

Predicting northern bobwhite habitat in semiarid rangeland using Landsat imagery

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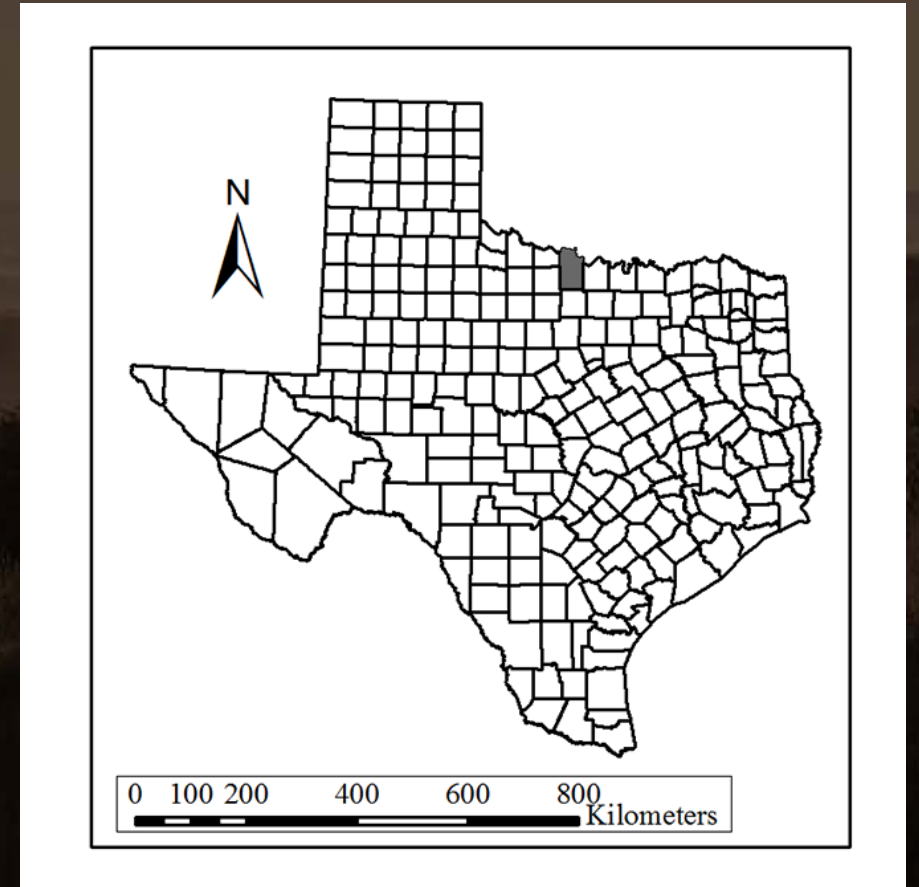
Habitat Requirements

- ◇ Food plants
- ◇ Nesting cover (*Schizachyrium*, *Andropogon*, *Panicum*, *Opuntia*)
- ◇ Loafing cover (*Ziziphus*, *Prosopis*)
- ◇ Escape cover (*Prunus*, *Prosopis*, *Smilax*)
- ◇ Little bluestem (*Schizachyrium scoparium*) is the primary nesting plant in N. Texas



Study Area

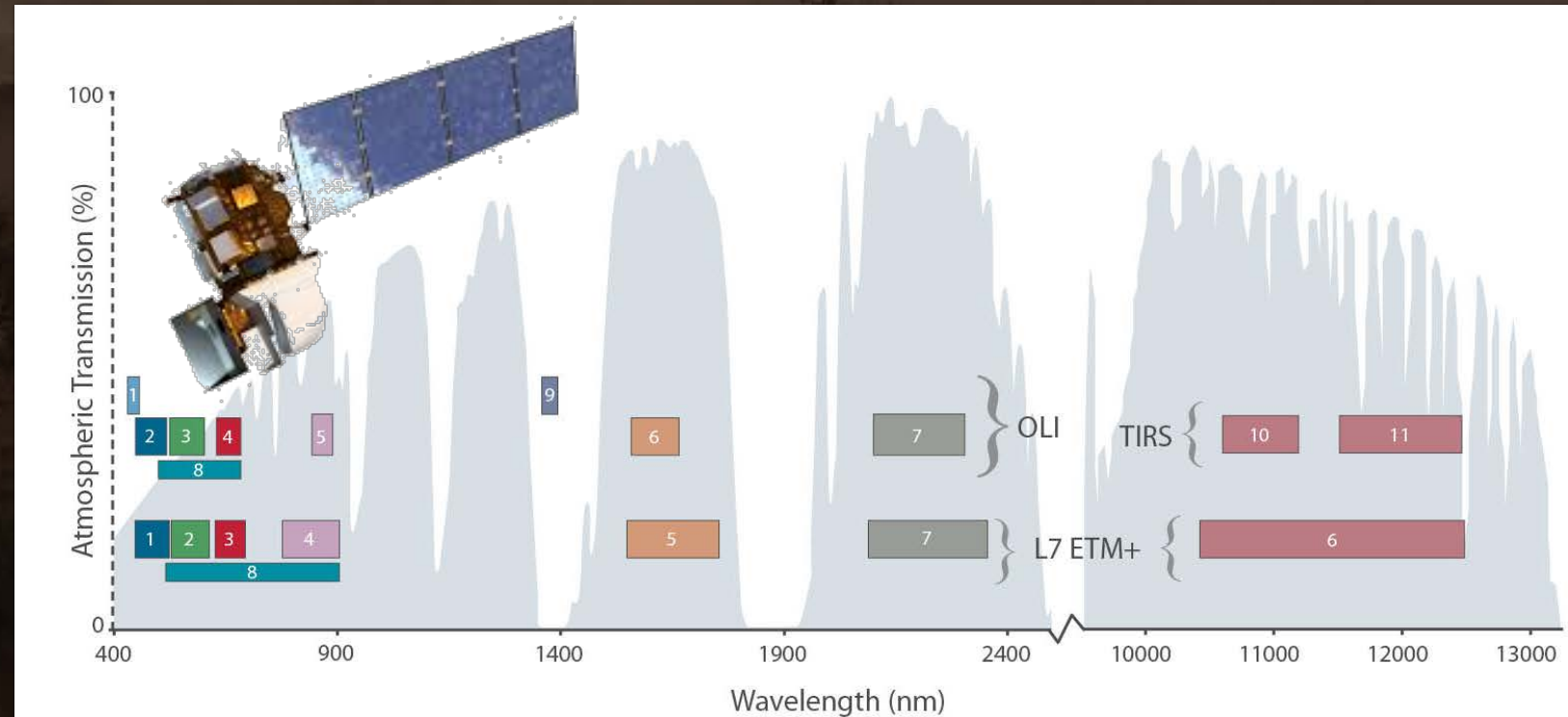
- ◇ Clay County, Texas
- ◇ 2,844 km²
- ◇ Population ~10,400
- ◇ >56% rangeland and cropland



Landsat 8 OLI

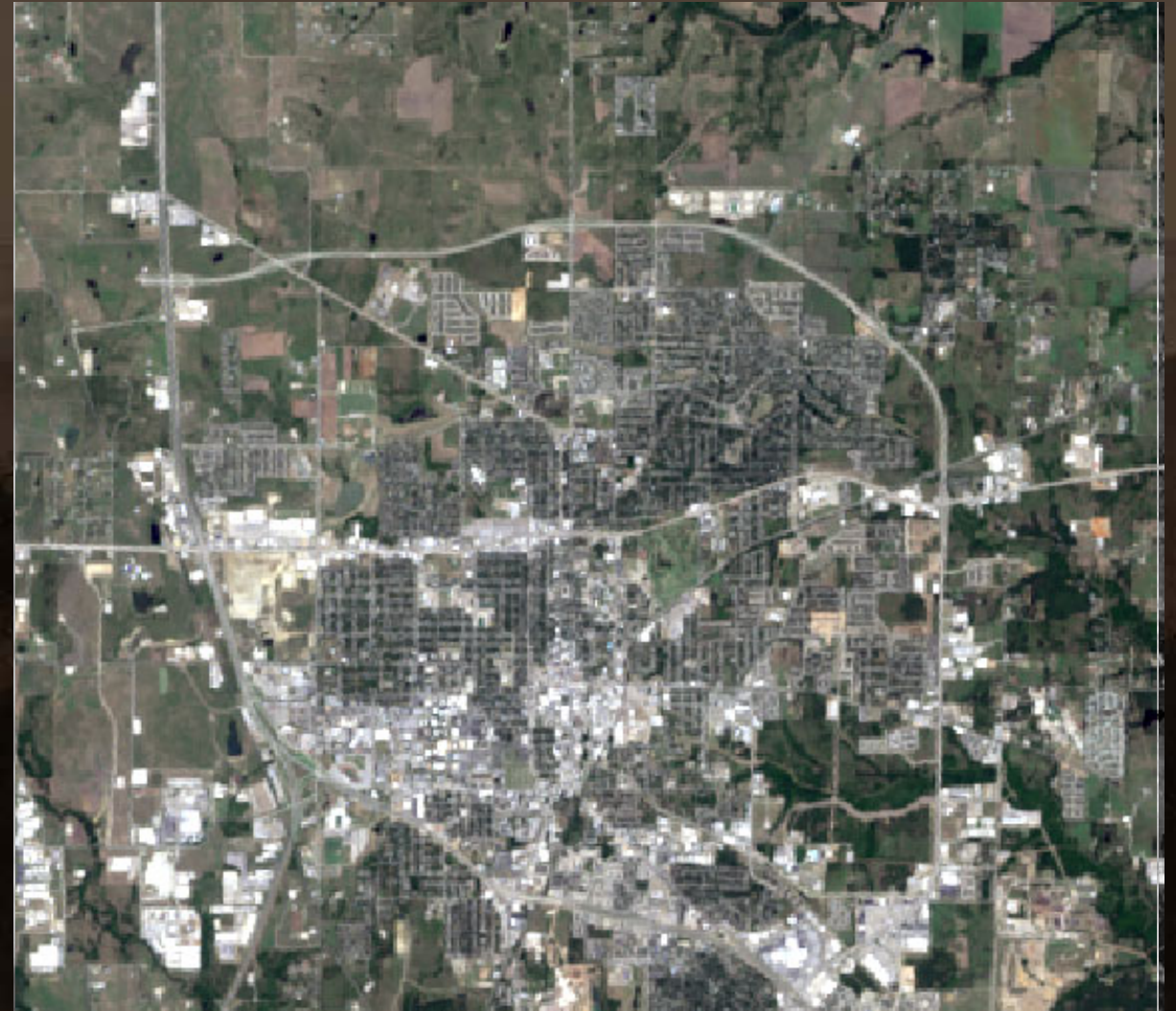
11 spectral bands

- ◇ 1 coastal/aerosols
- ◇ 3 visible (blue, green, red)
- ◇ 2 near infrared (NIR)
- ◇ 2 short wave infrared (SWIR)
- ◇ 2 thermal infrared (TIR)
- ◇ 1 Panchromatic

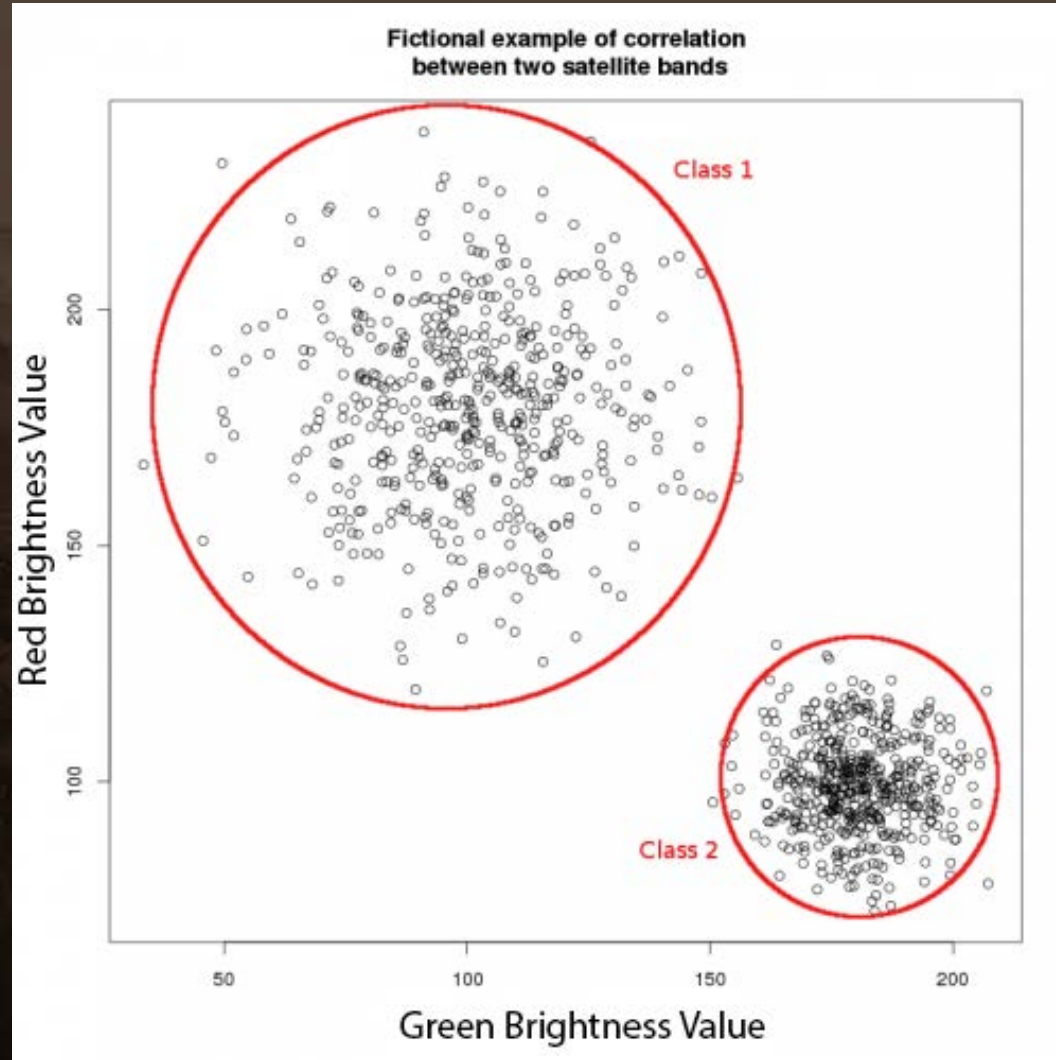


Landsat 8 Imagery

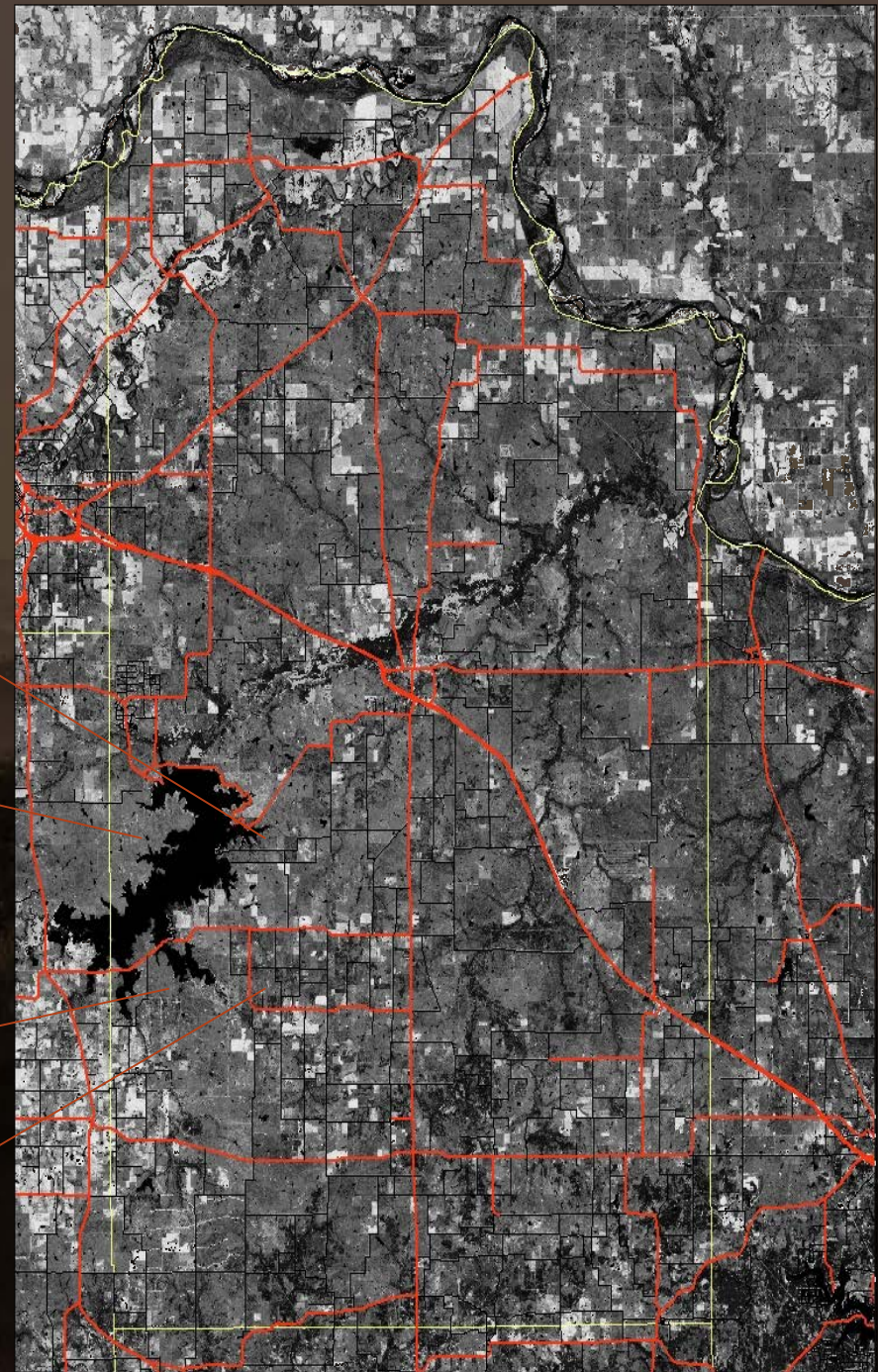
- ◇ Panchromatic
- ◇ Near infrared
- ◇ Thermal infrared
- ◇ Blue, green, and red



Classification



Classified Image

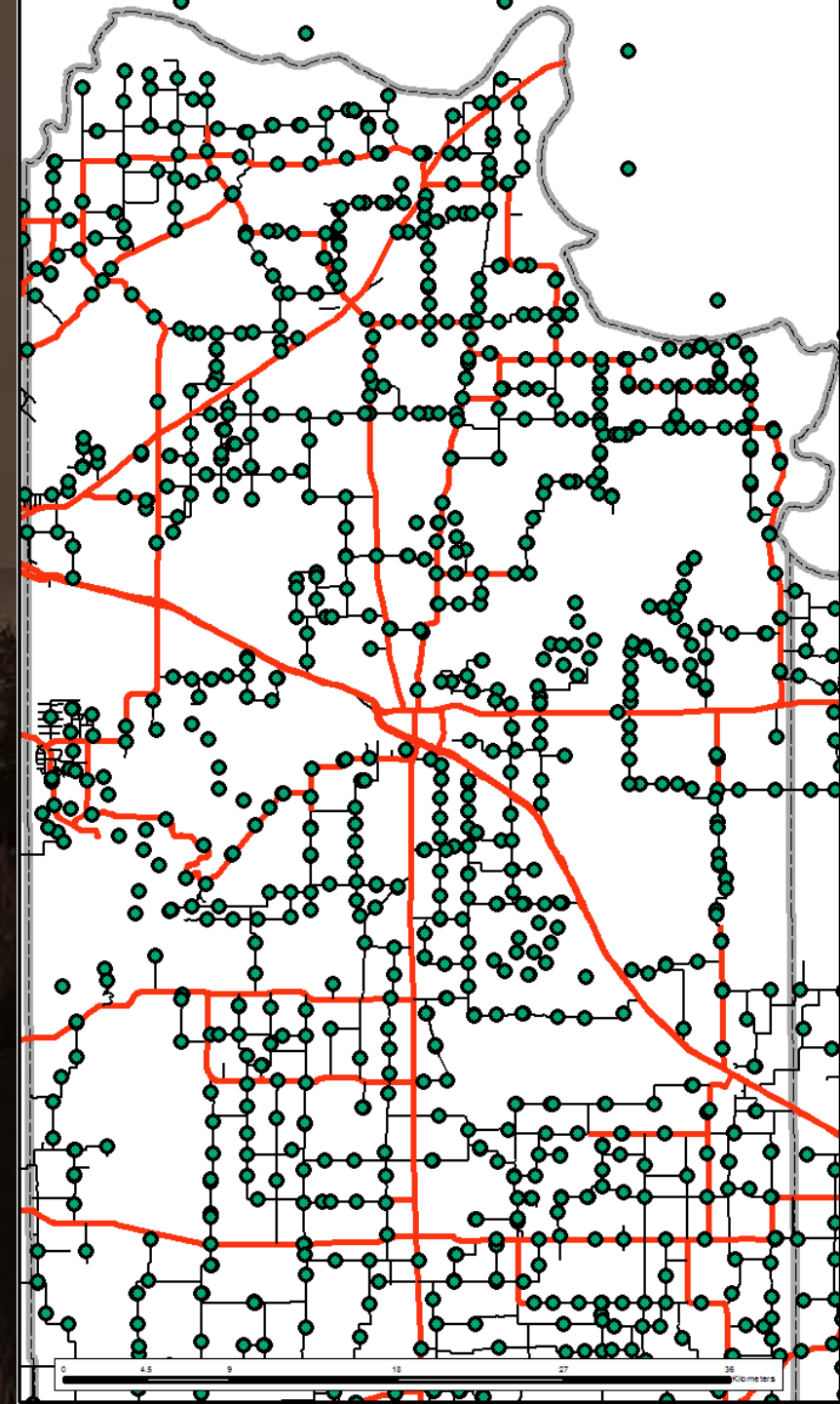


Class Scoring

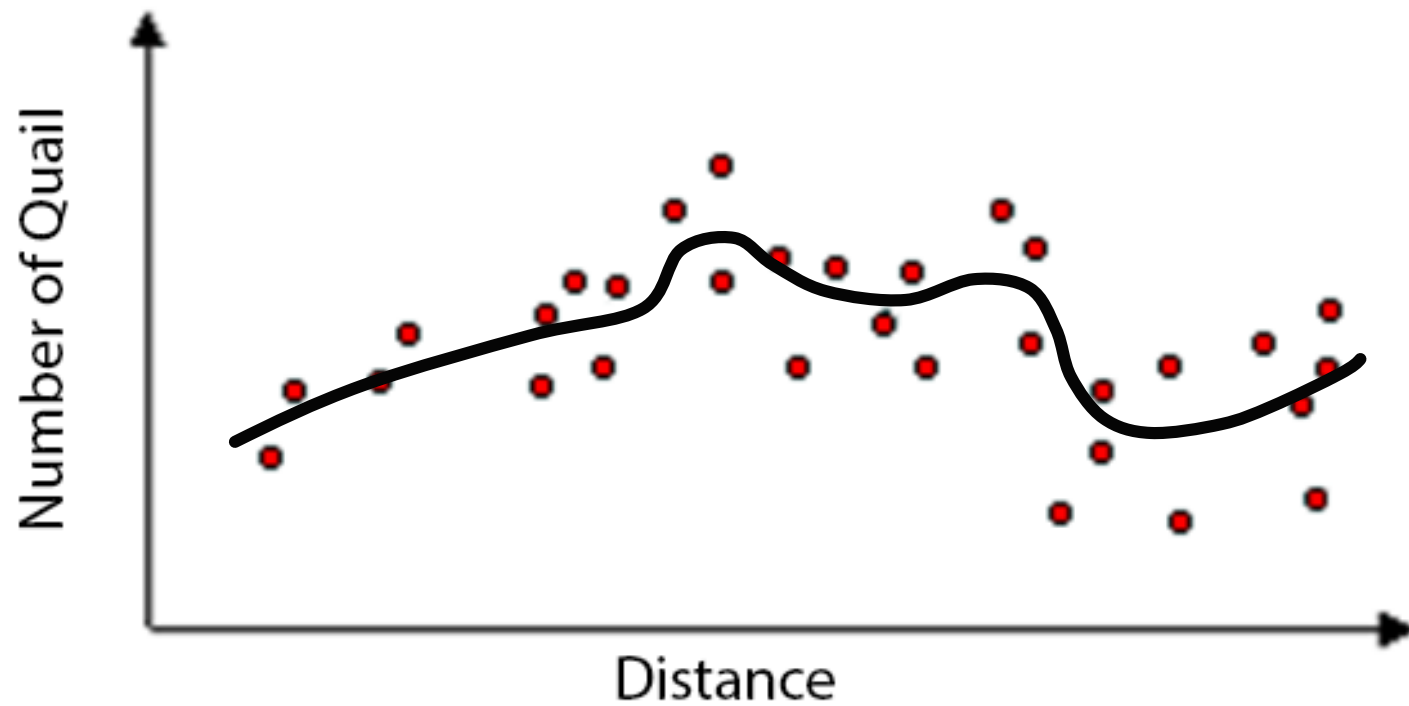
Classification	Score
Urban areas	0.0
Water	0.0
Cropland	0.25
Forest, brush	0.5
Rangeland, short	0.25
Rangeland, short with brush	0.375
Rangeland, tall	0.75
Rangeland, tall with brush	0.875
Little bluestem	0.75
Little bluestem with brush	1.0

Call Counts

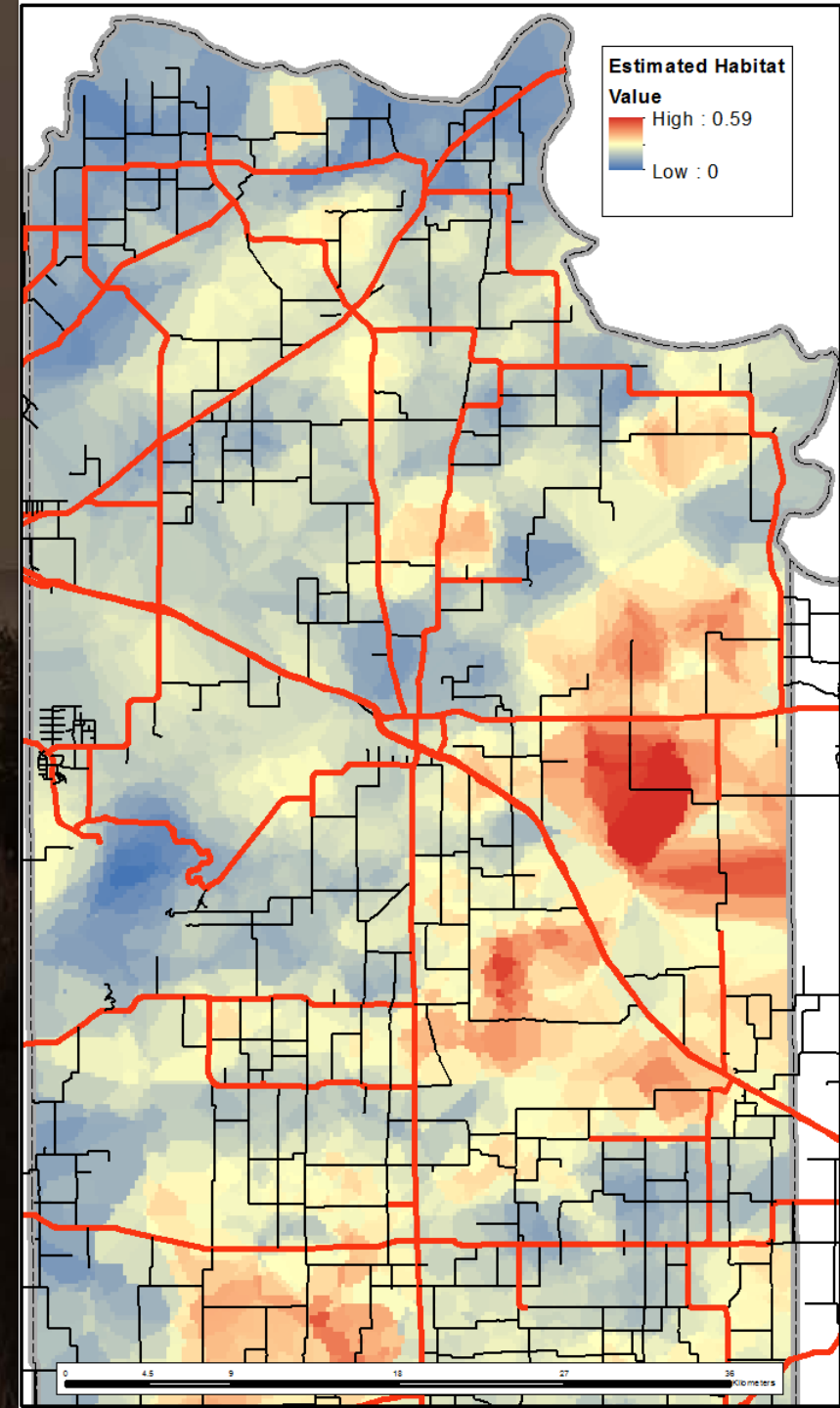
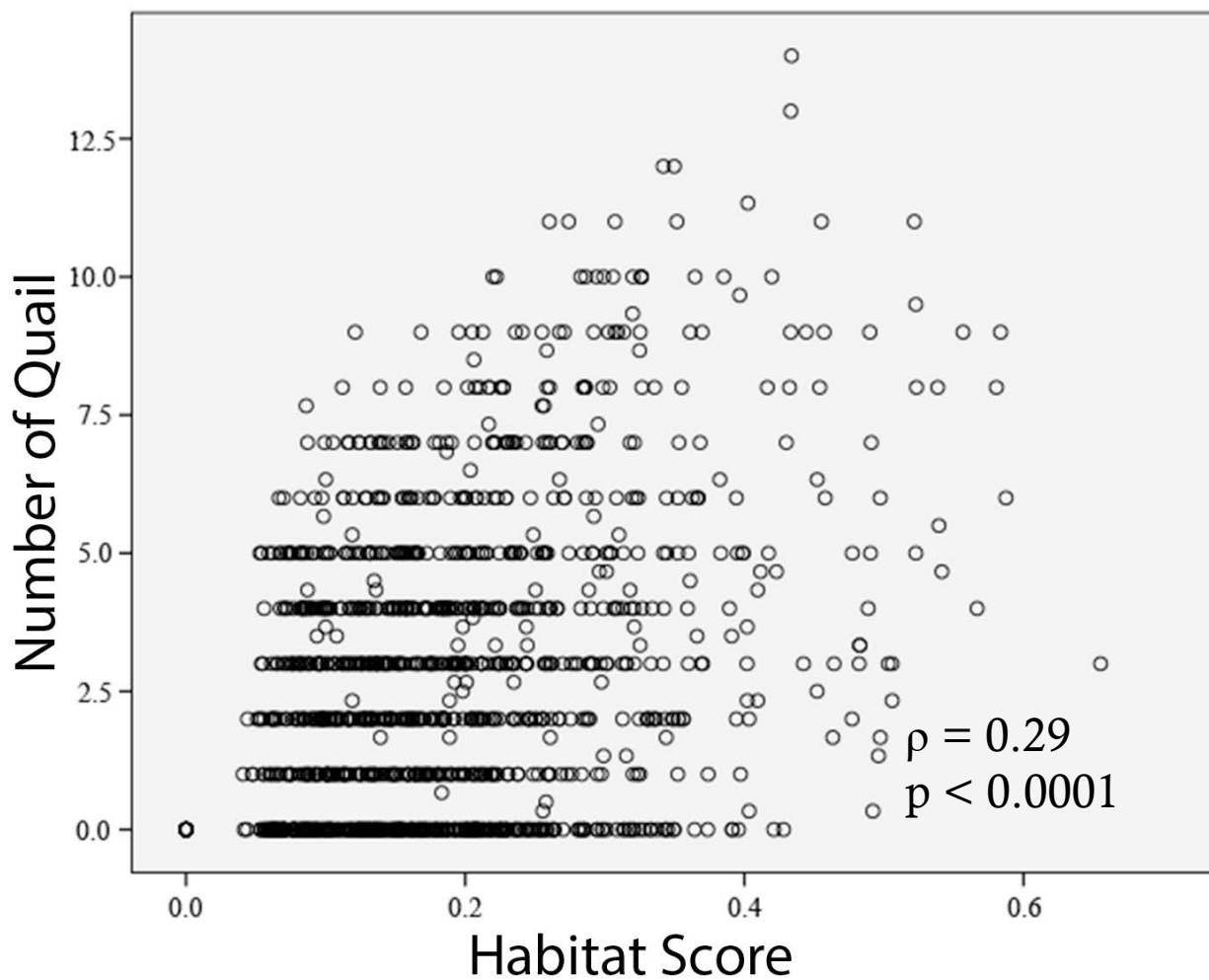
- ◇ May 15 – June 30
- ◇ 3 hours following sunrise
- ◇ Listening duration 5 minutes
- ◇ Climate conditions recorded
- ◇ 1218 stops 2014 – 2015



Interpolation



Results



Additional Factors

- ◇ Distance to stands of little bluestem
- ◇ Distance to oil and gas wells
- ◇ Land parcel density
- ◇ Observer distance from forest
- ◇ Ambient noise levels
- ◇ 2705 points 2016 – 2017



Acknowledgements

- ◆ UNT Quail Students and Volunteers
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- ◆ Texas Parks and Wildlife
- ◆ Cooperating landowners

