

COMMON GROUND

Learn about easy treatments you can apply
around your home to prevent erosion while
minimizing fire risk

Create a Mosaic Landscape in your
5 to 30 foot zone

Apply Surface
Mulch



Till In Wood
Chips

Plant
Vegetation

For more information on fire defensible space, refer to [Living with Fire for the Tahoe Basin](#) or contact your local fire district
For more information on erosion control techniques, contact the Tahoe Resource Conservation District



Creating a Tahoe-Friendly Landscape

Incorporating Fire Defensible Space and Best Management Practices (BMPs) for erosion control into your landscape helps:

- Reduce the threat of wildfire by creating a fire break and an area for firefighters to safely defend your home.
- Prevent exposed soil from eroding into local streams and the lake, thereby preserving the clear waters of Lake Tahoe.

Fire Defensible Space Zones

To incorporate fire defensible space and erosion control into your Tahoe-friendly landscape, think of your landscape in three different zones.

0 to 5 foot zone

Create a **Non-Combustible Zone** using inorganic mulch (gravel or rocks), or low growing non-woody plants such as clover, succulents, or native grass.

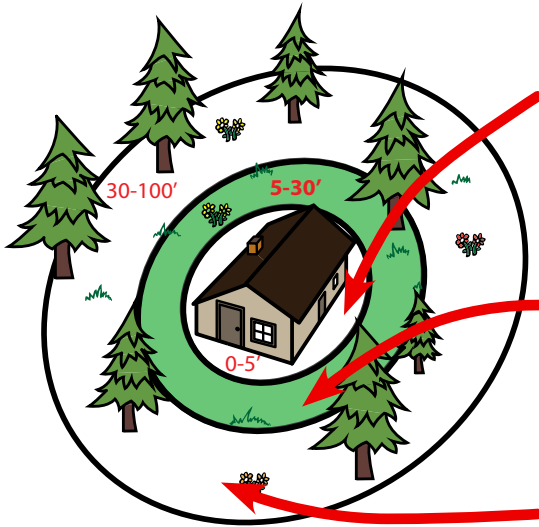
Do not allow pine needles to accumulate in this area.

5 to 30 foot zone

Create a **Lean, Clean and Green Zone** by removing dead vegetation, and planting healthy and fire resistant plants. One way to achieve this is through Mosaic Landscaping (see below for more details).

30 to 100 foot zone

Manage your **Wildland Fuel Reduction Zone** by removing dead vegetation and thinning dense stands of shrubs and trees.



What is Mosaic Landscaping?

A mosaic landscape is created using a variety of materials and design throughout your property. Creating a patchwork pattern in your landscape helps to separate combustible areas, like planter beds with wood chips, with non combustible areas, like gravel and healthy herbaceous plants, which greatly reduces the risk of fire reaching your home. Mosaic landscaping also helps to minimize soil erosion by incorporating various surface treatments, like tilled in wood chips and vegetation, to prevent bare soil.

The picture on the right shows a stone patio and grass close to the house. You can see breaks in vegetation, rock, plant border, mulch pathway, and tilled in wood chip areas. By separating treatments in the 5 to 30 foot zone around your house, you can prevent continuous flammable materials, like wood chips and pine needles, from carrying fire to your house. As you can see, mosaic landscapes can be beautiful and fun to design!



Recommended Treatments for Your Mosaic Landscape

The options below work well in your **5 to 30 foot zone**. Apply these treatments in a patchwork manner to minimize the risk of fire.

Native and Adapted Plants

Plants provide an attractive option for controlling erosion, as the foliage provides valuable soil cover and the roots help stabilize soil. Non-woody, low-growing plants are usually fire resistant and a great option for your landscape. Consult the Home Landscaping Guide, Living with Fire or your local fire district for guidelines on plant species and spacing guidelines.

Tilled-in Wood Chips

Mix wood chips into your soil to promote water infiltration and to reduce the risk of fire in your 5 to 30 foot zone. While wood chips provide food for your living soil, this treatment should be used in a patchwork manner.

How To:

Till in 1 to 3 inches of wood chips to a depth of 4 to 12 inches. You can do this by using a rototiller or hand tools.

Tips:

- Wood chips decompose and release nutrients for plants very slowly. If you are tilling wood chips into an area where you want vegetation to grow, consider also adding 2-3 inches of compost before you till.
- Tub-ground wood chips, which are typically created from stumps and roots, are rich with beneficial fungi and provide better food for your soil and plants than conventional wood chips.

Where do I find wood chips and tub-grindings?

- Local waste transfer stations such as South Tahoe Refuse and Tahoe-Truckee Sierra Disposal
- Local fire districts
- Tree service provider



Rototiller

Surface Mulch

Surface mulch is a layer of organic or inorganic material that is spread on top of soil. Mulch provides many important benefits: it reduces irrigation needs, prevents weeds and protects soil from erosion. In the 5 to 30 foot zone, use organic mulches (like woodchips) with inorganic mulches (like rock) in a patchwork manner to minimize the risk of fire.

How To:

In the 5 to 30 zone, apply a 2" layer of mulch on the surface of the soil. Separate organic mulch areas with inorganic mulches such as gravel to create a mosaic landscape. Remember to keep flammable mulches out of the 0 to 5 foot zone.

Good options: Rock, Wood Chips

Highly Flammable Mulches

NOT RECOMMENDED

Landscape Bark

Shredded Rubber

Shredded Cedar or Redwood Bark

Pine Needles

Managing Pine Needles

Naturally occurring pine needles can help prevent soil erosion, but need to be managed to reduce the threat of fire.

0 to 5 foot zone: Remove routinely throughout fire season

5 to 30 foot zone: Remove every spring before May 1st to prevent accumulating pine needles from carrying fire to your house.

30 to 100 foot zone: Do not allow fallen needles and leaves to exceed a depth of 3 inches

For more information on managing pine needles and native duff, contact your local fire district.

The Science Behind...

The recommendations in this pamphlet are based on several recent scientific studies in the Tahoe region focused on controlling erosion and reducing fire risk. Below is a summary of some relevant findings from these studies:

- Shredded rubber, pine needles, landscape bark nuggets and shredded cedar had the highest fire risk of all mulches tested.^{1,2}
- Tilled in wood chips and duff mulch were the least flammable during test day conditions, and had the highest infiltration rate and the lowest runoff rate of all mulches tested.¹
- Tilling compacted soils to at least 12 inches is associated with higher infiltration rates and lower erosion compared to non-tilled plots.³
- 2" of wood chips placed on a ground surface reduces sediment yield by more than 90%.⁴

Relative Fire and Erosion Risk of Landscape Mulches

	Pine Needles	Landscape Bark	Tilled in Wood Chips	Duff
Fire Risk	High	High	Low	Low*
Erosion Risk	Low	Medium	Low	Low

This table represents the generalized results from two separate studies. In addition, shredded rubber and shredded cedar were tested for general fire risk by Quarles and Smith (2008), along with other similar landscape mulches, under different test day conditions.

*The duff fire risk results are based on one study and may vary based on climatic factors and duff composition.



Rainfall simulation is a tool that is used to simulate rainstorms and directly measure surface erosion and infiltration rates.

Additional Resources

[Living with Fire in the Lake Tahoe Basin](#)

[Home Landscaping Guide for Lake Tahoe and Vicinity](#)

IERS (www.IERStahoe.com)

Tahoe RCD (TahoeRCD.org)

[Local Fire Districts](#)



The study team partnered with local fire districts to measure burn characteristics of different mulches.

(1) Integrated Environmental Restoration Services, Inc. (2012). Defensible Space-Erosion Protection Tools Development; Project Report. Prepared in cooperation with Tahoe Resource Conservation District and US Forest Service-Pacific Southwest Research Station.

(2) Quarles, S. and Smith, E. (2008). The Combustibility of Landscape Mulches. University of Nevada Cooperative Extension.

(3) Grismer, M.E., C. Schnurrenberger, R. Arst & M.P. Hogan. (2009). Integrated monitoring and assessment of soil restoration treatments in the Lake Tahoe Basin. Environmental Monitoring & Assessment. 150, 1-3: 365-383.

(4): Integrated Environmental Restoration Services, Inc. (2012). Homewood TMDL Implementation and Assessment Project, Load Reduction Technical Report.