



Recovery Strategy for the Mojave Desert Tortoise

Desert Tortoise MOG Meeting
December 7, 2017

Recovery Strategy



U.S. Fish & Wildlife Service

Revised Recovery Plan for the Mojave Population of the Desert Tortoise

(Gopherus agassizii)



© Dennis Colewell

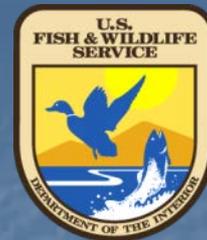
- 1) Develop partnerships
- 2) Protect populations & habitat
- 3) Augment depleted populations
- 4) Monitor progress
- 5) Applied research & modeling
- 6) Adaptive management

3) Augment depleted populations



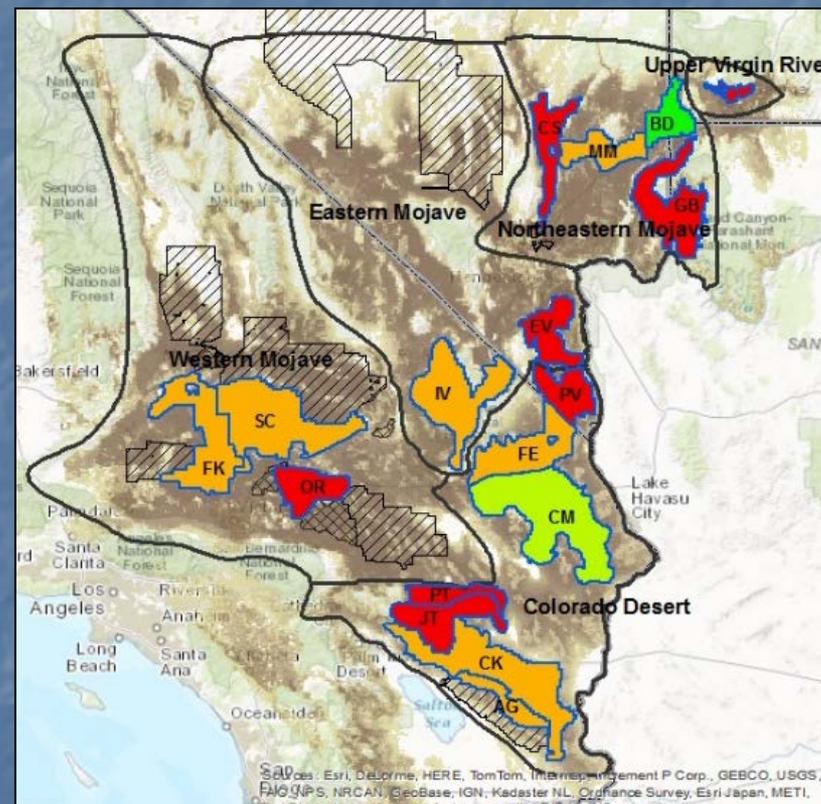
Population augmentation in conjunction with threats management and restoration activities (Element 2) and research (Element 5) is a means to increase the rate at which depleted populations could be revived.





4) Monitor progress

- Population growth
- Population distribution
- Quantity and quality of habitat
- Presence and intensity of threats



5) Applied research & modeling



- Factors affecting tortoise distribution
- Habitat restoration
- Effects of threats & management on tortoise demographics
- Disease
- Corridors

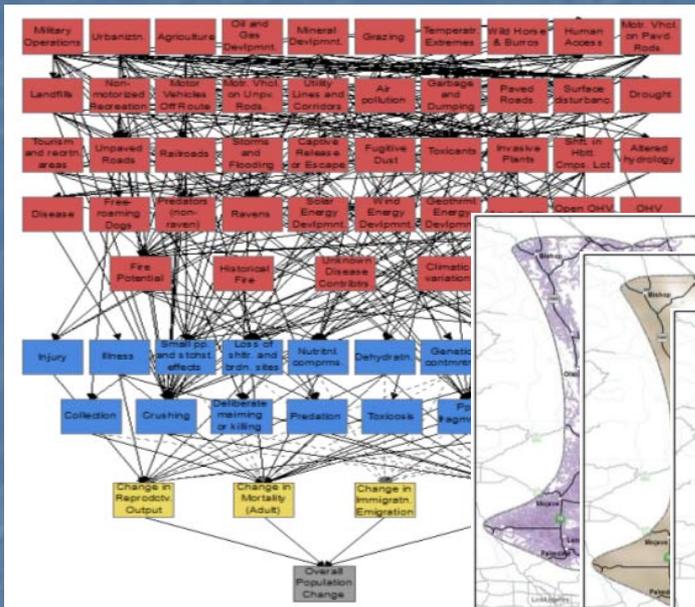


6) Adaptive management



- Science Advisory Committee
- Spatial Decision Support System

SDSS



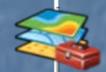
Impact of Threats

$$\int \sum x$$



Spatial Threats

$$\int \sum x$$

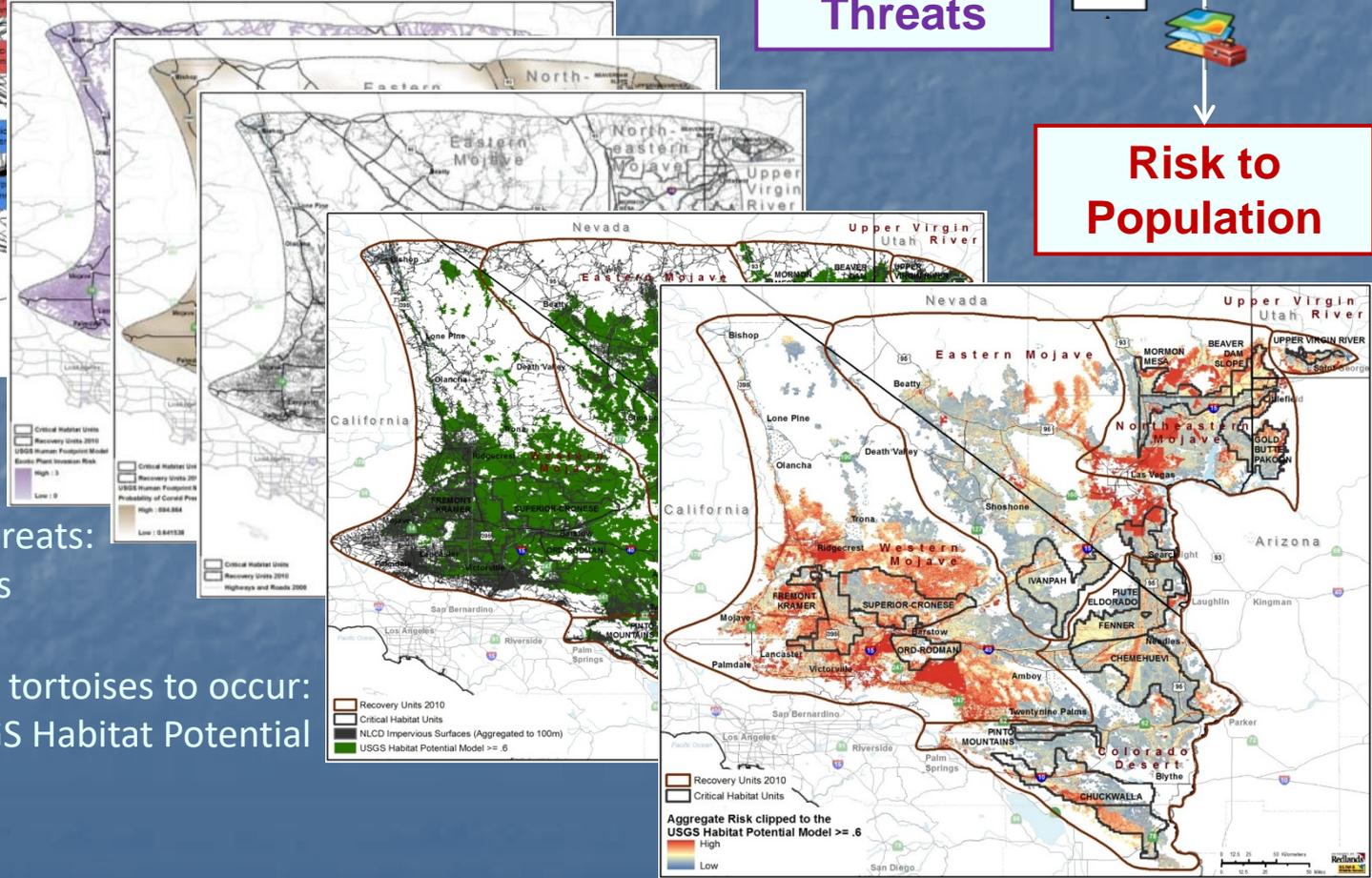


Risk to Population

Model of how threats affect tortoises

Spatial variation in threats: variety of sources

Where we expect tortoises to occur: USGS Habitat Potential



SDSS: Recovery Action Tracker

HOME ADD ACTION

Displaying 21 of 68 Clear

Search

Action Types All | None

- Install and maintain human barriers (wildland-urban interface) (3)
- Install and maintain tortoise barrier fencing (23)
- Install and maintain tortoise barriers (open OHV areas) (0)

Jurisdiction All | None

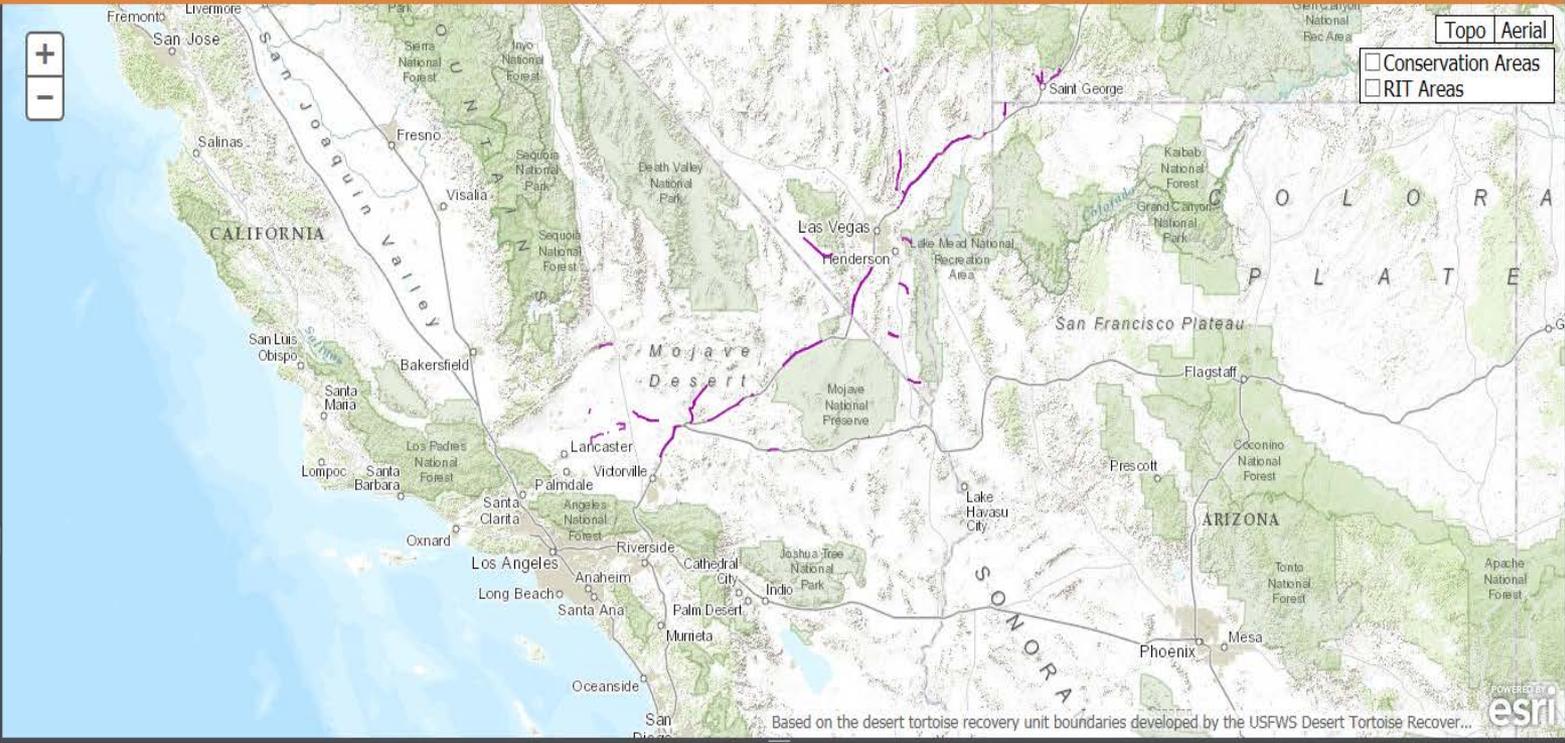
- BLM - Arizona Strip Field Office (2)
- BLM - Bakersfield Field Office (1)
- BLM - Barstow Field Office (10)
- BLM - Bishop Field Office (0)
- BLM - Caliente Field Office (10)

RITs All | None

- Upper Virgin River Workgroup (8)
- NE CA Mojave Workgroup (5)
- West Mojave Workgroup (18)
- UT/AZ Workgroup (4)
- SW Nevada Workgroup (2)

Status All | None

- Complete (37)
- Planned (26)
- In Progress(0)

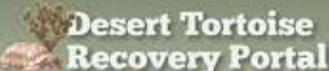


Filter List By Map [Download as table](#) Newest | Oldest

- ID: 147** [Zoom](#) | [See Details](#) Updated by nathan_strout on 12/04/14
Tortoise Fencing along I-15 in the northeast Mojave
Recovery Action Types : *Install and maintain tortoise barrier fencing*
- ID: 82** [Zoom](#) | [See Details](#) Updated by nathan_strout on 12/04/14
Tortoise fencing was continued along US 93, northward towards Pahranaगत NWR.
Recovery Action Types : *Install and maintain tortoise barrier fencing*
- ID: 138** [Zoom](#) | [See Details](#) Updated by nathan_strout on 12/04/14
State Route 165 fencing
Recovery Action Types : *Install and maintain tortoise barrier fencing*



SDSS: Risk Reporter






Home
Model Explorer
Data Explorer
Risk Reporter
RA Designer
Solar Calculator
RA Tracking



Desert Tortoise Risk: 0.0686

Probability of Presence



0 20 40 60 80 100

Risk Breakdown

Threats Stresses Pop. Effects Recovery Actions

Category	Risk	Indirect Risk (1st Gen)
Utility Lines and Corridors	0.045	0.015
Human Access	0.040	0.010
Captive Release or Escape	0.035	0.010
Drought	0.030	0.010
Disease	0.025	0.010
Surface disturbance	0.020	0.010
Motor Vehicles on Paved Roads	0.015	0.010
Temperature Extremes	0.015	0.010
Ravens	0.015	0.010
Coyotes & Feral Dogs	0.015	0.010
Fire Potential	0.015	0.010
Shift in Habitat Composition/Use	0.015	0.010
Garbage and Dumping	0.015	0.010
Altered hydrology	0.015	0.010
Toxicants	0.015	0.010
Fugitive Cuck	0.015	0.010
Invasive Plants	0.015	0.010

Probability of Presence

Area of inter... 75

Test area 75

Area 3 75

0 25 50 75 100

Risk Results

Genetic contaminat... 95

Collection 85

Altered behavior 80

Deliberate mainin... 75

Illness 70

Altered hatching su... 65

Burning or smoke L... 60

Predation 55

Injury 50

SDSS: Next Steps



- Transfer assets from Univ. of Redlands
- Create IT environment to host system

The screenshot shows the 'Desert Tortoise Recovery Portal' website. The header includes the title 'Desert Tortoise Recovery Portal', the University of Redlands logo, and the U.S. Fish & Wildlife Service logo. A navigation bar contains links for Home, Model Explorer, Data Explorer, Risk Reporter, RA Designer, Solar Calculator, and RA Tracking. The main content area features a central image of a desert tortoise surrounded by six hexagonal icons representing different tools: Model Explorer, Data Explorer, Risk Reporter, RA Designer, Solar Project Impact and Mitigation Calculator, and RA Tracking. To the right of the icons is a 'Welcome to the Desert Tortoise Recovery Portal' section with a detailed description of the portal's purpose and a list of instructions for using each tool.

Desert Tortoise Recovery Portal

UNIVERSITY OF Redlands

Home Model Explorer Data Explorer Risk Reporter RA Designer Solar Calculator RA Tracking

Welcome to the Desert Tortoise Recovery Portal

The purpose of this portal is to support land managers, project designers, regulators, and scientists to make decisions that contribute to the recovery of the Desert Tortoise.

Use the Model Explorer and Data Explorer tools to explore the underlying models and data that drive the Desert Tortoise Spatial Decision Support System (SDSS). We strive to use the best science and data available to support these tools.

Use the Risk Reporter to explore the risk outputs of the SDSS. Sketch an area or choose existing Critical Habitat Units to see the average risk for those areas and which threats are driving that risk.

Use the Solar Mitigation Impact and Mitigation Calculator to upload or sketch the layout of a solar development project, then upload or assemble a set of specific recovery actions as mitigation and see project impacts and mitigation value of your actions on the same scale.

Use the Recovery Action Tracking tool to record recovery actions that you and your organization have implemented to reduce risk to the desert tortoise.

➤ **\$24,000, including 1-yr maintenance**