

DROUGHT TOLERANT TREES for the FRASER VALLEY by G J Aitken, BSc(Agr)-Hort.

ABIES concolor var lowiana (Sierra Nevada White 25-60m), cephalonica (Greek 35m), nebrodensis (Sicilian 15-25m), numidica (Algerian 20-25m), pinsapo (Spanish Fir 20-30m)

ACER campestre (Hedge 15-25m), cappadocicum (Coliseum 20-30m), griseum (Paperbark 6-9m), grandidentatum (Bigtooth, 10-15m, western saccharum relative), monspessulanum (Montpelier 7-10m), obtusifolium (Syrian 5m evergreen), opalus (Italian 12-20m), pictum/mono ssp pictum (Painted 20m), platanoides (Norway Maple is this list baseline species 20-30m), sempervirens (Cretan 7-10m evergreen), triflorum (Three-Flowered Maple 10-25m griseum relative), truncatum (Shantung 4-8m, more drought tolerant than japonicum then pseudosieboldianum then palmatum (none of these circinatum relatives make this list))

AESCULUS californica (4-12m wide spread crown), x arnoldiana Autumn Splendor? (8-10m), hippocastanum (Horse Chestnut 30-36m, for deep rich soil)

ALBIZIA julibrissin (Persian Silk 8m (max 16m), var rosea 5-7m hardiest, wide crown and roots)

ALNUS incana, rhombifolia, rubra? (Alder, good temporary infill, improves soil)

AMELANCHIER alnifolia (Saskatoon/Western Serviceberry 4-10m shrubby), asiatica/sinica (12m), x grandiflora? (5-10m arborea x laevis)

ARALIA elata variegata (5-10m, prefers moisture, potentially invasive)

ARBUTUS menziesii (Madrona 20m, SOD severe), unedo (Strawberry Tree 7m, SOD moderate), x andrachnoides Marina (unedo x andrachne 10m)

ARCTOSTAPHYLOS columbiana, glauca, manzanita, Austin Hill (all shrubs)

BETULA pendula? (Silver/European White Birch 15-25m, most heat tolerant tall species)

BROUSSONETIA papyrifera (Paper Mulberry 6m)

BUXUS sempervirens (Boxwood 5m, understory shade)

CALOCEDRUS decurrens (Incense Cedar 20m, instead of closest relative Thuja plicata 30m)

CAMELIA japonica (6m, instead of Prunus laurocerasus tall hedge)

CARPINUS betulus? (European Hornbeam 15-25m), orientalis (Oriental Hornbeam 5-10m)

CARYA glabra (Pignut 25m), ovata? (Shagbark Hickory 30m), tomentosa? (Mockernut 15m)

CASTANEA sativa (Sweet Chestnut 20-35m, wood like Red Cedar, smelly inflorescence)

CEANOTHUS gloriosus Point Reyes, griseus Yankee Point, thyrsiflorus Victoria (all shrubs)

CEDRUS deodara (25-50m, especially glaucous/blue leaved varieties), libani stenocoma (Turkish 20-40m hardy, slightly glaucous var)

CELTIS australis (Mediterranean Hackberry 12-20m, freezing rain/ice storm risk), reticulata

(Netleaf/Western Hackberry 6-10m, calcium rich poor soil), tournefortii (Oriental Hackberry 8m)

CEPHALOTAXUS harringtonia (Plum Yew slow to 6m, dioecious)

CERCIS canadensis texensis, chinensis, occidentalis, siliquastrum (Redbuds 4-12m shrubby, preferring sandy soil with calcium for nitrogen fixation)

X CHITALPA tashkentensis (Catalpa bignonioides x Chilopsis linearis 7-10m)

CHRYSOLEPIS chrysophylla (Golden Chinquapin 3-30m, light shade, taprooting)

CLERODENDRUM trichotomum (Harlequin Glorybower 3-6m shrubby, best coastal)
CORNUS controversa (Wedding Cake Dogwood 15m, variegata 8m), nuttallii (Pacific 10m) and nuttallii x kousa hybrids (Starlight (9m) and Venus (8m))
CORYLUS colurna (Turkish Hazel 15m slow, uniform growth and habit), cornuta californica (eastern filbert blight resistant varieties)
CRATAEGUS azarolus (Mediterranean 10m, culinary haws), crus-galli (Cockspur 5m), x lavalleyi ((mexicana x calpodendron) Laval Hawthorn 7-10m)
CUPROCYPARIS leylandii (Leyland Cypress (macrocarpa x nootkatensis) 40m)
CUPRESSUS sempervirens (zone 7b-11, Mediterranean Cypress 35m)
CYDONIA oblonga (Quince 5-8m, tough and picturesque)
DIOSPYROS lotus (Date Plum/Caucasian Persimmon 15m or more, wider than tall)
ELAEAGNUS x ebbingei (5m, fixes nitrogen), umbellata ('invasive noxious weed' in Alberta)
EUCALYPTUS pauciflora subsp niphophila (Alpine Snow Gum 5m), subsp debeuzevillei? (9m)
EUCOMMIA ulmoides (Hardy Rubber Tree, 12-20m)
EUCRYPHIA glutinosa? (Chilean Brushbush 7m, most drought and cold tolerant Eucryphia)
FAGUS sylvatica Dawyck? (20-40m, columnar varieties more drought tolerant (high auxin=root growth)), orientalis (Oriental 25-35m) (Beech are the Birch of the Oak family)
FICUS carica (Fig 7-10m, warm aspect, aggressive roots appreciate brick rubble)
FRANGULA (Rhamnus) californica (California Buckthorn/Coffeetree 1-4m)
FRAXINUS ornus (Manna Ash 9m), angustifolia (Desert Ash 25m); also less droughty: americana, cuspidata, quadrangulata (Blue Ash 10-25m), velutina (all emerald ash borer susc but Blue 60-80% survive (mandshurica and chinensis resistant but poor heat/drought tolerance))
GINKGO biloba (20-35m prefers warm summers, thrifty with water, extensive roots over time)
GLEDITSIA caspica (Caspian Locust 12m, thorny), triacanthos (Honey Locust 20-25m)
GYMNOCLADUS dioica (Kentucky Coffeetree slow to 20m), chinensis? (Soap 12m)
HESPEROCYPARIS (Cupressus) arizonica glabra(10-25m), bakeri (10-25m)
HETEROMELES (Photinia) arbutifolia (Toyon 3m, western shrub)
ILEX aquifolium (Holly 10-25m and hybrids), crenata (Boxleaf Holly 5m)
JUGLANS regia (Persian Walnut 20m), hindsii (Northern California Walnut 9-18m riparian), major (Arizona Black Walnut 15m riparian)
JUNIPERUS chinensis (1-20m), excelsa (Greek 6-20m), monosperma (0.5-8m), occidentalis subsp occidentalis (Western 7m), oxycedrus (Cade 3-15m), recurva (Himalayan 6-20m), scopulorum (Rocky Mountain 1.5-4.5m) disease limits species options (summer heat stresses communis, sabina and horizontalis))
KALOPANAX septemlobus/pictus? (Prickly Castor-oil Tree 20-30m)
KOELREUTERIA paniculata (Goldenrain Tree 7m), bipinnata? (Chinese Flame Tree 15m)
LABURNUM x watereri vossii (3-7m), x Laburnocytisus adamii (chimera with Broom)
LIGUSTRUM lucidum (Chinese Privet 8-12m, to -15C, evergreen)
MAACKIA amurensis? (5-15m legume), hupehensis (Ma An Shu 5-23m)
MACLURA (Cudrania) tricuspidata (Chinese Mulberry 6m)
MAGNOLIA kobus? (10m), not grandiflora
MALUS Adirondack, Ames, Calloway, Centurion, Golden Raindrops, Harvest Gold, Indian Summer, Narragansett, Prairiefire, Robinson, Strawberry Parfait, Sugar Tyme, (see Schmidt

disease resistant crabapple chart); Redfree, Jonafree (scab-free edibles), fusca (seaside native), trilobata Guardsman?

MORUS alba (10-20m), australis, nigra (Persian/Black Mulberry up to 12m tall but usually half this and 15m wide layering indefinitely; best fruit and darkest green leaves)

MYRICA (Morella) californica (Pacific Wax Myrtle 2-10m coastal screening shrub)

NYSSA sylvatica? (Black Tupelo 20-25m)

OSTRYA carpinifolia (Hop Hornbeam 15m), knowltonii (Western 9-12m)

PARROTIA persica (Persian Ironwood 10-15m)

PHILLYREA latifolia (3-10m shrubby Mediterranean evergreen related to Osmanthus)

PHOTINIA x fraseri (6m), (Stranvaesia davidiana) davidii (4m)?

PICEA orientalis (30-45m), chihuahuana (25-35m), omorika (Serbian Spruce 20m, apply boron to maintain apical dominance), koraiensis? (Korean 30m), likiangensis (Lijiang Spruce 30m)

PINUS

Subgenus Pinus: nigra subsp nigra (Black, 25-45m, 1-1.8m dbh, much better than close relative thunbergii), heldreichii including var leucodermis (Bosnian, 20-30m), brutia subsp brutia (Turkish 20-35m, Zn 8), densiflorus (Japanese Red, moderate drought, fire sensitive, lowland), mugo subsp uncinata (Swiss Mountain, 12-20m, prefers altitude (more light)), contorta (pine beetle), jeffreyi (24-39m, better than ponderosa due to local pine beetle (but has its own beetle) prefers high altitude, serpentine soil tolerant), ponderosa subsp ponderosa (18-39m), sylvestris? (Scotch, heat sensitive, worst for sequoia pitch moth), tabuliformis var mukdensis (Chinese Tabletop, 20-30m), attenuata (Knobcone to 24m tall, 80 cm dbh)

Subgenus Strobus:

White Pines: cembra (Swiss Stone, wpbr resistant, slow to 25m), peuce (Macedonian, 35-40m, wpbr resistant, much better than related wallichiana); albicaulis, flexis, monticola (Western White, 30m, local native) + lambertiana (white pine blister rust resistant strains of American species by USFS)

Foxtails: aristata (Rocky Mtn 5-15m), balfouriana (10-20m), longaeva (Great Basin 5-15m)

Pinyons: culminicola (1-5m shrub), edulis (max 21m tall, 60cm dbh), monophylla var monophylla (5-9m (max 14m tall, 50 cm dbh))

PISTACHIA chinensis (Chinese Pistache 10-20m)

PLATANUS orientalis (Oriental Plane 30m) (with groundwater at depth, riparian Genus), racemosa Roberts (Western/California Sycamore 15m)

PLATYCARYA strobilacea? (15m)

PLATYCLADUS orientalis (Oriental Thuja/Arborvitae 15m)

PONCIRUS trifoliata (Trifoliolate Orange 4-8m, Flying Dragon dwarf twisted thorny variety)

PRUNUS angustifolia (Sand Plum 4-6m), armeniaca Puget Gold (Apricot 8-12m, shot hole fungus disfigures), pumila var besseyi (Rocky Mountain Sand Cherry 2m shrub), cerasifera (Myrobalan Plum 6-15m) cerasus (Cherry Laurel 10m), lusitanica (Portugese Laurel 13m), sargentii (Sargent Cherry 12-20m, fall colour), spinosa/cerasifera/domestica (Plum 4-6m), subcordata (Oregon Plum 4-8m)

PSEUDOTSUGA menziesii var menziesii (Douglas Fir 60m, sheds large branches in winter winds, then backbuds)(many excellent dwarf var and blue Rocky Mountain var glauca)
PYRUS amygdaliformis (Almond-leaved Pear 4-10m), calleryana (Callery 14m, brittle with age), fauriei (Korean 4-8m)

QUERCUS

White Oak Series (Quercus, clay/silt soil): aliena? (Oriental 25m), faginea (Portugese 15m), garryana (Oregon 20m, native), hypoleucoides? (Silverleaf 10m, evergreen), petraea (Sessile 40m), pubescens (Downy 20m), robur (English 30m, currently naturalizing)

Hungarian Oak Series (Mesobalanus, close to White): canariensis (Algerian 25m), dentata? (Daimo 25m), frainetto (Hungarian (Balkan) 30m), macranthera (Caucasian 30m), pyrenaica (Pyrenean 25m)

Turkey Oak Series (Cerris, sand or well drained clay): acutissima (Sawtooth 25m), castaneifolia (Chestnut-Leaved 30m), cerris (Turkey 25-40m taproot), libani? (Lebanese 12m), macrolepis (Valonia 15m), trojana? (Macedonian 15m), variabilis (Chinese Cork 25m)

Red Oak Series (Lobatae, sandy soil): coccinea (Scarlet 25m), kelloggii (California Black 25m instead of rubra)

Ring-Cupped Oak Subgenus (Cyclobalanopsis, evergreens): myrsinifolia? (Bamboo-leaf 20m, 7a), glauca (Japanese Blue 15m 8a)

least Frainetto<Robur<Cerris<Petraea<Ilex<Trojana<Pubescens<Macrolepis most drought

ROBINIA pseudoacacia (Black Locust 15m thorny suckers from distal roots, fixes nitrogen), x holdtii Purple Robe (10m, hard annual structural pruning vital due to exceptionally fast growth)

SEQUOIAADENDRON giganteum (Giant Sequoia 40-80m)

SHEPHERDIA argentea (Silver Buffaloberry 2-6m shrub)

SORBUS aria (Whitebeam 15m, high calcium soil), alnifolia (20m), aucuparia (Rowan/Mountain Ash 15m), commixta (10m), domestica (Service/Sarvis Tree 20m), x intermedia/hybrida (Swedish Whitebeam 15m), torminalis (Wild Service/Sarvis 15m)

STYPHNOLOBIUM (Sophora) japonica (10-20m, no nitrogen fixation, ice storm susceptible so better for coastal use)

SYRINGA reticulata ssp pekinensis (survives late summer leaf burn repeatedly)

STEWARTIA pseudocamellia ssp koreana (12-20m)?

TAXUS baccata (Yew 20m), x media

ULMUS carpinifolia/minor (Field Elm 30m, use only DED resistant hybrids like Patriot (16m strong central leader), Homestead (20m) and Frontier (13m)), glaucescens (Gansu Elm 15m), parvifolia (Chinese Elm 15m), pumila (Siberian 10-20m) (all Elm ice storm susceptible so best confined to the western side of the valley)

TETRADIUM (Euodia) daniellii (Bee-Bee Tree, <12m)

TILIA tomentosa (Silver Linden, fast to 20-35m, structural pruning important, aphid free and a favourite of bees, very fragrant in bloom)

YUCCA gloriosa var tristis synonym recurvifolia (2.5m, may be aloifolia x flaccida/filamentosa)

ZELKOVA carpinifolia (Caucasian 30m), abelicea (Cretan 15m, hardy, endangered), sicula (Sicilian 2-5m, critically endangered)

ZIZIPHUS jujuba (Chinese Date 10m)