

Amendment Update

Clark County Multi-Species Habitat Conservation Plan

Patricia Valcarcel, CWB®

August 28, 2019

MSHCP

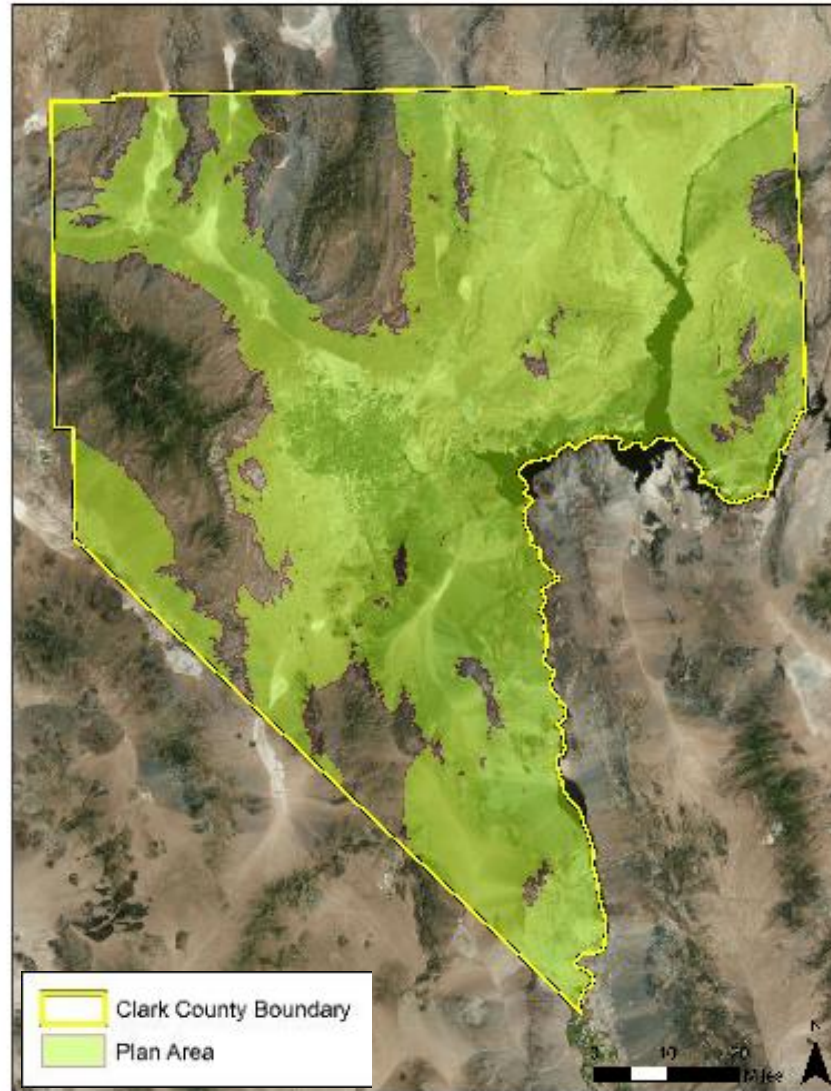
- **Habitat Conservation Plan**

- Section 10 permit for impacts to federal listed species
- Existing permit expiration is 2031 or if acreage limits reached first

	Current Plan	Amendment
County area	Entire	Below 4,000 ft
Permitted acreage	145,000	200,000
Permit term (years)	30	50
Covered species	78	28



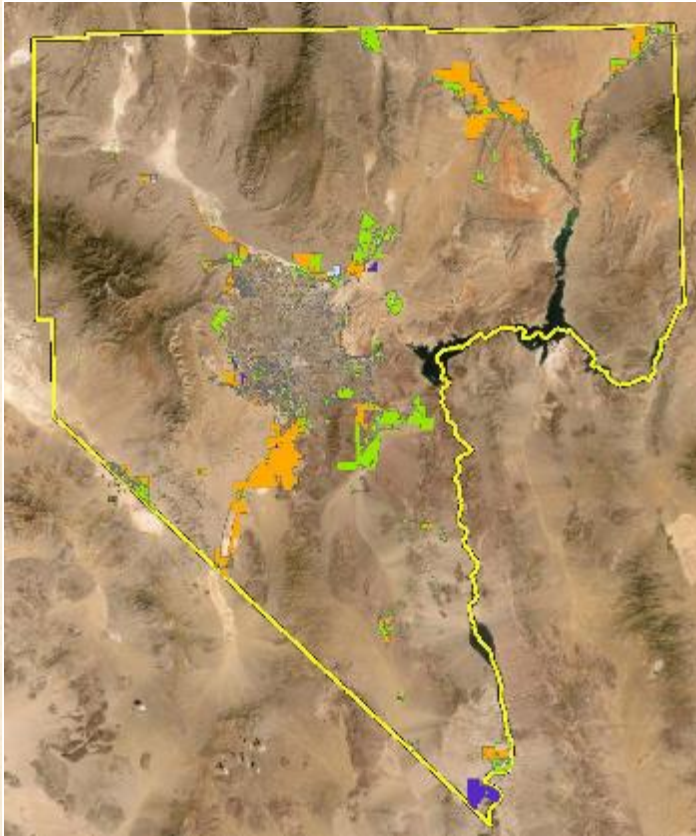
MSHCP



Covered Species

desert tortoise (<i>Gopherus agassizii</i>)	sticky ringstem (<i>Anulocaulis leiosolenus</i> var. <i>leiosolenus</i>)
banded Gila monster (<i>Heloderma suspectum cinctum</i>)	Las Vegas bearpoppy (<i>Arctomecon californica</i>)
golden eagle (<i>Aquila chrysaetos</i>)	threecorner milkvetch (<i>Astragalus geyeri</i> var. <i>triquetrus</i>)
burrowing owl (<i>Athene cunicularia</i>)	alkali mariposa lily (<i>Calochortus striatus</i>)
yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Blue Diamond cholla (<i>Cylindropuntia multigeniculata</i>)
gilded flicker (<i>Colaptes chrysoides</i>)	silverleaf sunray (<i>Enceliopsis argophylla</i>)
southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	Pahrump valley buckwheat (<i>Eriogonum bifurcatum</i>)
loggerhead shrike (<i>Lanius ludovicianus</i>)	Las Vegas buckwheat (<i>Eriogonum corymbosum</i> var. <i>nilesii</i>)
Ridgway's rail (<i>Rallus obsoletus yumanensis</i>)	sticky buckwheat (<i>Eriogonum viscidulum</i>)
Bendire's thrasher (<i>Toxostoma bendirei</i>)	white-margined beardtongue (<i>Penstemon albomarginatus</i>)
Le Conte's thrasher (<i>Toxostoma lecontei</i>)	Parish phacelia (<i>Phacelia parishii</i>)
Arizona Bell's vireo (<i>Vireo bellii arizonae</i>)	St. George blue-eyed grass (<i>Sisyrinchium radicum</i>)
desert pocket mouse (<i>Chaetodipus penicillatus</i>)	Joshua tree (<i>Yucca brevifolia</i>)
Townsend's big eared bat (<i>Corynorhinus townsendii</i>)	spotted bat (<i>Euderma maculatum</i>)

Covered Species

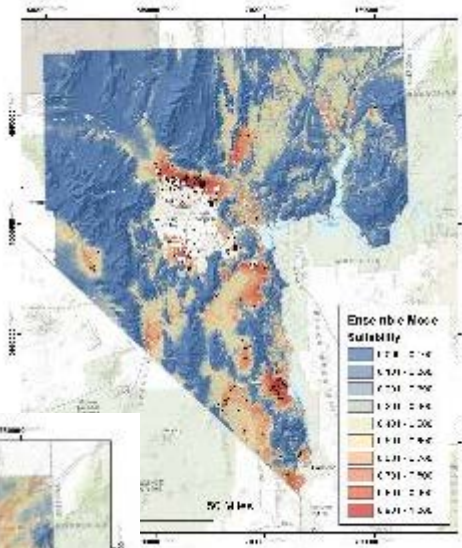
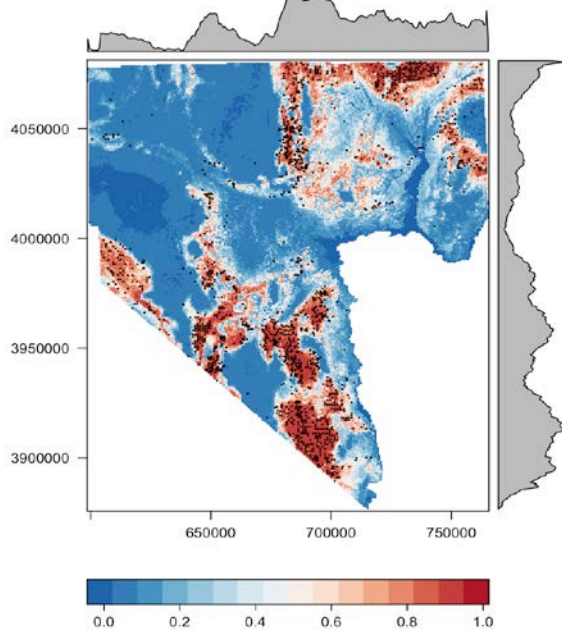


Species	Impact Area	Mitigation Area
Burrowing owl		
Desert tortoise		
Gila monster		
Golden eagle		

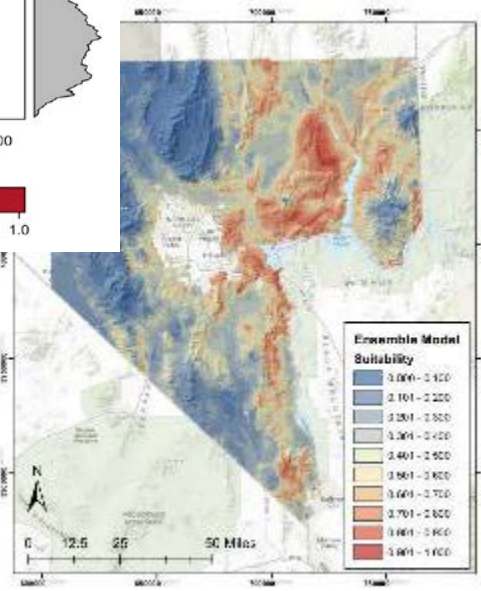


Covered Species

Desert Tortoise Ensemble Model

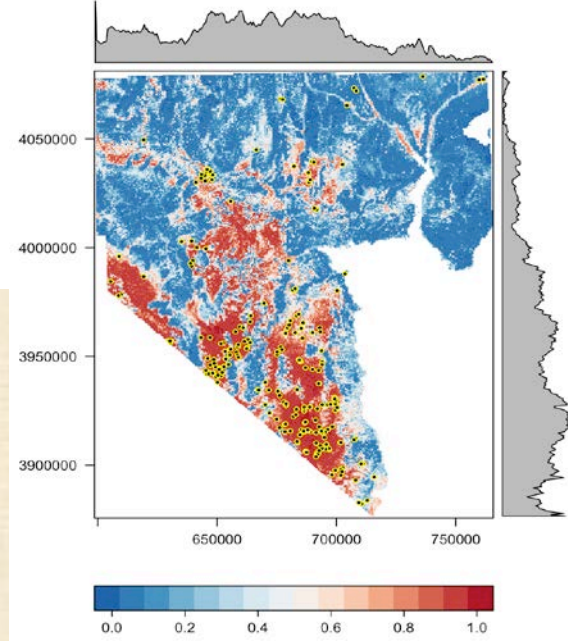


Athene cunicularia
Habitat Suitability Map

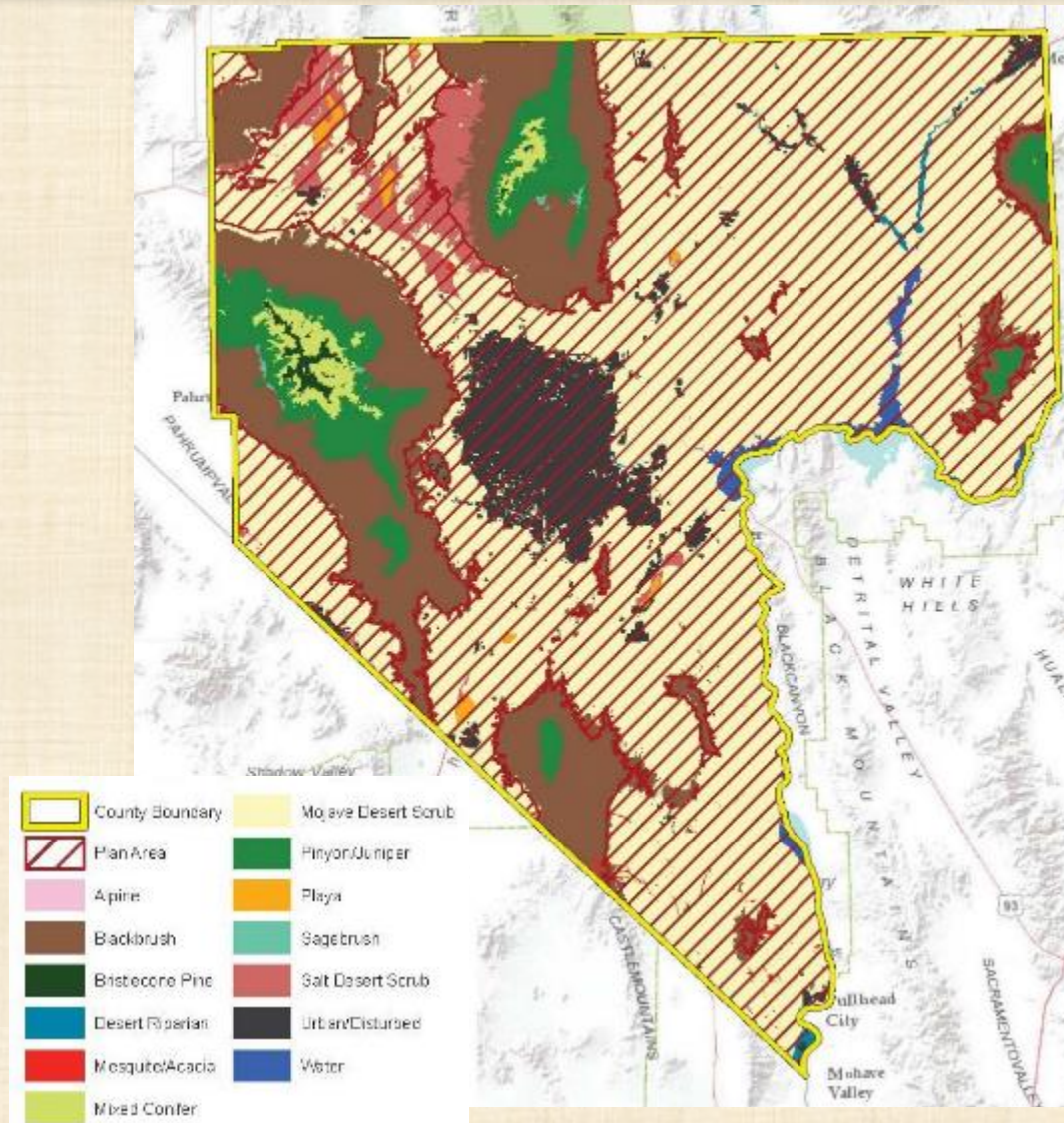


Heloderma suspectum
Habitat Suitability Map

LeConte's Thrasher Ensemble Model



Ecosystems



Covered Species

Vegetation Community	Associated Species
Black-brush	gilded Flicker
	Joshua tree
	Blue Diamond cholla
	Bendire's thrasher
Mojave desert scrub	Le Conte's thrasher
	loggerhead shrike
	desert tortoise
	western burrowing owl
	banded Gila monster
	golden eagle
	Townsend's big-eared bat
	spotted bat
	Las Vegas bearpoppy
	sticky ringstem
	sticky buckwheat
	Pahrump Valley buckwheat
	Las Vegas buckwheat
white margined beardtongue	
silverleaf sunray	

} High elevation roosting;
foraging lower elevations

} Gypsum soils

Habitat Quality

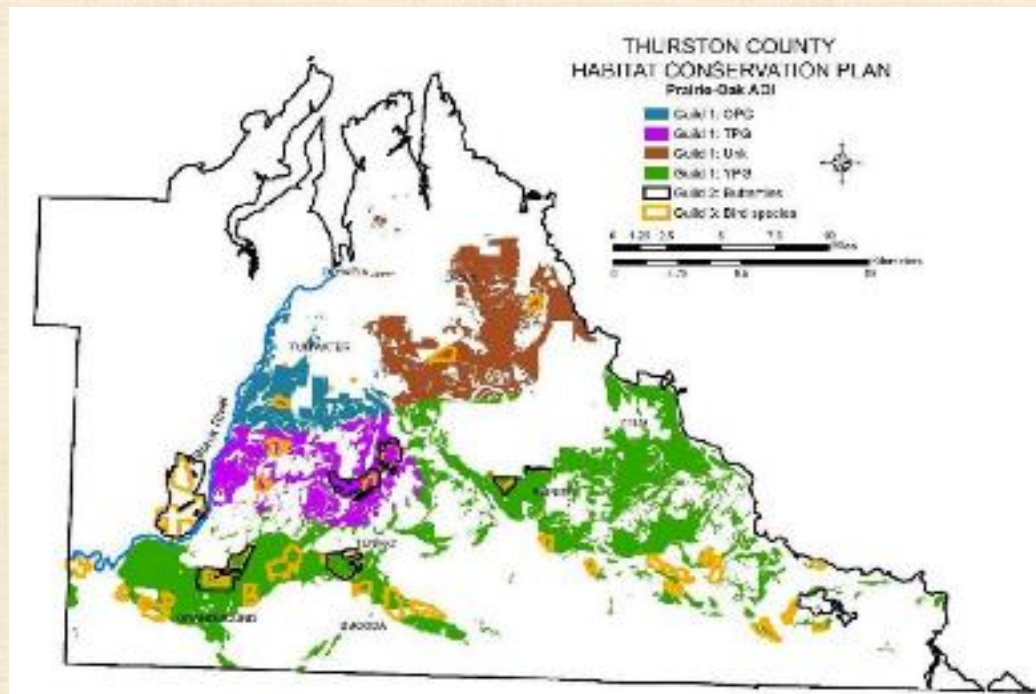


Functional Habitat

- **Quality of a habitat**
 - Physical and biological features to support covered species
 - Habitat supporting multiple covered species
- **Quantify the quality**
 - Compare site impacts or mitigation credits
 - Apples to apples
 - Equation to estimate the functional value or habitat quality

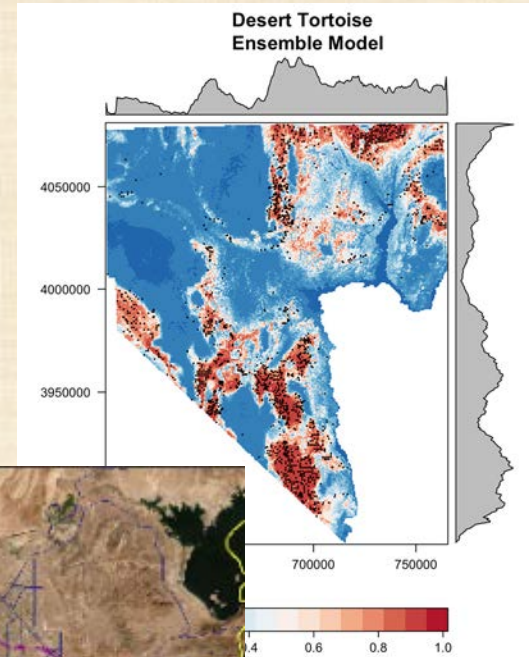
Functional Habitat

- “Habitat Quantification Tool” examples
 - Wyoming Sage grouse
 - Yolo County HCP
 - Thurston County (WA) Draft HCP

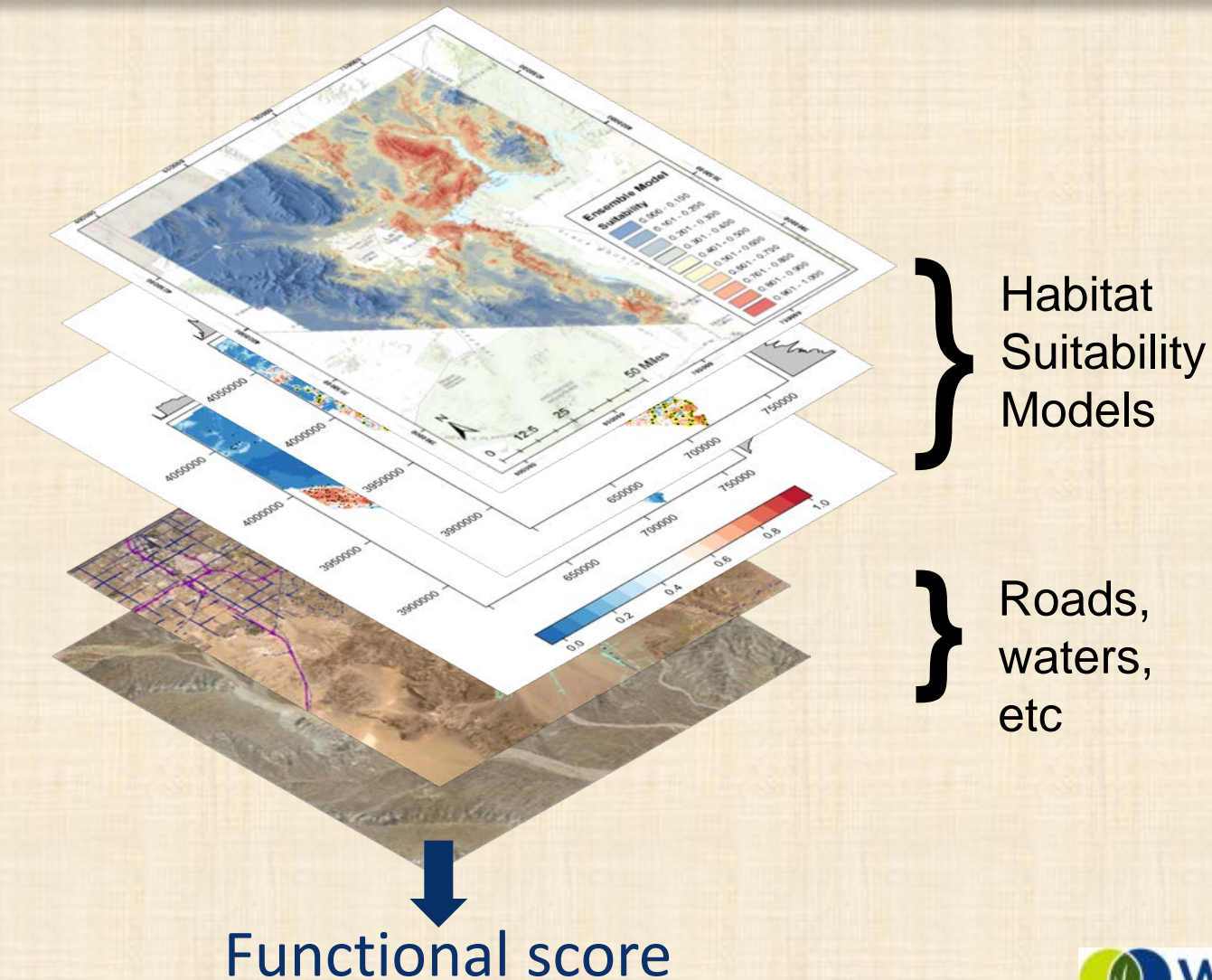


Functional Habitat Methods

- **Drafting methods**
 - Mojave desert scrub associated species
- **Functional factors**
 - Species habitat suitability models (raw)
 - Roads (barriers, proxy for disturbance)
 - Waters
 - Critical habitat presence
- **Additional factors?**
 - Corridors/connectivity models
 - Vegetation classifications

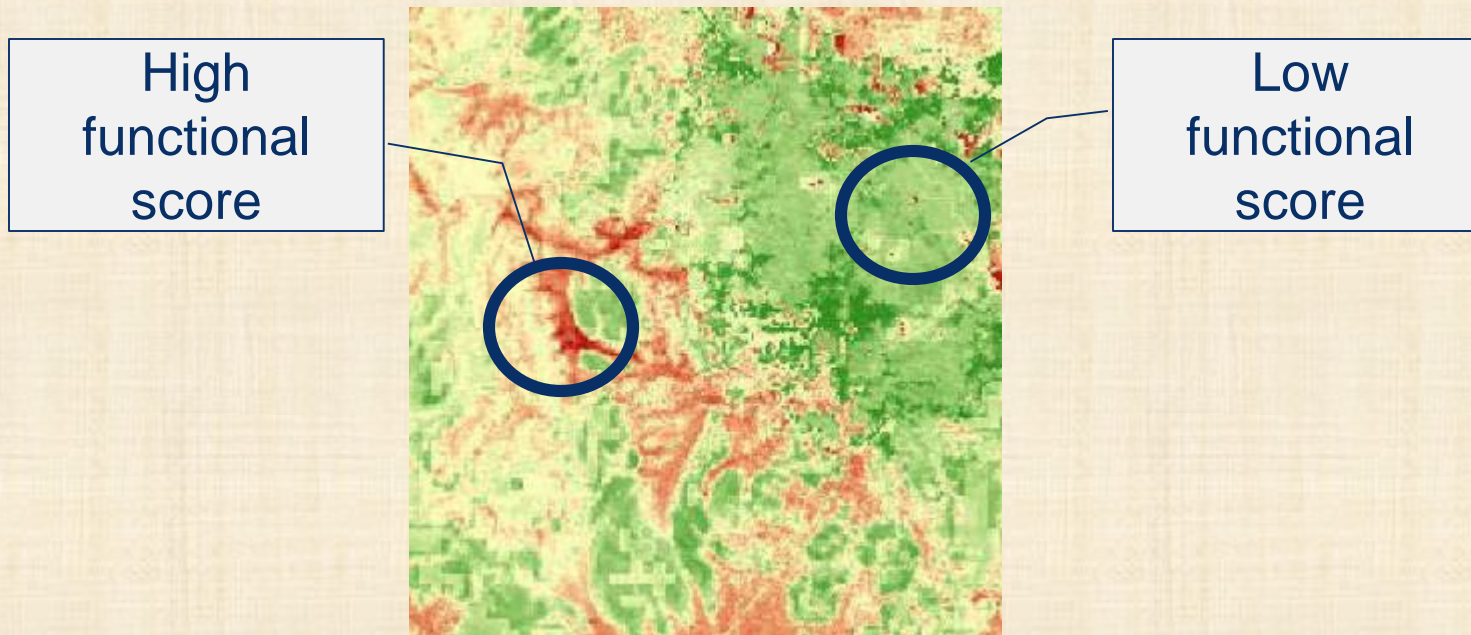


Functional Habitat Methods

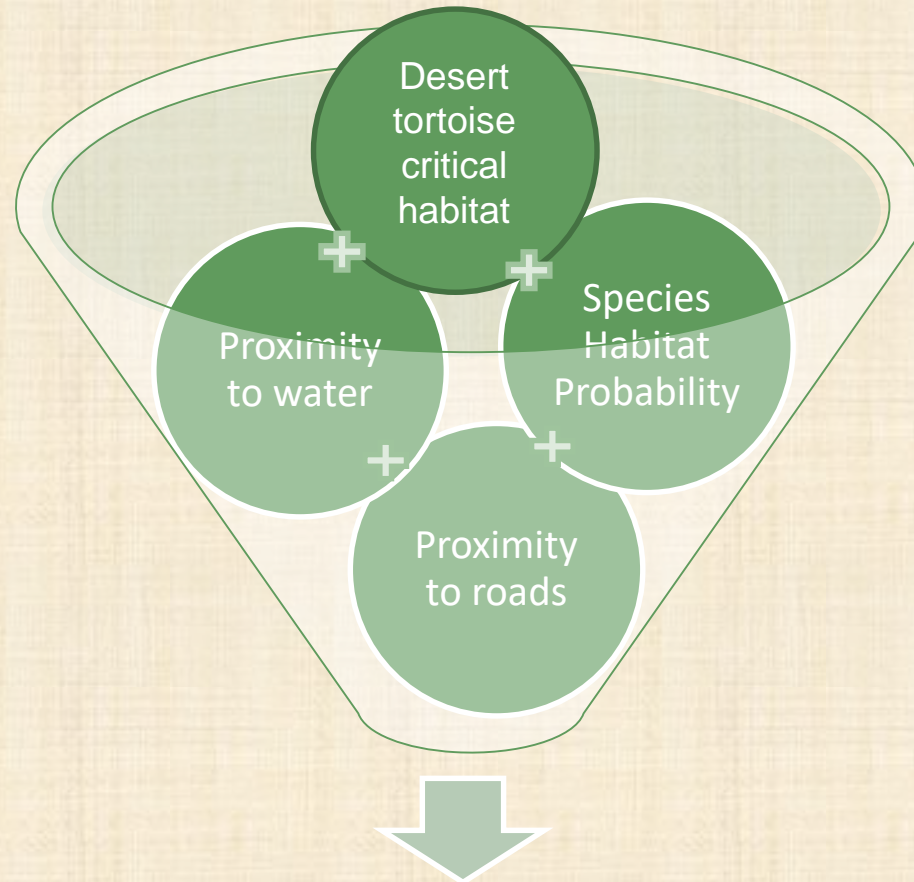




Functional Habitat Methods

- Results
 - Functional scores “heat map”
 - Each cell will have a score resulting from summing the layers



Functional Habitat Methods



Habitat area (acres)  Functional score  Functional acreage

Functional Habitat Methods

- Example - WY sage grouse HQT
 - compare functional acres before and after a project

Seasonal habitat	Post-project functional acres	Pre-project functional acres	Change in functional acres
Summer	70.76	80.37	-9.61
Summer	70.85	26.21	+44.64

WY Conservation Exchange Greater Sage Grouse HQT version 3

- Anticipated MSHCP example

Type	Acres	Mean Functional Score	Functional Acres
Impact	500	0.41	205
Mitigation	301	0.68	205

Next Steps

- **Complete take and mitigation estimation**
 - Habitat functionality
 - Estimations for all 28 species
- **Reserve design**
 - Coordination with BLM for Reserves
- **Conservation Strategy**



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