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Natural Foliar Shedding

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Yes, it's that time of year when the temperatures get cooler and the days shorter. There is a smell of smoke in the air as people start their wood stoves and a deep enjoyment of the beautiful weather and colored foliage of fall in Idaho.

Come autumn, deciduous trees and shrubs turn color and lose their leaves. Everyone expects this to happen and I think I am safe to say we all look forward to this natural spectacular show. Evergreens, including conifers, also lose their leaves - they just do it a bit differently. In most years, the annual shedding of evergreen foliage is unexceptional. If anything, people may remark on how the trees are looking a bit stressed or dried out. But if the conditions are just right, natural foliar shedding in conifers can be outright alarming and cause many landowners to seek advice as to what is killing their trees.

Evergreens versus conifers.

Evergreens are defined as "plants that have leaves year round, and shed their leaves more or less regularly through all seasons". Evergreens include widely diverse groups such as rhododendrons, holly, laurel, and many succulents. Some species of evergreens can be "ever green" in southern parts of the country and semi-evergreen or even deciduous in more northern areas.

Conifers, on the other hand, are defined as "1). Any of numerous, chiefly evergreen trees or shrubs of the class Coniferinae (or group Coniferales), including pine, fir, spruce, and other cone-bearing trees and shrubs, and also the yews and their allies that bear drupelike seeds. 2). a plant producing naked seeds in cones, or single naked seeds as in yews, but with pollen always borne in cones".

In short, evergreens include conifers, but conifers do not include all plants that are evergreen.

Evergreens have several types of leaves:

- broad, such as those found on rhododendrons and holly;
- needles, found on conifers such as pine, spruce, fir, hemlock and yew; and
- scale-like, as on arborvitae and junipers.

Evergreen leaves live for several years before they fall. Some species of evergreens lose foliage gradually throughout the year and annual shedding goes mostly unnoticed. Other species have so much new foliage that browning, shedding foliage is hidden from view. But for conifers in particular, this natural, yearly process can be unsightly and, if the conditions are right, alarming.

Natural foliar shedding varies with species.

- Pines lose their third year needles, those closest to the trunk. The needles turn yellow, then

red-brown and are cast, sometimes all in one day if there is a good wind. White pine is the most impressive of all the pines and can lose all but the current year's growth.

- Spruce and fir bear several age classes of needles along their branches and shedding is not restricted to the oldest age class, although it is concentrated there. The foliage on a given branch segment of these species may brown and thin progressively over 2 to 3 years.
- Arborvitae and related species with scale-like leaves shed their oldest branchlets (those in the interior).

Of course, as with most things in the natural world, there are exceptions to the rule. Western larch, also known as tamarack, is a deciduous conifer and, after a spectacular show of bright yellow foliage, loses all of its needles every year.

Winter readiness.

It is not the shorter days, but the longer nights that set the processes of dormancy and leaf drop in motion.

Longer periods of darkness increases the production of abscisic acid (AA) in particular, which slows protein and RNA production, both of which are key factors for plant growth. This starts as soon as the nights start to be longer than the days and next year's buds are usually set by the end of July. Above ground growth ceases in late summer. By late September, many tree species have started forming an abscission layer between leaf stem and twig. A physical line of weakness develops and gravity and wind cause the leaves to drop. Scar tissue forms over the exposed attachment point to prevent water loss.

Conditions for a spectacular shed.

In general, the dryer the year, the more noticeable the natural foliage shed is. Droughty conditions cause the red-browns of shedding needles and scale-like leaves to be deeper and brighter. Trees under severe stress it will drop more needles than usual as a natural defense, reducing the amount of vegetative growth the tree needs to sustain through the winter. Weather conditions in previous growing seasons may also have something to do with a bumper crop year for foliar shedding.

How do I tell the difference between this and something else?

For starters, take a moment and look around you. Are all of the conifers in the landscape, regardless of species, showing yellow or browning foliage? Usually when all of the plants in a landscape are showing similar symtoms that occurred at the same time, the problem is physiological and not insect or disease related at all. Examples of physiological problems are drought stress, frost or freeze damage, and the star of the moment, natural foliar shedding.

Next, look at the pattern of the symptoms. Are all of the dying needles in the interior of the tree? This is the pattern natural foliar shedding presents. If you had an insect or disease problem you would be seeing the tops of the trees dying or the needles at the tips of the branches affected.

Of course, if you are still concerned you can contact your local Extension Office or Master Gardener group and have them help you with a diagnosis.

Shorter days and cooler temperatures. Clear blue skies and colored leaves. Apple cider and natural foliar shedding. No worries – it's all part of fall in Idaho.

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