

BACKYARD NATIVE PLANTS

**Identification and Treatment of Shrubs and Ground
Covers for Fire Safe Landscaping at Lake Tahoe**



Lesley V. Higgins

HOW THE TAHOE BASIN HAS CHANGED

Fire was once a natural part of the Lake Tahoe ecosystem before the Comstock logging era in the late 1800s. Many of Tahoe's native plants evolved with periodic fire, which served to remove dead or diseased trees and shrubs, smaller trees, and the buildup of forest litter. Now that the forest has grown back without this limiting factor, it has become overcrowded with too many trees competing for water and nutrients. This crowding affects overall tree health, reduces the diversity and abundance of other plants, and greatly increases the risk of catastrophic wildfire. Urbanization has also increased the fire hazard with combustible structures in close proximity to high fire risk plants.



WHAT CAN WE DO?

To restore a healthy forest and protect our homes from fire, we can mimic fire's historical effect by thinning and trimming the trees and shrubs ourselves. By doing so, we can also enhance the natural landscape and improve the habitat for a greater variety of plants and animals. Defensible space practices can be combined with landscaping goals to reduce wildfire risk while maintaining the qualities we value in our forest environment.

This booklet helps homeowners identify and treat the most common native shrubs and ground covers on their property. It is meant to be used as companion to *Living with Fire: A Guide for the Homeowner-Lake Tahoe Basin, Second Edition*, and the *Home Landscaping Guide for Lake Tahoe and Vicinity*.

The fire risk designations in this booklet have been reviewed by Division Chief Norb Szczurek of the North Lake Tahoe Fire Protection District in collaboration with the Tahoe Basin Fire Chiefs. Homeowners should contact their local fire agency for site specific guidance on defensible space.

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Managing Native Plants for Fire Safety

Treatment and maintenance of native plants for fire defensible space depends on:

- *Type of plant*
- *Height and age of plant*
- *Density and volume of plant*
- *Dead material in plant*
- *Proximity to structures*



Evergreen trees and shrubs usually have higher fire risk than deciduous plants, which seasonally lose their leaves. A high density of leaves and stems also increases fire hazard, which makes pruning shrubs an important part of yearly landscape maintenance. Removal of old growth in shrubs can stimulate new growth, which typically has a higher moisture content and lower fire risk.

Location relative to structures ultimately determines how different types of plants should be treated. Consult *Living with Fire* and local fire agency personnel for specific details on how to treat plants next to structures.

Defensible space considerations

Continuous plant cover can pose a higher fire risk. Keeping plants trimmed, separated, and free of pine needles is vitally important to reducing fire hazard. *Living with Fire* guidelines describe how to remove ladder fuels and separate high fire risk plants to prevent fire transmission. Contact the local fire agency for advice and an on-site defensible space inspection.

There are various methods for disposal of plant material: chipping on site, hauling away, or burning. Consult the local fire agency for information on chipping programs and burn pile rules and requirements. Wood chips can be used for mulch on properties if they conform to the guidelines for defensible space. Many jurisdictions have pine needle drop-off or collection programs.

Pruning shrubs - sprouters vs. non-sprouters



Manzanita shoots after fire

Most evergreen shrubs are fire-adapted to resprout from the root crown after a fire, and can be cut to the ground. However, some deciduous shrubs are non-sprouters and may not regenerate if cut to the ground. One method for maintaining defensible space separation is to alternate cutting adjacent high fire risk shrubs to the ground on a 3

to 5 year cycle. This rotated pruning conserves plants while keeping fire risk low. Refer to the plant growth and maintenance sections for details on pruning.

Native Plants in an Integrated Landscape

Native plants provide forage, cover, and nesting sites for a variety of wildlife. They are excellent at anchoring the soil and preventing sediment loss. As part of the natural environment, native plants are critical in preserving a functioning Sierra Nevada ecosystem.



Golden-mantled ground squirrel
enjoying tobacco brush berries

Providing for wildlife



Mule deer eating new
tobacco brush shoots

Berries and seeds are an important food source for birds, mammals, and insects. New leaves and shoots are browsed by deer. Forage can be enhanced with periodic pruning to encourage new growth. Many animals use native plants to hide their nests and find shelter from predators and the elements.



Junco with snowberry

Erosion control - best management practices

Stabilizing soil on developed properties is important for preventing erosion and sediment runoff that reduces Lake Tahoe's clarity. Tahoe's native plants naturally anchor the soil with deep or spreading roots. Retain plants where possible while using defensible space guidelines in *Living with Fire*. Steep slopes especially benefit from soil stabilizing plants, but spacing of high fire risk plants needs to increase as slopes steepen. When removing plants, keep roots in place to stabilize soil unless replacing with another plant.

Planting and maintaining native plants

The information in this booklet is intended for existing native plants. It can also be used for choosing plants for your property depending on defensible space requirements, moisture needs and growth characteristics. Most of the deciduous plants in this booklet are available in local nurseries. After planting, regular watering is needed for the first 3-5 years for roots to become established. The *Home Landscaping Guide* has information on drip irrigation systems.

Native plants are adapted for dry summers and snowy winters. During drought years, however, deciduous plants can benefit from infrequent deep watering. Except for small trees, native plants do not need to be tied up to protect them from snow loading. Although fertilizer use is unnecessary, a small amount of slow releasing organic fertilizer can promote growth.

Creeping Snowberry

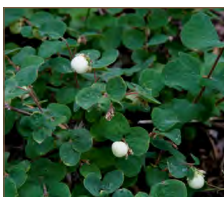
Symphoricarpos mollis

Description: **Low fire risk**

Deciduous shrubby ground cover, 6 inches to 2 feet high with round pale green leaves. Vine-like branches trail 3-6 feet; new growth is pink. Small pinkish flowers form clusters of white berries. Yellow fall color.

Growth characteristics:

Grows well in medium moisture areas, in sun to part shade. Rapid growth rate. Works well for erosion control.



Maintenance:

Very little maintenance needed, except to keep free of pine needles and debris. Pine needle removal can be difficult due to rooting branches. Pruning can encourage more branching. Spreads with or without watering.



Thimbleberry

Rubus parviflorus

Description: Low fire risk

Deciduous ground cover 1-2 feet high. Large, soft, maple-like, bright green leaves on erect stems with 5 toothed lobes. Large white flowers produce red berries. Yellow fall color.

**Growth characteristics:**

Grows well in medium-wet areas, in part shade. It can grow in open, drier sites, but is usually associated with willows, fir and aspen. Rapid to moderate growth rate. Can form dense thickets, usually spreading from underground stems.

Maintenance:

Little maintenance needed except to keep free of pine needles and debris. Remove dried leaves in the fall to reduce fire risk. Water during drought or to encourage spreading. This plant is easily damaged and should not be walked on or disturbed.



Woods' Rose or Mountain Rose

Rosa woodsii var. *Ultramontana*

Description: **Low fire risk**

Deciduous shrub with multiple thorny stems 2-7 feet high. Leaves have 5-7 oval leaflets with serrated edges. Simple white to pink flowers have 5 petals and produce a dark red rose hip. Leaves turn red-orange in the fall.

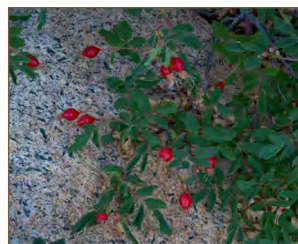
Growth characteristics:

Grows well in semi-moist areas in forest openings, in sun or part shade. Has a rapid growth rate and spreads from suckering roots, especially with extra watering. Can form dense thickets.



Maintenance:

Keep free of pine needles and debris. Prune to remove dead and damaged stems or to encourage branching. Water during drought or to encourage growth.



Blue Elderberry

Sambucus cerulea

Description: Low fire risk

Large deciduous shrub 5-10 feet high. Dark green opposing leaflets are serrated. Flat clusters of tiny white flowers produce dark blue berries which can have a white coating. Leaves turn yellow in the fall.



Growth characteristics:

Grows well in semi-moist open areas, sun or part shade. Rapid growth rate. Herbaceous growth dies back to the ground every winter, although some woody stems may persist. Will regenerate if cut to the ground or burned.



Maintenance:

Prune in spring to remove dead and damaged woody stems. Keep free of pine needles and debris and rake up dropped leaves in the fall. Remove woody stems to reduce size next to structures. Water during drought or to encourage growth.



Sierra Gooseberry

Ribes roezlii

Description: **Low fire risk**

Small deciduous shrub 1-3 feet high with spiny, long branching stems and lobed, toothed leaves. Red-purple, lantern-like flowers hang down under the stems, and produce distinctive round, spiny red fruits. Leaves turn red in the fall.



Growth characteristics:

Found in drier, often disturbed areas, in sun or part shade. Moderate growth rate. Good for slope stabilization. Will regenerate if cut to the ground or burned.

Maintenance:

Keep free of pine needles and debris. Prune to remove dead and damaged stems, or to encourage branching. If next to structures, consult with local fire agency for recommendations. Watering not needed.



Sierra Currant or Mountain Pink

Ribes nevadense

Description: Low fire risk

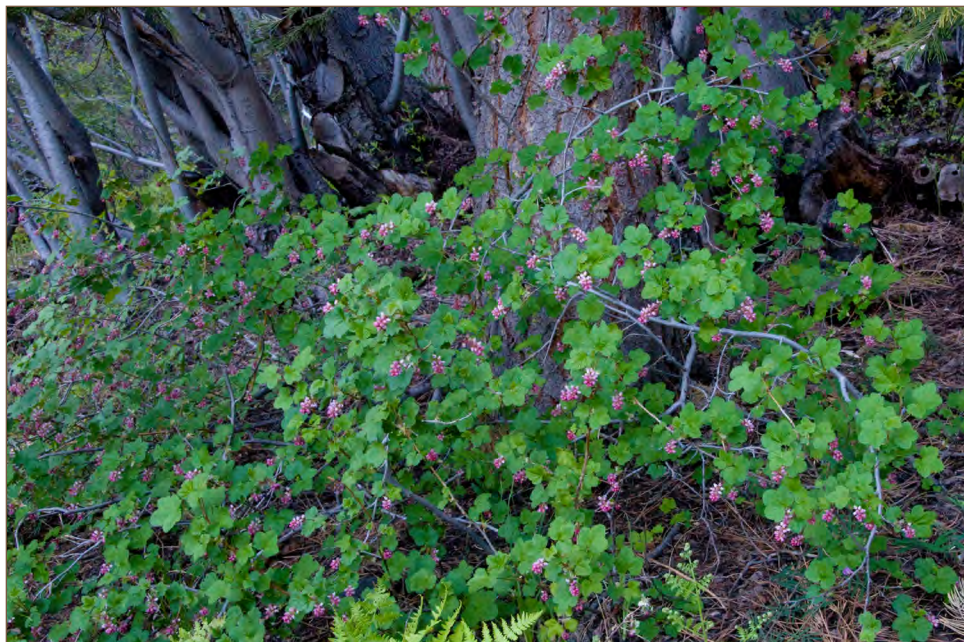
Deciduous shrub 3-6 feet high with rounded three-lobed leaves. Smooth, gray, erect branches. Drooping pink to reddish flower clusters produce dark blue berries. Leaves turn yellow in the fall.

Growth characteristics:

Grows well in forest margins in medium to wet areas with partial shade. Moderate growth rate. May not regenerate if cut to the ground.

Maintenance:

Prune in spring to remove dead and broken branches. Keep free of pine needles and debris and rake up dropped leaves in the fall. If next to structures, consult with local fire agency for recommendations. Can be thinned or shaped. Water during drought or to encourage growth.



Wax Currant

Ribes cereum

Description: Low fire risk

Deciduous shrub grows 2-7 feet high. Small, lobed leaves have a glossy sheen on the upper surface. Clusters of 3-7 tubular white to pink flowers hang downwards and produce red berries. Leaves turn yellow in the fall.

Growth characteristics:

Grows well in dry open forest areas or rocky slopes, in sun or part shade. Moderate growth rate. A weak sprouter which may not re-generate if cut to the ground. Becomes leggy with over-watering.

Maintenance: Limit next to structures

Keep free of pine needles and debris and rake up dropped leaves in the fall. Prune to remove dead and damaged stems, or to encourage branching. Reduce numbers and size next to structures to lower fire risk. Watering not recommended.



Western Serviceberry

Amelanchier alnifolia

Description: Low fire risk

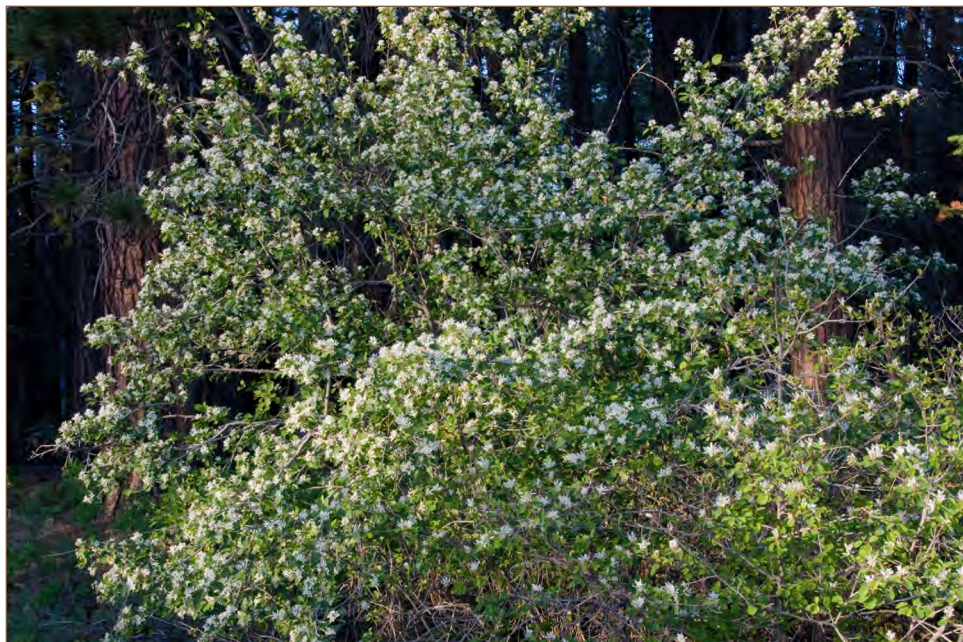
Large deciduous shrub 3-12 feet high. Round dark green leaves are serrated at the ends. Reddish brown to grey branches. White 5-petaled flower clusters produce bluish black berries. Leaves turn yellow in the fall.

Growth characteristics:

Grows well in medium-dry areas, sun or part shade. Rapid growth rate. Forms thickets in moist areas and can also grow into a many-branched small tree. Will regenerate if cut to the ground or burned.

Maintenance: Limit next to structures

Prune in spring to remove dead and damaged branches and to reshape. Reduce numbers and size next to structures to lower fire risk. Keep free of pine needles and rake up dropped leaves in the fall. Watering not recommended except during drought.



Bittercherry

Prunus emarginata

Description: **Low fire risk**

Large deciduous shrub with grayish bark, 4-12 feet high. Oblong leaves are usually folded lengthwise with slightly serrated edges. White 5-petaled flowers bloom in clusters and produce a bitter red fruit. Leaves turn yellow in the fall.

Growth characteristics:

Grows well in medium to moist areas and along stream banks, in sun or part shade. Often forms dense thickets, sprouting from spreading roots. Moderate growth rate. Will regenerate if cut to the ground or burned.

Maintenance: **Limit next to structures**

Prune out dead and damaged branches. Reduce numbers and size next to structures to lower fire risk. Keep free of pine needles and rake up leaves in the fall. Watering not recommended except during drought.



Mahala Mat

Ceanothus prostratus

Description: Low fire risk

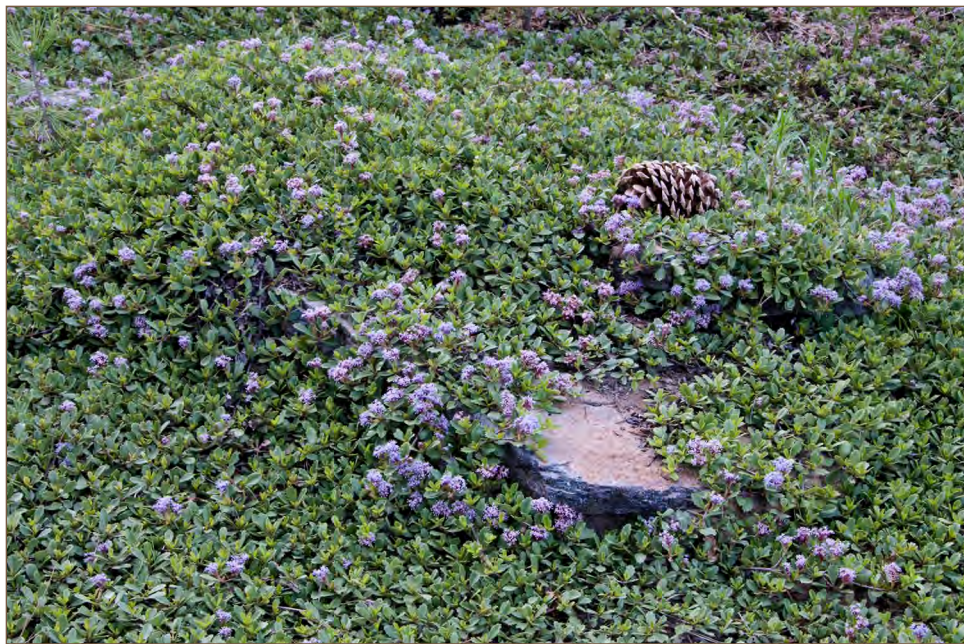
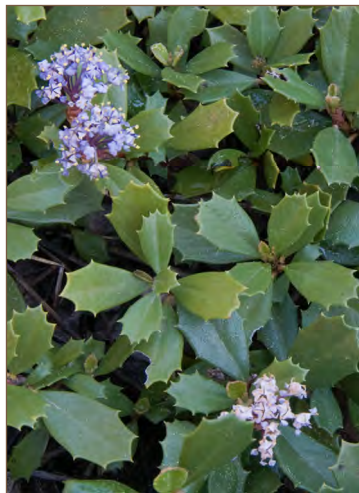
Evergreen ground cover with widely spreading branches form dense mats 2-5 inches high. Holly shaped dark green leaves with toothed margins. Deep blue to light lavender flower clusters. Fruit is a small brown round capsule.

Growth characteristics:

Stabilizes forest floor with mat-like rooting branches. Grows well in medium to dry areas, sun or part shade. Slow growth rate. Difficult to establish.

Maintenance: Limit next to structures

This plant can retain highly flammable material such as pine needles which should be regularly removed to keep fire risk low. May not be recommended directly adjacent to structures. Breaking up continuous cover next to structures will discourage fire spread in extreme conditions. Does not tolerate much foot traffic. Watering not recommended, except infrequently during drought or to encourage spreading.



Pinemat Manzanita

Arctostaphylos nevadensis

Description: **Low to Moderate fire risk**

Shrubby evergreen ground cover, with flat spreading reddish brown branches, 6 inches to 2 feet high. Small elliptical leathery shiny leaves. White urn shaped flower clusters form a brown berry-like fruit.

Growth characteristics:

Stabilizes forest floor with rooting branches. Grows well in dry areas with sandy soil and full sun. Slow growth rate. May not resprout if cut to the ground.

**Maintenance:** **Limit near structures**

May require extra maintenance to keep fire risk low as this plant can easily retain highly flammable material such as pine needles and fallen branches. Regularly remove debris and prune out dead branches. Keep low to the ground and break up large areas to reduce continuity and possible fire spread. Treat as individual specimen plants next to structures. Pinching off new spring growth can encourage branching. Watering not recommended.



Mountain Whitethorn

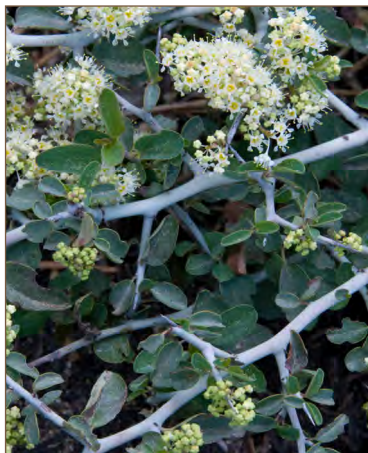
Ceanothus cordulatus

Description: Moderate to high fire risk

Flat topped, spreading evergreen shrub, 2-4 feet high and 3-10 feet wide. Whitish rigid branches have small gray-green oval leaves and 1-1½ inch thorns. Tiny white to yellow flower clusters. Can hybridize with tobacco brush to produce an intermediate form.

Growth characteristics:

Grows well in semi-dry open areas, full sun to part shade. Rapid growth after pruning. Will regenerate if cut to the ground. Can form vast thickets after logging or burning. Good for slope stabilization.

**Maintenance: Keep away from structures**

Reduce and separate into individual plants according to defensible space guidelines. Remove dead branches and keep free of pine needles and debris. Responds well to pruning; can be thinned or shaped to keep low to ground. Watering not recommended.



Tobacco Brush or Snowbrush

Ceanothus velutinus

Description: **High fire risk**

A spreading, thicket forming evergreen shrub, 3-6 feet high. Glossy green leaves with three prominent veins underneath. The ends of the reddish brown branches support showy clusters of tiny white flowers. Can hybridize with mountain whitethorn. Leaves fold up lengthwise in winter.



Growth characteristics:

Grows well in dry open areas with full sun. Slow to moderate growth rate when mature. Will not regrow from cut bare stems, but will sprout rapidly if cut to the ground. Can form vast thickets in logged or burned areas. Becomes leggy and degraded with age.

Maintenance: **Keep away from structures**

Reduce and separate individual plants according to defensible space guidelines. Cut old growth to the ground to keep plant low and healthy. Keep free of pine needles and dead branches. Watering not recommended.



Bitterbrush

Purshia tridentata

Description: High fire risk

A mostly deciduous shrub 2-5 feet high with branches usually originating at base of plant. Small, wedge-shaped, gray to dark green 3 lobed leaves (some are persistent in winter). Yellow flowers with 5 petals.

Growth characteristics:

Grows well in dry, well drained areas in full sun to part shade. Growth form varies from low to the ground to upright. Moderate growth rate. May not regenerate if cut to the ground. Can work well for slope stabilization.

Maintenance:

Keep away from structures

Reduce and separate individual plants according to defensible space guidelines. Keep free of pine needles and dead branches. Can be selectively pruned by maintaining viable buds on cut branches. Watering not recommended.



Bush Chinquapin or Sierra Chinquapin

Chrysolepis sempervirens

Description: **High fire risk**

Evergreen shrub 2-5 feet high, with smooth grayish brown bark. The long leathery green leaves are tan or lighter green underneath. Whitish flowers are arranged on a stalk and produce large round spiny fruits. May have round red or yellow wasp galls. Can be confused with huckleberry oak.

Growth characteristics:

Grows well in medium moisture to dry areas in full sun or part shade. Slow growth rate. Will regenerate slowly if cut to the ground. Becomes leggy and degraded with age.

Maintenance: **Keep away from structures**

Reduce and separate individual plants according to defensible space guidelines. Keep free of pine needles, debris and dead branches. Watering not recommended.



Greenleaf Manzanita

Arctostaphylos patula

Description: High fire risk

Evergreen shrub with reddish brown rigid branches, 3-5 feet high. Round bright green leathery leaves with smooth edges. Clusters of urn shaped flowers range from white to pink and form dark brown apple shaped fruits. Some leaves turn yellow and drop off in the fall.



Growth characteristics:

Grows well in dry areas in full sun. Slow growing. Whole branches can die off under adverse conditions such as too much water or shade. Will regenerate if cut to the ground or burned.



Maintenance: Keep away from structures

Reduce and separate individual plants according to defensible space guidelines. Keep free of pine needles and dead branches. Can be pruned into an open shape with branches exposed to decrease density. Watering not recommended.



Huckleberry Oak

Quercus vaccinifolia

Description: High fire risk

Evergreen spreading shrub 1-6 feet high. Smooth gray branches have small, stiff leaves with smooth or serrated edges. Brown catkins occasionally produce acorns. May have paper galls. Can be confused with bush chinquapin.

Growth characteristics:

Grows well in medium moisture to dry areas in full sun to part shade. Slow to moderate growth rate. Will regenerate slowly if cut to the ground. Declines with over-watering. Good for slope stabilization.

Maintenance: Keep away from structures

Reduce and separate individual plants according to defensible space guidelines. Keep free of dead branches, debris, and pine needles. Can be shaped and kept low to the ground by pruning. Watering not recommended.



Big Sagebrush

Artemisia tridentata

Description: **High fire risk**

Erect rounded evergreen shrub 1-4 feet high with branches originating from a short trunk. Dense growth of aromatic silvery 3 lobed leaves contain volatile oils. Tall erect silver stems produce tiny yellowish flowers in late summer with tan seeds in the fall.

**Growth characteristics:**

Grows well in dry, well drained areas in full sun to part shade. Moderate to rapid growth rate. Will not regenerate if cut to the ground.

Maintenance: **Keep away from structures**

Reduce and separate individual plants according to defensible space guidelines. Keep free of dead branches, debris, and pine needles. May not respond well to pruning. Watering not recommended.



Rubber Rabbitbrush

Chrysothamnus nauseosus

Description: High fire risk

A widely distributed deciduous shrub 1-3 feet high. The upright branches have aromatic silvery green leaves that are long and narrow. Clusters of small, 5-petaled yellow flowers bloom in late summer.

**Growth characteristics:**

Grows well in dry open areas in full sun and on disturbed sites. Moderate growth rate. Sprouts from the stems and root crown. Good for revegetation and soil stabilization.

Maintenance: Keep away from structures

Reduce and separate individual plants according to defensible space guidelines. Can be pruned to remove old growth and encourage branching. Should resprout if cut to the ground. Keep free of pine needles and debris. Watering not recommended.



Curlleaf Mountain Mahogany

Cercocarpus ledifolius

Description: **High fire risk**

A large evergreen shrub, or small tree, 6-12 feet high. The numerous branches have small oblong leathery leaves that curl under. Inconspicuous flowers produce seeds with long tails in late summer.

Growth characteristics:

Grows well in dry rocky slopes in full sun. Long-lived with low to moderate growth rate. Has a shallow root system which usually does not sprout after cutting or burning.



Maintenance: **Keep away from structures**

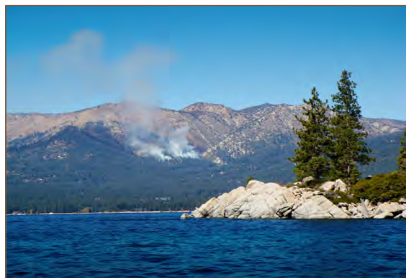
Reduce and separate individual plants according to defensible space guidelines. Prune to remove dead branches or create a tree-like form. Probably will not regenerate if cut to the ground. Keep free of pine needles and debris. Watering not recommended.



Help and Information

There are many agencies in the Tahoe Basin which are ready to help homeowners. Listed below are some that provide resources and expertise with defensible space, general landscape management, and conservation practices. Contact information is available online, and in *Living with Fire: A Guide for the Homeowner-Lake Tahoe Basin* or the *Home Landscaping Guide for Lake Tahoe and Vicinity*.

Fire Protection Agencies: Local fire districts and departments provide defensible space inspections, tree removal permits, chipping services, and advice on how to reduce fire threat and protect homes and property from wildfire. Individual fire districts and departments are listed on the back page.



Nevada Fire Safe Council: This organization serves to organize communities and homeowner associations into grass roots chapters to address the risk of catastrophic loss due to wildfire through education and grant-funded fuels reduction projects. More than 45 community chapters exist in the Basin, and new chapters are forming each month. Check with the Council to see if there is a chapter in your area.



Conservation Districts: Backyard Conservation programs include best management practices (BMPs), invasive weed control, water and fertilizer management, native plants and habitat enhancement. Contact the Nevada Tahoe Conservation District in Nevada or the Tahoe Resource Conservation District in California for technical assistance and advice.

University Cooperative Extension: The University of Nevada Cooperative Extension has an office in Incline Village which provides educational materials, including the *Home Landscaping Guide*, *Living with Fire*, and other information for residents of Lake Tahoe. The University of California Cooperative Extension, with an office in South Shore, has many publications and resources on fire safe construction and home landscaping for fire.

Selected References

- Cobourn, J., B. Carlos, J. Christopherson, W. Johnson, R. Post, J. Skelley and E. Smith. 2006. *Home Landscaping Guide for Lake Tahoe and Vicinity*. University of Nevada Cooperative Extension Educational Bulletin-06-01. Reno, NV.
- Compston, M., E. Smith and L. Huntsinger. 1998. *Common Lake Tahoe Basin Plants: Descriptions, Values and Fire Effects*. University of Nevada Cooperative Extension. Reno, NV.
- Fire Effects Information System. 2008. www.fs.fed.us/database/feis/plants/shrub. USDA Forest Service, Intermountain Research Station, Fire Science Laboratory. Missoula, MT.
- Graf, M. 1999. *Plants of the Tahoe Basin: Flowering Plants, Trees and Ferns*. University of California Press. Berkeley, CA.
- Johnson, W. and J. Christopherson. 1992. *Shrubs for Tahoe Landscapes*. University of Nevada Cooperative Extension Fact Sheet 82-48. Reno, NV.
- Laws, J. M. 2007. *The Laws Field Guide to the Sierra Nevada*. California Academy of Sciences. Hayday Books. Berkeley, CA.
- Smith, E. 2008. *Living with Fire: A Guide for the Homeowner-Lake Tahoe Basin, Second Edition*. University of Nevada Cooperative Extension Special Pub.-06-11. Reno, NV.

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About the Author

Lesley Higgins has a Ph.D. in Biology from the University of California at Santa Cruz. She has been working in the Tahoe Basin with best management practices, defensible space, and native plants to promote forest health and conservation.



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South Lake Tahoe Fire Department

Tahoe Douglas Fire Protection District

Nevada Fire Safe Council

Nevada Tahoe Conservation District

Tahoe Resource Conservation District

