

The Affects of American Mountain Ash (*Sorbus americana*) Berries on Insect Abundance

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Introduction

Phenology is the study of the timing of recurring and seasonal events, influential factors of those events, and the relationship between events of the same or different species (NETN 2015). Project BESt, Birds Eating Stuff, is a second year phenology study on the Schoodic Peninsula in Maine. This study focuses on the phenological stages of nine American Mountain Ash trees (*Sorbus americana*) and how birds and insects interact with the trees. In the 2014 season the nine study trees were laden with berries. In the 2015 season the trees were barren. This poster examines the affects berries have on the abundance of insects found on the leaves, fruit, and trunks/branches of the trees. It is hypothesized that the presence of berries would attract a higher abundance of insects and absence of berries would attract a lower abundance.



Figure 1: Mountain Ash sawfly larvae



Figure 2: Mountain Ash flower



Figure 3: Dark-eyed Junco

Methods

- 9 Mountain Ash trees at 3 sites on Schoodic Peninsula, Winter Harbor, Maine
- Observe for birds in tree for 1 minute
- Observe tree for flowers/fruit
- Observe for insects on leaflets for 1 minute
- Observe for insects on flowers/fruits for 1 minute
- Observe for insects on branches/trunk for 1 minute
- Observe for insect damage on leafs for 1 minute
- Wilcoxon signed rank test

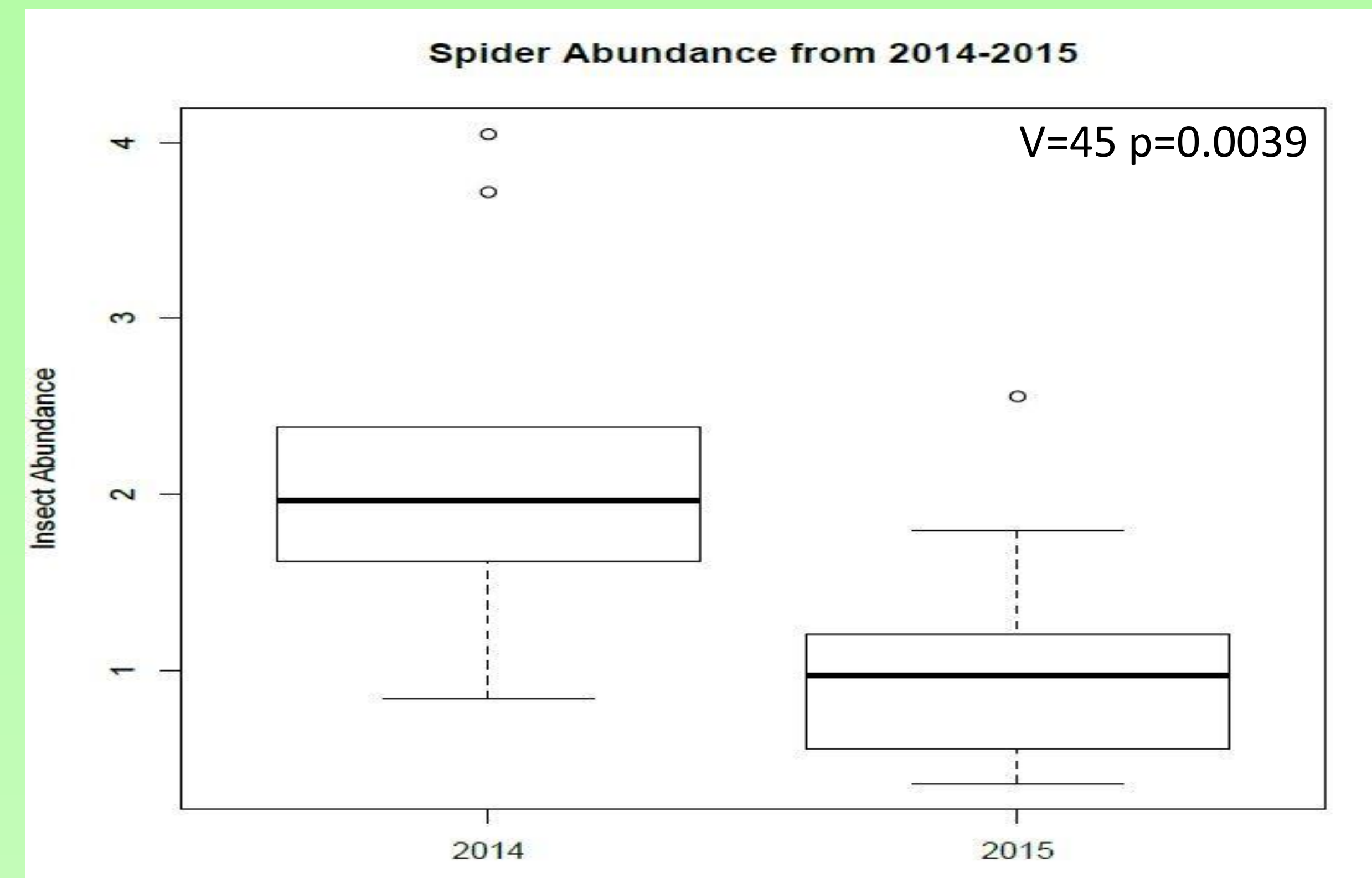


Figure 4: There were significant differences found between 2014 and 2015 for spider abundance ($p=0.0039$)

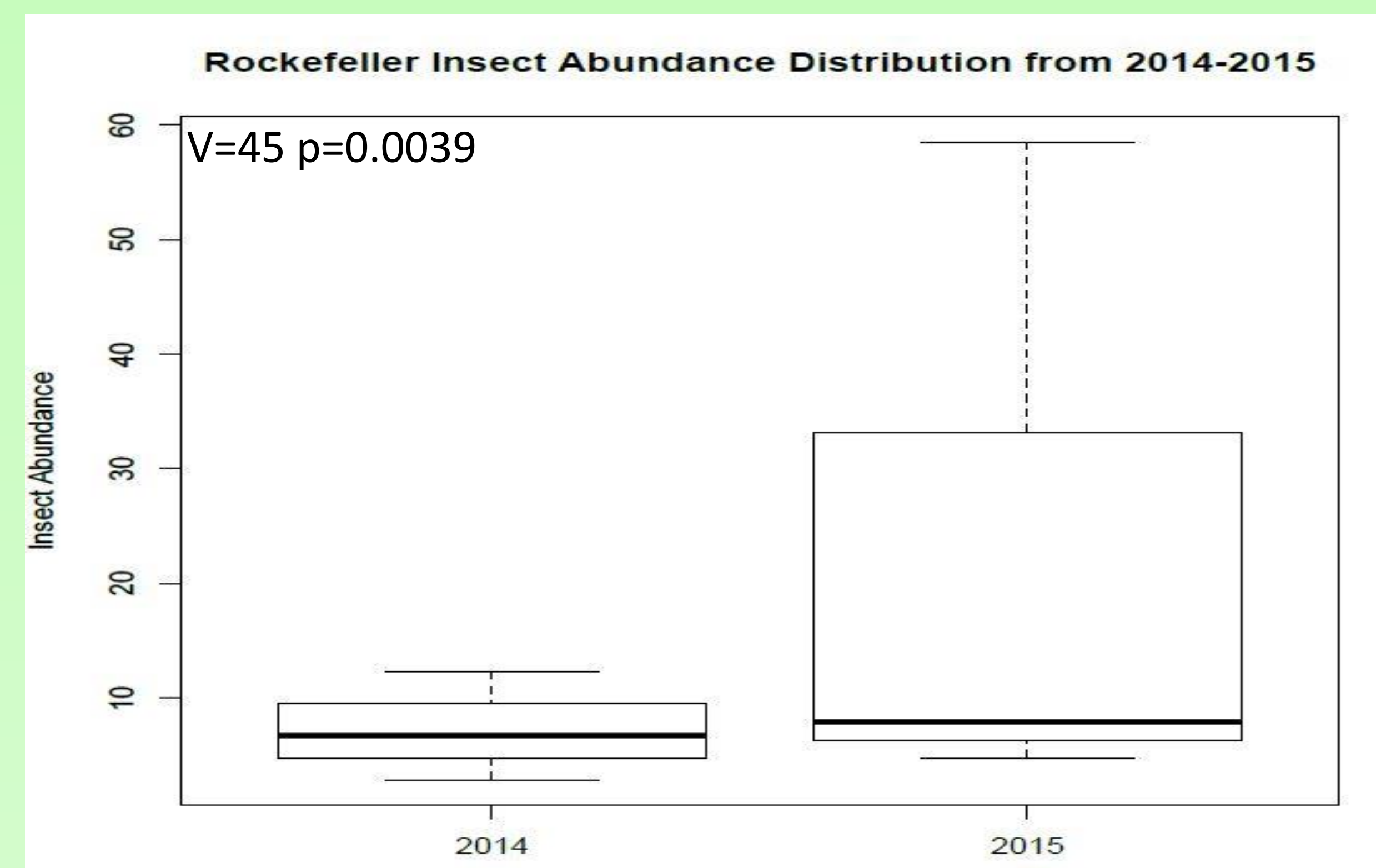


Figure 5: There were significant differences found between 2014 and 2015 for insect abundance at Rockefeller ($p=0.0039$)

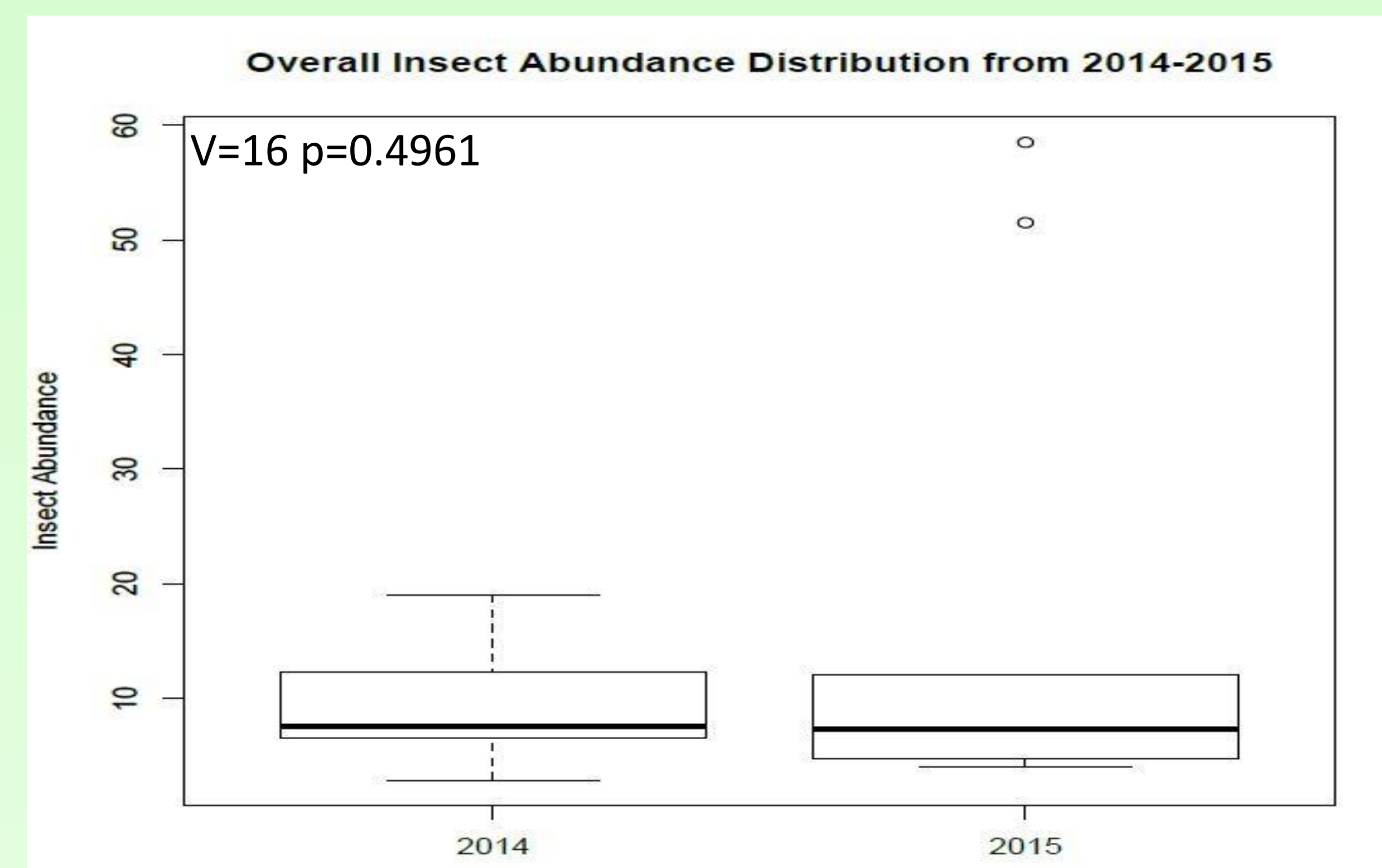


Figure 6: There were no significant differences found between 2014 and 2015 for overall insect abundance ($p=0.496$)

Results

There were significant differences found between 2014 and 2015 for:

- Spider abundance ($p=0.0039$)
- Insect abundance at the Rockefeller site ($p=0.0039$)
- More tests would have to be run to examine where the significance is.

There were no significant differences found between 2014 and 2015 for:

- Overall insect abundance ($p=0.4961$)
- Winged insect abundance ($p=0.1289$)
- Caterpillar abundance ($p=0.2031$)
- Cocoon abundance ($p=0.5$)
- Insect abundance at the Commons site ($p=0.5$)
- Insect abundance at the Gate House site ($p=0.5$)

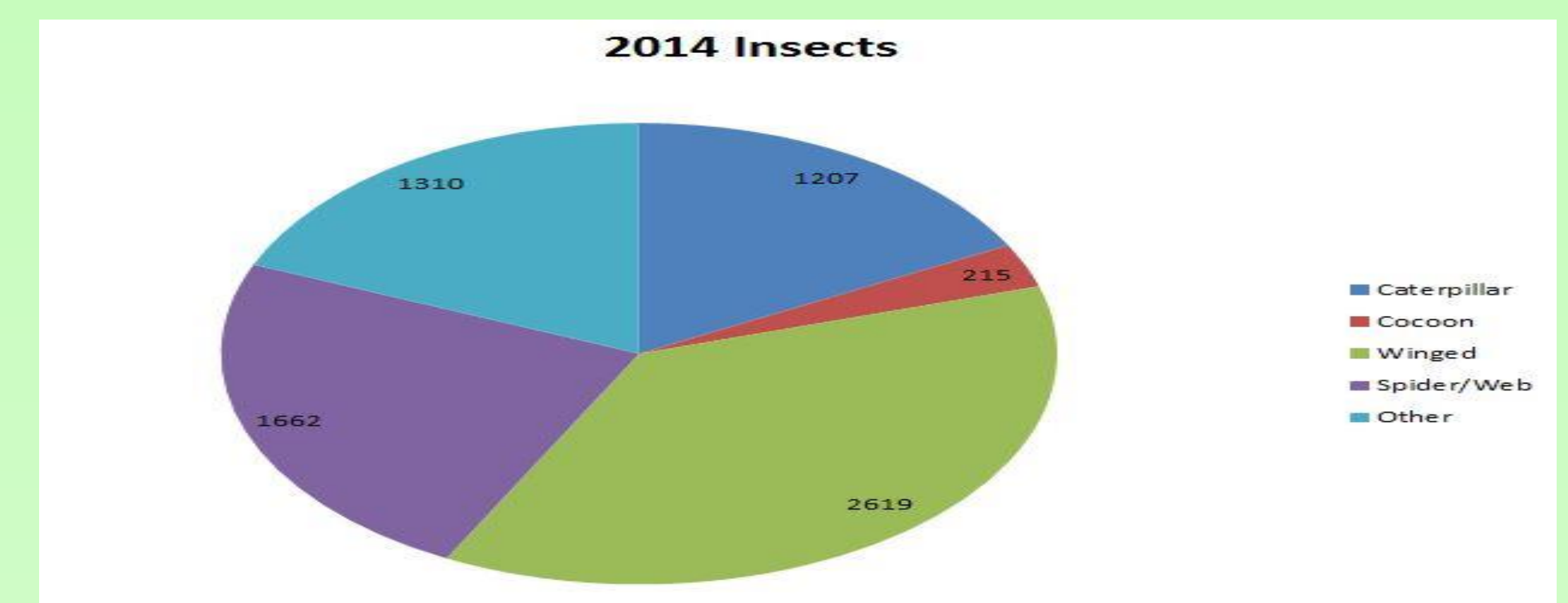


Figure 7: Total number of 2014 insects

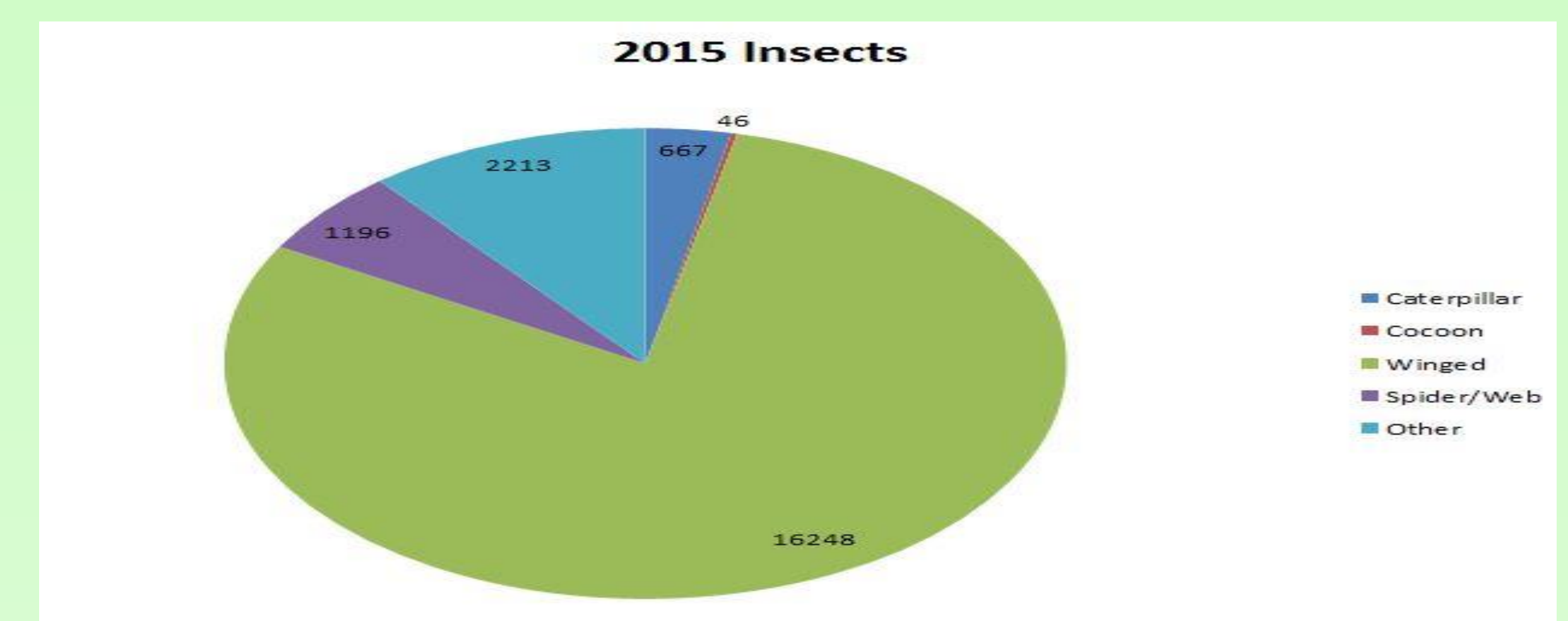


Figure 8: Total number of 2015 insects

Discussion

There was not a significant difference in insect abundance between a productive and barren Mountain Ash year. One possible explanation is that the insects that are observed on the trees are not attracted to the berries and are using the trees for other non-berry related purposes. To determine if that is the case more data would have to be collected, on what specific species of insects are present and their life histories, to determine tree use.

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