

# **Alternative Futures Assessment at the Range Complex Level: Southwest United States**

**Dave Mouat and Scott Bassett**

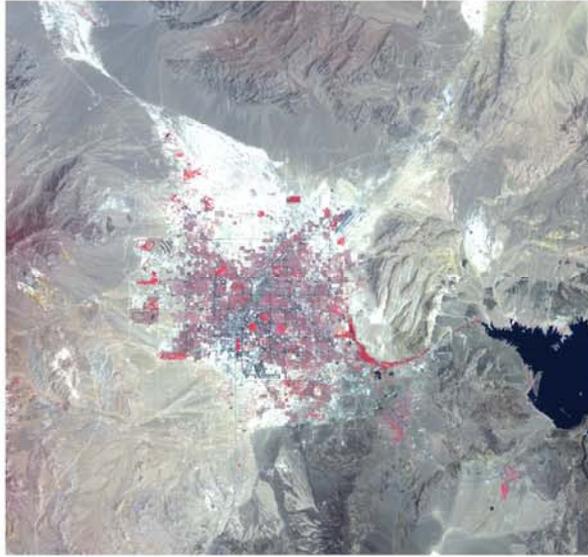
**Fallon NAS, Nevada**

**18 September 2008**





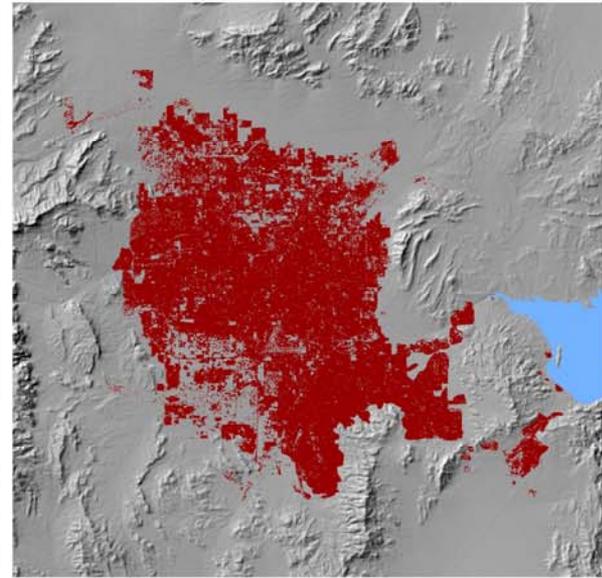
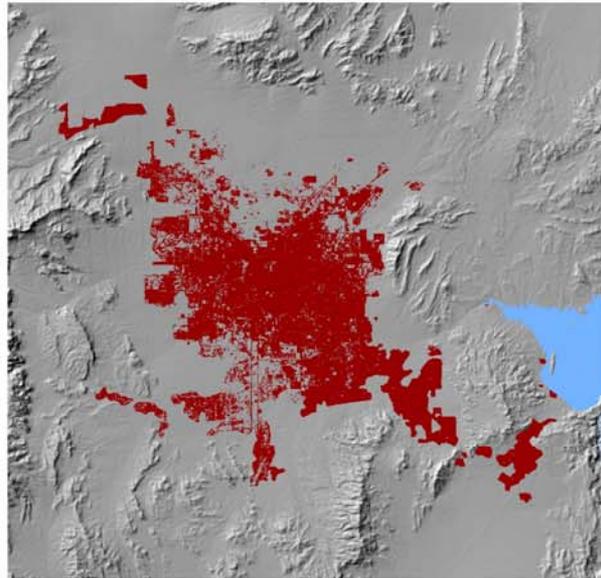
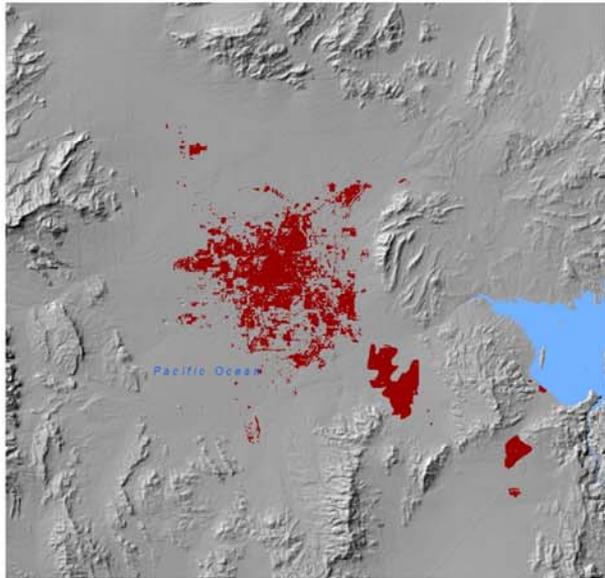
1975



1991



2008



### Las Vegas Growth from 1975-2008

Urban Area



Draft



# Addressing Encroachment with Alternative Futures

- Predictions and projections of future landscapes
- Tool to facilitate sustaining the military mission



# Alternative Futures Analysis:

## The Process

- Identify framing issues and critical uncertainties that face a region
- Develop scenarios; spatially allocate alternative futures in a GIS framework; assess impacts



# Previous Studies

- Pendleton I
- Pendleton II
- Mojave Bases
- Fort Huachuca
- Pendleton-Miramar
- Southwest Futures
- (non DoD: Willamette Valley, Oregon)



**Alternative Futures  
Assessment  
of the Context Region of MCB  
Camp Pendleton and MCAS  
Miramar**



# Stakeholder Workshops

- Composed of individuals representing local stakeholders
- Identify framing issues
- Identify uncertainties
- Formulate scenarios



# Framing Issues

- Should the state be more aggressive with environmental regulations at the expense of business interests?
- Should the region make clean air regulations more stringent?

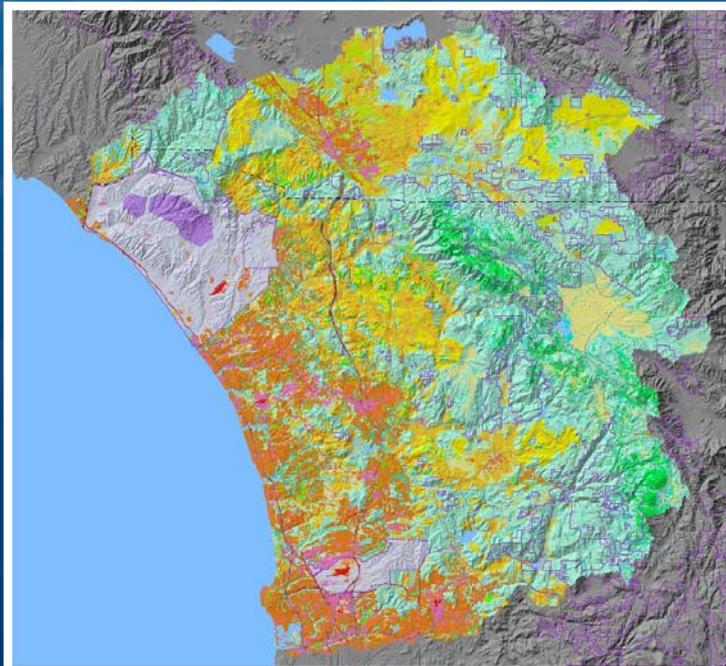


# Critical Uncertainties

- Will there be sufficient water to satisfy all perceived needs?
- Will future environmental regulations be different than they are today?



# CPEN Miramar Study Area, 2000



## ➤ POPULATION INCREASE

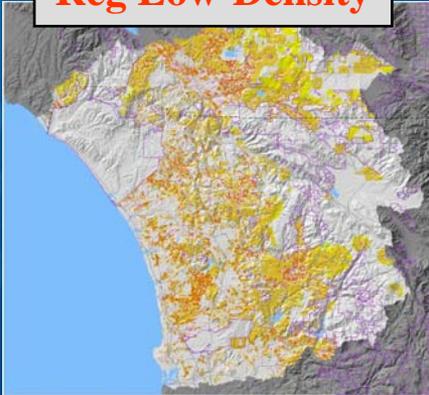
- 500,000
- 1,000,000

## ➤ UNCERTAINTIES

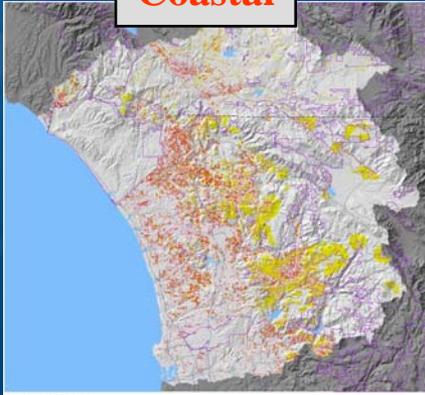
- Water
- Energy
- Mass Transportation
- Acceptance of high-density living
- Public value of conservation

# Alternative Futures 2025

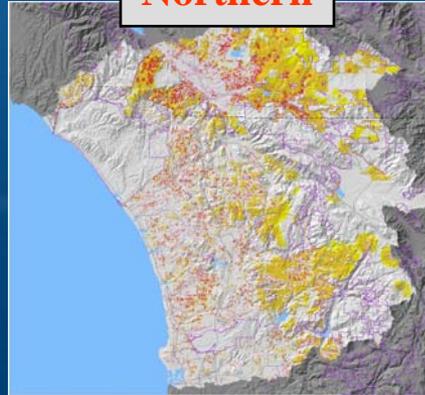
**Reg Low-Density**



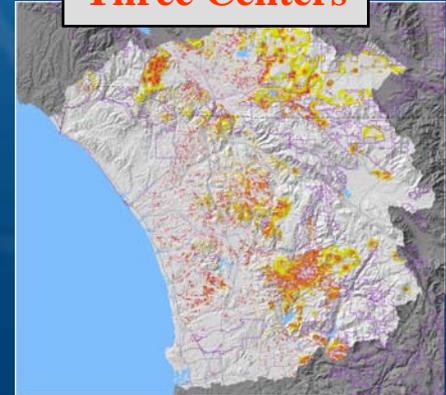
**Coastal**



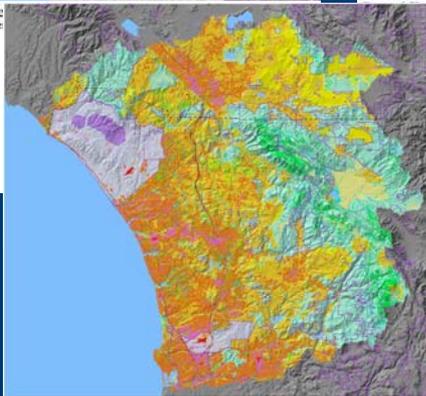
**Northern**



**Three Centers**



**Regional Low-Density**  
1,000,000 New Residents  
New Development



**Regional Low-Density Future**

1,000,000 New Residents

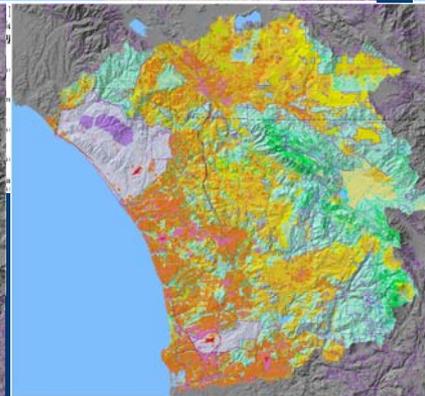
Land Use/Land Cover



**Coastal Future**

1,000,000 New Residents

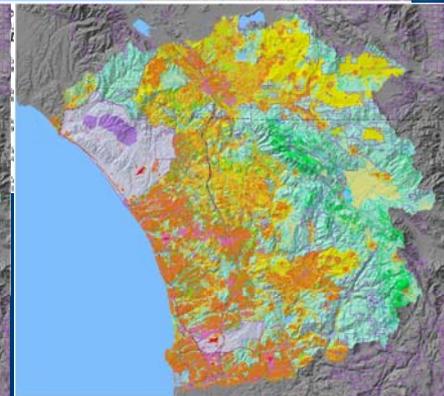
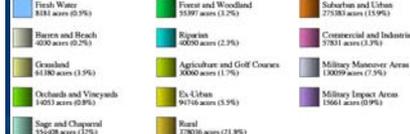
Land Use/Land Cover



**Northern Future**

1,000,000 New Residents

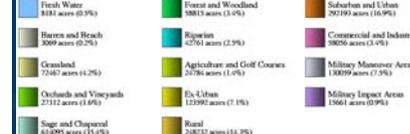
Land Use/Land Cover



**Three-Centers Future**

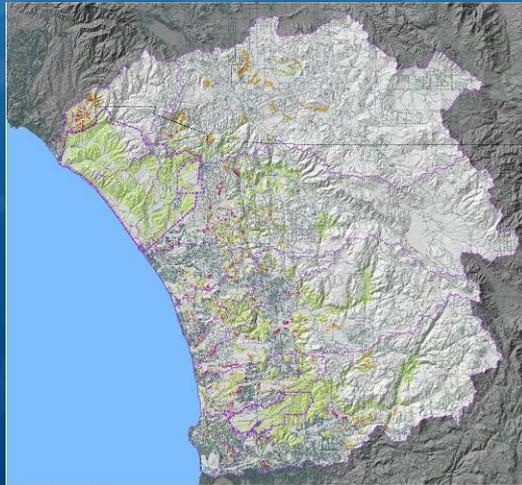
1,000,000 New Residents

Land Use/Land Cover



# Impact Assessment: Biodiversity (California Gnatcatcher Potential Habitat Change)

Northern

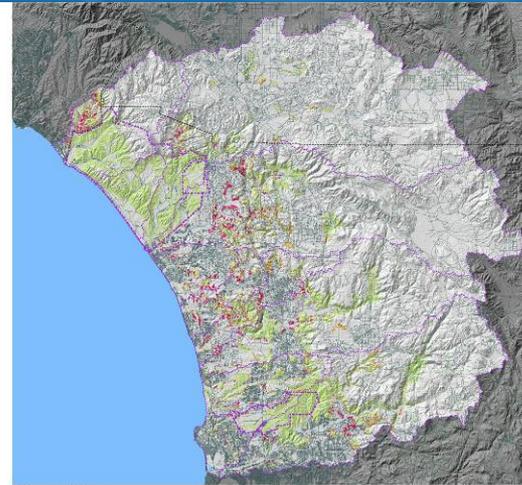


Northern Future  
1,000,000 New Residents  
California Gnatcatcher Potential Habitat



Draft

Coastal

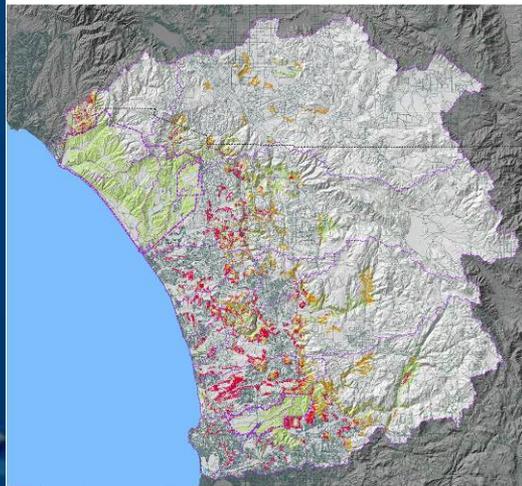


Coastal Future  
1,000,000 New Residents  
California Gnatcatcher Potential Habitat



Draft

Regional  
Low  
Density

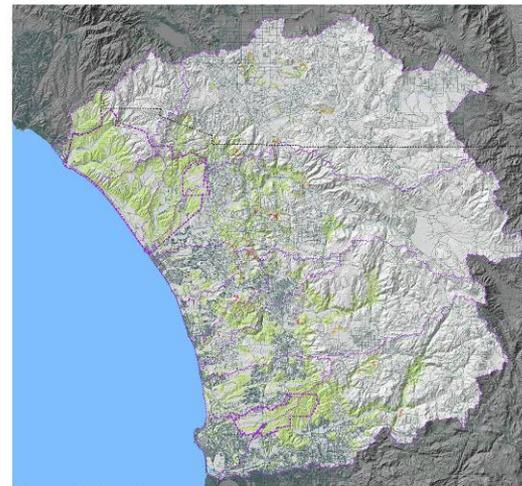


Regional Low Density Future  
1,000,000 New Residents  
California Gnatcatcher Potential Habitat



Draft

Three  
Centers



Three Centers Future  
1,000,000 New Residents  
California Gnatcatcher Potential Habitat



Draft



# % of Selected T&E Potential Habitat on DoD Lands

	2000	Coastal		Northern		Reg L-D		3-Centers	
		0.5m	1.0m	0.5m	1.0m	0.5m	1.0m	0.5m	1.0m
<b>Willowy Monardella</b>	<b>30</b>	<b>32</b>	<b>35</b>	<b>32</b>	<b>35</b>	<b>33</b>	<b>36</b>	<b>30</b>	<b>30</b>
<b>Fairy Shrimp</b>	<b>70</b>	<b>76</b>	<b>82</b>	<b>75</b>	<b>79</b>	<b>77</b>	<b>82</b>	<b>70</b>	<b>70</b>
<b>Calif. Gnatcatcher</b>	<b>33</b>	<b>36</b>	<b>39</b>	<b>36</b>	<b>38</b>	<b>36</b>	<b>52</b>	<b>34</b>	<b>34</b>
<b>W. Snowy Plover</b>	<b>45</b>	<b>47</b>	<b>47</b>	<b>46</b>	<b>47</b>	<b>46</b>	<b>46</b>	<b>45</b>	<b>45</b>
<b>S.W. Wil. Flycatcher</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>19</b>	<b>21</b>	<b>20</b>	<b>24</b>	<b>19</b>	<b>20</b>
<b>Least Bell's Vireo</b>	<b>16</b>	<b>16</b>	<b>18</b>	<b>17</b>	<b>19</b>	<b>18</b>	<b>21</b>	<b>17</b>	<b>18</b>

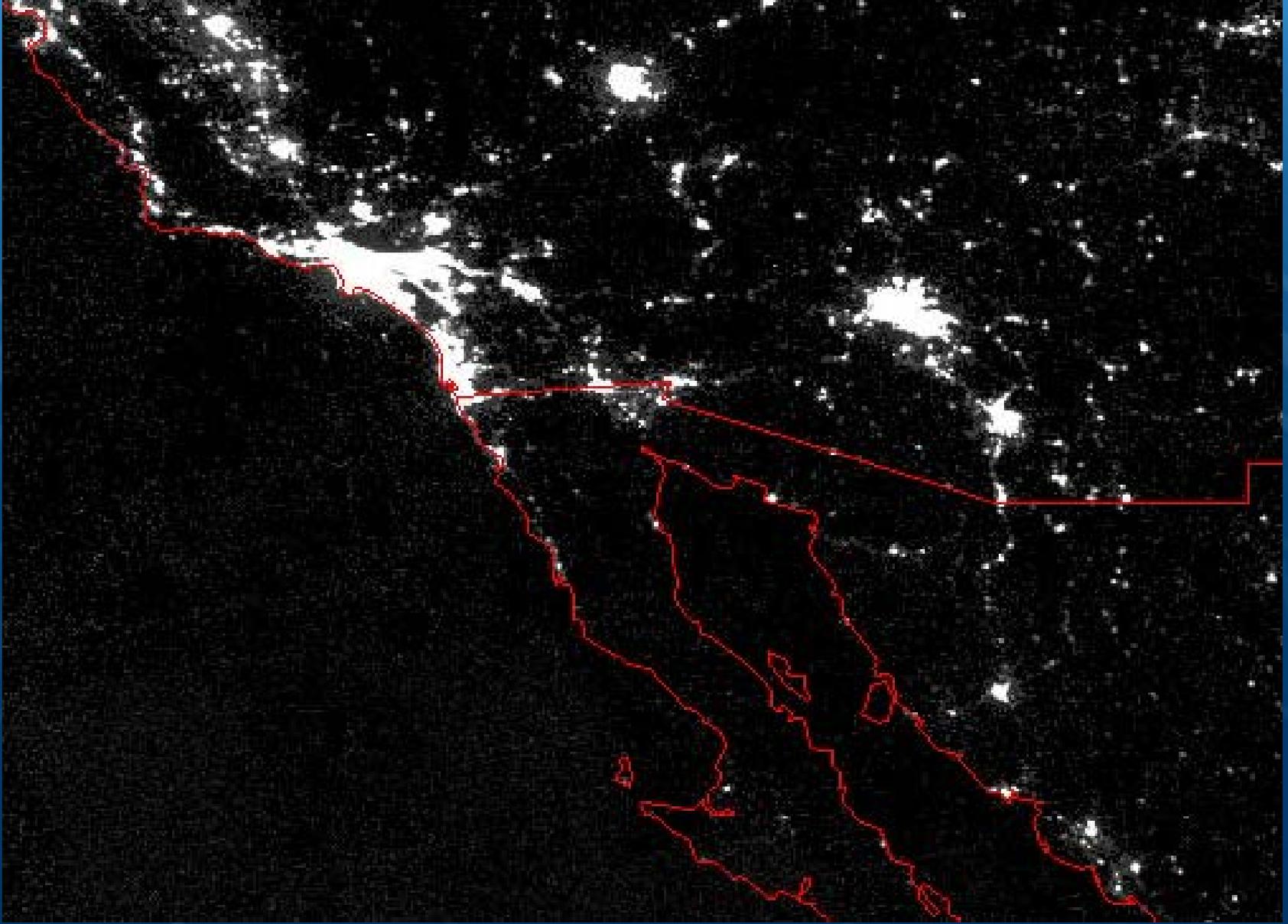
Environmental Decisions and Uncertain Futures

Scenarios for the Region of MCB Camp Pendleton & MCAS Miramar, California

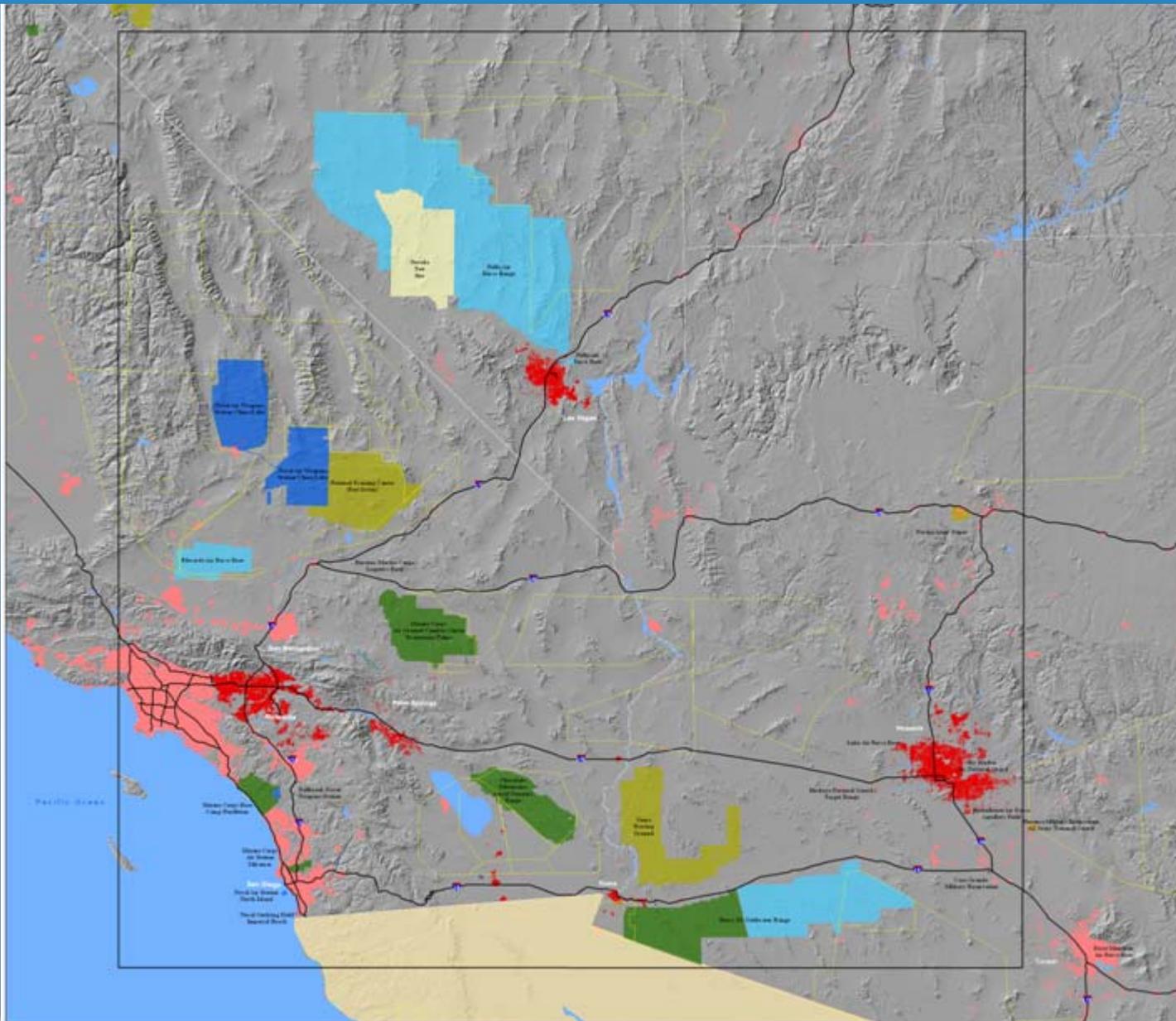
# Alternative Futures Assessment at the Range Complex Level: Southwest United States

OSD





DMSP OLS Lunar Cycle Composite Image, November 5 - December 4, 2006, Southwest U.S. and Northwest Mexico



### Southwest Futures Context

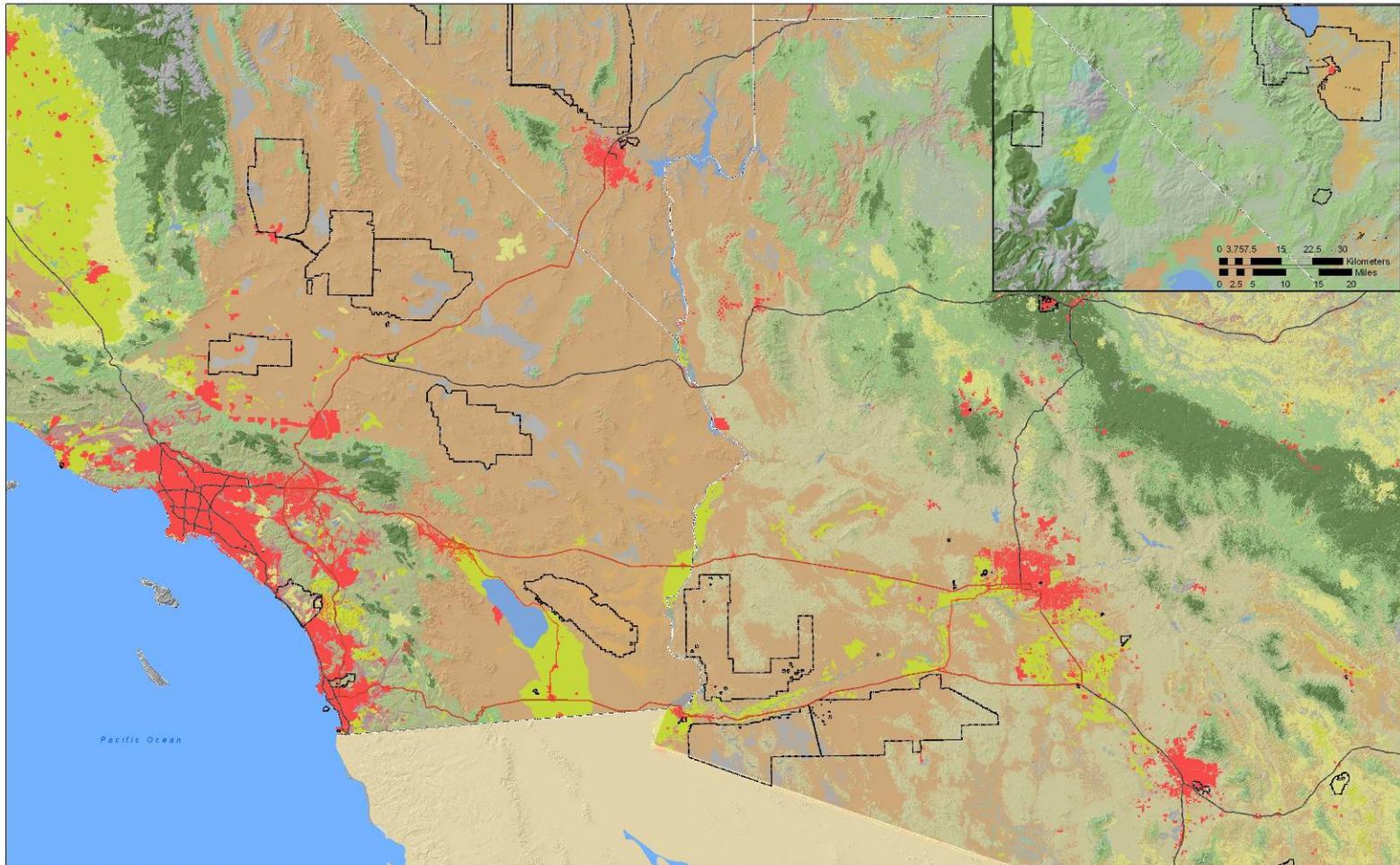


**Draft**

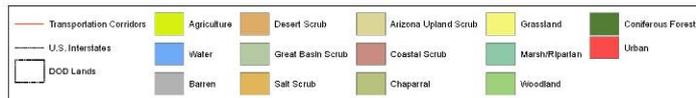


David R. Anderson, Sarah  
University of Nevada, Reno  
Bates/Cassidy

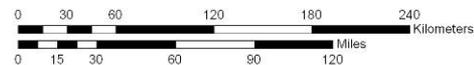
# Regional Land Cover



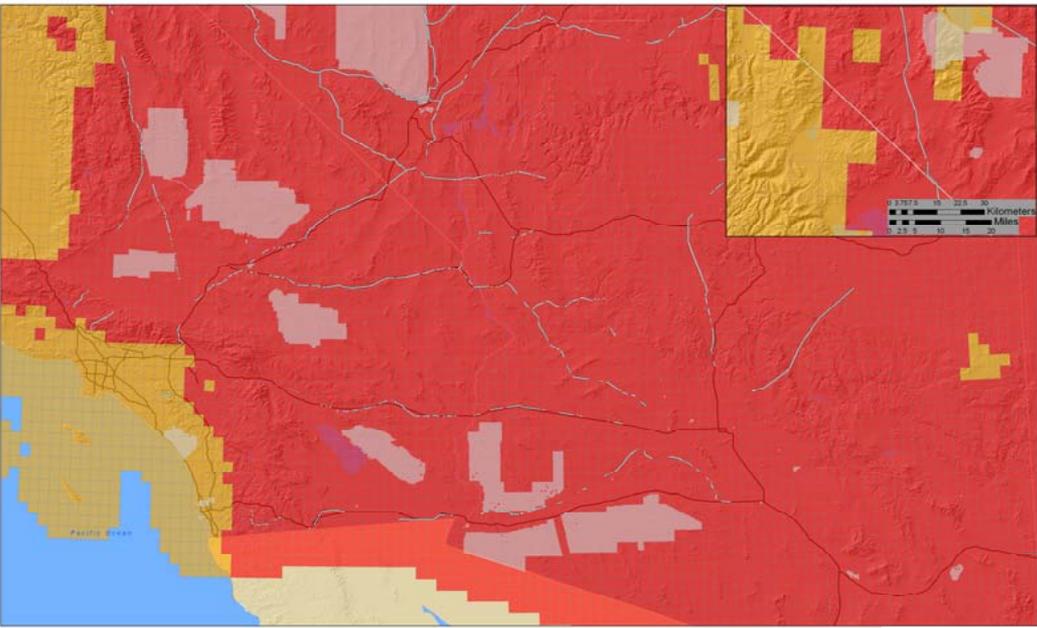
Land Cover of the Southwestern United States



**Draft**



# Solar Energy Potential

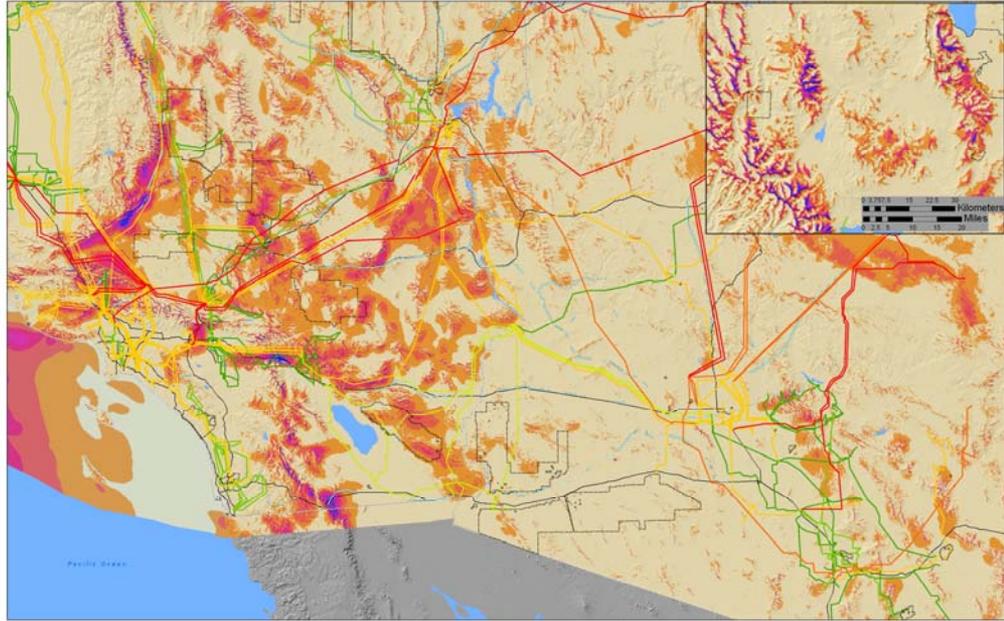


Solar Potential for the Southwest

U.S. Boundaries	Solar Potential	Very Good
1000 Lands	Moderate	Fair
Proposed Energy Corridors	Good	Excellent



# Wind Energy Potential



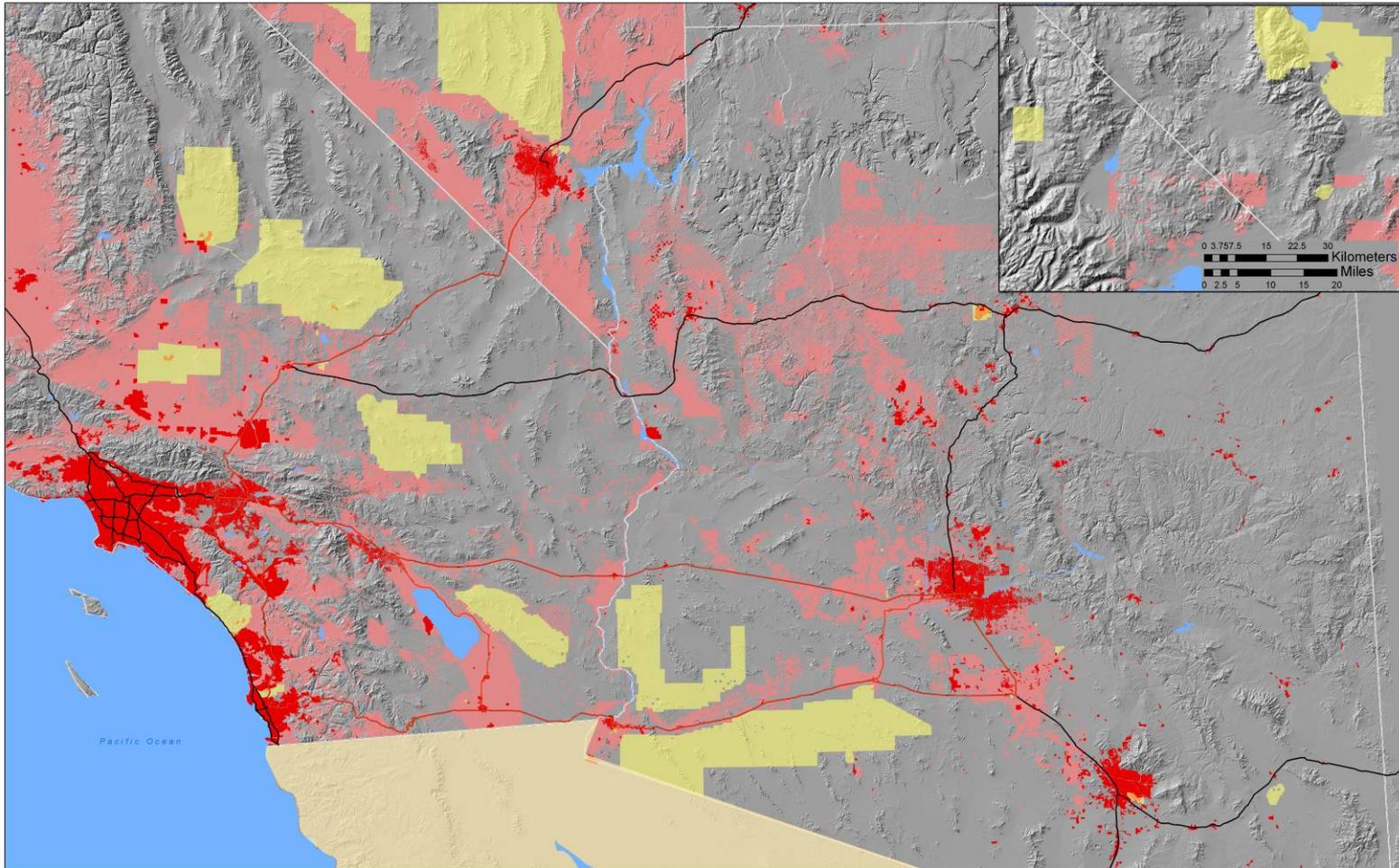
Wind Energy Potential for the Southwest

U.S. Boundaries	Wind Speed Class	Superior
1000 Lands	Excellent	Outstanding
Proposed Energy Corridors	Very Good	Excellent
	Good	Very Good
	Moderate	Good
	Fair	Moderate
	Poor	Fair



David Edwards Institute  
University of Nevada, Reno  
Reno, NV

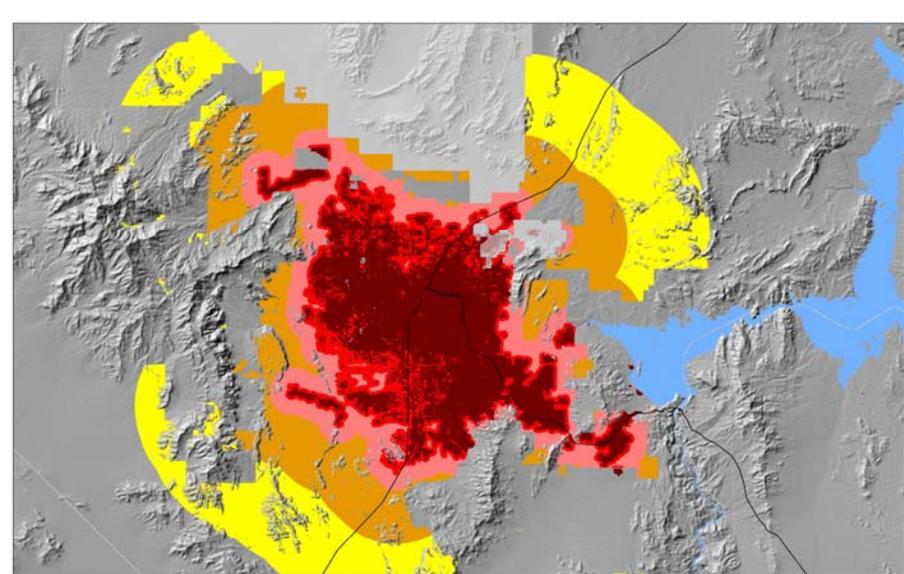
# Buildable Lands of the Southwest



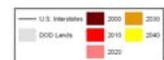
Buildable Lands of the Southwest

Draft





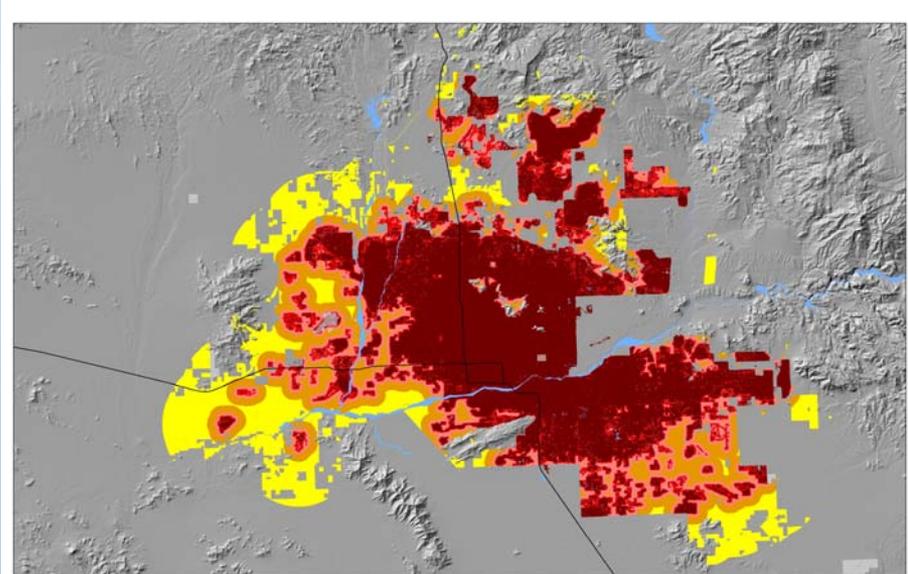
Las Vegas Urban Trend



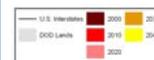
Draft



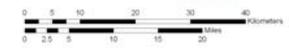
Desert Research Institute  
University of Nevada, Reno  
Raleigh, North Carolina



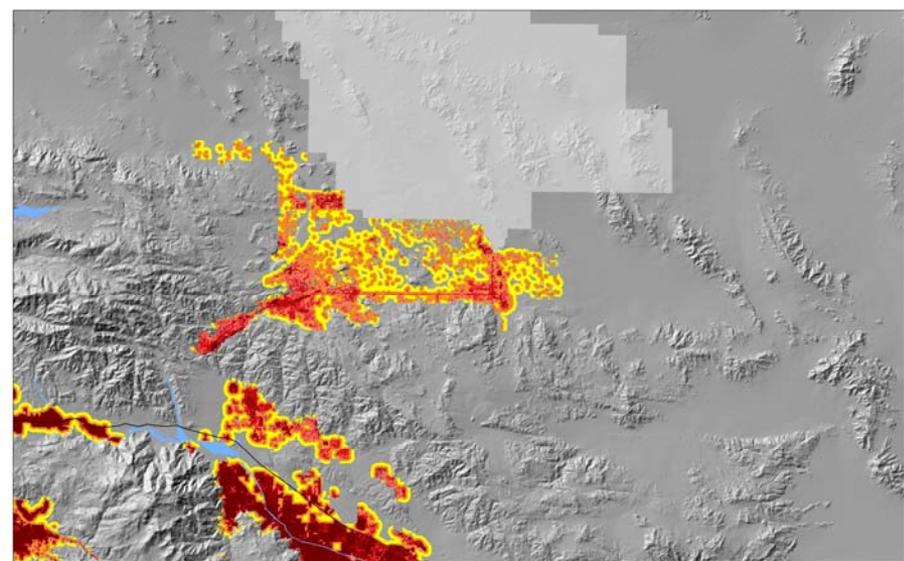
Phoenix Urban Trends



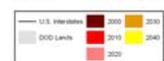
Draft



Desert Research Institute  
University of Nevada, Reno  
Raleigh, North Carolina



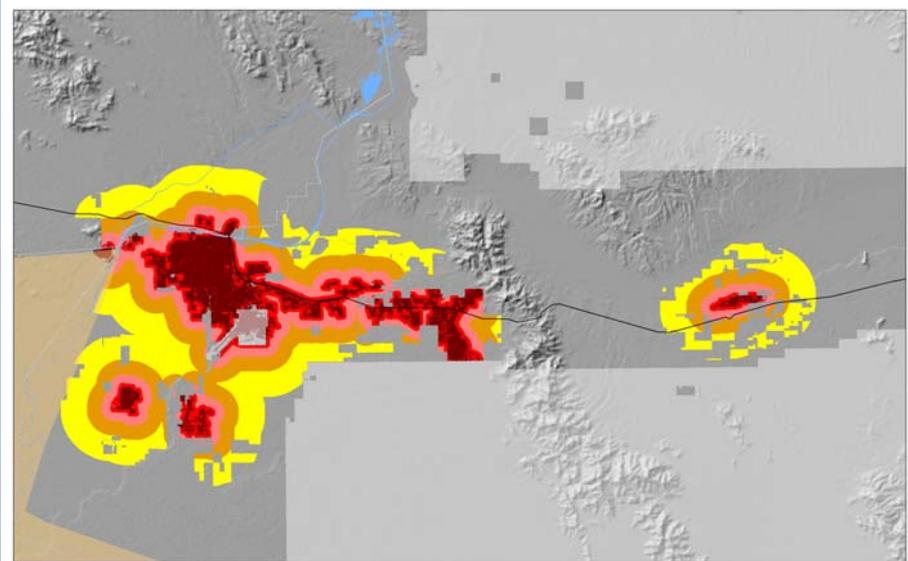
Palm Valley Urban Trend



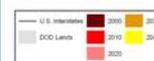
Draft



Desert Research Institute  
University of Nevada, Reno  
Raleigh, North Carolina



Yuma Urban Trend

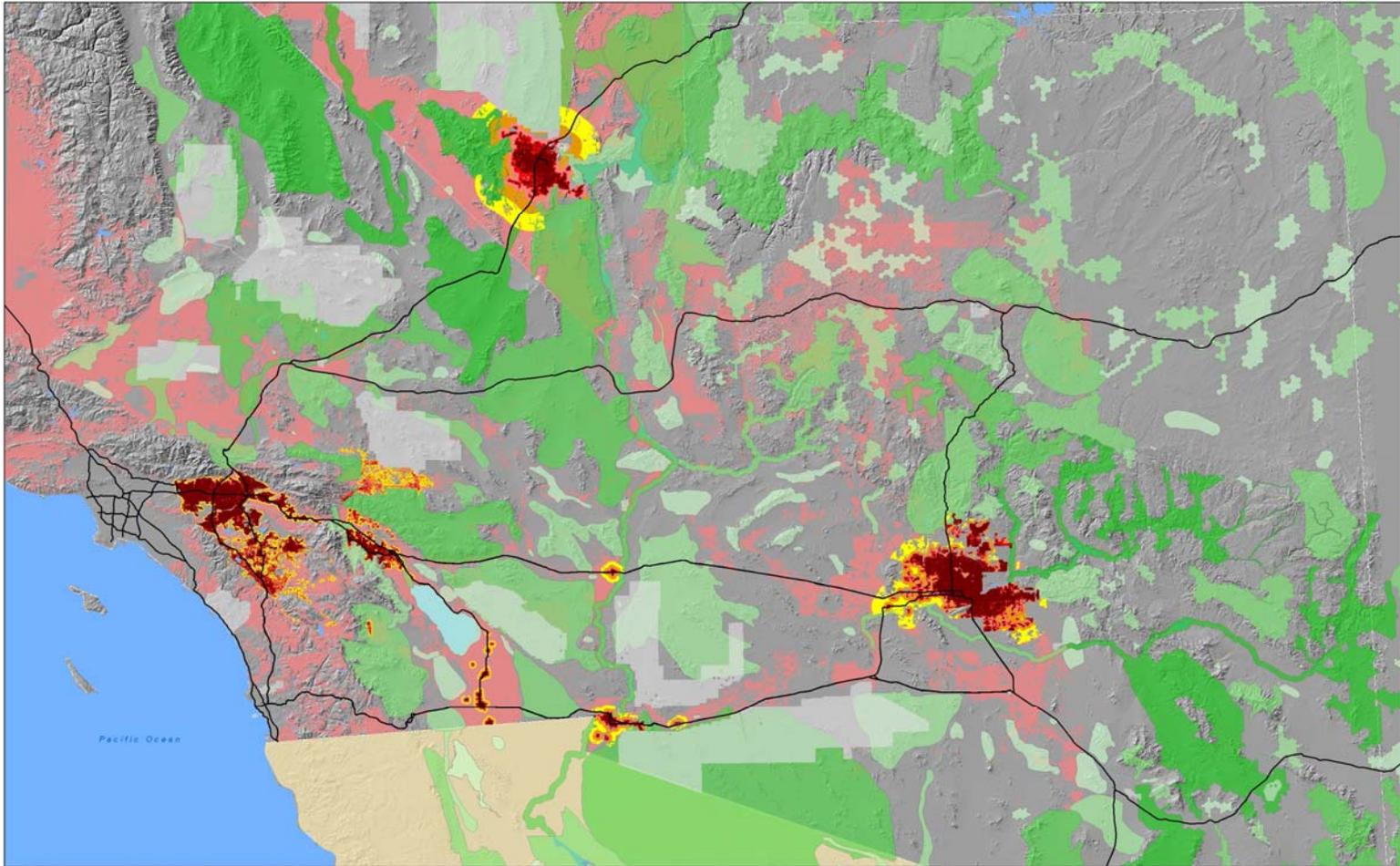


Draft



Desert Research Institute  
University of Nevada, Reno  
Raleigh, North Carolina

# DoD, TNC Cons. Areas, Buildable & Urban Trend



DoD, TNC Conservation Areas, Buildable & Urban Trend

Draft



Desert Research Institute  
University of Nevada, Reno  
Rutgers University



# Alternative Futures Assessment for the Southwest

- What are the driving forces and critical uncertainties? (population growth, climate change; water availability, public land sales)
- How do they translate to development scenarios?

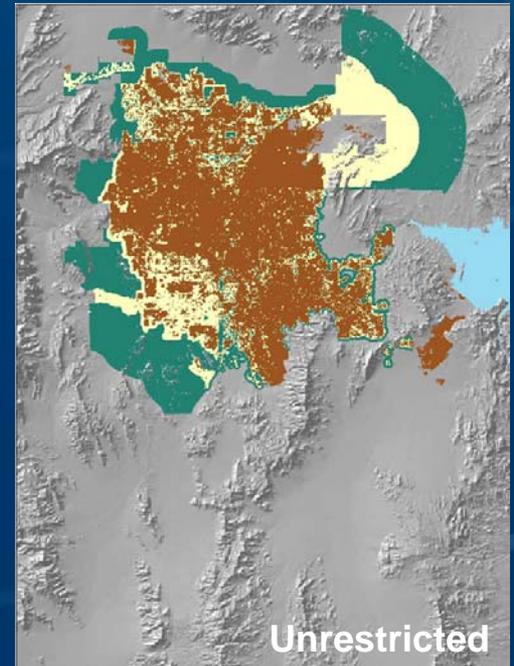
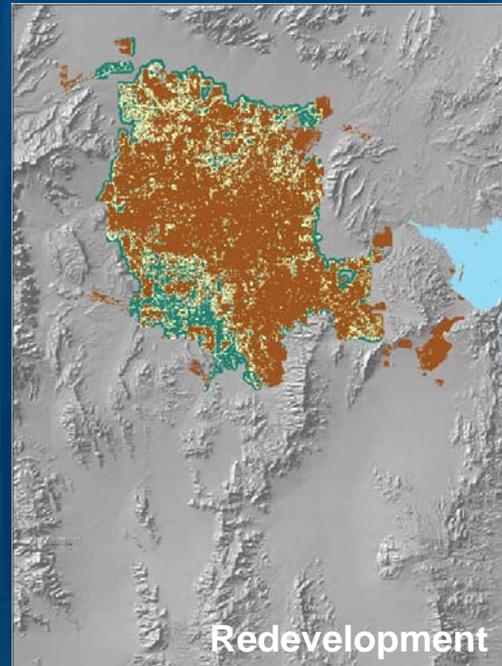
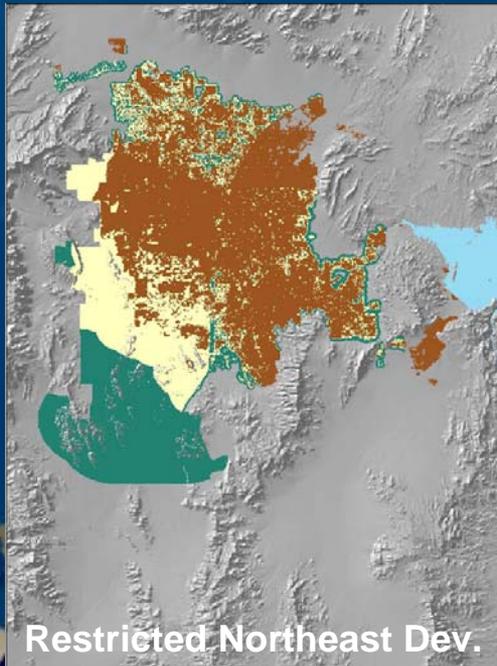
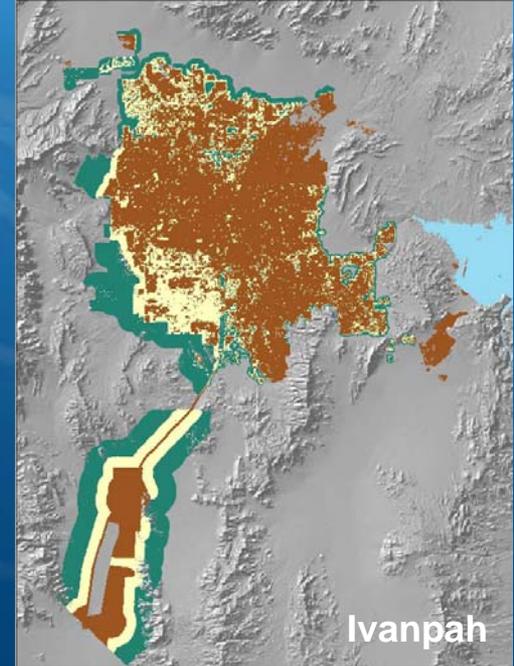
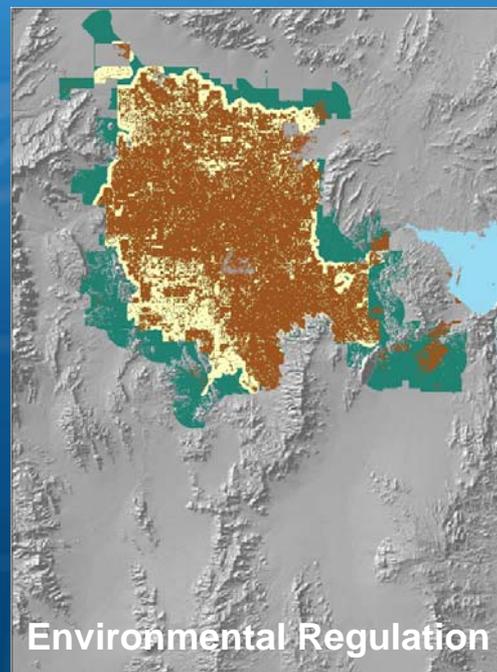
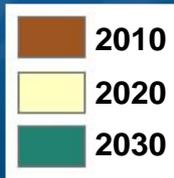


# Alternative Futures Assessment for the Southwest

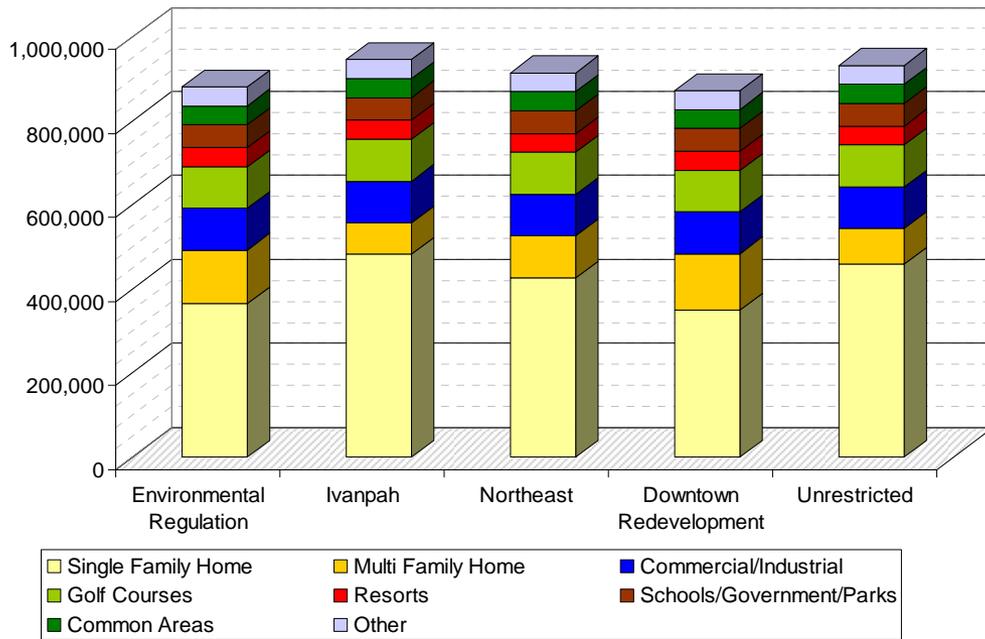
- What are the resulting alternative futures?
- What are the impacts of these alternatives on biodiversity, air quality, energy, water, etc.?



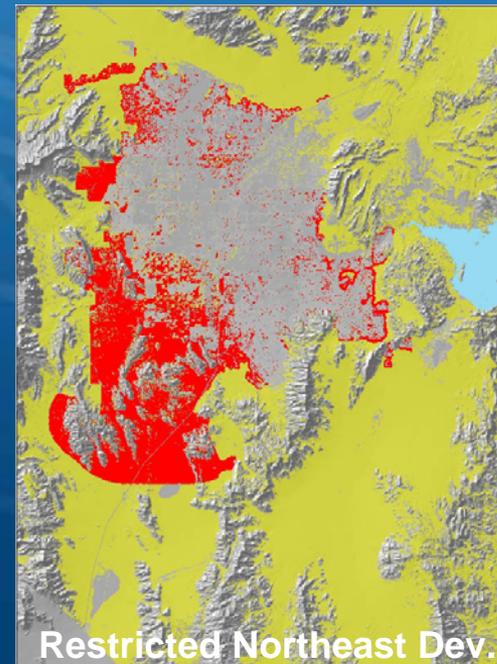
# Urban Growth Futures



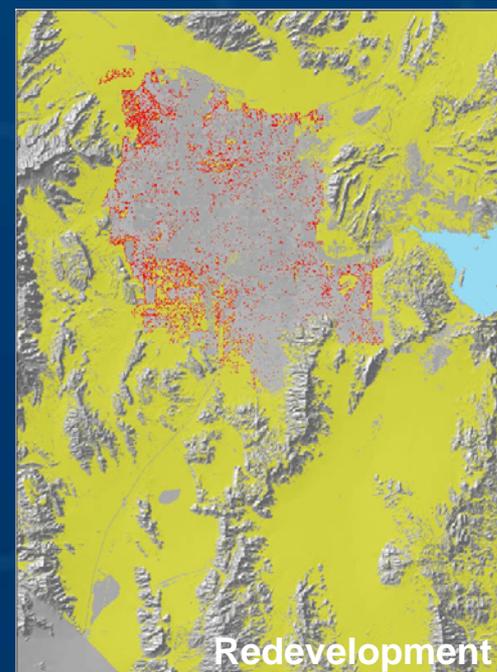
**Predicted Future Water Use**



**Desert Tortoise Pot. Hab.**



**Restricted Northeast Dev.**



**Redevelopment**

<u>School System</u>	# of Pupils	Difference	# of New Schools
Existing	305,436		
Environmental Regulation	577,784	272,348	201
Ivanpah	636,768	331,332	204
Restricted Northeast Development	608,155	302,719	226
Redevelopment	569,792	264,356	196
Unrestricted	736,291	430,855	319

# Alternative Futures for the Southwest: Summary

- Developed futures do not necessarily represent the most likely futures but rather encompass a broad range of possibilities
- Impact assessments illustrate the significance of the alternative futures themselves
- Limited land for development puts greater pressure on public lands and creates opportunities for partnering



# Racing for Survival

NAMIBIBIA

Chingal/AfriCat Acinonyx jubatus

1998

IN\$ 5.00

Architecture Films

