

COTTONWOOD TREES: FACTS AND INFORMATION

Wyoming State Tree: Plains Cottonwood, *Populus sargentii* Dode.

Size: 60 to 100 feet tall, 60-100 foot canopy spread, trunk diameter up to 5 or 6 feet.

Minimum Ground Space: 15 feet diameter of open ground around a cottonwood tree trunk.

Lifespan: Variable, up to 100 years.

Female cottonwood trees: Produce the cottony covered seed.

Male cottonwood trees: Produce pollen.

Wyoming State Tree - Plains Cottonwood, *Populus sargentii* Dode. Dendrologists do not have a consensus of opinion if the Plains cottonwood is a separate species or a variety of eastern cottonwood - *Populus deltoids* var. *occidentalis*. Cottonwood trees are in the Willow family and the Poplar genus.

The plains cottonwoods, eastern cottonwoods and other true species of cottonwoods are majestic and magnificent trees, especially when they are allowed to reach their full, unrestricted growth potential. Cottonwoods grow well in Cheyenne and in Wyoming in general. Cottonwoods are typically found growing along streams, irrigation ditches, and around lakes. Although they grow best around a source of water, they can tolerate dry soils, if grown in dry soils from the start. Cottonwood trees grow fast, can grow large heavy limbs, are weak-wooded, are prone to wood decay, and on average have a safe lifespan of 70 years. Additional information on cottonwoods at National Arbor Day Foundation.

Cottonwood trees are dioecious, which means they have male and female flowers on separate trees. The pollen in male flowers is ripe in late March and into April. Wind borne tree pollen, including cottonwood pollen is a major source of allergy problems for many people. **Cottonless cottonwoods are clones of male trees, which have pollen.** The fruit of the cottonwood borne on the female tree is in the form of a seed surrounded by a cottony substance, hence the name of the tree -- cottonwood. Like the pollen, the seed is distributed by the wind. The seed capsules open in late May through June. Although the cottony-seeds can be a nuisance, they have **NO** allergenic properties. People with allergy problems during the time of the cottony-seed distribution are probably suffering from other wind-borne pollen from grasses, weeds or late pollinating trees. There are no Cheyenne city laws, nor any state statutes prohibiting the planting of the female, cottony-seed bearing tree. Tree nurseries typically do not sell the female, cottony seed bearing, trees.

Plains cottonwoods in Cheyenne can develop a trunk five feet in diameter (an example is on the 1200 block of West Pershing). On average, the mature and over-mature cottonwoods in Cheyenne have two and a half to three foot trunk diameters. The upheaval of the soil around the base of the tree caused by the root flair can be an additional three feet around the trunk. Five feet of tree trunk with three feet of root flair on all sides of the trunk can require an 11 to 15-foot diameter circle of ground surface for unhindered tree trunk and root flair development. The tree lawn area in the public right-of-way, the landscape area between the street and sidewalk, should be at least 12 feet wide to allow a cottonwood to develop to its full trunk and root flair potential without damaging other infrastructure such as the sidewalk and street. A cottonwood planted in a narrow or small ground site will push up the sidewalk and curb near the tree, which requires repair of the damage. Replacing curbs, gutters and sidewalks requires cutting tree roots. Often,

large roots will have to be cut. Trees with cut roots result in structural stability problems for the tree and diminished water and nutrient uptake by the tree, which can cause a decline in tree health. A decline in tree health can result in increased insect and disease attack, limb die-back, or complete tree mortality. Damaged sidewalks can exclude wheelchair use and restrict pedestrian use. A good example of damage to sidewalks, curbs, and gutters caused by cottonwood trees planted in a narrow space, is around the city block bordered by West Pershing, Cribbon, West 32nd, and Dey.



3200 Block of Dey Avenue showing a narrow Tree Lawn between the street and sidewalk. Top photo shows a ground view of sidewalk blocks heaved by a large tree root zone. Bottom photo shows the narrow Tree Lawn with sidewalk damage evident.

Plains cottonwoods can develop a leaf canopy of 40 to 100 feet in diameter. Ideally, shade trees that can reach the size of a cottonwood should be planted so that there is minimal leaf crown interference with each other. A spacing of at least 40 feet between large shade trees is desirable.

All of us, as current stewards of the city, have a responsibility to future generations to utilize our current research, information, and technology to provide a functional, sturdy, long-lasting infrastructure, which includes trees.

Cheyenne City Code requires that vegetation including trees located in the public right-of-way abutting private property is the maintenance and cost responsibility of the property owner.

Cottonwood trees, like historic buildings, require maintenance. Tree maintenance includes: watering, occasional fertilizing, treating insects and diseases, and pruning of dead, broken, weak

or diseased limbs. Maintenance can be expensive, especially pruning. Federal funding through Community Development Block Grants (CDBG) administered by Cheyenne Housing and Community Development at 307-637-6255, is available for low income families for removal of trees only. Currently, there is no financial assistance available for property owners to prune their trees. Pruning weak, broken, and dead limbs off of a tree can extend the safe lifespan of trees including cottonwoods.

Responsible street tree planning requires species diversity. A tree inventory/evaluation was done in 2004 in the central part of Cheyenne found that *Populus* species trees (cottonwood, poplar, aspen) comprise 19.8% of the inventoried tree population.

Many eastern cities in the U.S. had streets lined with American elms in the 1800's and into the early 20th Century. In the mid 1930's a fungus commonly known as Dutch elm disease was inadvertently introduced into the United States from Europe. The fungus carried by a European introduced bark beetle, along with native bark beetles, quickly spread Dutch elm disease throughout the United States. Hundreds of thousands of native large leaf elms were killed by Dutch elm disease. Many cities lost all of the street trees on many city streets that were previously shaded by the elms.

We learned from this introduction of disease and insects that planting a wide diversity of tree species is required to reduce the impact of catastrophic tree loss when a disease like Dutch elm disease occurs again. We learned that the Dutch elm disease could be spread from tree-to-tree not only by insects, but by root grafts from nearby trees. To avoid same species root grafts we try to avoid planting same species of trees near each other, even if they are planted 50 feet apart. Tree roots can grow in a radius from the trunk more than 1½ times the height of the tree. If a tree mortality causing insect or disease is introduced into the United States, which specifically attacks cottonwoods, the city of Cheyenne could lose one fifth of all our street trees. An unknown number of cottonwoods on private property would also be lost.

Cottonwood trees can grow in a wide range of soil types. Cottonwoods, in the same tree family as willows, are a good pioneer type of tree for converting grass prairie land into an urban woodland area. Other slower growing trees that have a longer life can be planted in the shade of cottonwoods and in the soils modified by cottonwoods. Although they do not grow well in the shade of larger trees, cottonwoods can still be replanted. Care needs to be taken to allow mixing tree species to avoid a monoculture, which is a close grouping of the same species. A planting plan for a healthy urban forest is to have a wide diversity of tree species.