Harriet Tubman Underground Railroad

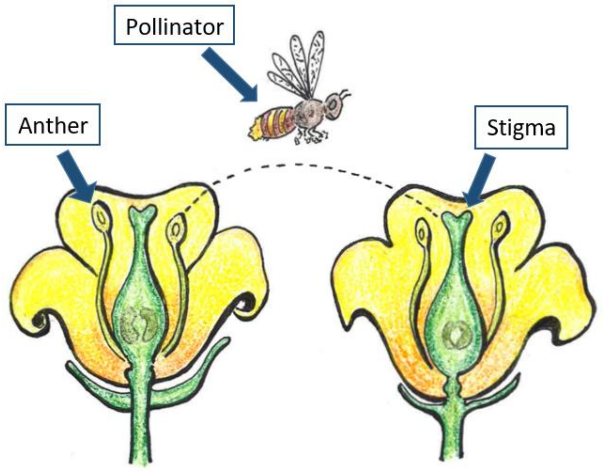
State Park and Visitor Center

PROTECTING POLLINATORS

Welcome to Harriet Tubman Underground Railroad State Park! When building this state of the art facility, we were lucky enough to use a portion of land in the heart of “Tubman Country”. The park is less than 10 miles from Harriet Tubman’s place of birth and where Tubman spent her youth enslaved. The surrounding land is part of Blackwater National Wildlife Refuge. The refuge has kept a large portion of Tubman Country pristine since 1933. To help maintain the landscape that Harriet Tubman traversed, Harriet Tubman Underground Railroad State Park has made it our duty to be as kind to our land as possible. We have done this by including many green features in our Visitor Center, administrative building and surrounding landscape to meet LEED Silver certification standards. Not only are we able to interpret history, we also help the surrounding ecosystems that provide many benefits to native pollinators!

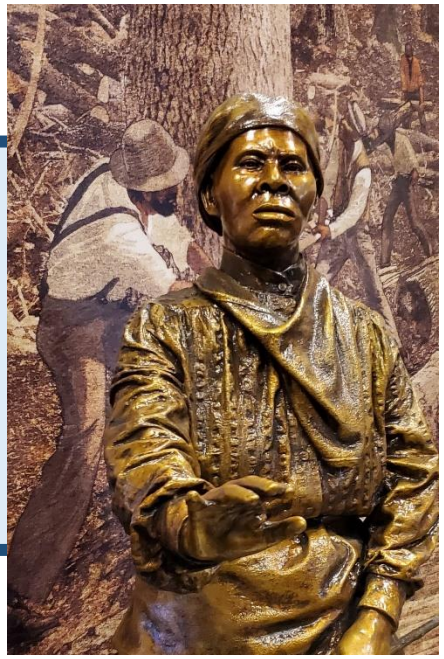
What are Pollinators?

Pollinators help make pollination happen! Pollinators are very important in all ecosystems and are responsible for helping pollinate 90% of the world's flowering plants. Pollination is the act of transferring pollen from a male plant's anther to a female plant's stigma to fertilize the flower. Once fertilized, the plant will grow a fruit and seed(s). Pollinators are the vessel by which the pollen is moved from plant to plant. Examples of pollinators are bees, beetles, flies, butterflies, birds, and wind. Here in Tubman Country you will see many farms that depend on pollinators. Agriculture is a huge part of the local community and many people depend on pollinators to fertilize their crops and support their livelihood. Currently pollinators are at risk due to a loss of habitat. At Harriet Tubman Underground Railroad State Park, we aim to leave a positive impact on our environment.



Leadership in Energy and Environmental Design (LEED) is a green building certification program that focuses on energy efficiency and indoor environmental quality. Our green features include a Legacy Garden filled with native plants, a vegetated roof, bio-retention ponds, solar panel lights, rain barrels, permeable roads and paths, minimal harsh chemicals, recycling, electric vehicle charging station, and many more.

Popular industries in the area during Harriet Tubman's time were farming, fishing/oystering, and timbering. Tubman's father, Ben Ross, was a skilled timber foreman and carpenter who taught Tubman everything she knew about timbering. Tubman used these skills to hire herself out to plow fields and haul timber. She paid her enslaver, Edward Brodess, a very hefty $60 yearly fee for this privilege. Tubman was able to earn enough to purchase two oxen which increased her earning potential. Red cedar was the timber of choice and can be seen throughout our park's property. Red cedar pollinates by wind.

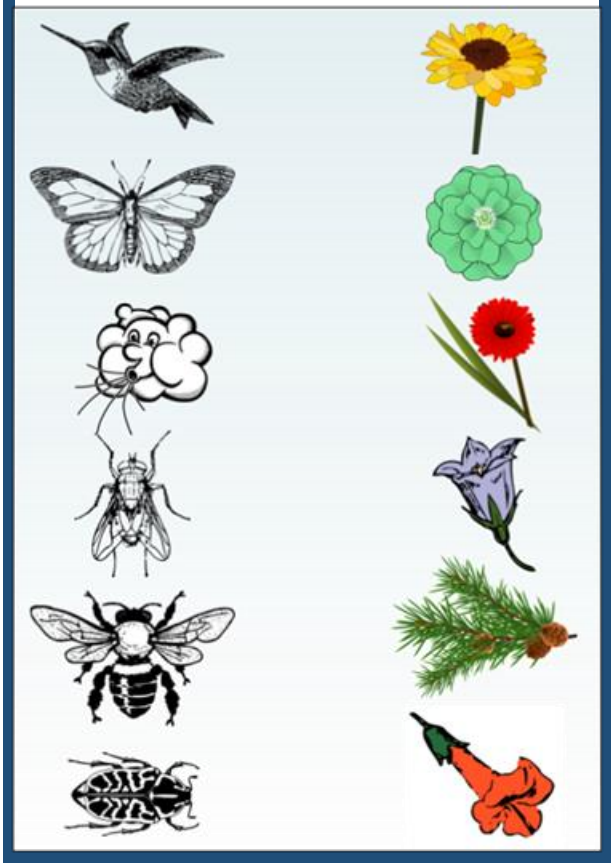


Pollinator Syndromes!

Our Legacy Garden is filled with a variety of colorful native flowering plants that bloom at different times during the growing season. The bright colors attract pollinators to our park and the various bloom times keep them around! Just like us, pollinators have an acquired taste when it comes to their food. Different pollinators have different tastes. A flower's features such as color, shape, and smell are all factors that attract the best pollinator to spread their pollen. This is called pollinator syndromes! Take some time and study our pollinator syndromes chart to get acquainted with which type of flower characteristics attract which pollinators.

Flower Traits	Bees	Beetles	Fly	Butterfly	Bird	Wind
Color	Bright white, yellow, blue, UV	White or green	Pale, dark brown, purple	Bright red and purple	Scarlet, orange, red, or white	Pale green, brown, or colorless
Odor	Fresh, mild, pleasant	None, fruity, foul	Putrid	Faint but fresh	None	None
Shape	Shallow, tubular, landing platform	Large, bowl shape	Shallow, funnel-like	Narrow tube, wide landing pad	Large, funnel like	Regular and small

Draw lines connecting pollinators with their desired flower.



Take a walk through our Legacy Garden. Choose a flower that you see in bloom then draw and/or describe the flower in the space below. Which pollinator do you think would visit this flower?

BONUS: Draw your pollinator!

Vegetative Roof

AKA Green Roof or Living Roof

A vegetative roof is a roof that is covered entirely or partially with vegetation growing over a waterproof membrane. If you look up at the flat surfaces on the roof of our Visitor Center and our administrative building, you might be able to see some of our vegetative roof's greenery peeking out! We have an extensive system vegetative roof meaning our roof is low maintenance, self-sustaining, and light weight. Plants on an extensive system roof tend to be smaller and more resilient to freeze and drought. Our green roof is very beneficial to our park in many ways. The vegetation absorbs heat instead of attracting heat like a regular roof would do. This helps regulate our building's temperature and reduces the Heat Island Effect. Many of the other benefits include removing air particulates, producing oxygen, providing shade, and reducing and slowing storm water runoff.

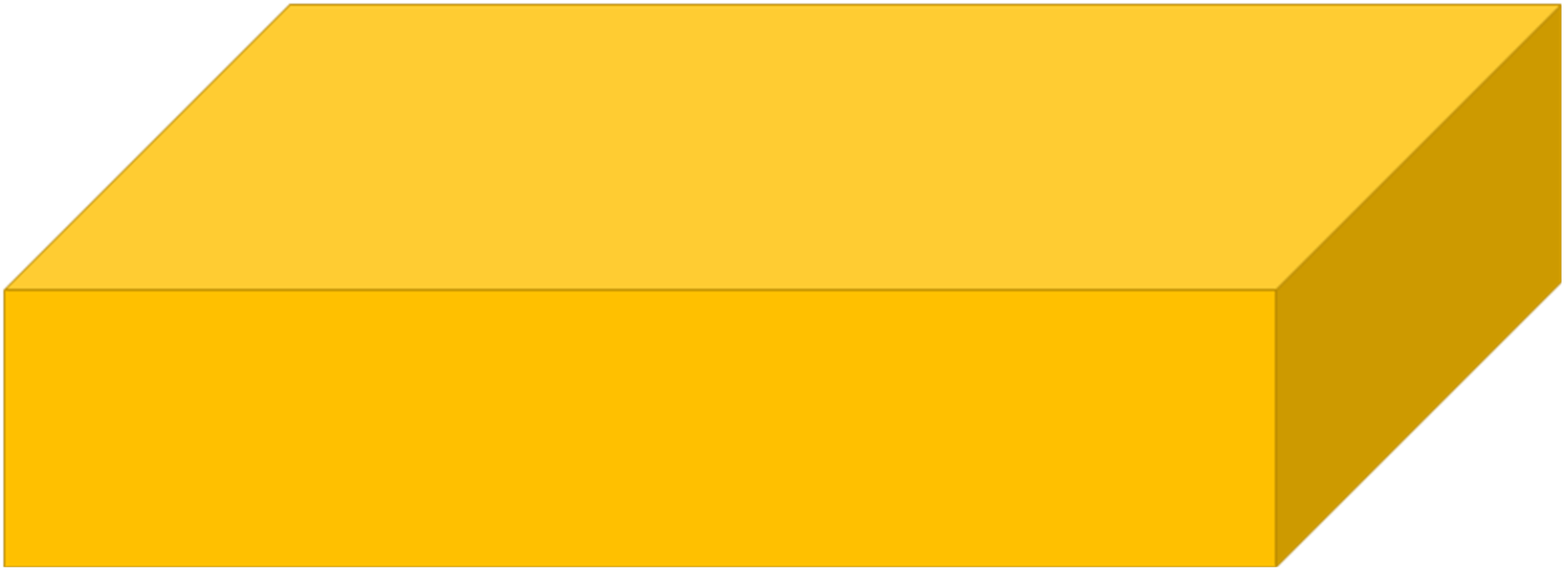
But how do they help pollinators? As we learned earlier, pollinators are losing habitat. Vegetative roofs offer more spaces for pollinators to live, and also offer plenty of flowers with nectar to feed the pollinators. Wild bees that burrow into the ground are often found living in the soil on green roofs. In urban areas, green roofs offer a stop for pollinators as they travel from one green space to the next.

You get a chance to design your own vegetated roof! Imagine that you already have the proper waterproof membrane laid down on your roof.

Things to consider:

a) Will there be a water draining structure?
b) What type of access will there be on your roof?
c) What type of native plants will be on your roof and how will they be arranged?
d) What types of pollinators will you want to attract?
e) Will it be an extensive system (low-maintenance and self-sustaining), an intensive system (frequent maintenance, often thought of as rooftop gardens), or semi-intensive system (a mix of both). Keep in mind that extensive green roofs support around 10-25 lbs. per square foot while intensive roofs support around 80-150 lbs. per square foot.

Design your roof here!



Pollinator Word Search

K V V E G E T A T I V E R O O F Z E B S
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KEY

Anther

Ecosystem

Extensive

Heat Island Effect

Intensive

Pollination

Pollinator

Pollinator Syndrome

Semi-intensive

Stigma

Vegetative Roof

Glossary

Anther: The pollen-bearing part of a flower.

Ecosystem: A system, or a group of interconnected elements, formed by the interaction of a community of organisms with their environment.

Extensive System: Low maintenance and light weight green roof system. They don't support plants with deep root systems. Instead, they are usually planted with moss or sedums.

Heat Island Effect: Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies.

Intensive System: High maintenance and heavy green roof system. Often considered green gardens.

Pollination: The transfer of pollen from an anther to a stigma.

Pollinator: The vessel by which pollen is transferred. Often insects or wind.

Pollinator Syndrome: A flower's characteristics that attract specific pollinators.

Semi-intensive system: A green roof system in between extensive and intensive systems.

Stigma: The part of the flower that receives pollen.

Vegetative Roof: A roof that is covered entirely or partially with vegetation growing over a waterproof membrane. Also known as a green roof.