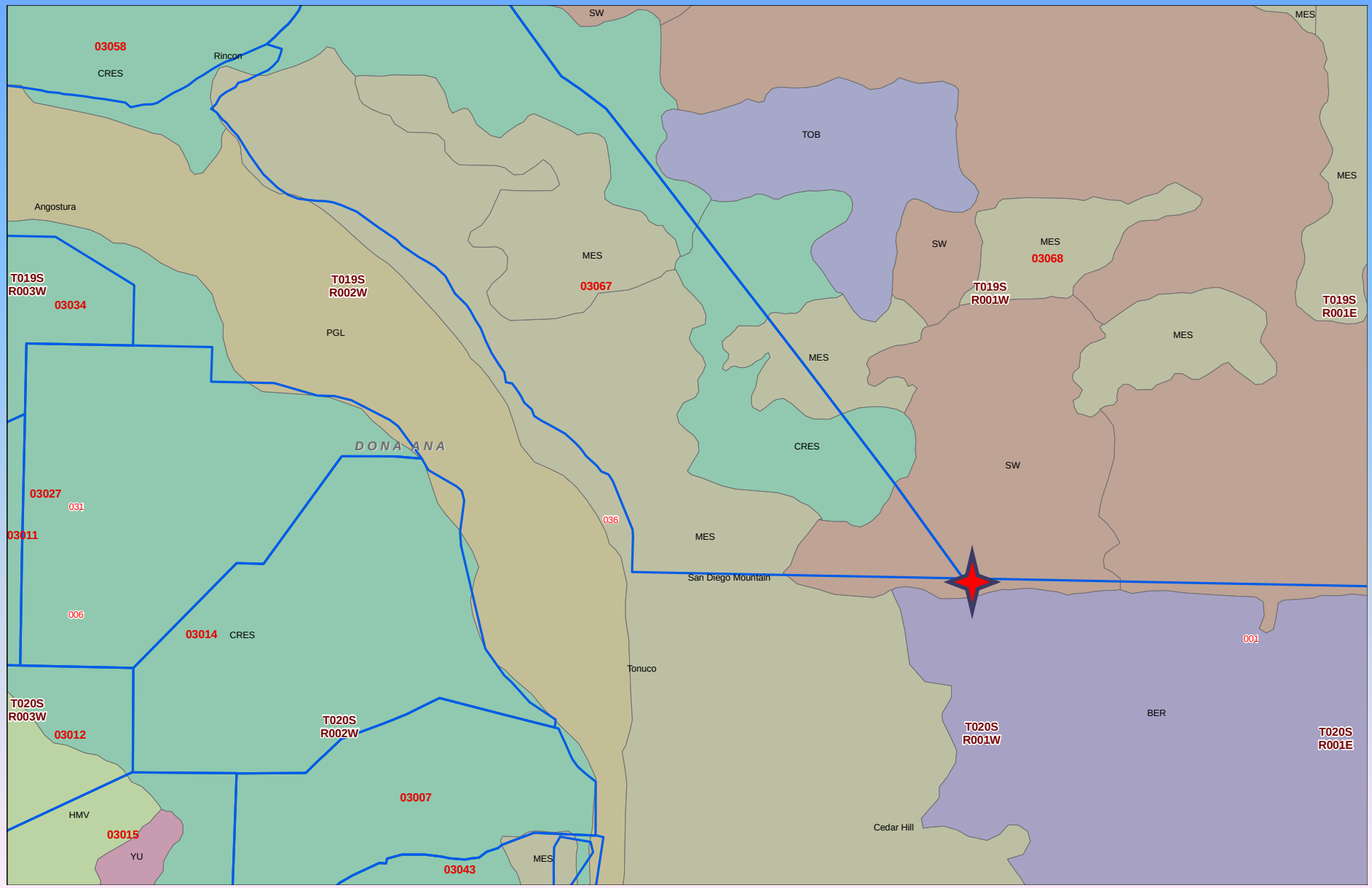
Valiente Peak Allotment, C. Cusack, 8/2010



Sample of 1938 Range Survey Maps – Scanned Images



1938 Range Survey Map - Vegetation Polygons



REA vs. State Mapping

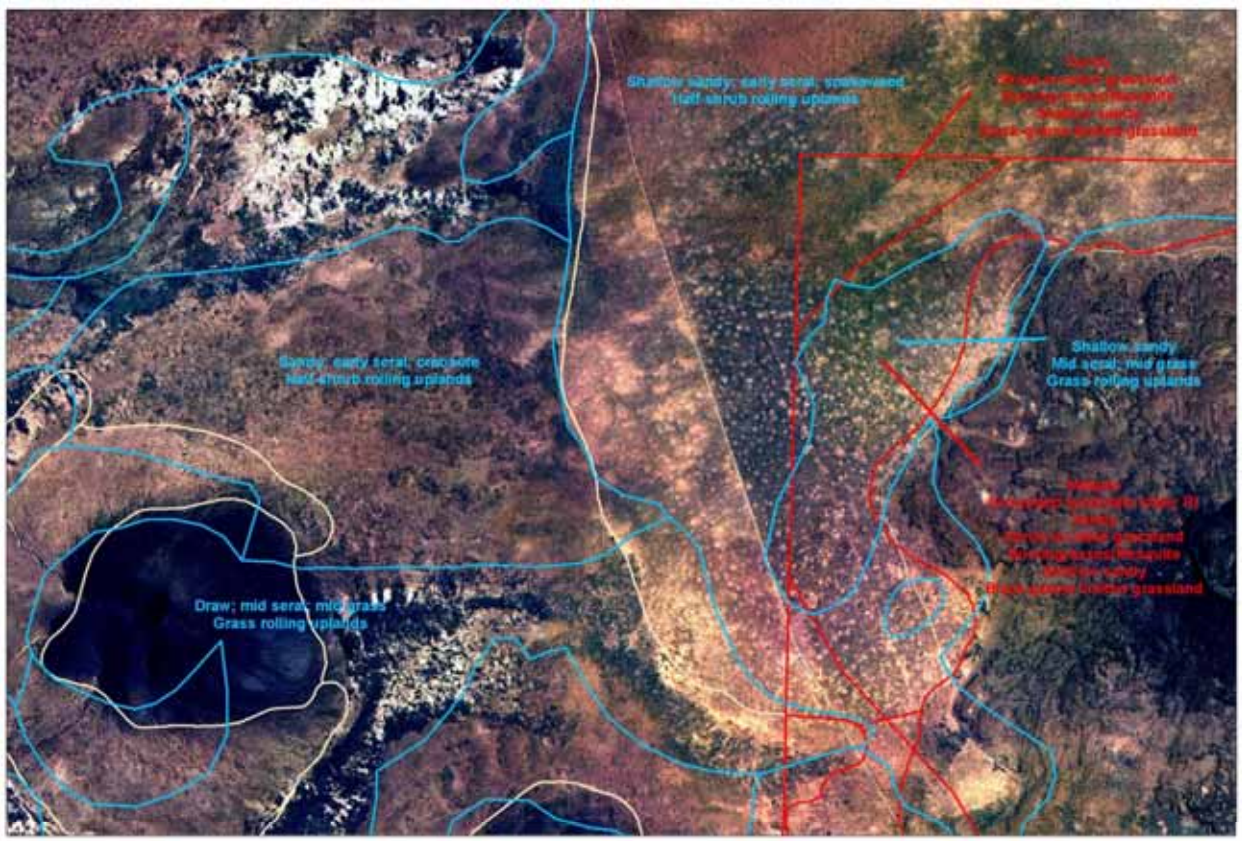
REA (Phase I)

- 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.

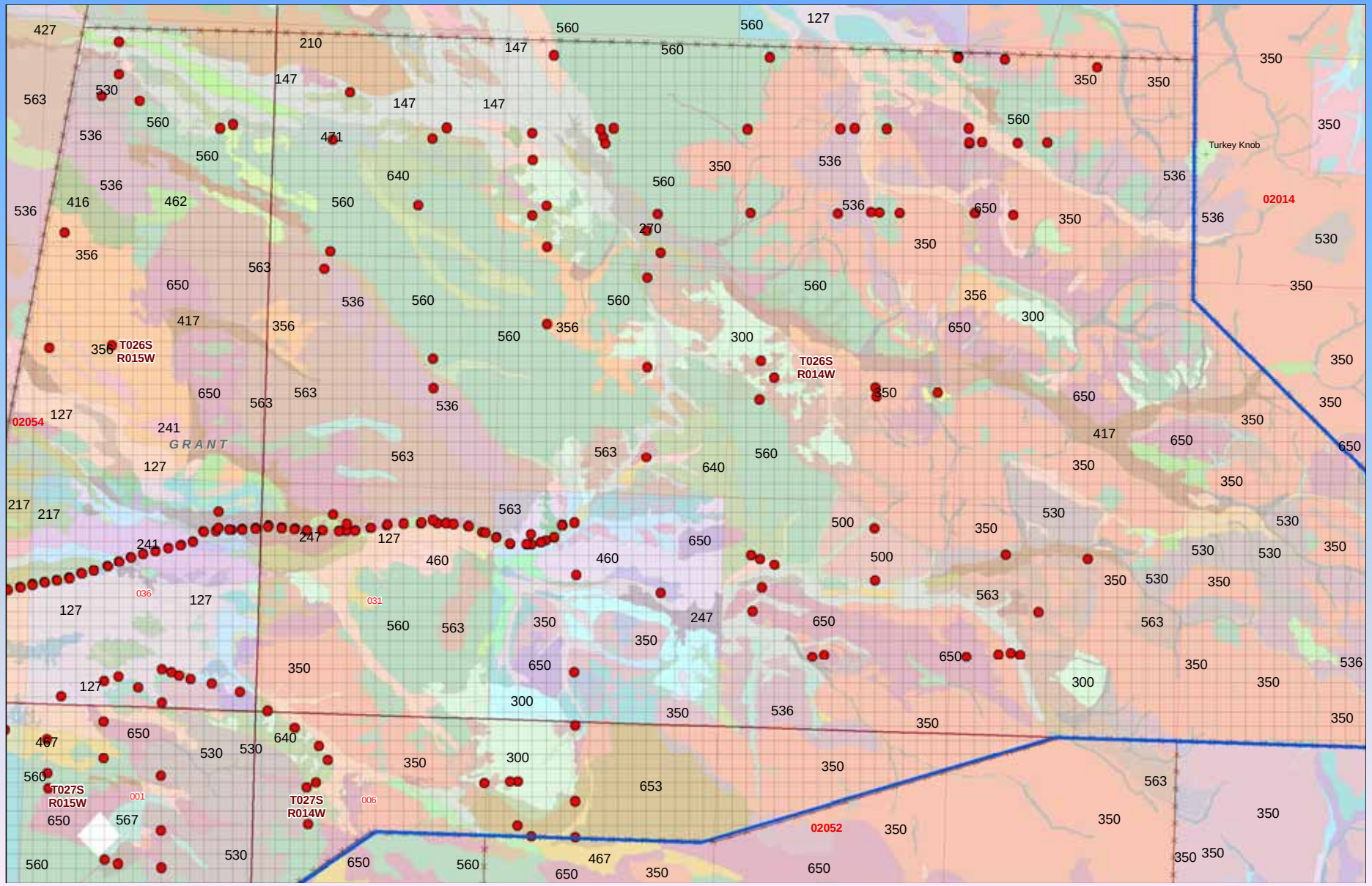
1 = Grassland
2 = Altered grassland
3 = Grass/Shrub mix
4 = Shrub-invaded grassland
5 = Shrub-dominated
6 = Shrubland
7 = Bare

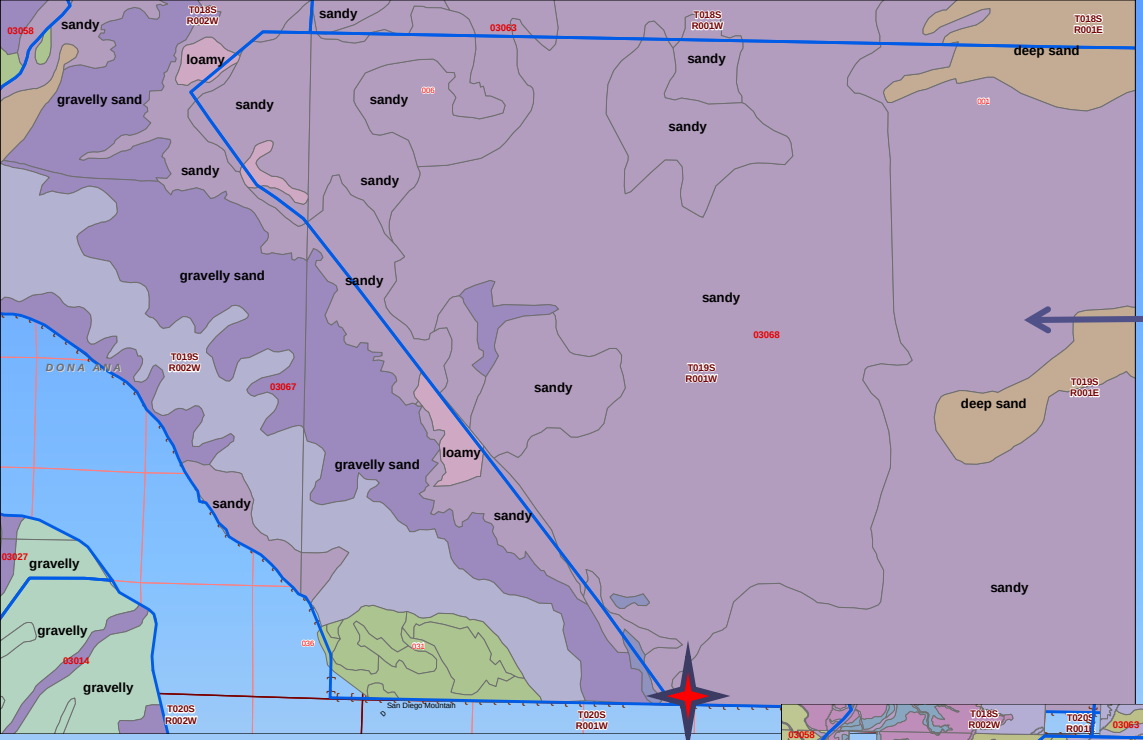
Examples:
Loamy 147: largest area is encompassed by tobosa grassland, with banded patches of shrub-invaded grassland and bare areas

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

Slide produced by L. Burkett, ARS.

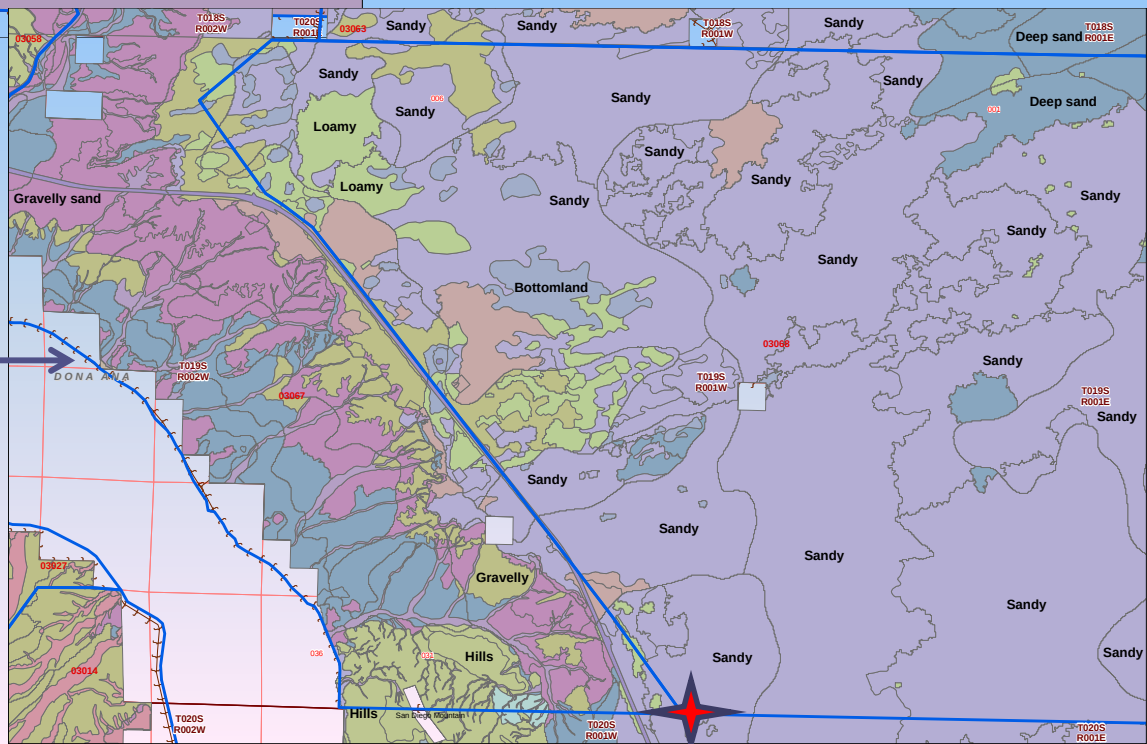
Assisting with Field Validation of State Mapping while doing Scurfpea Surveys Southwell Allotment, 8/2010

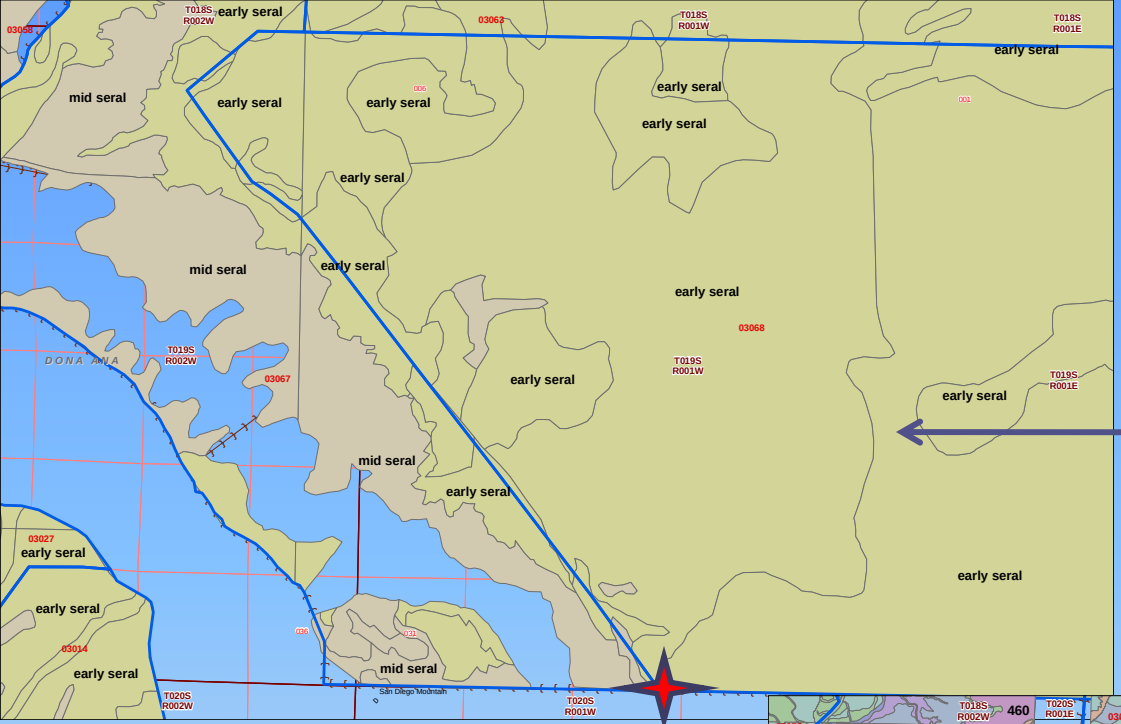




ESDs – as mapped from 1980s SVIM data.

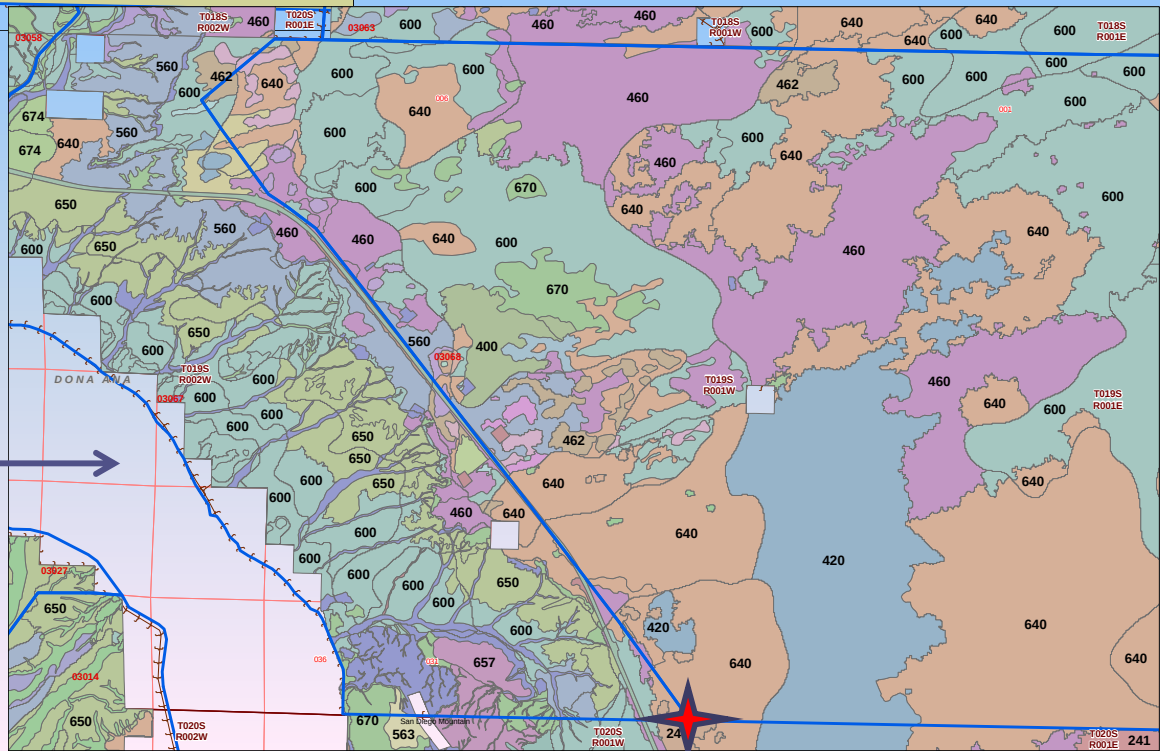
ESDs – as mapped from ARS's State Mapping



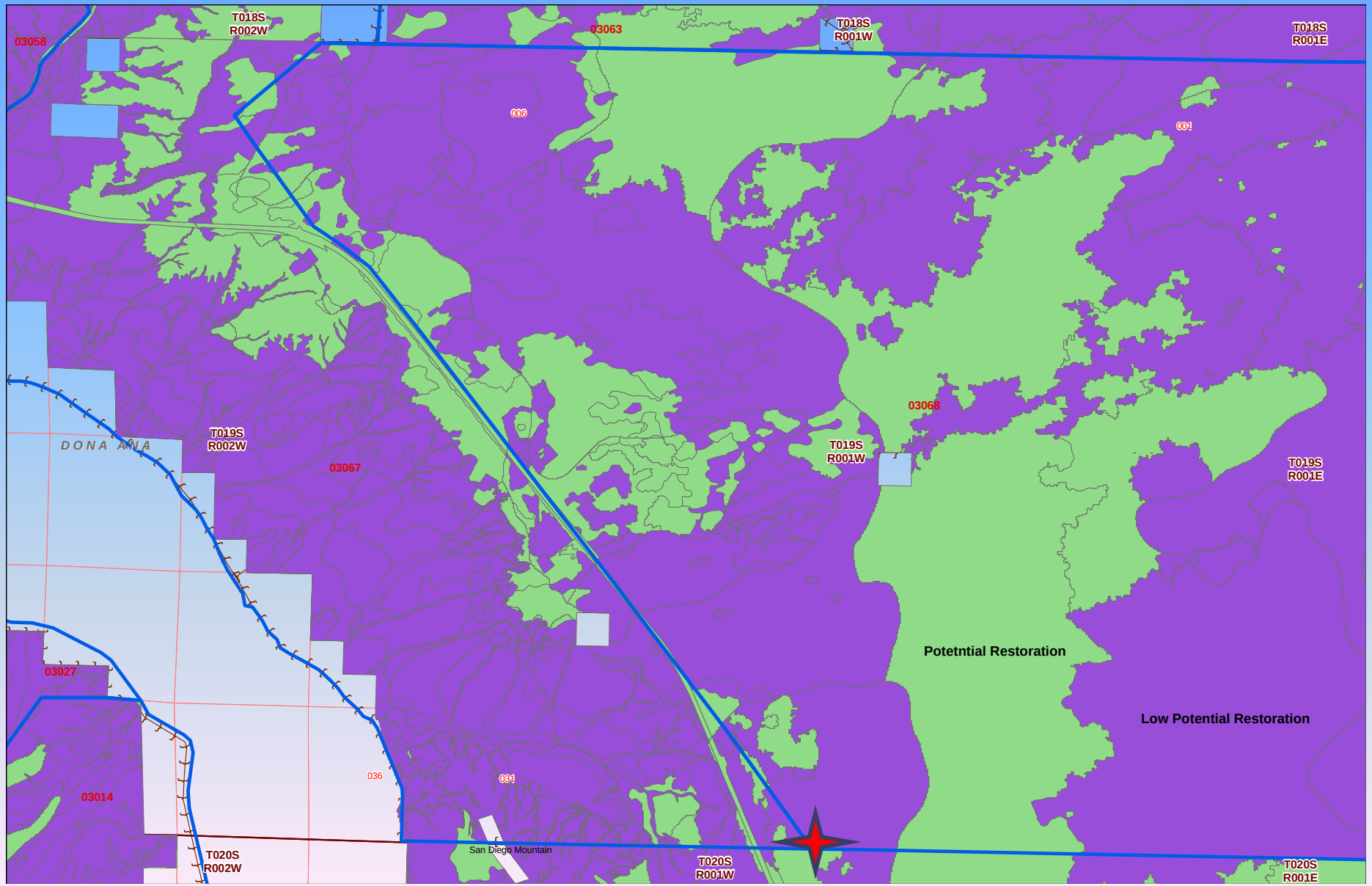


Seral Stages – as mapped from 1980's SVIM data.

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?**

2004 GRT, Valiente Peak Allotment, C. Cusack, 8/2010

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.

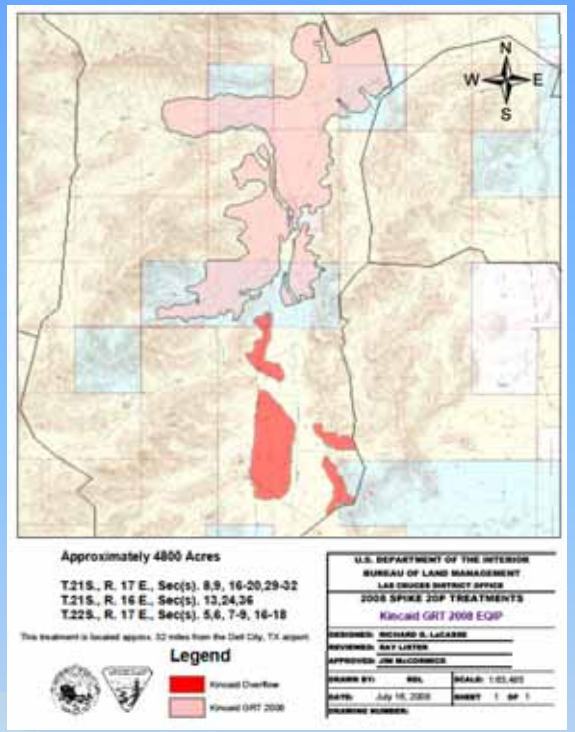
Southwell Allotment, C. Cusack, 8/22/2010.

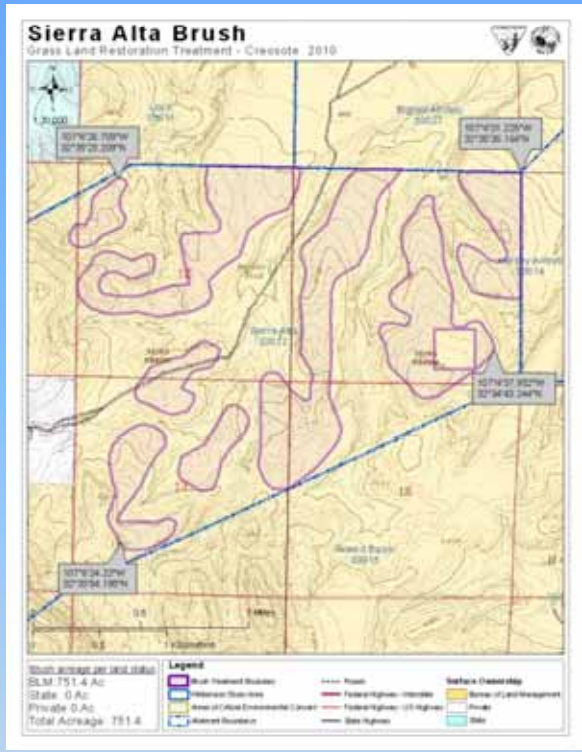
Flourish of tasajillo following creosote brush control project….

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

We can mitigate some of the concerns by project design,

like buffering draws around raptor nests.





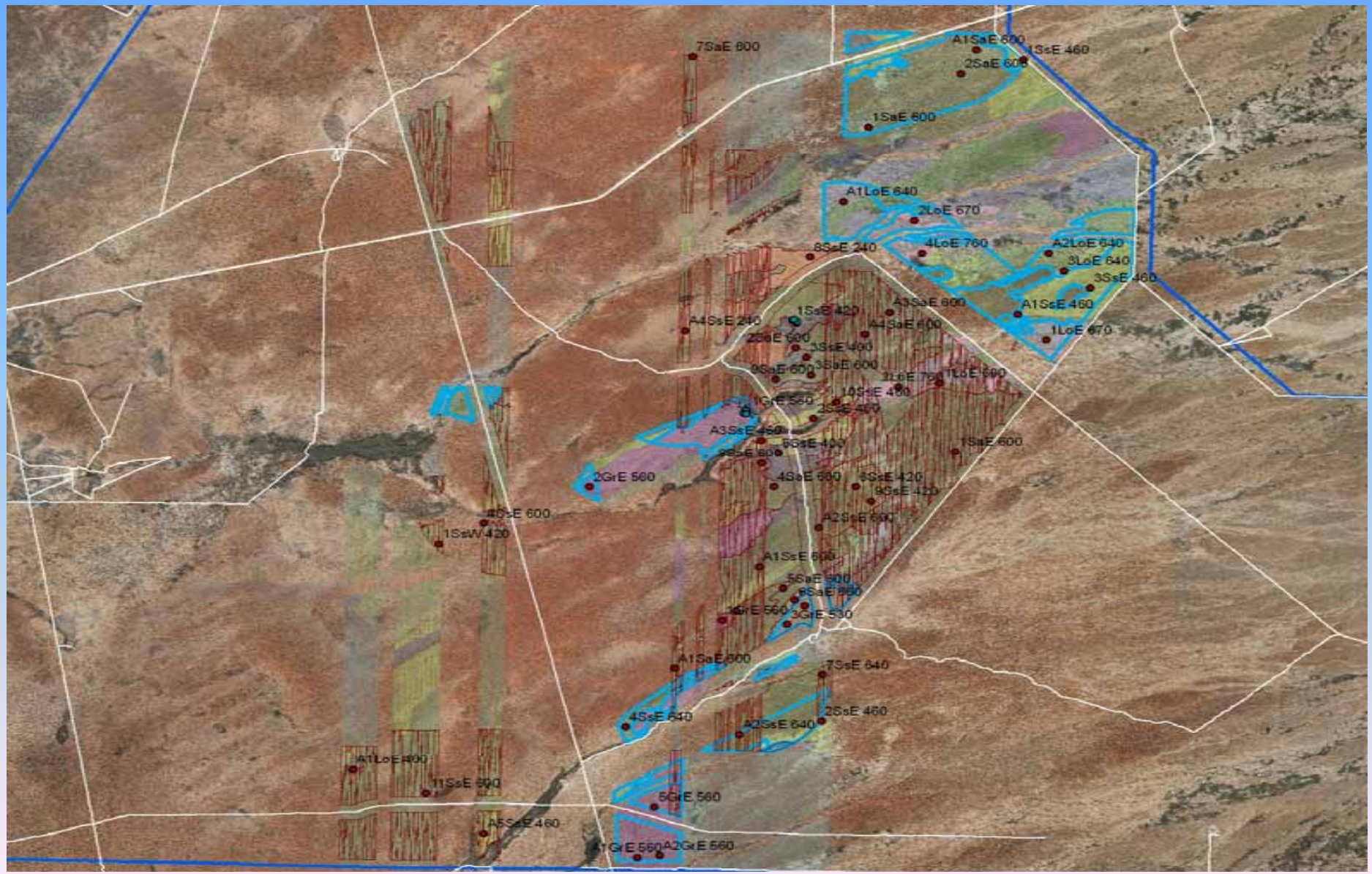

Jornada Mesquite, S. Torrez, 6/2009


Jornada Mesquite, S. Torrez, 6/2009

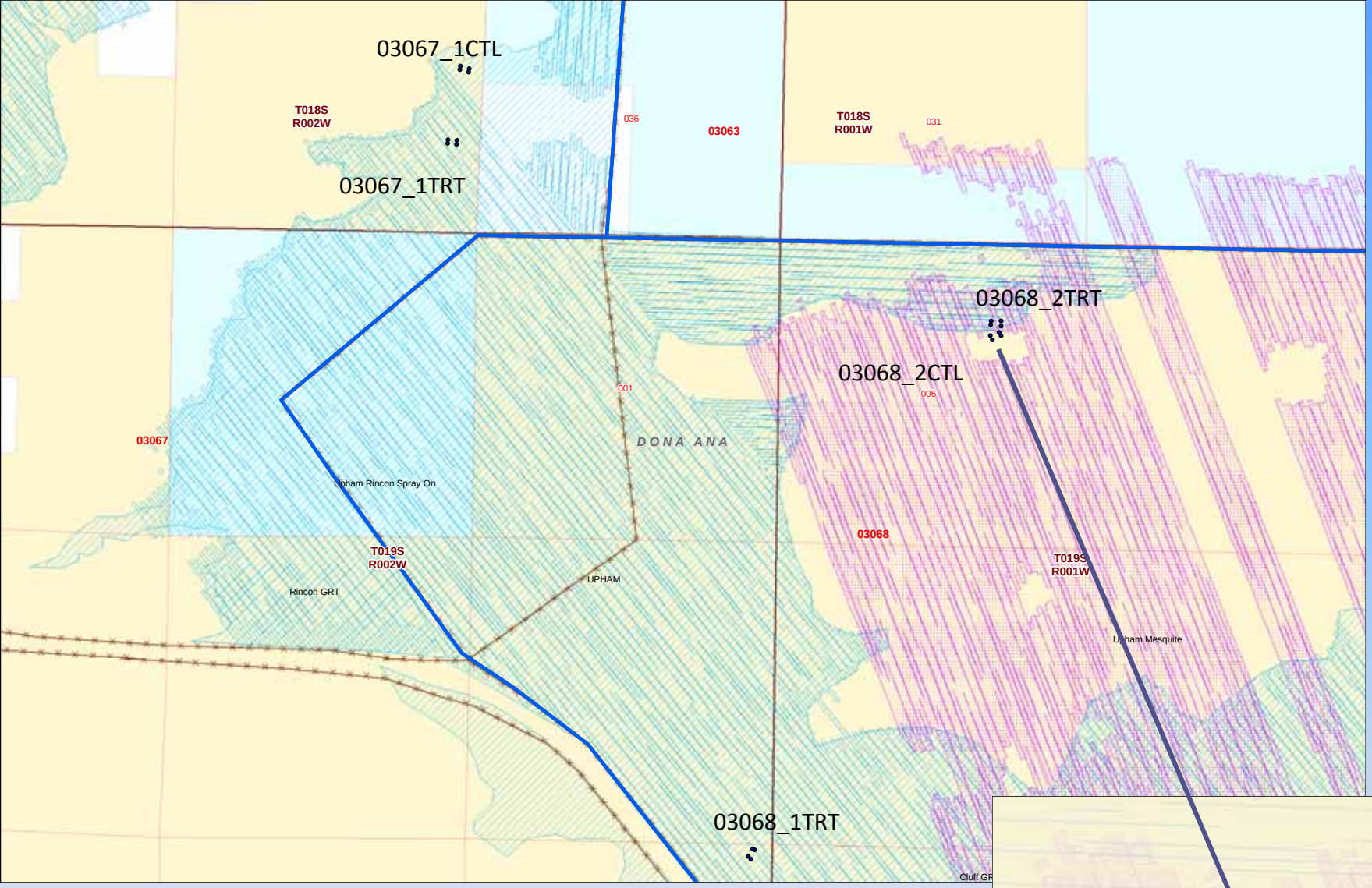
Taking out the bias from monitoring site selection

- 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 in to the treatment design.

Monitoring Results:

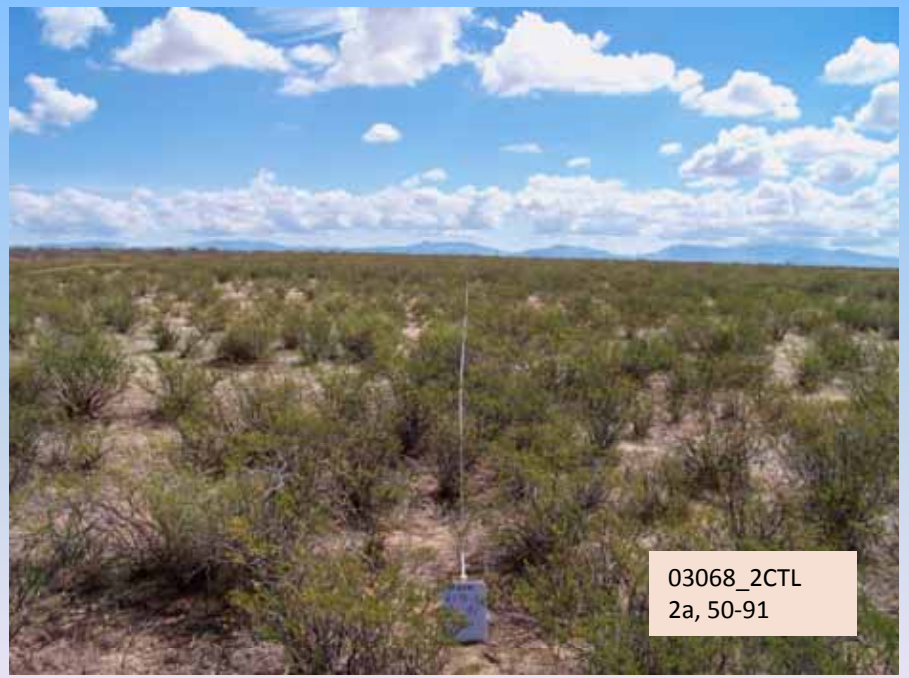
Cover/Litter Report	03067 Rincon		03068 Upham		
	1TRT	1CTL	1TRT	2TRT	2CTL
Canopy Cover	59.8	26.8	14.2	42.0	41.2
Bare Ground	21.5	46.8	73.0	40.0	28.5
Basal Cover	2.8	0.8	0.5	2.0	0.8
Total Ground Cover	44.5	39.2	16.5	33.0	52.0
Ground Cover Between Plant Canopy	18.8	26.5	12.8	18.0	30.2
Ground Cover Under Plant Canopy	25.8	12.8	3.8	15.0	21.8
Total Litter	37.5	29.5	15.0	29.2	50.0
Litter Between Plant Canopy	15.5	18.0	11.8	16.2	28.8
Litter Under Plant Canopy	22.0	11.5	3.2	13.0	21.2

Cover Estimates by Species

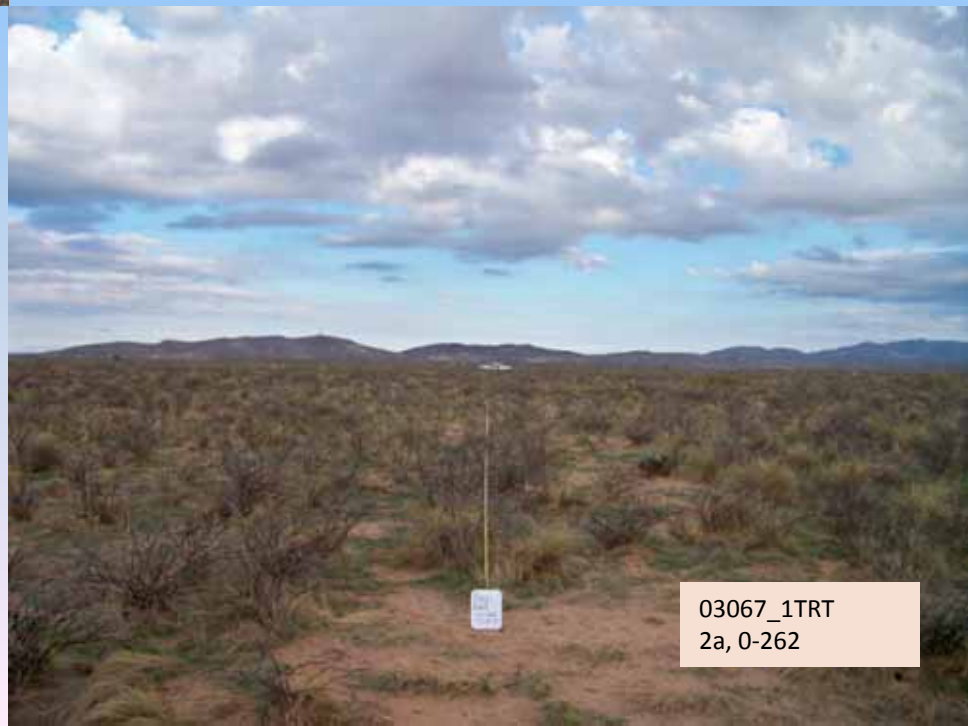
	03067 Rincon				03068 Upham					
	1TRT		1CTL		1TRT		2TRT		2CTL	
	Canopy	Basal	Canopy	Basal	Canopy	Basal	Canopy	Basal	Canopy	Basal
LATR2	12.5	2.0	14.5	0.5	7.0	0.5	8.5	0.5	17.5	0.0
PRGL2					0.5	0.0	0.5	0.0	0.5	0.0
Other Shrubs										
Forb										
Annual	0.5	0.0	1.0	0.0					2.5	0.0
Perennial			2.0	0.0						
Grasses										
Annual	49.5	1.0	13.5	0.0	3.5	0.0	34.0	1.0	21.0	0.0
Perennial	5.5	0.0			3.0	0.0	3.5	0.0	5.5	0.0

Total Grasses Density (plants/ha)	
03067_1TRT	3150
03067_1CTL	300

Total Grasses Density (plants/ha)	
03068_1TRT	2400
03068_2TRT	11650
03068_2CTL	100



Total Shrub Density (plants/ha)	
03067_1TRT	6900
03067_1CTL	2950



Total Shrub Density (plants/ha)	
03068_1TRT	3150
03068_2TRT	2000
03068_2CTL	6650

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.**

Scurfpea Surveys on Southwell Allotment, C. Cusack, 8/22/2010