

Acer pensylvanicum

Aceraceae family

Striped maple, moosewood, goosefoot maple, whistlewood

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Description: *Acer pensylvanicum* is a very slow-growing, short-lived (about 100 years), medium-sized, often multi-stemmed, dioecious (rarely monoecious), deciduous, tall shrub to small tree. Flowering occurs after the leaves are nearly mature. Gender shifts have also been reported within a population year-to-year, primarily from male to female. Reproduction is primarily by seed. The plants can become mature at about 10-11 years of age and be as small as 3.3 ft. (1 m) tall. Basal sprouting can occur when a plant is damaged or disturbed; layering has also been reported.

Variation: *Acer pensylvanicum* has no recognized varieties or subspecies. It hybridizes with *Acer tataricum*. A few cultivars have been developed in the horticultural trade.

Size: *Acer pensylvanicum* grows to 15-50 ft. (4.5-15 m) tall, sometimes more; about 15-25 ft. (4.6-7.6 m) wide, or more.

Leaves: Leaves opposite. Leaf blades/lamina simple; palmately veined; orbicular; three-lobed, lobes shallow, apices acuminate; 4-10 in. (10-25.4 cm) long; margins finely doubly serrate; upper surface bright green, glabrous; lower surface lighter green, glabrous; petioles 1-3.1 in. (2.5-8 cm) long.

Inflorescence: Flowers occur in pendulous racemes, 2.8-6 in. (7-15 cm) long; terminal. The species is usually dioecious (male and female flowers on separate plants), but can occasionally be monoecious (male and female flowers on the same plant, but with separate flowers); rarely perfect flowers can be observed. In addition, a tree may change sexual expression year-to-year.

Flowers: Usually pseudohermaphroditic (appearing perfect, but functionally male or female); 0.1-0.3 in. (0.3-0.6 cm) in diameter; bell-shaped; yellowish-green. Rarely, flowers are perfect.

Staminate (male) flowers: Functionally male flowers have a rudimentary pistil, occasionally absent; sepals 5, green; petals 5, obovate, green to yellowish-green, 0.2-0.3 in. (0.5-0.8 cm) long, slightly longer than the sepals; stamens 6-8. Nectary disk present.

Pistillate (female) flowers: Functionally female flowers develop stamens, but pollen sacs do not dehisce; sepals 5, green; petals 5, obovate, green to yellowish-green, 0.2-0.3 in. (0.5-0.8 cm) long, slightly longer than the sepals; 1 pistil, 2 carpels. Nectary disk present.

Fruit: Samara; two winged, wings divergent (90-120 degrees); wings 0.8-1.2 in. (2-3 cm) long; pedicel 0.4-0.6 in. (1-1.5 cm) long. Reddish early on, changing to tan. Nutlets 0.8 in. (1 cm) long.

Bark: While young, bark smooth gray-green to green-brown, glabrous, with conspicuous long, vertical, light-colored stripes. Older bark turning reddish brown, furrowed.

Roots: Its roots are shallow and wide-spreading.

Habitat: *Acer pensylvanicum* is found on moist, acid soils in deep valleys and their cool, shaded, north-facing slopes. It is common on moist, well-drained sandy loams. It grows well in small forest openings and in overstory having moderate lighting. It is an understory species in boreal mixed woodland, spruce-fir, and hardwoods in northern forest regions. It can tolerate deep shade, but prefers moderate light.

Species distribution in US states: CT, GA, KY, MA, ME, MI, NC, NH, NJ, NY, OH, PA, RI, SC, TN, VA, VT, WI, WV.

Species images:

Whole plant:

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/acepen_aspect01.jpg
http://departments.bloomu.edu/biology/Ricketts/Acer/A_pens/a_pens.html

Bark:

young:

<http://www.duke.edu/~cwcook/trees/acpe.html>
<http://www.hort.uconn.edu/Plants/a/acepen/acepen1.html>

older:

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/acepen_bark03_web400gf.jpg
<http://www.cnr.vt.edu/DENDRO/dendrology/syllabus/factsheet.cfm?ID=4>
<http://www.duke.edu/~cwcook/trees/acpe.html>
<http://www.hort.uconn.edu/Plants/a/acepen/acepen1.html>

Leaf:

<http://www.cnr.vt.edu/DENDRO/dendrology/syllabus/factsheet.cfm?ID=4>
<http://www.cas.vanderbilt.edu/bioimages/species/frame/acpe.htm>
http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/acepen_branch01.jpg

newly emerging:

http://calphotos.berkeley.edu/cgi/img_query?query_src=photos_index&enlarge=0000+0000+0405+1032

Colored leaves:

http://calphotos.berkeley.edu/cgi/img_query?query_src=photos_index&enlarge=0000+0000+0506+1038

<http://www.forestryimages.org/images/768x512/1219008.jpg>

Buds:

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/acepen_bud02_web400gf.jpg

http://msuplants.com/images/Acer/Acerpens_HT05_Dce23.jpg

<http://oregonstate.edu/dept/ldplants/acpe5.htm>

Flowers: no differentiation identified

<http://www.forestryimages.org/images/768x512/5141010.jpg>

Staminate (male) flowers:

http://msuplants.com/images/Acer/Acerpens_OF04_May3.jpg

http://msuplants.com/images/Acer/Acerpens_OF10_May3.jpg

http://msuplants.com/images/Acer/Acerpens_OF07_May3.jpg

Pistillate (female) flowers:

http://msuplants.com/images/Acer/Acerpens_OF02b_May18.jpg

Fruit:

<http://www.forestryimages.org/images/768x512/5141011.jpg>

<http://www.cas.vanderbilt.edu/bioimages/species/frame/acpe.htm>

<http://www.duke.edu/~cwcook/trees/acpe.html>

Expected timing of growth stages:

Flowering: April-June, depending on location.

Bud break/Leaf out: *Need info.

Leaf/canopy development: *Need info.

Fruit ripening: September-October.

Seed dispersion: October-November.

Leaf coloration: *Need info.

Leaf fall: *Need info.

Phenophases to be monitored for NPN:

Leaf out

- *First leaf*
In at least 3 locations on the plant, the very first green tip of a young leaf has visibly moved out of the leaf bud.

Flowering

- *First flower*
In at least 3 locations on the plant, a flower has opened completely. Flowers are considered ‘opened’ when the reproductive parts are visible between unfolded or opened flower parts. For *Acer pensylvanicum*, if you know whether the flowers you are observing are male or female, please report this information as well.
- *Full flower [Intensive only]*
The plant has reached its peak floral display. This occurs when half (50%) of the flowers on the whole plant have opened completely.
- *Last flower*
The last visible flower has opened completely and is still fresh.

Leaf elongation

Note: These measures can be difficult to estimate without a few seasons of practice.

- *25% leaf elongation [Intensive only]*
The majority of young leaves have unfolded completely and have expanded to one-quarter (25%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 25% leaf elongation, the canopy appears to be approximately one-quarter (25%) full.
- *50% leaf elongation [Intensive only]*
The majority of young leaves have unfolded completely and have expanded to half (50%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 50% leaf elongation, the canopy appears to be approximately half (50%) full.
- *75% leaf elongation*
The majority of young leaves have unfolded completely and have expanded to three-quarters (75%) of their mature size. Leaf elongation may also be estimated by viewing the canopy as a whole. At 75% leaf elongation, the canopy appears to be approximately three-quarters (75%) full.
- *Full leaf elongation [Intensive only]*

The majority of young leaves have unfolded completely and have expanded to 95-100% of their mature size. At full leaf elongation, the canopy appears to have reached its full density.

Fruit ripening

- *First fruit ripe*
In at least 3 locations on the plant, a fruit has become ripe. In *Acer pensylvanicum*, a good test for ripeness is fruit drop; ripe samaras will easily fall into your hand when touched or gently handled. Ripeness may also be indicated by the presence of at least 3 samaras on the ground below the plant (that are not apparently from a nearby tree). (Note that *Acer pensylvanicum* individuals with only male flowers will not produce fruit.)
- *50% of fruit ripe [Intensive only]*
For the whole plant, half (50%) of the fruits are ripe. In *Acer pensylvanicum*, this occurs when half (50%) of the samaras have dropped.
- *All fruit ripe [Intensive only]*
For the whole plant, virtually all (95-100%) of the fruits are ripe. In *Acer pensylvanicum*, this occurs when all (95-100%) of the samaras have dropped.

Leaf color change

Note: If drought seems to be the cause of leaf color change for a plant, please make a comment about it for that plant.

- *First leaf colored [Intensive only]*
In at least 3 locations on the plant, the green leaves have begun to change to their late season colors.
- *25% of leaves colored [Intensive only]*
For the whole plant, one-quarter (25%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.
- *50% of leaves colored*
For the whole plant, half (50%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.
- *75% of leaves colored [Intensive only]*
For the whole plant, three-quarters (75%) of the leaves (including any that have fallen to the ground) have changed to their late season colors.

- *All leaves colored*
For the whole plant, virtually all (95-100%) of the leaves (including any that have fallen to the ground) have changed to their late season colors and there is virtually no green left in the leaves.

Leaf fall

Note: *If drought seems to be the cause of leaf fall for a plant, please make a comment about it for that plant.*

- *First leaf fallen [Intensive only]*
In at least 3 locations on the plant, a leaf easily falls off into your hand when touched or gently handled. First leaf fallen may also be indicated by the presence of at least 3 leaves on the ground below the plant (that are not apparently from another individual nearby).
- *25% of leaves fallen [Intensive only]*
For the whole plant, one-quarter (25%) of the leaves have fallen.
- *50% of leaves fallen*
For the whole plant, half (50%) of the leaves have fallen.
- *75% of leaves fallen [Intensive only]*
For the whole plant, three-quarters (75%) of the leaves have fallen.
- *All leaves fallen*
For the whole plant, virtually all (95-100%) of the leaves have fallen.

Did you know? *Acer pensylvanicum* is an important browse for many species of wildlife (for example, rabbits, porcupines, moose, deer, beavers) and its nectar for honeybees. Native Americans have used this plant medicinally. It also has occasionally been used in furnishings as inlay material.

Bibliography:

Cofrin Center for Biodiversity, Herbarium, University of Wisconsin, Green Bay;
accessed 3/17/08

<http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/Acepen01.HTM>

Coladonato, Milo. 1993. *Acer pensylvanicum*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available:

USA-NPN Plant Phenology Protocol, Acer_pensylvanicum_v1.0(beta).doc

<http://www.fs.fed.us/database/feis/>; accessed 3/13/08:
<http://www.fs.fed.us/database/feis/plants/tree/acepen/all.html>

Hiker's Guide to the Trees, Shrubs, and woody vines of Ricketts Glen State Park;
accessed 3/17/08

http://departments.bloomu.edu/biology/Ricketts/opposite_simple.html
http://departments.bloomu.edu/biology/Ricketts/Acer/A_pens/a_pens.html

Northern Ontario Plant Database; accessed 3/17/08
<http://northernontarioflora.ca/description.cfm?speciesid=1000045>

Oregon State University, Department of Horticulture, Landscape Plants; accessed 3/17/08
<http://oregonstate.edu/dept/ldplants/acpe.htm>

UConn Plant Database of trees, shrubs, and vines; accessed 3/17/08
<http://www.hort.uconn.edu/Plants/a/acepen/acepen1.html>

University of Michigan, Department of Horticulture; accessed 3/17/08
<http://msuplants.com/pd.asp?pid=28>
<http://msuplants.com/pd.asp?pid=3780>

University of Michigan – Dearborn, Native American Ethnobotany; accessed 3/17/08
<http://herb.umd.umich.edu/>

University of Texas at Austin, Lady Bird Johnson Wildflower Center; 3/17/08
http://www.wildflower.org/plants/result.php?id_plant=ACPE

USDA Forest Service, Silvics of North America, Vol. 2, Hardwoods; accessed 3/17/08
http://www.na.fs.fed.us/spfo/pubs/silvics_manual/volume_2/acer/pensylvanicum.htm

USDA Plants Database; accessed 3/13/08
<http://plants.usda.gov/>

Virginia Tech, Department of Forestry, College of Natural Resources; accessed 3/17/08
<http://www.cnr.vt.edu/DENDRO/dendrology/syllabus/factsheet.cfm?ID=4>

images:

Bioimages, Vanderbilt University; accessed 3/17/08
<http://www.cas.vanderbilt.edu/bioimages/species/frame/acpe.htm>

CalFlora, Photo Database; accessed 3/17/08
http://calphotos.berkeley.edu/cgi/img_query?query_src=photos_index&enlarge=0000+0000+0506+1038
http://calphotos.berkeley.edu/cgi/img_query?query_src=photos_index&enlarge=0000+0000+0405+1032

USA-NPN Plant Phenology Protocol, Acer_pensylvanicum_v1.0(beta).doc

Cofrin Center for Biodiversity, Herbarium, University of Wisconsin, Green Bay;
accessed 3/17/08

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/acepen_bark03_web400gf.jpg

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/acepen_branch01.jpg

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/acepen_bud02_web400gf.jpg

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/acepen_aspect01.jpg

Forestry Images: Forest Health, Natural Resources & Silviculture Images; accessed
3/17/08

<http://www.forestryimages.org/images/768x512/5141010.jpg>

<http://www.forestryimages.org/images/768x512/1219008.jpg>

<http://www.forestryimages.org/images/768x512/5141011.jpg>

Oregon State University, Department of Horticulture, Landscape Plants; accessed
3/17/08

<http://oregonstate.edu/dept/ldplants/acpe5.htm>

Trees, Shrubs, and Woody Vines of North Carolina, Will Cook's Web Site; accessed
3/17/08

<http://www.duke.edu/~cwcook/trees/acpe.html>

UConn Plant Database of trees, shrubs, and vines; accessed 3/17/08

<http://www.hort.uconn.edu/Plants/a/acepen/acepen1.html>

University of Michigan, Department of Horticulture; 3/17/08

http://msuplants.com/images/Acer/Acerpens_OF04_May3.jpg

http://msuplants.com/images/Acer/Acerpens_OF10_May3.jpg

http://msuplants.com/images/Acer/Acerpens_HT05_Dce23.jpg

http://msuplants.com/images/Acer/Acerpens_OF02b_May18.jpg

http://msuplants.com/images/Acer/Acerpens_OF07_May3.jpg

Virginia Tech, Department of Forestry, College of Natural Resources; accessed 3/17/08

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Notes

The USDA PLANTS symbol for this plant is ACPE.

The ITIS Taxonomic Serial No. for this species is 28754.

BBCH codes for phenophases used for this plant are available from the USA-NPN office upon request.

Proposed modifications, updates or corrections to this protocol are welcome; please direct correspondence to the USA-NPN National Coordinating Office.

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Prior versions of this species protocol will be made available in a documents library on USA-NPN webpage.

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