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The Effect of the Properties of Water Sources on Mosquito Attraction in Texas

All species of water-birthing mosquitos tend to lay eggs in water with minimal flow. This includes anything from large lakes to small puddles. Mosquitos play a large role as a vector of many diseases, such as West Nile, Zika, and dengue. Knowing the types of water sources that highly attract mosquitos is essential to prevent them. While not all mosquitos globally can transmit these diseases, it’s important to prevent the births of mosquito larvae in populated areas to minimize health risks. My analysis focuses on different properties of bodies of water and how they affect mosquito spawn.

The data analyzed is from the 2021 SEES internship shared spreadsheet. Data values from regions in Texas were taken, as well as data used from my own personal traps around the San Antonio region. Since mosquito species vary across geographic regions, I chose to limit my analysis to Texas only.

The first variable I measured was the volume of water. Low volumes of water still attracted mosquitos, but not a significant amount. As the volume increased, I recorded larvae also increasing at an increasing rate. This was expected behavior, since the greater volume of water likely allowed mosquitos to find them easier. However, it is worthy to note that this experiment was all done in small, 20L buckets. Larger puddles and lakes would likely reach a maximum and level off in mosquito birth rates, and are also more susceptible to disruptions in the still water flow, such as branches or rocks falling.

The second measurement was the amount of green vegetation near the water source. Water sources placed directly on the grass or under a tree were classified as high vegetation, while water sources placed on backyard patios or on rocky ground were classified as lower vegetation. There was not too much difference between water sources in high vegetation and low vegetation - high vegetation saw small increases, but the values were not substantially larger than the sources in low vegetation.

Finally, the shade covering the water source had a direct effect on the amount of larvae per week. Areas with full shade had over 40 larvae per week on average, while those with no shade during the day had just over 30 larvae per week on average.