Succinct shrub and tree phylogeny

Generally speaking, shrubs and trees are listed in order of evolution. For example, gymnosperms evolved before angiosperms. Each successive angiosperm clade is more recently evolved than the previous clade. Be aware that this does *not* necessarily mean that the more recently evolved shrubs and trees are more adapted to their environment. Some ancient plants, such as Gingko, can survive just about anywhere, whereas some modern plants can be picky and difficult to grow.

Key:

Gymnosperm or angiosperm Clade (for angiosperms) Division (for gymnosperms) Class (for gymnosperms) Order Family – some examples

Gymnosperms Ginkgophyta Ginkgoopsida Ginkgoales Ginkgoaceae – Ginkgo (only member!) Coniferophyta Pinopsida **Pinales** Araucariaceae – monkey puzzle Cephalotaxaceae – plum-yew Cupressaceae – callitropsis (such as Nootka cypress), chamaecyparis, juniper, arborvitae, and all the members formerly of Taxodiaceae, such as cryptomeria, redwood, sequoia, and bald cypress Pinaceae – pine, spruce, fir, Douglas-fir, hemlock, larch, golden larch, true cedar Sciadopityaceae – umbrella pine Taxaceae – yew, torreya

Angiosperms

MAGNOLIIDS

Magnoliales Annonaceae – paw paw Magnoliaceae – magnolia, tuliptree Laurales Calycanthaceae - sweetshrub Lauraceae – avocado, bay laurel, camphor, cinnamon, sassafras, spicebush Piperales Aristolochiaceae – dutchman's pipe

MONOCOTS

Asparagales Agavaceae – aloe yucca

COMMELINIDS

Arecales Arecaceae – palm Poales Poaceae – bamboo

EUDICOTS

Suggested Buxales (currently placed in basal eudicots, but not yet placed in an order) Buxaceae – boxwood Proteales Platanaceae – American sycamore Ranunculales Ranunculaceae – barberry

CORE EUDICOTS

Caryophyllales Cactaceae – saguaro Saxifragales Altingiaceae – sweetgum Cercidiphyllaceae – katsuratree Hamamelidaceae – disanthus, witchalder, witchhazel Iteaceae – Virginia sweetspire

ROSIDS

Myrtales

Myrtaceae – eucalyptus

EUROSIDS I (fabids)

Fabales

Fabaceae – honey locust, redbud, Kentucky yellowwood, golden chaintree (not to be confused with golden raintree in eurosids II), pagoda tree

Fagales

Betulaceae – birch, hazel, hornbeam, hophornbeam

Casuarinaceae – horsetail casuarina

Fagaceae - beech, chestnut, oak

Juglandaceae - hickory, pecan, walnut

Myracaceae – bayberry

Malpighiales

Salicaceae – aspen, poplar, willow

Rosales

Eleagnaceae – Russian olive

Moraceae – mulberry, Osage orange

Rosaceae – rose, apple, crabapple, cherry, apricot, peach, plum, almond, pear, serviceberry, hawthorn, ninebark, spirea, cinquefoil (sometimes called barren strawberry or mock strawberry)

Ulmaceae – elm, zelkova

EUROSIDS II (malvids) Malvales

Malvaceae *sensu lato* – Chinese parasoltree, chocolate, basswood, linden Thymelaeaceae – daphne, leatherwood

Note: APG II merged Sterculiaceae (chocolate) and Tiliaceae (basswood and linden) into Malvaceae.

Sapindales

Anacardiaceae – cashew, mango, pistachio, smoketree, sumac

Rutaceae – citrus trees (orange, lemon)

Sapindaceae – maple, buckeye, horsechestnut, soapberry, golden raintree (not to be confused with golden chaintree in eurosids I)

Simaroubaceae – includes tree-of-heaven, which could be more accurately nicknamed as giant-weed-of-Bronx. Like sumac, it is commonly found growing along trash-strewn, oil-splattered highways, in urban areas, in the cracks of unmaintained sidewalks, and along foundations of neglected buildings. Exceedingly ugly, but amazing capacity for survival.

Note: APG II merged Aceraceae (maples) and Hippocastanaceae (buckeyes and horsechestnuts) into Sapindaceae.

Another note: Many of the plants in Anacardiaceae, such as poison ivy, poison oak, and poison sumac, have evolved to produce an irritant toxin called urushiol. Even cashews contain urushiol within the dark green nutshells. These shells must be removed before humans can eat the enclosed nut.

ASTERIDS Cornales Cornaceae – dogwood Hydrangeaceae – deutzia, hydrangea Nyssaceae – dove tree, tupelo **Ericales** $Clethraceae-{\tt sweetpepperbush}$ Ebenaceae – persimmon Ericaceae – blueberry, heath, azalea, rhododendron, mountain laurel, zenobia Sapotaceae – sapodilla Styracaceae – silverbell, snowbell Symplocaceae – sapphireberry Theaceae – tea, franklinia, stewartia **EUASTERIDS I (lamiids)** Gentianales Rubiaceae – coffee Lamiales Bignoniaceae – catalpa Oleaceae – ash, forsythia, fringetree, jasmine, lilac, olive, privet Paulowniaceae - royal paulownia Scrophulariaceae – buddleia (butterflybush) Verbenaceae – callicarpa (beautyberry), caryopteris, teak, vitex **EUASTERIDS II (campanulids)** Apiales Araliaceae – aralia (such as devil's walkingstick), ginseng, hedera (ivy), kalopanax, pseudopanax (lancewood) Aquifoliales Aquifoliaceae – holly Dipsicales Adoxaceae – viburnum Caprifoliaceae - honeysuckle, weigela