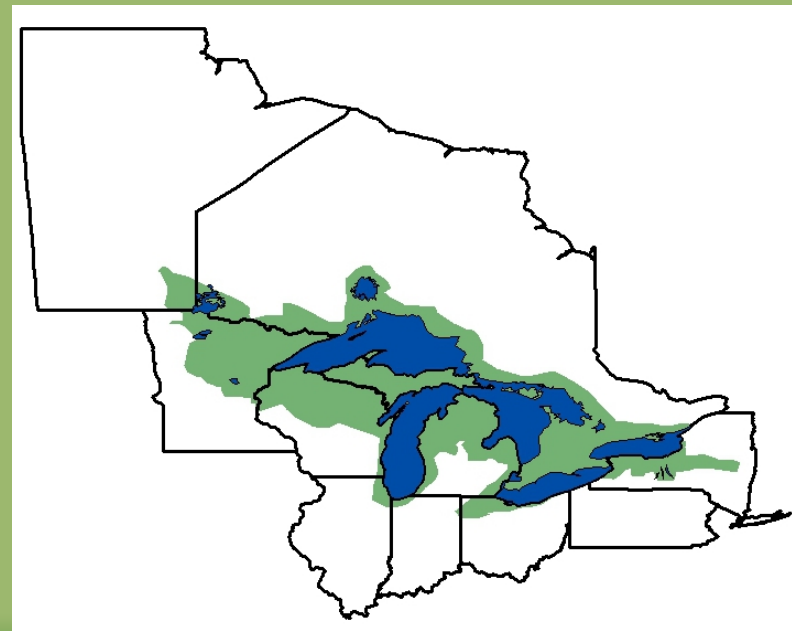


# The Effects of Fire on Individual Bird Species and Bird Communities in the Lake States Area

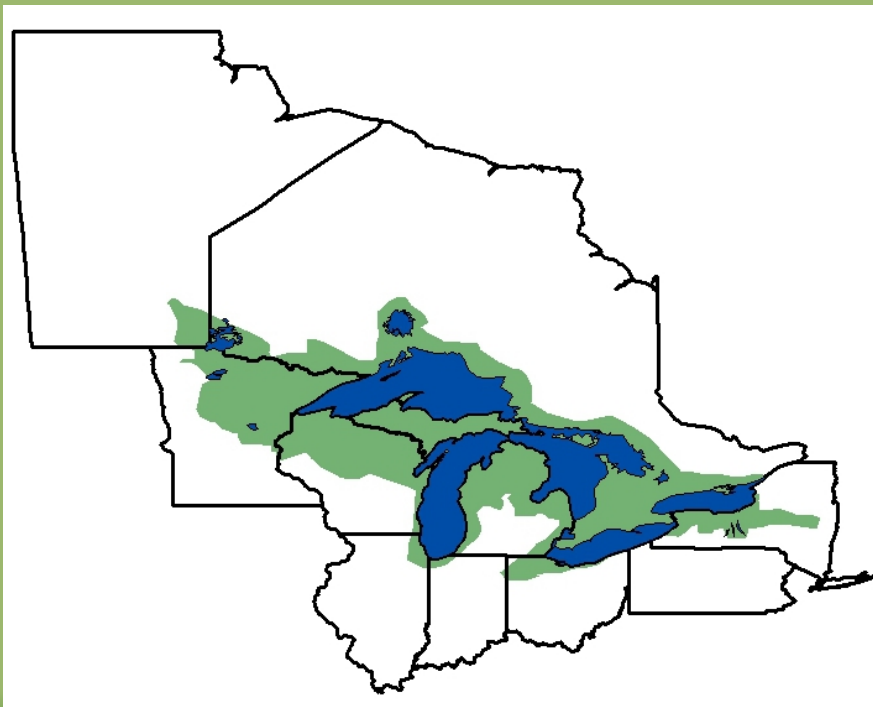
Andrea Vertz

Introductory Biology 152

Spring 2012



# Lake States Fire Science Consortium



- Goal of project is to identify gaps in research covering fire in the lake states area
- My study's role here was finding gaps research that had to do with the effects that fire had on different bird populations

**The purpose of this study is to look at how fire affects bird populations in the lake states area, as well as looking at where the gaps are on this topic.**

Will be accomplished by asking questions:

1. What is the overall effect of fire on bird species populations?
2. What is the overall effect of fire on bird community populations?
3. Does the type of fire that occurred have any effect on how that fire influenced bird species populations?

4. Does the type of fire used also have any influence on the population size of bird communities?
5. Are there any patterns between the positive or negative results of fire on the type of ecosystem it occurred in?
6. What effect does fire have on Kirtland Warbler (an endangered bird species) population size?

# Bird Populations

- Many different species and community types
- Essential roles in wildlife ecology



Sharp-Tailed Grouse



Kirtland's Warbler



Brown-headed  
Cowbird

# Fire Types

- Prescribed Fire
  - Less intensity
  - Controlled
  - Clears Forest Debris
- Wild Fire
  - High intensity
  - Destructive
  - Uncontrolled

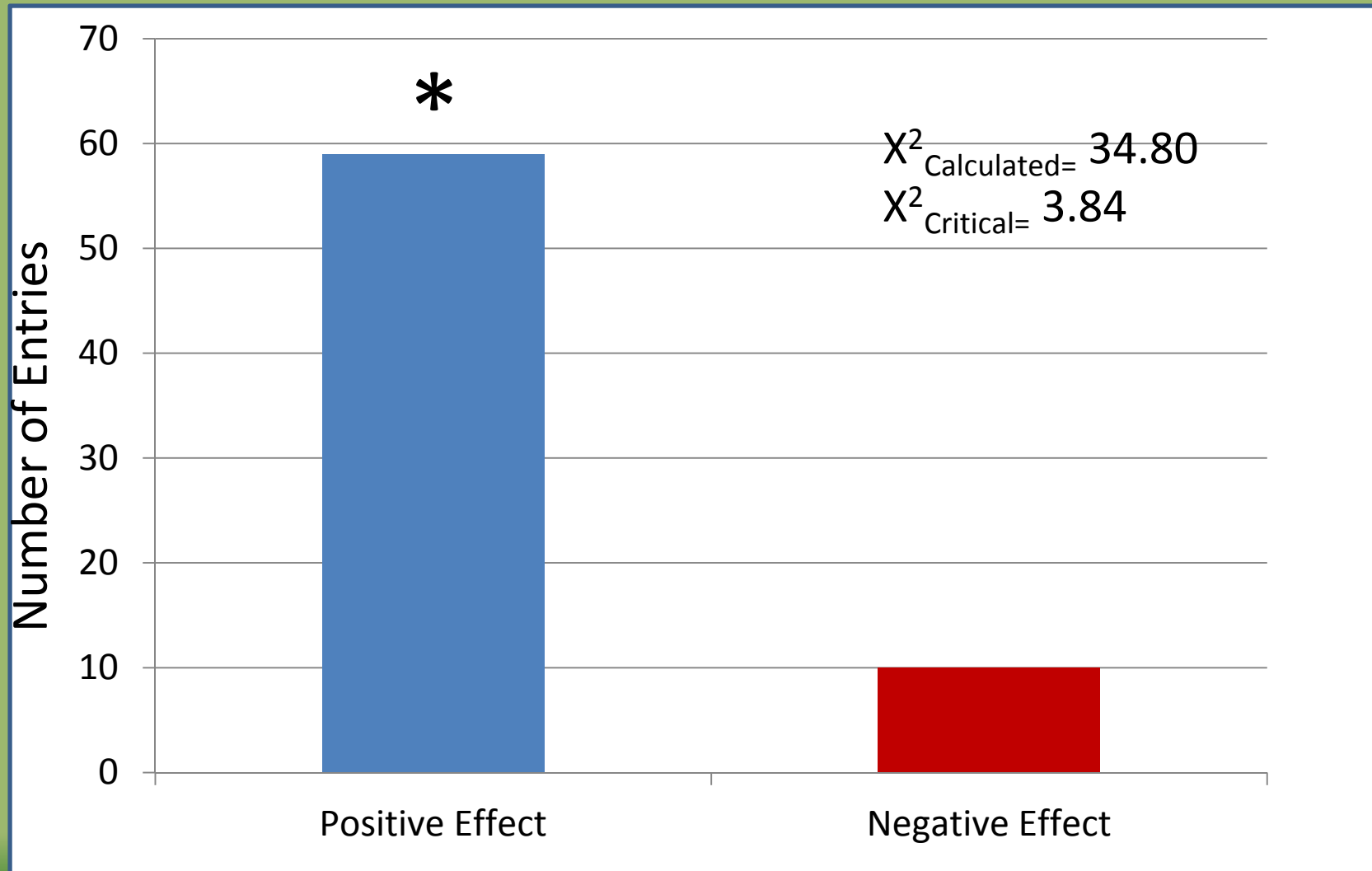


# Methods

- Used online databases to search for articles that fit in to the basic criteria of being about birds, fire, and lake states area.
- Used an excel spreadsheet to record all important information from each article
  - Citation
  - Title of Research
  - Location
  - Species OR Community type
  - Fire year
  - Time since fire
  - Influence of fire on that species or community (+ or -)

# Overall Effects of Fire on Bird Species-

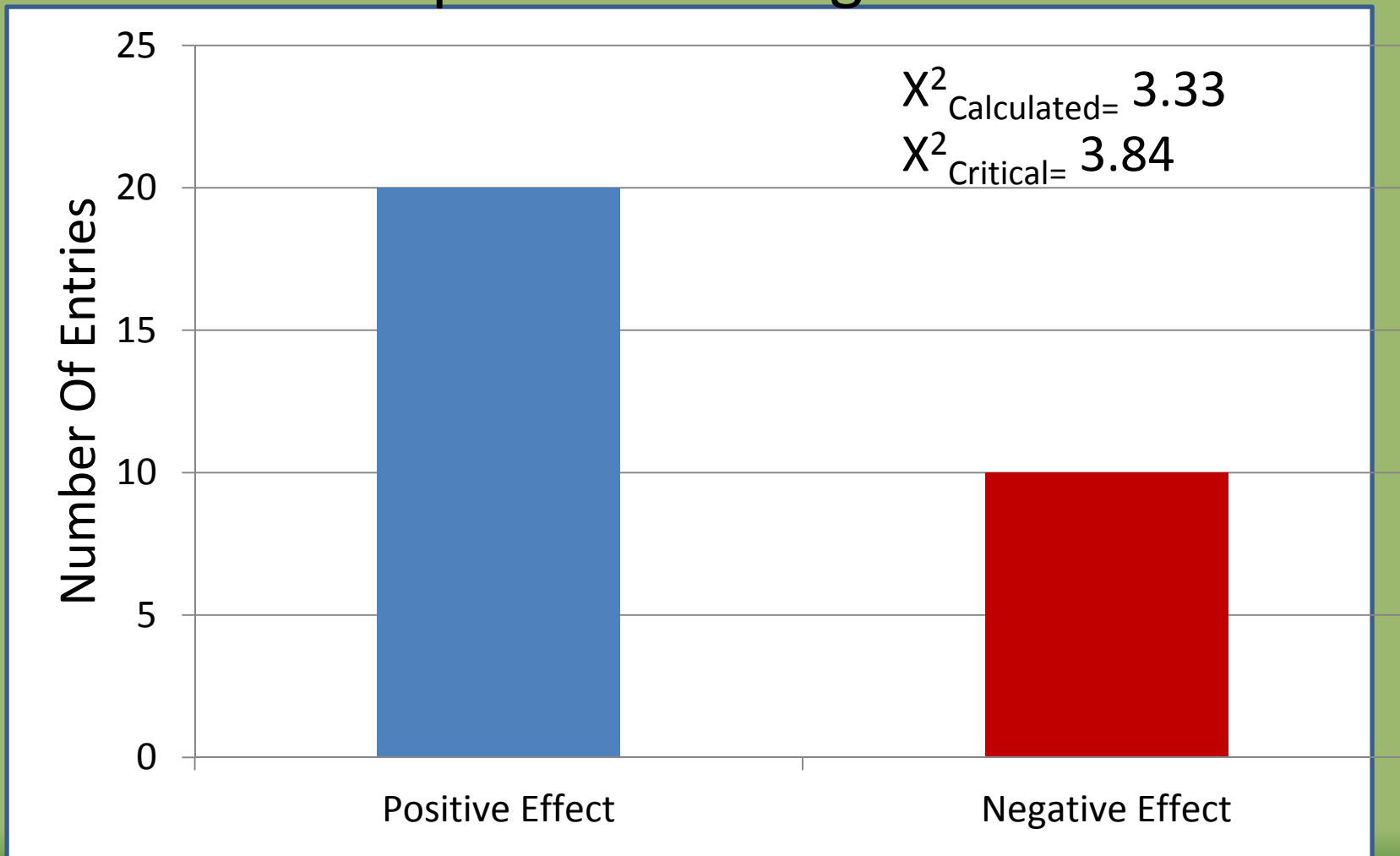
Positive effect is statistically significant





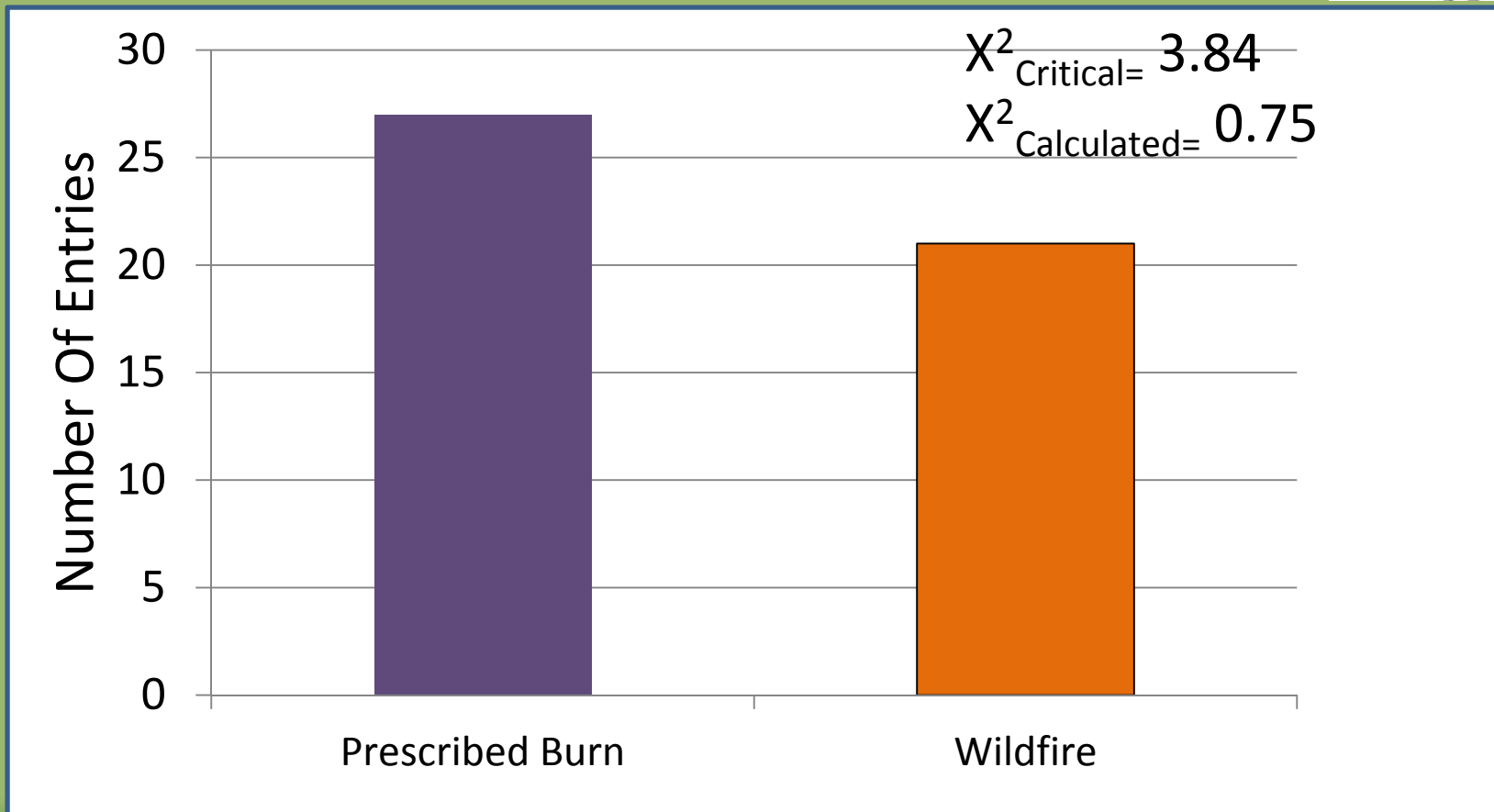
# Effect of Fire on Bird Communities-

No Statistical Difference between the number of positive or negative entries



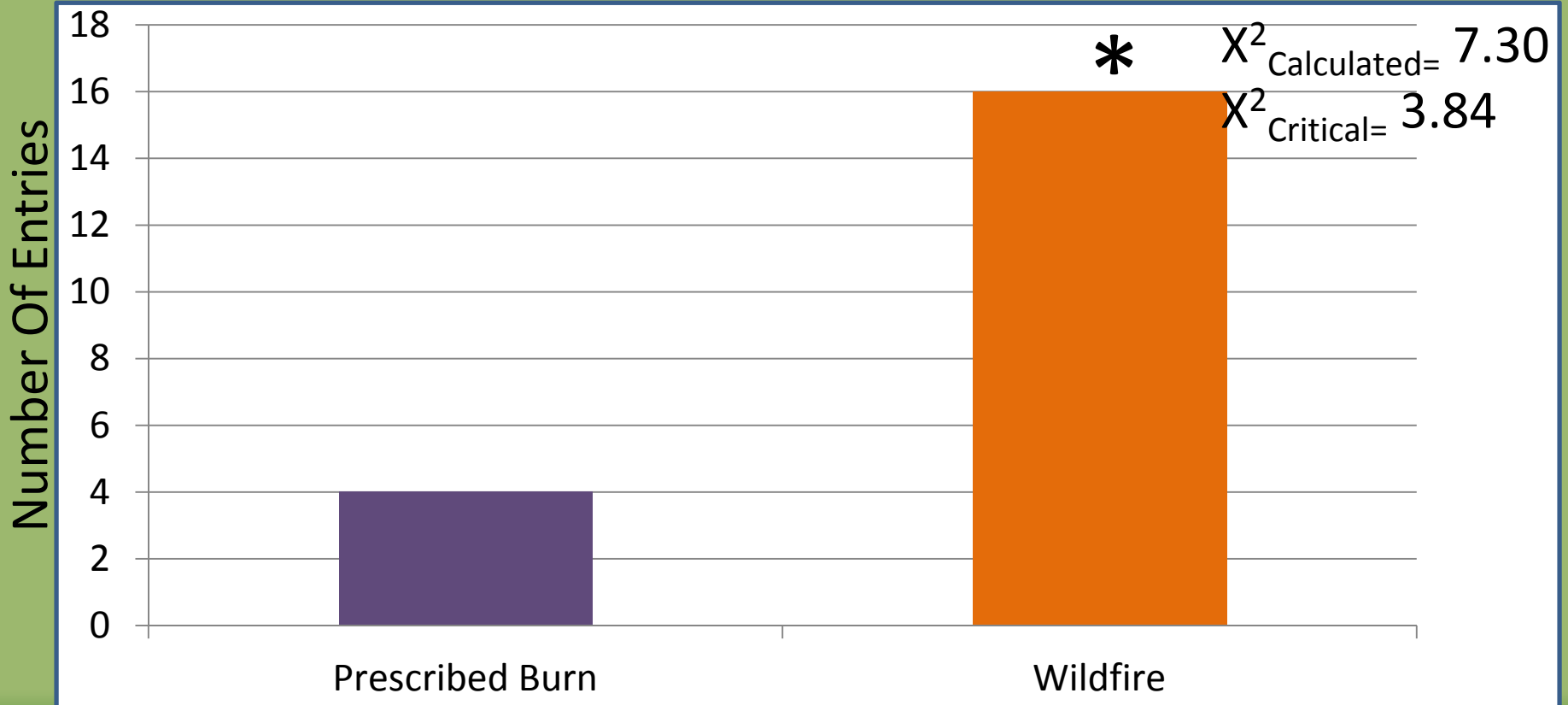
# Effect of Burn Type on Fire's effect on Bird Species

Difference between number of positive entries is not statistically significant



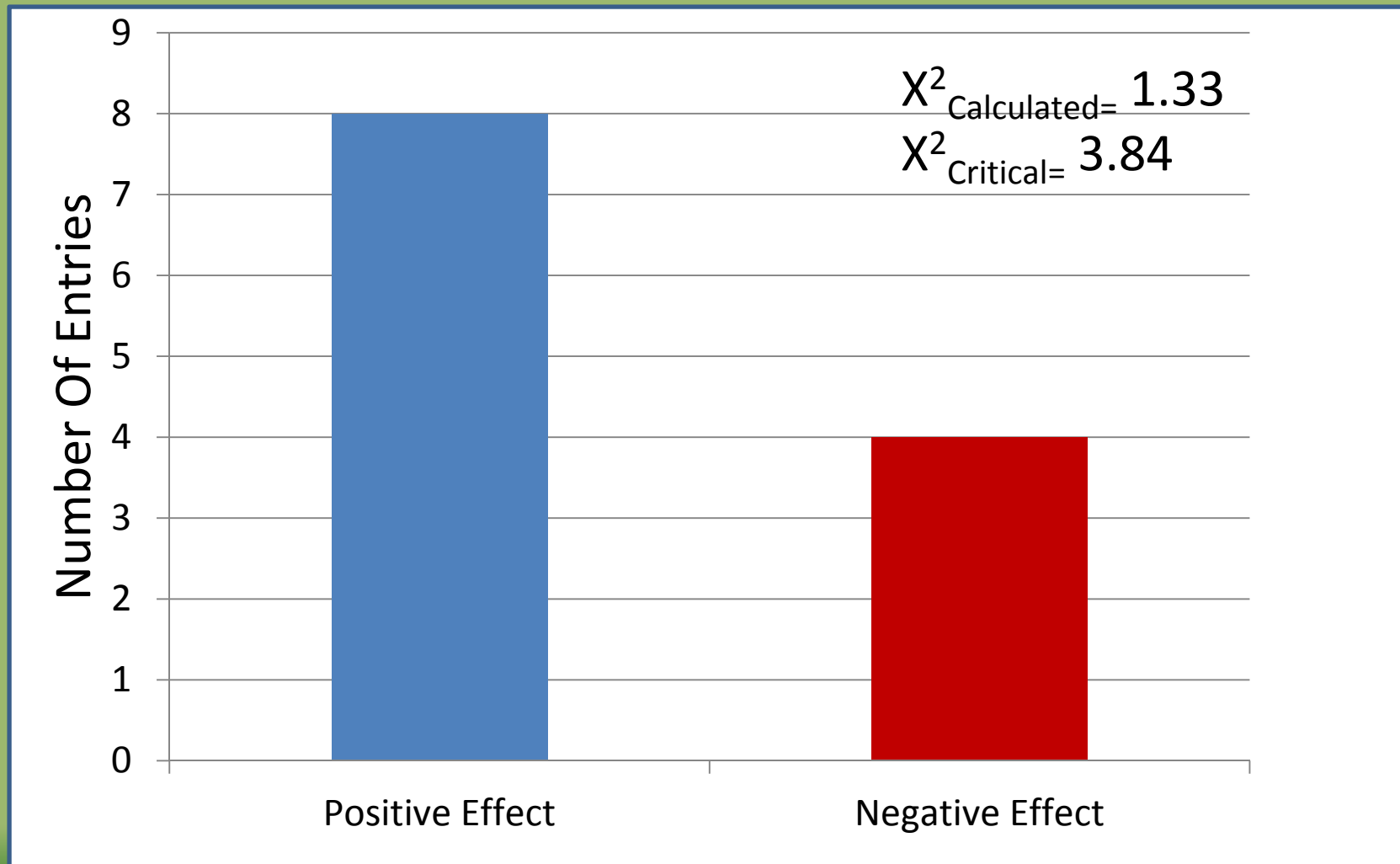
# Effect of Burn Type on Fire's Effect on Bird Communities

Wildfire shown to have a more positive effect than prescribed fire



# Effect of Fire on Kirtland's Warbler-

## No Difference Between Number Of Positive and Negative Entries



- Studies were conducted in 8 Ecosystems

- Boreal Forest
- Jack Pine Forest
- Pine Barrens
- Oak Savannah
- Wetland Bush
- Aspen Forest
- Mixed Pine Forest
- Grassland



Aspen Forest

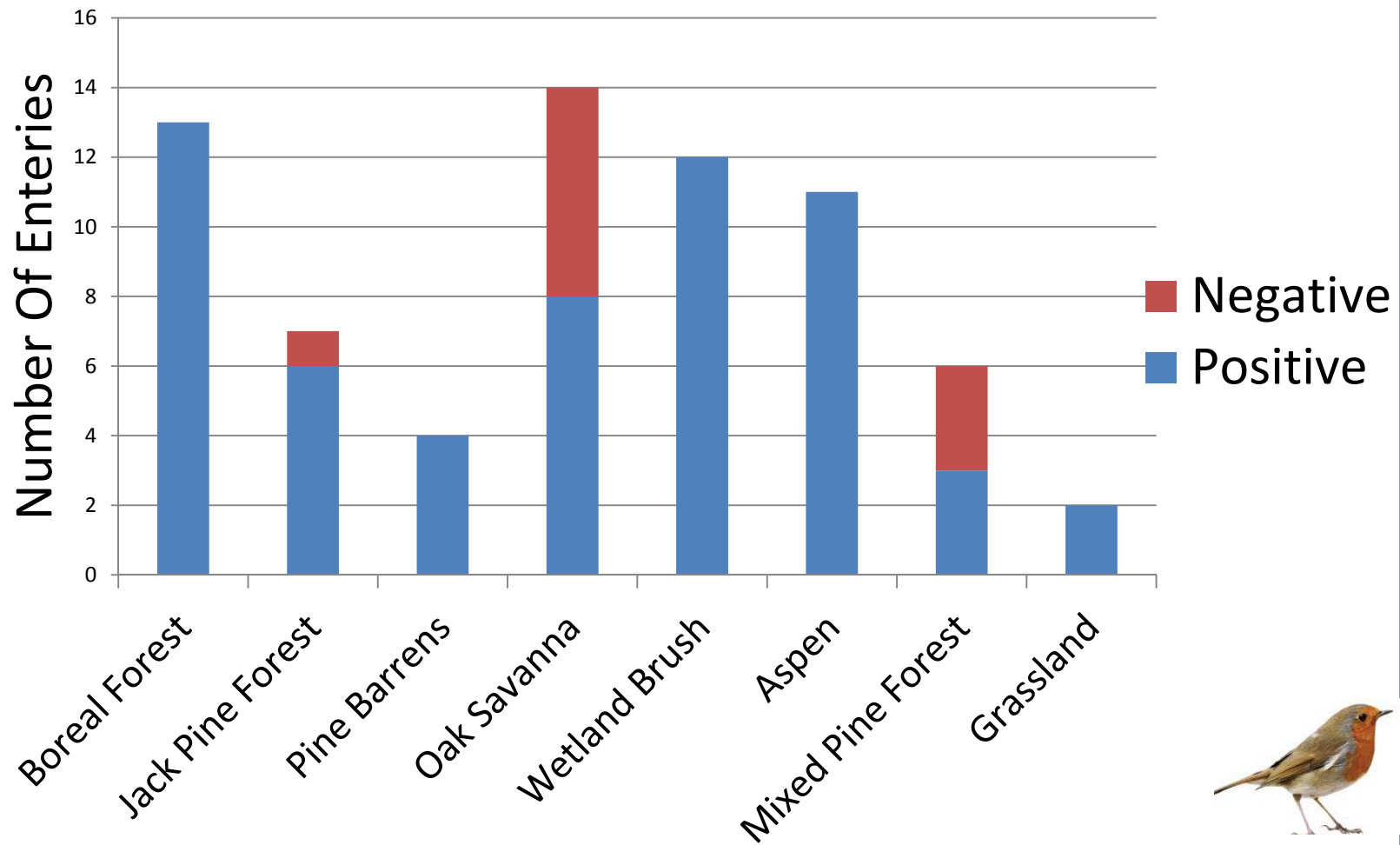


Jack Pine Forest

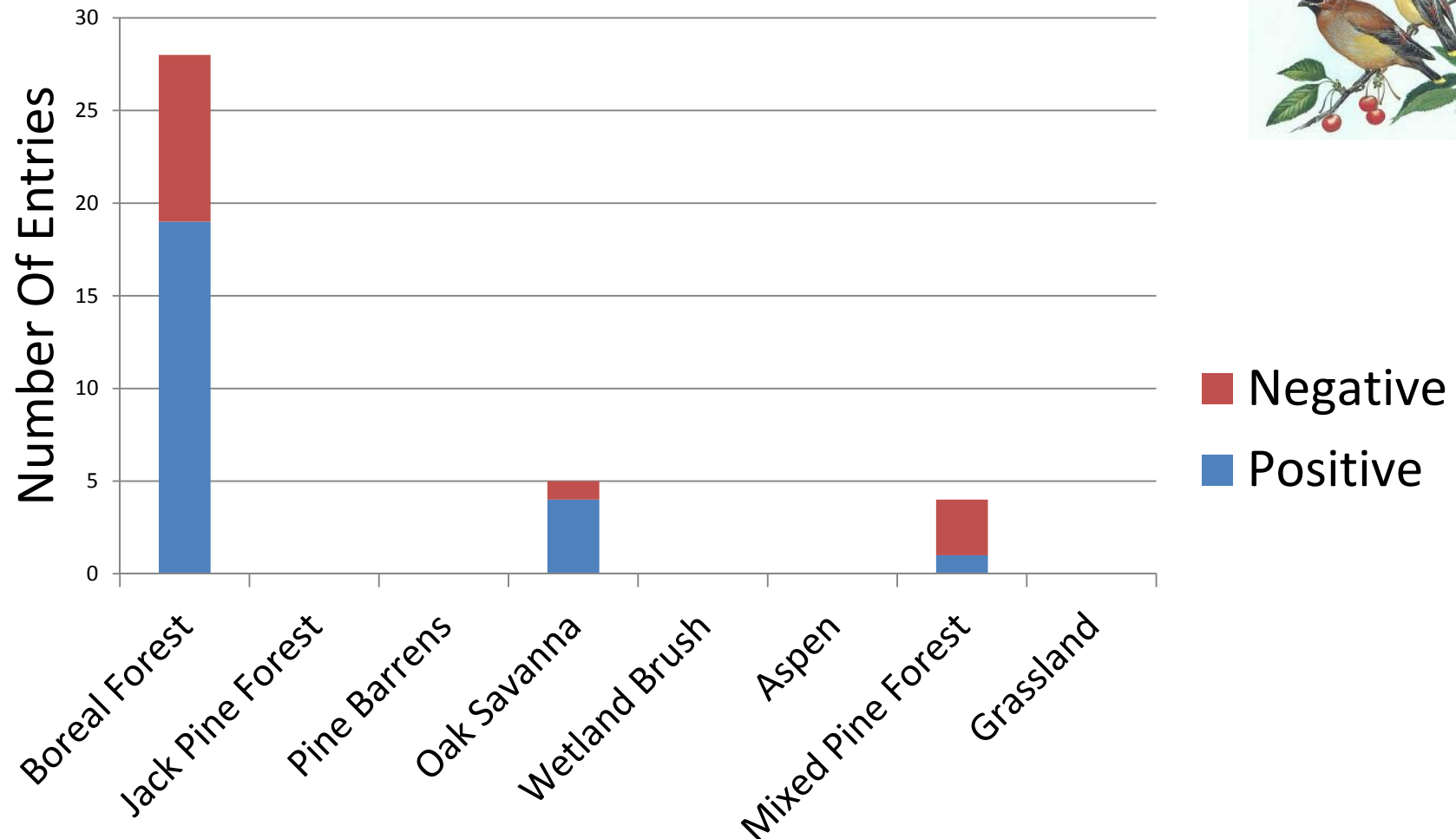


Mixed Pine Forest

# Jack Pine Forest, Pine Barrens, and Grassland had the least number of entries for Bird Species



# Boreal Forest had the most number of entries for Bird Communities



# Discussion

- Effect of fire on bird species?
  - Supports the previously held idea that bird populations are positively effected by fire
- Effect of fire on bird communities?
  - Results disagree with previous ideas
  - Possible reasons
    - Too little data
    - Too few communities studied
  - Area of future possible research
- Is the effect on bird community or species influenced by type of fire?
  - Contradictory to each other
  - Possible bias
  - Future research



- What is the effect of fire on Kirtland's Warbler population?
  - Disagrees with previously accepted ideas
  - Potential causes
    - Years After Fire (1-16)
    - Elevation
- Is the effect of fire influenced by ecosystem type?
  - Future research
    - Complete more research on ecosystems that were rarely studied

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