

## PLANT PHENOPHASE DEFINITIONS – WITH INTENSITY RATINGS

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**Phenophase** is an observable stage or phase in the annual life cycle of a plant or animal that can be defined by a start and end point.

- Examples: Period over which newly emerging leaves are visible, or the period over which open flowers are present on a plant.

**Intensity** is a categorical measure indicating the extent to which a phenophase is expressed for an individual plant or an animal species at a site, observed on a given visit.

- Examples: “25-49%” of flowers are open on a plant, or a “Full chorus” of frog calling is heard.
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## DECIDUOUS TREES & SHRUBS

### 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.

If you can see the petiole (leaf stalk), count this in the leaves stage, not in the breaking leaf buds stage.

**Intensity:** *How many buds are breaking?* Few (10 or less); Some (11 to 100); Lots (more than 100)

- **Young leaves**

One or more young, unfolded leaves are visible on the plant.

Young leaves are smaller or a lighter shade of green than the older leaves on the plant.

**Intensity:** *How many young leaves are present?* Few (10 or less); Some (11 to 100); Lots (more than 100)

- **Leaves**

One or more live, unfolded leaves are visible on the plant.

Do not include fully dried or dead leaves.

**Intensity:** *What percentage of the potential canopy space is filled in with leaves?* Less than  $\frac{1}{4}$ ; Between  $\frac{1}{4}$  and  $\frac{3}{4}$ ; More than  $\frac{3}{4}$

- **Increasing leaf size**

Most new leaves have not reached their full size yet and are still growing larger.

**Intensity:** *What percentage of full size are most leaves?* Less than  $\frac{1}{4}$ ; Between  $\frac{1}{4}$  and  $\frac{3}{4}$ ; More than  $\frac{3}{4}$

- **Colored leaves**

One or more leaves show some of their typical late-season (fall) color, or yellow or brown due to drought or other stresses.

Do not include small spots of color due to minor leaf damage, and do not include dead leaves that are still attached to the plant.

**Intensity:** *What percentage of the potential canopy space is filled in with non-green leaf color?* Less than  $\frac{1}{4}$ ; Between  $\frac{1}{4}$  and  $\frac{3}{4}$ ; More than  $\frac{3}{4}$

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- **Falling leaves**

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

### FLOWERS

- **Flowers or flower buds**

One or more open or closed flowers or flower buds are visible on plant.

Do not include dormant flower buds that are not actively growing, and do not include wilted or dried flowers.

***Intensity:*** *How many flowers and flower buds are present?* Few (10 or less); Some (11 to 100); Lots (more than 100)

- **Open flowers**

One or more open flowers are visible on the plant. Flowers are considered "open" when the reproductive parts (male stamens or female pistils) are visible.

Do not include wilted or dried flowers.

***Intensity:*** *What percentage of flowers are open?* Less than  $\frac{1}{4}$ ; Between  $\frac{1}{4}$  and  $\frac{3}{4}$ ; More than  $\frac{3}{4}$

- **Pollen release**

One or more flowers on the plant release visible pollen grains when gently shaken or blown.

***Intensity:*** *How much pollen is released?* Little (a Few grains); Some (many grains); Lots (a cloud of pollen)

### FRUITS

- **Fruits**

One or more unripe or ripe fruits are visible on the plant.

Do not include pods or capsules that have no seeds left inside.

***Intensity:*** *How many fruits are present?* Few (10 or less); Some (11 to 100); Lots (more than 100)

- **Ripe fruits**

One or more ripe fruits are visible on the plant.

In many plants, fruits are ripe when they are ready to be eaten and become appealing to the animals that forage for them, usually turning from green to some other color. In other plants, fruits are ripe when they are ready to drop seeds and their seed pod or capsule splits to show the seeds inside. Do not include pods or capsules that have no seeds left inside.

***Intensity:*** *What percentage of fruits are ripe?* Less than  $\frac{1}{4}$ ; Between  $\frac{1}{4}$  and  $\frac{3}{4}$ ; More than  $\frac{3}{4}$

- **Recent fruit or seed drop**

One or more ripe fruits or seeds have dropped or been removed from the plant since the last time you visited.

***Intensity:*** *How many ripe fruits are missing or have lost some seeds?* Few (10 or less); Some (11 to 100); Lots (more than 100)

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### CONIFERS

#### NEEDLES

- **Young needles**

One or more young, unfolded needles are visible on the plant. Young needles are a lighter shade of green than older needles on the plant.

***Intensity:*** *How many young needles are present?* Few (10 or less); Some (11 to 100); Lots (more than 100)

#### POLLEN CONES

- **Pollen cones**

One or more male pollen cones are visible on the plant. Do not include wilted or dried pollen cones.

***Intensity:*** *How many pollen cones are present?* Few (10 or less); Some (11 to 100); Lots (more than 100)

- **Open pollen cones**

One or more open, male pollen cones are visible on the plant. Cones are considered "open" when the tiny scales have spread apart to release pollen. Do not include wilted or dried pollen cones.

***Intensity:*** *What percentage of pollen cones are open?* Less than  $\frac{1}{4}$ ; Between  $\frac{1}{4}$  and  $\frac{3}{4}$ ; More than  $\frac{3}{4}$

- **Pollen release**

One or more male pollen cones on the plant release visible pollen grains when gently shaken or blown.

***Intensity:*** *How much pollen is released?* Little (a Few grains); Some (many grains); Lots (a cloud of pollen)

#### SEED CONES

- **Unripe seed cones**

One or more unripe, female seed cones are visible on the plant. Seed cones are considered "unripe" as long as their scales are closed tightly together.

***Intensity:*** *How many seed cones are unripe?* Few (10 or less); Some (11 to 100); Lots (more than 100)

- **Ripe seed cones**

One or more ripe, female seed cones are visible on the plant. Seed cones are considered "ripe" when their scales start to spread apart from each other to release the seeds inside.

Do not include seed cones that have wide open scales with no seeds left inside.

***Intensity:*** *How many seed cones are ripe?* Few (10 or less); Some (11 to 100); Lots (more than 100)

- **Recent cone or seed drop**

One or more seed cones or seeds have dropped or been removed from the plant since the last time you visited.

***Intensity:*** *How many seed cones are missing or have lost some seeds?* Few (10 or less); Some (11 to 100); Lots (more than 100)