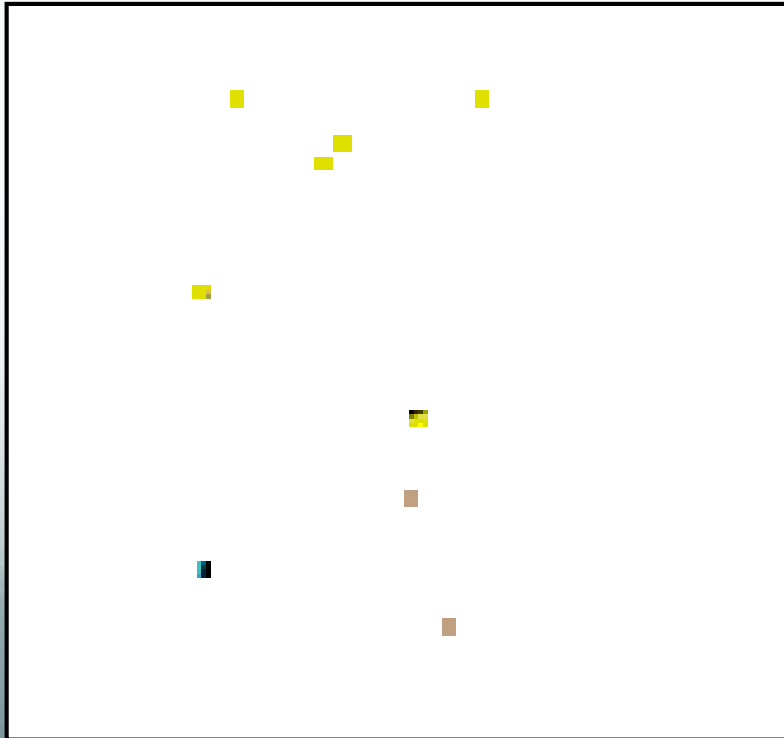


Spatially Explicit and Properly Scaled Assessment Technologies for Evaluating Sage Grouse Habitat

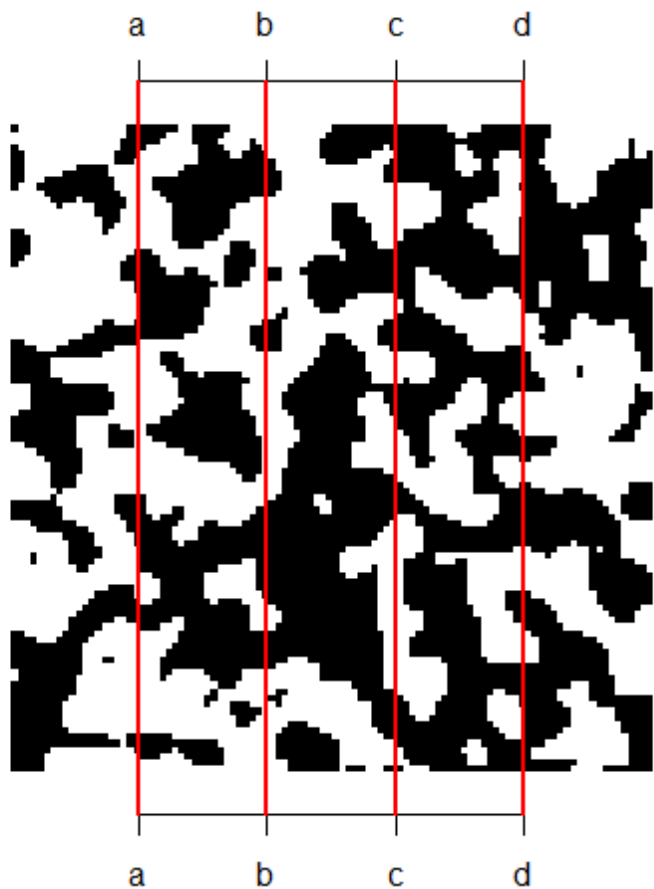
**Gregg Simonds and Eric Sant
Open Range Consulting**

Historical Landscape Assessment

Historical Assessment

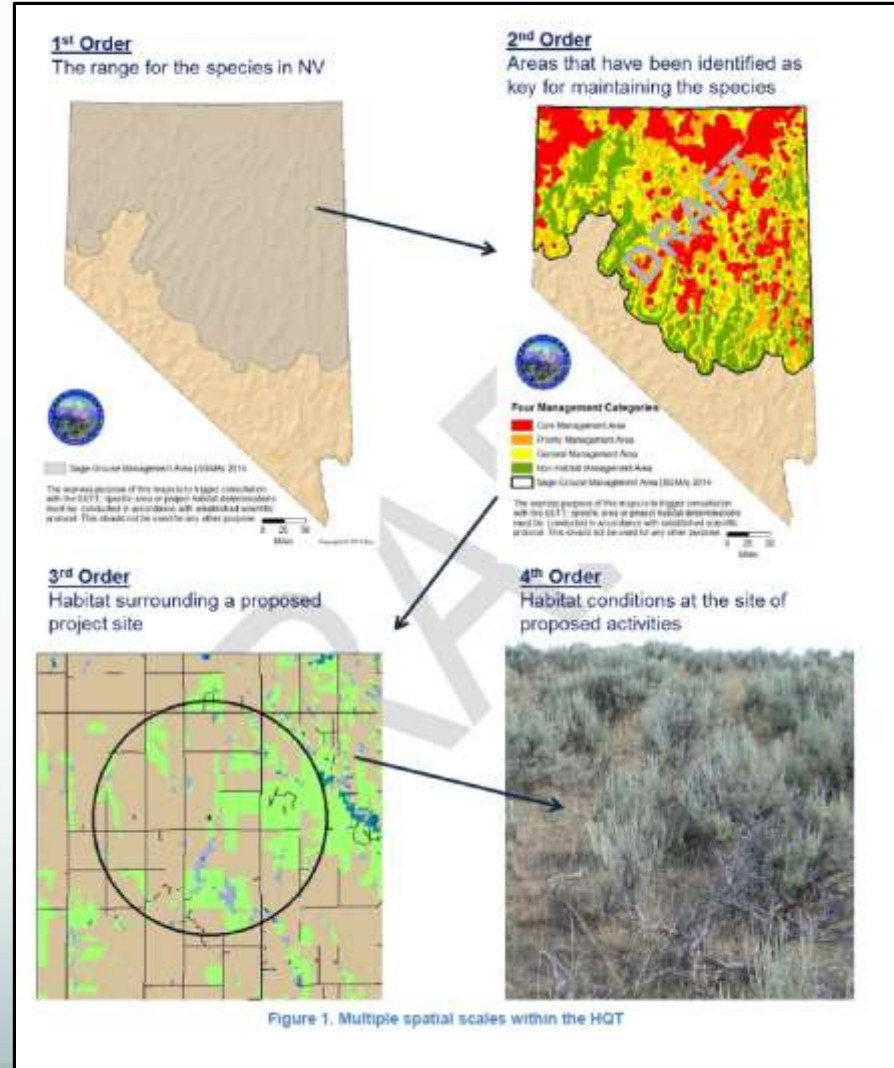


Costs, Accuracy, Precision, and Extrapolation

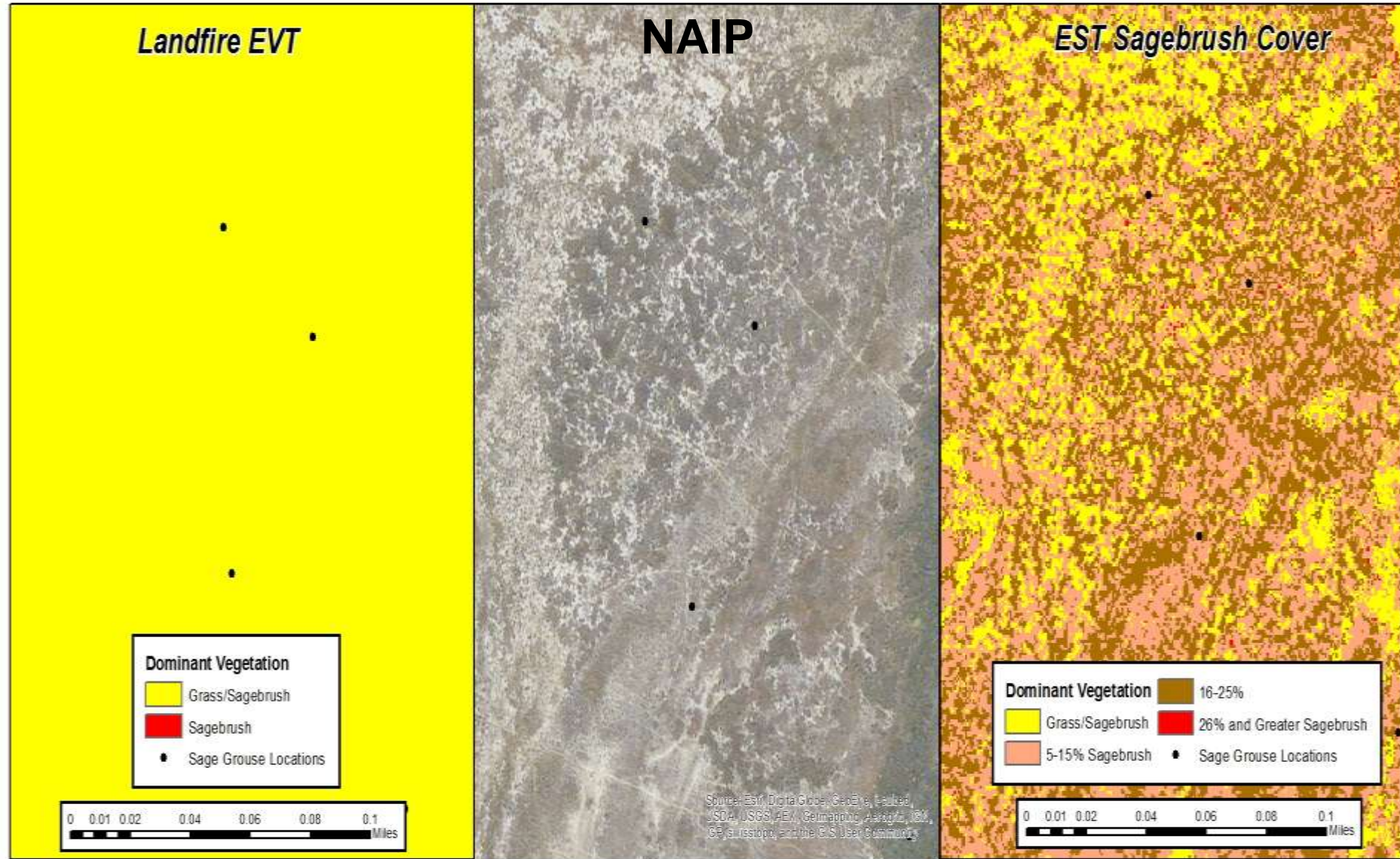


	a	b	c	d	av
WHITE	69	68	59	43	60
BLACK	31	32	41	57	40

HABITAT ASSESSMENT FRAMEWORK



Comparing Remotely-Sensed Imagery Technologies



How we measure

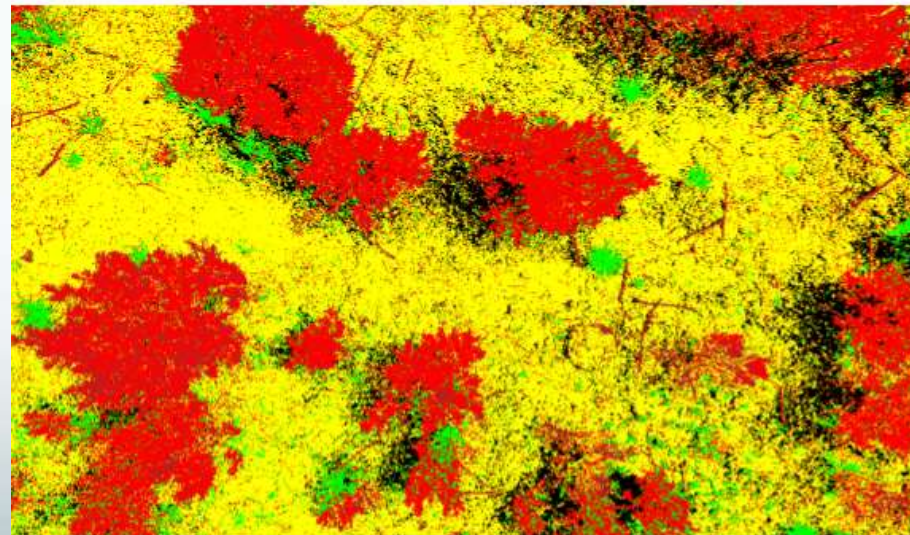
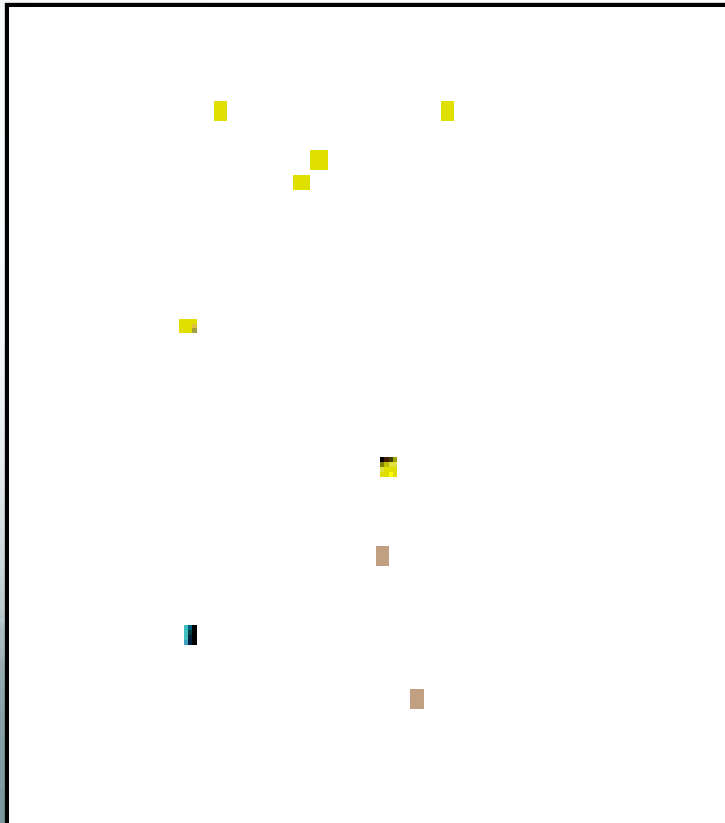
- **Functional Attributes**
- **Integration HR Photography, GPS and Satellites**
- **Smell test**

Field Sampling



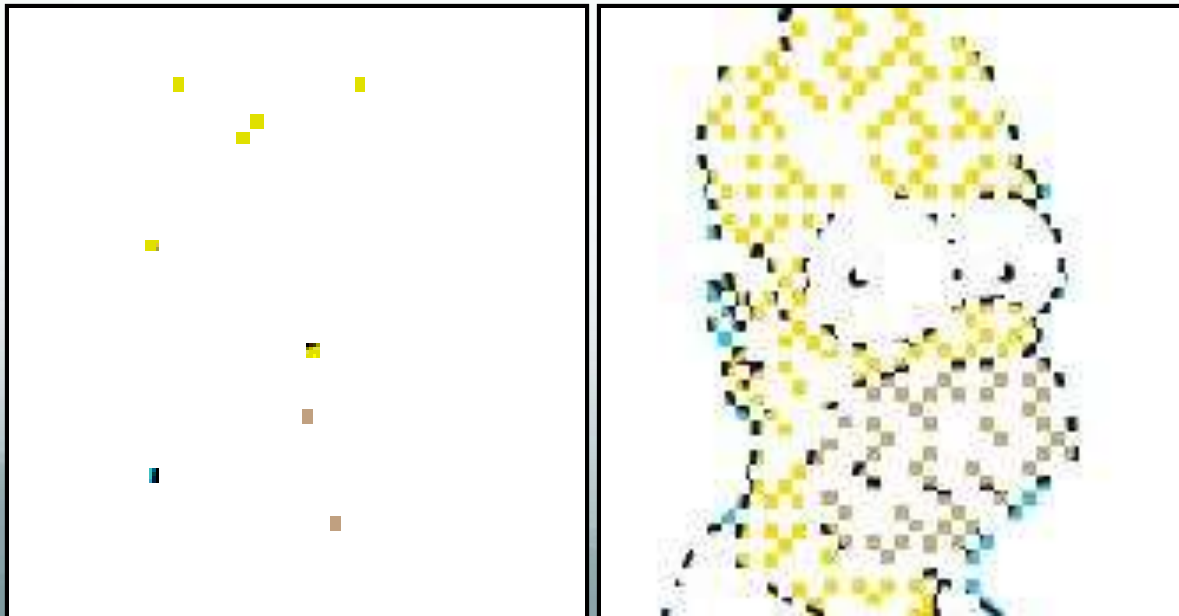
ORC's Landscape Assessment

Historical Landscape Assessment

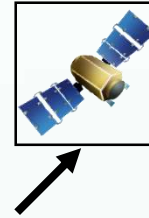
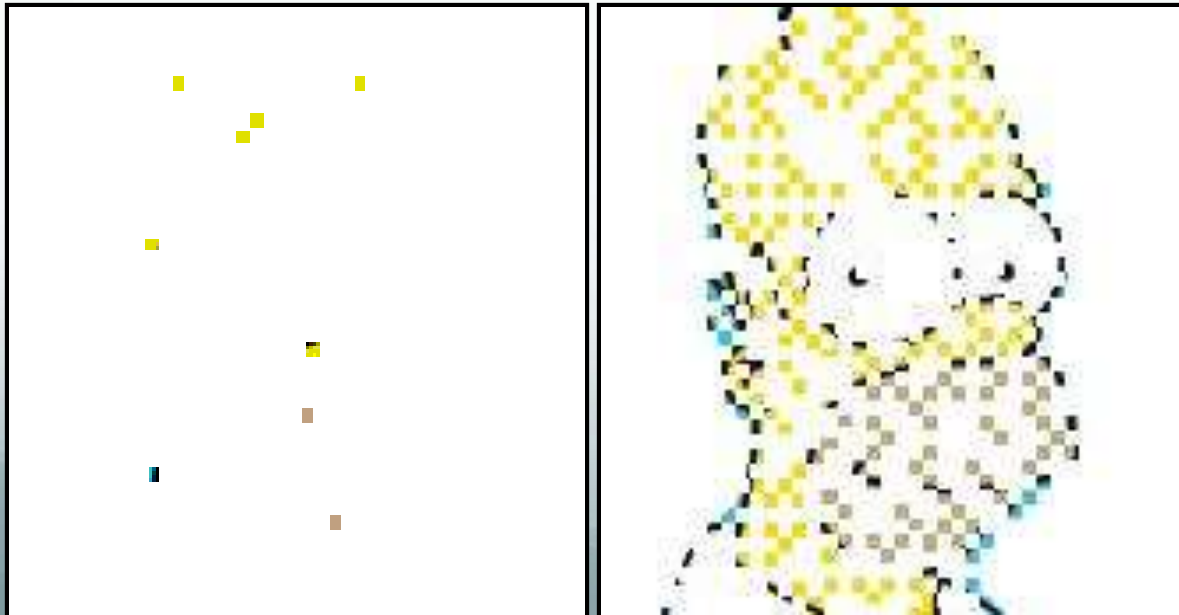


Legend: Bare Ground (Yellow), Litter (Brown), Sagebrush (Red), Herbaceous (Green), Shadow (Black)

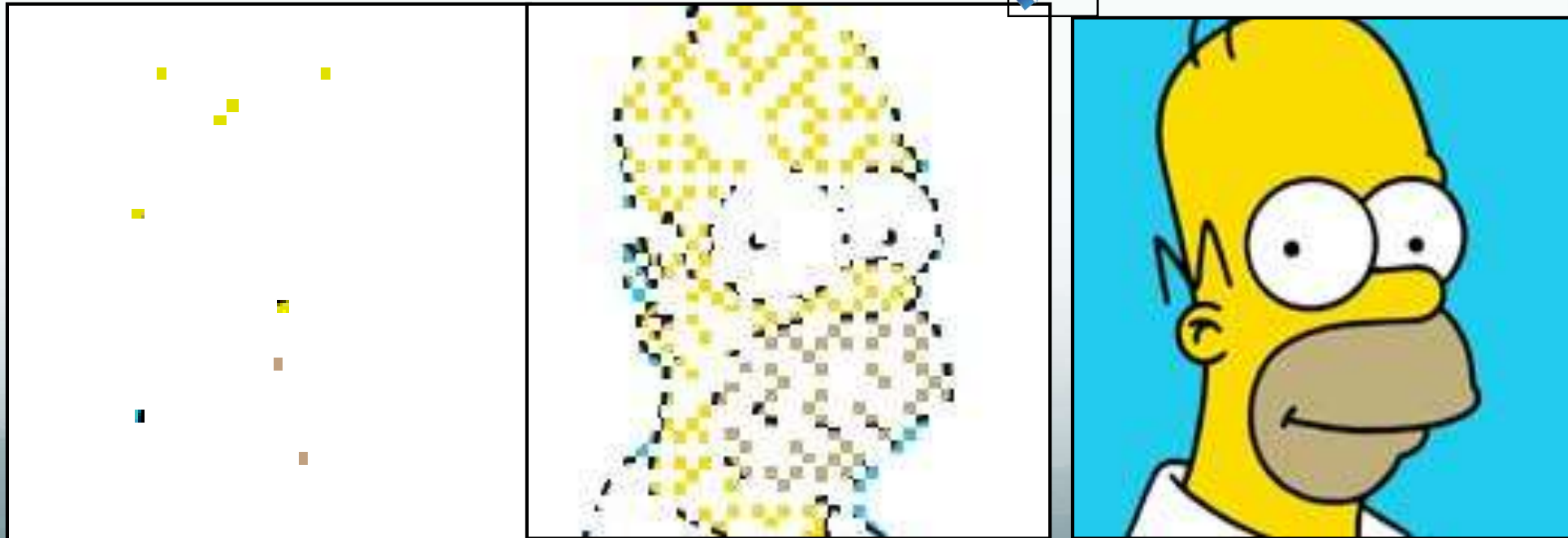
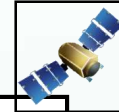
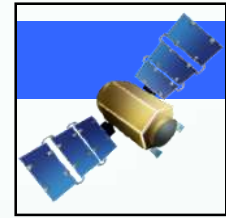
ORC's Landscape Assessment



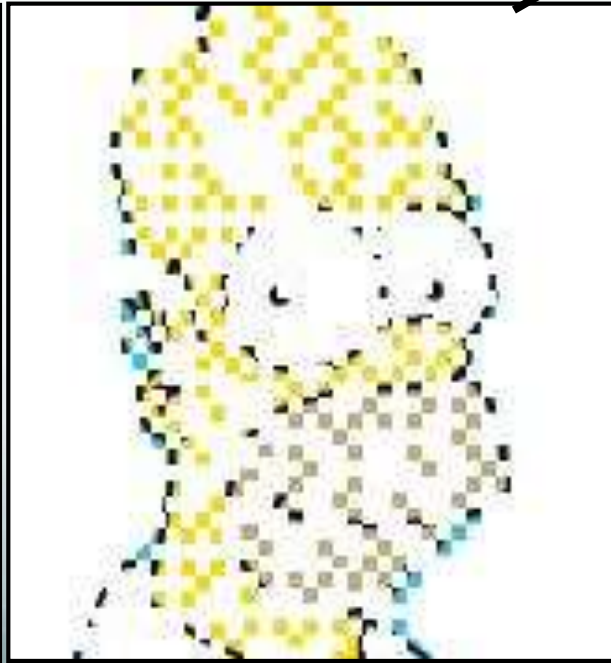
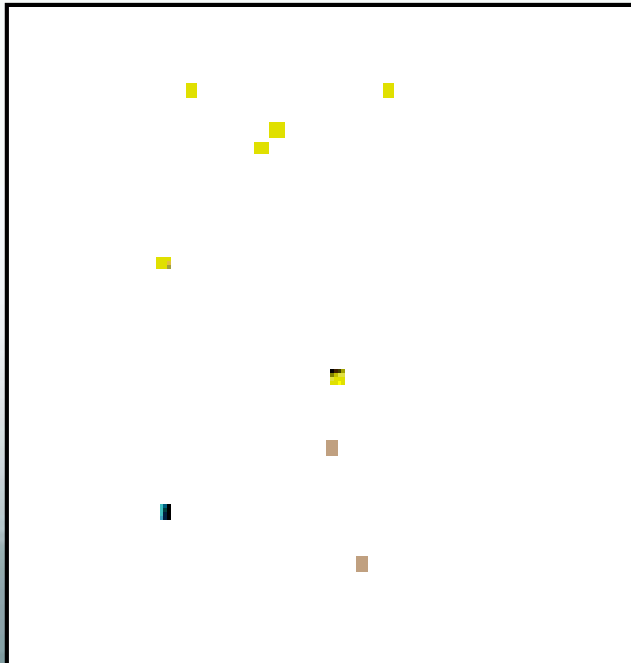
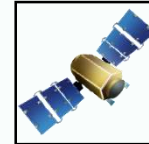
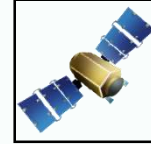
ORC's Landscape Assessment



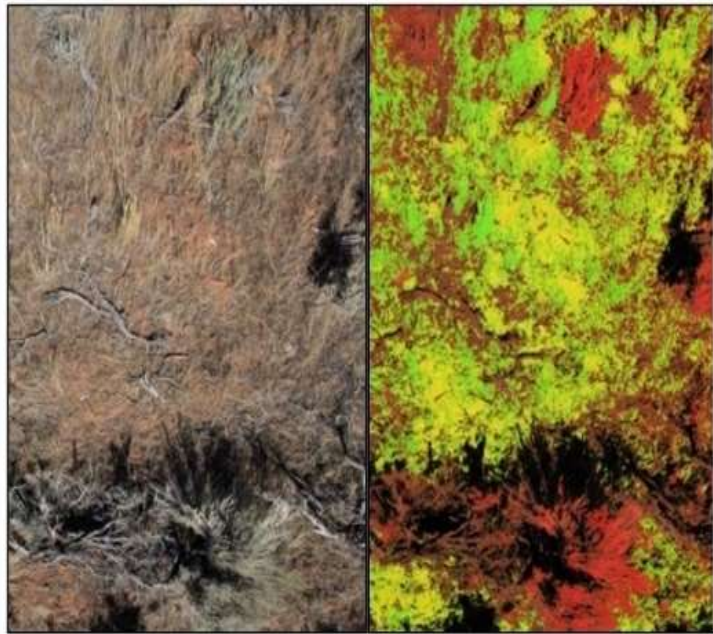
ORC's Landscape Assessment



ORC's Landscape Assessment EST

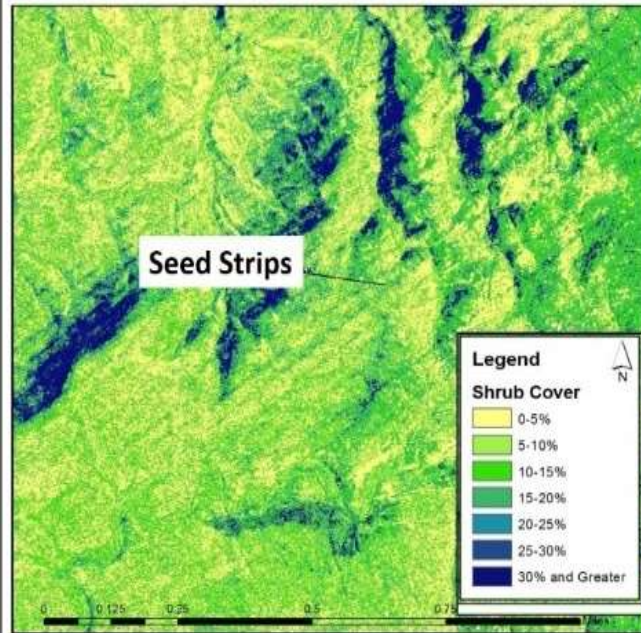


Fine Scale (2mm)



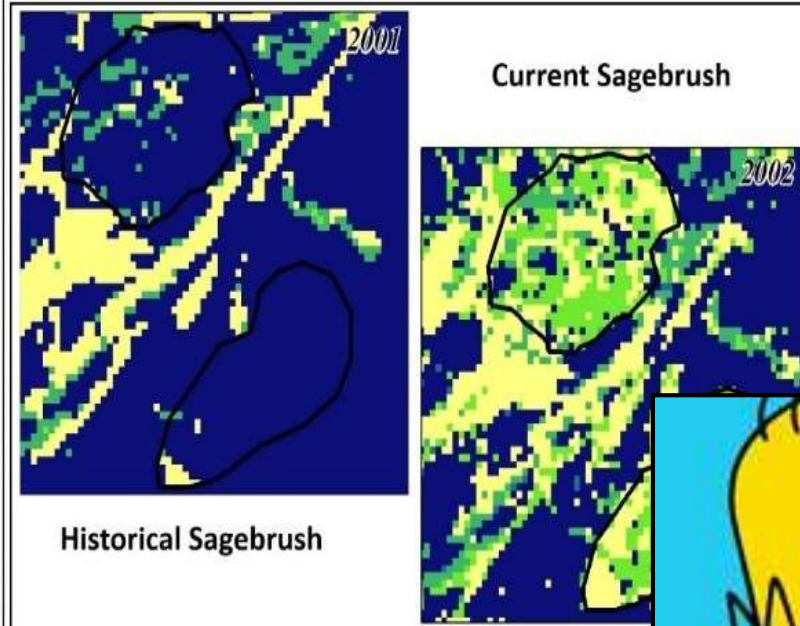
- 6 * 7 Meter Extent
- 18 Million Points of Data/Picture
- Classified into Ground Cover
- 1 Sample/4000 Acres

Landscape Scale (1m)

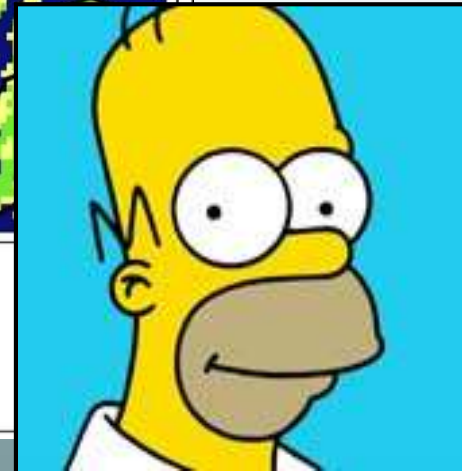


- Trained by High Resolution Images
- Continuous % Cover Maps

Coarse (30m) & Temporal (30 yr) Scale

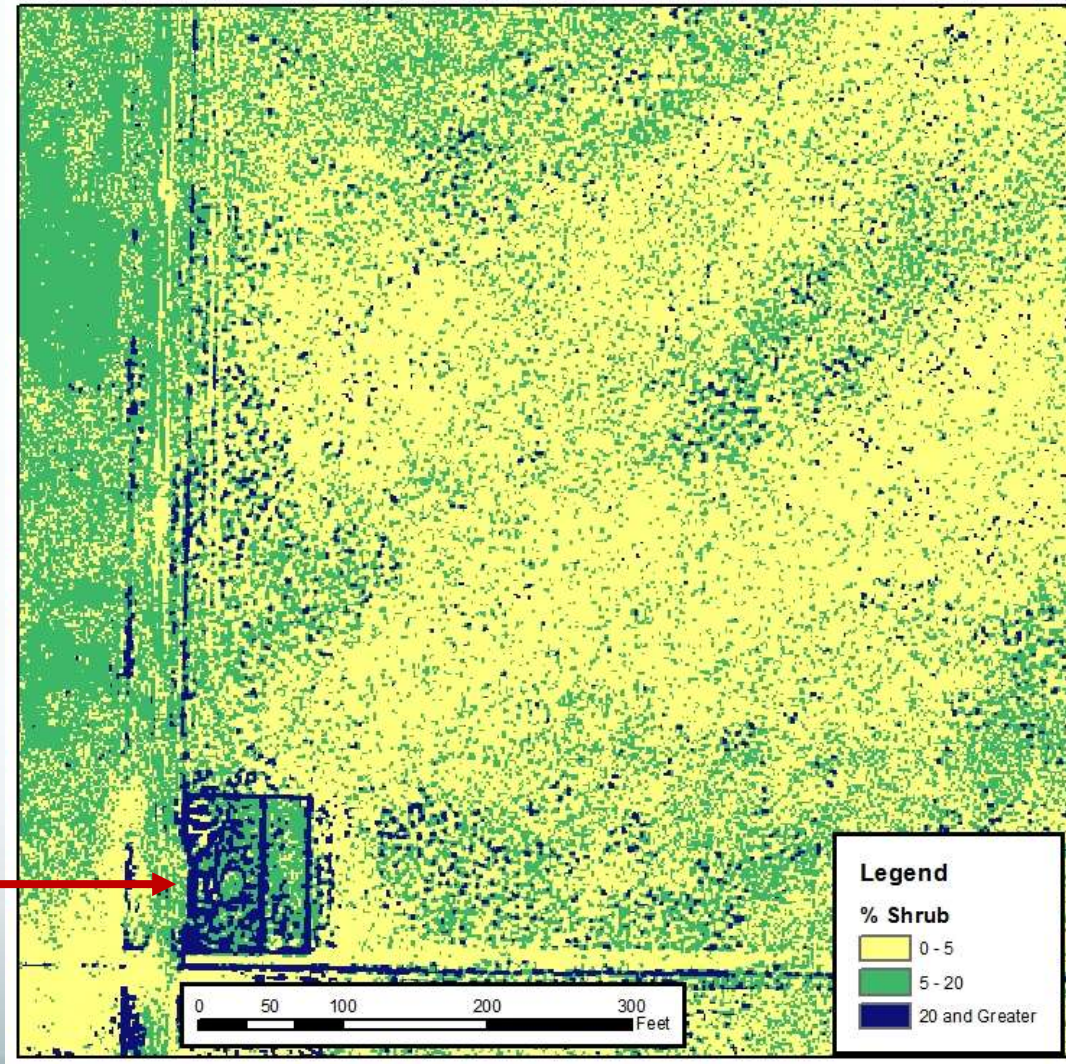


- Temporal Scale 1984-2014



Predicted Sagebrush Cover Using ORC's EST

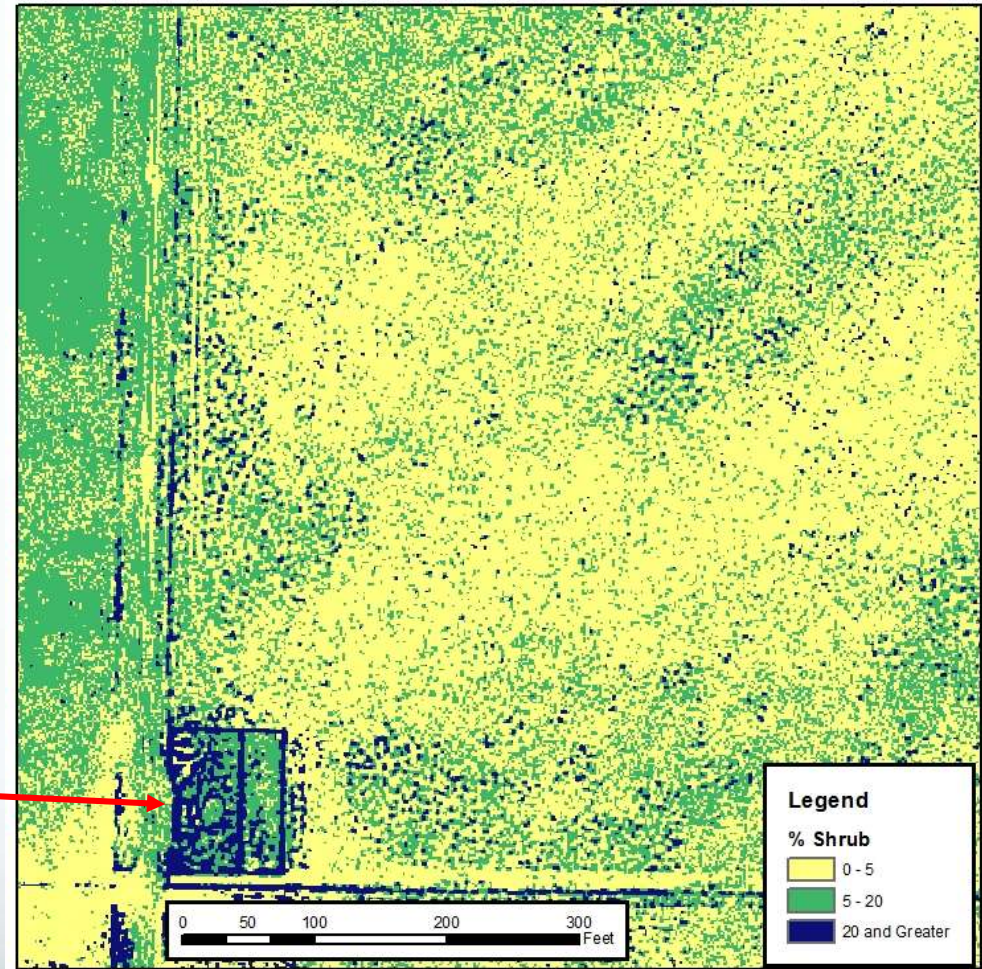
Corrals



Visually Comparison of Aerial Image vs Predicted Sagebrush Cover



Predicted Sagebrush Cover from EST



Sagebrush Ecological States

A

**Sagebrush - Perennial Herbaceous
State**



B

Perennial Herbaceous State



C

**Degraded Sagebrush
State**

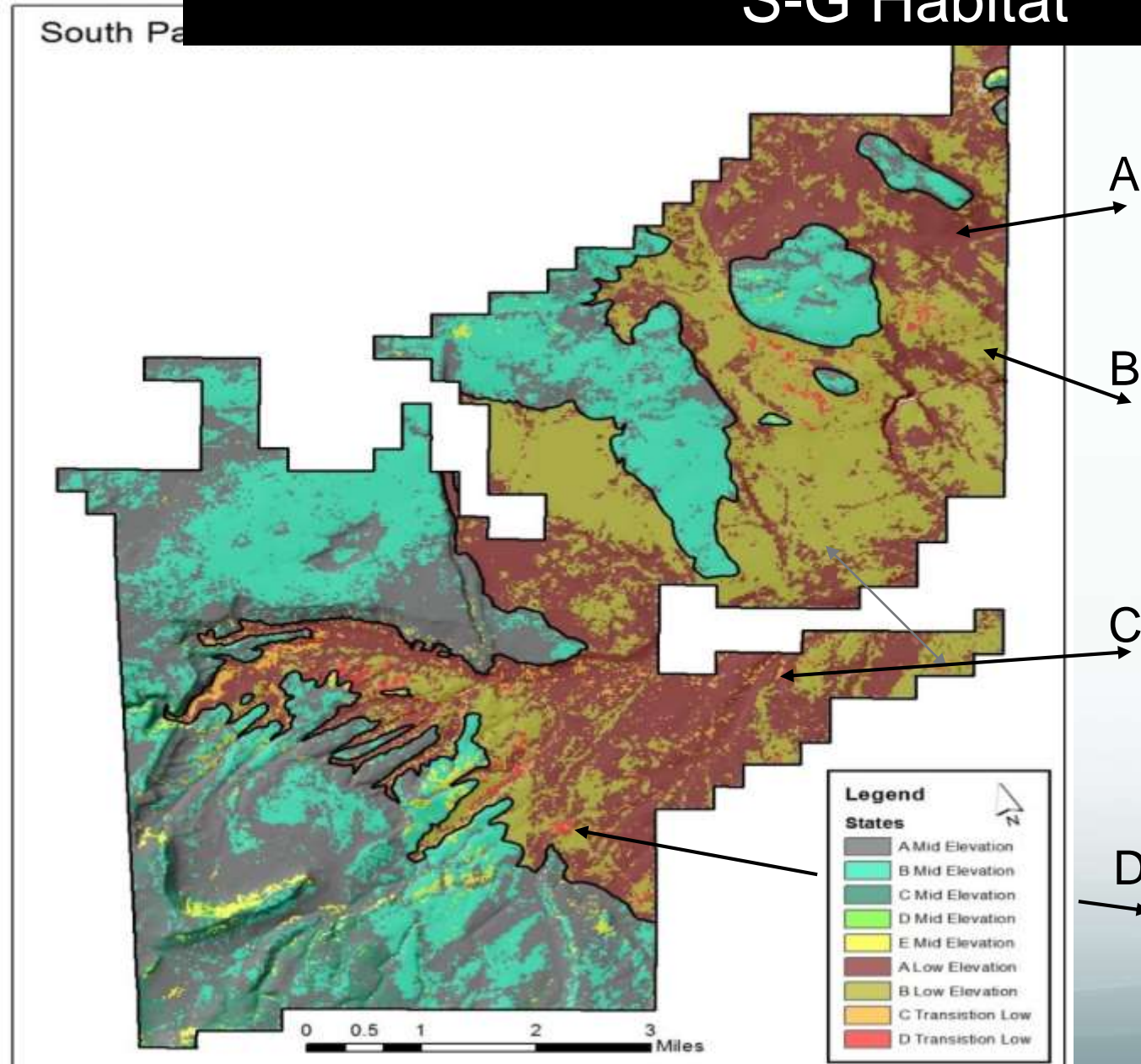


D

**Exotic
Annual Grass State**



Spatially Explicit Mapping of Ecological States of S-G Habitat



Historical Methods Can't Measure Across Space or Time



1964



1966

Adequate and Trusted Scale



Thank You/Questions



