York County Envirothon 3rd and 4th Grade Forestry

Sample Forest Species Fact Pack!

This packet is provided to help bring all the concepts and terminology together with some sample species.

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Sources

White Oak

Quercus alba

Identification Features:

- ALTERNATE branching pattern.
- SIMPLE leaves with 7-10 rounded, finger-like LOBES.
- Male flowers are green catkins in spring. Female flowers are spikes. Plants are monoecious (have both male AND female flowers on the same tree).
- Fruits are ACORNS.
- Bark is whitish or gray with irregular plates or blocks.
- Large tree up to 100 feet tall.

Habitat:

- Forests

Wildlife Value:

- Oak leaves are food for over 500 different species of local butterfly and moth caterpillars. White oaks are considered one of the best trees to plant to support local ecosystems!
- White-tailed deer eat oak twigs and leaves.
- Over 180 animal species eat white oak acorns including crows, bluejays, woodpeckers, turkey, and deer.
- Birds, mammals, and insects use oak cavities for nesting.

Human Value:

- White oak wood is used as lumber to make furniture, floors, and wine barrels.
- Traditionally acorns of many oak trees were used by Native American peoples as a food and medicine source.
- Large oak trees have root systems that can be 2-3 times wider than the top of the tree. These roots help to prevent soil erosion and filter water in the soil, keeping our watershed healthier.

Leaf

Catkins

Acorn

Bark

Chipmunk with Acorn

Sassafras

Sassafras albidum

Identification Features:

- ALTERNATE branching pattern.
- SIMPLE leaves, ELLIPTICAL or OVATE in shape. ENTIRE leaf margins. Variably LOBED (unlobed, 2-lobed, or 3-lobed).
- Flowers are yellow-green in spring.
- Fruits are dark blue DRUPES on a red stalk in fall (appearing only on female plants).
- Crushed leaves & twigs are fragrant with a spicy-sweet aroma.
- Small to medium size tree reaching 60 feet tall.

Habitat:

- Forests, fields, thickets.

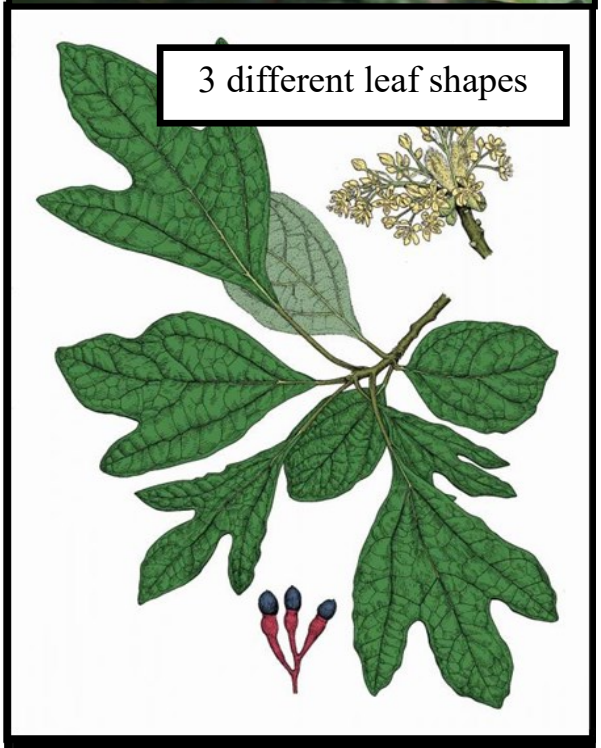
Wildlife Value:

- Fruits are eaten by turkeys, quails, mockingbirds, woodpeckers, bears, beavers, rabbits, & squirrels.
- Beavers eat the bark and wood.
- White-tailed deer eat the twigs and leaves.
- Leaves are food for spicebush swallowtail caterpillars and many giant silkmoth caterpillars.

Human Value:

- Oil harvested from the roots and bark is used to perfume soap & make tea.
- Extracts are used to flavor root beers and teas.
- Beautiful fall colors – yellow, red, purple.
- Grows early in succession sequences after a forest has been disturbed.

Leaves in autumn


3 different leaf shapes

Flowers

Red Maple

Acer rubrum

Identification Features:

- OPPOSITE branching pattern.
- SIMPLE leaves have ROUND shape with 3-5 LOBES and SERRATED margins.
- Leaves often turn bright red in fall.
- Flowers are red and are one of the earliest flowers to open on trees in our forests. The flowers are wind and insect pollinated.
- Seeds are called SAMARAS. They spin as they fall to the ground like helicopters.
- Medium to large tree typically reaching up to 60 feet tall.

Habitat:

- Moist woods and yards.

Wildlife Value:

- Birds, grey squirrels, and flying squirrels eat the seeds of red maples.
- Deer, moose, squirrels, porcupine, and other animals eat the twigs, buds, and bark.
- Songbirds, woodpeckers, and cavity nesters build nests in red maples.
- Bees and other insects visit the flowers of red maples to collect pollen and nectar.
- Leaves are eaten by over 285 types of caterpillars, including the larvae of the rosy maple moth (known as greenstriped mapleworms), along with many other insects.

Human Value:

- Sugar maple wood is used to make veneer, musical instruments, and crates.
- While sugar maple sap is commercially collected and boiled into maple syrup, other maples including the red maple can be used to produce syrup too!
- Native Americans used maple sap for sugar, candy, as a beverage, fermenting into beer, and souring into vinegar.

Leaf (Fall Color)

Flowers

Samaras

Rosy Maple Moth Adult

Tuliptree

Liriodendron tulipifera

Identification Features:

- ALTERNATE branching pattern.
- SIMPLE leaves are ROUND shaped with four LOBES.
- Buds are large and flattened like a duckbill.
- The seeds form cone-like clusters. Each seed in the cluster is winged and called a SAMARA.
- Flowers grow high in the trees in the summer and look like tulips. They are yellow and orange.
- One of the tallest trees in eastern forests reaching up to 200 feet tall.

Habitat:

- Forests near streams.
- Neighborhoods

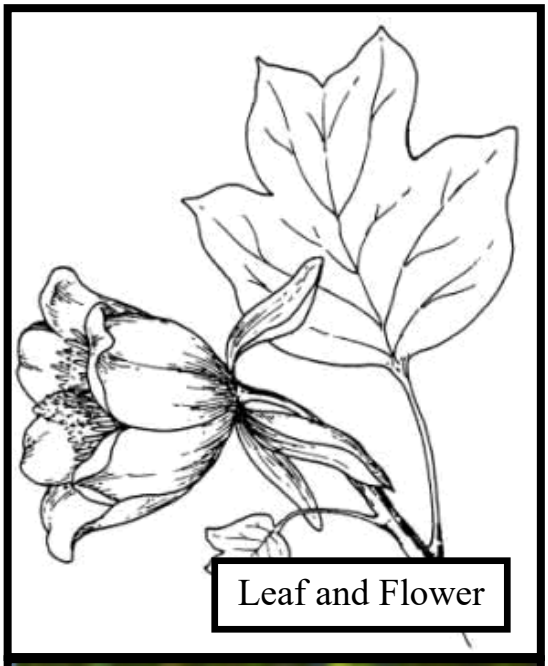
Wildlife Value:

- Seeds are eaten by songbirds, game birds, rabbits, squirrels, and mice.
- Yellow-bellied sapsucker feeds on the phloem tissue (the part that moves sugar inside the bark of the tree).
- Ruby-throated hummingbirds eat nectar from the flowers.
- White-tailed deer eat young twigs.
- Leaves are food for the Eastern tiger swallowtail butterfly caterpillar and some of our giant moths including the tulip-tree silkmoth and promethea moth.

Human Value:

- Tuliptrees are planted on streets and yards for shade and beauty.

  Tuliptree wood is used to make pulpwood for paper.
- Tuliptree is planted for reforestation of damaged sites because it grows quickly.
- Tuliptree is used for furniture, general construction, plywood, and boxes.
- Native American's used tuliptree wood to make dugout canoes.


Leaf and Flower

Samaras

Flower

Hickory

Carya sp.

Identification Features:

- ALTERNATE branching pattern.
- PINNATELY COMPOUND leaves have ELLIPTICAL FINELY TOOTHED leaflets.
- Flowers in the spring with male CATKINS and female spikes.
- Fruits are nearly round nuts covered in a thick husk that splits open when ripe.
- Large tree reaching 70-80 feet tall.

Habitat:

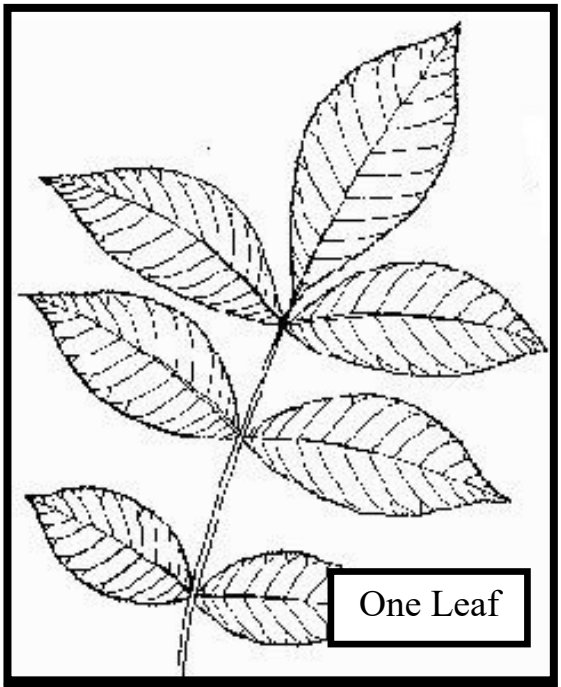
- Forests, hillsides.

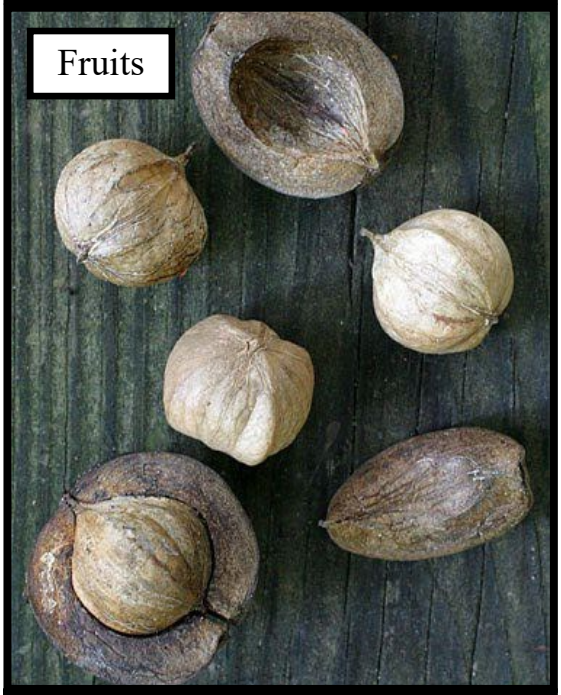
Wildlife Value:

- Hickory nuts are food for squirrels, chipmunks, black bears, gray and red foxes, rabbits, white-footed mice, mallards, wood ducks, bobwhites, and wild turkey.
- Hickory leaves are food for around 200 species of caterpillars (butterflies and moths) including the luna moth and the monkey slug.
- Many animals take shelter in the branches and cavities of hickories.

Human Value:

- Hickory wood is heavy, hard, and strong. It is used for tool handles, furniture, firewood, charcoal, and to smoke meats.
- Hickory wood has been used in the past to make bows for archery and wheel spokes for carriages.
- Nuts are edible to humans.
- Native Americans crushed the nut kernel to make cooking oil and bread flour.


One Leaf


Fruits

The monkey slug caterpillar is the larva of the hag moth.

© Jay Cossey/P

White Ash

Fraxinus americana

Identification Features:

- OPPOSITE branching pattern.
- PINNATELY COMPOUND with 7 leaflets.
- Bright green to purple flower on stems appearing after leaves unfold in spring.
- Fruit is a single-winged, flattened SAMARA.
- Large tree up to 80 feet tall.

Habitat:

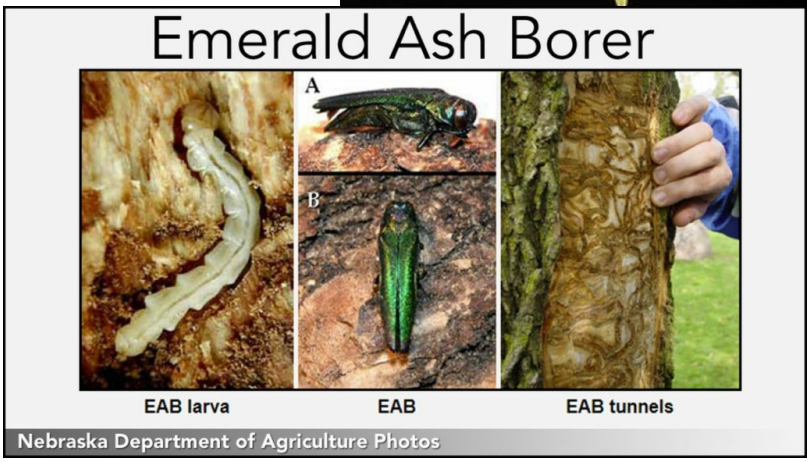
- Forests

Wildlife Value:

- Seeds are food for birds such as the wood duck, bobwhite quail, and purple finch.
- Bark is food for rabbits, beavers, and porcupine.
- Many cavity-nesting birds use white ash to make nests in.
- The invasive emerald ash borer (beetle) has affected most ash trees in our area causing ash trees to die off. The larva of the borer feeds inside the tree on the wood.

Human Value:

- Wood is tough and resistant to shock. It's used to make tool handles, oars, canoe paddles, baseball bats, furniture, and cabinets.
- Juice made from the leaves relieves mosquito bite itching.



Tree-of-heaven

Ailanthus altissimus

WARNING:

INVASIVE SPECIES!

Identification Features:

- Leaves have ALTERNATE arrangement.
- Leaves are PINNATELY COMPOUND with 11-25 leaflets that have one to several blunt teeth near the base. One leaf can be 1-4ft long!
- Plant parts, including the leaves and stems, have a strong, unpleasant odor that reminds some of rotting peanuts.
- Flowers are small and pale with five petals. Plants are dioecious (either have male OR female flowers but not both).
- Produces twisted winged seeds called SAMARAS that are tan-pinkish in color.

Habitat:

- Urban areas and roadsides
- Forest edges and disturbed natural areas

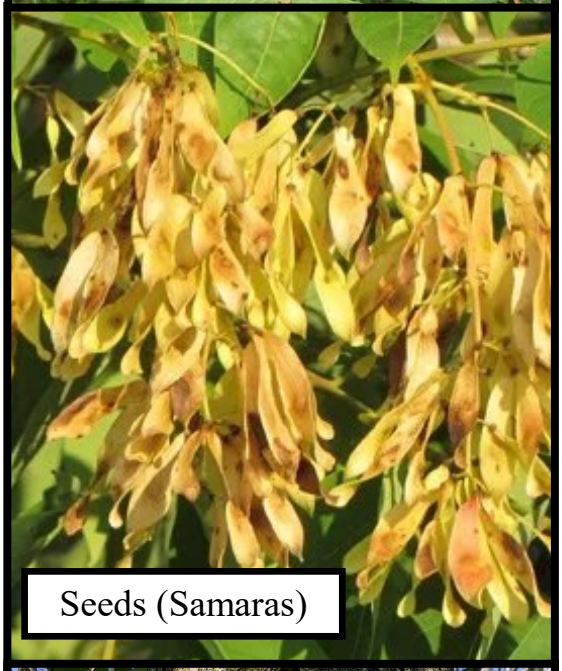
How it Causes Harm:

- They grow quickly and produce new shoots from their roots to create dense stands of the plant, pushing out native species. One tree can produce hundreds of thousands of seeds per year!
- They produces a chemical called ailanthone, a natural herbicide that restricts growth of nearby plants.
- Tree-of-heaven is the preferred host of the highly invasive spotted lanternfly, helping their spread!

Why It is Here:

- Originally from China and Taiwan, it was introduced to the US by a Pennsylvania gardener in the late 1700s. It was widely planted in the 1800s for its beauty and adaptability.
- The plant lost popularity in the early 1900s due to its "weedy" nature but has continued to spread. It is very adaptable to soil conditions and can even grow in cracks on rocks!
- Tree-of-heaven has been reported in 42 states and is listed as a noxious weed in Pennsylvania.

Leaves



Seeds (Samaras)

Spotted Lanternflies on Tree-of-heaven Bark

Virginia Creeper

Parthenocissus quinquefolia

Identification Features:

- ALTERNATE branching pattern.
- PALMATELY COMPOUND leaves with five toothed leaflets.
- Small green flowers appear in the spring.
- Fruits are small clusters of bluish-black berries.
- Woody vine.

Habitat:

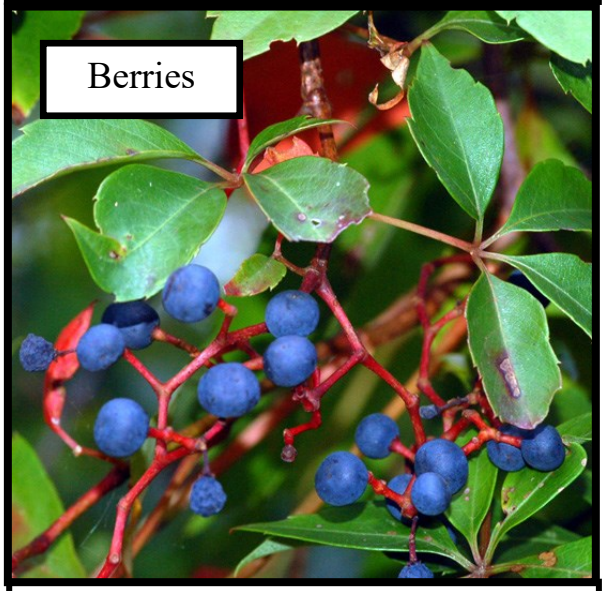
- Forests, forest clearings, fencerows, and stream banks.

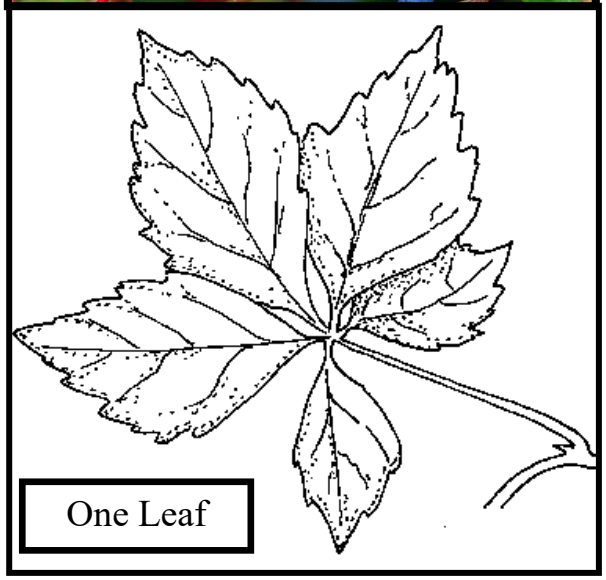
Wildlife Value:

- Virginia creeper berries are eaten by birds, mice, skunks, chipmunks, squirrels, cattle, and deer.
- The leaves provide cover for small animals and food for insects like the Virginia creeper sphinx moth caterpillar.
- Vines provide birds with perches, nesting sites, and places to find food.
- Virginia creeper makes a great ground cover on shady slopes to prevent erosion.

Human Value:

- WARNING: the berries are highly toxic to humans and may be fatal if eaten. The sap can cause skin irritation for some people.
- Virginia creeper bark has been used medicinally for many purposes including a cure for diarrhea and cough syrup.
- Used in gardens because of its beautiful fall leaves. It looks great covering walls and fences.





Eastern Hemlock

Tsuga canadensis

Identification Features:

- Short, EVERGREEN needles about 1/2 inch long and glossy green on top, with two bands of white on the underside.
- Each needle is singly attached to the branch and rows of needles are spirally arranged.
- Like all conifers, Eastern hemlocks do not have flowers. They produce cones with pollen or seeds instead. Mature seed cones are small, only about 3/4 inch long, and brown.
- Bark is thick, ridged, and red-brown to gray-brown in mature trees.
- Medium to large tree reaching 40-75 feet tall.

Habitat:

- Moist forests, rocky slopes, hillsides,

Wildlife Value:

- Hemlocks provide winter and extreme weather cover for wildlife like turkeys and deer. They also protect amphibians and fish by shielding streams from heat.
- Birds and small mammals eat the seeds, ruffed grouse eat the buds, and white tailed deer eat the foliage in winter.
- The hemlock wooly adelgid is an invasive insect that is considered a serious threat to hemlock trees. Adelgids feed on tree sap near the base of the needles and can cause needle drop, branches to dieback, and tree death.

Human Value:

- Hemlock wood is used for paper, lumber, and mulch. The bark can be used for tannins in leather production.
- The needles are high in vitamin C and can be used to make tea.
- It is a host for the hemlock varnish shelf mushroom, a fungus that has potential medical uses.
- Eastern hemlock is the state tree of Pennsylvania!

Eastern White Pine

Pinus strobus

Identification Features:

- Leaves are EVERGREEN needles in clusters of five. Each needle is 2 ½ - 5 inches long and bluish green.
- White pines do not have flowers. Instead, they have small cones that are yellow (male pollen cones) or pink (female seed cones).
- Mature seed cones are 5-8 inches long and brown. The cones do not have prickles. Each cone scale holds two winged seeds.
- Large tree reaches 50-90 feet high. Historically, white pines have been found to reach over 150 feet tall and live over 400 years!

Habitat:

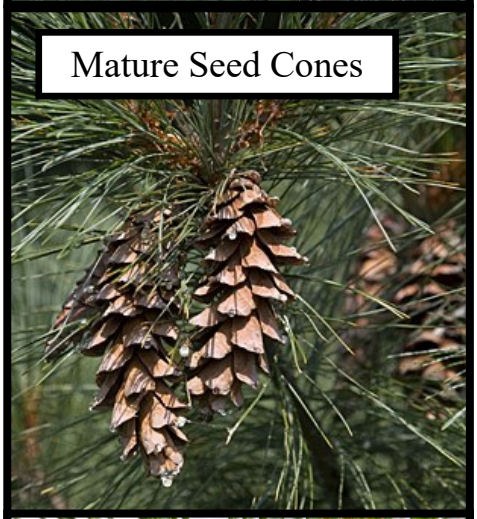
- Forests
- Neighborhoods and parks

Wildlife Value:

- Seeds and needles are eaten by birds, squirrels, chipmunks, voles, and mice.
- Beavers, Eastern cottontails, and porcupines eat the bark of white pine. Deer and Eastern cottontails eat the young twigs.
- Needles are food for over 203 species of caterpillars including loopers, inchworms, the pine devil moth, and the imperial moth.
- Many fungi parasitize white pine including the honey mushroom and dye polypore.
- Birds make their nest in the branches of white pine, especially bald eagles.

Human Value:

- Planted in parks and neighborhoods for shade and privacy.
- Valuable timber is used for furniture, cabinets, house construction, matches, and paper.
- Historically its wood was used for ship masts because of their large straight trunks.



Excellent Tree Fact Resources!

Common Trees of Pennsylvania

http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20029752.pdf

iNaturalist

Submit photographs of any plant or wildlife that you've found on the website (www.inaturalist.org) or phone/tablet app. iNaturalist will attempt to identify your photo for you! Pick a suggested identification and other users can agree or suggest a better identification. This is a great learning tool! Plus, each of your observations becomes a data point for scientists. "Seek" is an alternative application that is also fun to use. With "Seek" you do not need to take a photo, but rather scan the plant with your phone camera. (You will need to create an account or login with Facebook or Google accounts to use it.)

USDA PLANTS Database

https://plants.sc.egov.usda.gov

Virginia Tech Dendrology Factsheets

http://dendro.cnre.vt.edu/dendrology/factsheets.cfm

Pennsylvania Governor's Invasive Species Council

https://www.pa.gov/agencies/pda/about-pda/boards-commissions/governors-invasive-species-council