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Gambel Oak Care

By Shawn Olsen and Debbie Amundsen
USU Extension Agents

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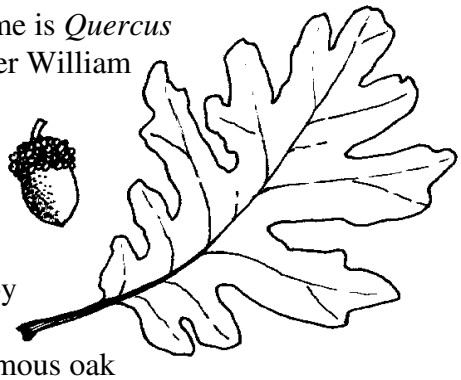
DESCRIPTION

Gambel oak is commonly called scrub oak, but other common names are Rocky Mountain white oak and Utah white oak. The scientific name is *Quercus gambelii,* after William Gambel, an American naturalist. Gambel oak was used extensively by Dr. Walter Cottam in famous oak hybridizing experiments conducted at the University of Utah Red Butte Gardens.



Gambel oak is a common, native species on the lower elevation foothills in many parts of Utah. It is a fire-adapted species because of its ability to grow back quickly from root sprouts after a fire kills the tops. The plant requires full sun and is adapted to dry, rocky sites and alkaline soils. Once established, Gambel oak is quite drought tolerant. It is cold hardy in USDA hardiness Zones 3-9 and well adapted to the Wasatch Front which is mostly in Zone 5.

Gambel oak is usually a shrub or a small tree with an average height of 20-30 feet and width of 15 feet. The plant rarely reproduces by acorns but instead spreads by underground stems, forming a dense thicket.

Leaves are about 5" long with several rounded, deeply cut lobes on each side of the central vein. **Twigs** are brownish in color, usually crooked and distorted. Branches usually are ascending, forming an irregular crown. **Fruit** is a typical acorn about 3/4" long, half enclosed with a cup. **Bark** is red-brown to gray with rough furrows on older stems. **Wood** is very hard and heavy and is sometimes used for firewood.

LANDSCAPE VALUE

Gambel oak is a small, informal, deciduous tree that is best used in a mass planting. It can be used to screen parking lots and undesirable views. Due to its small size, Gambel oak fits well on residential lots. Leaves emerge late in the spring, allowing open sunlight conditions for spring flowers nearby the tree. The leaves are dark green in summer and turn yellow or reddish brown in late fall when they drop from the trees. Gambel oak is not a good choice for a single specimen tree or a street tree. Native Gambel oak plants are difficult to transplant from the wild. Containerized plants are available in different sizes from many retail nurseries.

Gambel oak does not need irrigation and is adaptable to harsh growing conditions. It can be planted or maintained in natural or wildland type areas of the landscape. Gambel oak is a long lived plant with good wind resistance. It is slow growing but will increase in growth rate with moderate

irrigation and fertilization. Having Gambel oak on a building lot generally adds to the aesthetic and monetary value of the lot. Oak also provides valuable food and cover to wildlife such as deer, birds, and squirrels.

Insect damage.

The most negative aspect of using Gambel oak in landscapes is fire hazard. Dense stands of these trees will accumulate large amounts of fuel that can lead to very dangerous fire situations around homes. Thinning, pruning, and removal of some trees may be necessary for safety, especially on steep slopes.

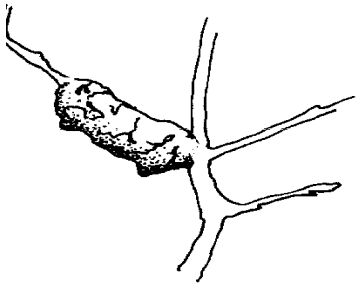
Gambel oak is a tough, durable plant with few serious pest problems. **Routine pest control is not needed.** The pest control recommendations given below are intended for serious pest outbreaks that threaten valuable landscape plants.

Insect Pests

Insecticides that could be used to control many of the insect pests listed below include Bacillus thuringiensis (BT [Dipel, Thuricide, etc.]) diazinon, Orthene, Dursban, and Sevin. Always read and follow pesticide label directions.

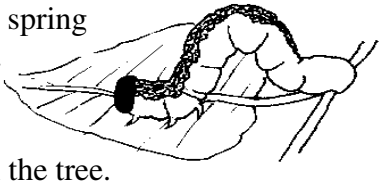
Galls appear as round, swollen areas on stems and leaves and are quite common on oak. Most galls are caused by small flies or wasps. One method of control is to collect and dispose of leaves after they have fallen to the ground. On small trees, it may be possible to remove galls by pruning before wasps emerge. Control is not usually justified but in cases of severe damage, one recommendation is to apply Sevin or Orthene as leaves unfold in spring.

Leaf galls are formed by many species of cynipid wasps. These galls appear as small spots, bumps, or round balls on leaves. The galls start out green in color and then turn brown. They are not a serious problem.



Stem galls appear as a swollen, woody, area on small stems and vary in size from pea-size to ½" diameter. Most galls are harmless, but some stem galls weaken twigs and cause die back.

Leafrollers and Cankerworms are common foliage feeders on oak. Both of these insects can be controlled by applying dormant oil plus diazinon in early spring before leaves emerge. This application controls insects that have overwintered on the tree. Another good control for these caterpillars are biological insecticides called Dipel or Thuricide.



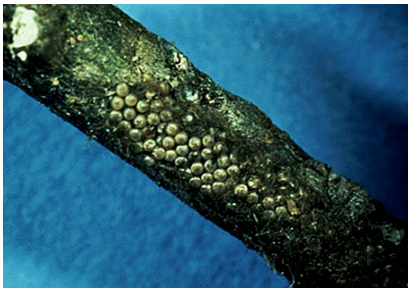
Leafrollers roll up leaves with webbing and then feed inside the rolled leaves. The larval stage of this insect is a 3/4" long green caterpillar with a black head.

Leafrollers overwinter as eggs on twigs and hatch in spring soon after leaves emerge. High infestation levels occur on a cyclical basis every few years. Trees can withstand the loss of one third of the foliage without adverse effects. However, it is best to spray right after eggs hatch before larvae

Cankerworm damage to oak

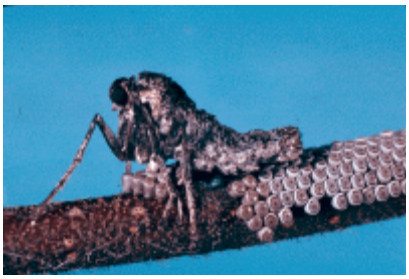
form the protective webbing. There is one generation per year.

Cankerworms include both fall and spring species of cankerworms, based on when eggs are laid. Both species hatch out in the spring. Larvae are slender, green-striped, looping caterpillars. They hang from trees by silken threads and can cause serious defoliation in some years. Adult male moths are grey to light brown in color and have a wingspan of about 1". Moths can appear in great numbers and invade homes and buildings in late fall. Female moths are about ½" long and are wingless.



Cankerworm eggs

Cankerworm larva



Adult female cankerworm laying eggs. Photo by John H. Ghent, USDA Forest Services, Asheville, NC, and used with his permission.

Cicadas are a large winged insect that produce a clicking noise. They can appear in great numbers for 4-6 weeks in June and July. They do not feed on leaves but can cause damage from egg laying wounds to the bark. The injury results in deep gouges that weakens small twigs, causing them to break in the wind. There are several species of cicada in Utah but the famous "17- year locust" is not present.

Diseases

Many disease problems result from abnormal rainfall or over watering. To control, reduce irrigations or move sprinkler heads away from trees.

Anthracnose is a fungus that frequently develops during wet spring weather. It causes scattered brown spots on leaves, commonly along veins. Severely affected leaves may curl, pucker, or twist down. This fungus may also attack twigs, causing cankers and twig dieback. Raking up and disposing of fallen leaves offers some control. Prune out and destroy diseased and dead branches. If prolonged wet weather occurs during budbreak and early shoot growth, treat with a fungicide such as Bayleton, chlorothalonil, Cleary's 3336, Daconil 2787, Fore, or Banner.

Perennial canker is an occasional problem caused by a fungus that forms cankers on weak and dying wood. Avoid injury to the tree. Prune out any infected twigs.

Leaf blister is a fungus which causes raised yellowish-white spots on the upper leaf surface and is common in wet springs. The leaves remain attached to the tree. Cultural control includes applying fertilizer to increase tree vigor and raking up leaves. Usually, chemical control is not necessary.

Powdery mildew is a powdery white fungal growth on the surface of leaves. Later in the season, small black fruiting bodies of the fungus may be present on the leaves. This disease is very common and visually unappealing, but does not usually cause damage to the tree. Control with sulfur, Halt, Banner, or Bayleton applied when leaves begin to emerge.

Root rot is a fungus that attacks and destroys roots. This problem is often caused by over watering or broken sprinkler heads. Root rot also commonly occurs when irrigating natural stands of oak.

Heart rot is a fungus that rots out the interior of the tree. This disease usually occurs on older trees when fungus enters through pruning cuts and wounds.

Lichens are a symbiotic relationship between fungi and algae which cause green or orange colored patches on the bark of oak. They do not harm the tree.

Care and Maintenance

There is a delicate balance in native oak stands. When roads and houses are built and digging and excavation occur, tree roots are cut and disturbed. This can cause the native Gambel oak to gradually decline and die. This is due to root loss, soil compaction, damage to root mycorrhizal (beneficial fungus) associations, and removal of recycled leaf organic matter from beneath the trees. During construction, avoid digging around Gambel

oak stands that are to be retained for the landscape. Often all plants in an area are interconnected so damage to one plant may affect other plants several feet away.

Maintenance Summary

1. Control *serious* insect and disease outbreaks. Allow oak to recover naturally from minor infestations.
2. Avoid excess irrigation on oak. Oaks do not require supplemental water. Direct sprinkler irrigation toward lawn areas.
3. If increased growth is desired for oak, apply fertilizer at ½ the recommended rate.
4. Prune out dead, diseased, damaged, or nuisance branches to reduce fire hazard. Do not leave stubs.

Always read and follow label instructions before applying any pesticide.

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Drawings by Valori Herrmann
USU Extension Master Gardener

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