# Honeysuckle leaf blight increases leaf loss in Amur honeysuckle

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## Introduction

Amur honeysuckle (*Lonicera maackii*) is an invasive species in the United States and is native to eastern Asia (Boyce et al. 2014). Honeysuckle leaf blight was noticed on Amur honeysuckle in Northern Kentucky in 2012 and is caused by the fungus *Insolibasidium deformans* (Boyce et al. 2014). The first signs of disease occur 10-18 days after exposure and are marked by yellowing of a portion of the leaf (Gould 1945). Later stages of the disease cause leaf tissue to become necrotic; the leaves will brown and eventually fall prematurely. Typically, the disease only affects young leaves, so more established leaves aren't likely to become infected with blight. Previously, it was found that honeysuckle seedlings had decreased growth when infected with leaf blight under greenhouse conditions (Marroquin et al. 2018). The goal of this project was to see if there was a decrease in growth of Amur honeysuckle in the field.

## Methods

- Twenty shrubs of Amur honeysuckle were tagged at NKU's Research and Education Field Station (REFS) in Melbourne, KY.
- From each plant, two shoots were selected: one with a high amount of blighted leaves and the other with little to no blighted leaves. Each shoot was numbered in chronological order and labeled with as either H (high blight) or L (low blight)
- Once a week, each shoot length was measured. The amount of total leaves and blighted leaves for each shoot were recorded as well.
- Measurements occurred from June to early August.

## Results

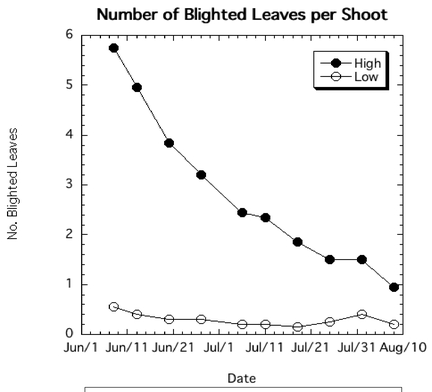


Figure 1. Blighted leaves were initially higher on high-blight shoots, then declined more quickly as leaves died (RMANOVA blight x date interaction: $F_{2.8,53.3} = 19.591$, $P < 0.001$.

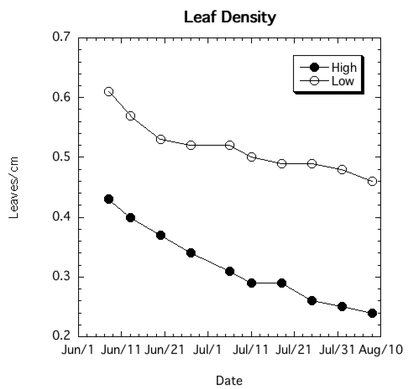


Figure 2. Leaf density was lower on high-blight shoots & declined about the same over the summer (RMANOVA blight x date interaction: $F_{3.4,64.4} = 2.360$, $P = 0.072$.

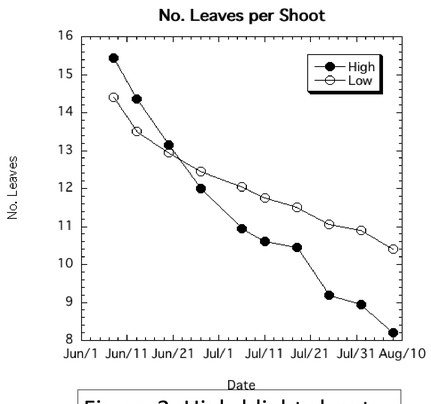


Figure 3. High-blight shoots declined faster than low-blight ones (RMANOVA blight x date interaction: $F_{3.3,62.4} = 4.358$, $P = 0.006$).

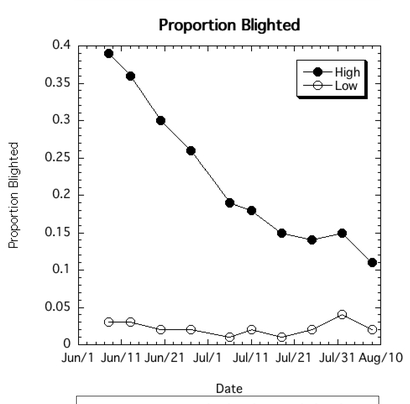


Figure 4. While low-blight shoots stayed about the same, high-blight shoots declined because blighted leaves fell off (RMANOVA blight x date interaction: $F_{3.1,58.7} = 12.530$, $P < 0.001$.

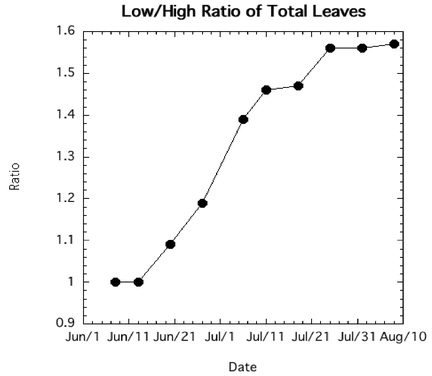


Figure 5. As leaves fell off the high-blight shoots, the low/high ratio increased.

## Discussion

- High blighted leaf shoots lost 47% of their leaves compared to low blighted leaf shoots which only lost 28%.
- The proportion of blighted leaves declined in high blighted shoots from 40% to 11% whereas low blighted shoots remained relatively stable.
- The number of leaves in both high and low blighted shoots declined due to blight, and possibly herbivorous consumption.
- Future research could look at how this blight affects the abundance of amur honeysuckle in the Northern Kentucky region.

## Acknowledgments

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## References

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