

Identification of Woody Plants in Winter

7Song, Director
Northeast School of Botanical Medicine
7Song.com

Bark

The outermost layer of a twig or branch composed of dead (phloem) cells. Bark has distinctive characteristics, which can be observed year round. They are not on young twigs and take a few years to develop

Bark Characteristics

1. Color
2. Fissures
3. Texture
4. Distinctive patterns
5. Peeling bark
6. Exfoliating plates
7. Thickness
8. Organisms that grow on bark include
 - Lichens
 - Fungi
 - Mosses

Twigs

The terminal portion of a branch, the youngest section of a woody plant.

1. Younger twigs are frequently hairy (as a protective substitute for bark)
2. Twigs may redden in winter (due to the formation of anthocyanins)
3. The initial color of twigs deepens through the years

Twig Characteristics

1. Color
2. Odor and taste
 - Example: Black birch, Sassafras
3. Pubescence, waxy coating or other protective layer
4. General appearance-shape and texture

Pith

The central portion of a twig, generally a different color than the surrounding tissue. Piths come in a variety of shapes such as round or star-shaped as seen in cross-section. The color is easily observed with the twig cut in longitudinally.

Pith Forms

1. Continuous and homogenous-uniform pith
2. Continuous and diaphragmed-pith interrupted in intervals by walls
3. Spongy-with small regular cavities and a spongy texture
4. Chambered-hollow except for transverse walls

Lenticels

A prominence on twigs where there is an exchange of gases. They come in an array of shapes and colors and may be distinctive. They are usually more prominent on younger plants

- Example: Elder, Wild cherry

Buds

The growing point on a woody plant. They are formed in spring and lay dormant until the following spring when they open. Buds are observable throughout the year except in spring when the current buds are expanding and the following year's buds have not yet formed.

Bud Characteristics

1. Color
2. General shape
3. Pubescence
4. Resin or wax
5. Size

Buds-two main types

1. **Terminal and pseudoterminal buds**-occur on the apex (tip) of branches.
 - **Terminal buds**-after these buds are formed, no more growth will occur beyond this point on the twig.
 - **Pseudoterminal buds** or false terminal bud-have the appearance of a true terminal bud, though they are often off-center. Growth may occur beyond this bud, but the twig will have died and appear withered. When this branch falls off a branch scar may be visible next to the bud.
2. **Lateral (axillary buds)**-occur below the tip of the branch
 - These buds occur in the leaf axils
 - The lateral buds (along with the leaf scars) will be either alternate, opposite, or whorled along the branch.
 - Accessory buds may occur alongside lateral buds. The true lateral bud is directly over the leaf scar. Two types:
 - ✓ **Collateral buds**-are either to right or left of the lateral buds
 - ✓ **Superposed buds**-are above the accessory bud

Bud scales

These surround the embryonic bud for protection and are what one observes looking at most buds. The bud scales vary in size, shape, number, arrangement, color, and texture.

Bud scale arrangement

1. **Imbricate**-overlapping each other
2. **Valvate**-side by side (usually 2)
3. **Single**-covered by a single bud scale
4. **Naked**-lacking scales but have modified rudimentary leaves

Bud scale scar-when the bud scales fall off during spring growth, they leave a ring(s) around the twig. The intervals between these sets of rings indicate how old the branch is. These scars are more easily seen on younger stems before bark obscures the scars.

Leaf scar-this is the point where a leaf was formerly attached to the stem. It is more observable on younger branches. The size and shape of this scar is indicative of the shape and size of the leaf at the point of its attachment (i.e., a large petiole leaves a large leaf scar).

Bundle scars-are the scars left from where the vascular bundle (xylem and phloem) enters the leaf from the twig or branch. They are within the leaf scar and come in a range of numbers and shapes. Some are more discernable than others and a loupe may be handy here. Look for them in the newest leaf scars.

Branch scars-are the scars left over after a branch has broken off at the base of a pseudoterminal bud. Sometimes the withered branch remains.

Fruit and seed-many plants hold onto their fruits and seeds through the autumn and winter. Also look on the ground near the plant for the fruit, seed or remnants. Example: Viburnum fruits, Maple samaras, Conifer cones.

Spur shoot-a short usually stocky branch that grows very slowly and is crowded with leaf scars.
Example: Apple, Pear trees.

Stipule scar-stipules are leaf-like appendages occurring around the twigs and the base of leaves in some plants. After they fall off they leave a characteristic scar, which is generally thin and slit-like. They may encircle the branch.

Thorns, Spines and Prickles-are sharp projections protruding from a number of plants and are useful in identification.

1. **Thorns**-modified branches and generally stout. They may be branched or unbranched. Examples: Hawthorn, Honey locust
2. **Spines**-are modified leaves or stipules. They tend to be thinner than thorns. They can also occur on the margin of leaves. Examples: Cacti, Japanese barberry, Milk thistle.
3. **Prickles**-modified epidermal tissue. They can grow on any plant tissue including stem, leaves, and fruits. They tend to grow thickly. Examples: Rose, Blackberry, Jimsonweed (fruit)

Galls-are diverse structures found on woody plants, produced by insects and other organisms. They are often obvious and come in a huge range of forms. Some galls

are non-specific and can be found on a variety of plants, while others are quite specific to one genus or species.

Examples: Canadian goldenrod gall, Pine-cone willow galls

Overall shape of a tree (silhouette)-When trees shed their leaves, their basic overall shape becomes apparent. This is their silhouette. When these are learned, it is often possible to recognize the type of tree from a distance.

Example: Oak, Elm

Leaves at the base of a tree-look for leaves at the base of the tree in which they may have fallen. A cautionary note, these leaves are often from other trees.

Ecological niche-plants generally grow in specific locations (i.e., near water, in acidic soils, etc.). This trait can be used to narrow down the field of potential plants in any specific environment, by considering what plants may and may not grow there. This method speeds along the identification process considerably and helps fine-tune skills in deciphering and recognizing different ecosystems.