1. Everyone should understand going into this that this study will not determine either a) how much connectivity is required to maintain populations, or b) how much habitat needs to remain to provide that connectivity. The study may provide more genetic information to add to the existing genetic data, which shows existing connectivity between the Indian Wells Valley population and populations east and south.
2. I recommend running both a least-cost path (LCP) and circuit theory model (e.g. CircuitScape) to analyze habitat connectivity.
3. Roads should not be categorically assumed to provide resistance to MGS movements in CircuitScape. Phil Leitner has radio tracked MGS crossing major state highways. If a circuit theory model assumes that roads are barriers for this species, then the model will show that 395 effectively isolates the Indian Wells Valley population from those to the east, which is not supported by the existing genetics data or the telemetry data. Similarly, transmission corridors and trails are not likely barriers, so they should be considered resistant features in the connectivity models only if there is evidence to support that consideration. Same thing for "disturbance modeling"...is there evidence that these disturbance reduce MGS abundance or create resistance to movement?
4. Habitat connectivity models should be run with baseline conditions and conditions with the proposed project in place.
5. Table 3 in the proposal should include soil type. A soil test pit performed by a soil scientist may be warranted to characterize soil type below the surface (e.g. within the range of burrow depths) instead of just surface texture.
6. Scenario 2 in the proposal says that habitat suitability is likely to be determined by comparing occupancy. Since scenario two is where few or no animals are captured, the occupancy sampling data will be uninformative. So how would occupancy sampling inform suitability here? In scenario two, any suitability, disturbance, or corridor modeling will be based on the pre-study knowledge base and not informed by the occupancy sampling.