

Habitat suitability assessment of the year-round tolerance area for bison in the State of Montana

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Model Development

Step selection model:

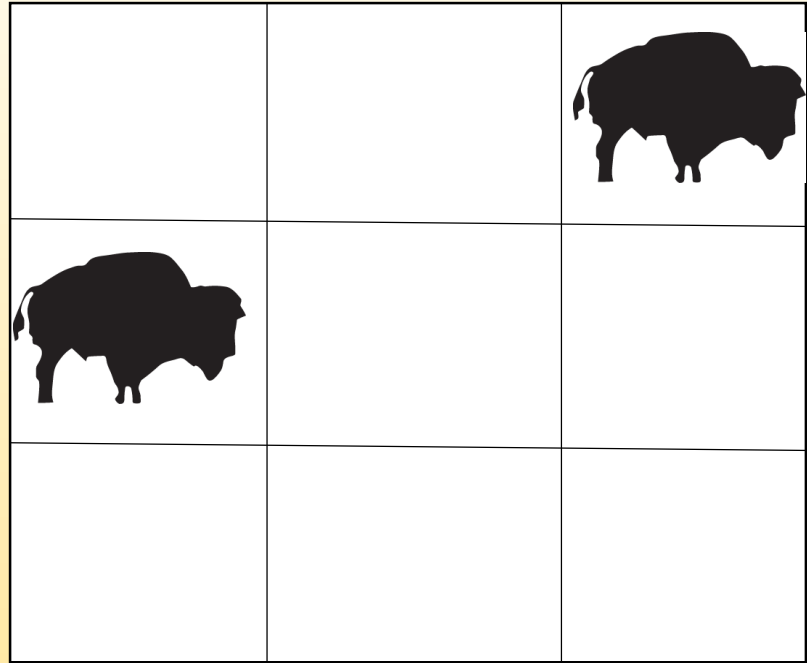
- 62 Adult Female Bison
- 2004-2015

Static Habitat Attributes:

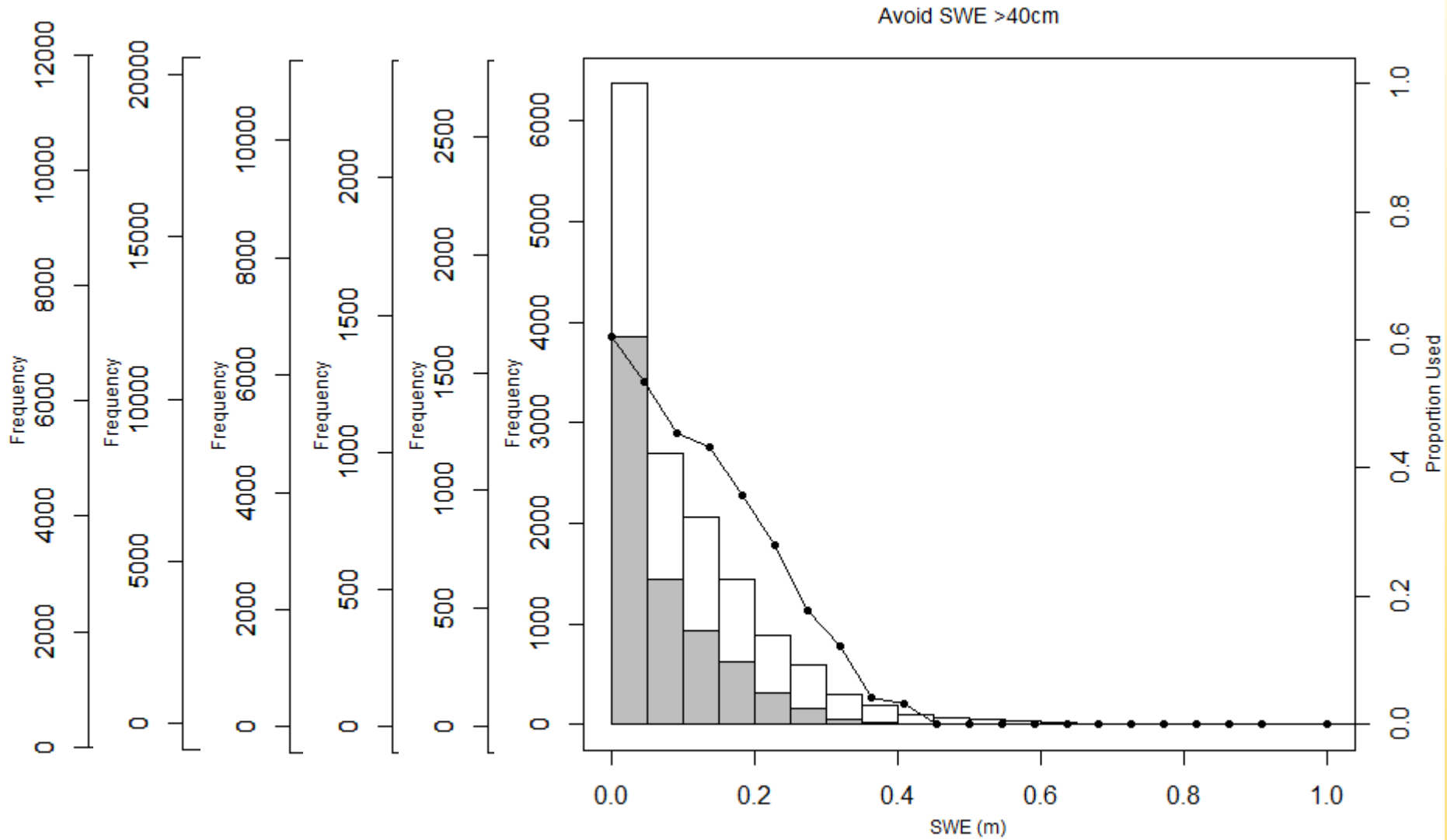
- Percent Slope
- Land Cover Classification
- Distance to Water

Dynamic Habitat Attributes:

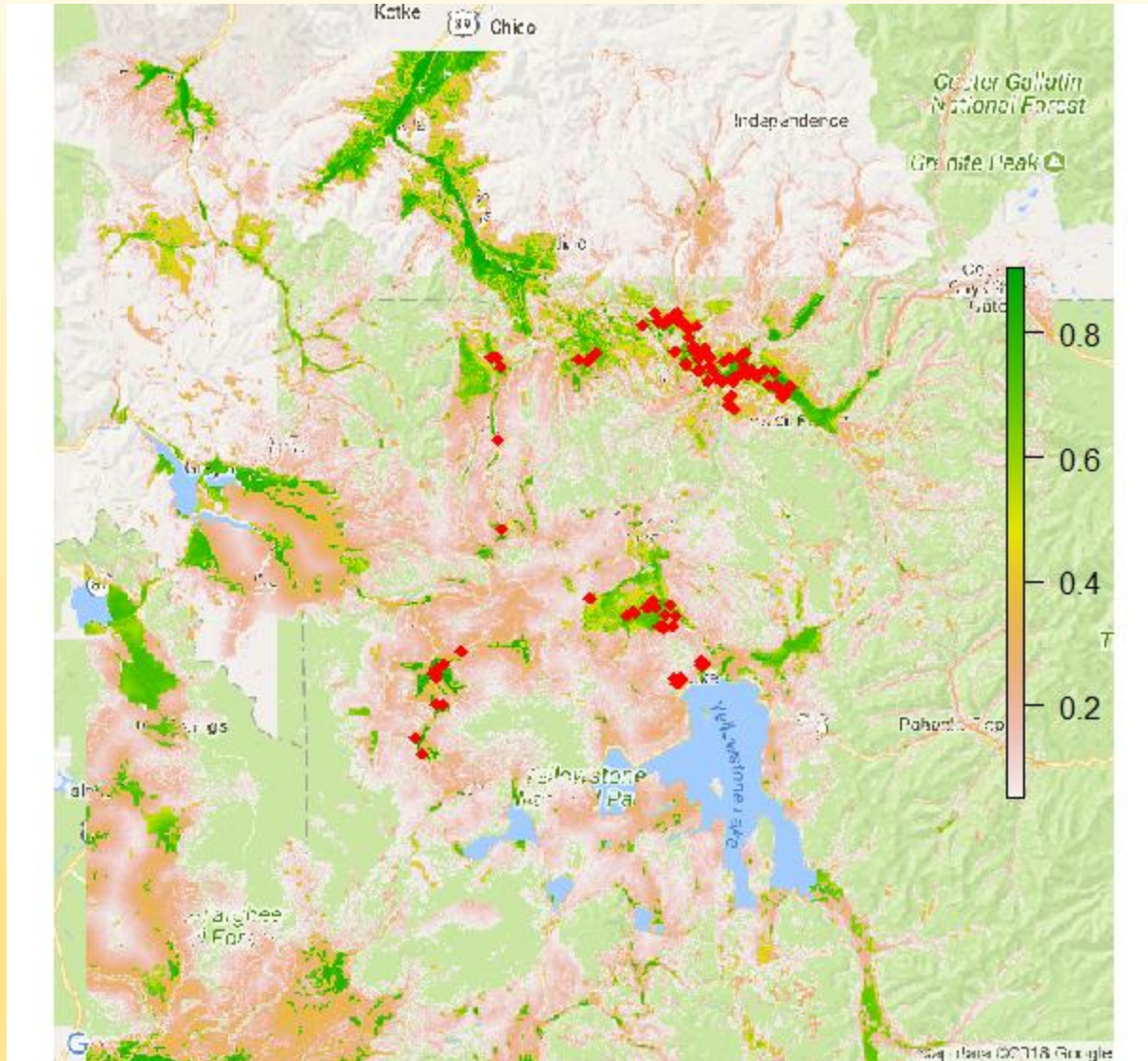
- Snow Water Equivalent
- Growing Season Production
- Vegetation “Green-ness”



Habitat Selection

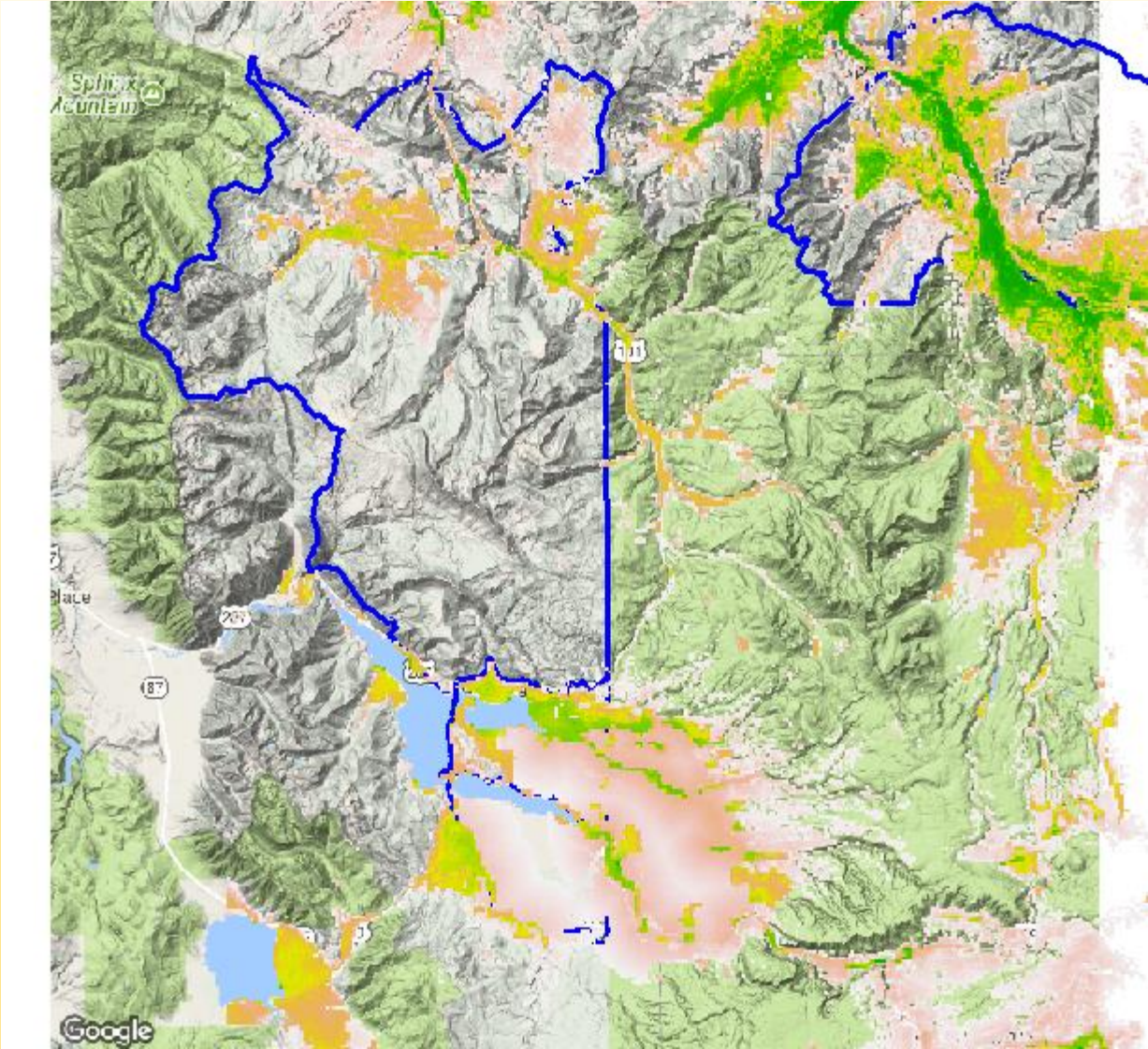


Habitat Suitability Score



February 16 2010 (Mild Winter)

Habitat Suitability Score



February

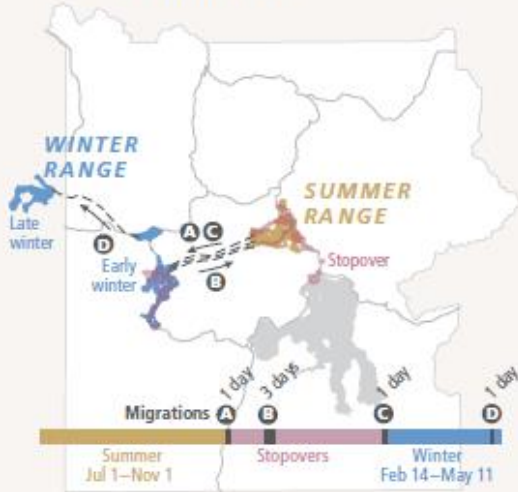
April

July

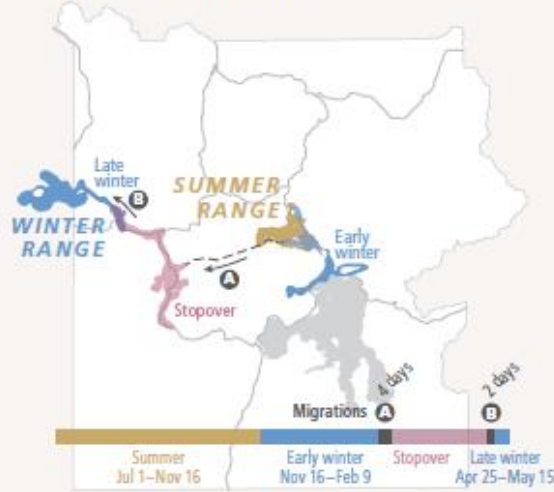
Migration Routes

Mild Winter

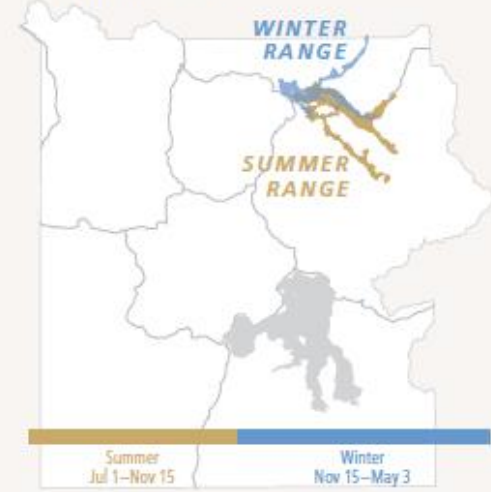
Central North (Bison 40)



Central West (Bison 17)



North (Bison 50)

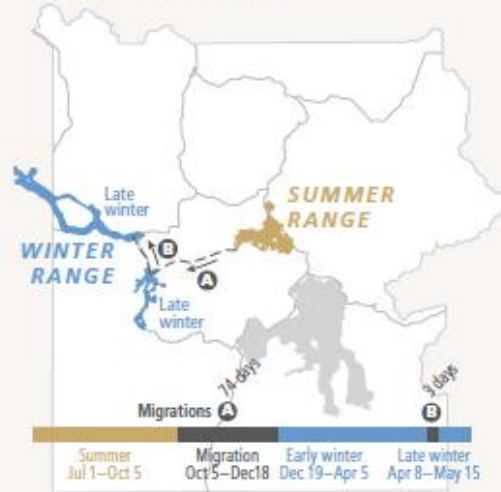


Severe Winter

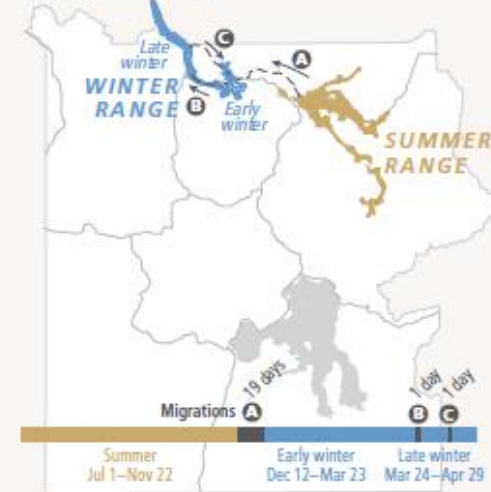
Central North (Bison 40)



Central West (Bison 17)



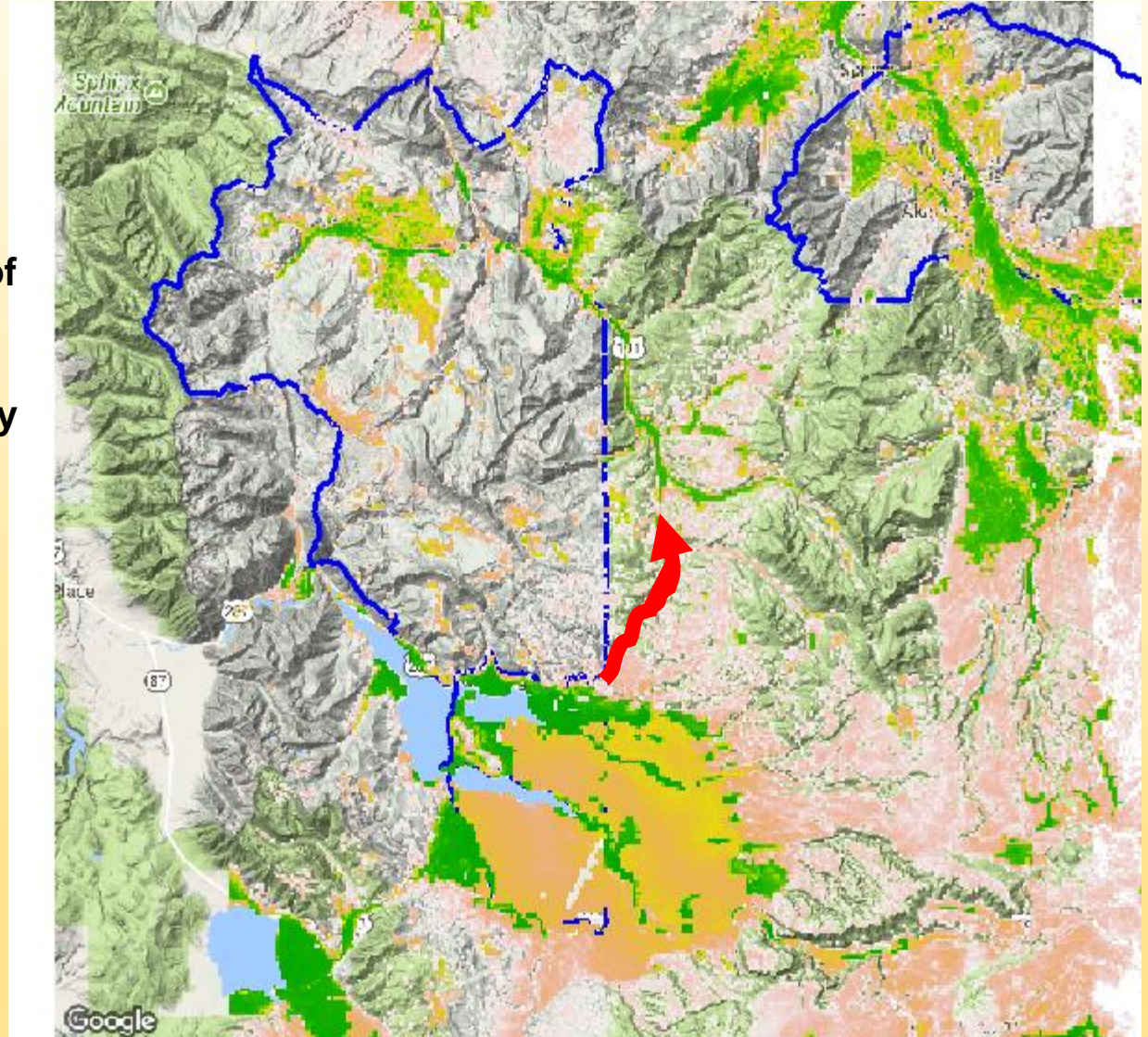
North (Bison 50)



Migration Routes

Highway 191

1. Cross 9-10 miles of poor habitat
2. 20-25 miles to entrance of Taylor Fork road
3. Bison near West primarily during April-May, less so during fall and winter
4. Existing migration behaviors are to move back into the Park along the Upper Madison



April Habitat Suitability

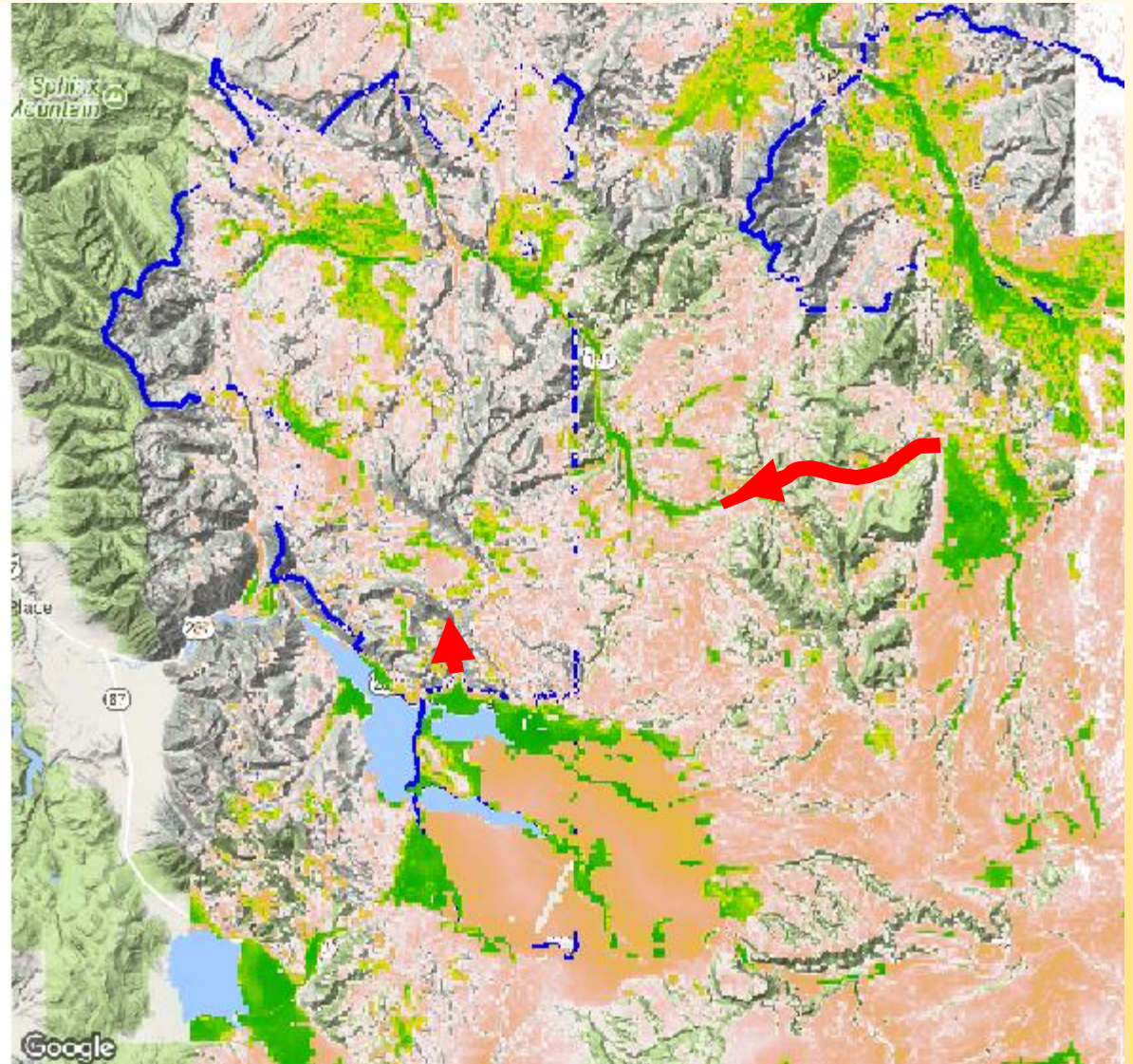
Migration Routes

Red Canyon

1. Potential route during summer and fall
2. Exploratory movements through linking small, disjointed suitable habitat patches

Gallatin Headwaters

1. Likely used during mid 1990s
2. Potential route during summer and fall

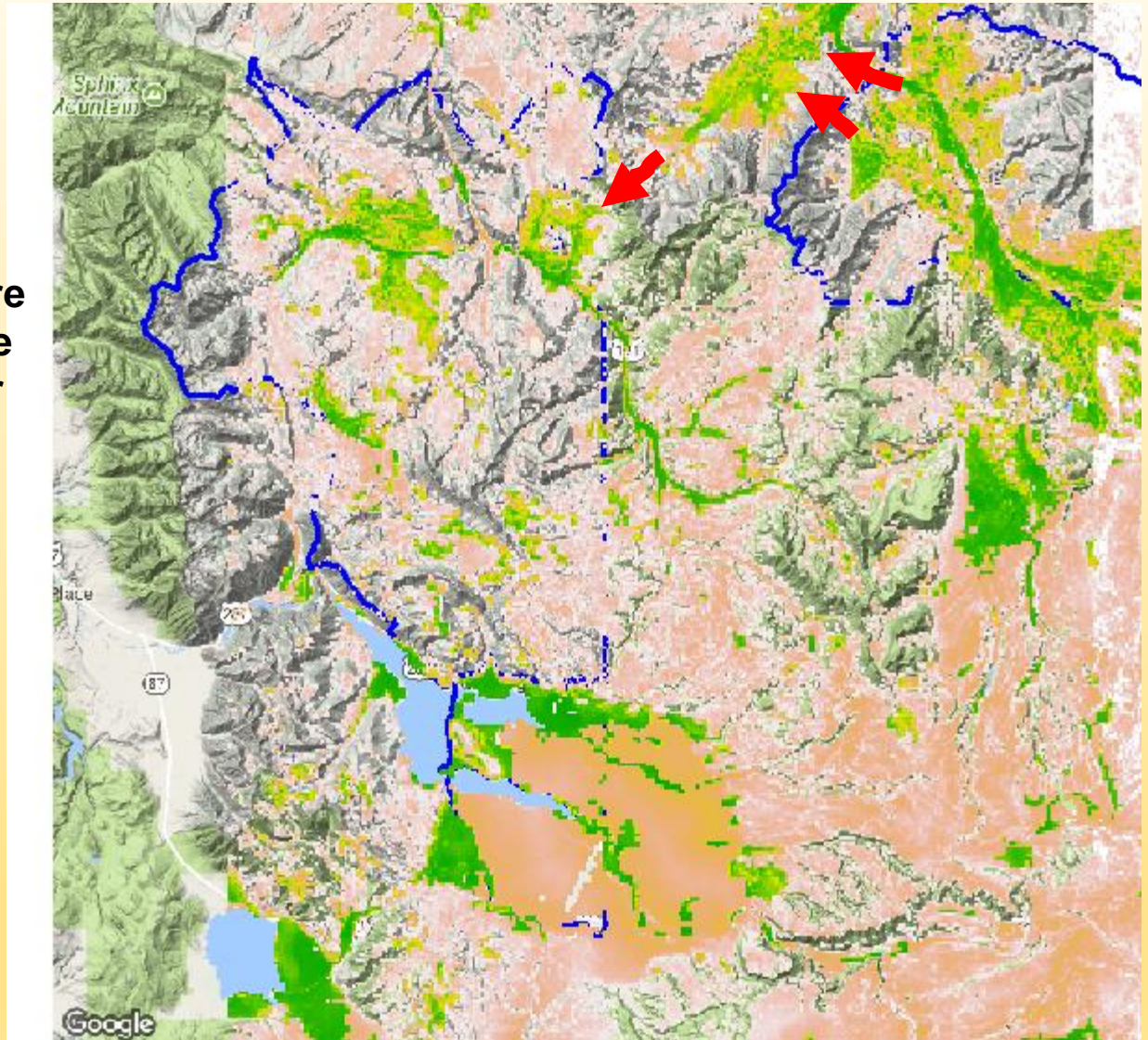


July Habitat Suitability

Migration Routes

Tom Miner

1. Migration into Tom Miner Basin is likely
2. Would additionally require movement through alpine areas to link to the Upper Gallatin



July Habitat Suitability

Year-Round Habitat and Migration Corridors

1. The Taylor Fork and Upper Gallatin provide the largest contiguous area of habitat in the year-round tolerance area
2. Suitable habitat is constrained to the Taylor Fork and 191 corridor particularly during winter
3. Four potential migration routes – each have constraints
4. Exploratory movements affected by
 - high abundance
 - high snow
 - human disturbance

