

# Diversity and Seasonality of the Death Watch Beetles *Ptinidae* in Suburban Regions of the Three Village Area



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## Abstract

The aim of this study is to investigate the presence of wood-boring beetles (especially species of the family *Ptinidae*) and potentially their seasonality in areas that are distant from human activities near the Three Village Area.

## Introduction



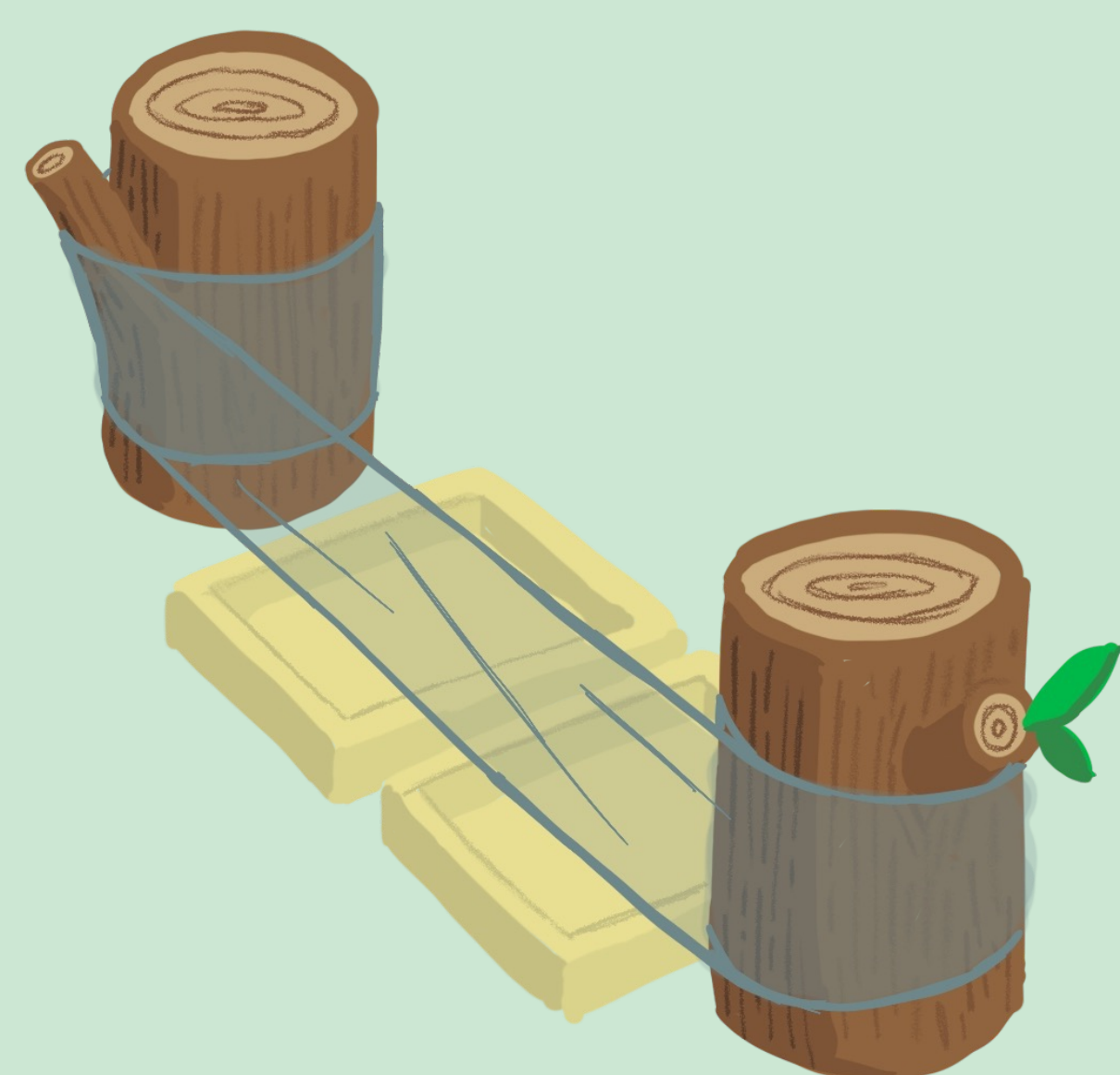
In addition to investigating the diversity and seasonality of *Ptinidae*, the effectiveness of the flight intersection traps is compared against Lindgren funnels, as the number and richness of the sample collected from different traps are recorded. As the wood-boring beetle has been shown closely related to human activity and oftentimes being known as pests, its activity and population status in the wild remain quite unexamined.

## Hypothesis

Wood-boring beetles are present in the wild, and would increase in the number being collected as the weather becomes warmer.

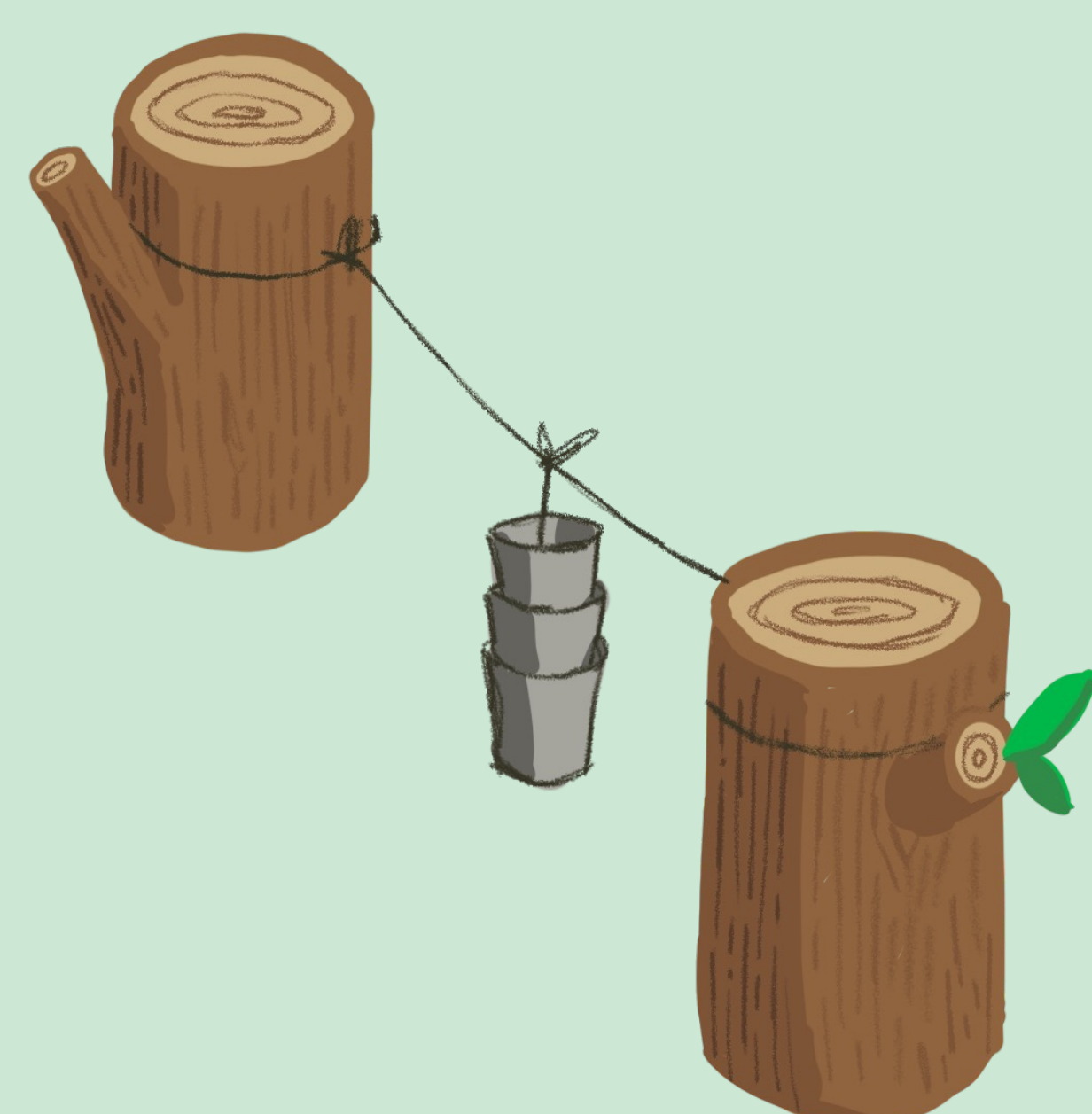
## Sample collection

The two collection methods used are flight intersection traps and lindgren funnel.



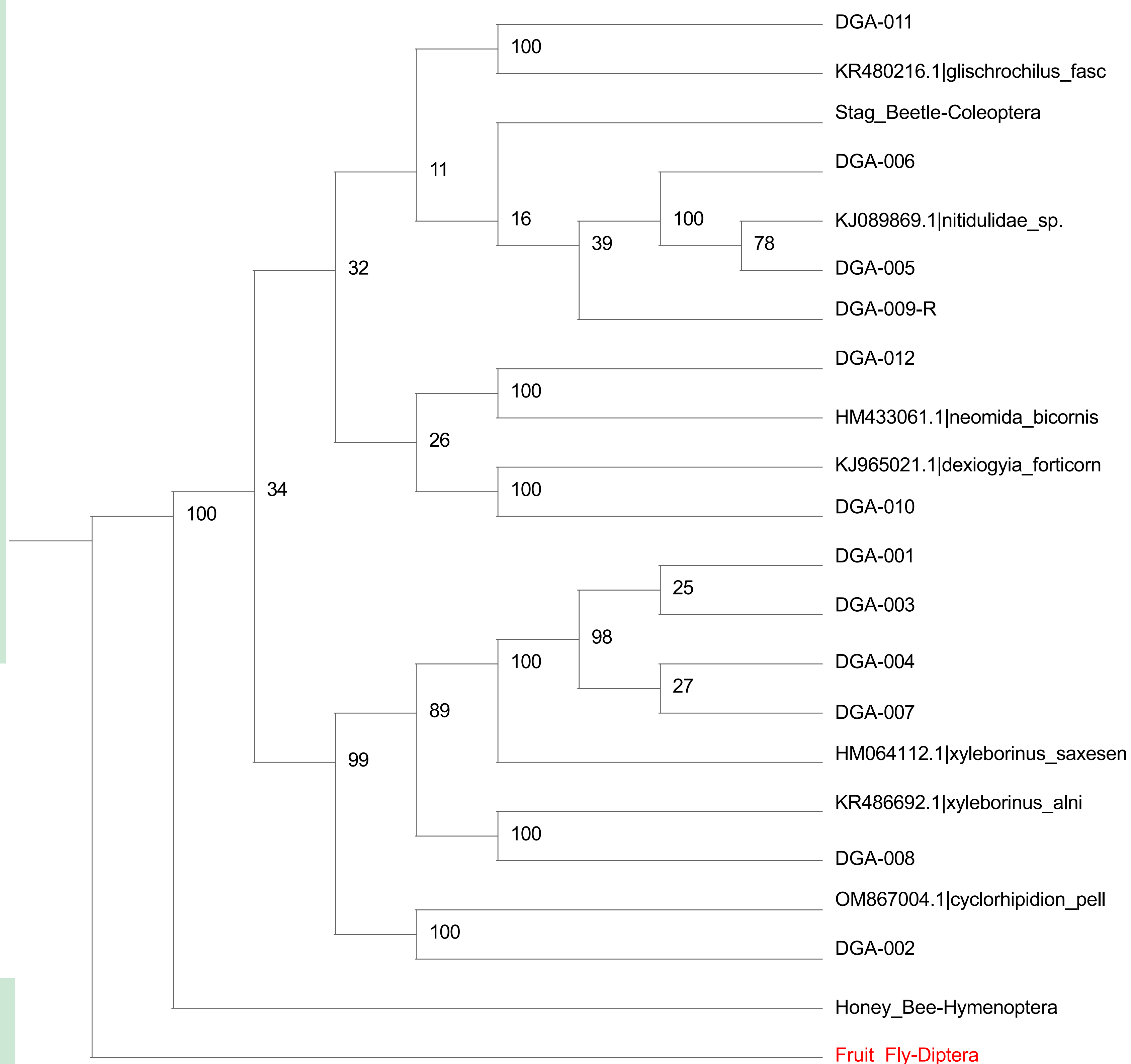
The flight intersection trap is set up between two trees as a thin piece of transparent film will be placed between them and a collecting pan underneath that is filled with alcohol; insects that hit the film will slide down to the collecting pan.

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## Data analysis

These methods were used from January to April and have helped us collect samples that were recorded, identified with dichotomous keys, and underwent DNA extraction and PCR. Gel electrophoresis was utilized to verify the result of DNA amplification. All results that have been verified successful (12 out of 12) were sent for sequencing, then analyzed in the DNA Subway Blue Line software to identify the species, neighbor-joining and maximum-likelihood phylogenetic trees with BLASTN and MUSCLE.



## Conclusion

The result shows that there is no presence of beetles under the family *Ptinidae* identified among the samples being collected in this study. It might be because of not enough collection being performed or the trees we collect samples from are all beech trees instead of a more diverse population. In terms of the collection method, the Lindgren funnel is much more effective than the flight intersection traps, which align with previous studies. It has also been shown that with an increase in temperature, the effectiveness of collection also increases, which suggests that beetles are more active in warmer temperatures.

## Acknowledgment

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