Trees and Shrubs *Deciduous (with pollen)*

nature's notebook

Nickname: _____
Species: black walnut
Site: _____
Year: _____
Observer: _____

Directions: Fill in the date and time in the top rows and circle the appropriate letter in the column below.
y (phenophase is occurring); **n** (phenophase is not occurring); **?** (not certain if the phenophase is occurring).
Do not circle anything if you did not check for the phenophase. In the adjacent blank, write in the appropriate measure of intensity or abundance for this phenophase.

	Date: / Time:	Date: / Time:	Date: / Time:	Date: / Time:	Date: / Time:	Date: / Time:	Date: / Time:	Date: / Time:
Do you see...								
Breaking leaf buds	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Leaves	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Increasing leaf size	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Colored leaves	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Falling leaves	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Flowers or flower buds	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Open flowers	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Pollen release	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Fruits	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Ripe fruits	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Recent fruit or seed drop	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____	y n ? _____
Check when data entered online:	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Taking the Pulse of Our Planet
Contact: nco@usanpn.org | More information: www.usanpn.org/how-observe
USA npn National Phenology Network

Black Walnut

(Juglans nigra)

Phenophase Definitions

Directions:
As you report on phenophase status (Y, N or ?) on the datasheets, refer to the definitions on this sheet to find out what you should look for, for each phenophase in each species. To report the intensity of the phenophase, choose the best answer to the question below the phenophase, if one is included. Feel free not to report on phenophases or intensity questions that seem too difficult or time-consuming.

Leaves

Breaking leaf buds

One or more breaking leaf buds are visible on the plant. A leaf bud is considered "breaking" once a green leaf tip is visible at the end of the bud, but before the first leaf from the bud has unfolded to expose the leaf stalk (petiole) or leaf base.

How many buds are breaking?

Less than 3; **3 to 10**; **11 to 100**; **101 to 1,000**; **1,001 to 10,000**; **More than 10,000**;

Leaves

One or more live, unfolded leaves are visible on the plant. A leaf is considered "unfolded" once its entire length has emerged from the breaking bud so that the leaf stalk (petiole) or leaf base is visible at its point of attachment to the stem. Do not include fully dried or dead leaves.

What percentage of the canopy is full with leaves? Ignore dead branches in your estimate.

Less than 5%; **5-24%**; **25-49%**; **50-74%**; **75-94%**; **95% or more**;

Increasing leaf size

A majority of leaves on the plant have not yet reached their full size and are still growing larger. Do not include new leaves that continue to emerge at the ends of elongating stems throughout the growing season.

What percentage of full size are most leaves?

Less than 25%; **25-49%**; **50-74%**; **75-94%**; **95% or more**;

Colored leaves

One or more leaves (including any that have recently fallen from the plant) have turned to their late-season colors. Do not include fully dried or dead leaves that remain on the plant.

What percentage of the canopy is full with colored leaves?

Less than 5%; **5-24%**; **25-49%**; **50-74%**; **75-94%**; **95% or more**;

Falling leaves
One or more leaves are falling or have recently fallen from the plant.

Flowers

Flowers or flower buds
One or more fresh open or unopened flowers or flower buds are visible on the plant. Include flower buds that are still developing, but do not include wilted or dried flowers. For Juglans nigra, the male inflorescence is a catkin which is initially compact and stiff, but eventually unfolds to become longer and hang loosely from the branch. Female flowers are very small and petal-less, emerging at the tip of a growing stem.

How many flowers and flower buds are present? For species in which individual flowers are clustered in flower heads, spikes or catkins (inflorescences), simply estimate the number of flower heads, spikes or catkins and not the number of individual flowers.

Less than 3; **3 to 10**; **11 to 100**; **101 to 1,000**; **1,001 to 10,000**; **More than 10,000**;

Open flowers
One or more open, fresh flowers are visible on the plant. Flowers are considered "open" when the reproductive parts (male stamens or female pistils) are visible between or within unfolded or open flower parts (petals, floral tubes or sepals). Do not include wilted or dried flowers. For Juglans nigra, the male flowers will open once the initially compact catkin has unfolded and is hanging loosely. Female flowers are open when the pistils are visible, but will be very difficult to see where they are out of reach.

What percentage of all fresh flowers (buds plus unopened plus open) on the plant are open? For species in which individual flowers are clustered in flower heads, spikes or catkins (inflorescences), estimate the percentage of all individual flowers that are open.

Less than 5%; **5-24%**; **25-49%**; **50-74%**; **75-94%**; **95% or more**;

Pollen release
One or more flowers on the plant release visible pollen grains when gently shaken or blown into your palm or onto a dark surface.

How much pollen is released?

Little: *Only a few grains are released.*;**Some**: *Many grains are released.*;**Lots**: *A layer of pollen covers your palm, or a cloud of pollen can be seen in the air when the wind blows ;*

Fruits

Fruits
One or more fruits are visible on the plant. For Juglans nigra, the fruit is a nut covered by a tough husk that changes from green to yellow-green or brownish-green to dark brown or black.

How many fruits are present?

Less than 3; **3 to 10**; **11 to 100**; **101 to 1,000**; **1,001 to 10,000**; **More than 10,000**;

Ripe fruits

One or more ripe fruits are visible on the plant. For Juglans nigra, a fruit is considered ripe when the husk has turned yellow-green, brownish-green, dark brown or black.

What percentage of all fruits (unripe plus ripe) on the plant are ripe?

Less than 5%; **5-24%**; **25-49%**; **50-74%**; **75-94%**; **95% or more**;

Recent fruit or seed drop

One or more mature fruits or seeds have dropped or been removed from the plant since your last visit. Do not include obviously immature fruits that have dropped before ripening, such as in a heavy rain or wind, or empty fruits that had long ago dropped all of their seeds but remained on the plant.

How many mature fruits have dropped seeds or have completely dropped or been removed from the plant since your last visit?

Less than 3; **3 to 10**; **11 to 100**; **101 to 1,000**; **1,001 to 10,000**; **More than 10,000**;