

Acer rubrum

Aceraceae family

Red maple, swamp maple, scarlet maple, soft maple, Carolina red maple, Drummond maple, water maple

[Description](#)

[Distribution in US](#)

[Images](#)

[Timing of growth](#)

[Phenophases to be monitored for NPN](#)

[Did you know](#)

[Bibliography](#)

[Notes](#)

Description: Red maple is a small to medium-sized deciduous tree with grey smooth bark that becomes scaly on older trees. It is often found in swamps and on moist soils, but can also thrive in drier habitats. Moderately shade-tolerant. Flowers appear before the leaves. Twigs are slender, shiny and dark red with whitish dots. Leaf buds are rounded, dark red-wine in color. Leaves are red-tinged in spring, green in summer and bright red in fall.

Variation: Red maple has great morphological variation over its range, and is a complex of related taxa having several recognized varieties and forms. It also hybridizes with *Acer saccharinum* under natural conditions; one hybrid of this cross is *Acer x freemanii* E. Murray.

Size: Medium sized tree 30-90 feet tall, with a canopy 25-35 feet wide. The trunk can grow to up to 4 feet in diameter. In closed-canopy forests, the trunk is usually clear of branches for some distance, whereas in more open situations, the trunk is shorter and the crown rounded.

Leaves: Opposite, simple, 3 to 5 palmate lobes with serrated margin, sinuses relatively shallow (but highly variable), 2-4 inches long; green above, whitened and sometimes glaucous or hairy beneath.

Flowers: Flowers emerge from dark red buds in leaf axils, in early spring and form dense, short-stalked clusters. Male and female flowers usually grow on different branches of the same tree (i.e., monoecious), but they can appear on separate trees (i.e., dioecious). Male flowers are orange-red, whereas female flowers are deep (blood) red or yellowish green.

Fruit: Clusters of 0.5-0.75 inch long paired samaras with slightly divergent wings, on long slender stems. Light brown and often reddish, ripen in late spring and early summer.

Bark: On young trees, smooth and light gray, with age becoming darker and breaking up into long, fine scaly plates.

Habitat: Moist soils along stream banks, in swamps; moist to drier woodlands.
Occasional on dry rocky hillsides and sand dunes.

Species distribution in US states:

AL AR CT DC DE FL GA IA IL IN KY LA MA MD ME MI MN MO MS NC
NH NJ NY OH OK PA RI SC TN TX VA VT WI WV

Species images:

Whole plant:

http://www.plantations.cornell.edu/collections/arboretum/urban/images/HP_loop/Acer_Rubrum_Tilford.jpg

http://www.tva.gov/river/landandshore/stabilization/plants/images/acer_rubrum.jpg

Bark:

<http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/Acerub01.HTM>

<http://www.forestryimages.org/browse/detail.cfm?imgnum=1219027>

Leaf:

<http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/Acerub01.HTM>

<http://faculty.etsu.edu/mcdowelt/Pictures%20Use/Acer%20rubrum.JPG>

Colored leaves:

<http://plants.ifas.ufl.edu/acerub1.jpg>

<http://www.forestryimages.org/browse/detail.cfm?imgnum=1521044>

<http://www.forestryimages.org/browse/detail.cfm?imgnum=4320007>

Buds:

<http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/Acerub01.HTM>

<http://plants.ifas.ufl.edu/acerub2.jpg>

Staminate (male) flowers:

http://www.missouriplants.com/Redopp/Acer_rubrum_page.html

<http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/Acerub01.HTM>

Pistillate (female) flowers:

http://www.missouriplants.com/Redopp/Acer_rubrum_page.html

Fruit:

<http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/Acerub01.HTM>

<http://plants.ifas.ufl.edu/acerub3.jpg>

Expected timing of growth stages:

Flowering: Flowers can appear as early as January and extend into May depending upon elevation and latitude.

Bud break/Leaf out:

Leaf/canopy development:

Fruit ripening: The fruit ripens from April to July, depending upon elevation and latitude, before leaf development is complete. After ripening, seeds are dispersed for a 1- to 2-week period during April through July.

Leaf coloration:

Leaf fall:

Phenophases to be monitored for NPN:

Flowering

Note: Where possible, observe both male and female flowers and evaluate them separately.

- *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 rubrum*, 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 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. For *Acer rubrum*, the young leaf could be reddish-green or red.

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 rubrum*, 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 rubrum* 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 rubrum*, 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 rubrum*, 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? This is one of the species in our forests that provide brilliant autumn coloring. The sap from this plant is suitable for syrup production, though the tapping season is shorter than sugar maple because of its earlier flowering.

Bibliography:

680 Tree Fact Sheets, University of Florida; accessed 11/28/07:

<http://hort.ufl.edu/trees/ACERUBA.pdf>

Cofrin Center for Biodiversity, Herbarium, University of Wisconsin, Green Bay; accessed 11/28/07:

<http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/Acerub01.HTM>

Lady Bird Johnson Wildflower Center, University of Texas at Austin, Native Plant Database; accessed 11/28/07:

http://wildflower.utexas.edu/plants/result.php?id_plant=ACRU

Plants for a Future; accessed 12/06/07: http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Acer+rubrum&CAN=LATIND

Tirmenstein, D.A. 1991. *Acer rubrum*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Accessed 11/28/07:

<http://www.fs.fed.us/database/feis/plants/tree/acerub/all.html>

U.S. Forest Service, Silvics Manual, Volume 2; accessed 11/28/07:

http://www.na.fs.fed.us/spfo/pubs/silvics_manual/volume_2/acer/rubrum.htm

USA-NPN Plant Phenology Programs, *Acer rubrum* Observations (red maple); accessed 11/28/07: <http://www.uwm.edu/Dept/Geography/npn/acerrub/index.html>

USDA Plants Database; accessed 11/28/07: <http://plants.usda.gov/>

Virginia Tech, Department of Forestry, College of Natural Resources; accessed 11/28/07:

<http://www.cnr.vt.edu/dendro/dendrology/syllabus/factsheet.cfm?ID=1>

images:

USA-NPN Plant Phenology Protocol, *Acer_rubrum_v1.0(beta).doc*

Aquatic, Wetland and Invasive Plants, Center for Aquatic and Invasive Plants
University of Florida, IFAS; accessed 11/28/07: <http://plants.ifas.ufl.edu/acerub1.jpg>
<http://plants.ifas.ufl.edu/acerub2.jpg> <http://plants.ifas.ufl.edu/acerub3.jpg>

Cofrin Center for Biodiversity, Herbarium, University of Wisconsin, Green Bay;
accessed 11/28/07:
<http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/Acerub01.HTM>

F.R. Newman Arboretum, Cornell Plantations; accessed 11/28/07:
http://www.plantations.cornell.edu/collections/arboretum/urban/images/HP_loop/Acer_Rubrum_Tilford.jpg

Forestry Images: Forest Health, Natural Resources & Silviculture Images; accessed
12/06/07: <http://www.forestryimages.org/browse/detail.cfm?imgnum=1219027>
<http://www.forestryimages.org/browse/detail.cfm?imgnum=1521044>
<http://www.forestryimages.org/browse/detail.cfm?imgnum=4320007>

Missouriplants.com; accessed 11/28/07:
http://www.missouriplants.com/Redopp/Acer_rubrum_page.html

OpenKey, Illinois - North Carolina Collaborative Environment for Botanical Resources;
accessed 11/28/07:
http://www.ibiblio.org/openkey/intkey/images/Acer_rubrum_flowers03.jpg

Tennessee Valley Authority, Riparian Restoration; accessed 11/28/07:
http://www.tva.gov/river/landandshore/stabilization/plants/images/acer_rubrum.jpg

Tim McDowell, East Tennessee State University; accessed 11/28/07:
<http://faculty.etsu.edu/mcdowelt/Pictures%20Use/Acer%20rubrum.JPG>

Notes

The USDA PLANTS symbol for this plant is ACRU.
The ITIS Taxonomic Serial No. for this species is 28728.

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.

Document history: V1.0 (beta) 04/15/08

USA-NPN Plant Phenology Protocol, Acer_rubrum_v1.0(beta).doc

Protocol compiler: Ben Wilder, Patty Guertin

Reviewers: Ellen Denny, Abe Miller-Rushing, Kathryn Thomas, John O'Keefe, Jake Weltzin, Art McKee, Andrew Richardson, Brenden McNeil, Mark D. Schwartz, Brian Haggerty

USA National Phenology Network
National Coordinating Office
1955 East 6th Street
Tucson, AZ 85719
www.usanpn.org