

# Raptor and Corvid Use of Distribution Line Power Poles:

An Assessment of the Efficacy of  
Perch Deterrents



# Previous Research

- Man-made vertical structures are believed to lead to increased:
  - Raptor and corvid visitation.
  - Access to habitats.
  - Availability of perch, nesting, and roosting sites.
  - Foraging and predation efficiency.



# Fragmentation

- Divides suitable habitat.
- Increases isolation of populations.
- Abandonment of sites.

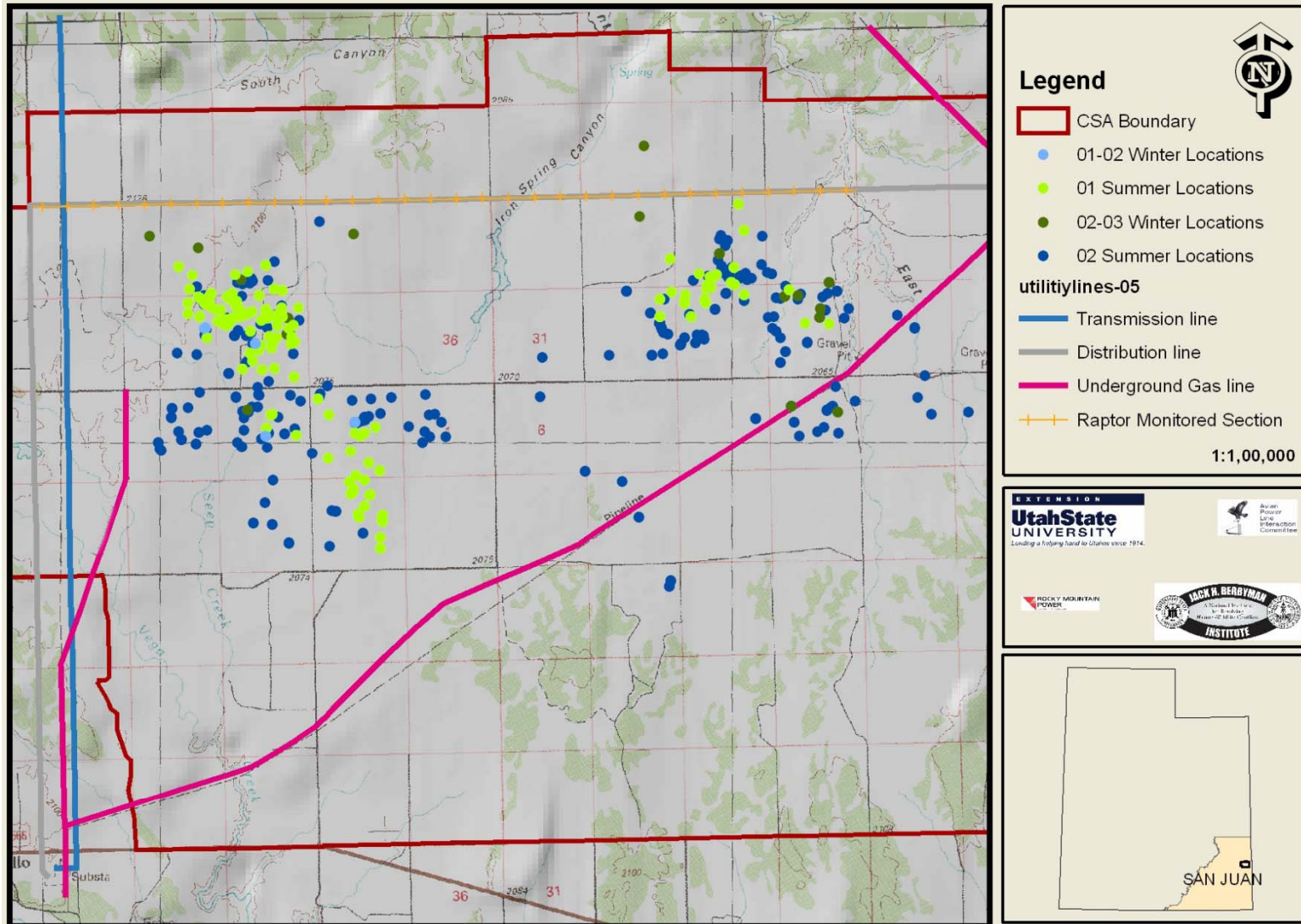


# Study Objective

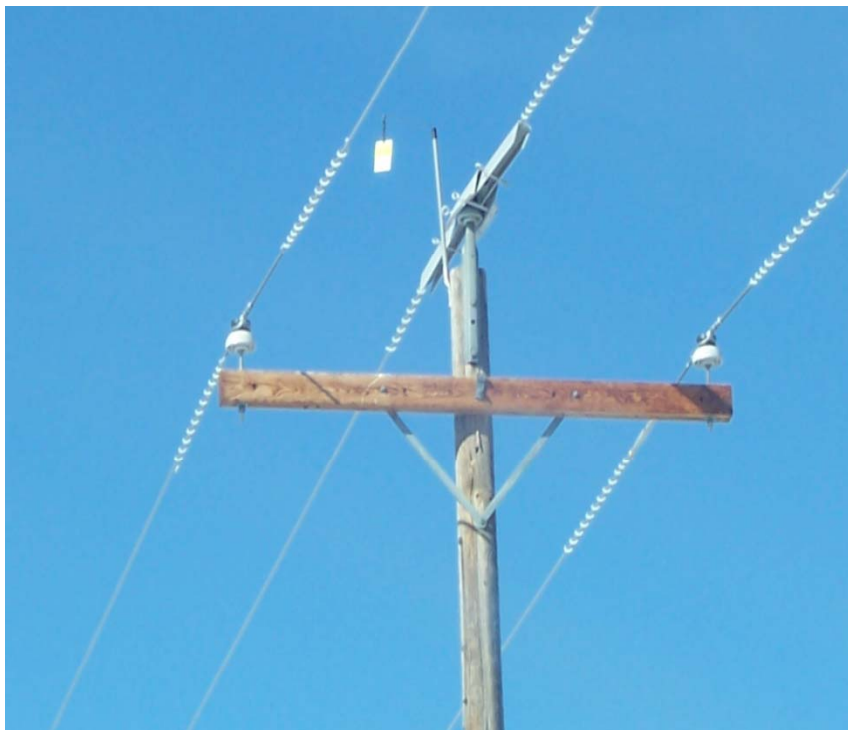
- Test the efficacy of five types of perch deterrents on reducing the number of perching events of raptors and corvids.



# Study Site



# Perch Deterrents



One Fire Fly



Two Fire Flies

# Discouragers



**Cones**  
(Kaddas)

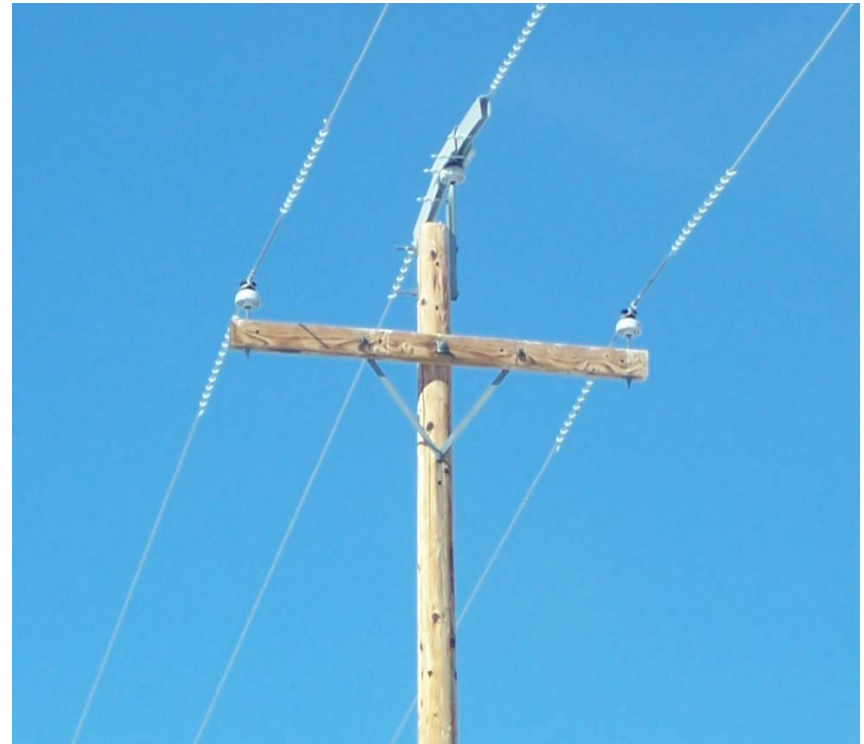


**Triangles**

# Discouragers



Spikes  
(Mini-zena)

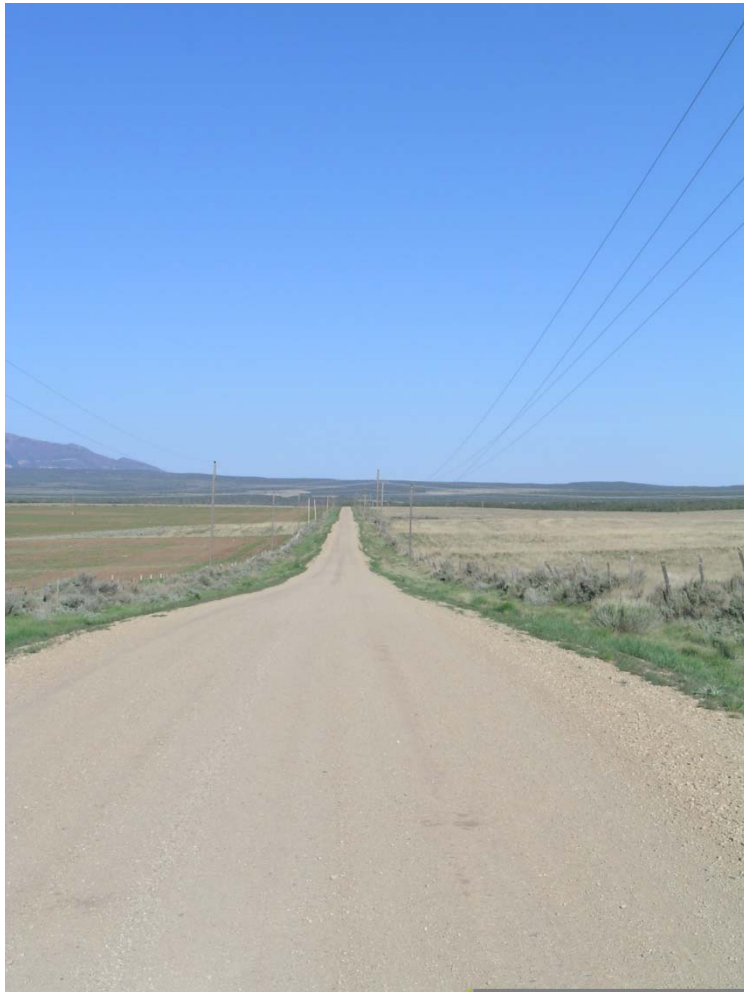


No treatment



# Study (2007-2008)

- 7.5 miles of power line with 84 poles.



# Methods

- Divided into 14 blocks of 6 poles.
  - Each block contained one of each discourager and a control.
  - Treatments and control were randomly assigned.



# Survey Methods

- Began mid-January, finish end of April.
- Surveyed twice a day, five days a week.
- Five minutes spent at starting point and each mile point.
- Recorded species and numbers of individuals perched on the study poles.



# Analysis

- 1) Did the total count of perching events recorded by treatment and control in 2007 and 2008 differ by perch deterrent type and year?
- 2) Did the total counts for each species on each type of deterrent and control in 2007 and 2008 differ?

# Results

2007	Species	2008	Species
Golden eagle	278	Golden eagle	230
Common raven	39	Common raven	23
Red-tailed hawk	35	Rough-legged hawk	9
Rough-legged Hawk	35	Ferruginous hawk	3
Northern harrier	8	Bald eagle	2
Unknown	2	Unknown	1
Ferruginous hawk	1		

168 survey hours.  
253 perching events.

84 survey hours.  
136 perching events.

# Results - 2007

2007						
Species	Cones	Mini zena	Triangles	Control	<i>F</i>	<i>p</i>
	n	n	n	n		
Golden eagle	42	35	51	67	2.6	0.07
Common raven	9	13	8	7	0.5	0.46
Rough-legged hawk	5	6	3	7	0.5	0.71
Total	56	54	62	81	1.2	0.31
% perching events	22	21	25	32		

- Golden eagles 77% of perching events.
- Perching events did not differ by deterrent or control ( $p = 0.31$ ).
- Perching events did not differ by species.

# Results - 2008

Species	2008					
	Cones	Mini zena	Triangles	Control	<i>F</i>	<i>p</i>
	n	n	n	n		
Golden eagle	33	24	19	34	1.2	0.33
Common raven	1	6	3	8	1.5	0.22
Rough-legged hawk	2	2	1	3	0.2	0.91
Total	36	32	23	45	1.9	0.15
% perching events	26	24	17	33		

- Golden eagles 81% of perching events.
- Perching events did not differ by deterrent or control ( $p = 0.15$ ).
- Perching events did not differ by species.

# Results





# Results



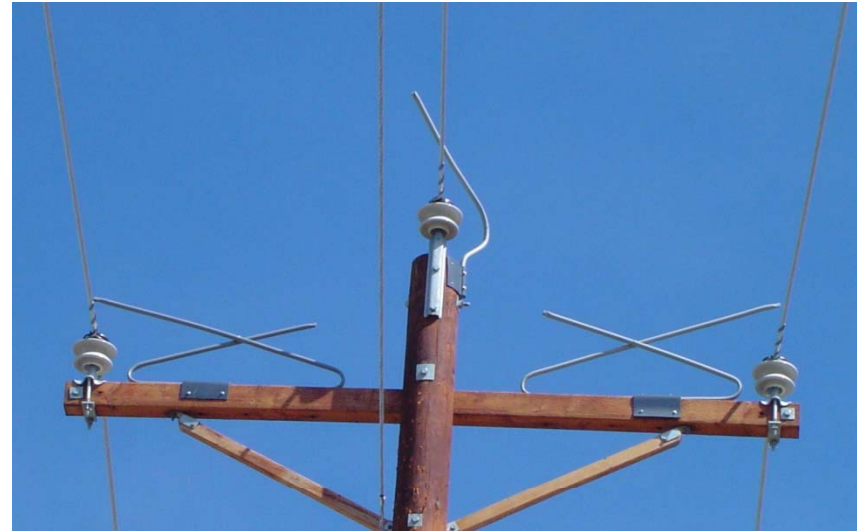
# Discussion - Fire Flies



# Discussion - Fire Flies



# Discussion



- Use cross arm deterrents in combination with insulator deterrents.

# Acknowledgements

- Advisor: Dr. Terry Messmer.
- Committee:
  - Dr. Eugene Schupp, Dr. Chris Call, Dr. Fred Provenza, Dr. Tim Graham
- Funders:
  - BLM and NRCS
  - Endangered Species Mitigation Fund
  - PacifiCorp
  - Jack H. Berryman Institute
- Todd Black (and family)
- Tammy Wallace (BLM)
- Guy Wallace (UDWR)
- Canyon Country Youth Corp.
- Monticello/Dove Creek LWG
- Private Landowners
- Family and friends
- My dog Jake



