Field Findings

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Goal

To observe the nesting patterns of different bird species in the habitat location of the bird boxes

Determine the prefered location of nesting between different species

Observe the reproduction success of the birds within these locations

Hypothesis

The bird boxes located near a source of water, the lake and the creek, will have the highest rate of reproduction.

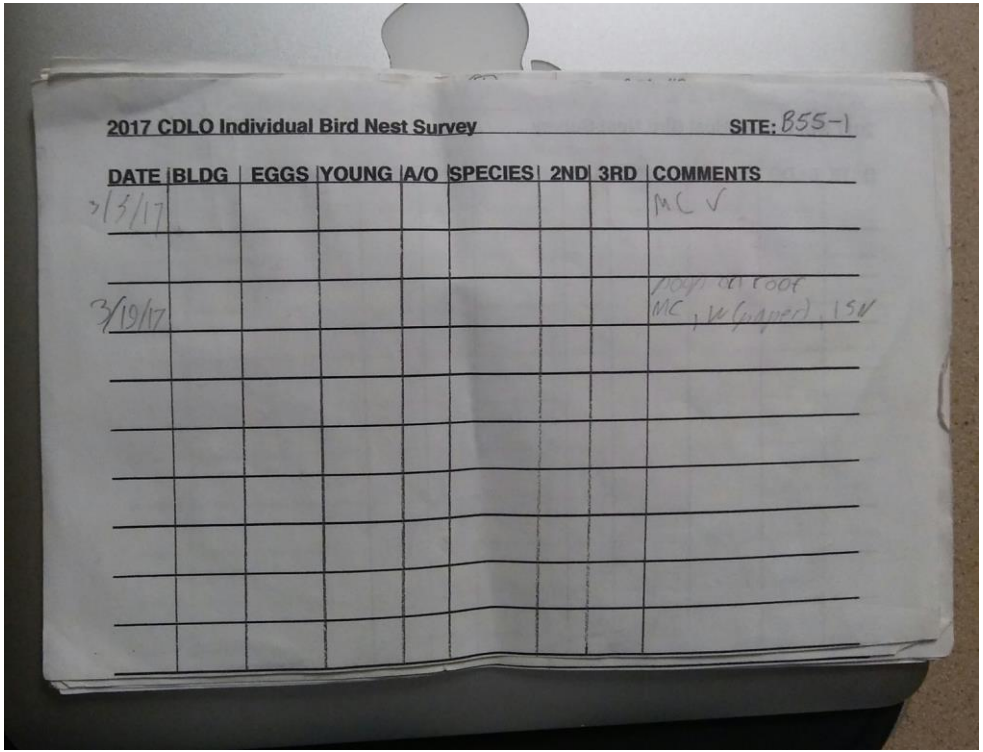
Materials

Field journal

Data sheets from Bob

Pencil

camera/video



Methods

Walked along 4 routes (creek, Tooth Lake, hill/water tank, grassland)

Observed inside of box

Identified bird species occupying box; counted visible eggs and young

Recorded data in field journal and data sheets


THE NORTH FACE


22

Data

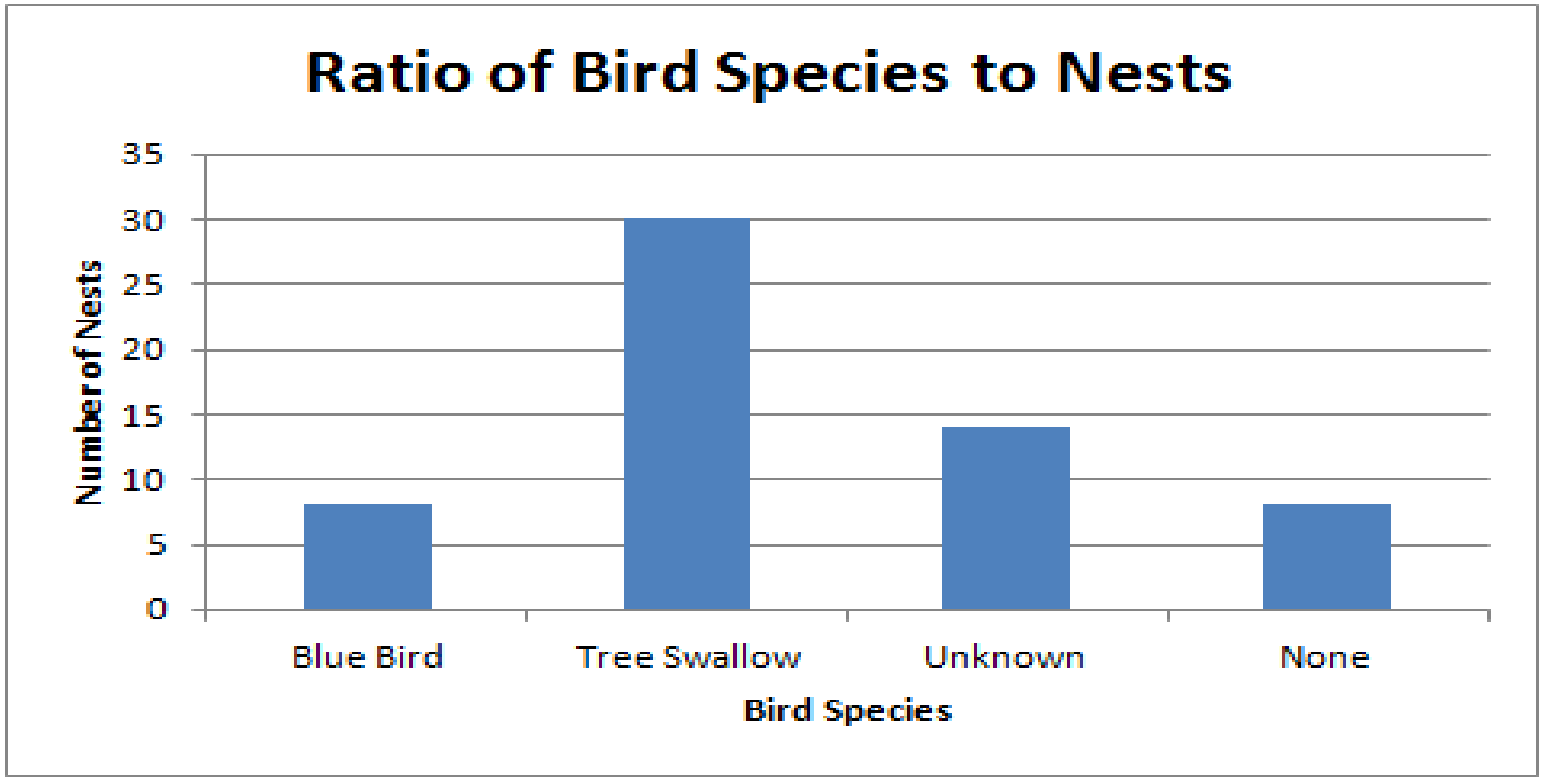


Figure 1: Compares the number of nest each species occupied. Unknown is the number of nests with eggs that had no identified species observed. None were empty nests with no eggs.

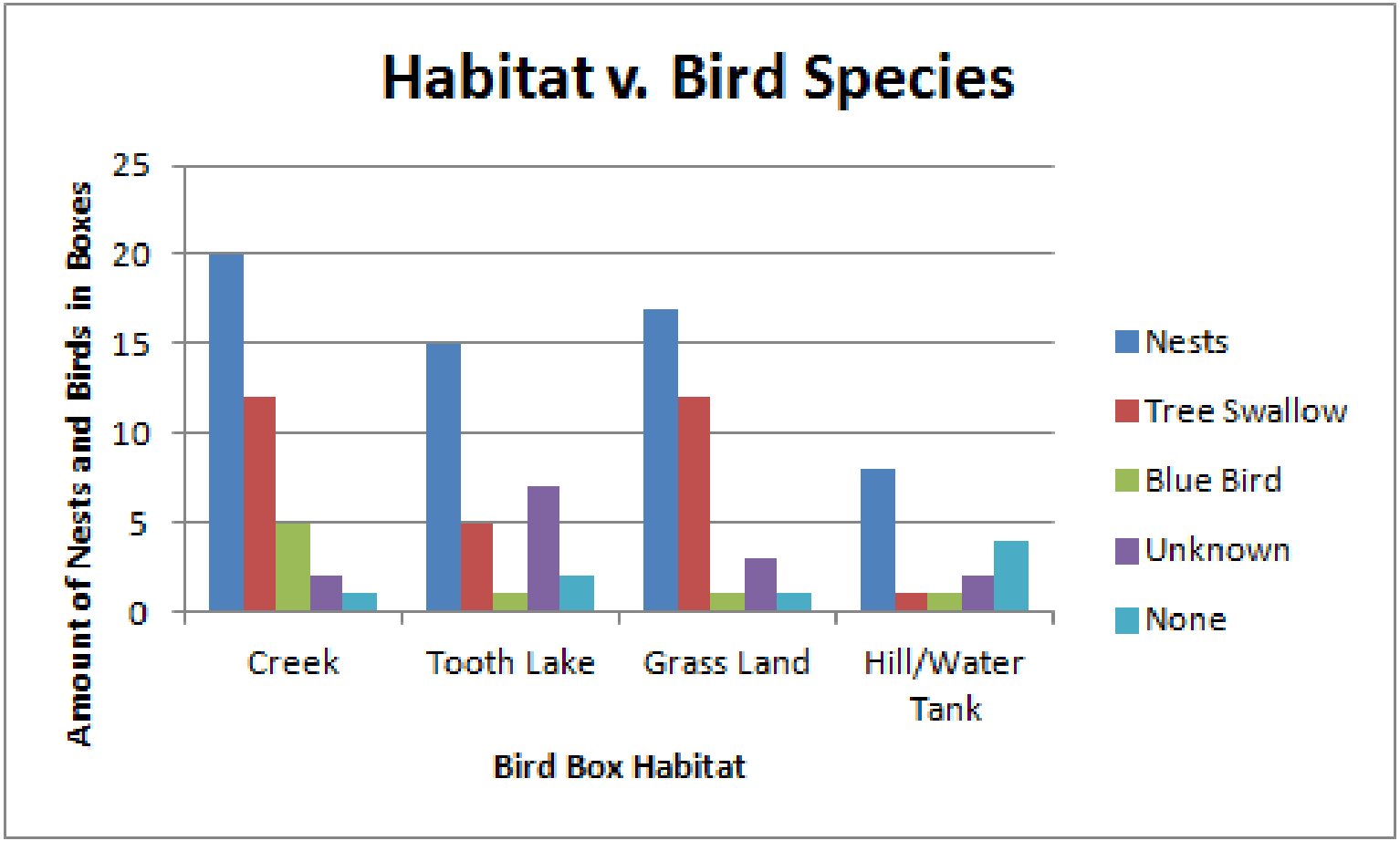


Figure 2: The number of species that occupied each bird box location. Unknown relates to unidentified species for nest. None means empty bird nest.

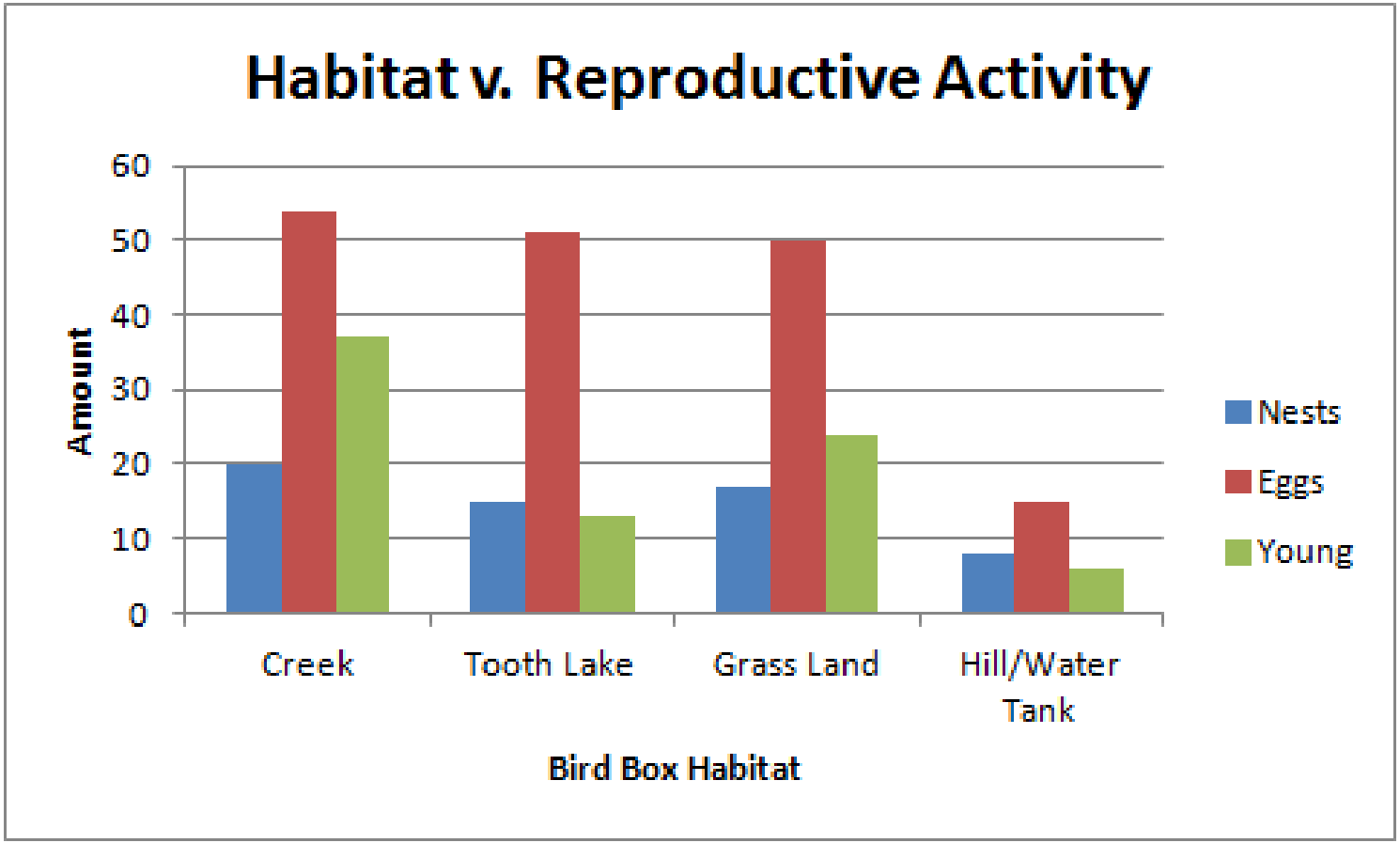


Figure 3: The amount of eggs & young in the nests in each location combined.

Tree Swallow

Western Bluebird

Results

Overall the Tree Swallows are the most abundant and dominant species to nest at the reserve.

The reproduction activity of both Tree Swallows and Western Bluebirds were the most active in the location of the Creek.

The bluebirds as well had a pattern of nesting on boxes located near trees

Egg range of Tree Swallow nests was 3-7 eggs, and the Bluebird nests ranged from 3-5eggs. Eggs started to be laid around mid April. Our last visit the some of the hatched young were developing feathers and were the length of about 6cm.

Growth of 7 days

April 25, 2017

May 2, 2017

Data Analysis

Based on Figure 1, tree swallows primarily inhabited the bird boxes

Fig. 3 demonstrates that the most young are also found in the boxes near the creek and grasslands

A decent amount of unknown avian species also occupied the bird boxes near these types of environments

Our data suggests that the creek and grasslands contain resources needed for better clutch production

Conclusion

Birds (including unidentified species), namely tree swallows, preferred the boxes by the creek, followed by the boxes in grassland

Tree swallows prefer open fields adjacent to water

Provides flying insects (dragonflies, bees, wasps) for food, their main diet

Nest materials by water’s edge

Bathing

https://www.allaboutbirds.org/guide/Tree_Swallow/id

Conclusion cont.

During summer, western bluebirds’ diet mainly consists of insects as well as resources like fruits provided by trees.

Western Bluebirds’ prefer woodlands, which explains that in our field findings we found bluebird nests in boxes near trees, which are mainly located alongside the creek and on some on the grassland.

Discussion

Hypothesis was supported

The creek was most favored by the Tree Swallows because the habitat they prefer are located near water sources, which provides necessary resources for survival.

The Western Bluebird also prefered the location of the creek but not merely because of the water source, it was mainly because of the abundance of trees located near the creek which is their prefered habitat.

During field study I noticed a pattern, when the bluebird was sitting on the nest and I opened the lid, the bluebird would fly away and hid in the tree, while the Tree swallows would fly out of the nest but would stay around to try and chase me off to protect its nest.

Discussion cont.

This study helped us understand the importance of water sources and vegetation in the relationship to birds, the restoration of the creek benefits the birds.

This study also suggests that the creek and the vegetation of trees have an importance to be maintained and monitored in order to increase the reproduction rates of these bird species.

A way that we might improve our data collecting skills is to be more patient and watch how the bird behave from a distance to have more data to analyze from.

Challenges

Weather (hail and rain)

Data collection methods

Unable to attend the site every week

(scheduling conflicts, distance)

Protective birds defending their nest

To conclude: Our finding showed that the creek as the most favored bird box location.

References

“All About Birds”, The Cornell Lab of Ornithology
https://www.allaboutbirds.org/guide/Tree_Swallow/id

“All About Birds”, The Cornell Lab of Ornithology
https://www.allaboutbirds.org/guide/Western_Bluebird/id

Invertebrate Findings

Hypothesis

The wasps are competing with the spiders for territory within the bird boxes.

Materials

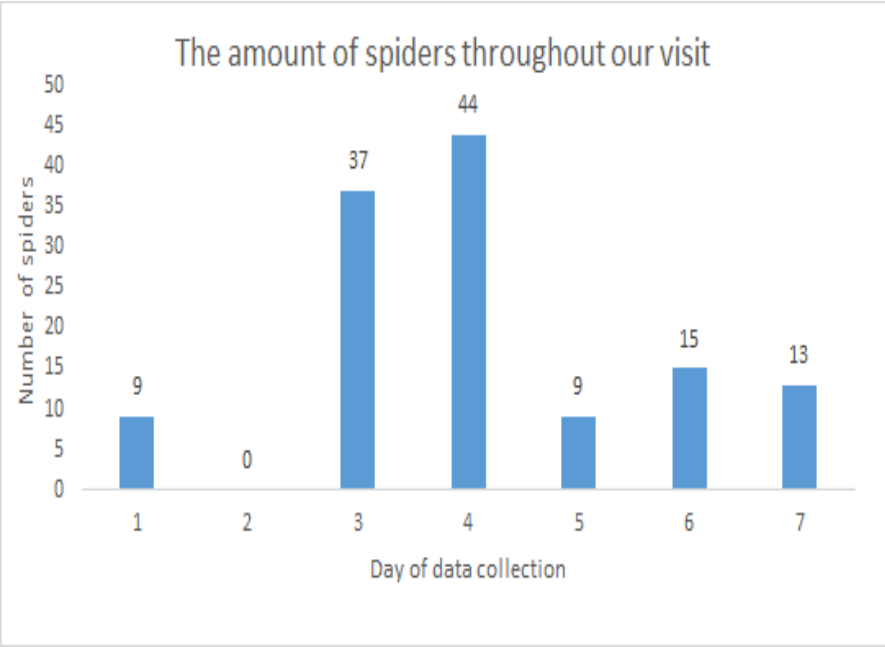
- Kill jars
- Nets
- Acetone
- Little vials
- Field journal
- Pencil

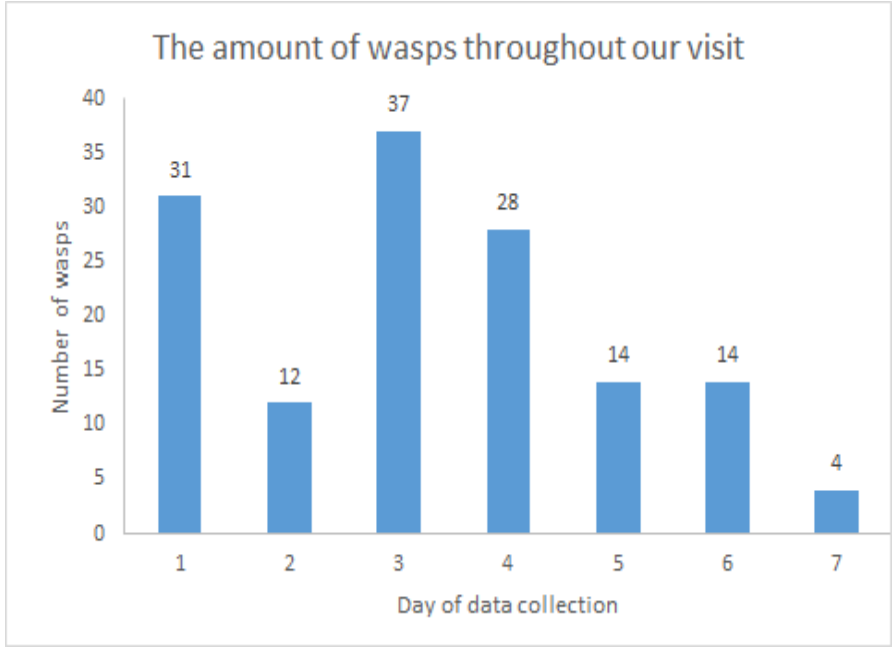
Methods

Invertebrates

- For each bird box we counted the number of spider nests found as well as any wasps
- Convert data into graphs(wasps/spiders present vs time)
- Use kill jars to capture these invertebrates for identification

Results





Legend: 1=3/5/17, 2=3/14/17,3=3/19/17,4=4/2/17,5=4/16/17,6=4/25/17, 7=5/2/17

Data Analysis

Invertebrates

- We classified the wasps as European paper Wasps(Polistes dominula) and the spiders are Bold Jumping Spiders(Phidippus audax)
- Paper wasps largely occupied the bird boxes in order to escape the cold weather
- As the weather became warmer the wasps looked for new areas to colonize where they would not be constantly removed
- As more wasps left the boxes, the number of spiders occupying the boxes increased

Data Analysis cont.

Phidippus audax

Polistes dominula

Conclusions

The European Paper wasps and Bold Jumping Spiders did in fact compete for territory within the bird boxes.

There were no physical signs of them preying on each other

The paper wasps lost their territory to the birds nesting in the boxes but the spiders maintained theirs

Discussion

This experiment should have been conducted weeks in advance before the birds occupied the boxes

The poor weather conditions in the first couple of visits made collecting data difficult

I would like to conduct a similar experiment with a contained environment instead of the bird boxes

References

“Insects of the Bay Area” by the Wildlife of the San Francisco Bay Area
http://www.sfbaywildlife.info/species/insects.htm

“Spiders of the Bay Area” by the Wildlife of the San Francisco Bay Area
http://www.sfbaywildlife.info/species/spiders.htm