

# LANTERN FLIES AND TREE-OF-HEAVEN IN NEW YORK CITY



**QUESTION:** HOW DOES THE POPULATION CHANGE IN LANTERNFLIES COMPARE TO THE POPULATION CHANGE OF TREE-OF-HEAVEN IN NYC OVER TIME?

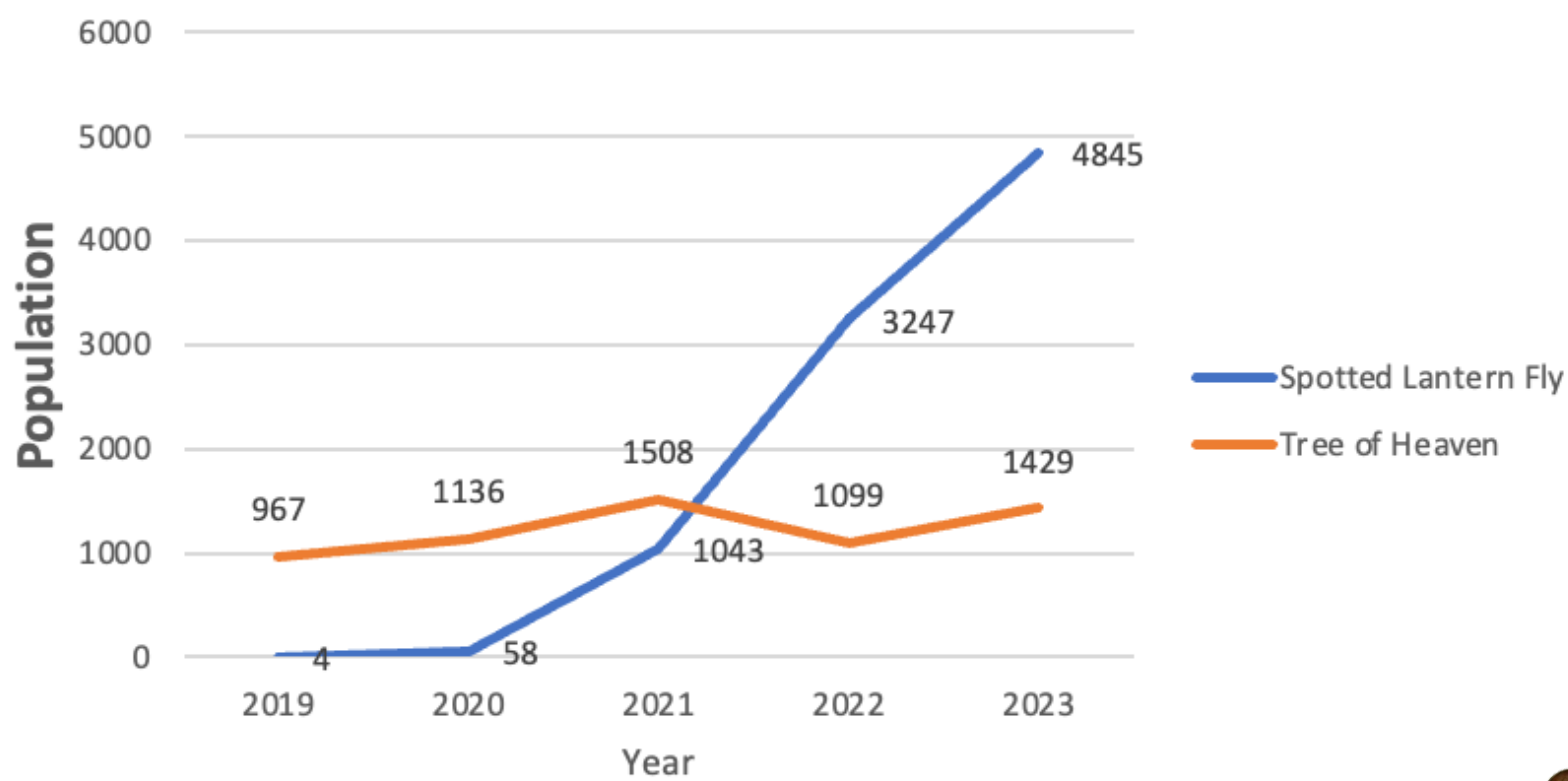
**Hypothesis:** There is a direct positive relationship between the Spotted Lantern Fly population and the Tree-of-Heaven population.

## Methodology

We found our data using iNaturalist and filtering the observations for Spotted Lanternflies and Tree of Heaven in the years 2019-present time. We also added filters for NYC to only show observations within the metropolitan area.



Spotted Lantern Fly and Tree of Heaven NYC Population



**ANALYSIS:** Over the past four years, the SLF population grew almost exponentially, while the TOH population was relatively stable, but increased since 2022. This does not disprove a parasitic relationship, but a symbiotic relationship cannot be proven solely with our data due to the TOH population not benefiting from the SLF's growth. The TOH population could've been impacted by human removal since it is an invasive species to the U.S so a population number decrease in 2022 may have resulted from that.



**Conclusion:** Based off the data retrieved through iNaturalist, we can conclude that there is a slight relationship between the Lantern Fly and the Tree-of-Heaven. We would need more data over many years and consider extra factors like pesticides, area-bound analysis, etc. to officially conclude this, but given our current data, there is a minor positive correlation between our two variables.

### SUMMARY

Groups	Count	Sum	Average	Variance
Spotted Lantern Fly	5	9197	1839.4	4547825.3
Tree of Heaven	5	6139	1227.8	53006.7

### ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	935136.4	1	935136.4	0.40650752	0.54156119	5.31765507
Within Groups	18403328	8	2300416			
Total	19338464.4	9				