

TREES FOR CONSERVATION 2011 SPECIES LIST AND DESCRIPTIONS

Bare Root Shrubs

CARAGANA (*Caragana arborescens*) - or Siberian peashrub is a deciduous, many branched, upright shrub or small trees to 15 ft., introduced as an ornamental from Siberia. It is cultivated throughout Colorado and Wyoming below 9,500 ft. for hedges, screens, and shelter plantings. The shrub is winter hardy, long lived, and adapted to a wide range of soil and moisture conditions, with a special tolerance of drought and a moderate tolerance of salty soils. Caragana has bright yellow, pea-like flowers in the spring.

As used in a windbreak, plant Siberian peashrub in the outer rows of multi-row plantings. It is suitable for planting in a single-row windbreak where a dense, short barrier is desired. This shrub is used for nesting by several songbirds and the seeds are occasionally eaten. This plant is not preferred food for browsing animals and is rarely damaged by deer or elk.

Grasshoppers and blister beetles can defoliate this species during some years but it recovers well from the attacks. There are no known serious disease problems.

Caragana is the best all around shrub for almost any environmental condition in the Woodland Park District.

COTONEASTER (*Cotoneaster acutifolia*) - A deciduous, spreading shrub to 8 ft., introduced as an ornamental from northern China because of its white flowers. It is widely planted to 9,500 ft. for hedges, screens and windbreak purposes. The shrub has good winter hardiness and medium tolerance of drought and shade, slow growing, long lived, and is not a preferred browse for animals.

Cotoneaster is usually planted in the outer rows of a multi-row windbreak. It has potential for use in single-row windbreak plantings where a short, dense barrier is desired.

Cotoneaster provides roosting and loafing cover for numerous song and game birds; some utilize the fruits for food where the red berry fruits may be persistent on the plant for months into the winter.

Fireblight can be a problem in some plantings. It is recommended that the infected plants be pruned to near ground level to promote growth of healthy foliage. Oyster shell scale can be a serious insect problem, especially in or near towns and cities.

CHOKECHERRY (*Prunus virginiana*) - A deciduous, large shrub with a spreading crown. It has a white flower in the spring and is often found in loose thickets, reaching heights of 25 ft. This shrub is native to most of North America. It is rather common over Colorado, occurring on foothills, in mountain canyons, along stream banks and on moist places at elevations to 9,000 ft. It is usually found on deep, rather fertile, sandy soils but does well on others including decomposing granite. The shrub is an important browse plant, winter hardy and drought resistant, and performs well in some shade.

Common chokecherry is used in the outer rows of multi-row shelterbelts where supplemental moisture is provided. It is suitable for single-row windbreaks where a relatively short, dense barrier is desired.

This shrub is among the most important plants for wildlife cover and food. The thicket forming growth provides cover for songbird nesting, loafing and roosting, and animal loafing and bedding. The fruit and foliage are relished by a great number of wildlife species including upland songbirds, rodents, small animals, whitetail and mule deer. The fruit is commonly used for the making of jelly, so the shrub makes a fine addition to recreation and ornamental plantings; however the suckering characteristics should be considered.

“Virus X” disease and black knot can cause injury or mortality to plants. This species is not recommended in plantings that contain other stone fruits.

The dried leaves in the fall can be poisonous to horses!!!

LILAC (*Syringa spp.*) - A deciduous, large and compact shrub with numerous erect stems to 12 ft., that was introduced from Europe as an ornamental and is widely cultivated in Colorado. Elevational range is about 8,500 ft. Lilac has a high tolerance to cold and drought, is adapted to different soils and moisture conditions but is fairly shade intolerant.

Lilac is usually planted in the inside row of multi-row windbreaks so that the showy flowers can be enjoyed from the homestead. It can be planted in a single row windbreak where a low, dense barrier is desired.

Because of root suckers, this species provides high quality cover for numerous species of birds and animals. The plant has very little value for fruit or browse. This species is extensively used as an ornamental because of its showy purple or white flowers. Planting locations should be carefully selected because of the suckering characteristics.

Lilac (ash) borers can be a serious problem in some young plantings. Generally the damage does not reduce the effectiveness of this species. Leaf miner, leaf roller, powdery mildew and oyster shell scale, grasshoppers and cutter bee can be a problem.

NATIVE PLUM (*Prunus americana*) - A deciduous large shrub or small tree with a broad crown that grows to heights of 10 ft. tall. It occurs naturally on moist bottomlands and stream valleys to elevations of about 8,000 ft. The shrub is winter hardy, but intolerant of shade, and readily sprouts from the roots to form dense thickets. It has a white flower in the spring.

Plant native plum in the central or outside rows where adequate water is available. It may also be planted in single-row windbreaks.

This plant is highly important as wildlife cover and food. The suckering growth when protected forms a thicket valuable for bird nesting, loafing and roosting, and animal loafing and bedding. Twigs and foliage provide a highly preferred browse for whitetail and mule deer. The fruit is widely used for making jams and jellies.

There are no known serious insect problems; plum pocket and black knot are common diseases but are generally not serious.

SUMAC skunkbush (*Rhus trilobata*) - A deciduous, much-branched and spreading shrub of 3-5 ft., native to western North America. It occurs along stream bottoms and forest openings, but is most common on dry, rocky slopes at elevations of 8,500 ft. The shrub is very winter hardy, tolerant of drought and alkali, intolerant of shade, long lived and moderately rapid growing.

Three-leaf sumac is best used in the outer rows of multi-row windbreaks. This species has potential for single row plantings where a low, dense barrier is desired especially when attempting to maintain a view yet striving for snow deposition control.

Sumac fruit provides an important fall and winter food for songbirds and an emergency winter food for game birds. Fruits and buds are staple food for sharp-tailed grouse. This plant provides high quality roosting and loafing cover for many bird species and is a preferred nest site for many thicket-nesting birds. It is also a browse source for mule deer. Sumac is noted for its brilliant fall coloration and red-orange fruit, and for its typical but unpleasant odor from crushed leaves.

There are no known serious insect or disease problems. **This species is not poison sumac.**

NANKING CHERRY (*Prunus tomentosa*) - A deciduous, spreading shrub to 9 ft., introduced from China. The shrub is winter hardy, fast growing, but short lived and is planted to about 8,000 ft. Nanking cherry is noted for their showy white flowers and edible fruit. It has a moderate tolerance to drought.

Nanking cherry is used on the leeward side of multi-row plantings. It is not recommended for planting in single-row windbreaks.

Nanking cherry is utilized by a few songbirds as nesting cover, and produces a fruit that is relished by many songbirds. The species is a preferred browse for rabbits, rodents, whitetail and mule deer.

Shot-hole leaf spot and black knot disease can be a problem. Rabbits and rodents can cause serious injury to this species and adequate steps to control them should be taken before significant injury occurs.

WOODS ROSE (*Rosa tomentosa*) - Is a spreading shrub, attains 3-4 ft. and has rose-like leaves. The stems are thorny; support showy pink flowers, suckers easily, and readily grows on sandy soil. This species can compete with thick sod and has excellent cold and drought resistance. Often browsed, it is an excellent big game food source. Songbirds eat the berries and use the thorny thickets for escape cover, resting and preening. Plant woods rose to 10,000 ft.

Woods rose is the source for rose hips used in teas. Berries may induce sickness if consumed without proper preparation. The leaves turn red-orange in the fall.

SILVER BUFFALOBERRY (*Shepherdia argentea*) - A deciduous, thorny shrub or small tree that rarely grows over 15 ft. tall. A native to northwestern North America, it occurs as scattered to frequent plants along streams, in bottomlands and on moist hillsides to about 7,500 ft. The shrub is winter hardy and alkaline tolerant, but has only limited drought and shade tolerance. Under favorable conditions it readily forms thorny thickets. This shrub is good for planting on severely disturbed soil or mine spoils.

Plant buffaloberry in the outer rows of a multi-row planting where supplemental moisture is available. This species has potential for single-row planting where a low, dense barrier is desired.

The thorny thickets formed by the shrub create ideal cover for numerous birds and animal species. It is preferred nesting site for many songbirds. Some birds eat the fruit although it is not relished by a wide variety of species. The fruit is highly prized for making jelly. There are no known serious insect problems.

GOLDEN CURRANT (*Ribes aureum*) - A small to medium-sized native shrub, about 5-8 ft., occurring from 3,500 to 8,000 ft. In spring it can have attractive, fragrant, bright-yellow flowers with red, yellow or black berries in the fall. Golden currant is fairly palatable to livestock and has good palatability to game animals. It provides good cover for birds and small mammals with fair drought and alkali tolerance. This currant is a shade tolerant specie that can spread by sprouting and is moderately fast growing. The leaves turn a beautiful maroon color in the fall.

Golden currant may make a good first row (windward) species because of it's multiple stems and sucker sprouting.

MOUNTAIN MAHOGANY (*Cercocarpus montanus*) - This tough plant is a deciduous, multi-stemmed shrub that attains a mature height of about 6 ft. This drought tolerant native shrub is a favorite winter deer browse. The dark green leaves are small and wedge-shaped that turns a beautiful russet color in the fall. The seed heads are very conspicuous on curly, plumed tails that are highly attractive in full sunlight. Plant this specie up to 9,000 ft.

Use mountain mahogany as wildlife habitat in clumps or on south or southwest facing slopes for ground cover. It is suitable for exposed sites in poor

soils and is commonly seen in decomposing granite. It is not suitable to plant in windbreaks because of its irregular shape and size.

RED-OSIER DOGWOOD (*Cornus serica*) – A native of meadows, riparian zones, forest openings and margins, red-osier dogwood is a deciduous, many-stemmed and widely spreading shrub of 7-10 ft. A widely distributed native across North America, it occurs in damp soils along mountain streams of Wyoming and Colorado, at elevations of 4,500 to 10,00ft. It is best suited to moist sites for shelterbelts and ornamental plantings. It is winter hardy, shade tolerant and fast growing. Its red stems provide winter color and browse for deer, moose and elk. Dogwood produces small showy white flowers that develop into pleasing white berries. The leaves turn red in the fall giving the landscape delightful appearance year-round.

Dogwood provides many wildlife benefits. Its persistent fruit provides a valuable winter food source. On good sites, the multi-stemmed plant can form dense thickets providing cover.

Red-osier is recommended for restoration of moist sites such as streambank riparian areas. Drought tolerance after establishment is fair and it has excellent cold tolerance. It is able to tolerate flooding. Dogwood's thick, extensive root system makes it excellent for erosion control. It is not suited for growth on dense clay soils. It is best planted in full to moderate sunlight.

NEW MEXICO FORESTIERA (privet) (*Forestiera neomexicana*) – This deciduous shrub is a thicket former and is found in unexpected and out of the way places in the southwestern corner of the state. Occasionally it predominates, as along the lower Dolores River. At mature height it will grow to about 10 ft. tall and elevations of 7,500 ft. It prefers areas with water nearby although it is drought tolerant. The fruit are small black berries that sometimes occur in clumps with a whitish bloom, the flowers are yellow and its growth form is irregular and dense. It is fairly long lived, has a moderate growth rate, tolerates alkaline soils and provides excellent cover for quail and songbirds.

Plant privet as wildlife habitat in clumps or use it on south or southwest facing slopes for ground cover. It is suitable for exposed sites in poor soils. It is not suitable to plant in windbreaks because of its irregular shape and size.

WAX CURRANT (*Ribes cereum*) - This small, deciduous shrub grows to a height of about 5 ft. tall. It is a common drought tolerant native shrub of our foothills occurring in dry coarse soils. Its most striking features are the showy, edible (but sometimes not very tasty!) red currants valued by songbirds. Its native range in Colorado is from 4,000 to 11,000 feet. Wax currant prefers sandy, gravelly soils but will tolerate decomposed granite and loamy to heavy clays. Its adaptability to many soil types makes it a good choice for restoration of fire burned areas in the ponderosa pine zones. It does not tolerate shade, has small, white flowers in the spring and has a moderate growth rate.

Plant wax currant as wildlife habitat in clumps or use it on south or southwest facing slopes for ground cover and fire rehab efforts. It is suitable for exposed sites in poor soils and is commonly seen in decomposing granite. It is not suitable to plant in windbreaks because of its irregular shape and size.

All currants (genus *Ribes*) are alternate hosts for white pine blister rust disease. Currently found only in the Wet Mountains and Rocky Mtn. National Park, white pine blister rust effects white pine (not native to Colorado), and the two native five needle pines found in Colorado, limber and bristlecone pine.

Bare Root Deciduous Trees

GREEN ASH (*Fraxinus pennsylvanica*) - A deciduous medium sized tree with an open, irregular crown reaching about 50 to 75 ft. in height. It is common along plain's watercourses at elevations to 6,000 ft. but has been widely planted up to 8,500 ft. The tree is fast growing on moist bottomlands, and is extremely hardy to climatic extremes once established. It has very strong wood (used in baseball bats exclusively) and regular ladder-like branches that are evenly spaced. The leaves will be pale to golden-yellow in the fall.

Green ash works best as the central rows of multi-row windbreaks. It can also be used for single-row windbreaks, although loss of lower branches with age reduces effectiveness.

This tree is of moderate importance to wildlife. The winged seeds are eaten by a number of birds and mammals including wild turkey and rodents. Whitetail and mule deer browse the twigs and foliage.

Ash borer, ash sawfly, oystershell scale and carpenter worm can be a serious problem in this tree species. Ash yellows may become a serious vascular disease as it spreads across the plains states.

SIBERIAN ELM (*Ulmus pumila*) - A deciduous medium sized tree with a graceful, vase-like silhouette, sometimes shrub-like, attaining heights of 40-50 ft. It is native to northern China and eastern Siberia. It has been planted extensively on the Great Plains and to elevations of about 8,000 ft. It is known for its rapid growth in almost any environmental condition and it's hardiness to drought and cold. Although it does very well in eastern El Paso County it is prone to fall dieback from early frosts.

Plant Siberian elm as the central or leeward components of multi-row windbreaks. Use caution with herbicides when working around these trees.

Elms have little value as a food source for game birds or mammals. It is not preferred by birds or mammals as a source of quality browse or cover although it is often used for nesting.

Siberian elm has a tendency to be weak structured, breaking under wind and snow loads. Keep well pruned as it may sucker sprout from cut stumps or unfavorable growing conditions. It also has a tendency towards early mortality or dieback. Can be trashy with fallen twigs and branches.

HYBRID COTTONWOOD (*Populus deltoides* (var *Noreaster*)) - Can attain heights up to 70 ft. tall on moist, rich soils (stream bottom). This hybrid is the sterile female, cottonless variety that is resistant to leaf rust and has excellent resistance to cold and alkali soils. It is a good windbreak tree but a poor wildlife species that needs moist soils. This hybrid cottonwood does best below 6,500 ft. It prefers sandy loam or loamy sand or gravel mix with good drainage. The fall foliage is bright yellow. This specie can be used in riparian areas for soil conservation on old homesteads that have been heavily browsed by livestock.

Cottonwood can be very fast growing, up to 3 ft. per year, however it is susceptible to cytospora canker and can be trashy with falling twigs and branches. Poplar borer and bacterial wetwood (slime flux) may also be a problem.

GOLDEN WILLOW (*Salix alba vitellina*) - A deciduous, large and graceful tree, reaching heights of 40 ft. that may grow up to 8,000 ft. in elevation. In places it has escaped cultivation, usually in moist soils along watercourses. This tree is fast growing (up to 3 ft. a year) if provided sufficient moisture on sandy or well-drained soils. Golden willow has yellow fall foliage and golden juvenile twigs. Like most willows golden willow is short lived (less than 50 years) and must be pruned to favor one main stem for a true tree shape.

Golden willow works well as a central row of multi-row windbreaks. It is also suitable for single-row windbreaks but should receive supplemental water.

Willow provides for browsing wildlife such as whitetail and mule deer through the sapling stage. In addition, it provides important nesting and roosting habitat for various species of birds such as great horned owls and red-winged blackbirds.

There are few serious insect or disease problems other than cytospora canker that may affect trees in poor growing conditions. Also, weak structure may lead to wind or snow breakage.

HACKBERRY (*Celtis occidentalis*) - A deciduous tree with a rounded, spreading crown that reaches heights to 50 ft. Native to the eastern U.S., hackberry occurs in the eastern plains at elevations to 7,000 ft. The tree is frequently cultivated for its attractive yellow fall foliage and gray, corky bark. It is fast growing on moist, rich soils, but is adapted to a variety of sites, and is drought resistant when established.

Use hackberry in the central rows of multi-row windbreaks. It may also be planted for single-row windbreaks, although loss of lower branches with age reduces effectiveness.

Hackberry fruits (drupes) are popular with many winter birds. Both whitetail and mule deer browse on twigs and foliage.

Hackberry is excellent for shade and ornamental purposes; however it is susceptible to witches-broom which does not detract from its horticultural value. Insects are of minor importance although leafhoppers and leaf gall psyllids may become a nuisance.

HONEYLOCUST (*Gleditsia triacanthos inermis*) - This large deciduous tree has spreading branches that form a broad graceful crown, attaining heights of 50-75 ft. This tree is native to central North America to about 7,500 ft. It has rapid, vigorous growth in almost any soil, and its tolerance to drought makes it a valuable windbreak tree. Honeylocust produce yellow fall foliage. This is the thornless cultivar.

Plant honeylocust in the center rows of multi-row shelterbelts. It may be used for single-row windbreaks, but leafs out later than most species, and drops its leaves earlier.

Honeylocust has limited wildlife use but does provide some songbird cover and is eaten by cottontail rabbit, squirrels and deer.

Thyronectria canker, sunscald, and cytospora canker can be serious problems.

LOMBARDY POPLAR (*Populus nigra 'italica'*) - Attains a peculiar columnar shaped crown that may get 8 ft. in diameter, usually with several main stems. Lombardy reaches about 40 ft. in height, is very fast growing yet short lived. Plant it up to 8,000 ft.

Lombardy poplar is not a good permanent windbreak tree but may have some use as a temporary row that provides shade and protection while slower growing pine and spruce get established. When the tree begins to deteriorate it may be removed for firewood. It will sucker sprout profusely from cut stumps and form multiple water sprouts.

It does well on sandy loam, loamy sand or gravelly, well drained soils with abundant water and plenty of sun. L. poplar can be susceptible to insect and disease problems specifically poplar borer, bacterial wetwood and cytospora canker.

This specie often suffers dieback from early fall frosts and may be trashy caused by fallen twigs and branches.

PRAIRIE SKY POPLAR (*Populus Canadensis*) - A cross made between a vigorous native selection of cottonwood and the columnar Theves Poplar. The cross was made by Dr. Wilbert Ronald in 1976 at the Morden Research Station in Canada. The growth rate is very fast. An average of 4 feet in height growth and at least 1" of caliper per year can be expected on a *fertile* site, over a 10 year period. Young trees can show tip kill in cold winters due to the rapid growth rate.

This tree has a narrow, upright growth habit and small lateral branches. It maintains a dominant central leader and reaches a height of 65-80 feet. The leaf shape is similar to that of the native cottonwood. Well suited for naturalized areas and well adapted in areas designated for screens, buffer zones, and windbreak applications, up to 6,000 feet in elevation.

BUR OAK (*Quercus macrocarpa*) - A medium to large tree, 50 to 75 ft. high and 2 to 3 ft. in diameter with a massive trunk and broad crown of

stout branches. Noted for its resistance to drought, it does well on many types of soils from sandy plains to moist alluvial bottoms, on uplands and on limestone soils. All oaks produce acorns eaten as mast by deer and winter forage for squirrels. This red oak is slow growing but will make an excellent windbreak and shade tree. Plant bur oak trees up to 7,000 ft.

This is an excellent choice for eastern and southern El Paso County with its deep sandy soils. Use bur oak on the interior rows of multiple row windbreaks. Bur oak leaves turn red, orange, black or combinations of all three during the fall.

This tree should be an excellent windbreak species to replace Siberian elm on the eastern plains of El Paso County. When the trees die the stems can make superb fence posts or firewood material.

POTTED TREES (Containerized):

ASPEN (quaking) (*Populus tremuloides*) - Quaking aspen is the most widely distributed tree of North America. It is fast growing, relatively short-lived and commonly attains heights of 50 to 60 ft. This tree is very intolerant of shade and competition. Aspen is extremely susceptible to many types of damaging agents that at times may make it difficult to establish as transplants. It is found on many types of soil from moist loamy sands to shallow, rocky decomposing granite. When aspen stands are cut or burned, innumerable root suckers grow quickly from those roots less than 3 or 4 ft. deep.

Aspen is never used as a windbreak or snowfence tree due to its short life span and propensity to insect and disease problems. In addition plants in the populeaceae family have soft wood that are prone to rotting fungi.

Aspen thrives from 6,000 to 11,000 feet where water and sunlight are abundant. It may be planted as a wildlife habitat because its twigs, buds and leaves are highly prized by deer and elk for winter forage. The soft interiors of decaying aspen work exceptionally well as homes for cavity nesting birds.

AUSTRIAN PINE (*Pinus nigra*) - A 40 ft. tall evergreen tree with a somewhat open crown. Austrian pine grows naturally on alkali soil and is a good windbreak species. Austrian pine has excellent drought hardiness and can be planted to 7,500 ft. Although it closely resembles ponderosa pine in form, Austrian pine has bright silver buds and dark green needles. Unlike ponderosa, Austrian pine is not prone to losing its lower branches with shading and age.

Plant Austrian pine as a middle element of a multi-row windbreak or as a single row shelterbelt where a medium height tree is needed.

It is not susceptible to dwarf mistletoe but is somewhat susceptible to MPB, Ips beetle and pine tip moth.

COLORADO BLUE SPRUCE (*Picea pungens*) - Colorado's state tree, blue spruce is an evergreen, densely conical to open pyramidal tree of 60-80 ft., native to the central Rocky Mountains. It naturally inhabits rich, moist soils; typically on stream banks at elevations to about 9,500 ft. CBS is tolerant of temperature extremes, wind and shade. This tree is slow growing, especially in the early years, and long lived.

CBS can be used in any row of a multi-row windbreak if adequate distance is provided to prevent overtopping of deciduous trees. It is also suitable for planting in single-row windbreaks when adequate moisture is available.

It provides excellent nesting; roosting and winter cover for numerous small birds. It is not a preferred forage plant. There are no known serious disease problems. Spider mites and white pine weevil may cause occasional damage. Tussock moth may cause severe defoliation if left untreated. Cooley spruce gall aphids kill the tips of the branches and can stunt growth (but are not fatal to the tree).

CBS makes an excellent windbreak tree. However the first 3 to 6 years after planting it remains in much the same size and shape as when first planted. This does not mean that it is not growing, just that all the plant's growth is in the root system and physiological alterations in the leaf's structure. CBS is not a plains tree! Therefore it must be shaded by artificial means the first 3-5 years. Only after establishment beyond 6 years will it then exhibit noticeable external growth.

DOUGLAS-FIR (*Pseudotsuga menziesii*) - Doug-fir, an evergreen, may reach 70-100 ft. tall on good sites. It has a dense dark green to light blue crown and flat, flexible needles. There is an extruding bract (or 3 pointed turkey's foot) on each cone scale. Native to Colorado, Douglas-fir requires moist areas and grows best on north and east slopes between 6,000 and 9,000 ft. It is very cold resistant and may be good for windbreaks and wildlife habitat.

Fairly shade tolerant and drought resistant; plant D.-fir in the understory of DMT infected stands of ponderosa pine for replacement trees.

Douglas-fir is susceptible to tussock moth, spruce cooley gall aphids, and Doug-fir beetle.

ENGELMANN SPRUCE (*Picea engelmannii*) - This very shade tolerant, beautiful conifer likes cold, dark, north facing slopes. It has a single, very straight, cinnamon colored trunk and its appearance is much like CBS but with shorter needles and cones. Does best on moist, rich soils but will tolerate most sites. Engelmann spruce can get to 90 ft. tall at elevations between 8,000-11,000 ft.

Plant Engelmann spruce in the understory of DMT infected stands of ponderosa pine for species diversity. It is not a plains tree and will not tolerate the great amounts of sunlight and wind that you would expect to find in windbreak applications.

This conifer is drought tolerant, long-lived and slow growing.

EASTERN RED CEDAR (*Juniperus virginiana*) - A small evergreen tree commonly 10 to 20 ft. tall, of pyramidal shape becoming rounded in age. It is native to eastern North America, but is cultivated for shelterbelts and ornamental uses to about 7,500 ft. It does best on dry soils in full sunlight, and is winter hardy and tolerant of drought, clay and salty soils. It is moderately fast growing and long lived. Its needles become a very rust-red color in the winter.

Eastern red cedar is best used in the outer rows of multi-row windbreaks. It can be used in single-row or high-density double row windbreaks when a dense, medium height barrier is desired.

This species provides food and cover for numerous birds and mammals. Winter food and protection is particularly important for pheasants, mule and whitetail deer.

This tree is relatively free of serious insect and disease problems. Locally, spider mites may be a nuisance.

LOGEPOLE PINE (*Pinus contorta*) - This native evergreen can attain 60- ft. tall, has an open, almost spire-like crown with a very straight trunk. Its needles are yellowish green in color and sport a slight twist. The cones can be serotinous (needs fire to open) or normal.

This tough tree has excellent cold and drought resistance and may make a good windbreak tree for altitudes above the range of ponderosa pine. It is a good source of seeds for upland game and songbirds although it can become skinny and leggy in dense, overstocked stands. It is found mostly in decomposing granite

Lodgepole works best between 6,000 and 11,000 ft., is fairly slow growing and shade intolerant.

Do not use lodgepole pine as a substitute for ponderosa pine as it is susceptible to DMT and MPB.

PINON PINE (*Pinus edulis*) - This native conifer can grow to 8,500 ft. on poor, arid, droughty soils. It is commonly found on south and south western facing slopes with much sunlight. Pinon is slow growing but long lived, medium sized, usually grows about 20 ft. tall but can sometimes reach 15-30 feet. It most often has an irregular shaped crown that does not lend itself to windbreaks but may be used as a wildlife specie or clump plantings for visual screening. Pinon pinecone seeds on mature trees are edible after roasting.

Pinon pine is susceptible to spindle gall midge, ips beetle and dwarf mistletoe.

PONDEROSA PINE (*Pinus ponderosa*) - An open branched evergreen tree of 45-70 ft. Its crown forms an open pyramid when young, becoming round topped and irregular with age. The tree is native and is the most widely distributed pine tree in western North America. It has adapted to well drained and decomposing soils, to elevations of about 9,000 ft. Its adaptability and drought tolerance have brought it wide use in shelterbelts. This tree is moderately slow growing especially in early years, but is very long lived.

Ponderosa pine is easily the most versatile evergreen for almost all areas of the Woodland Park district. It has been used extensively on the plains of El Paso County where CBS will not work and a tall evergreen is needed. Use ponderosa in the central or leeward rows of multi-row windbreaks. It can also be used as a single-row or high-density twin row windbreak although loss of lower limbs may reduce its effectiveness.

This tree is of some importance as food and cover for many birds and small mammals. Although whitetail and mule deer browse ponderosa it is not preferred forage.

Serious disease problems are rare; however, mountain pine beetle, ips beetle and dwarf mistletoe can be a serious concern if left untreated.

ROCKY MOUNTAIN JUNIPER (*Juniperus scopulorum*) - A small to medium evergreen tree with an irregular crown that rarely grows to 45 ft. A native to western North America, it occurs in mixed (almost always with pinon) or pure stands of open scrub woodlands at elevations to about 9,000 ft. It is adapted to a wide range of soils (even some clay) and moisture conditions, is very winter hardy, slow growing and very long-lived.

Because Rocky Mountain juniper is such a tough tree it is usually used in the outer rows of multi-row plantings where it can take the brunt of storms and drying winds. It can be used in single or twin high-density windbreaks when a dense, medium height barrier is desired.

This species provides food and cover for numerous birds and mammals. It is particularly important as winter food and protection for pheasants, mule and whitetail deer.

This tree is relatively free of serious insect and disease problems. Locally cedar bark beetle has been a problem with extended drought.

SCOTCH PINE (*Pinus sylvestris*) - A spreading evergreen which, at maturity can obtain heights of 40-80 ft. Pyramidal when young, becoming round-topped and irregular in age. The tree was introduced from Eurasia and has been cultivated for windbreaks and Christmas trees at elevations to about 7,500 ft. It does best on rich, moist soils, but its winter hardiness and good drought tolerance enable it to do well on other soils. It is moderately fast growing and is long-lived.

Plant Scotch pine in the central or leeward rows of multiple-row plantings. It is also recommended for planting as a single-row windbreak. Weak and brittle wood-strength may be a problem during heavy late or early snows.

This tree is of some importance as food and cover for many birds and small mammals. It is not preferred forage.

Tip moths and ips beetle can be problem with this specie.

WHITE FIR (*Abies concolor*) - Adapted to southern Colorado between 6,000 and 9,000 ft. Very shade tolerant, it will grow well in the understory of ponderosa where DMT is a problem. White fir develops into a Christmas tree shape with thick, soft, white to blue needles that point upward on mature trees. It is very cold and drought hardy and will thrive on dark, protected north slopes and can attain heights up to 100 ft. White fir does not establish easily on the plains of El Paso County, but may slowly adapt to adverse microclimates given protection in the seedling stage.

Tussock moth and western spruce budworm are defoliating insects that can damage white fir.

LIMBER PINE (*Pinus flexilis*) - A tough, high altitude native evergreen that grows to 11,000 ft. Very drought resistant, but like all plants that grow to high altitudes, has small proportions, varying from 10 to 40 ft. in height. The crown is usually irregularly shaped with the needles clustered on the branch ends that form a "lion's tail". This makes limber pine unsuitable for windbreak use but can be planted on harsh south facing slopes in decomposed granite.

Limber pine is moderately susceptible to DMT, Ips and MPB. Its cone is serotinous, (a stone pine), and often connected to the branch along a side.

NARROWLEAF COTTONWOOD (*Populus angustifolia*) – This is a large, 50-80 ft. deciduous tree with an irregular globular crown. It grows best between 5,000 and 9,500 ft. in sandy or loamy soils with good drainage and plentiful moisture. Very fast growing (2-3 ft/year), narrowleaf could work well as the leeward row of a 3-row or greater windbreak, especially when benefited by a drip system. This tree has beautiful yellow or orange fall foliage on long, narrow, serrated leaves.

It is susceptible to poplar borers, cytospora canker, bacterial wetwood and can be trashy with fallen twigs and branches. This specie can be used in riparian areas for soil conservation on old homesteads that have been heavily browsed by livestock.

This cottonwood releases copious amounts of cotton in the fall.

COYOTE WILLOW (*Salix exigua*) - A high altitude willow that does well up to 9,500 ft. It does best in drainages and wet areas with plenty of moisture. Coyote willow makes a small shrub that is multi-stemmed which can get to 10 ft. tall. Its rapid and adventitious growth is excellent for re-vegetating drainage where overgrazing has occurred and a need for soil stabilization exists. Coyote willow is a good wildlife species that provides food and cover for birds and browse for deer, elk and moose.

A word of caution: The environmental conditions that influence plants are myriad, including but not limited to: elevation, soil types, aspect, sunlight, temperature extremes, insect and disease activity, animal predation, weather patterns, other plant competition, and of course precipitation. The growth rates and habitats described above are meant to be guidelines, not factoids that are "written in stone". Your expectations should be tempered with the knowledge that every site is different and that you will have some mortality even though you may do everything by the book. Mother Nature doesn't read and often plays by her own rules so allow some flexibility in your interpretations of the text you may read on plants and the expectations of your planting project. For further assistance see the companion document titled, "44 Tips for Improved Planting Survival".

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