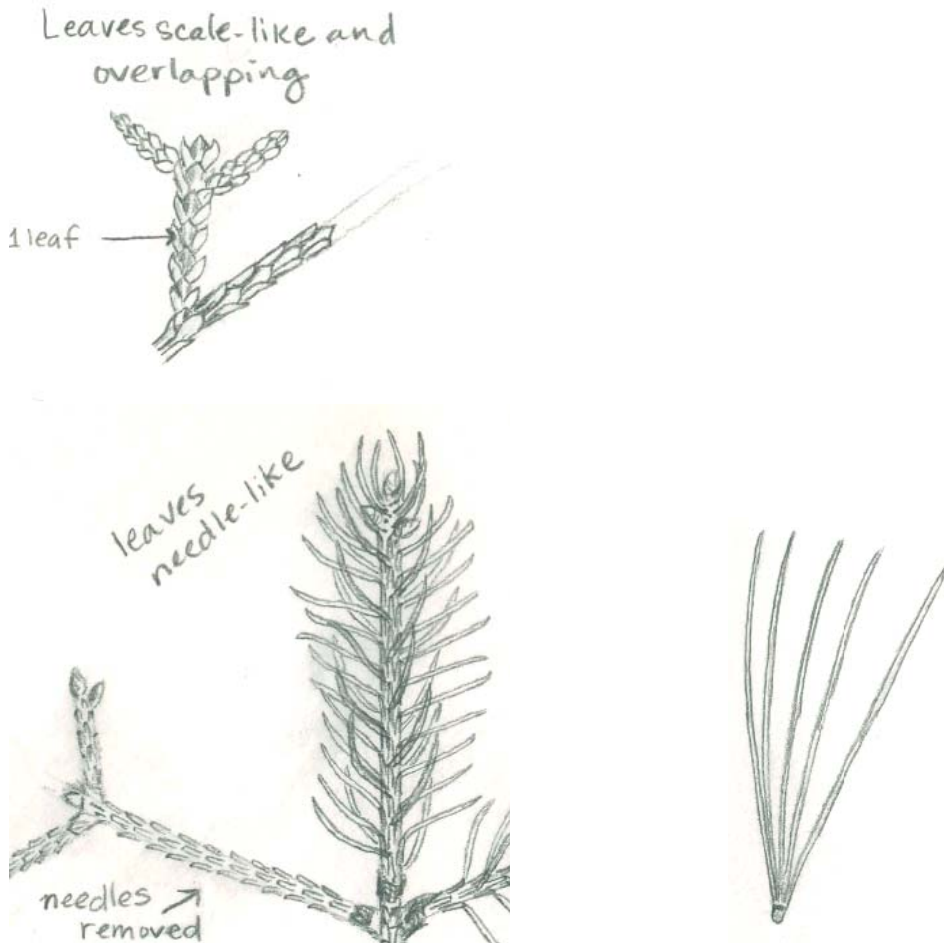


TWIG STATION

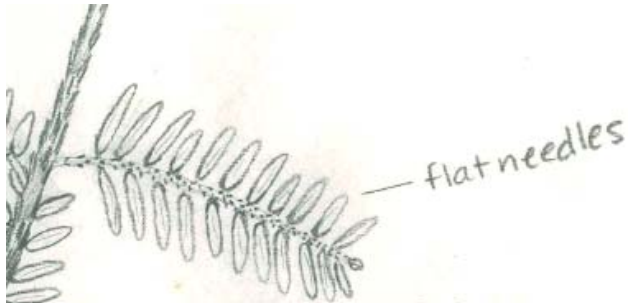
The leaves of conifers often do not look like typical leaves. The leaves of many are needle-like, and the leaves of several others are scale-like.



The leaves of most conifers are present year-round. This means that they are able to photosynthesize year-round, if necessary. The needles of conifers are coated with a wax which prevents water loss. The shape of the needles cuts down on wind resistance. In addition, most leaves are highly resinous (think of how sticky your fingers get while handling some of these samples), which helps them to withstand freezing.

Although at first glance you might think that all needles are needles, closer inspection reveals many differences among conifer leaves. Pay attention to

how the needles are attached to the twig. Are they clustered together in bundles? Are they attached on a little woody peg? The shape of the needles can also be informative. Are the needles flat? Can you spin them between your fingers? Even the flexibility or stiffness of the needles can be helpful in identification. Do the needles snap as soon as you try to bend them? Is the end of the needle sharp?



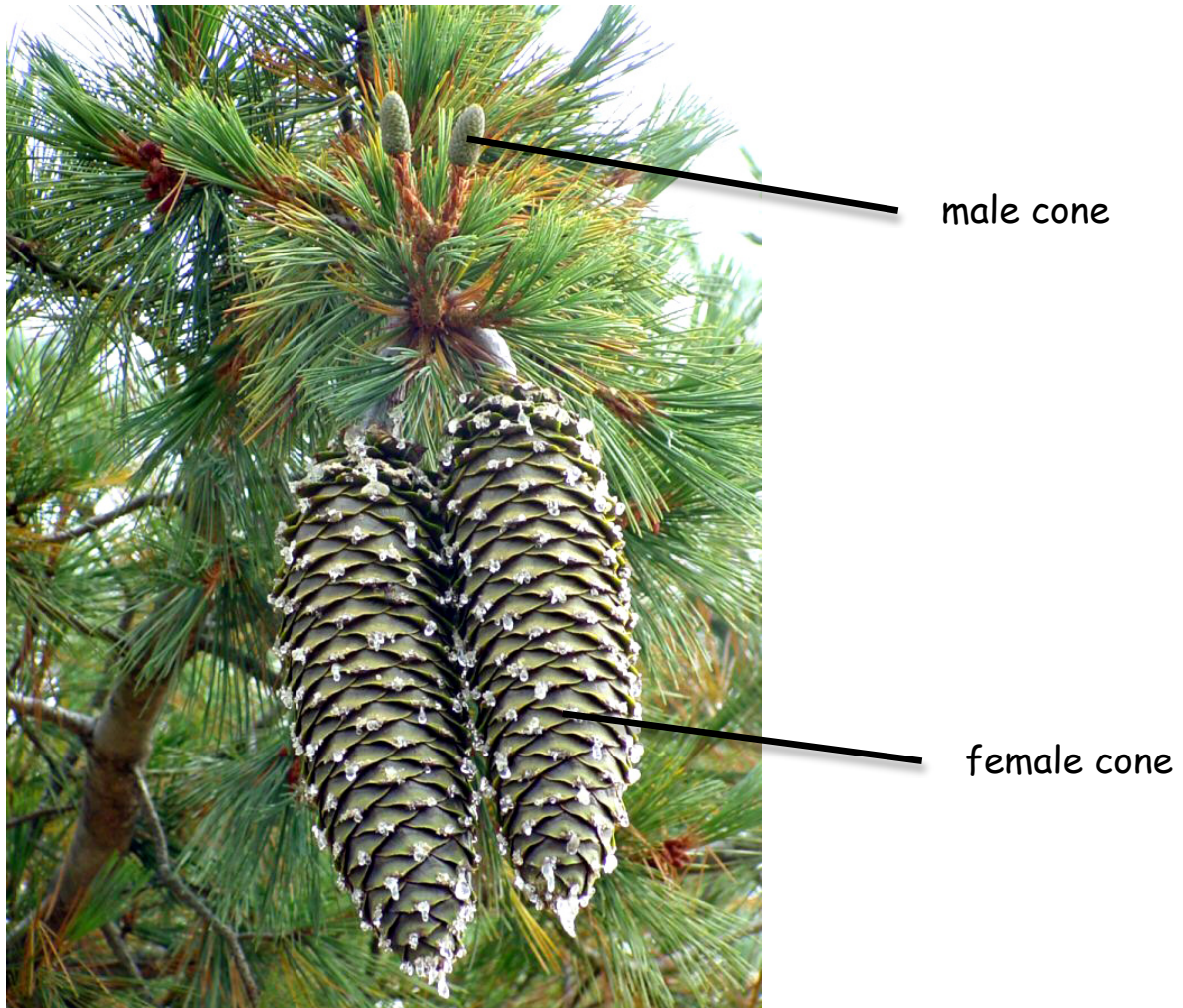
sharp-tipped needle

needles in bundles:



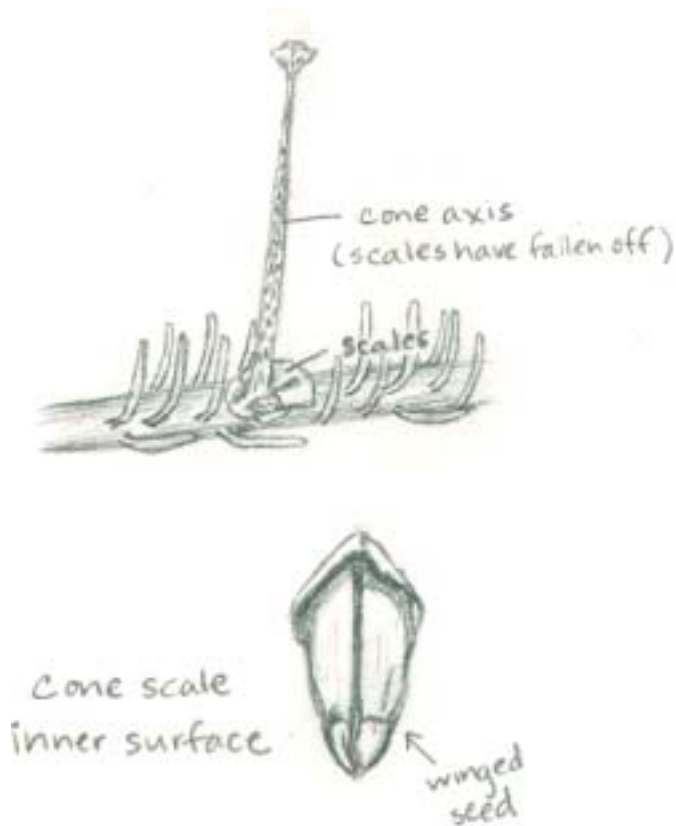
CONE STATION

Conifers have male and female cones. The woody cones that you are probably familiar with are the female cones. They are larger than the male cones and more easily noticed. The male cones are usually herbaceous. The male cones produce large amounts of pollen. The pollen is carried by the wind to the female cones. After the female cones are pollinated, they begin to harden and close up. They can remain closed for several years while the seeds ripen inside. On a warm day, when the cone is ready, it will open to allow its winged seeds to be carried away by the wind.



SEED STATION

Conifer seeds develop on the female cone. The cones can take from 4 months to 3 years to mature. When the cone is finally mature, the scales usually spread open and the seeds are allowed to fall out. They are dispersed by the wind and have wings which aid in this type of dispersal. In some conifers, the scales fall away from the cone axis while it is still attached to the branch.



Conifer seeds can persist in the soil for decades. They can withstand freezing and fires. Cones of lodgepole pine will not open unless they are exposed to the heat of a forest fire.