Connectivity

Large animals- Roads and other barriers and habitat patch size

What do we know about connectivity for large animal species in San Diego?
Where are the large patches of conserved land and which species do we think they support and why?

- Deer*- habitat present
- Mtn. lion*- deer and topographic features appropriate vegetation community present in large patches
- Badger*- grasslands and open shrub lands (positive) and urban edge (negative)
- Bobcat- habitat present
- Coyote- habitat present
- Gray fox- habitat present (positive) and urban edge (negative)

* MSP species

Is there a minimum effective patch size needed for a territorial individual or population?
Is the species sensitivity to fragmentation/road mortality?
Do males and females have different requirements/sensitivity?
What about the future- natural land patch size vs. conserved land patch size?
Are the adjacent matrix lands important and what is the expected future condition of them?

Roads as barriers- what are the important characteristics?

- Width
- Matrix of lands on either side
- Traffic volume
- Vehicle frequency
- Speed
- Fencing and barriers (k rails/jersey barriers)

Which roads currently may define functional patch size?

- SR 67
- SR 94
- I-15
- I-5
- I-8
- 805
- 905
- SR 56
- SR 67
- SR 78
- SR 79
- SR 125
- Valley Center Road
- Wildcat Canyon/Barona Road
- Scripps-Poway Parkway
- Poway Road
- Otay Lakes Road
- Proctor Valley Road
- Honey Springs Road
- others

Other potential barriers

- Lower Otay Lake
- El Capitan
- San Vicente
- Lake Hodges

Should we prioritize the potential functionality of each road segment where it bisects conserved patches of habitat to inform research and management decisions

- Low functionality = one or more of the following
    - High likelihood of mortality if crossed and/or current high mortality rate – ecological sink
    - Gene flow probably blocked
    - Barrier to movement exists- fencing, center divider, etc. – no large animal w/l infrastructure
    - Little to no opportunity for rescue effect
    - Other
- Some functionality =
    - moderate mortality = some gene flow and some opportunity for rescue effect
    - Other
- Functional –
    - Gene flow
    - Low mortality
    - Single population spans the road area
    - Other

Other questions and Regional connectivity issues

- Role of San Diego mtn. lion population (genetic flow) in sustaining Orange and western Riverside mtn. lion population- where is the population in SD County that would potentially provide dispersing individuals to Orange and western Riverside County?
- Where did the male mtn. lion that entered the Orange County population come from?
- Is the population of mtn. lions in San Diego connected to the lion population in the San Jacinto, Santa Rosa and San Gorgonio Mtns? What about to Baja?
- Is the area west of SR 67 (San Diego River to Mt. Woodsen- Sycamore-Gooden to Mission Trails/Miramar) sustainable as mtn. lion habitat?

Large Animal Connectivity/Research needs/priorities?

- How are mtn. lions moving across the fragmented landscape – north County
- Mtn. lion- what is the relationships of individuals to each other and would knowing it inform connectivity actions with Riverside and Orange counties.
- Where are the badger movement areas within and between MUs and which roads are most problematic
- Do we need to know more about deer genetic connectivity across SR 67, other roads?
- Is there currently deer population rescue potential across I-5, 1-15, SR 67, other roads?
- Is connectivity and road mortality a problem for conservation of badgers within he MSPA-?
- Is the reduction in gray fox detections a connectivity issue of importance?
- Is it important to evaluate the genetic connectivity of roadrunner populations?