



The Mountain Hemlock Phenology Project: help “take the pulse” of Crater Lake NP

Phenology is the study of the *timing* of life cycle events. Scientists keep track of how life cycles change over time and use what they find to evaluate the overall health of an ecosystem. For example, if wildflowers bloom early one year, pollinators might arrive too late to pollinate the plants and eat the food they need to survive. This change in the timing of the wildflowers could cause harm to the ecosystem.

The Mountain Hemlock Phenology Project tracks the life cycles of mountain hemlock trees at Crater Lake National Park. The project looks specifically at when new buds grow on the trees during the spring. We want to know when the buds are growing and how the growth is related to the depth of the snow surrounding the trees. We hope the project will help us understand how the forests are changing at Crater Lake. Perhaps, we’ll get a glimpse at the overall health of the park.

During the project, we are going to make two observations: 1) we will count the number of new buds, and 2) we will measure the snow depth surrounding the trees.

You are going to make these observations while using snowshoes at Crater Lake. It’s going to be awesome! But first, you will want to make a hypothesis. Circle the statement (to the right) that you think will be supported by the evidence you find in the field.



OL0Hd SdN



OL0Hd SdN

Above: Mountain hemlocks maintain a deep snowpack at Crater Lake by catching blowing snow during the winter and casting shade on the snowpack in spring and summer. **Below:** students count new buds and measure snow depth on snowshoes.

Choose your hypothesis

Mountain hemlocks will grow more buds when surrounded by deep snow.

OR

Mountain hemlocks will grow more buds when surrounded by little snow.

Thank you!

The Crater Lake Science & Learning Center thanks you for contributing to the Mountain Hemlock Phenology Project.

As the park faces warming temperatures and decreasing snowfall, we expect to see changes in Crater Lake’s ecosystems. We are looking for clues of challenges that might lie ahead.

Without your help, we would not be able to notice small changes in the mountain hemlock forest at Crater Lake. Thank you for helping park rangers and being a steward. We look forward to working in the snow with you at the park!



John Duwe
Education Coordinator

Did you know?

MOUNTAIN HEMLOCKS DROOP ON TOP. Flexibility allows snow to fall from its top and branches so they don’t break during heavy storms.

Do you live near a river?

CHANCES ARE YOU DRINK RIVER WATER. Try using Google Earth to trace your local river to its source.

Want to know more?

CHECK OUT OUR YOUTUBE CHANNEL CraterLakeNPS. We have a bunch of videos about the park!

If it droops on top, it's a mountain hemlock.

The mountain hemlock (*Tsuga mertensiana*) is a tree best known for its beauty and its ability to live in extremely snowy environments.

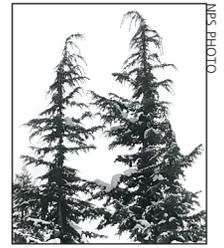
Importance to humans

- Because the mountain hemlock forests soak up sun, they shade snow and prevent it from melting too early in the spring. This allows our rivers to flow cold and fresh all summer long. Of course, they're also important to many animals to whom they provide food and shelter.

Importance to wildlife

- Mountain hemlocks provide food and shelter year round to animals such as the mountain chickadee, pine marten, and douglas squirrel.

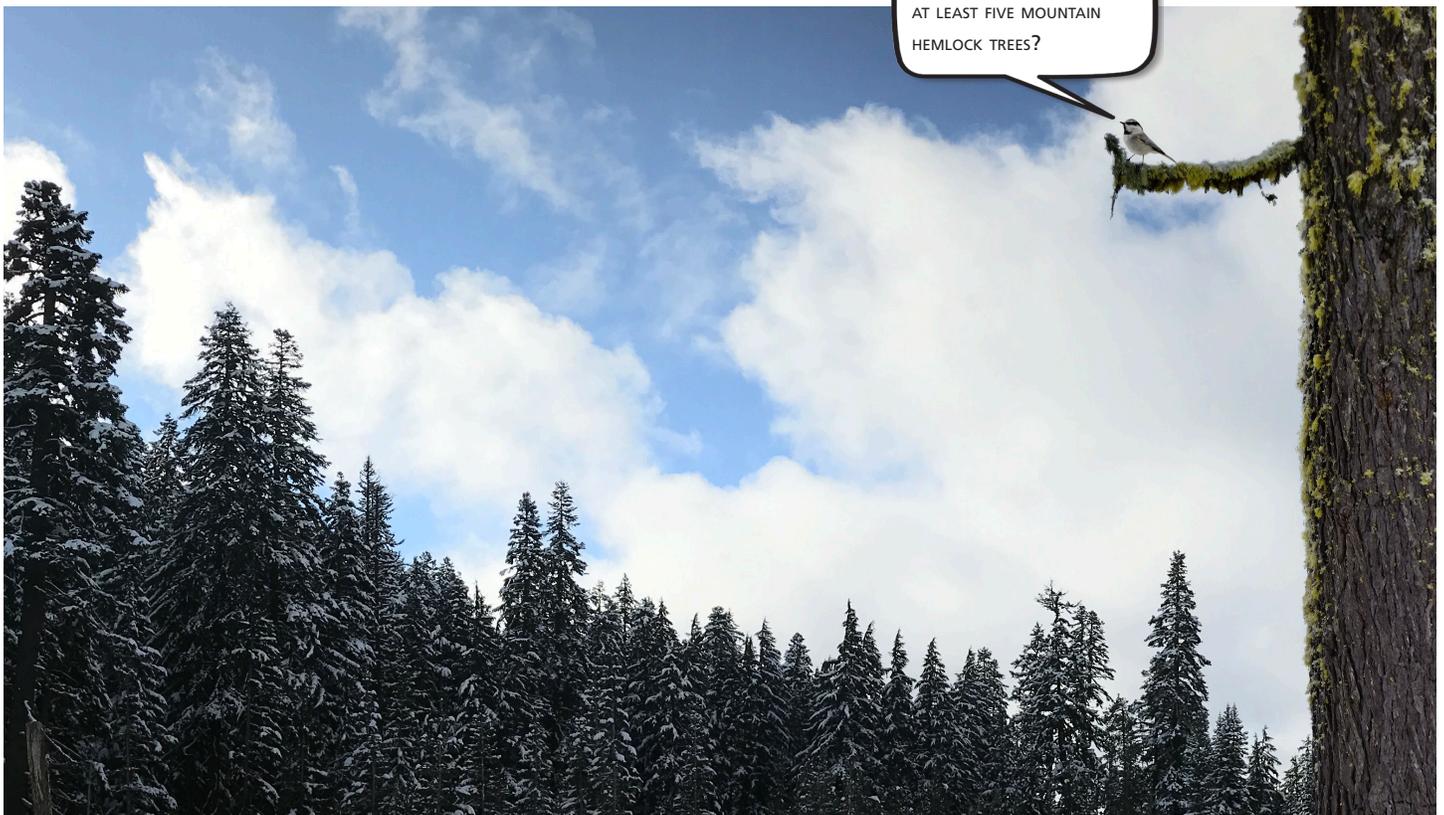
Will you be ready to identify mountain hemlock trees on your field trip?



Droopy tops on mountain hemlocks.



Students observe a large, old mountain hemlock.



CAN YOU IDENTIFY AND LABEL
AT LEAST FIVE MOUNTAIN
HEMLOCK TREES?