

<i>Populus tremuloides</i> (quaking aspen) phenophases	Occurring?		
Breaking Leaf Buds: Do you see the green tips of any leaves starting to emerge from the plant's leaf buds?	Y	N	?
Leaves: Look for leaves that are fully emerged from the bud. Can you see the entire leaf?	Y	N	?
Increasing Leaf Size: Are there leaves growing on the plant in places other than tips of the branches? What do you notice about those leaves? Do you see any fully emerged leaves that look like they will still grow bigger?	Y	N	?
Colored Leaves: Do you see any leaves that are starting to change to fall colors?	Y	N	?
Falling Leaves: Do you see any leaves that have recently fallen from the plant?	Y	N	?
Flowers or Buds: Do you see any flower buds or newly opened flowers on the plant? These flowers start out as fuzzy bits, then become drooping clusters of flowers. The tree either has male or female flowers, not both. See photos below.	Y	N	?
Open Flowers: Are there any open flowers on the plant? The flowers open once the flower clusters are drooping loosely.	Y	N	?
Pollen Release: Look closely at the flowers. Do you see any powdery yellow pollen grains?	Y	N	?
Fruit: Does the plant have any fruit? Fruit on a flowering plant forms at the base of flowers and isn't always edible. Only female trees have fruit! See photo below.	Y	N	?
Ripe Fruit: Does the plant have any ripe fruits? Ripe fruits are found at the base of the flowers or where flowers used to be. When aspen fruits are ripe they split open to show seeds with white fluff.	Y	N	?
Recent Fruit or Seed Drop: Do you see any seeds or fruits that have dropped or fallen from the plant, or can you see where they used to be on the plant before they fell or were eaten?	Y	N	?



Flower buds



Open flower (male)



Ripe fruit

LEARN MORE HERE:

Learn more here: <http://www.botanicgardens.org/research-conservation/phenology/phenology-trail>

For a map of this and the other Phenology Walks, scan this code:



Part of Denver Botanic Gardens Phenology Trail

Phenology is the study of when seasonal changes happen to growing things. You can practice collecting scientific data here and then go collect some in your park or backyard. Report your data to a national database so scientists can use it to study climate change.



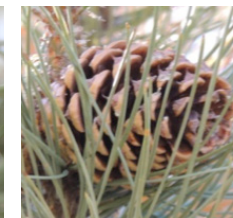
Emerging Needles



Young Needles

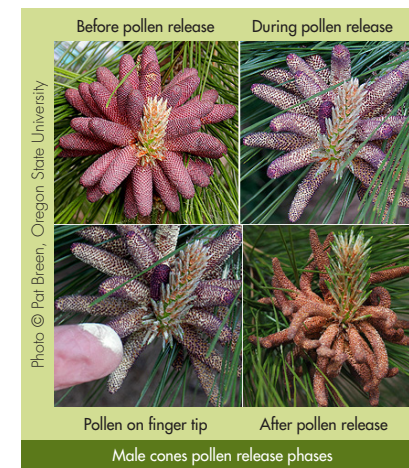


Unripe Seed Cones

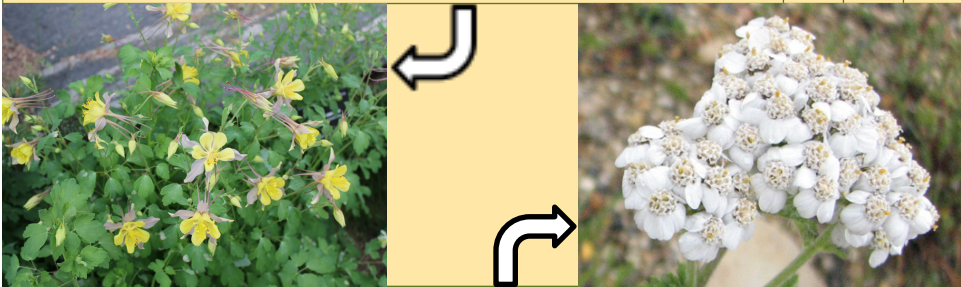


Ripe Seed Cone

<i>Pinus ponderosa</i> (ponderosa pine) phenophases	Occurring?		
Emerging Needles: Look for newly forming needle bundles. Do you see the tips of any green needles starting to grow? See the picture above.	Y	N	?
Young Needles: Do you see any baby green needles? Baby needles stick out away from the needle bundles. See the picture above.	Y	N	?
Pollen Cones: Do you see any clusters of small pollen cones on the plant? The male pollen cones are much smaller than the female seed cones we often think of when we hear the word cone. See the picture above.	Y	N	?
Open Pollen Cones: Look for clusters of small pollen cones. Do you see their tiny scales starting to open up? See the picture above.	Y	N	?
Pollen Release: Gently tap the open pollen cones on the plant. Do you see any pollen grains? See the picture above.	Y	N	?
Unripe Seed Cones: Seed cones are the larger cones we typically think of when we hear the word cone. Do you see any green or brown seed cones with the scales tightly closed? See the picture above.	Y	N	?
Ripe Seed Cones: Do you see any reddish-brown or brown cones with the scales starting to open? See the picture above.	Y	N	?
Recent Cone or Seed Drop: Do you see any open cones beneath the tree, or seed cones with scales that are wide open and empty?	Y	N	?

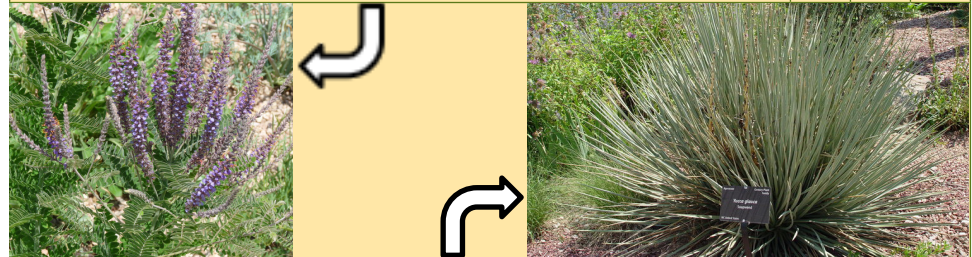


<i>Aquilegia caerulea</i> (Colorado blue columbine) phenophases	Occurring?		
Initial Growth: Do you see any new plant growth? Look for new shoots breaking through the soil.	Y	N	?
Leaves: Look for leaves that are fully emerged from the ground. Can you see the entire leaf?	Y	N	?
Flowers or Buds: Do you see any flower buds or newly opened flowers on the plant?	Y	N	?
Open Flowers: Are there any open flowers on the plant?	Y	N	?
Fruit: Does the plant have any fruit? Fruit on a flowering plant forms at the base of flowers and isn't always edible. Columbine fruits have five prongs on them.	Y	N	?
Ripe Fruit: Does the plant have any ripe fruits? The fruits turn tan or brown and split open.	Y	N	?
Recent Fruit or Seed Drop: Do you see any seeds or fruits that have dropped or fallen from the plant, or can you see where they used to be on the plant before they fell or were eaten?	Y	N	?



<i>Achillea millefolium</i> (common yarrow) phenophases	Occurring?		
Initial Growth: Do you see any new plant growth? Look for new shoots breaking through the soil.	Y	N	?
Leaves: Look for leaves that are fully emerged from the ground. Can you see the entire leaf?	Y	N	?
Flowers or Buds: Do you see any flower buds or newly opened flowers on the plant? What looks like one big flower head is actually many, many tiny flowers.	Y	N	?
Open Flowers: Are there any open flowers on the plant?	Y	N	?
Fruit: Does the plant have any fruit? Fruit on a flowering plant forms at the base of flowers and isn't always edible. Yarrow fruits are tiny, whitish-yellow and seed like.	Y	N	?
Ripe Fruit: Does the plant have any ripe fruits? When yarrow fruits are ripe they turn tannish and drop from the flower when touched.	Y	N	?
Recent Fruit or Seed Drop: Do you see any seeds or fruits that have dropped or fallen from the plant, or can you see where they used to be on the plant before they fell or were eaten?	Y	N	?

<i>Amorpha canescens</i> (leadplant) phenophases	Occurring?		
Breaking Leaf Buds: Do you see the green tips of any leaves starting to emerge from the plant's leaf buds?	Y	N	?
Leaves: Look for leaves that are fully emerged from the bud. Can you see the entire leaf?	Y	N	?
Increasing Leaf Size: Are there leaves growing on the plant in places other than tips of the branches? What do you notice about those leaves? Do you see any fully emerged leaves that look like they will still grow bigger?	Y	N	?
Colored Leaves: Do you see any leaves that are starting to change to fall colors?	Y	N	?
Falling Leaves: Do you see any leaves that have recently fallen from the plant?	Y	N	?
Flowers or Buds: Do you see any flower buds or newly opened flowers on the plant?	Y	N	?
Open Flowers: Are there any open flowers on the plant?	Y	N	?
Fruit: Does the plant have any fruit? Fruit on a flowering plant forms at the base of flowers and isn't always edible. Leadplant fruits are small and look like a hairy pod.	Y	N	?
Ripe Fruit: Does the plant have any ripe fruits? Ripe fruits are found at the base of the flowers or where flowers used to be. The pod turns dark brown when it ripens.	Y	N	?
Recent Fruit or Seed Drop: Do you see any seeds or fruits that have dropped or fallen from the plant, or can you see where they used to be on the plant before they fell or were eaten?	Y	N	?



<i>Yucca glauca</i> (soapweed yucca) phenophases	Occurring?		
Flowers or Buds: Do you see any flower buds or newly opened flowers on the plant?	Y	N	?
Open Flowers: Are there any open flowers on the plant?	Y	N	?
Fruit: Does the plant have any fruit? Fruit on a flowering plant forms at the base of flowers and isn't always edible. A yucca's fruit is a large green capsule.	Y	N	?
Ripe Fruit: Does the plant have any ripe fruits? Ripe fruits are found at the base of the flowers or where flowers used to be. A yucca's fruit turns dark brown and splits open when ripe.	Y	N	?
Recent Fruit or Seed Drop: Do you see any seeds or fruits that have dropped or fallen from the plant, or can you see where they used to be on the plant before they fell or were eaten?	Y	N	?