

Hamamelis virginiana

Hamamelidaceae family

American witchhazel, witch-hazel

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Description: *Hamamelis virginiana* is a slow growing, short-trunked, numerous-branched, deciduous shrub to small tree. Flowering occurs usually after leaf fall, in fall into winter. Generally not self-compatible; insect pollinated. A separation of reproductive phases occurs in this plant, with pollination and pollen tube growth occurring in the fall/winter, and fertilization occurring in the spring. Reproduces primarily by seed. Plants often send out suckers, forming dense clumps; it also is reported to reproduce by layering.

One source described this plant as being monoecious (separate male and female flowers on the same plant).

Variation: *Hamamelis virginiana* has morphological variation over its distribution. Although some taxonomic systems do not presently recognize any varieties or forms, several varieties and forms have been noted under other systems. There are some suggestions of hybridization with *Hamamelis vernalis* where their distributions overlap. At least one cultivar has been developed in the horticultural trade.

Size: Erect and ascending. Grows 3-40 ft. (1-12 m) tall; 15-25 ft. (4.6-7.6 m) wide; having a trunk to 10 in. (0.25 m) in diameter.

Leaves: Leaves alternate; stipulate, stipules deciduous. Leaf blades/lamina simple, broad-elliptic to nearly rounded or obovate; 1.4-8 in. (3.5-20.3 cm) long; 1-5 in. (2.5-13 cm) wide; pinnately veined; apex acute to short-acuminate or broadly rounded; margins sinuate to undulate, nearly dentate with a few large, irregular, blunt 'teeth'; upper surface green to dark green, scattered with white to light brown to brown simple to stellate hairs; lower surface light green, scattered with white to light brown to brown simple to stellate hairs; short petiolate, 0.2-0.8 in. (0.5-2 cm) long; moderately to densely tomentose, hairs stellate, light brown.

Inflorescence: Indeterminate. Inflorescence sessile or short-peduncled axillary clusters of flowers; 1-5 flowers, usually 3. Each flower subtended by 2-3 persistent bracts; bracts upper surface glabrous; lower surface with densely tomentose with brown stellate hairs.

Flowers: Faintly fragrant. Calyx lobes 4, ovate-triangular, 0.08-0.1 in. (0.2-0.3 cm) long, 0.08 in. (0.2 cm) wide, reflexed, yellow-green to yellow; forming a hypanthial cup, persistent; upper surface dull yellow to yellowish-brown, glabrous, somewhat glossy; lower surface densely tomentose with brown stellate hairs. Petals 4 liguliform/strap-like, undulate; pale to deep yellow, rarely reddish; 0.3-0.8 in. (0.8-2 cm) long; 0.04-0.08 in. (1-2 mm) wide; prominently veined. Stamens 4, alternate with petals; staminodes 4, conspicuously dilated, opposite with petals. Pistil 1, carpels 2, styles 2.

Fruit: Capsule, woody, 2-beaked; elliptic to ovoid; 0.4-1 in. (1-2.5 cm) long; 0.3-0.4 in. (0.8-1 cm) wide; light brown to brown; exterior densely tomentose with brown stellate hairs. At maturity, the capsule splits open along 2 lines of suture, and forcibly ejects the seeds. Seeds 2-4; ellipsoid; 0.2-0.4 in. (0.5-1 cm) long; 0.1-0.2 in. (0.3-0.4 cm) wide; glabrous, glossy, smooth; black.

Bark: Bark gray to gray-brown, smooth, thin; becoming scaly with age. Old plants develop small ridges. Twigs light gray to brown, with youngest covered with stellate hairs, tomentose. Older twigs glabrous.

Roots: This plant's roots are shallow.

Habitat: *Hamamelis virginiana* is found in dry to mesic woodland slopes and bottoms, moist woods, and bluffs. In the northern extent of its distribution it is found on drier, warmer sites of slopes and hilltops. In its southern and western distribution, it is confined to moist cool valleys, flats, benches, coves, ravines, and north and east aspects. This plant is shade tolerant.

Species distribution in US states: AL, AR, CT, DC, DE, FL, GA, IL, IN, KY, LA, MA, ME, MI, MN, MO, MS, NC, NH, NJ, NY, OH, PA, RI, SC, TN, TX, VA, VT, WI, WV

Species images:

Whole plant:

<http://www.cas.vanderbilt.edu/bioimages/biohires/h/hhavi4-wp55738.jpg>
<http://www.forestryimages.org/images/768x512/1120524.jpg>

Bark:

<http://www.cnr.vt.edu/DENDRO/dendrology/syllabus/factsheet.cfm?ID=50>
<http://www.duke.edu/~cwcook/trees/havi.html>
<http://www.forestryimages.org/images/768x512/0008007.jpg>

older tree:

<http://www.cas.vanderbilt.edu/bioimages/biohires/h/hhavi4-br55755.jpg>

Leaf:

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/hamvir_leaves01.jpg

<http://www.hort.uconn.edu/Plants/h/hamvir/hamvir1.html>
<http://www.forestryimages.org/images/768x512/2153001.jpg>

leaf underside:

<http://www.cas.vanderbilt.edu/bioimages/biohires/h/hhavi4-lfmargin-uplow55745.jpg>

Colored leaves:

http://plants.usda.gov/java/largeImage?imageID=havi4_009_ahp.tif
<http://www.hort.uconn.edu/Plants/h/hamvir/hamvir1.html>

Buds:

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/hamvir_bud01.jpg
<http://www.duke.edu/~cwcook/trees/havi.html>
<http://www.cas.vanderbilt.edu/bioimages/biohires/h/hhavi4-tw55748.jpg>

Flowers:

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/hamvir_flower01.jpg
<http://www.cas.vanderbilt.edu/bioimages/biohires/h/hhavi4-flfront55770.jpg>

sepals:

http://www.missouriplants.com/Yellowalt/Hamamelis_virginiana_page.html
<http://www.cas.vanderbilt.edu/bioimages/biohires/h/hhavi4-flside55774.jpg>

Fruit:

http://www.missouriplants.com/Yellowalt/Hamamelis_virginiana_page.html
<http://www.cas.vanderbilt.edu/bioimages/biohires/h/hhavi4-fr15503.JPG>
<http://www.forestryimages.org/images/768x512/0008285.jpg>

Seeds:

http://plants.usda.gov/java/largeImage?imageID=havi4_006_ahp.tif

Expected timing of growth stages:

Germination: Spring.

Bud break/Leaf out: *Need info.

Leaf/canopy development: *Need info.

Fruit ripening: *Need info. The following autumn, after fall-winter flowering and spring fertilization.

Seed dispersion: *Need info. Explosively discharges seeds shortly after fruit ripening occurs.

Leaf coloration: *Need info.

Leaf fall: Late autumn to winter.

Flowering: September-December, occasionally March, following leaf fall. Pollination and pollen tube growth occurs in the fall, yet fertilization occurs in the spring about the time of bud break.

Phenophases to be monitored for NPN:

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.
- *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 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.

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 *Hamamelis virginiana*, a fruit is considered ripe when the capsule splits open to eject the seeds.

- *50% of fruit ripe [Intensive only]*

For the whole plant, half (50%) of the fruits are ripe. In *Hamamelis virginiana*, this occurs when half (50%) of the capsules have split open.

- *All fruit ripe [Intensive only]*

For the whole plant, virtually all (95-100%) of the fruits are ripe. In *Hamamelis virginiana*, this occurs when all (95-100%) of the capsules have split open.

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? *Hamamelis virginiana* has been used medicinally by Native Americans. Europeans have also used it medicinally, but it was also the plant chosen for water-witching (divining rods). It is presently used commercially in cosmetics, lotions, mouth washes, ointments, and soaps. The fruit of this plant is important food for several wildlife and bird species.

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Notes

The USDA PLANTS symbol for this plant is HAVI4.

The ITIS Taxonomic Serial No. for this species is 19033.

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.

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

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