Habitat Connectivity in Prairie Restoration

Jeremy Pittman
Native Prairie Restoration Conference
February 8-9, 2017 in Regina, SK
What is connectivity?

Poor et al. 2012
Good connectivity

- Easier migration
- Increase dispersal
- Connect populations
- Reduce isolation
- Improve adaptive capacity

Bad connectivity?

- Disease spread
- Invasive species
- Increase predation

From abstract to applied...

We need tools to identify where restoration efforts can have the greatest impact on connectivity.
Swift Fox in southern SK

Area of Interest

Native grass

AAFC 2015
Swift Fox in southern SK

Native grass: 14,000 ac and larger
Swift Fox in southern SK

Native grass: 14,000 ac and larger

Native grass: 320 ac and larger
Which of the patches have the potentially most important role in connectivity?
Swift Fox in southern SK

Key player fragmentation
- Which patches would cause the greatest fragmentation of the network if removed
- Darker red = potentially more important
We know the big patches are important.... but what about the smaller patches?
Swift Fox in southern SK

Degree normalized by area (ac)
- Degree counts the number of connections to other patches
- Darker red = potentially more important
Swift Fox in southern SK

Betweenness normalized by area (ac)

- Betweenness counts the number of times a patch lies on the path between two patches
- Darker red = potentially more important
Still left to do....

- Improve integration of species’ ecology
- Multi-species, multi-scales
- Consider land cover mosaic

Thank you!