The Broadleaf Trees

Look at the trees in your area and you will notice that they are not all the same. By observing the differences, you will be able to identify which species they belong to. However, to correctly identify a tree, you need to look at several parts of the tree. There are three simple steps to follow. Do you know what they are? Read on.

To determine which species a tree belongs to, first observe its silhouette. This is very important, as there are many types.

Next, look at the leaves, which occur in different shapes. They are often the best clue to identifying the tree species. Look carefully at the leaf and note its characteristics, i.e., the type of leaf, location on the twig, and the shape and arrangement of the veins. Each of these features is very significant and should be carefully examined in order to correctly identify the tree.

The fruit of broadleaf trees contains the seeds for reproduction of the species. Finally, observe the bark, the protective covering on the trunk and branches. It is to trees what skin is to humans. The fruit and bark are often used to help identify a tree.

Broadleaf Tree Silhouettes

Did you know that it is possible to identify a tree simply by its silhouette? Silhouettes are in fact very important in dendrology. But it does take an expert eye to identify the exact tree species by its silhouette alone. Often, you will need to observe the leaves, fruit and bark to correctly identify a tree.

Some have branches from the ground up, as in the case of alders, which are considered to be large bushes. Others, like the American elm, are umbrella-shaped with drooping branches .

The trembling aspen , which is straighter than the white birch, has ascending branches and an elongated oval-shape. The white birch is simply oval in shape.

The red oak is round and has many large, strong branches, whereas the sugar maple ressembles a large pear with many small branches!

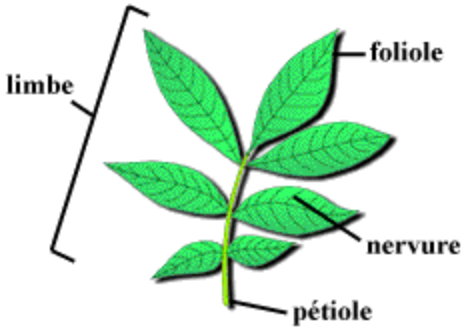
By comparing silhouettes, you will develop an expert eye and will be able to observe the broadleaf trees in your neighbourhood.

The best time of year to observe the silhouettes of broadleaf trees is once the leaves have fallen. You will see the profile of the tree far more clearly. It is recommended that you select a single, isolated specimen for observation. You will be able to see the shape of the silhouette properly, without interference from other trees.

Types of Leaves

Leaves give us many clues to the identification of trees. Follow the steps carefully for observing leaves and try and identify the trees in your neighbourhood. But first here are a few basic observations to help you identify the different parts of a leaf.

Every leaf grows from a bud in the spring. It is formed from a very thin, often green, skin called a blade. The blade may have one or more leaflets depending on the type of leaf. The leaf may be supported by a small stem called a leafstalk. When there is no stalk, the leaf is said to be sessile. A network of veins running through the blade is easily seen.



You will notice that many trees shed their leaves in the autumn. These leaves are called

deciduous leaves. Almost all broadleaf trees have deciduous leaves. However, some trees retain the dead leaves attached to their branches during winter. These are called marcescent leaves. Oak leaves are often marcescent. In winter, try to find an oak by looking for dead leaves attached to the branches.

When observing leaves, it is preferable to gather twigs, because many characteristics are influenced by the arrangement of the leaves on the twigs.

The first step is to determine the type of leaf you are observing.

If the blade consists of one leaflet, it is a simple leaf. However, if the blade is made up of several leaflets attached to a leafstalk, the specimen is a compound leaf. Take a close look at the illustrations to distinguish between a simple leaf and a compound leaf.

The Arrangement of Leaves

The arrangement of leaves on twigs is an essential clue to the identification of trees. A number of tree species can be identified using this observation criterion.

Leaves may occur in pairs at one position on opposite sides of the stem. These are called opposite leaves. The red maple has leaves in opposite pairs. Try to find other species with opposite leaves.

When leaves occur at different positions on the stem, they are called alternate leaves. Look at a twig from an American elm to see whether the leaves are alternate.

If the leaves are arranged in star-like fashion all around the stem at the same position, they are called whorled leaves. However, whorled leaves are found far more frequently on plants than on trees.

The Contour of Leaves

The shape, or more precisely, the contour of a leaf is extremely useful for identifying a tree. So make sure you pay special attention to the contours of leaves. The description of the four different types of edges will help you classify leaves according to their contours.

Smooth-edge leaves as the name suggests have a smooth contour with no particular projections on the edges. Willow leaves are a perfect example of a smooth-edge leaf.

Lobed leaves have a contour that is divided by empty spaces called a sinuses that separate two lobes. The sinuses and lobes may be either rounded or pointed. The oak leaf is an example of a lobed leaf. To see the difference between a lobed leaf with rounded sinuses and lobes, and another with pointed sinuses and lobes, compare a bur oak leaf with a red oak leaf. Which of the two has pointed lobes?

Leaves with pointed teeth of the same size are called toothed-edge leaves. Take a look at a Balsam poplar; it has leaves with toothed edges.

Some leaves have two sizes of teeth on their contour, large teeth which themselves contain smaller pointed teeth. These are called double-toothed leaves. You'll see the small teeth more clearly with a magnifying glass. Why not practise by observing a white birch leaf.

The Arrangement of Veins

Veins in leaves are the equivalent of the blood system in the human body. This network of vessels runs through the leaf and supports the blade. Veins can change the direction of the leaf to enhance photosynthesis. The arrangement of veins is a useful clue to tree identification.

When the leaf has a network of main veins on either side of the midvein, the veins are said to be arranged pinnately. The midvein is the vein that runs down the centre of the leaf and the main veins are either attached to the midvein or start at the base of the leaf. Find a beech leaf or a willow leaf to observe veins that are pinnately arranged.

Veins that are arranged palmately start at the base of the blade and are laid out in the shape of a hand. The best example of palmately arranged veins is the maple leaf.

Leaves with parallel veins have veins running side by side the whole length of the blade. Such an arrangement is found more often in plants than in trees.

Fruits of broadleaf trees

You have probably noticed that broadleaf fruits are far more varied than the fruits of conifers. Broadleaf fruits actually vary considerably depending on the species. Many are fleshy, colourful and pleasant tasting, such as apples, pears and plums. But these cultivated fruits represent only a small part of the fruits from broadleaf trees. Now, let's look at some of the fruits on trees growing wild in our forests.

In the fall, the streets are often covered in "helicopters", the winged keys that are the fruits of the maple, a very common Quebec tree. The real name of this fruit is the paired key, which consists of two keys stuck together. The samara or key is a fruit covered by a wing-like membrane. These membranes make it possible for the keys to be dispersed by the wind. Other trees have fruits in the shape of keys. The ash has a long key that is borne in clusters on the branch. Elms bear a somewhat rounded key.

The nutlet is a very small nut with wings that help dispersion. The nutlets are often clustered on strobiles, very flexible organs that ressemble caterpillars. They are similar to conifer cones. All birches have fruits in the form of strobiles with nutlet seeds.

Poplars have fruits in the form of capsules. These dry fruits open at the top to release several seeds. Capsules are clustered on a stalk forming a spike called a catkin.

Beeches have fruit in the form of an achene covered in a bristly husk. Achenes are small dry fruits that contain one seed that is not stuck to the shell of the fruit. The oak acorn is also considered to be a type of achene but its shell is very hard. The cup encloses part of

the oak acorns, giving them their distinctive look.

Walnuts and hickories have fruits in the form of a nut. You have probably eaten walnuts, or rather the edible part of the nut called the kernal that is inside the shell. Walnuts are a favourite food of squirrels.

Some fruits are in the form of a berry. Berries are fleshy fruits with a number of seeds inside. Most berries are very colourful, which attracts animals. A tomato is a readily accessible fruit that you can examine. The American mountain ash is an example of a tree with fruits in the form of berries.

The drupe or stone fruit is a fruit that ressembles berries but it contains only one one-seeded nut. These succulent fruits are a prime source of food for animals. Included among the species that produce stone fruit are cherry and plum trees, which provide us with delicious cherries and plums.

The next time you go for a walk in the woods, gather some fruits and try to identify the group they belong to. It is, however, not recommended that you eat any, because some fruits are dangerous. Also, it would be preferrable to go with a knowledgeable person who can help you in the search.

Protective Layers of Bark

The bark on trees has two layers: an outer layer of dead wood and an inner layer of living tissues. The inner layer is made up of living cells that are continually dividing. The inner

cells need water to live. They take in water through pores and lenticels. When the cells are deprived of water, they die and become part of the outer dead layer, which serves as an effective barrier against injuries and environmental stresses. Since this layer consists of dead cells, it can no longer grow. It cracks or breaks away as the inner cells continue to grow and push the older cells outward.

You have certainly noticed that the bark on different species varies considerably. It can be sticky because resin or sap is secreted by the tree. The bark on fir trees, for instance, is covered with balls of resin that can be easily pierced with a fingernail. This represents a very useful criterion for identifying fir trees.

To identify a tree by its bark, you have to observe the texture, colour and pattern of the bark.

Some trees, like the red oak have smooth bark. Others like the white ash have rough bark. Bark may be thin as in the beech, or thick, like on the white oak.

There are four major characteristics to consider in observing bark. Some bark sheds in strips or flakes. Look at the white birch; it sheds in long horizontal strips. Bark can also be scaly as on the white spruce . Bark may also have shallow or deep grooves depending on the species. The white ash has straight grooves. Bark can also be covered in cracks as in the white elm.

To practise identifying bark, try feeling different types of bark with your eyes closed. Touching is an excellent way of developing your ability to identify bark.