**Pollination Strategies of Trees**

In Sky Meadows State Park, there are many different kinds of trees. All of the trees here reproduce themselves by making seeds. Trees that make seeds have *flowers* that have male and female parts. The flowers of some trees have both male and female parts in *each* flower. Some trees have flowers that have only male parts, and also flowers that have only female parts. And some trees have male and female flowers on *separate* trees.

And, just like animals, the male parts of tree flowers produce sperm cells, called *pollen* and the female parts produce the eggs, which are called *ovules.*

In order to make seeds the flower’s male *pollen* *grains* must come in contact with the female *ovule* in a process called *pollination.* But unlike animals, the male and female reproductive parts of plants can’t move, so they can never actually touch each other.

So how does the tree’s pollen find the ovule?

There are basically only two ways that tree flowers are pollinated:

For some trees, the wind carries the pollen from the male flowers, to the female flowers.

Scientists call these **wind-pollinated** trees *anemophilous,* a Latin word that means “wind loving”.

And for other trees, insects like bees carry the male pollen to the female ovary. These trees are called **insect pollinated.** The Latin word for them is *entomophilous,* meaning “insect loving”.

A few types of trees can be **both wind and insect pollinated**. They are called *ambophilous,* meaning “loves both” in English.

At Stop 3 there are both wind-pollinated and insect pollinated trees:

The nut producing trees like the hickories, black walnut and oaks at Stop 3 are wind pollinated.

Their flowers don’t look like typical flowers. Because they are wind pollinated, they don’t have the colorful petals, sweet nectar or a sweet scent needed to attract pollinating insects. The male and female flowers are a dull greenish color and are separate, but they are near each other. They are held out at the very ends of the branches, where they will be exposed to the slightest breeze that carries the pollen far and wide. The male flowers that make the pollen number in the thousands and hang down in 6-inch long chains called *catkins.* Each tree produces hundreds of millions of pollen grains to insure the fertilization of every female flower. These female flowers are barely ½ inch long and have an oval shaped *ovary* at the base that will soon develop into the round nut. Each female flower has two sticky finger-like *stigmas* arching out from the top. They catch the air-born pollen and lead it down into the ovary where it will fertilize the *ovule* and make the nuts that ripen in the fall.

Of course, the nuts are a tasty and nutritious food for animals like squirrels, chipmunks, deer, bear, turkey and people too. Once the squirrels, chipmunks and turkeys have eaten their fill they begin to hide the extra nuts so they can eat them later in the winter. Sometimes they forget where they are hidden, under leaves, bark, logs and buried in the ground. Next spring, these forgotten nuts might sprout and grow into a new tree, completing the Grand Plan to feed the animals and start new trees!

In these woods there are other wind pollinated trees like the maples and ash. (Actually, maples and ash trees are *ambophilous,* pollinated by both wind and insects). But their seeds are not spread by hungry animals. Their seeds have wings attached to them that make them twirl like helicopters in the breeze when they fall, carrying them far from their parents. If the wind is right, they can travel up to half a mile from the parent tree! Wind dispersed seeds like this are called *anemochorous,* a Latinized word invented by Botanists.

It means “dancing with the wind”.

There is another tree at Stop 3 is NOT wind pollinated. It is a Black Gum, or Tupelo tree. The Tupelo is insect pollinated or *entomophilous.* In the spring, several varieties of bee visit the flowers to sip nectar. During these visits, the bees also collect the tree’s nutritious pollen to feed to their larvae. Honeybees make the famous Tupelo Honey from the nectar. As the bees go from flower to flower, they spread the pollen grains and pollinate each one.

Once fertilized, the flowers produce a small dark purple, oily fruit that contains a single seed.

Like the nut trees’ fruit, the Tupelo fruit is an important nutritious food source for game birds and other animals. The high oil content of the fruit helps animals put on a good layer of fat for the coming winter. Once the fruit is eaten, the hard seed passes unharmed through the animal’s digestive tract and it’s deposited in the animal’s scat, (fertilizer and all!) far from the parent tree.

Animal dispersed seeds like this are called *endozoochouou*s, another Latinized word invented by Botanists. It means “dancing with animal innards”!

So, different kinds of trees have different strategies on how to pollinate their flowers and disperse their seeds as far as they can. And part of *each* of these plans includes help from the wind or help from animals.

Many of these animals wouldn’t exist without the food that the trees make for them.

And likewise, many of these trees wouldn’t exist without the animals that pollinate their flowers or spread their seeds.

It truly is a Grand Plan!

 Submitted by Paul Guay