

# Use of Sheep in Management of Stephens' Kangaroo Rat, Burrowing Owl, and Other Species



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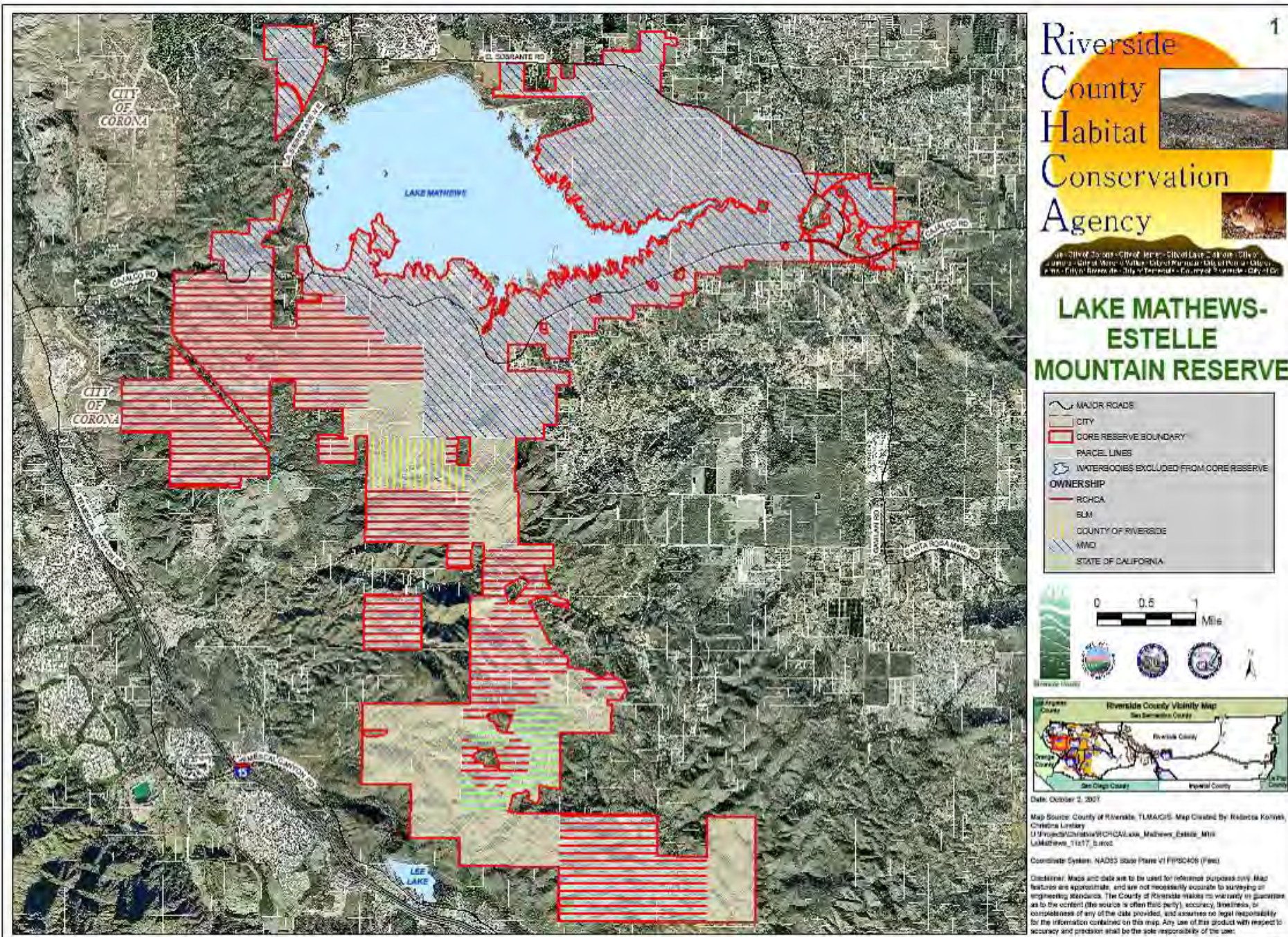




# Introduction

- Background
- Management Tools and Strategies
- Results
- Future Thoughts
- Summary







# Partnerships

- Bureau of Land Management Palms Springs Field Office / Fuel Management
- USFWS
- CDEG
- CalFire
- UC Riverside
- Waste Management Inc.
- MWD





# Tools of the Trade

## PROS:

- Mowing – large scale / precise
- Burning – moderate cost / precise
- Grazing – free / large scale / public perception
- Herbicide – broad spectrum / precise

## CONS:

- Mowing – potential for wildfire / high initial and ongoing costs
- Burning – AQMD restrictions / public perception
- Grazing – imprecise / time consuming for resource manager
- Herbicide - relatively expensive / public perception / may affect natives

“It’s the poor carpenter who blames his tools!”



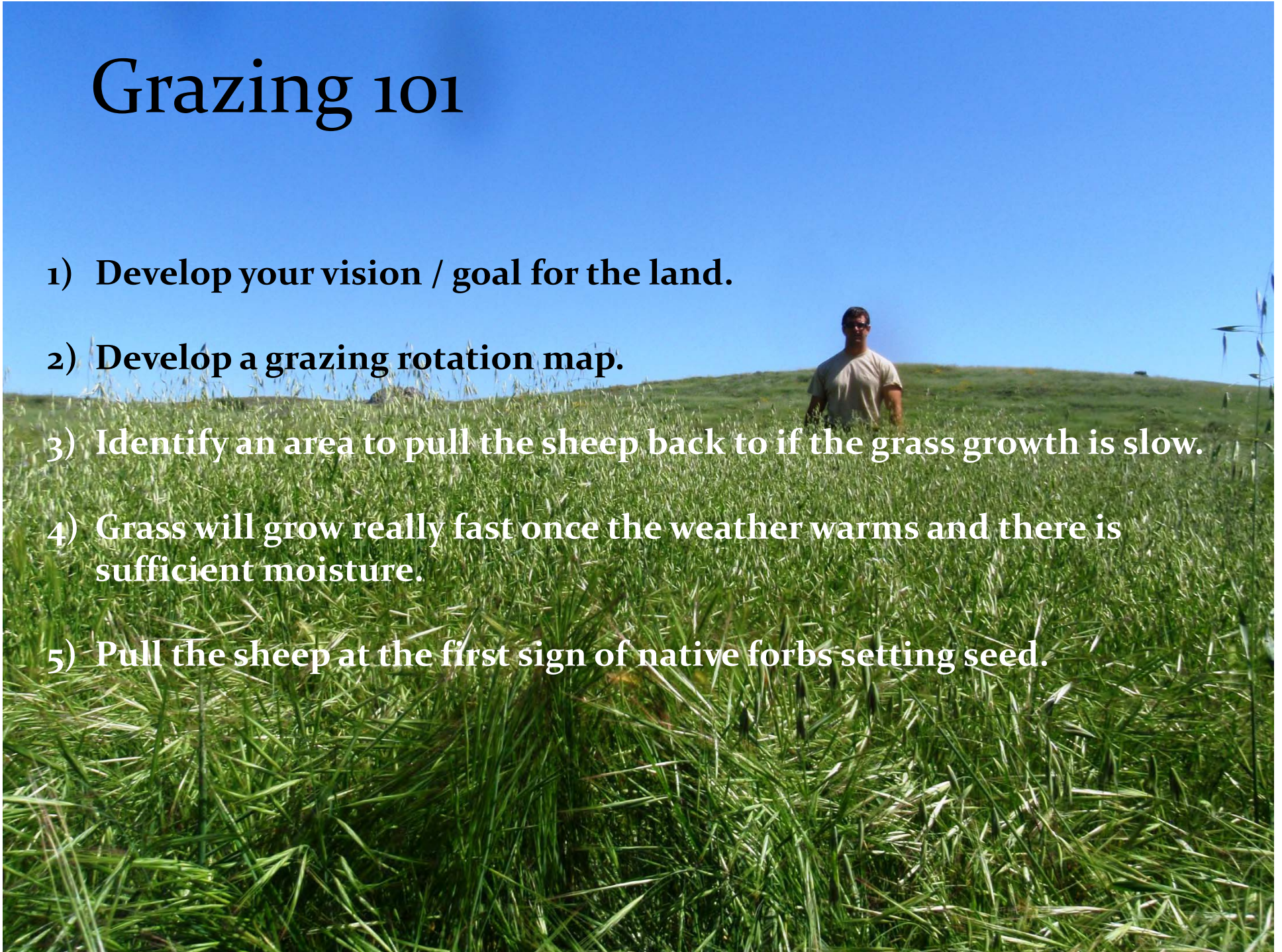
# Goals and Objectives

- ☐ Is grazing an effective long term treatment for reducing non-native grass cover?
- ☐ Could domestic sheep graze in a manner to mimic historic antelope?
- ☐ Could we manage grasses on a large landscape scale effectively using sheep?



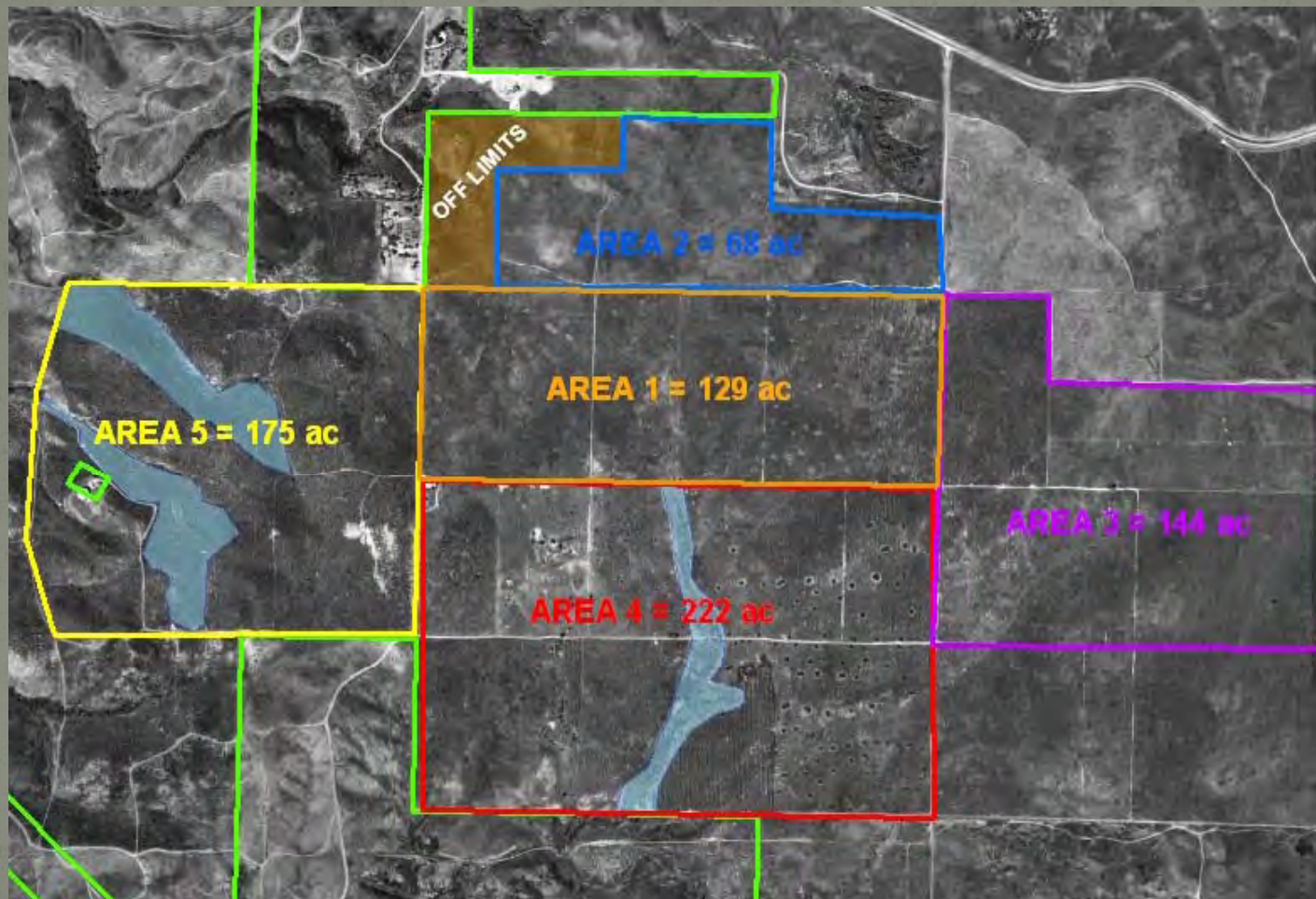
# Grazing 101

- 1) **Develop your vision / goal for the land.**
- 2) **Develop a grazing rotation map.**
- 3) Identify an area to pull the sheep back to if the grass growth is slow.
- 4) Grass will grow really fast once the weather warms and there is sufficient moisture.
- 5) Pull the sheep at the first sign of native forbs setting seed.





# Grazing Map





# Grazing 101



Logistics and Support Vehicles



# Grazing 101

Grazing begins when the grass is about 6-8 inches, usually about January or February





# Grazing 101

- 1-2 days held in corral
- Allows monitoring of any “foreign” weeds
- Insist that the producer tell the shepherd that **you are the boss** on where and how to move the sheep.





# Grazing 101



## Corral and Water

- move often = more moderate disturbance over a wide area
  - less frequent = severe disturbance / small area
- \* sheep only need water if the forage is dry (late spring)



# Grazing 101

YEAR	# SHEEP	ACRES	SEASON
2009	500	200	Summer
2010	1,200	500	Winter
2011	5,000	1000	Winter
2012	1,200	500	Spring

5 – 7 sheep / acre



# Grazing 101



sheep movement = hold back or push?



# 2010 UCR Vegetation Monitoring

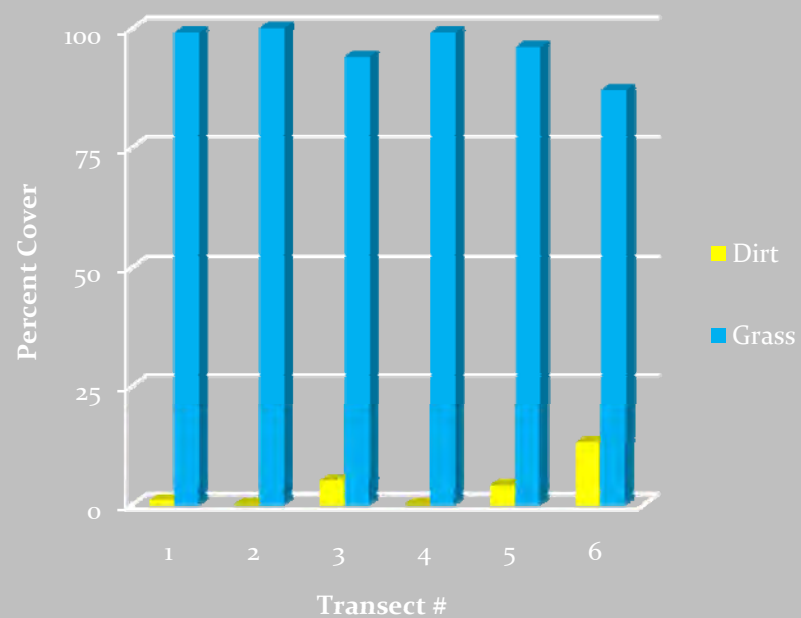
- Spring 2010 – 1<sup>st</sup> year of grazing
- Grazing did not reduce exotic grass cover, but it reduced grass height and therefore was effective at reducing grass productivity.
- Grazing also increased native forb cover from about 1 to 3%, with the greatest positive response from *Amsinckia menziesii* that is not grazed by sheep.
- The total number of native species declined in grazed plots, possibly because sheep preferentially grazed some native forb species.



# Results

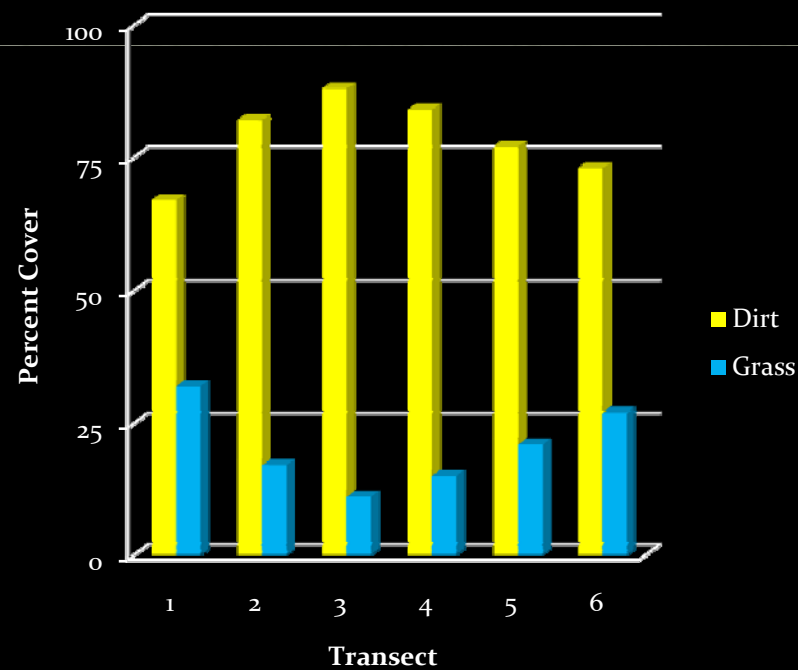
## BEFORE

Pre-Grazing Vegetation Survey



## AFTER

2011 Vegetation Survey





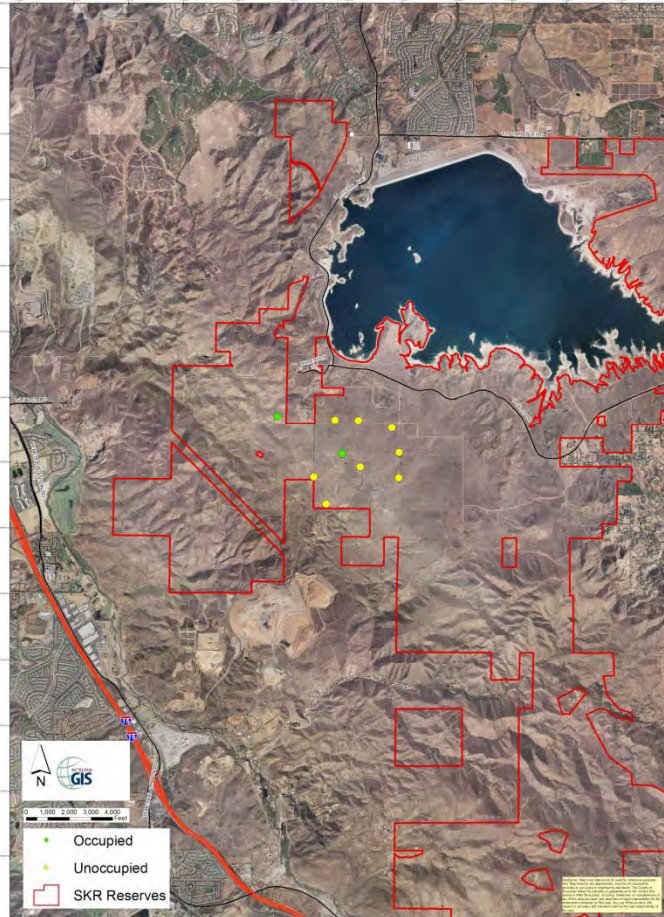
AFTER – 2 years of grazing





# SKR Monitoring

Lake Mathews Grid Locations



- 2010 – 10 grids
- few SKR
- 2011 – 2 grids
- 37 SKR



# Burrowing Owls

- 50 boxes – almost doubled the number of boxes in W. Riverside County
- 25 dual entrance / 25 single entrance
- box placement was randomized for distance and direction
- “prairie dog or ground squirrel colony”





# Burrowing Owls

## Assembly

## USFWS Partners Grant

\$7,500 grant



*Special thanks to: Jonathan Snapp-Cook  
Mark Pavelka, Clark Winchell*



# Burrowing Owls



USFWS Carlsbad Field Office Volunteers



# Burrowing Owls

- 2009 – 1 migrant showed up in middle of grazing area
- 2010 – 2 residents took refuge in a tire
- Fall 2010 – 50 artificial burrows installed
- Spring 2011 – resident pair fledged 3 young
- Spring 2012 – 12 owls (8 owls in artificial boxes / 3 natural burrows / 1 in concrete drain pipe)
  - 2 -3 breeding pair





# Burrowing Owls

2012 – 2 pair and a possible 3rd





# Thoughts for the Future

- Would stacking treatments be beneficial?
  - Ex: late spring fire followed by winter grazing
- Is restoration the goal or is a functional habitat okay?
- Can native grazers be re-introduced in reserves if enough acreage is available by creating partnerships.
- Partners need to selflessly coordinate towards common goals.





Burned Spring 2010  
Grazed Winter 2010 / 11

Burned Spring 2011



# SUMMARY

- 1) Develop your vision / goal for the land
- 2) Use any and all tools available to achieve your vision
- 3) Think large scale / agricultural scale
- 4) Do NOT come to rely on any single treatment
- 5) Change course if necessary
- 6) Do not let the fear of the unknown prevent action

**Lake Mathews – February 1951**



	Reserve Management Summary of Action				
Name of Reserve		Management Activity			Totals (acres)
	Mowing(acre)	Burning(acre)	Grazing(acre)	Herbicide(acre)	
Lake Perris SRA	0	370	Not Allowed	0	370
San Jacinto Wildlife Area Davis Unit	600	Not Allowed	Not Allowed	Not Allowed	600
San Jacinto Wildlife Area Potrero Unit	NOTE: No management until management plan approved.				-----
Motte/Rimrock Core Reserve	Unspecified	Not Allowed	Not Allowed	Not Allowed	-----
Southwestern Riverside County Multi Species Reserve	78	43	50	28	199
Potrero ACEC					
Steele Peak	79.2	0	5	0	84.2
Sycamore Canyon	35	0	175	0	210
Lake Mathews	39	270	1060	0	1369
Total	831.2	683	1290	28	2832.2



# QUESTIONS?

