

July 8 2019

Meet with Rick, Jerod, Geremia in Mammoth for project updates

Diad Analysis:

- identified yes/no if two bison were within 200 m at any point of any day during each year. If yes, then that day was a connection. If no, that day was not a connection
- Also, colored green based on days spent on the northern range
- Breeding season: 1 Jul to Aug 31
- Removal season: 30 Nov to 31 March
- Jerod needs to update that it is based on the calendar year
- → We need to think hard about when to initiate the “year” is it the start of the breeding season, start of the wintering season
- Key results so far: during the breeding season there is a distinct break between breeding areas – there are 0 days when any animals from one network “north” spend time with the other network “central”
- 2012 showed a little connectedness during the summer breeding
- Next step would be to do spring, fall, breeding, and removal
 - Do the kernel for breeding and annual
- We would like to add a pie chart to show what main geographic area does each animal spend its time during the breeding season.
 - Need to develop polygons for the “pie chart”, e.g., Lamar, upper lamar, little America, blacktail, etc. Show the percentage of time each animal in each of these
 - Kernel (point per day during breeding period) then look at contours and identify core areas
 - → Do this over the next 24 hours
 - Look at two breeding windows: Jul 1 – Sept 1 and July 15 – Aug 15 to capture the key 2 estrous cycles
- → How do we look across years? Maybe some form of data reduction to just collars living during moving 3-year windows. Then taking breeding data across years and testing to see if there is connection between breeding areas across years
- Years with good data 2007, 2009-2017
 - Best data shows 2 clusters from annual data based on social networks
 - “Centrality” is this animal overly connected to other animals
 - Don’t see connectedness at group level increasing or decreasing over time
- For the individual network measures:
 - Look at breeding season and see if there is
 - About 8 of 34 switched annual ranges and 14-16 total switches – there and back
 - Is the same true for the breeding season data?

Next steps:

1. Redo analysis using the correct interval: Use Sept 1 – Aug 30... So 2007 would mean Sept 1 2006 to Aug 30 2007
2. Wide breeding: July 1-Aug 30. Narrow breeding: July 21 – Aug 30