

Biodiversity of Flying Insects

Elise Elmore, Jonah Moy, Vincent Joralemon (Mentor)

Frank McCourt High School

Abstract

This project is meant to show our research in diversity of insects in New York City. Our group found a wide variety of different fly species. Among the insects, there were various species of flies native to New York. We found a wide variety of species, including the corpse fly and the fruit fly, as well as an unexpected ground beetle.

Introduction

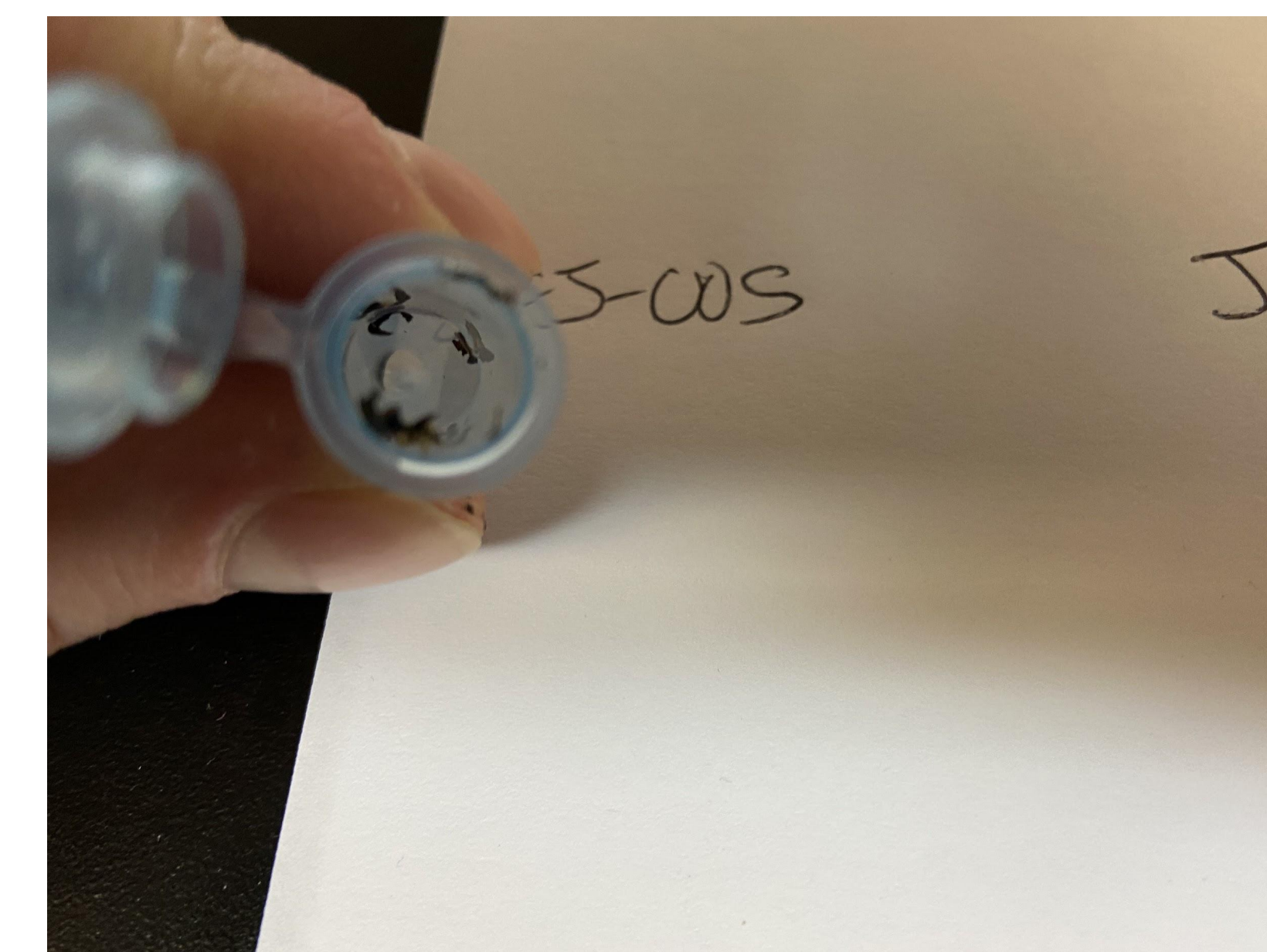
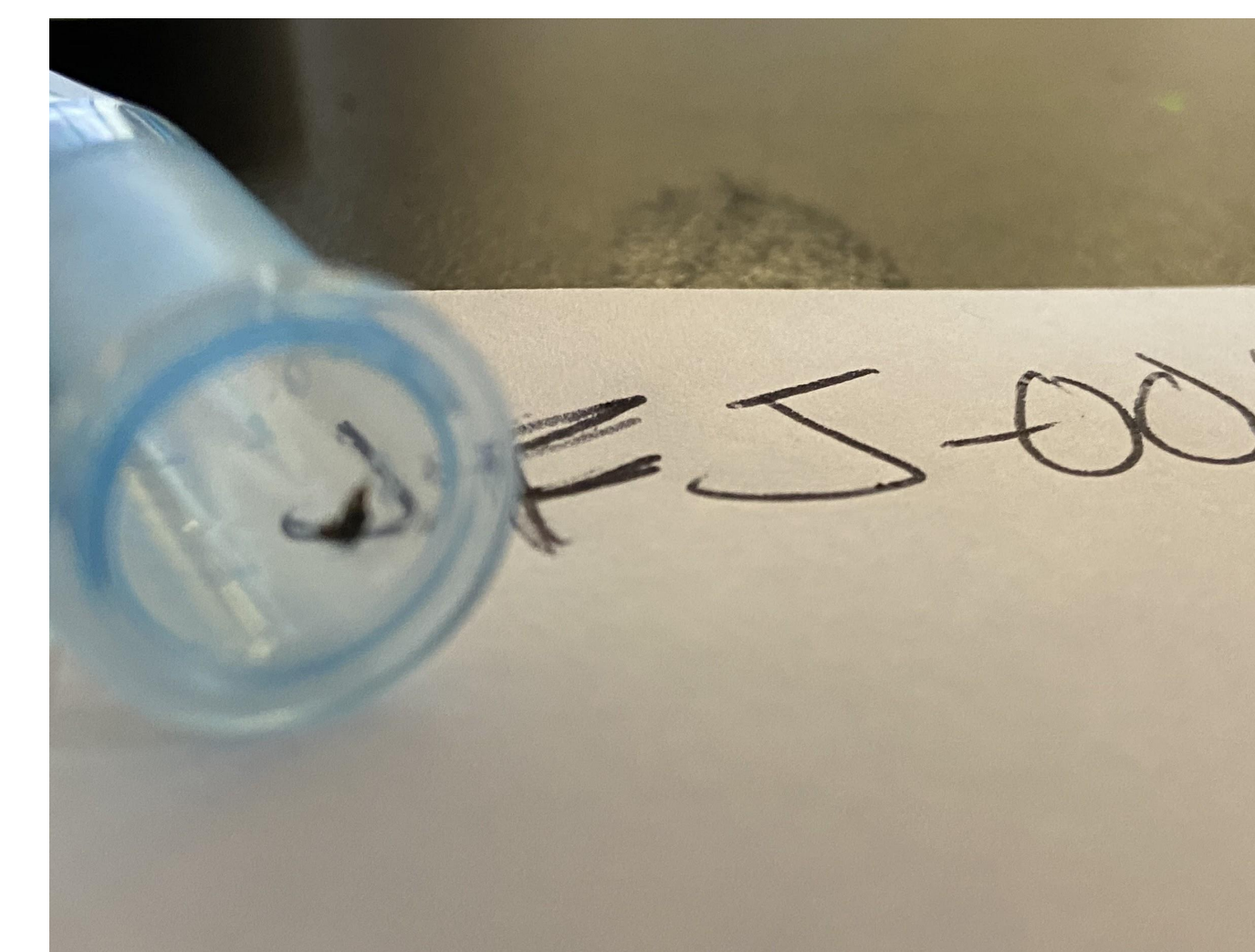
New York City is home to millions of flying insects. The most commonly seen flying insects are cluster flies and fruit flies. However, there is an invasive species of flying insects that has been discovered in New York that goes by the name of the "*Lycorma delicatula*" also known as the Spotted Lanternfly. The Spotted Lanternfly isn't native to New York meaning that it poses a significant threat to New York agriculture and forest health. The purpose of our project is to test the biodiversity of flying insects in various locations throughout the city. If we are able to identify other species we could discover another invasive species.

Tables and Figures:

Sample Number	Species Found	e Value
001	Coenosia sp. (Hunter fly)	0.0
002	Drosophila suzukii (fruit flies)	0.0
003	Bembidion nigripes (ground beetle)	0.0
005	Calliphora vicina (corpse fly)	0.0
006	Drosophila suzukii (fruit flies)	2e-103
007	Cryptonevra flavitarsis (grass fly)	0.0
009-R	Chironomidae sp. (lake flies)	0.0
010	Stegobium paniceum (drugstore beetle)	0.0
011	Drosophila suzukii (fruit flies)	0.0
012	Drosophila suzukii (fruit flies)	0.0

Materials & Methods

1. set up the traps
2. recorded data with the flies we caught.
3. DNA extraction
4. PCR (DNA copying machine)
5. Gel electrophoresis
6. DNA Subway



Discussion

The development of this entire project is important because it shows people how diverse certain environments can be. We show how diverse the outside of a window shield can be, but if we were to conduct this experiment elsewhere, our results would've been even more diverse. The most unexpected result was the ground beetle because we did not expect to find one on the window shield of an apartment.

References

Spotted Lanternfly. (n.d.). Retrieved October 28, 2019, from <https://www.dec.ny.gov/animals/113303.html>.

Buffone, John. "There's Fungus among Us, and It Might Kill off the Spotted Lanternfly in Pa." *The York Daily Record*, York Daily Record, 30 Aug. 2019, <https://www.ydr.com/story/news/2019/08/30/biopesticide-being-tested-battle-spotted-lanternfly-pa-pesticide-penn-state-cornell/2149638001/>.

"Spotted Lanternfly." *Biocontrol Lab*, University of Rhode Island, 2 Jan. 2019, <https://web.uri.edu/biocontrol/spotted-lanternfly/>.

Figura, David. "Spotted Lanternfly: New Invasive Pest Could Impact NY's Agriculture and Tourism." *Newyorkupstate*, 11 Sept. 2018, https://www.newyorkupstate.com/outdoors/2018/09/spotted_lanternfly_new_invasive_pest_could_impact_nys_agriculture_and_tourism.html.

Gorman, James. "Trillions of Flies Can't All Be Bad." *The New York Times*, The New York Times, 13 Nov. 2017, <https://www.nytimes.com/2017/11/13/science/flies-biology.html>.

Acknowledgements

We would like to thank Urban Barcode Project for allowing us to participate and gain experience from it's program.