

Robinia pseudoacacia

Fabaceae family

Yellow locust, black locust, false acacia

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Description: *Robinia pseudoacacia* is a medium-sized, short-lived, fast-growing, deciduous tree. Flowering occurs after leaf emergence. Flowers are insect pollinated. It reaches reproductive maturity at approximately 6 years of age. Reproduction is by seed, but primarily by sprouting from the root crown and the roots, naturally or in response to damage or disturbance. Can form small suckering thickets/groves.

Note: Several web sources report this plant as being dioecious (having separate male and female plants). In a literature and floral description search, along with examining specimens of the plant (University of Arizona herbarium), no information or evidence at present can be found supporting this reproductive strategy within this species.

Variation: *Robinia pseudoacacia* has no recognized varieties or subspecies. *Robinia pseudoacacia* hybridizes with *Robinia kelseyi*, *Robinia neomexicana*, *Robinia viscosa*, and *Robinia hispida*. Many cultivars have been developed in the horticultural trade.

Size: Grows as small suckering clumps to individuals 40-80 ft. (12-24.4 m) tall or more; 20-35 ft. (6-10.7 m) wide. Trunk 1-5 ft. (0.3-1.5 m) in diameter.

Leaves: Leaves alternate, odd-pinnately compound; petiolate, petiole puberulous; stipulate, some stipules becoming spinescent, persistent. Leaf blade/lamina 3.4-14 in. (8.5-35.5 cm) long, odd-pinnately compound, 7-25 leaflets, leaflets lance-oblong to oblong to ovate-elliptic, 0.4-2.4 in. (1.1-6 cm) long, 0.2-1.4 in. (0.6-3.5 cm) wide, margins entire, apex minutely apiculate; upper surface dull dark, blue-green, scabrous; lower surface paler, puberulent to glabrous except along midrib, slightly pubescent, petiolule stout.

Inflorescence: A raceme, pliantly pendulous; 1.6-8 in. (4-20 cm) long; from the axils of new leaves; 11-27 flowers. Inflorescence pedunculate, peduncle 0.5-1.7 in. (1.4-4.3 cm) long, peduncle and rachis puberulent. Flowers pedicellate.

Flowers: Flowers 0.5-0.8 in. (1.2-2 cm) long, pedicellate; calyx campanulate, 5-toothed, 0.2-0.3 in. (0.4-0.7 cm) long, upper lobes connate almost to apex with sinus shallow, conspicuously gibbous on the upper side, margins ciliate; petals papilionaceous, 5, white

occasionally to pale pink, standard large and reflexed, with a large pale yellow blotch on the inner surface, standard barely longer than wing and keel petals; stamens 10, diadelphous (9 stamens united into a tube with one free at the base); style 1, stigma 1. Pedicel approximately 0.5 in. (1.3 cm) long.

Fruit: A legume; linear, 1.7-4.7 in. (4-12 cm) long, 0.5 in. (1.3 cm) wide, compressed/flattened, 2-valved, glabrous, light brown to black, dehiscent; peduncle 0.5 in. (1.3 cm) long, 4-8 seeded. Seed 0.2 in. (0.5 cm) long, dark orange-brown with irregular darker markings.

Bark: Bark thick and fibrous, deeply furrowed, with small, square scales, dark reddish-brown to black. Twigs pale green, with silvery pubescence, and scattered small, pale, lenticels, becoming light reddish brown and glabrous or nearly so; branching zig-zagged, with a pair of sharp thorns at each node; thorns 0.5-0.75 in. (1.3-2 cm) long, very stout.

Roots: Roots are usually shallow and wide spread. Radial root spread is 1-1.5 times the tree height. Roots have nodules with nitrogen-fixing bacteria.

Habitat: *Robinia pseudoacacia* grows in canyons, on slopes, streambanks and riparian sites, open woods, floodplains, pastures, abandoned homesites and roadsides in a wide range of soil types, but prefers sites that have deep, rich, moist but well-drained soils derived from limestone. It tolerates drought. It does not do well on poorly-drained, excessively dry, or compact plastic soils. It is intolerant of shade.

Species distribution: AL, AR, AZ, CA, CO, CT, DC, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY

Species images:

Whole plant:

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

<http://www.forestryimages.org/images/768x512/2188046.jpg>

flowering:

<http://www.kswildflower.org/largePhotos.php?imageID=1385&aCategory=f&lastModified=2007-10-20>

<http://www.forestryimages.org/images/768x512/5274036.jpg>

Bark:

mature:

<http://www.forestryimages.org/images/768x512/0008026.jpg>

<http://www.cas.vanderbilt.edu/bioimages/biohires/r/hrops--brlarge11505.JPG>

<http://www.forestryimages.org/images/768x512/0008027.jpg>

young: <http://www.cnr.vt.edu/DENDRO/dendrology/syllabus/factsheet.cfm?ID=40>

twig:

http://calphotos.berkeley.edu/cgi/img_query?query_src=photos_index&enlarge=0000+0000+0107+1681

<http://www.cas.vanderbilt.edu/bioimages/biohires/r/hrops--tw29725.JPG>

http://calphotos.berkeley.edu/cgi/img_query?query_src=photos_index&enlarge=0000+0000+0102+0384

stipular spines: <http://www.forestryimages.org/images/768x512/5341037.jpg>

Branch:

<http://www.forestryimages.org/images/768x512/0016203.jpg>

Leaf:

<http://www.forestryimages.org/images/768x512/5349084.jpg>

http://www.missouriplants.com/Whitealt/Robinia_pseudo_acacia_page.html

leaflet underside: <http://www.cas.vanderbilt.edu/bioimages/biohires/r/hrops--lfmargin-uplow15573.JPG>

leaf expansion: <http://www.forestryimages.org/images/768x512/5341027.jpg>

Colored leaves:

(changing) <http://www.forestryimages.org/images/768x512/5341039.jpg>

Buds:

flower: <http://www.forestryimages.org/images/768x512/5341029.jpg>

Inflorescence:

<http://www.forestryimages.org/images/768x512/5341034.jpg>

http://calphotos.berkeley.edu/cgi/img_query?query_src=photos_index&enlarge=0000+0000+0305+0444

<http://www.cas.vanderbilt.edu/bioimages/biohires/r/hrops--flinfor-close22014.JPG>

Flowers:

http://www.uwgb.edu/BIODIVERSITY/herbarium/trees/robpse_flower01.jpg

http://www.missouriplants.com/Whitealt/Robinia_pseudo_acacia_page.html

<http://www.forestryimages.org/images/768x512/5341030.jpg>

<http://www.cas.vanderbilt.edu/bioimages/biohires/r/hrops--fl21611.JPG>

profile view:

<http://www.tropicos.org/Image/79380>

http://biology.burke.washington.edu/herbarium/imagecollection/wtu1500-1999/lg/wtu001589_lg.jpg

dissected:

(diadelphous anthers and style/stigma)

http://www.plantsystematics.org/users/dws/6_11_07_7/Robinia2/RobiniaPseudoacacia23.JPG

Fruit:

developing:

<http://www.forestryimages.org/images/768x512/5349083.jpg>

mature:

<http://www.cas.vanderbilt.edu/bioimages/biohires/r/hrops--frcloseup15356.JPG>

Seeds:

<http://www.forestryimages.org/images/768x512/1557137.jpg>

http://plants.usda.gov/java/largeImage?imageID=rops_007_ahp.tif

Roots:

clonal growth: <http://www.forestryimages.org/images/768x512/5274042.jpg>

Expected timing of growth stages:

Bud break/Leaf out: *Need info.

Flowering: April-June, depending on location.

Leaf/canopy development: *Need info.

Fruiting ripening: July-November.

Seed dispersal: September-April. Fruits mostly persistent until the end of winter or early spring.

Leaf color: *Need info.

Leaf fall: Early autumn.

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.

- *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 *Robinia pseudoacacia*, a fruit is considered ripe when the seedpod has turned brown in color and splits open to expose the seeds.
- *50% of fruit ripe* [**Intensive only**]
For the whole plant, half (50%) of the fruits are ripe.

- *All fruit ripe* [**Intensive only**]
For the whole plant, virtually all (95-100%) of the fruits are ripe.

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? *Robinia pseudoacacia* was used extensively for shipbuilding in the past, and is used for posts, mine timbers, fuel, pulp, in construction and landscaping, erosion control, and for nectar production for honey. Although it is native to the United States, it has been introduced outside of its native range, sometimes becoming invasive in some areas.

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Notes

The USDA PLANTS symbol for this plant is ROPS.
The ITIS Taxonomic Serial No. for this species is 504804.

BBCH codes for phenophases used for these plants 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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