

Forestry -Tips for Tree Species Identification and Ecology (04)

by Karen L. Lancour

This national tree list has been set up by families for the student's convenience. Students are not expected to know family names for the actual event. The official field guide is the **National Audubon Society Field Guide to North American Trees. (East Region and West Region)**. State and regional competitions will use modified lists provided by the state director.

FAMILIES OF TREES: The tree lists are arranged by families. The families have general characteristics for all of the species within the family. Pay attention to these characteristics!!

General tips on arrangement are:

1. The Audubon Field Guide is arranged according to the family arrangement within the Orders of Trees and Shrubs.
2. Gymnosperms are followed by angiosperms with dicots first and then monocots.
3. Species are arranged alphabetically within the family by scientific name.
4. Color plates are arranged by leaf color key, flower color key, fruit and cone key, and autumn leaf key.
5. Each specie listing has plate numbers for photos within the color plates and a text section explaining description, habitat, and range of the species.

GENERAL MORPHOLOGY: (see diagrams)

Tree – woody plant with an erect perennial trunk at least 3 inches in diameter and a total height of at least 13 feet at maturity with a definitely formed crown of foliage.

Shape – overall tree shapes include pyramidal, conical, columnar, spreading, vase-shaped, broad, and rounded.

Leaves – leaves can be needle-shaped, scale-shaped, or broad and flat.

Broad leaves can be simple or compound and are arranged along the branch in an opposite, alternate, or whorled pattern.

Leaf shapes include linear (grasslike), lanceolate (lance-shaped), oblanceolate (reverse lance-shaped), round, ovate (egg-shaped), obovate (reverse egg-shaped), oblong, elliptical (oval), and spatulate (spoon-shaped).

The edges of leaves can be without teeth (entire) or toothed. The edges may also be wavy, turned under, or deeply divided into parts or lobes.

Flowers – flowers have sepals which are usually green and leaf-like, petals with are brightly colored, stamens (the male reproductive structures) and pistals (the female reproductive structures).

Most tree flowers are bisexual, but some are only one sex. The two sexes can appear on separate trees or on different locations on the same tree.

Some flowers are born singly but more commonly they are clustered.

Fruit – the fruit may be a berry, drupe, pome, multiple fruit, aggregate fruit, acorn or other nut, key (samara), achene, pod, capsule or follicle.

Simple fruit can be dry or fleshy. If it develops from several pistals, it is an aggregate.

ECOLOGICAL RELATIONSHIPS:

Major types of forests – their specific habitats, soils, and climate conditions.

Northern Forests – spruces, firs, pines, tamarack, paper birch, quaking aspen

Pacific Coast Forest – western hemlock, redwood, Douglas fir, western red cedar

Western Mountain Forests – ponderosa pine, lodgepole pine, Engleman spruce, Douglas fir.

Northeastern Deciduous Forests – eastern hemlock, American beech, red oak, basswood,
sugar maple beech, maples

Central Forests – tuliptree, sycamore, shagbark hickory, white oak, Ohio buckeye

Southeastern Forest – Loblolly pine, shortleaf pine, longleaf pine, mockernut hickory, live
oak.

Subtropical Forest – red mangrove, black mangrove, cabbage palmetto

Unforested Areas – desert, grassland, tundra

Growth requirements - trees belonging to the same group or family may have different growth requirements as temperature, moisture, and soil types. Some grow in pure stands but many grow in association with other species of trees.

Environmental impacts of trees – their role in the stability of their ecosystems.

Things they provide and problems created by misuse and natural factors as forest fires.

Interspecie relationships – relationship with other trees and plants and the animals within their ecosystem. Some animals are very specific about the type of tree they require within their ecosystem.

Role within their ecosystems – place within the food chains and food webs of their ecosystems.

Economic impact - lumbering, erosion prevention, oxygen production, wildlife habitats, food sources, shade.

Uses for the various parts of a tree – wood types and uses, bark, leaves, fruits, seeds, roots,

Mode of dispersal of their seeds – cones vs. flowers, fleshy fruits, wind, water, animal transport.

Resources:

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Virginia Tech – Links page

<http://www.cnr.vt.edu/dendro/forestbiology/links.htm>

Forest Biology Textbook online

<http://www.fw.vt.edu/dendro/forestbiology/textbook.htm>

Species by State or Region

<http://www.cnr.vt.edu/dendro/dendrology/map/zonemap.htm>

Fax Sheets and photos of species – tree shape, leaf, flower, twig, bark, fruit

Virginia Tech Dendrology Big List - fact sheets on tree species with photos (excellent)

<http://www.cnr.vt.edu/dendro/dendrology/syllabus/biglist.htm> (Most species)

National Arbor Day Foundation

Western Tree List

<http://www.arboday.org/trees/Wtreelist.html>

Eastern and Midwestern Tree List

<http://www.arboday.org/trees/ECtreelist.html>

Tree Identification:

Virginia Tech

<http://www.cnr.vt.edu/dendro/forsite/idtree.htm>

Leaf Key

<http://www.fw.vt.edu/dendro/dendrology/syllabus/key/key1.htm>

Twig Key

<http://www.fw.vt.edu/dendro/dendrology/syllabus/twigkey/key1.htm>

What tree is it? (Ohio)

<http://www.oplin.lib.oh.us/products/tree/>

Upper Peninsula – Tree Identification (MSU)

<http://forestry.msu.edu/uptreeid/default.htm>