



Desert Tortoise (*Gopherus agassizii*) Monitoring

Reporting Milestones



2007

2008

- Field contractors verify data
- Independent quality control (validation)
- Annual project debriefings
- Final database and geodatabase creation
- Analysis of training data
- Supplemental evaluation
- Analysis of tortoise activity (G0) data
- Distance analysis
- Field season documentation
- Report draft
- External review
- Data and report release

	2007	2008
Field contractors verify data	Dark Blue	Dark Blue
Independent quality control (validation)	Dark Blue	Dark Blue
Annual project debriefings	Dark Blue	Teal
Final database and geodatabase creation	Dark Blue	Light Blue
Analysis of training data	Light Blue	Light Blue
Supplemental evaluation	Teal	Light Blue
Analysis of tortoise activity (G0) data	Teal	Light Blue
Distance analysis	Teal	Light Blue
Field season documentation	Teal	Teal
Report draft	Light Blue	Light Blue
External review	Light Blue	Light Blue
Data and report release	Light Blue	Light Blue

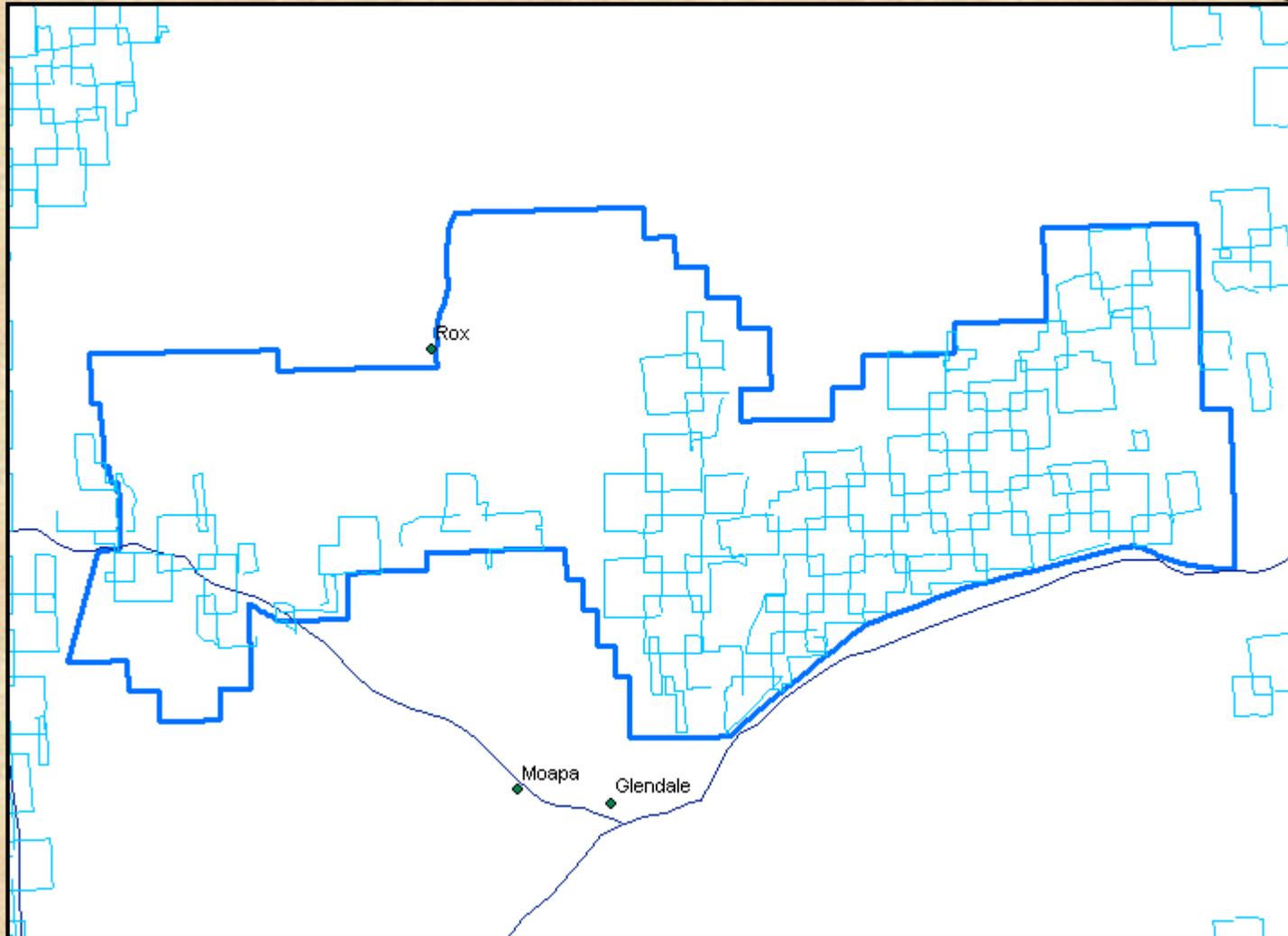


2007 Evaluation and Improvements

- Improve coverage of DWMAAs
- Remove background noise from G_0 estimates
- Quality assurance: weekly review and feedback to field teams

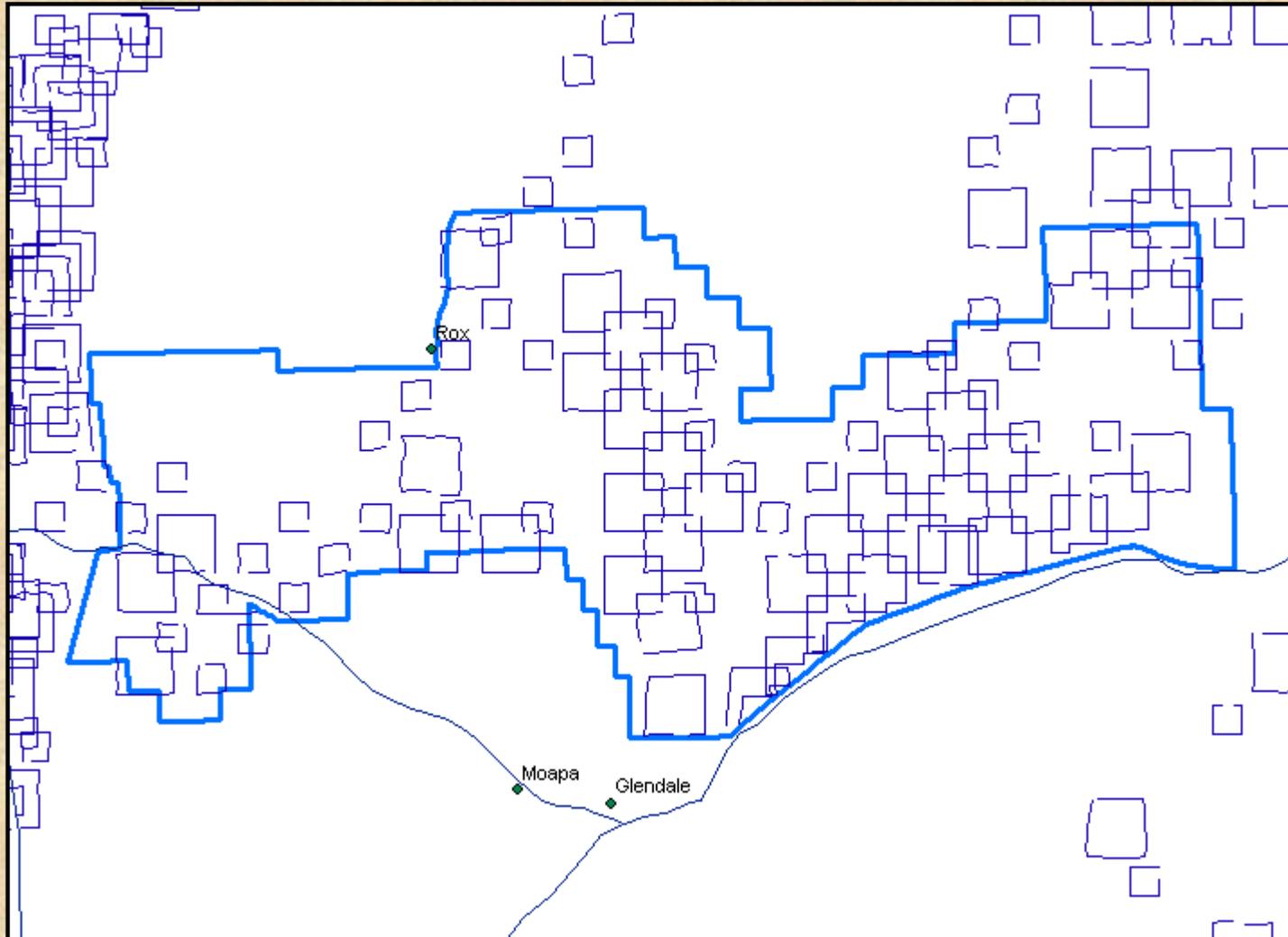
Mormon Mesa 2007

Walked



Mormon Mesa 2008

Walked





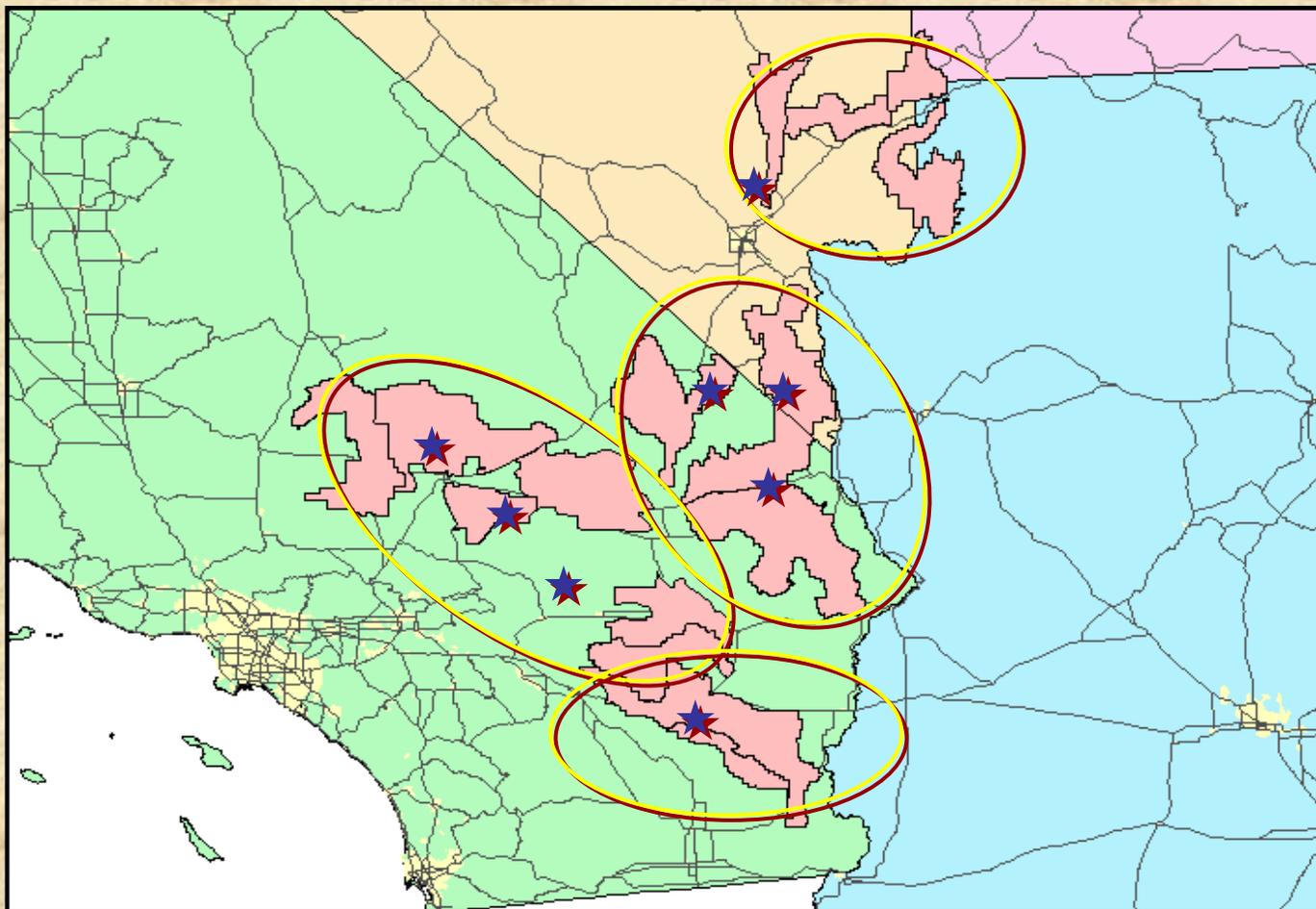
Transect Completion by Area



Transects completed in one window of time



Tortoise above-ground activity monitoring area





G_0 2005

Can we improve precision?

Recovery Unit	G_0 (mean)	G_0 (sd)	Days
Eastern Colorado	0.66	0.16	52
Eastern Mojave	0.88	0.16	52
Northeastern Mojave	0.92	0.21	52
Northern Colorado	0.68	0.20	52
Western Mojave	0.91	0.10	52

G_0 2007 and 2008

Did we improve precision?

Yes.



Recovery Unit	2005	2007	2008	Days
Eastern Colorado	0.16	0.05	0.07	5
Eastern Mojave	0.16	0.13	0.07	12
Northeastern Mojave	0.21	0.12	0.13	37
Northern Colorado	0.20	0.10	0.37	3
Western Mojave	0.10	0.13	0.13	12

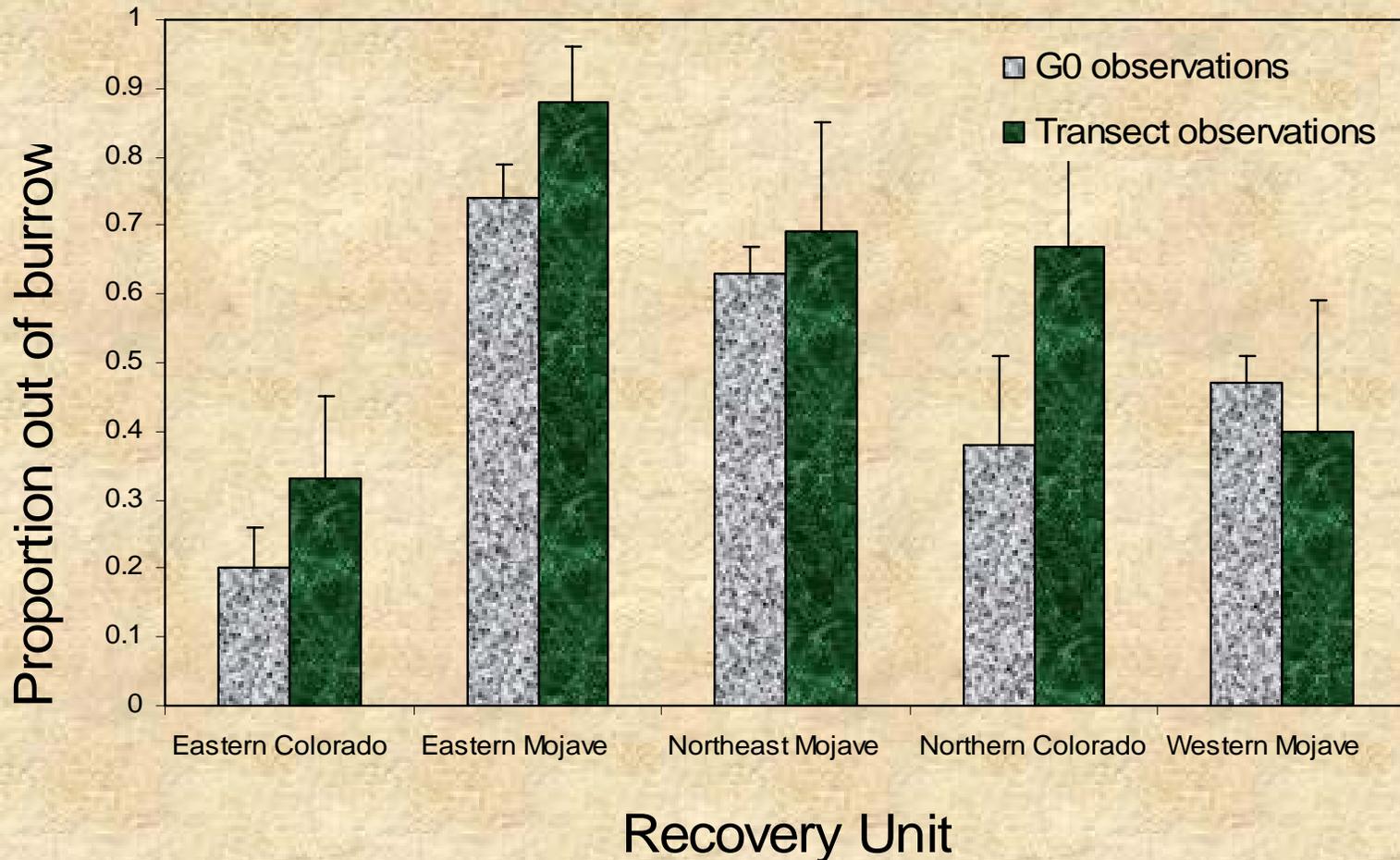
2008 Evaluation to Improve Line Distance Sampling

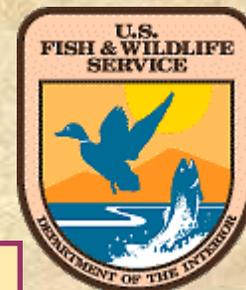


- Quality assurance: objective-driven training
- Correspondence of “visibility” for G_0 and transects
- Refine protocol for rugged terrain
- Apply distance sampling to smaller areas
- Spatial modeling of tortoise locations
- Occupancy estimation

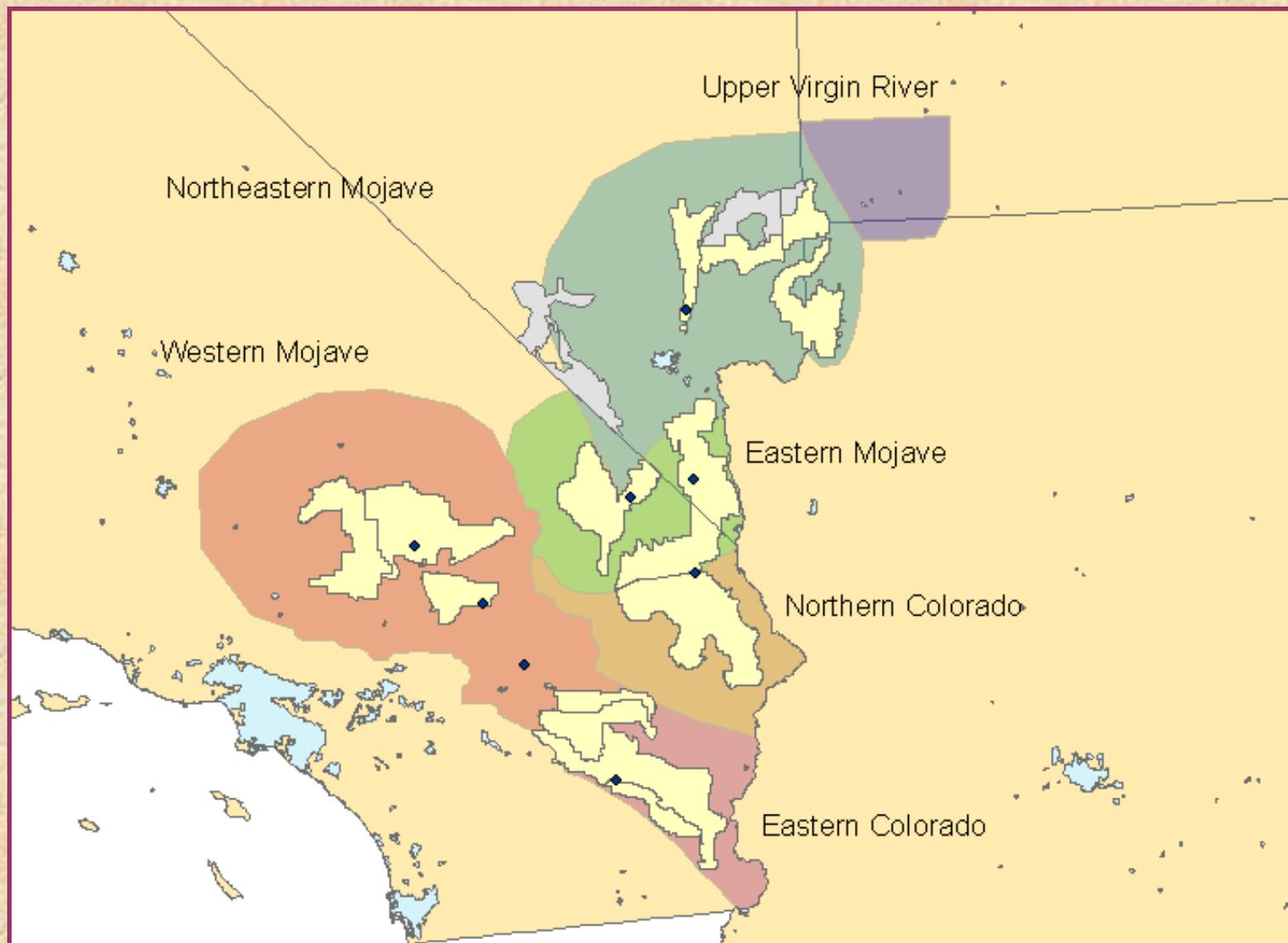


2008 - Do we hear more tortoises in burrows than we see?





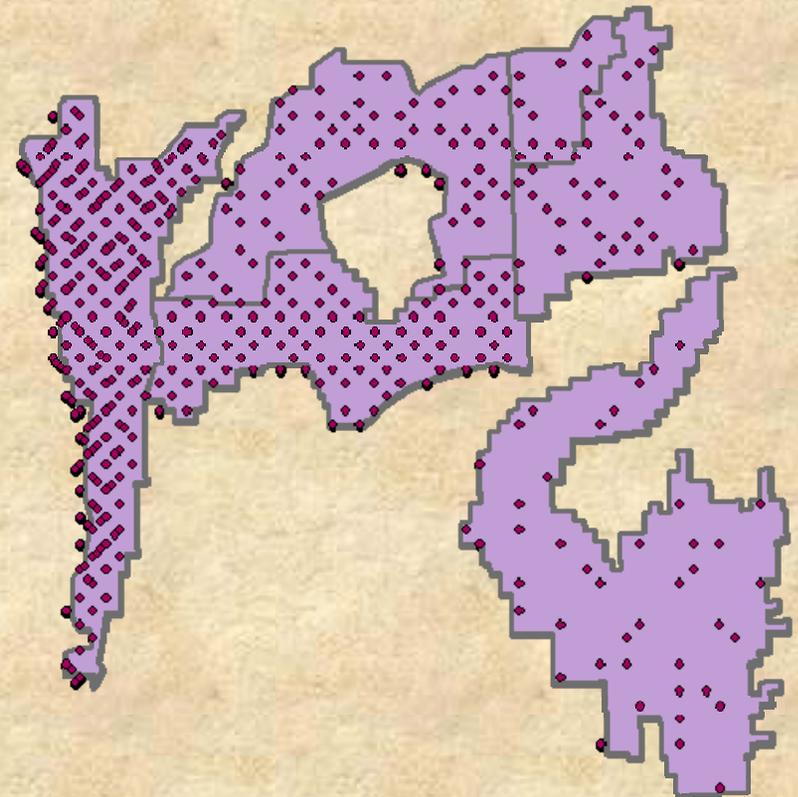
2008: Added single-year strata





2007

2008



2008: Added transects to look within DWMA's



2009

- Continued work pairing G_0 and transect visibility
- Comprehensive data management team strategy
 - Quality assurance: weekly reporting and evaluation
 - Training to reduce data entry errors
- Exhaustive use of training data



2009

- GSA task order for 2009 monitoring in California started 1 August 2008!