



Distinguishing Ash from other Common Trees

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Identifying ash trees

Due to the recent discovery of the emerald ash borer (EAB) in Pennsylvania, it is important to be able to recognize and identify ash trees. To date, emerald ash borer has only

been found on ash trees (see page 4). Not sure if your tree is an ash? This simple key is intended to help you distinguish between some common deciduous landscape trees frequently confused with ash, including: elm, boxelder, mountain ash, walnut and hickory.

Using the identification key

Begin at number 1 on the key and choose (a) or (b). Then proceed to the number listed in italics at the end of your choice. This number will give you a new set of choices. Continue this way through the key. We have listed enough characteristics to help you determine whether or not your tree is an ash. If it doesn't match the characteristics in the key, relax; it most likely isn't an ash. If you don't want to use the

key, tree ID photos are on pages 2-4.

If you are curious about what kind of trees you have, consult a good field guide such as: "The Tree Identification Book," by George W.D. Symonds; "Tree Finder: A Manual for the Identification of Trees by Their Leaves," by May T. Watts; or "A Field Guide to Trees and Shrubs" by George A. Petrides. There are many other good guides available; these are mentioned only as examples.

Identification key

1. a) Branches alternate (Fig. 1) – *go to 2*
b) Branches opposite (Fig. 2) – *go to 4*
2. a) Simple leaves, with irregular leaf base and toothed edge (Fig. 3). See **elm**, page 2.
b) Compound leaves (Fig. 4), with 9 to 15 leaflets, finely toothed around edge of leaf – *go to 3*
c) Compound leaves, 5 to 7 leaflets – *go to 3c*
3. a) Cut open twig lengthwise.
Chambered pith (Fig. 6). See **black walnut**, page 3.
b) If pith is not chambered, but has white flowers in May, orange or red berries in fall. See **mountain ash**, page 3.
c) If pith is not chambered, but has three leaflets at end of leaf larger than the rest. See **hickory**, page 2.
4. a) Compound leaves, 5 to 9 leaflets, smooth or finely toothed around outer edge. See **ash**, page 4.
b) Compound leaves, 3 to 5 leaflets, few coarse teeth or none, end leaflet pointed (Fig. 5). See **boxelder**, page 4.



Fig. 1- Alternate branching



Fig. 2- Opposite branching

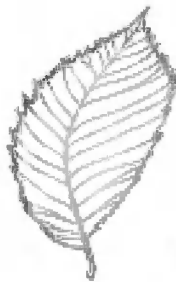


Fig. 3- Simple leaf (American elm)



Fig. 4- Compound leaf, 7 leaflets (White ash)



Fig. 5- Compound leaf, 3 leaflets (Boxelder)



Fig. 6- Chambered pith (Black walnut)

Line drawings: Steven Brown

Definitions

- Alternate – leaves/branches that are staggered or not directly across from each other, Fig 1.
- Opposite – leaves/branches that are directly across from each other, Fig. 2.
- Simple – a single leaf blade joined by its stalk to a woody stem, Fig 3.
- Compound – a leaf with more than one leaflet. All leaflets attached to a single leafstem, Fig. 4-5.

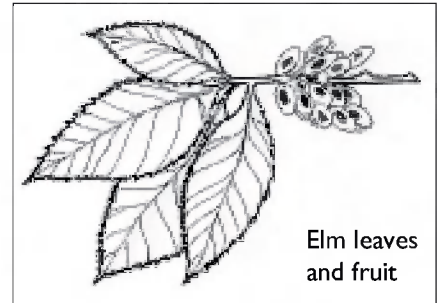
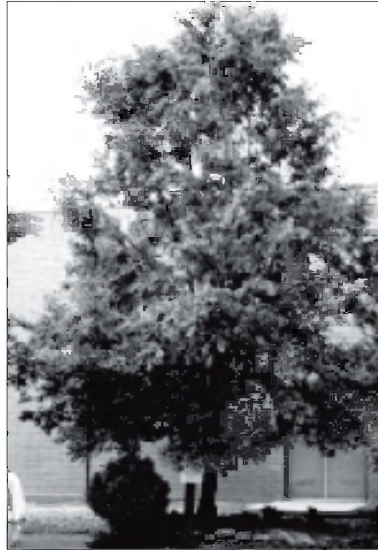
Elm, *Ulmus spp.*

Branches and buds are alternate and leaf bases are unequal. The leaves are simple, serrate (toothed) and 3 to 6 inches long and 1 to 3 inches wide (American elm) or 3/4 to 3 inches long and 1/3 to 1 inch wide (Siberian elm). The fruit is a winged seed.

Sandy Perry



Sandy Perry



Elm leaves and fruit



Unequal leaf base
Mary Wilson

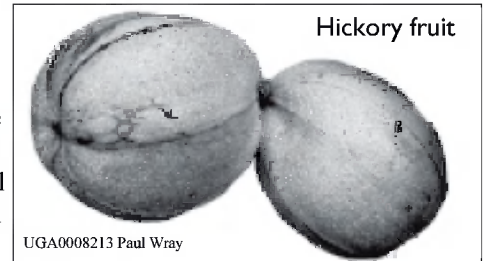


Alternate branching

Left: American elm has a vase-shaped growth habit. Right: Siberian elms are fast-growing, brittle trees that break easily. Other elms will have similar leaves and seeds, although leaf size and growth habit will vary.

Hickory, *Carya spp.*

Shagbark hickory has distinctive bark – long, loose, shaggy strips. Leaves are compound, 8 to 14 inches long with 5 to 7 leaflets. The three terminal leaflets are larger than the other leaflets. Other similar species (not shown) include bitternut, pignut and mockernut, which have similar leaves and fruits although leaf size will vary. They do not have distinctive shaggy bark. These trees are seldom planted in landscapes, but are native, and may be found growing in woods. Fruits are hard-shelled light brown nuts, in a green husk that splits into four parts.

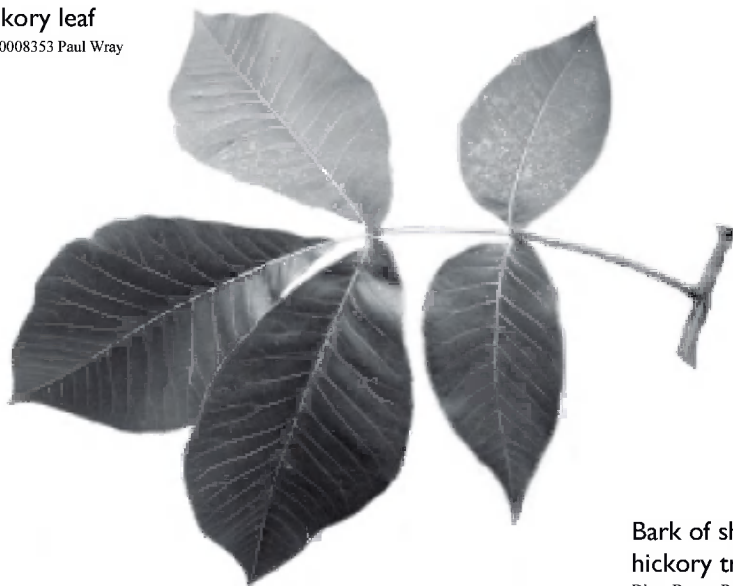


Hickory fruit

UGA0008213 Paul Wray

Hickory leaf

UGA0008353 Paul Wray



Bark of shagbark hickory tree
Diane Brown-Rytlewski





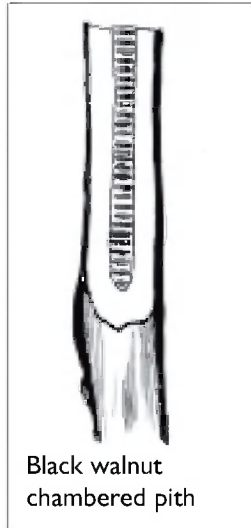
Black walnut fruit
UGA0008279 Paul Wray



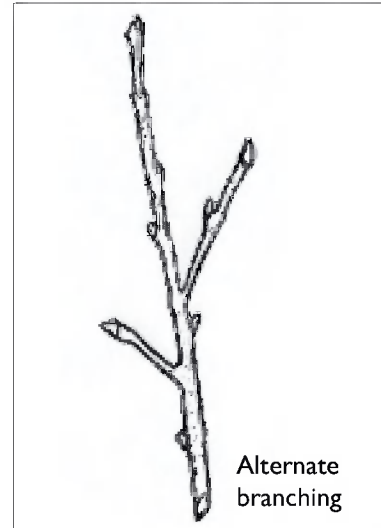
Black walnut leaf
UGA0008448 Paul Wray

Black walnut, Juglans nigra

Branches and buds are alternate. Leaves are compound, 15 to 24 inches long, with 9 to 15 leaflets/leaf. Crushed leaflets and stems have a distinct odor – similar to turpentine. Twigs, split lengthwise, have chambered pith. Fruit is a large dark brown nut inside a green husk.



Black walnut chambered pith



Alternate branching

Mountain ash – alternate branching

Diane Brown-Rytlewski



European mountain ash, Sorbus aucuparia

Leaves are compound, 5 to 9 inches long with 9 to 15 leaflets per leaf. Leaflets are a toothed, rounded oval shape. Flowers are five-petaled, white and similar to cherry or apple blossoms but in clusters. Fruits are fleshy, red-orange berries in clusters – they are found in the fall.



Mountain ash leaf
Diane Brown-Rytlewski

Mountain ash flowers
Diane Brown-Rytlewski

Ash, *Fraxinus* spp.

Branches and buds are opposite with a single bud at the end of the branch (terminal bud). Twigs are gray to brown and do not have a waxy coating. Leaves are compound, 8 to 12 inches long, 5 to 9 leaflets/leaf. Leaves may be finely toothed or have smooth edges. The most common ash trees planted in the landscape are **white ash** (*Fraxinus americana*) and **green ash** (*Fraxinus pennsylvanica*). Other native ash trees less commonly found include **black ash** (*Fraxinus nigra*) and

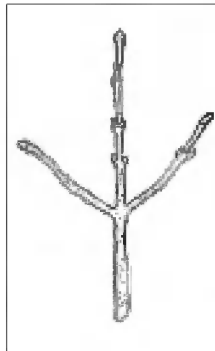
blue ash (*Fraxinus quadrangulata*) (not shown). **Black ash** has 7 to 11 leaflets and is found in wet woods; **blue ash** has 7 to 11 leaflets and distinctive 4-angled corky wings on the stem. **White ash** buds are paired with a leaf scar beneath the bud that looks like the letter “C” turned on its side. **Green ash** buds are paired with a leaf scar beneath the bud that looks like the letter “D” turned on its side (like a smile). Individual fruits are shaped like single wings and occur in clusters; many ash cultivars are seedless.



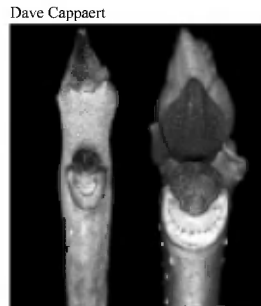
UGA0008289 Paul Wray
Green ash leaf



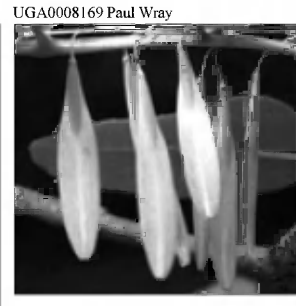
Diane Brown-Rytlewski
White ash leaf



Opposite branching



Dave Cappaert
Left: Green ash leaf scar
Right: White ash leaf scar

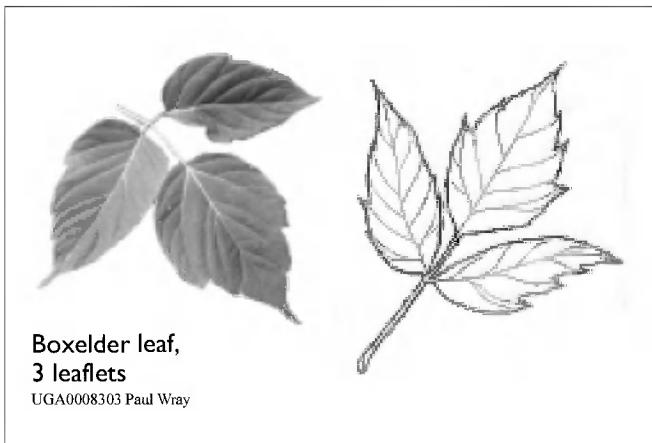


UGA0008169 Paul Wray
Ash seeds

Boxelder, *Acer negundo*

Boxelder is sometimes called ash-leaved maple. The twigs and buds are opposite; with a single bud on the end of the twig (terminal bud). Twigs are green to purplish brown, and often have a waxy white coating that can be rubbed off the

stem. Leaf scars beneath the buds are narrow, and join in a point. Leaves are compound, 4 to 10 inches long, with 3 to 5 leaflets/leaf. Leaves may have a few coarse teeth, or none. The end leaflet is sharply pointed. Fruit is a paired winged seed, occurring in clusters.



Boxelder leaf,
3 leaflets
UGA0008303 Paul Wray



Boxelder branches
UGA1219006 Bill Cook



Boxelder fruit
UGA1219003 Bill Cook

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College of Agricultural Sciences
Cooperative Extension
www.paemeraldashborer.psu.edu

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