# ASSESSING CONNECTIVITY IN THE SAN DIEGO MSCP: EFFECTS OF LAND USE AND CLIMATE CHANGE

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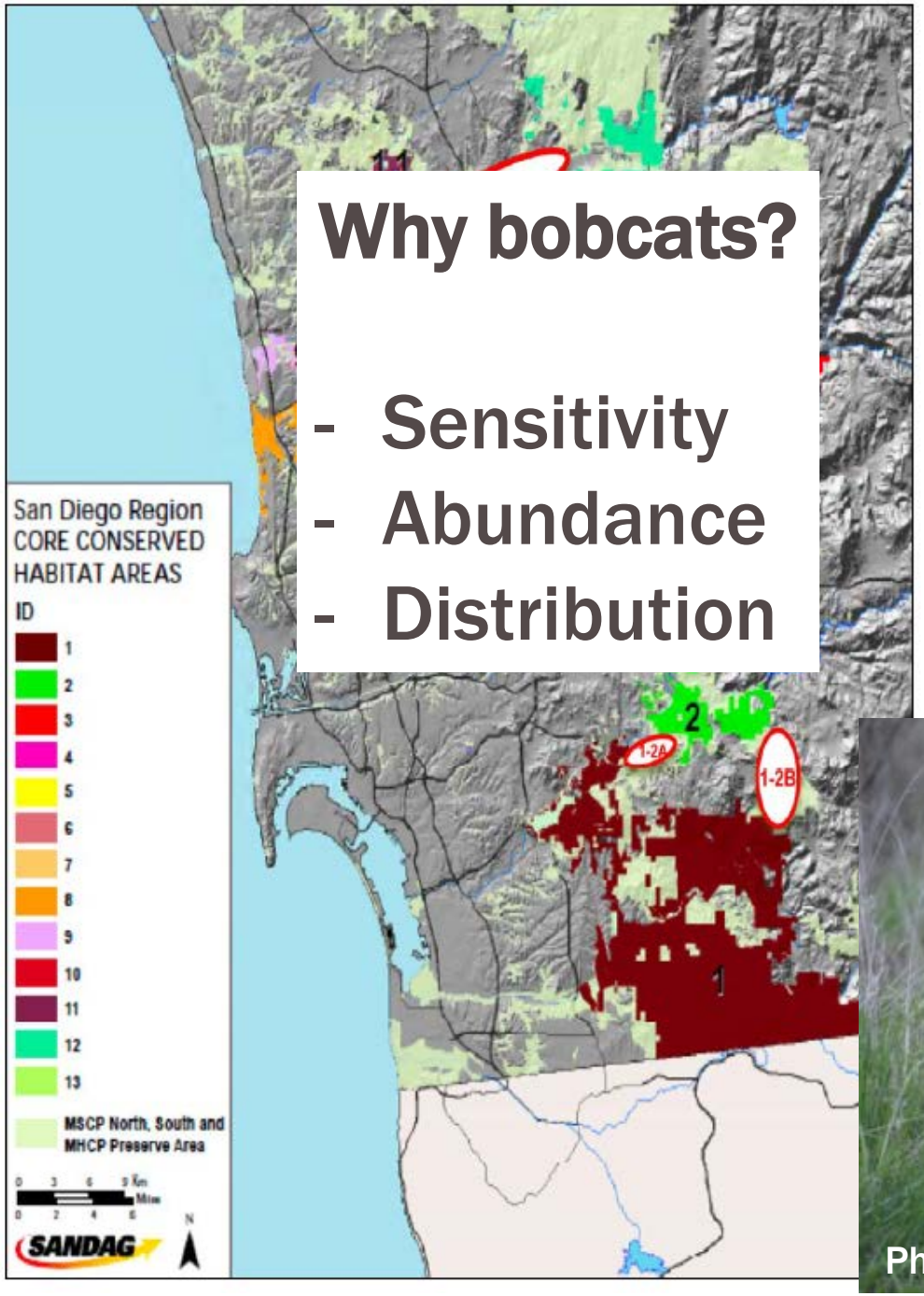
USGS
science for a changing world

# Why bobcats?

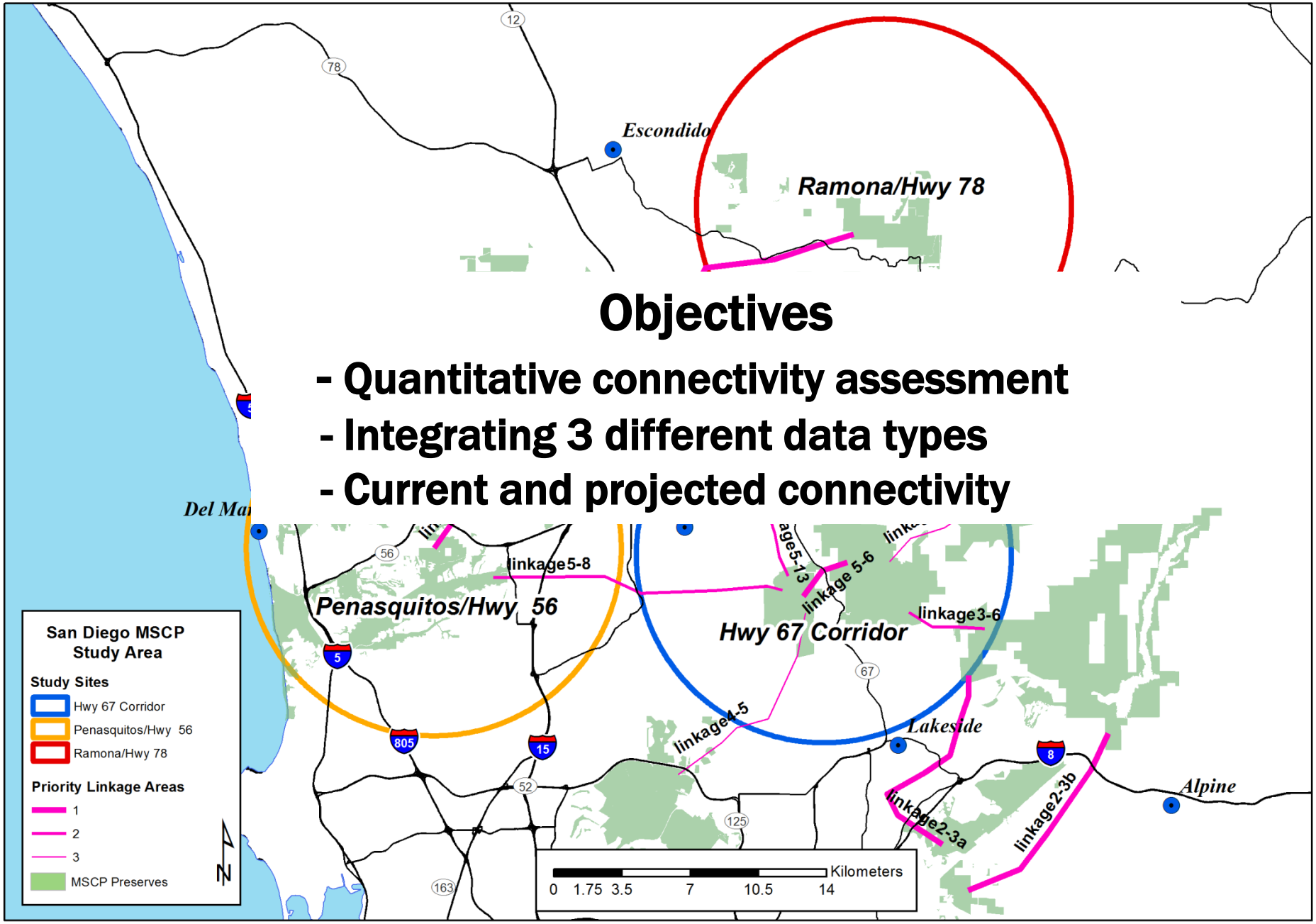
- Sensitivity
- Abundance
- Distribution




## MSCP AREA

Priority Linkages identified

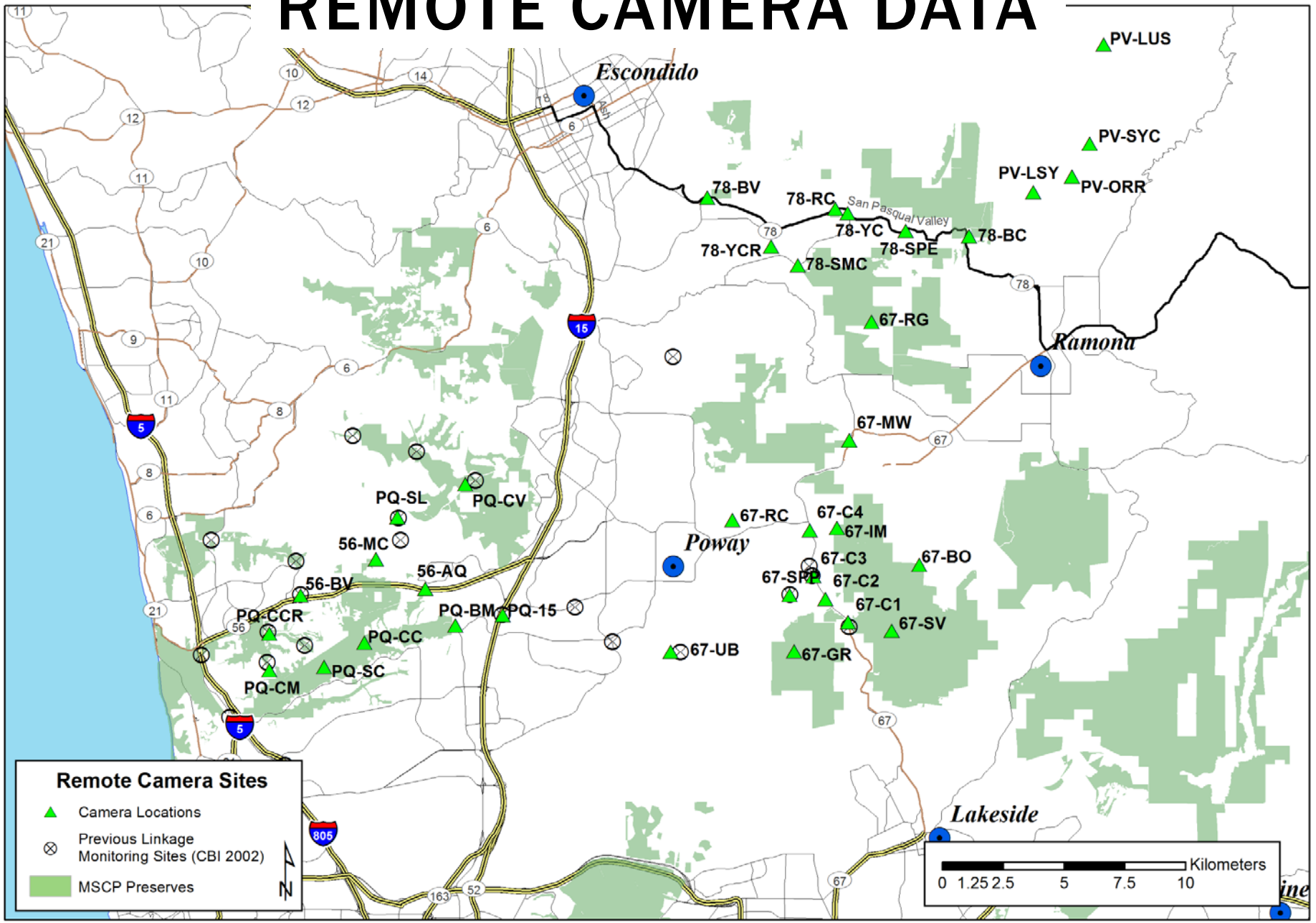
Photo: Shouqin Huo



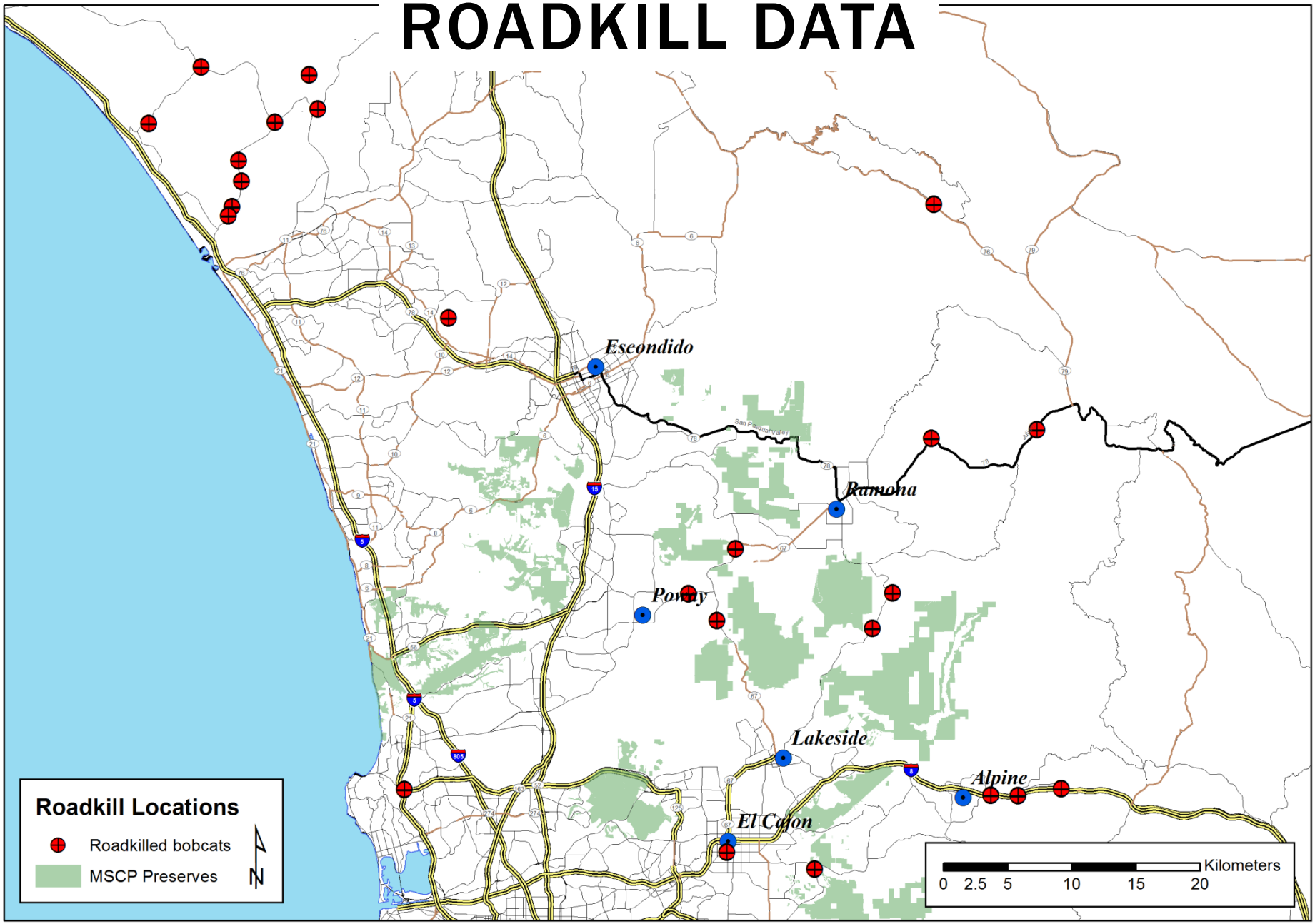

# Objectives

- Quantitative connectivity assessment
- Integrating 3 different data types
- Current and projected connectivity

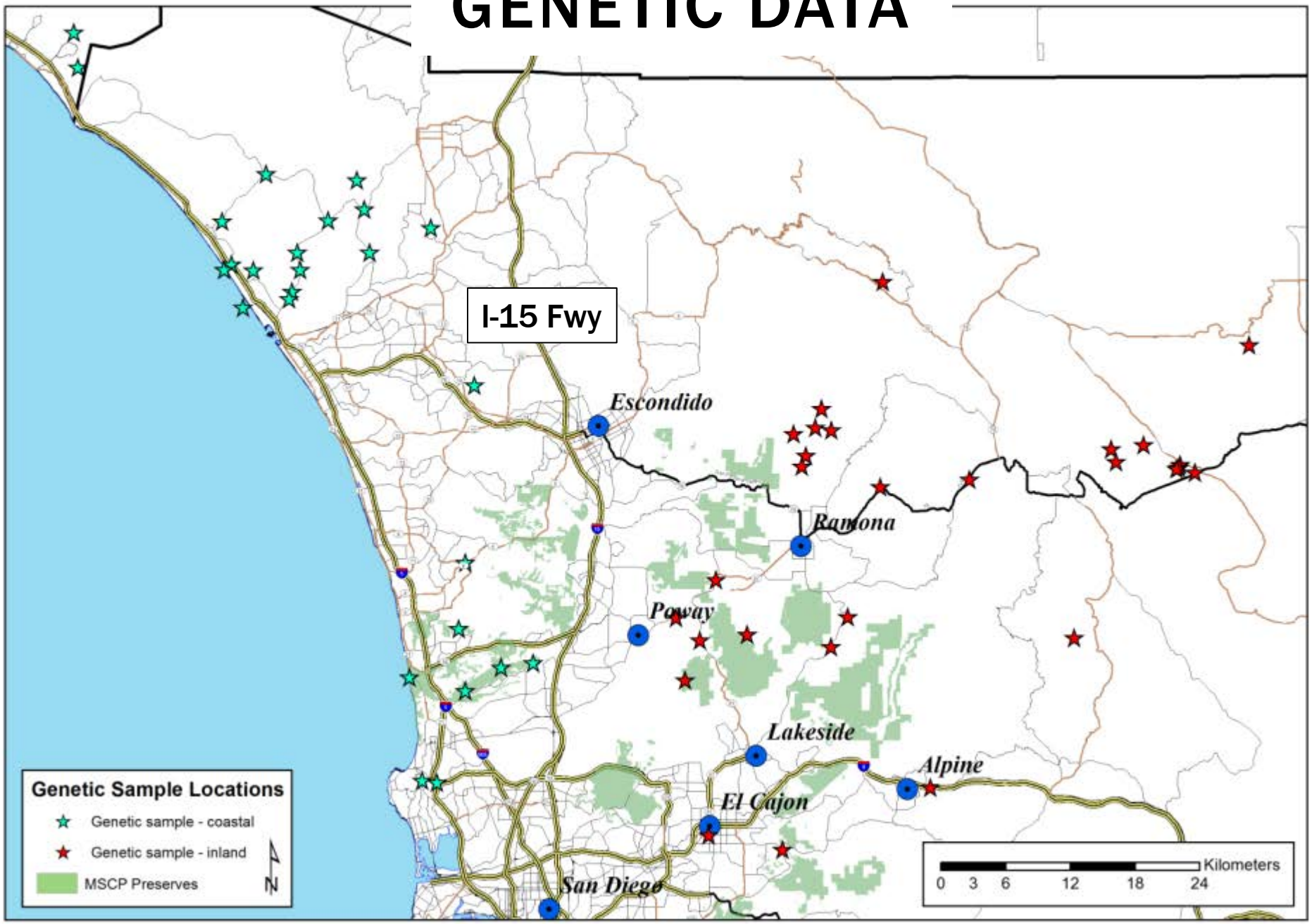
# REMOTE CAMERA DATA

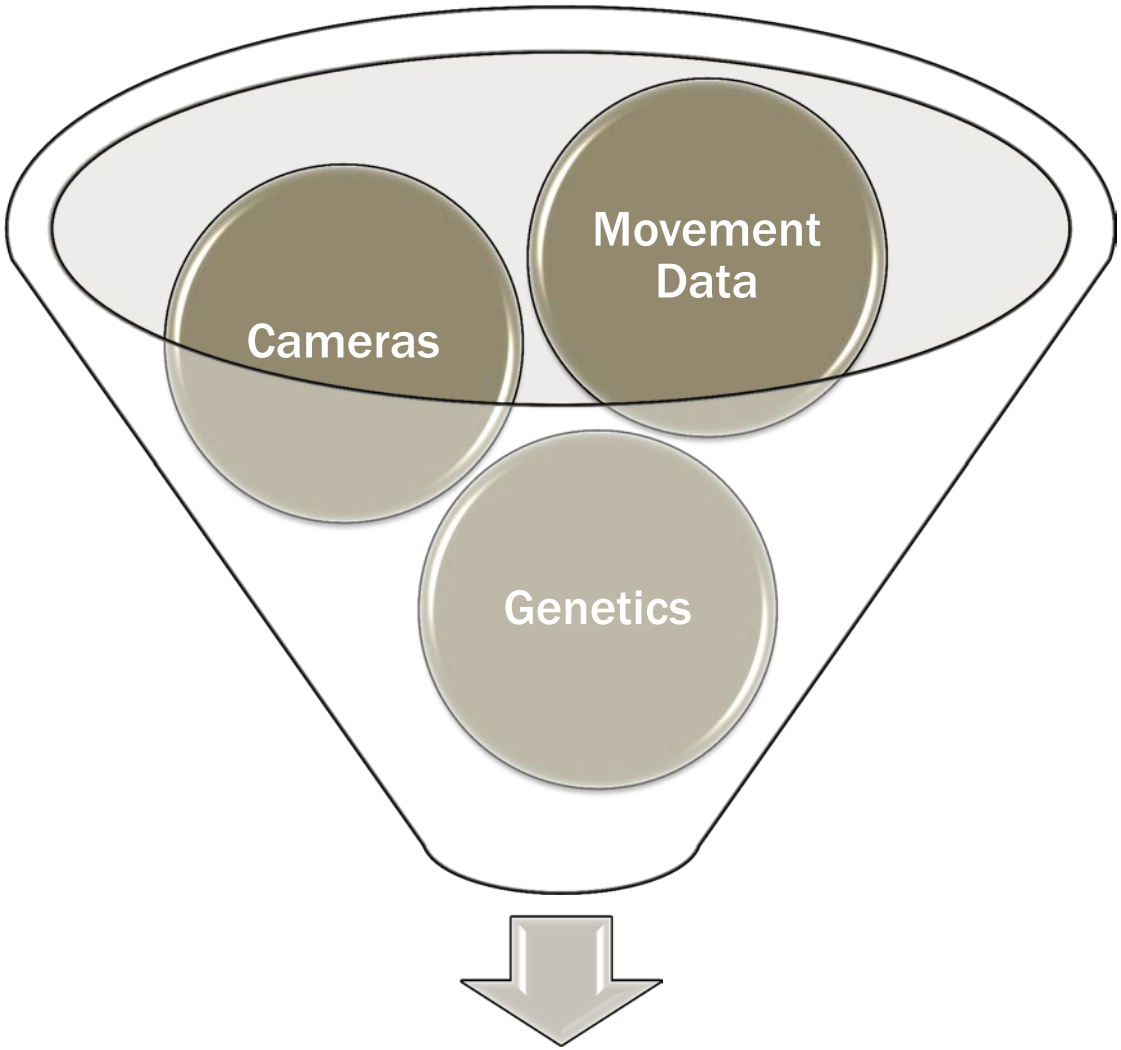


# ROADKILL DATA



# GENETIC DATA



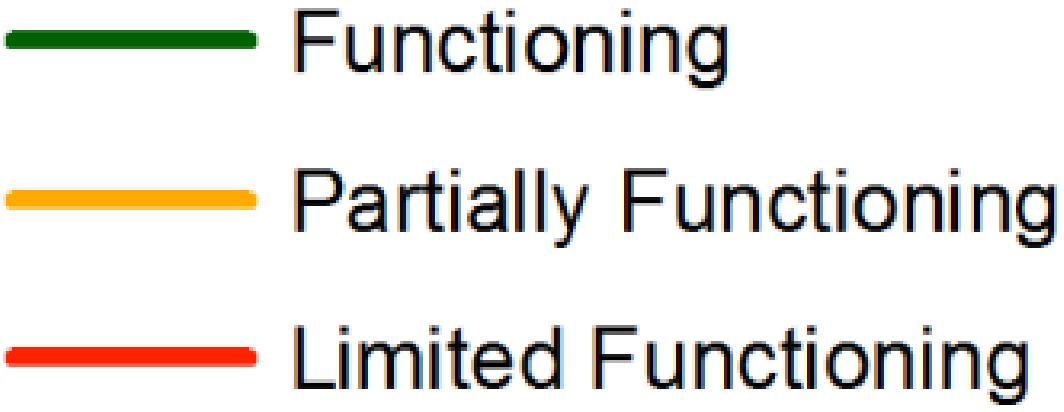



**Connectivity Assessment**

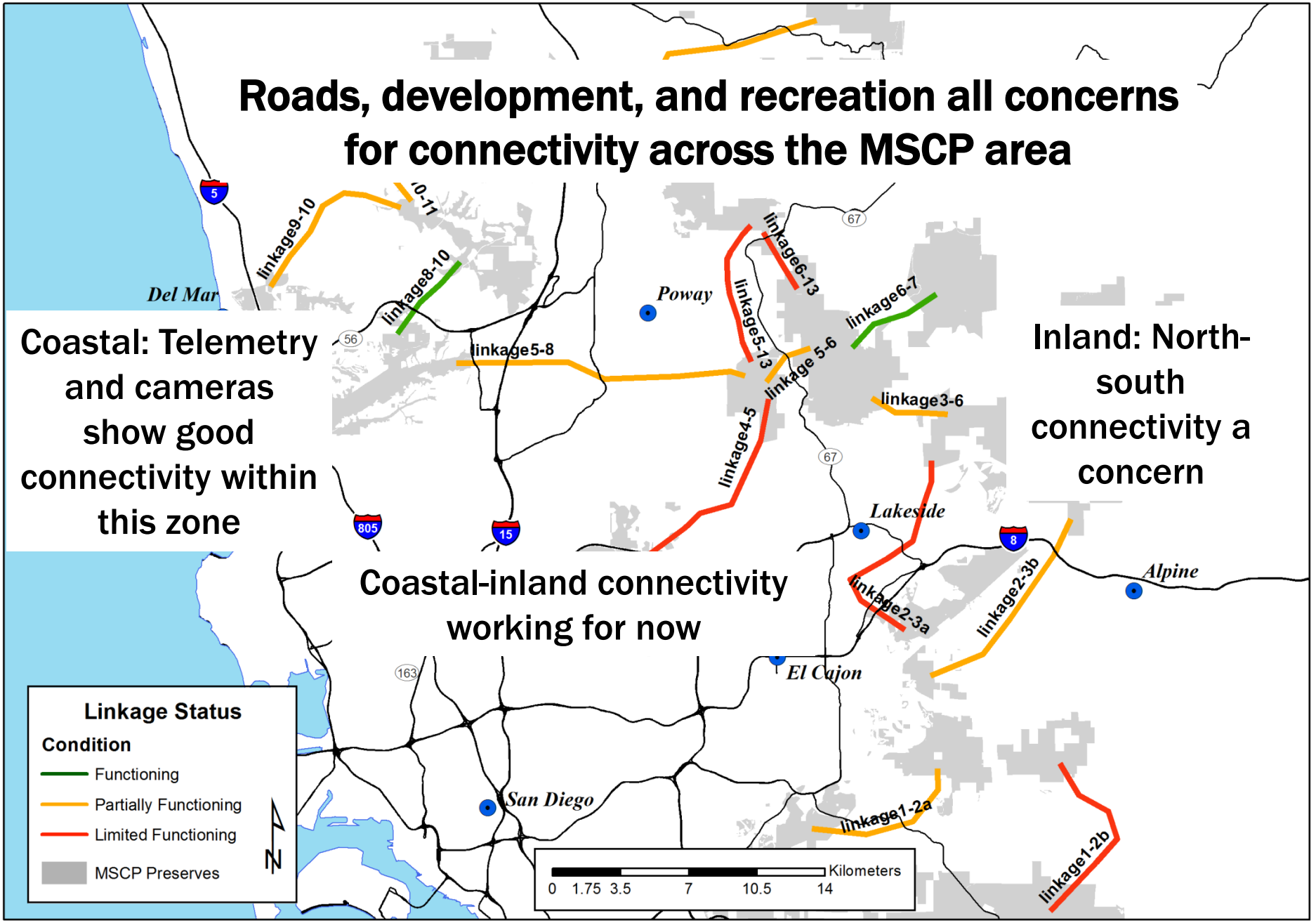
**(current and projected)**

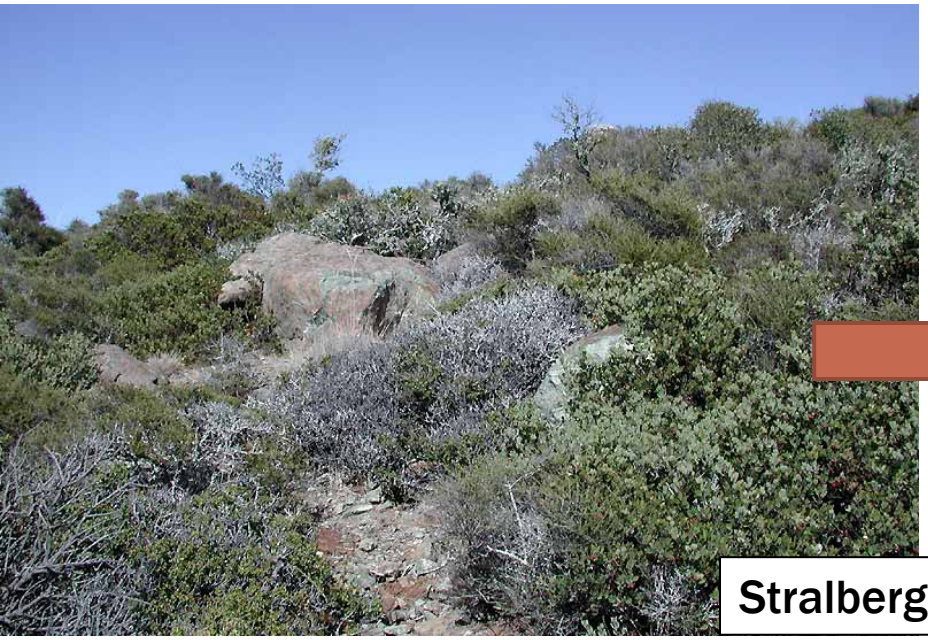
# Linkage Status

## Condition



# Roads, development, and recreation all concerns for connectivity across the MSCP area

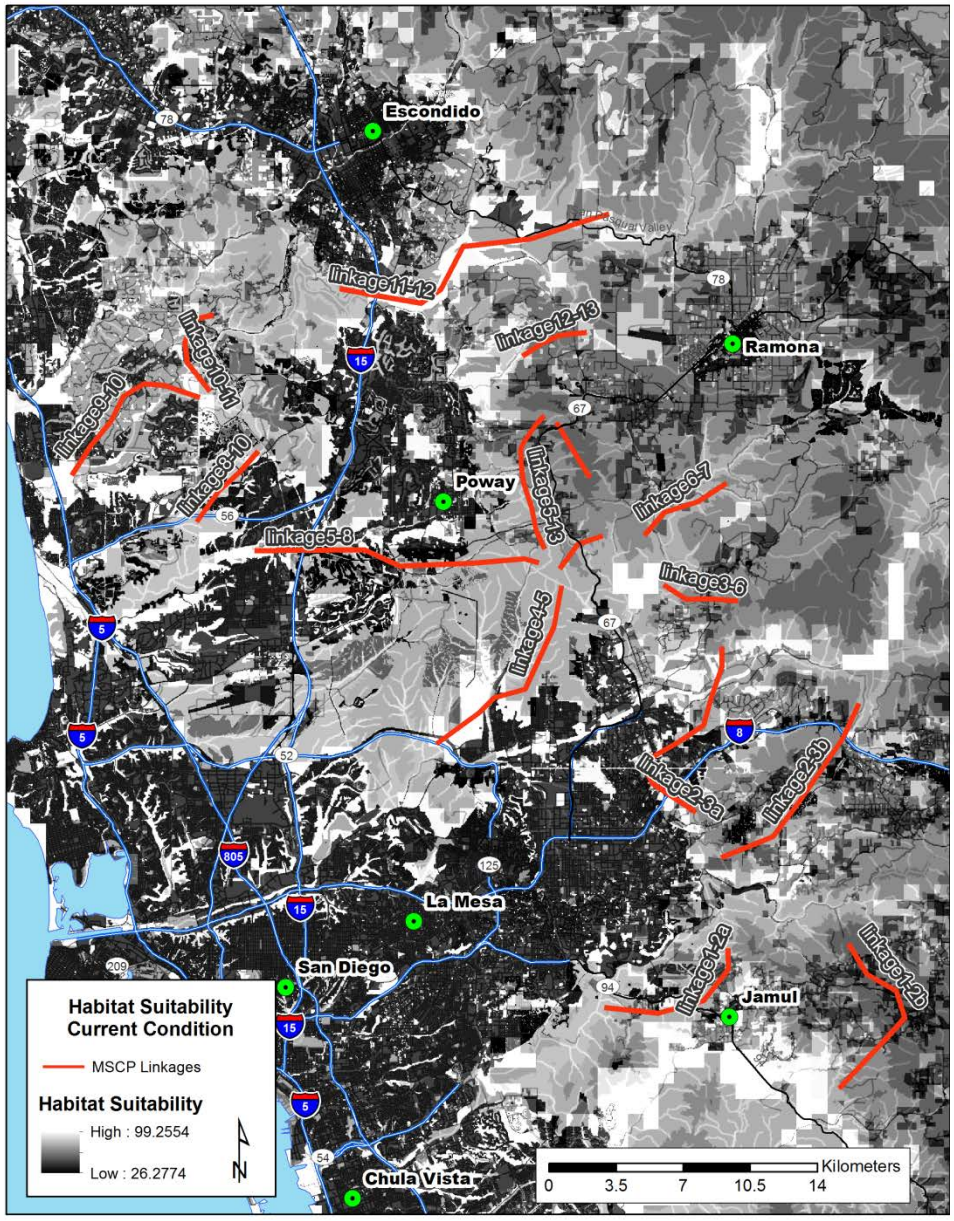




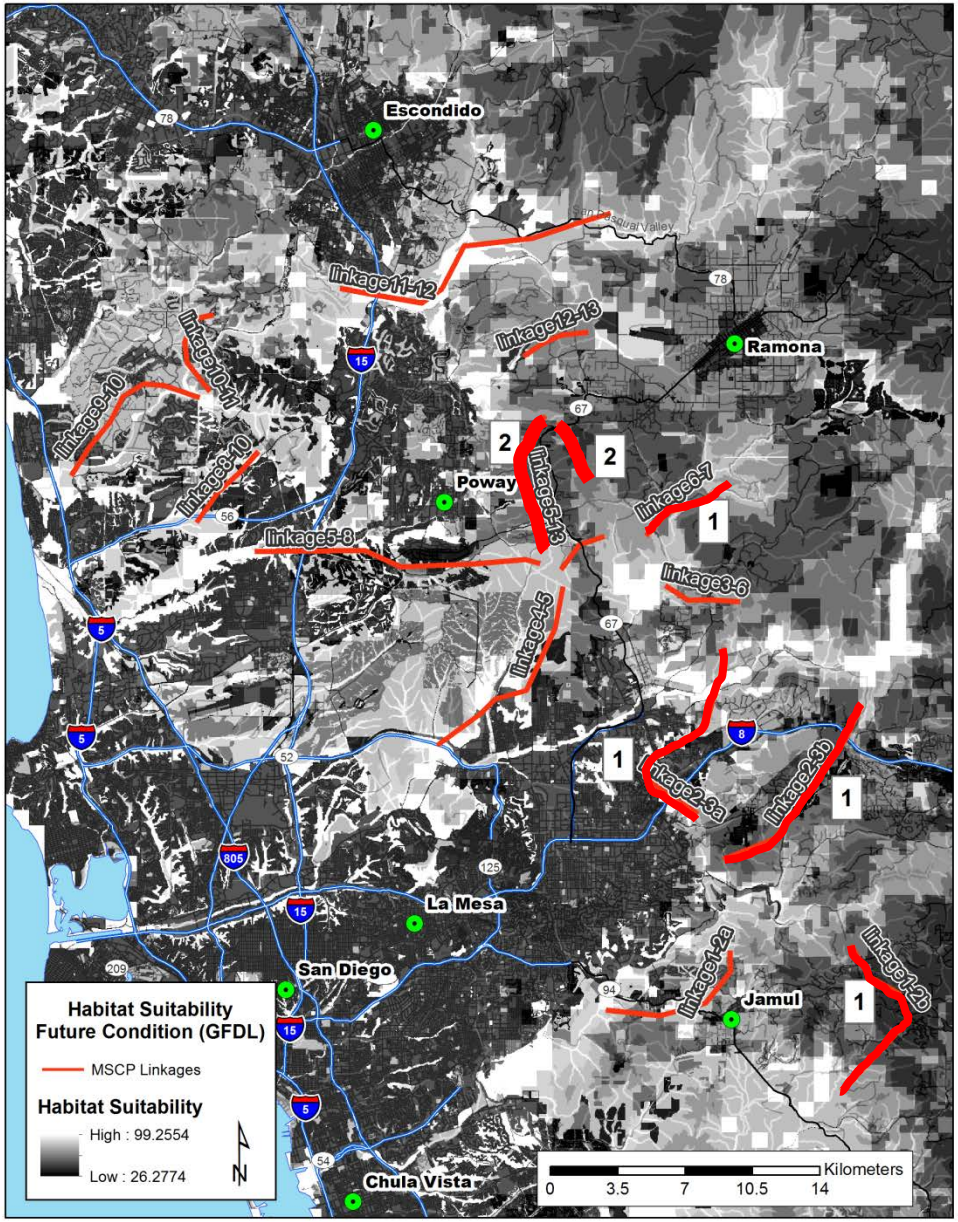
Stralberg et al. 2009


SANDAG 2050

# 2013


Escondido
Ramona
Poway
La Mesa
San Diego
Jamul
Chula Vista
linkage11-12
linkage12-13
linkage10-11
linkage9-10
linkage8-10
linkage5-8
linkage5-13
linkage6-7
linkage3-6
linkage4-5
linkage2-3a
linkage2-3b
linkage1-2a
linkage1-2b
Habitat Suitability
Current Condition
MSCP Linkages
Habitat Suitability
High : 99.2554
Low : 26.2774
Kilometers
0 3.5 7 10.5 14

# 2050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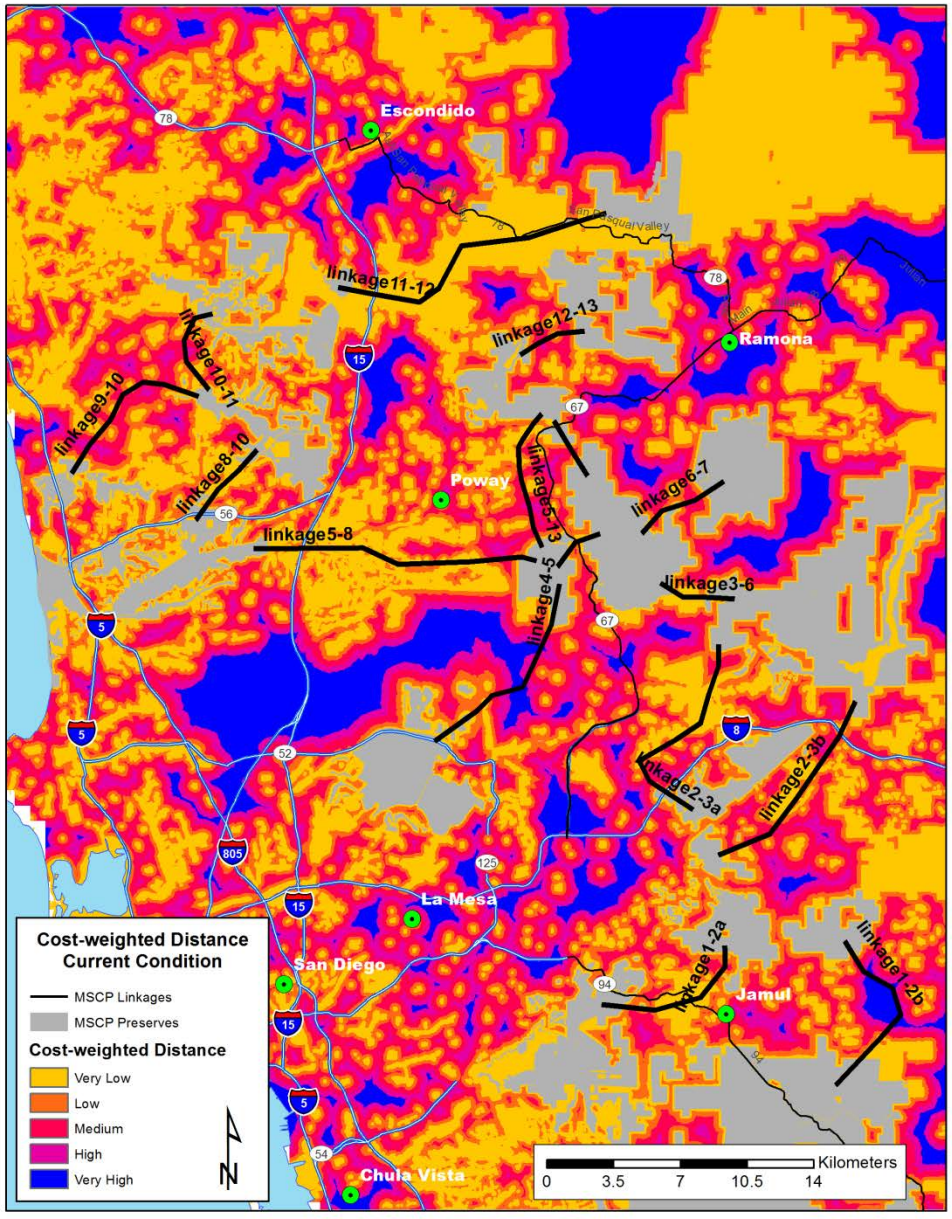
linkage5-13
linkage6-7
linkage3-6
linkage4-5
linkage2-3a
linkage2-3b
linkage1-2a
linkage1-2b
2
2
1
1
1
1
Habitat Suitability
Future Condition (GFDL)
MSCP Linkages
Habitat Suitability
High : 99.2554
Low : 26.2774
Kilometers
0 3.5 7 10.5 14

# 2013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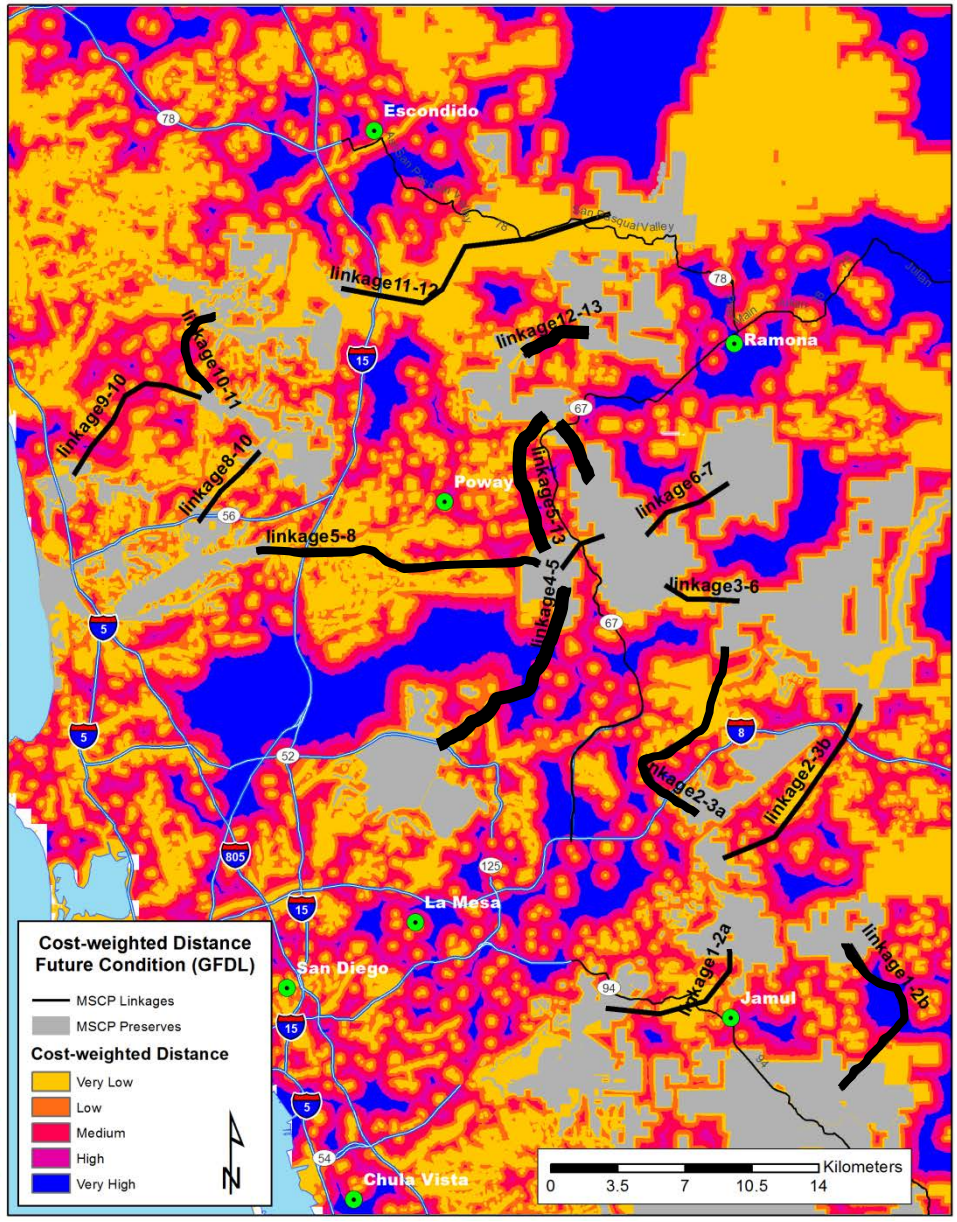
linkage5-13
linkage6-7
linkage4-5
linkage3-6
linkage2-3a
linkage2-3b
linkage1-2a
linkage1-2b
Cost-weighted Distance
Current Condition
MSCP Linkages
MSCP Preserves
Cost-weighted Distance
Very Low
Low
Medium
High
Very High
N
Kilometers
0 3.5 7 10.5 14

# 2050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Cost-weighted Distance
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Kilometers
0 3.5 7 10.5 14

# FINDINGS

- Demonstrates importance of quantitative connectivity assessment
- Land use had a greater impact on connectivity than climate change, at least for larger mammals
- Iterative process using ensemble of analytical methods helps identify patterns

# DATA INTEGRATION

Importance of evaluating connectivity using all available datasets and a suite of indicator species

- Differing spatial scales
- Varying habitat/landscape requirements
- Diverse data types
- Current and projected data

- Puma (UC Davis)
- Small mammals, inverts (USGS)
- Inverts (SDSU)
- Birds, toads, herps (USGS)
- Herps (SDSU)
- Deer (SDSU)
- SDTT
- CBI
- Citizen science projects