Forgotten Flowers: Spring Ephemerals

Each week, we will highlight a spring ephemeral by posting an information sheet, photos, guiding questions and enrichment activities designed for formal and informal educators, as well as lifelong learners.

Week 5: Trout Lily

A miniature yellow lily of woodlands and streambanks, *Erythronium americanum* blooms in early April about the same time that trout fishing season opens. The time of bloom combined with the variegated pattern of the leaves certainly reminds us of the mottled fish of clear cold streams, hence the common name, **trout lily**.

Other folk names for this tiny spring ephemeral abound. Here's an ominous sounding one; adder's tongue. It might be the sharply pointed emerging leaves or perhaps the protruding stamens that inspired early Europeans to think of snakes. Other names with a viper theme include rattlesnake violet, serpent's tongue, yellow snakeleaf, and snakeroot, to name a few. In any case the plant is not venomous so perhaps some of the gentler folk names better serve this little beauty: dogtooth violet, yellow bells, amber bells, and fawn lily.

Trout lilies have an incredibly cool propagation strategy and when left undisturbed, will form enormous colonies that live for centuries. Most of the plants in a colony don't actually bloom, but if they do and are pollinated, then seeds form in June. The next spring, the seeds germinate, and each sprouted seed forms a tiny **corm**, a bulb-like underground food storage stem that grows near the surface of the soil. The little corm produces threadlike **"droppers"** that burrow down at an angle of 45 degrees. By the end of the growing season, each dropper, deeper in the soil now and up to a foot away, will produce a new corm from food sent down the thread by the mother plant. Eventually the "umbilical cord" withers away and the young corm sends up a leaf of its own. After four years, one sprouted seed will have produced up to nine new plants with corms that burrowed down eight to ten inches or even deeper! In this way, the plants increase their numbers mostly by cloning rather than seed. In a trout lily colony, only about one percent of the plants will bloom in any given season. You can predict which plants will bloom as those that do will send up two leaves instead of one. It takes a lot more energy to make a flower and then go to seed.

Like bloodroot and Dutchman's breeches, trout lily seeds are dispersed in woodlands by ants in a process called **myrmecochory**. Another insect that has a special relationship with this flower is the bumblebee. A queen bumblebee emerges from hibernation earlier than most pollinators. Her mission is to start a new colony when there are not that many flowers in bloom. She needs to collect enough pollen to feed the baby bumblebees and to sip enough nectar to give her energy to forage and maintain her growing colony. Trout lilies provide large quantities of pollen on exposed anthers and reservoirs of nectar that are easily accessed by the emerging bees. Bumblebees and trout lilies; perfect together!

Trout lily blossoms close tight at night like folded umbrellas. During the day, the flowers open wide as the temperature rises. Their yellow **tepals** (each yellow petal is really a combination sepal and petal) curl back as they open, creating downward-facing parasols. This protects the reproductive parts of the blossom from rain that could wash away pollen and helps to keep certain crawling insects from robbing the precious nectar.

Trout lilies still grow sporadically along woodland paths and down along the river at Duke Farms, but the rampant spread of the invasive lesser celandine (*Ficaria verna*) has choked them out in many places.

Want to grow Trout Lilies in your garden? Buy plants from reputable native plant nurseries and **never collect them from the wild!** The Native Plant Society of New Jersey is a great resource to help you find where to buy them or to get more information.

More Photos

Note: All photos courtesy of Abby Schmid and Joanne Vogel

Guiding Questions and Enrichment

1. Why is trout lily a common name for this spring ephemeral?
Answer: Because it blooms at the beginning of trout fishing season and because the leaves are mottled like the skin of a trout.

2. What is an adder? What does it have to do with trout lily?
Answer: An adder is a snake. Emerging leaves of trout lily look like snake tongues as do the anthers and other common names include the word snake because of the resemblance.

3. Very few trout lilies bloom and go to seed. Instead, they mostly propagate by cloning. What are the little threads that burrow down in the soil that help to spread the plants?
Answer: Droppers.

4. What is a corm?
Answer: Underground bulb-like food storage stem.

5. How can you predict if a trout lily will bloom?
Answer: It sends up two leaves instead of one.

6. How are trout lily seeds dispersed? What is this dispersal method called?
Answer: Ants and the method is called myrmecochory.

7. Trout lily flowers do not have true petals. The "petals" are really a combination of two flowers structures; petals and sepals. What is the name for this?
Answer: Tepal.

8. As the day warms up, trout lily flowers open like downward-facing parasols. How does this benefit the plant?
Answer: It protects the reproductive parts of the plant and the pollen from rain.

Bonus and Enrichment
Literary Connections

Trout Lily and Shakespeare?
Trout lily has many different common names: yellow trout lily, adder's tongue, American trout lily, fawn lily, yellow adder's tongue, yellow bells, amber bells… and more.

Remember this quote from *Romeo and Juliet*? How do Shakespeare's words apply to the trout lily?

> Tis but thy name that is my enemy;
> Thou art thyself, though not a Montague.
> What's Montague? it is nor hand, nor foot,
> Nor arm, nor face, nor any other part
> Belonging to a man. O, be some other name!
> What's in a name? that which we call a rose
> By any other name would smell as sweet;
> So Romeo would, were he not Romeo call'd,
> Retain that dear perfection which he owes
> Without that title. Romeo, doff thy name,
> And for that name which is no part of thee
> Take all myself. (2.2.38-49)

Emily Dickenson and Trout Lily
Emily Dickinson, the famous American poet, wrote many poems about spring and flowers. While attending school, she and her classmates often went searching for flowers to press or transplant into their own gardens. As she continued to write, flowers were important to her and frequently used as imagery throughout her letters and poems.

Photo Credit: New York Botanical Group - Pressed trout lily, Emily Dickenson

If you are interested in reading more about Emily Dickenson's love of flowers and gardens, you might enjoy this book:

The Gardens of Emily Dickinson by Judith Farr

This following book review from Harvard University Press captures the tone and structure of the book. Chapter 1, is entitled, "The Woodland Garden" and includes ephemerals.

> "In this first substantial study of Emily Dickinson's devotion to flowers and gardening, Judith Farr seeks to join both poet and gardener in one creative personality. She casts new light on Dickinson's temperament, her aesthetic sensibility, and her vision of the relationship between art and nature, revealing that the successful gardener's intimate understanding of horticulture helped shape the poet's choice of metaphors for every experience: love and hate, wickedness and virtue, death and immortality."

Trout Are Made of Trees by April Pulley Sayre
In this book, two children observe life in and around a stream and discover how plants and animals are connected in food webs. It also shows the trout life cycle and shows examples of simple conservation efforts. Best for young children.

How Does Your Garden Grow? By Mary H. Jackson
This quirky little book includes botanical illustrations, descriptions, and names that are purely fictitious and whimsical. Using the examples below, it might be fun to draw a trout lily using this same idea.

Additional Resources

- Lady Bird Johnson Wildflower Center, Trout Lily
- USDA Plants Database, Trout Lily
- Trout Lily and its common names
- Trout Lily Natural History and Folklore

Sample Next Generation Learning Standards

- 3-LS4-3 Construct an argument with evidence that in a particular habitat, some organisms can survive well, some survive less well, some cannot survive at all.

New Jersey Learning Standards ELA

- NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
- L.4.5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

For more information about using this lesson in your classroom or with your family, contact Kate Reilly, Manager of Education, Duke Farms, at kreilly@dukefarms.org