Pronghorn and Wind Energy Development

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Broomfield, CO
December 1, 2016

Pronghorn

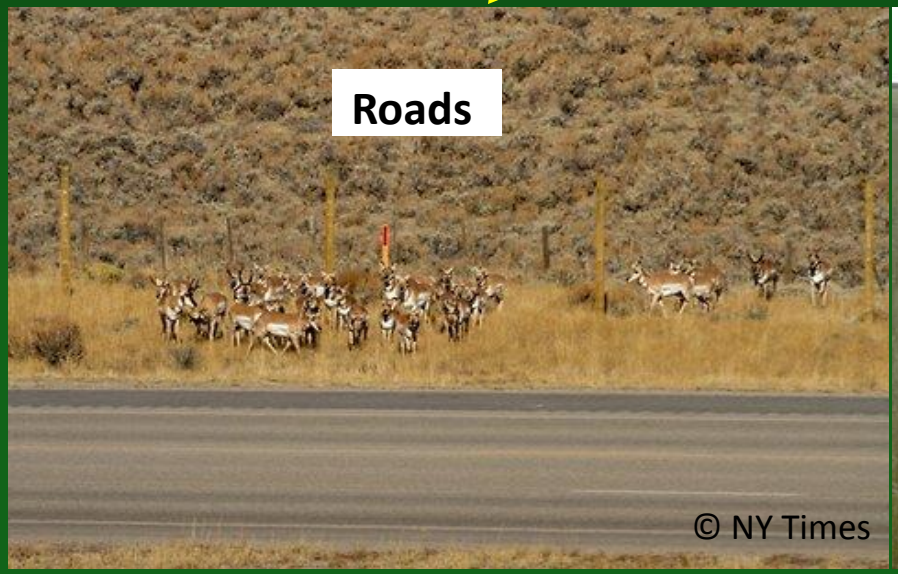
A

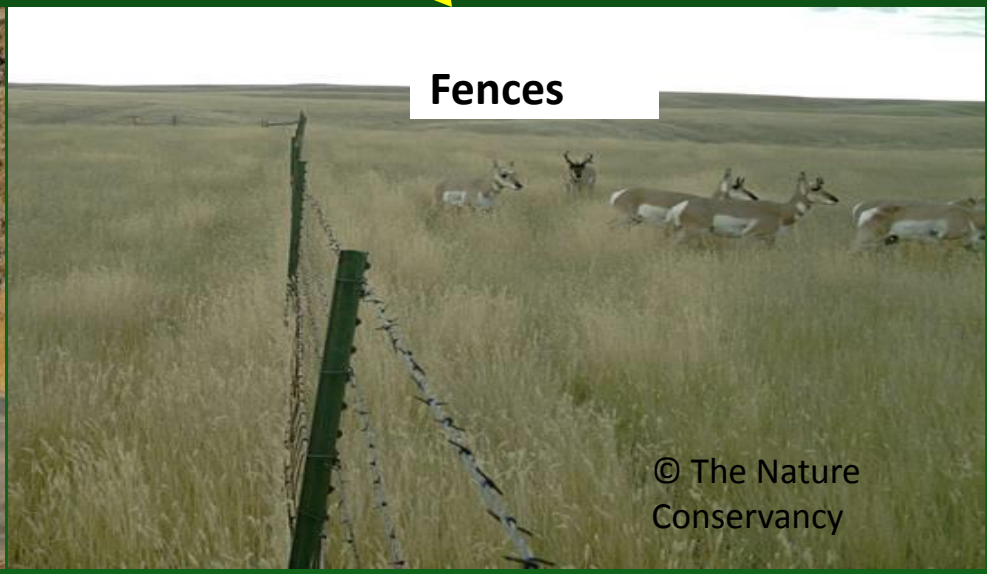
A. a. americana

mexicana

Disruption of Connectivity

Declining population due to fragmentation of habitat and alteration of normal behavior such as migration



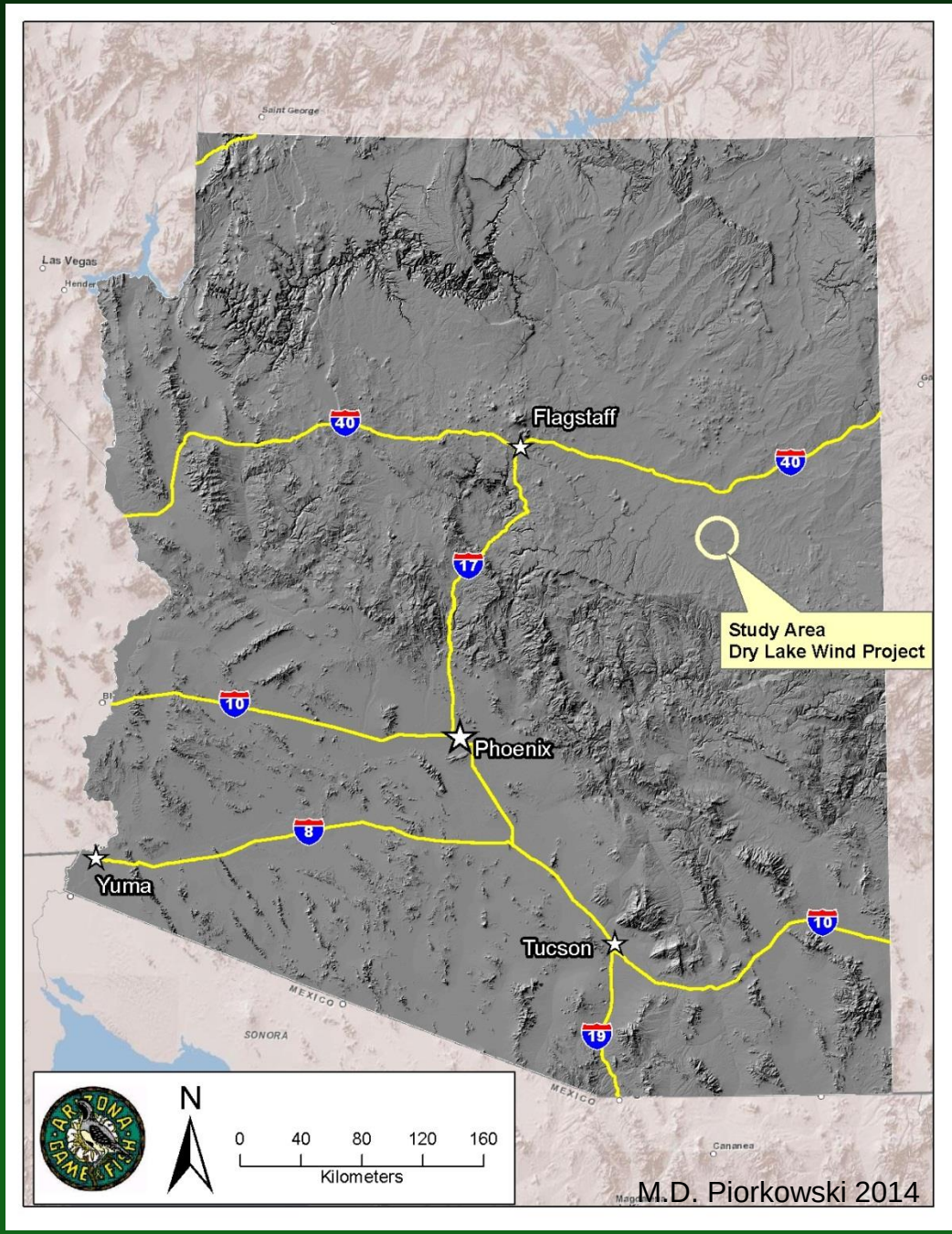


Objectives

1. Distribution
   - Crossing locations
2. Frequency
   - Annual and daily variations
   - Operational status of wind facility
3. Demographic relationship
   - Male and Female comparisons
   - Sensitivity of turbine operation on sex

Study Area

- Plains grasslands and Pinyon-Juniper woodlands
- Elevation: 1,700 – 1,860 m
- Primary land-use: Rangeland



Study Area

Project Description

- Project Duration:
  November 2010 - November 2012

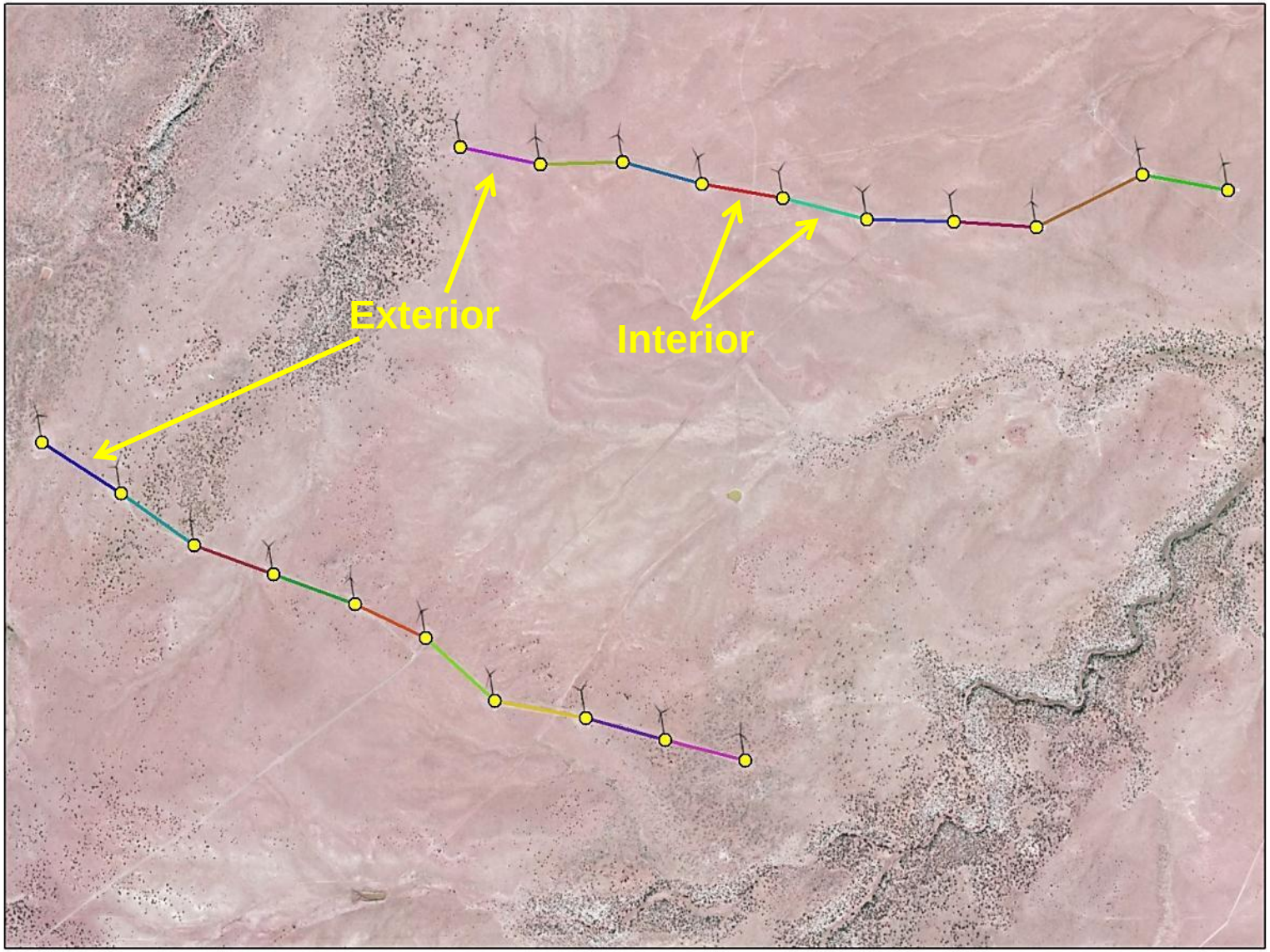
- Captured
  - 17 Females
  - 7 Males

Project Description

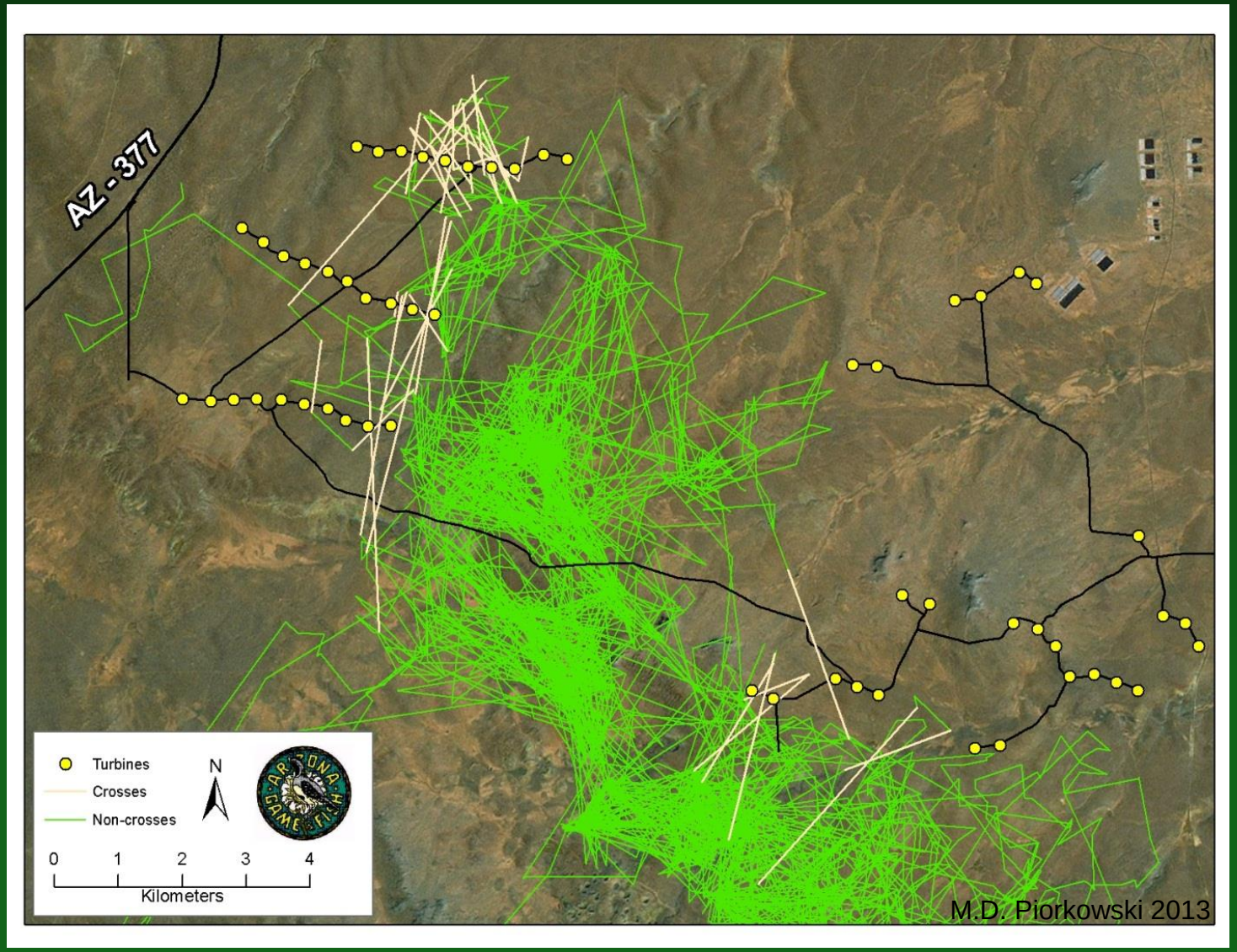
Satellite Telemetry Collars

- 8 fixes/day
- 24 months
- 55,801 total fixes

Analysis Design



Pronghorn Crossings



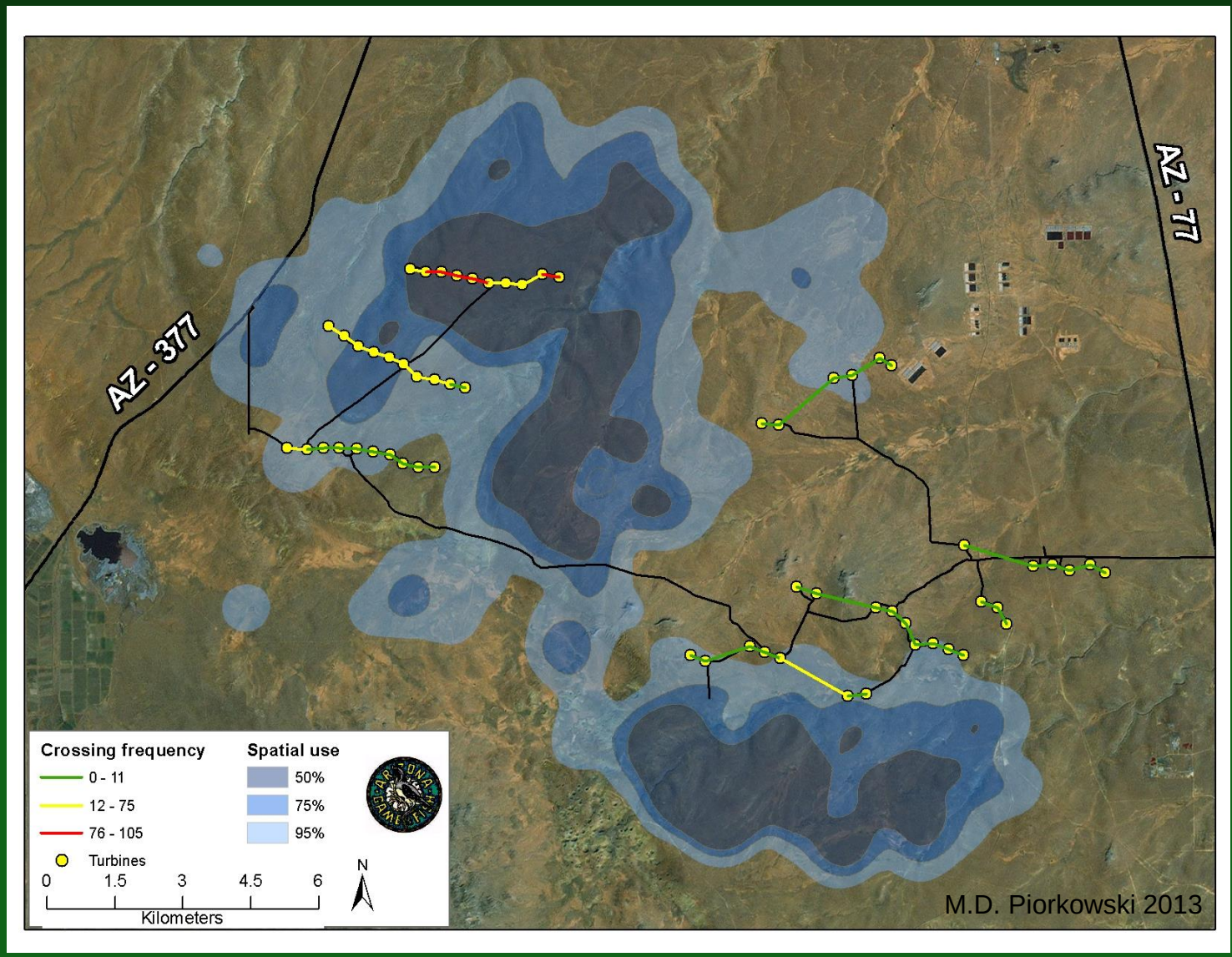
Inter-turbine Crossing Results

- 21 of 24 pronghorn utilized the wind facility

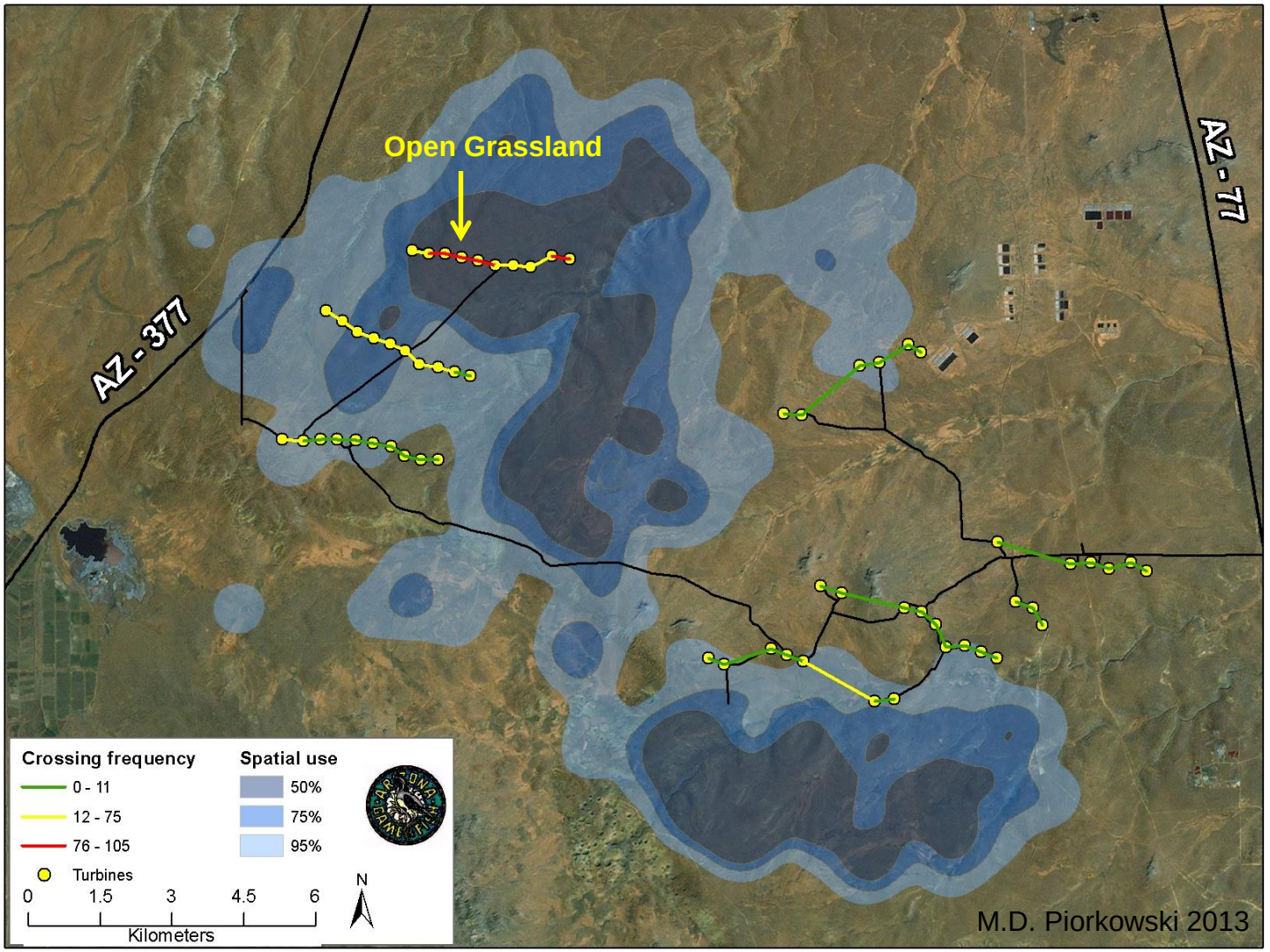
- ~ 5% of movements crossed between turbines
  - Crossing Rates
    - Exterior = 14.5 crossings/turbine segment
    - Interior = 23.5 crossings/turbine segment

- No diurnal pattern (552 day vs. 520 night)

Inter-turbine Crossing Results

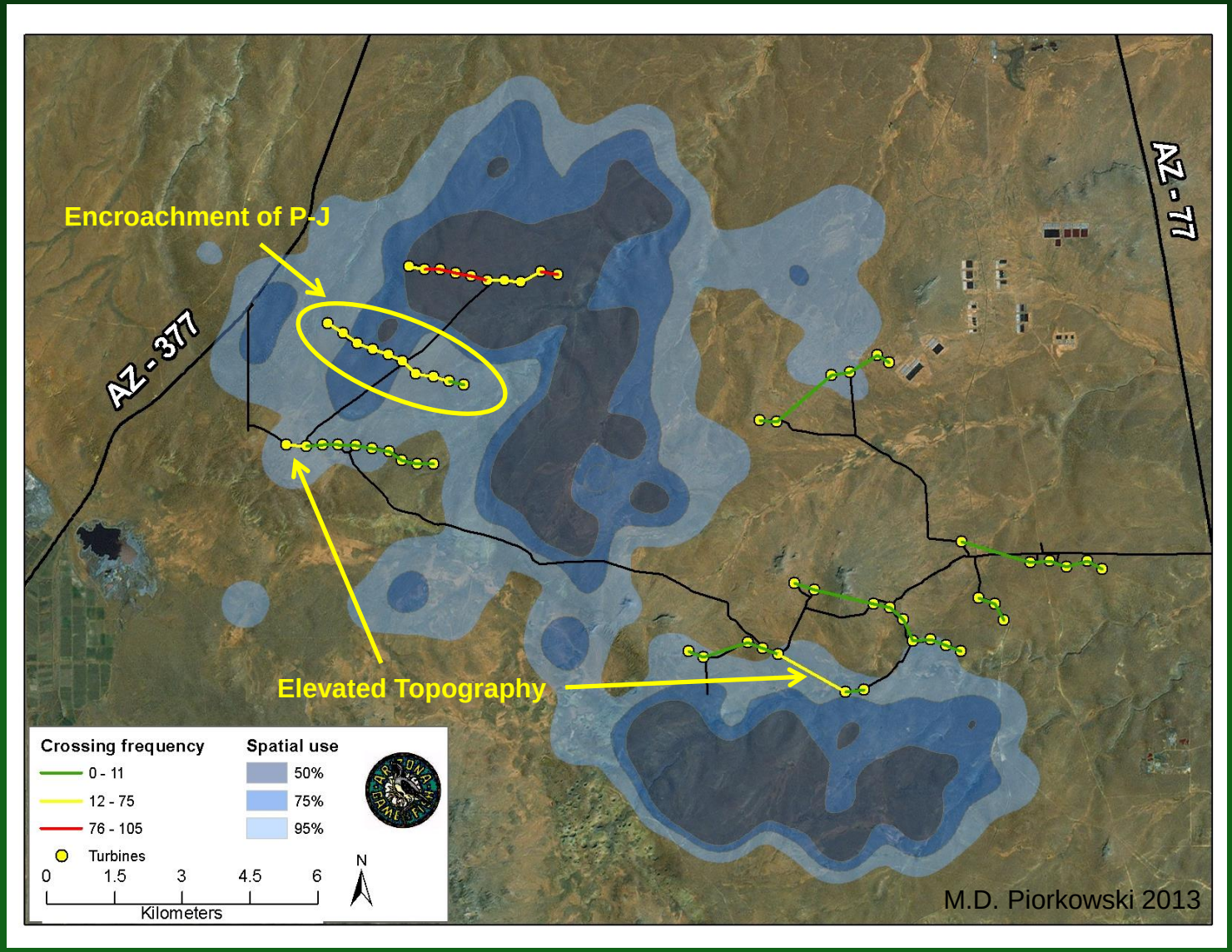


High Crossing Rates



High Crossing Rates

Medium Crossing Rates

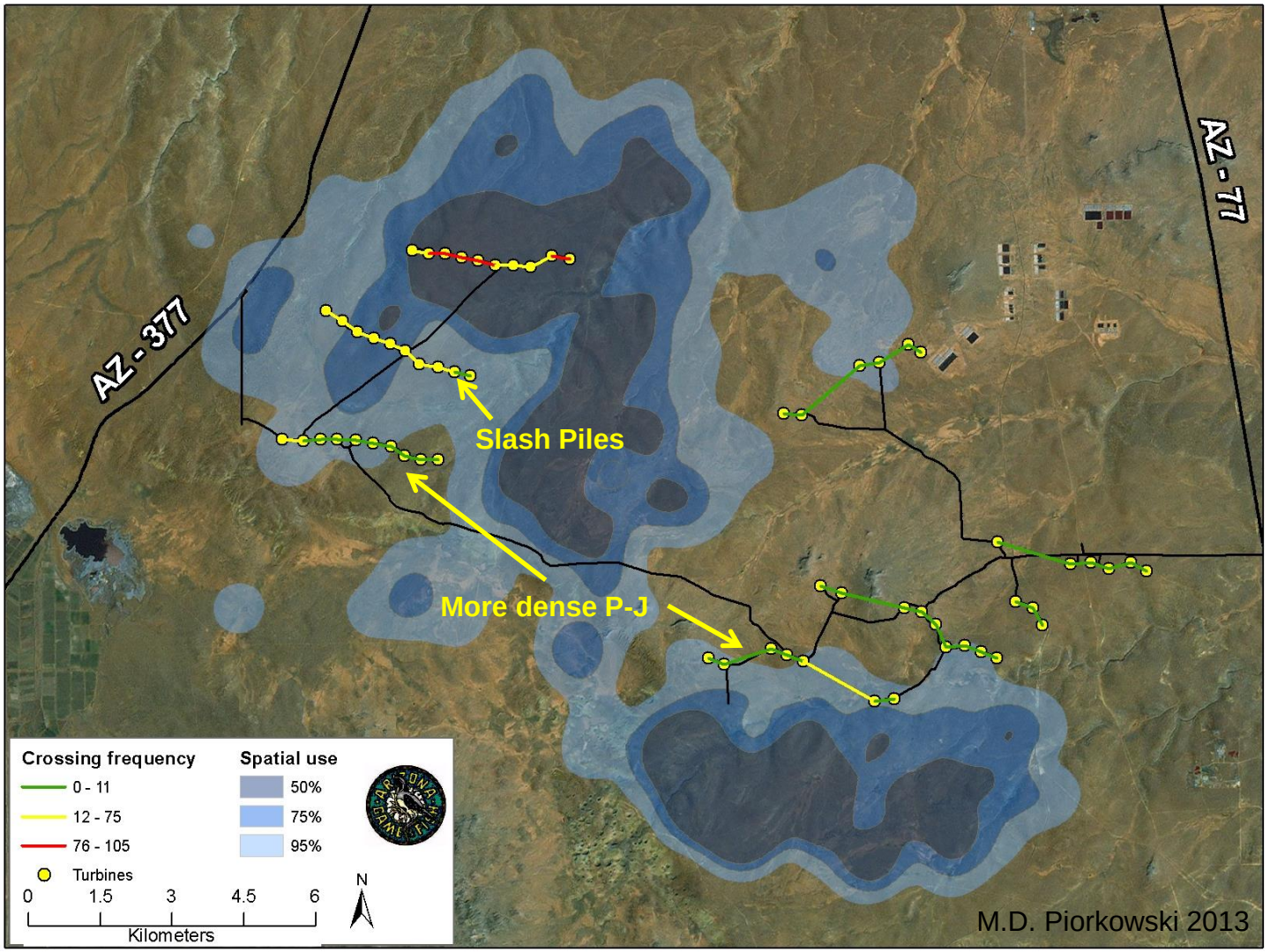


Medium Crossing Rates

Elevated Topography

Encroachment of P – J

Low Crossing Rates



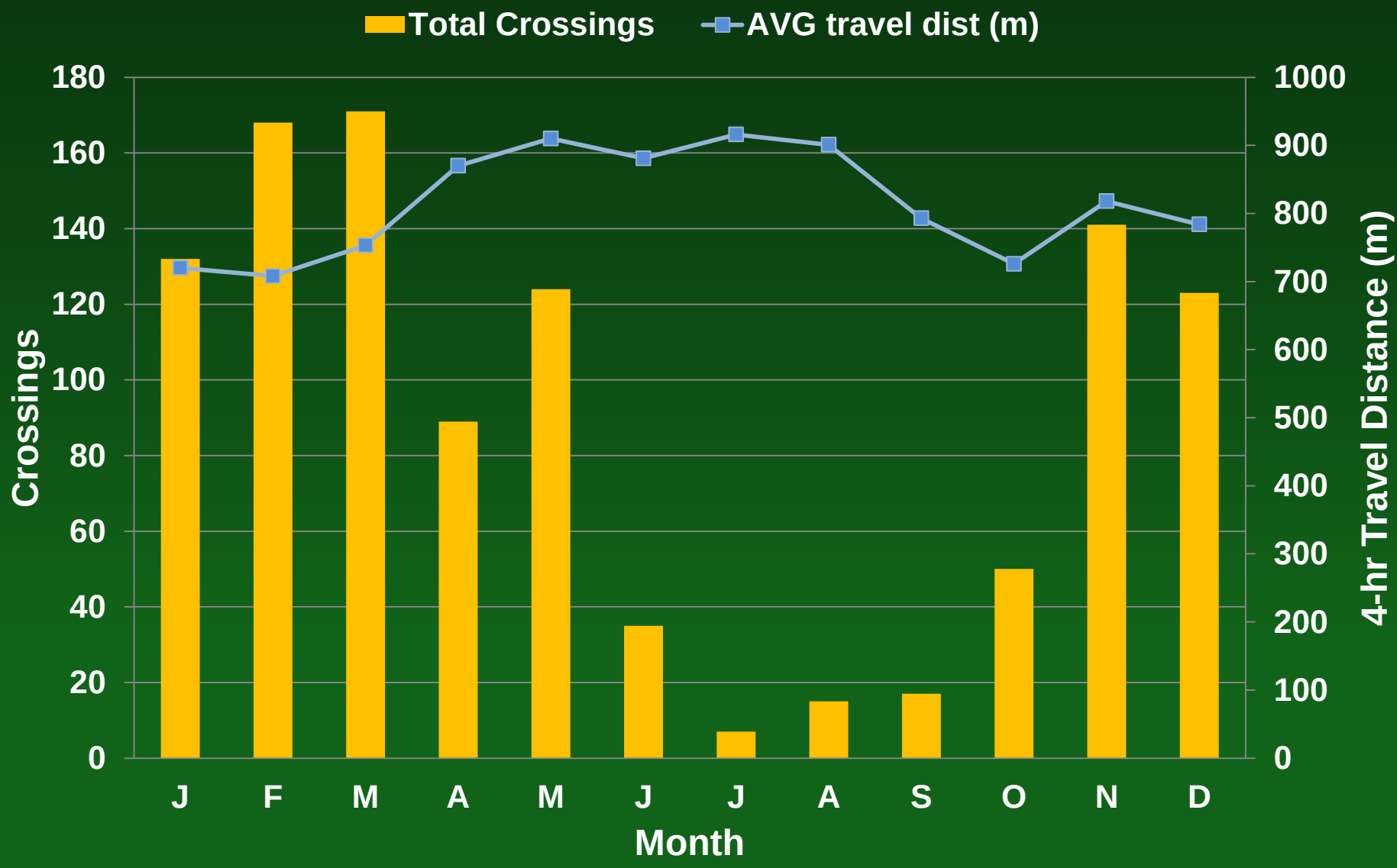
Low Crossing Rates

Increase in pinyon – juniper density

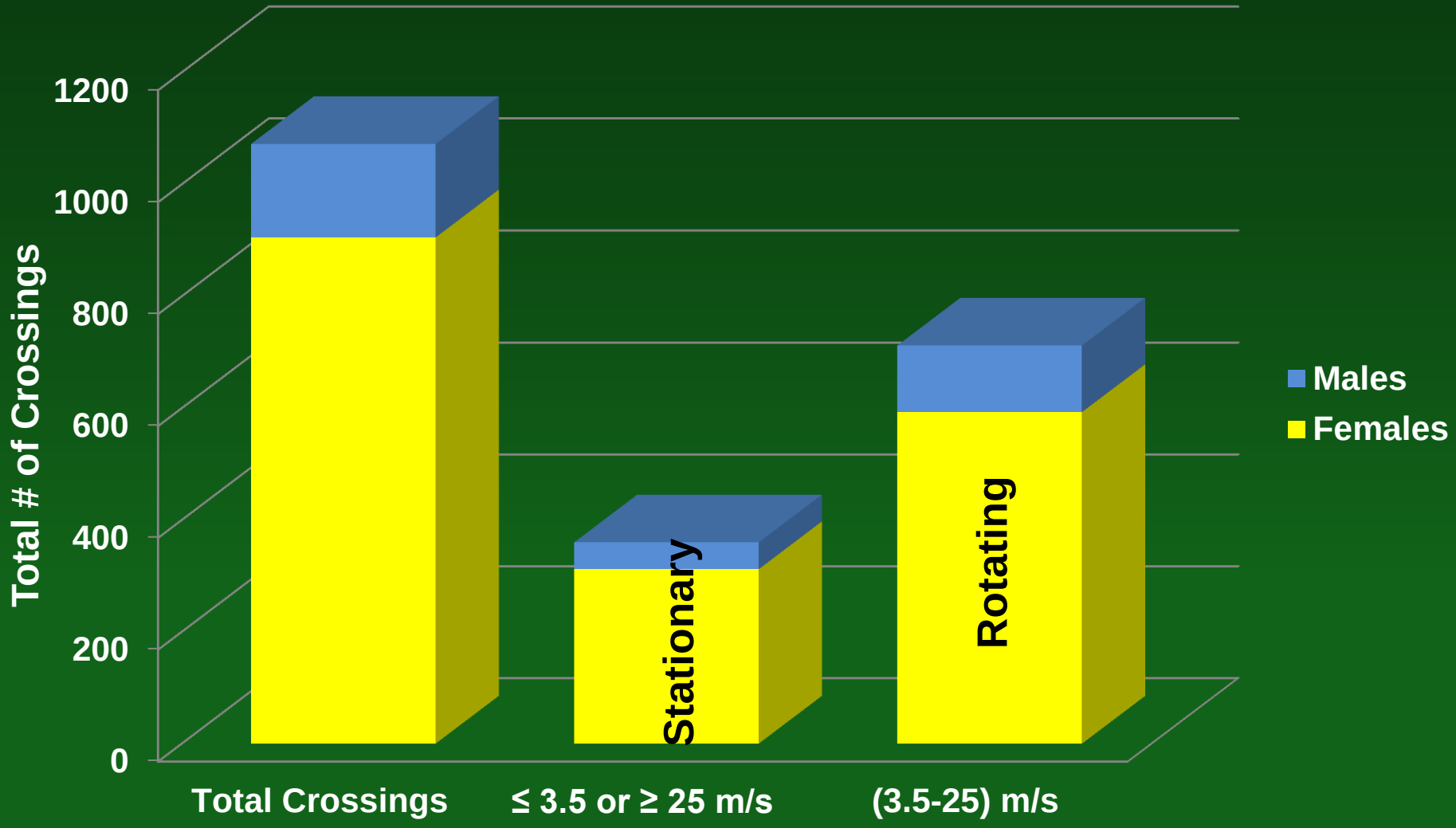
Low Crossing Rates

Slash piles and debris

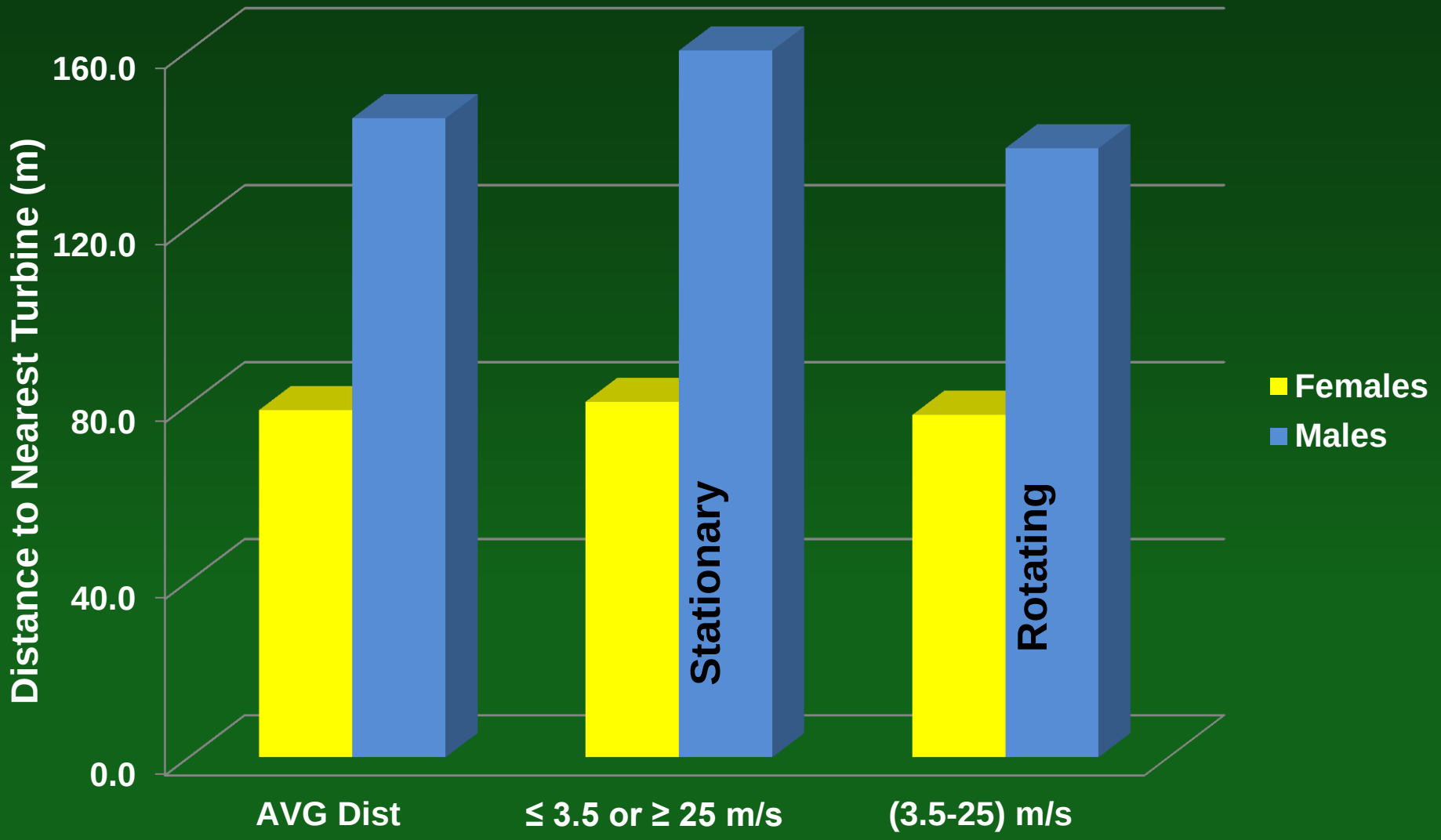
Annual Crossing Distribution



Crossing Rates per Individual



Crossing Distance



Summary

1. More crossings during winter months
2. Females cross closer and more often to turbines
3. No diurnal difference
4. Wind speed has limited effect on crossings

Management Recommendations

1. Increase inter-turbine distance (turbine siting)

2. Retaining/improving connectivity through contiguous habitat
   a. Fence modifications
   b. Vertical structure control / burn slash piles

3. Minimizing physical disturbance

4. Restore/improve disturbed areas quickly

Acknowledgements

Financial Support:

Arizona Game and Fish Department Region I

Iberdrola Renewables

Arizona Bureau of Land Management

Additional Support:

Dannette Weiss and Paul Greer: AZGFD

Jerry Roppe, John Sherman, and Tina Bartunek: Iberdrola Renewables