

DUKES 4 TREES

2023 / January 13 / Walk 11

Why are some trees evergreen?

The purpose of leaves is to produce food for the tree through photosynthesis. Photosynthesis results in cell respiration and transpiration (the exchange of carbon dioxide, oxygen, and water vapor with the air). Deciduous leaves die and fall off in autumn because they release too much water for the tree to survive during the dryer period of the winter. The ready decomposition of the leaves and other organic matter in those environments provide a ready store of nutrients for building new leaves in the spring.

Evergreens tend to grow in places with more acidic soil. Acidic soil inhibits nitrogen absorption, so there is not as much for the plants to work with. Evergreen leaves are modified from other leaves in some way to limit water loss, whether through a **waxy coating** as on magnolias, or by a **modified shape**, such as needles or scales on the familiar pines, or by **some other mechanism** to allow the plant to conserve water, as in rhododendron. That adaptation allows those trees to hang on to their leaves longer (sometimes several years), preserving the nutrients used to make the leaves and reducing their overall on-going nutrient needs, and allowing photosynthesis to start back up a couple of months sooner than in deciduous trees.

The downside in our modern world is that longer-living leaves are more susceptible to pollutants and disease.

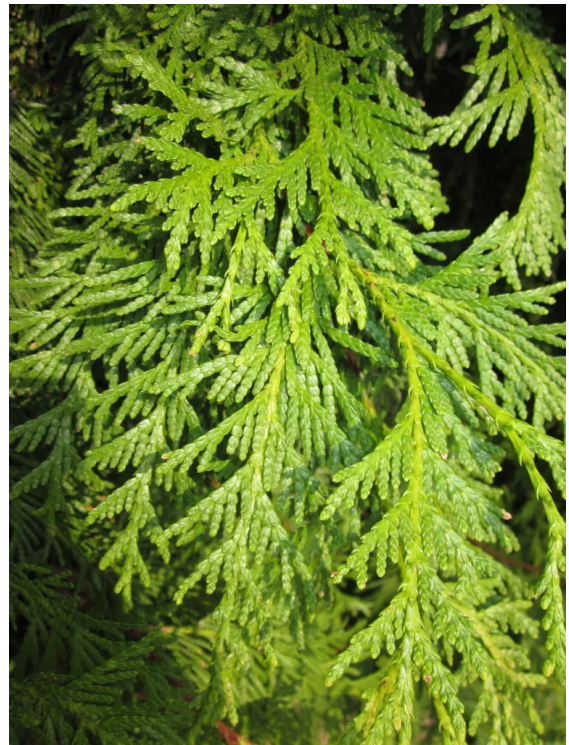


Many conifers are monoecious, producing male pollen cones and female seed cones on the same individual.

Tricky Evergreens Identification



TOP - *Juniperus virginiana* foliage on new twigs.
BOTTOM = *Juniperus virginiana* foliage on old twigs.



TOP - *Thuja occidentalis* foliage.
BOTTOM = *Chamaecyparis pisifera*;
Chamaecyparis also can produce dagger-like juvenile foliage.

Juniperus appears to have 2 kinds of foliage: dagger-like leaves on young twigs, and scale-like braids on older twigs.

Thuja (Arborvite) and *Chamaecyparis* (False Cypress) appear very similar.



Less Tricky ID



Firs are Friendly and Flat
Spruce are Spiky and Square
Pines come in Packets of needles

