

## Mutualism

Green Science/Blue LA

Mutualism: Bumblebee and Hydrangea

**Introduction:** One day I was on my front porch and I noticed all these bumblebees flying around my mom's hydrangea plant. I wondered why they were doing so, and then I realized that it was a form of symbiosis. I learned what symbiosis was in science class at school. The definition of symbiosis is how two organisms interact with each other in the wild. I found this interesting because my mom has lots of types of flowers, so I wanted to know why the bumblebees only were around the hydrangea. I found this really cool because there are lots of types of bees, and also lots of types of flowers, and I wondered why these two organisms choose each other.

**Claim:** I observed a bumblebee, *Bombus* and a hydrangea, *Hydrangea macrophylla* in a symbiotic relationship, mutualism.

**Evidence:** I saw the hydrangea on September 27, 2018, at 6:55 am in my front yard. I also found a bumblebee on September 29, 2018, at 4:36 pm in my front yard. These pictures that I took of these organisms are shown below.



**Image 1:** A Bumble Bee pollinating a hydrangea. Image taken 9/29/18 at 4:30 pm in my front yard. (Image by Author)



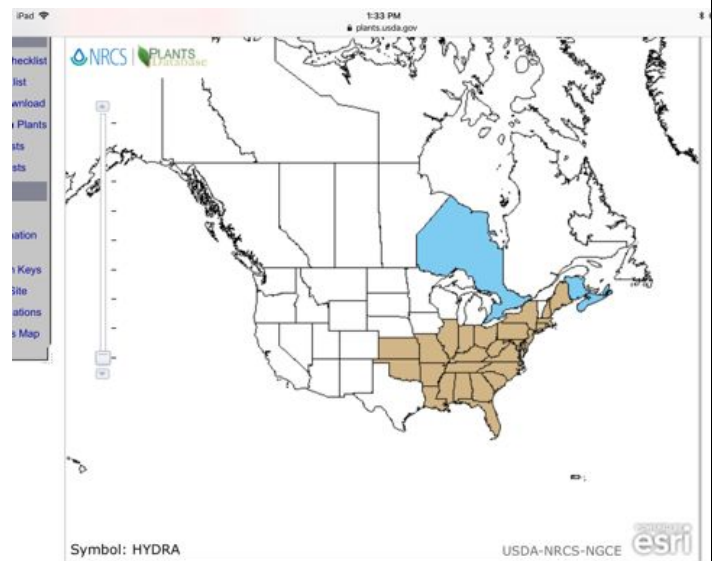
**Image 2:** A white/pink hydrangea plant. Image taken 9/27/18 at 6:55 am in my front yard. (Image by Author)

**Reasoning:** My symbiosis that I found is a Bumble Bee and a Hydrangea flower in mutualism. Symbiosis is how two organisms interact with each other. There are many types of symbiosis. One of them, Mutualism means that the effect is good for both organisms. Mutualism is the situation of my symbiosis. The scientific name for the Bumble Bee is the *Bombus* and the scientific name for the hydrangea is the *Hydrangea macrophylla*. I have two range maps which support my case down below and two pictures that I took of the organisms, so I should be correct.

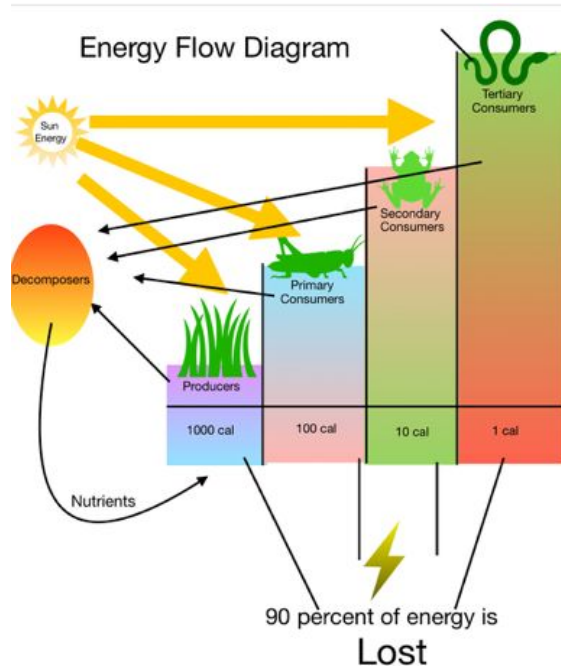
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**Image 3:** Range of the Bumblebee, which includes the location observed. (en.m.wikipedia.org)



**Image 4:** Range of Hydrangeas, which includes the location observed. (plants.usda.org)



**Image 5:** In this diagram, you can see it is showing the energy flow between grass, grasshoppers, frogs, and snakes. When the energy gets to the snake and the snake dies, the energy goes to the decomposers. Then it starts all over by the nutrients from the decomposers going back to the dirt to make more grass. No energy transfer is 100% though, so only 10% of the energy goes through. That means 90% is lost. Then the lost energy is given to the environment and creates the heat around you. The Sun energy also plays a part. All energy in the diagram is generated by the sun. Now to better explain the producers and the consumers. The Primary Consumers eat the producers. Then the Primary Consumers get

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eaten by the Secondary Consumers. After that happens, the Tertiary consumers eat the Secondary Consumers, and it keeps going on and on. Then when the last Apex Consumer (last Consumer in the cycle) ends up dying, the energy goes to the decomposers. Then the cycle starts all over again. That's my energy flow diagram!

**Conclusion:** In this paper I have shown that I observed a Bumble Bee in a symbiotic relationship of mutualism with a hydrangea flower.. This is good for both organisms because the hydrangea gets to be pollinated and the Bumblebee gets the nectar it needs to make honey. These two organisms were found in my own front yard, and according to the range maps, they are both supposed to be here. Thank you for reading my symbiosis project.

### **Works Cited:**

[https://en.m.wikipedia.org/wiki/File:Map\\_of\\_northern\\_parts\\_of\\_North\\_America\\_showing\\_the\\_range\\_of\\_Bombus\\_ternarius.jpg](https://en.m.wikipedia.org/wiki/File:Map_of_northern_parts_of_North_America_showing_the_range_of_Bombus_ternarius.jpg)

<https://plants.usda.gov/core/profile?symbol=HYDRA>

<https://en.m.wikipedia.org/wiki/Bumblebee>

<https://gilmour.com/hydrangea-care>



