

Date of Issuance: July 27 2022

DESERT CONSERVATION PROGRAM PROJECT COMPLETION SUMMARY:
CONNECTIVITY SOLUTION MODELING
2015-UNR-1580C

The work for the above reference project has been completed. Below is a summary of project related information.

The purpose of the above referenced project was:

The purpose of this project was to provide a realistic approach to understanding the potential for tortoises to maintain connectivity on the landscape with urbanization and other anthropogenic impacts.

The major accomplishments or findings of this project include:

This project used individual (aka agent-based) forward-in-time simulation modeling. Six landscapes were represented as resistance surfaces for Clark County, Nevada using scenarios for habitat only, barriers to movement, and barriers with passable culverts.

The main takeaways from those 6 areas are as follows:

Ivanpah Valley

Due to the existence of I-15 and the railroad very little east to west movement is currently occurring in the northern portion of the Ivanpah Valley. The number of culverts that need to be crossed to facilitate movement is probably more than is feasible over time and none of the scenarios modeled showed much movement in these areas outside of the null/no barrier model. On top of that, the urbanization with the introduction of the airport and surrounding development remove some of the opportunities for crossing even though they were already extremely low to nonexistent in their current state. However, there is a possibility to restore north south connectivity through the valley by increasing movement across some of the smaller roads in the area and reconnecting the Large Scale Translocation Site (LSTS) to the surrounding area.

Lake Mead Area

The majority of barriers to movement in this area are natural barriers in the form of rivers which limit the need for actions to reconnect connectivity as it was limited in the first place. The one

exception to this is Northshore drive. Northshore drive is not currently fenced off so tortoises can move freely across the road but are subject to mortality on the road. Fencing will reduce some connectivity over time but may reduce mortality as well. The road is a two lane highway and populations sizes don't seem to differ much between the culvert and null scenarios but given the effects of roads seen elsewhere it may be a good idea to fence this road off in the future.

North Area

Fencing remains a big issue in this section of Clark County with none of highways 168 and 169 and portions of I-15 and US-93 lacking fencing. Many of the areas would see a potential uptick in movement if the culverts were connected with the exception of the Moapa area which is pinned in by I-15 on the northwest and the Muddy River on the northeast which are more difficult barriers to facilitate crossings. The Virgin River at the more northeast end of the area where it parallels I-15 may also provide a significant barrier to movement as it did in other areas as well as the Muddy River and Meadow Valley Wash north of I-15.

Northwest Corridor

Large portions of the southern part of this section (Lake LV, Sloan, Blue Diamond, East LV, and Spring Mtns) are either already urbanized or are planned for current or future disposal. This makes connectivity extremely limited under all but the no barriers model for the southern portion of this section. However some room still exists on the west side of Las Vegas to facilitate minimal connectivity going forward. There are many areas where fencing needs to be installed and we should ensure all culverts are connected to fencing to ensure movement at the northern most portion of the section.

Trout Canyon Area

The Biggest threat to this area is large scale solar which could affect both overall numbers and connectivity. This area is under consideration to be converted to a Special Management Area under an amendment to the Clark County Multi-Species Habitat Conservation plan which could alleviate some of the pressure to the area related to solar. Remaining connectivity would need to be restored through culverts being attached to the fencing.

Piute-Eldorado Valley

Development has little bearing on connectivity in this area with the majority occurring in the northern most sections and related to solar and energy development. It is possible that this could limit connectivity between the Piute-Eldorado, Northwest Corridor, and Lake Mead areas so it's still worth monitoring over the long run. Some lower priority fence installations may help in some areas but the majority of connectivity would be helped by ensuring culverts are attached to the tortoise exclusion fencing.

For more information about this project and/or for other Project Reports or Symposium Reports, please visit our [website](#)

If you have any questions about this project please contact DCP Project Manager Scott Cambrin at (702) 455-3859.