

Tree Bark

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Observing nature: learn to identify trees by their bark

The human brain is hardwired to observe, categorize and identify by selecting for distinct characteristics. In primitive people, it was a matter of survival to see the difference between friend and foe, nutritious and poisonous plants, and whether the animal you encountered would be your next meal or you his.

In modern times, we use this brain function in many ways. When entering a room full of people, we can immediately differentiate between those we know and strangers using visual characteristics such as gender, height, weight, carriage, and hair and eye color. We also use this sense to familiarize ourselves and connect with our environment, e.g. bird watching, insect and flower identification. Training one's eye to identify trees is another fun way to connect with the world around us.

Trees are often identified using leaf shape and color, branching patterns, fruit, flower and bark. Winter and early spring is a wonderful time to look closely at the nature of trees in their most basic form and a good time to explore the varieties of tree bark and how they can help us with tree identification.

Bark is a protective layer on the surface of stems and roots of woody plants. It overlays the wood and consists of inner and outer bark. The inner bark has xylem and phloem. The phloem transports sugars produced by photosynthesis throughout the tree. The outer bark is composed of several layers of tissue collectively known as the periderm. The outermost layer is made up of dead cork cells which insulates the tree from drying out and protects the inner bark from insect infestation and pathogens that want to gain access to the living tissue.

When observing trees, you might find the same species with very different textured bark. While young bark may be smooth, as many trees mature, the growth of the outer layer cannot expand as quickly as the wood growing underneath, and shedding of bark occurs. As the initial periderm begins to crack apart, a new protective layer, called the active periderm, is growing beneath the outer layer. Bark patterns will vary among species depending on the manner in which new periderms are formed and shed each year. In smooth barked species, such as aspen and beech, the first periderm persists for a long time, less cork is produced, and the rate of shedding is slow. In species that develop scaly bark, small patches of additional periderms regularly form below the first periderm and are shed as flakes, as in spruces, or sheets, as in sycamores. The periderms of cedar and redwood trees arise and are shed in vertical strips. Knowing how young bark looks on a species compared with its later old bark can be a helpful way to start your categorizing.



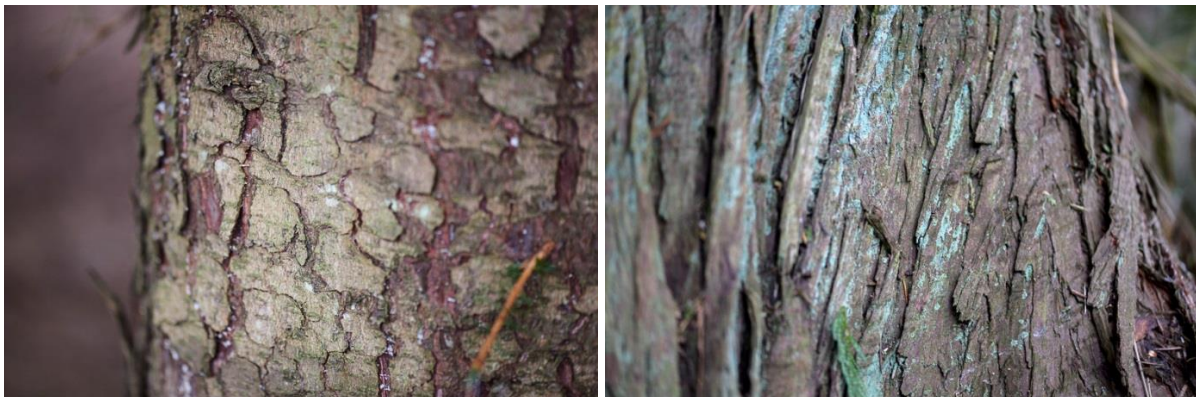
Left: Red alder bark has a smooth and unbroken texture. **Center:** Douglas fir bark has a furrowed texture and reddish areas with cream underneath. **Right:** Paper birch bark peels horizontally in curly strips and is often marked by elongated horizontal lenticels. *Photos by Nancy Crowell / WSU Skagit County Master Gardeners.*

Differences among bark texture are often described in the following manner:

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| • *Smooth, unbroken | Red alder (<i>Alnus rubra</i>) |
| • *Peeling horizontally in curly strips. Bark of this sort is often marked by elongated horizontal lenticels | Paper birch (<i>Betula papyrifera</i>) |
| • *Fibrous | Western red cedar (<i>Thuja plicata</i>) |
| • *Scaly | Sitka spruce (<i>Picea sitchensis</i>) |
| • *Plated | Ponderosa pine (<i>Pinus ponderosa</i>) |
| • *Ridged or furrowed | Douglas fir (<i>Pseudotsuga menziesii</i>) |
| • *Warty | Western hackberry (<i>Celtis reticulata</i>) |

When looking at bark texture, other observations you might consider are:

- *How does the bark peel or crack and divide?
- *What patterns can be discerned, e.g. irregular squares, rectangles or scales?
- *Do bark furrows run vertically, diagonally or crisscross?
- *How far apart or close together are the fissures? Are they long or short?
- *What shape is the lenticel: linear, diamond or round/oval?



Left: Sitka spruce has scaly bark. Small patches of periderms form below the first periderm and are shed as flakes. **Right:** Western red cedar has a bark that's fibrous and is shed in vertical strips. *Photos by Nancy Crowell / WSU Skagit County Master Gardeners.*

The smell of inner bark can also help decipher a tree's identity. Scratch off a bit of outer bark and take a sniff. Yellow birch smells, and even tastes, like wintergreen, but paper birch does not. Ponderosa pine smells of vanilla while Jeffery pine has a butterscotch scent.

As texture varies with age, so does bark color. Young ponderosa pine is often dark brown to black while that on older trees is yellowish brown to cinnamon red. The bronze or reddish brown features of young birch twigs change to creamy white on older stems. Even the color of freshly cut inner bark is diagnostic: the inner bark of alder is orange-red, while in hemlock a reddish-purple hue is typical. The more closely you look, the more colors and variations you will detect.

Ask your local master gardener, county extension agent, or other reliable source for a good reference book of trees in your area. The illustrations and descriptions will help with your search as well.

Becoming familiar with tree bark can help the home gardener with landscape selections, particularly which trees might add interest to a winter garden. A paper white birch might look stunning backed by an evergreen. Perhaps adding a coral bark maple or some madrone could add some punch to your view.

Whether you are hiking through local forests, watching birds and wildlife, making a landscape plan or just walking to the mailbox, focusing on bark, and honing the art of perception, can lead to many new discoveries, e.g. where the woodpeckers have been busy at work, what creature will soon be emerging from that cocoon or where that ant colony is marching off to. It is all an inspiring way to connect with all the wonders which surround us every day.

RESOURCES:

- “Journey with Nature: Winter Tree Identification”, The Nature Conservancy, <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/indiana/journeywithnature/winter-tree-identification.xml>
- “Parts of a Tree: Use These Tree Parts to Identify a Tree”, Steve Nix, Forestry Expert, About Education website, http://forestry.about.com/od/treephysiology/ss/part_of_tree_6.htm
- *Physiology of Trees*, Kramer, Paul J. & T.T. Kozlowski, New York: McGraw-Hill, 1960.
- “Tree Bark”, Conrad, Jim, Backyard Nature website, last updated 8/15/14. <http://www.backyardnature.net/treebark.htm>
- “The Language of Bark”, Wojtech, Michael, American Forests website (winter 2013). <http://www.americanforests.org/magazine/article/the-language-of-bark/>
- *Bark: A Field Guide to Trees of the Northeast*, Wojtech, Michael (author with Tom Wessels (contributing), University Press of New England, Hanover and London, April 12, 2011.

- “Winter Tree Identification”, Tree Bark ID.com, <http://treebarkid.com/index.php/general-bark-id-key>
- “Inside a Tree Trunk”, Martin Cocks, The Ecotree, The Department of Biodiversity & Conservation Biology, The University of Western Cape, South Africa
<http://www.bcb.uwc.ac.za/ecotree/trunk/woodanatomy3.htm>