Firewise Landscaping

FOR UTAH

Utah State University | COOPERATIVE extension

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The authors wish to thank USDA Forest Service State and Private Forestry and the Utah Division of Forestry, Fire & State Lands for assistance in producing this publication. Special thanks also to the Utah Living with Fire Committee for assistance and advice.

Firewise Landscaping for Utah

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"Your own property is concerned
when your neighbor's house is on fire."
Horace, *Epistles*

Wildland fires affect many communities in Utah and the Intermountain West each year. The effects of these fires potentially become more serious as communities extend near and into former wildlands. This booklet is a guide for homeowners and others concerned with management of the wildland-urban interface. Following the advice in this booklet will help you reduce the fire hazard around your home. There are no guarantees that a home will be fireproof, but if you take action to be firewise, you can greatly increase the chances that your home will withstand a wildfire.

FIRE AND PEOPLE IN THE WILDLAND-URBAN INTERFACE

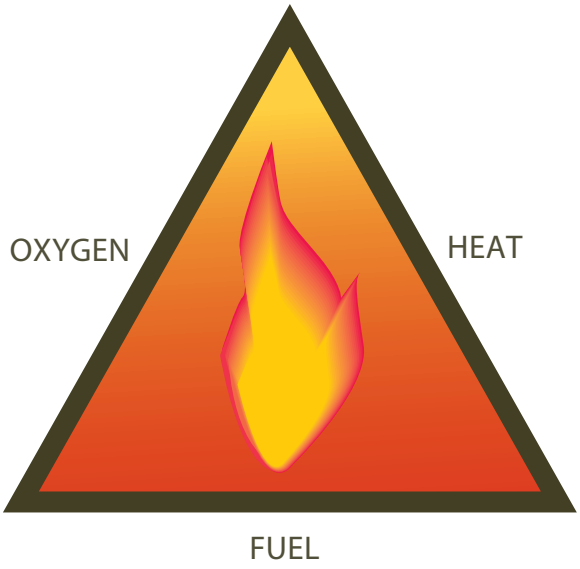
As Utah's population grows, development merges the edges of cities and towns into wildlands. New developments also spring up within wildlands, including everything from a cabin in the woods to hundreds of vacation homes on slopes scattered through the forest. These areas are called the *wildland-urban interface* (WUI), where the places we live and play meet the wilds.

These wildlands carry a substantial risk of burning in a wildfire due to accumulated fuel such as dried grass, trees and brush. Dead and living vegetation often is distributed continuously across wildlands, and fire can spread easily across the entire area. Also, many of the plant species in such areas are readily adapted to wildfire, so their means of reproduction, fire survival strategies, and growth habits all contribute to making fire a natural and common part of these landscapes. Cultivated landscapes within WUI areas, with mown grass, pruned trees, and carefully placed groups of appropriate vegetation, are less likely to burn. In these well-tended areas, continuous fuel corridors are disrupted, so fire is less likely to spread.

Firewise Landscaping for Utah describes how to create and maintain landscapes around homes, cabins and other buildings to reduce fire risks. Principles and suggestions for building placement, plant choice and placement, and landscape maintenance are explained. An extensive list and photos of firewise trees, shrubs, herbaceous perennials, and grasses are included. By using the information presented in this booklet, you can create a landscape on your property that will be as firewise as possible. Landscapes can never be fire-proof, but following these recommendations will give you and firefighters a greater chance of protecting your property, or of the property surviving even if firefighters can't get to it.

New construction in the wildland-urban interface.

People are seeking out homesites with natural amenities. Along with ridgetop views and forested surroundings comes wildfire risk.



This fire began in the power lines at the bottom of the mountain and burned up the west-facing slope. Fortunately, no homes burned.

HOW DO WILDFIRES BEHAVE?

Before you can properly establish and maintain your firewise landscape, you must understand how fire works. Fire requires fuel, oxygen, and heat to exist. Fire researchers and firefighters call this the "fire triangle." Fuel is any combustible material, including dried grasses and dead branches, but also living plant material, a firewood pile, cleared brush that is not removed, a propane tank, and even your house or cabin. Oxygen must be present for a fire to start or continue, and there must be sufficient heat to allow for ignition and to sustain burning. If any one of these three is missing or is removed, the fire either cannot start or it will go out. Fire fighting, fire prevention, and firewise landscaping prevent or suppress fires by attacking one or more of the fire triangle legs: by removing fuel, reducing heat, or making oxygen unavailable.

The initial source of ignition or heat for most wildfires is human activity, such as escaped debris fires, careless use of fireworks, overheated equipment, and arson. Lightning is the main natural ignition source. Once a fire has begun, there are several factors that affect how it behaves:

WIND. Wind provides oxygen to a fire – the stronger the wind, the hotter the fire will burn and the faster it will spread. It also causes heat transfer from the fire to cooler areas, and partially determines the direction the fire will take.

TOPOGRAPHY. Hot air rises, so fire will generally burn up a slope much more quickly than down. Unburned fuels above the fire are preheated and dried, bringing them to the ignition point sooner.

Fuel can be from nature, like pine needles, or man-made, like wood shakes. Fires don't know the difference.

Continuous fuels and a wood roof increase this home's risk for damage from a wildfire.

HUMIDITY. Humid air absorbs heat and makes fuel moister and harder to ignite. Humidity is low in Utah in summer and early fall, when most wildfires occur.

TEMPERATURE. High temperatures bring fuels closer to the ignition point. As with low humidity, high summer and fall temperatures create more fire-prone conditions.

FUEL. Fire needs fuel, includinglive and dead grass, leaves, and branches. Fire can travel from the ground into the vegetation canopy, or up into a structure, if there are continuous fuels leading from the ground up into the tree crown or building.

Influenced by these factors, a wildfire moves across the landscape by flame-heating near the fire or by airborne firebrands that spread the fire far away from the flame front. In extreme wildfires intense winds can carry flaming brands or embers miles ahead of the main fire, causing landscapes and homes to ignite before the main fire even reaches them. This is the primary cause of homes burning in wildfires.

Wind, temperature, and humidity are out of your control. The effect of topography can be controlled to some extent by how structures and plants are placed within the landscape. However, you can definitely affect fuel availability and distribution by manipulating the amount of fuel, continuity of fuel, and available moisture. Controlling these factors is the key to creating a firewise landscape.

The remainder of this booklet describes specific actions you can take to make your property as firewise as possible. They are divided into the following sections:

- **Property Selection and Construction**
- **Firewise Landscape Design**
- **Landscape Maintenance**
- **Firewise Plant Selection**
- **Other Fire Safety Factors**

PROPERTY SELECTION AND CONSTRUCTION

You may already own a home or a piece of property, but if you are purchasing land or selecting a building site, there are choices that can reduce your wildfire risk.

LOT LOCATION. Utah is canyon country, and canyons channel wind that can intensify and direct fires. Ridges are also fire-prone, since heat and wind quickly rise to ridgetops. Though the top of a steep ridge is scenic, when it comes to fire safety flatter land is a better location for a home or cabin. When evaluating property location, firefighter response time is another important consideration.

WATER AVAILABILITY. Water access is important for fire suppression. Ability for firefighters to access water through a hydrant system, pool, lake, stream, or an underground cistern can increase the probability that structures can be protected.

VEHICLE ACCESS. When planning access to a new property, build fire safety into the road or driveway design. Multiple access roads are ideal. Roads should be at least two lanes wide, with gentle curves and with enough space at the end for a fire-fighting vehicle to turn around. This can take at least a 45 foot radius circle, or a 60 foot wide 'T'. Narrow, windy, steep, or vegetation-choked roads will be difficult or impossible for firefighters to navigate.

Make sure street signs and house numbers are visible, reflective, and readable in the dark. All address and street signs should be non-combustible.

LOT SIZE. A smaller lot restricts your options for firewise landscaping, since you have less space to work with. Small lots increase your dependence on your neighbors for fire safety. If your firewise property is surrounded by properties with hazardous fuel conditions, your efforts may not be enough to prevent fire damage to your property. With a small lot you will need to collaborate with your neighbors to create a firewise community.

HOME POSITION. Proper positioning of your home or other structures on your property is critical to fire risk and safety. Avoid locating structures at the top of a steep ridge or hilltop. A wind-propelled fire moving uphill will quickly come in contact with the structure. Instead, the home should

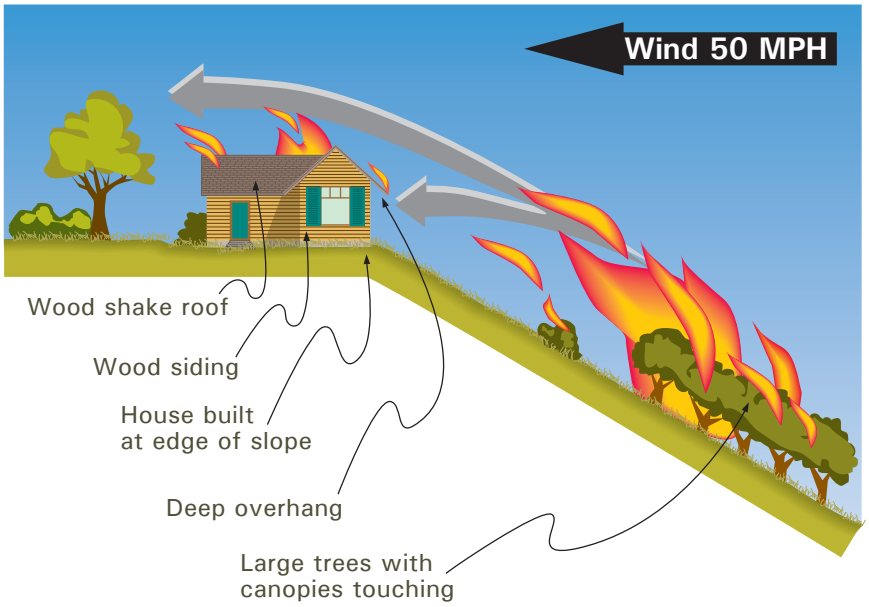
Placement of this house on top of a Gambel oak-covered ridge puts it at greater risk from wildfire, along with its wood decks.

be set back from the edge of the slope. If the home is already in place on a ridge, a concrete wall or patio, or even a pool between the home and the edge of the hill are advisable additions. A wooden deck overhanging a hilltop or canyon is vulnerable to fire because fire will burn up the hill and under the exposed deck. Flammable decks and walkways should not be built near a house in a hazardous area. Structures that are open to fire from below should be enclosed with fire-proof materials, or even a concrete wall.

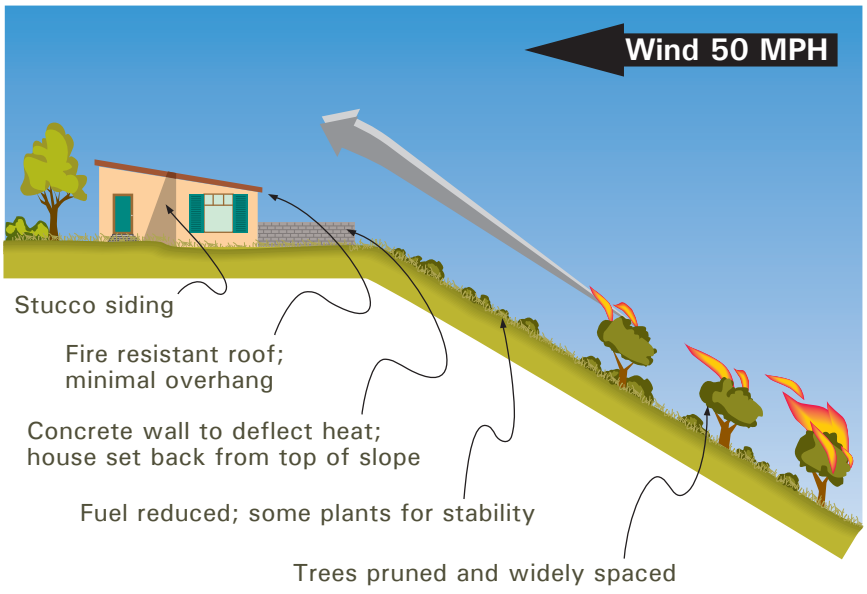
ROOFING. Airborne burning embers or firebrands are the main source of wildfire spread. Therefore, roofing material is one of the most vital decisions in home or cabin construction. Choose Class A materials which have the top rating for fire resistance. Class A roofing includes tile and metal, plus shingles made of a variety of materials: fiberglass reinforced asphalt, metal, fiber-cement, concrete, or slate. Make certain the underlayment material for any roof type also is Class A. Be sure to properly enclose the edges of tile roofing. All roofing should be carefully maintained, so that openings for airborne embers are not created.

These are key points to consider while constructing or renovating a home or cabin. In addition to the choices above, using fire-resistant materials for siding, eaves, decks, and fences will increase structure sustainability during a wildfire. Work closely with your contractor to make the best choices for fire preparation and prevention.

DANGEROUS MATERIALS AND CONDITIONS FOR SLOPED SITES



LANDSCAPING AND STRUCTURES DESIGNED FOR FIRE SAFETY



FIREWISE LANDSCAPES AND THE HOME IGNITION ZONE

The key to protecting yourself and your home in a fire-prone area is creating and maintaining a firewise landscape in the *home ignition zone* (Cohen 2002). The home ignition zone is the home and its immediate surroundings within about 100 feet on flat ground. A house burns or survives depending on the characteristics of this zone, so this is where you need to focus most of your pre-fire landscaping and home-care efforts. Firewise landscape design and maintenance in this zone interrupts the natural path a fire takes as it moves by flame heating and flying firebrands by decreasing fuel amounts and breaking up fuel continuity at and near the home. Additionally, firewise landscaping in this zone may allow firefighters to stay and safely defend the house, and can help prevent a house fire from spreading to adjacent vegetation.

This home's green, moist vegetation and setback from the hillside prevented it from igniting in the fire that burned up the hill. The wooden deck is a problem, and should be replaced with non-flammable material.

Firewise landscaping in the home ignition zone may be the make-or-break factor in the event of a wildfire. If firefighters can reach your home during such a fire, they will quickly decide if they have a chance of protecting your property. They will be more likely to protect a property that allows quick, uninhibited equipment access and is not thick with brushy, continuous fuels. If your home or cabin is so remote that firefighters might not reach it anyway, your firewise landscaping may keep the fire from entering the home ignition zone, or cause it to burn out if it does.

How wide should this zone of firewise landscaping be? Research has shown that on flat ground a 100 foot wide space around a home

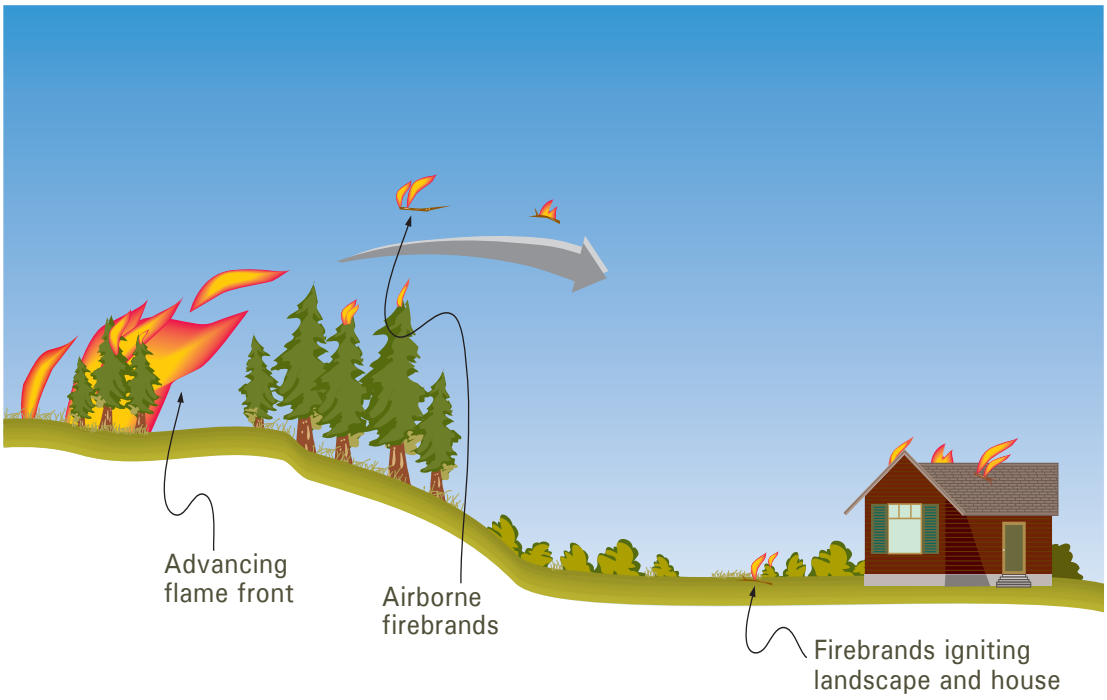
NIFC Interagency Fire Prevention

Firewise landscaping in the home ignition zone, along with good access, protected this home from a wildfire.

is ideal, since buildings exposed to heat from a fire more than 100 feet away are unlikely to ignite.This space includes manicured, green, and well-watered areas that are low in fuel. Houses on steep slopes have wider home ignition zones, since flames move quickly and readily uphill, heating the vegetation and fuels above them. Steep slopes (greater than 20%, or 20 feet of rise per 100 feet horizontal distance) widen the home ignition zone, and thus the width of your needed firewise landscaping, out to as much as 200 feet.

Developing wide enough firewise landscaping may require cooperation with your neighbors. If you have a small lot, you won't have 100 feet and may have much less space around your home – part of your home ignition zone may be on your neighbors' properties. However, if adjacent homeowners are aware and concerned with protecting their homes, you can develop common firewise landscapes.

FIRES ADVANCE BY DIRECT FLAME CONTACT AND BY AIRBORNE FIREBRANDS



This home has good, wide firewise landscaping within much of its home ignition zone. Its Zone 2 is "clean and green".

Although this home close to the road, its Zone 2 landscaping is not firewise, with highly flammable oak trees overhanging the roof.

DECKS, FENCES ARE PART OF HOUSE

Any structure that can burn that is attached to a house should be considered part of that house when figuring zone distances. These structures can set houses on fire as they burn. This includes fences, decks, and sheds made of wood, vinyl, or wood-polymer composite boards.

FIREWISE LANDSCAPE DESIGN

In planning firewise landscaping, divide your property into several zones or areas.

Zone 1 is your home and attached structures. It includes the house, attached decks, fences, and other combustible structures.

Zone 2 is your landscape extending 100 feet from the home. It is kept clean and green, with groups of well-maintained and irrigated turf, ground covers, and other perennial plants separated by rock or other non-combustible surfaces or walls. Scattered trees and shrubs are pruned and kept well away from the home. Zones 1 and 2 together make up the home ignition zone or defensible space.

Zone 3 is the surrounding native or wildland area. Its vegetation should be thinned if feasible, with a focus on removing highly flammable vegetation and debris.

Note that these distances are for level properties with moderate vegetation densities. They need to be increased up to 200 feet on steeper slopes with dense vegetation. Firewise practices for each zone are detailed below.

Zone 1: Your home

- Homes can be placed, designed, constructed and maintained to minimize the chances of ignition in a wildlfire. These factors are covered on pages 4-5, 12-13, and 30-32.

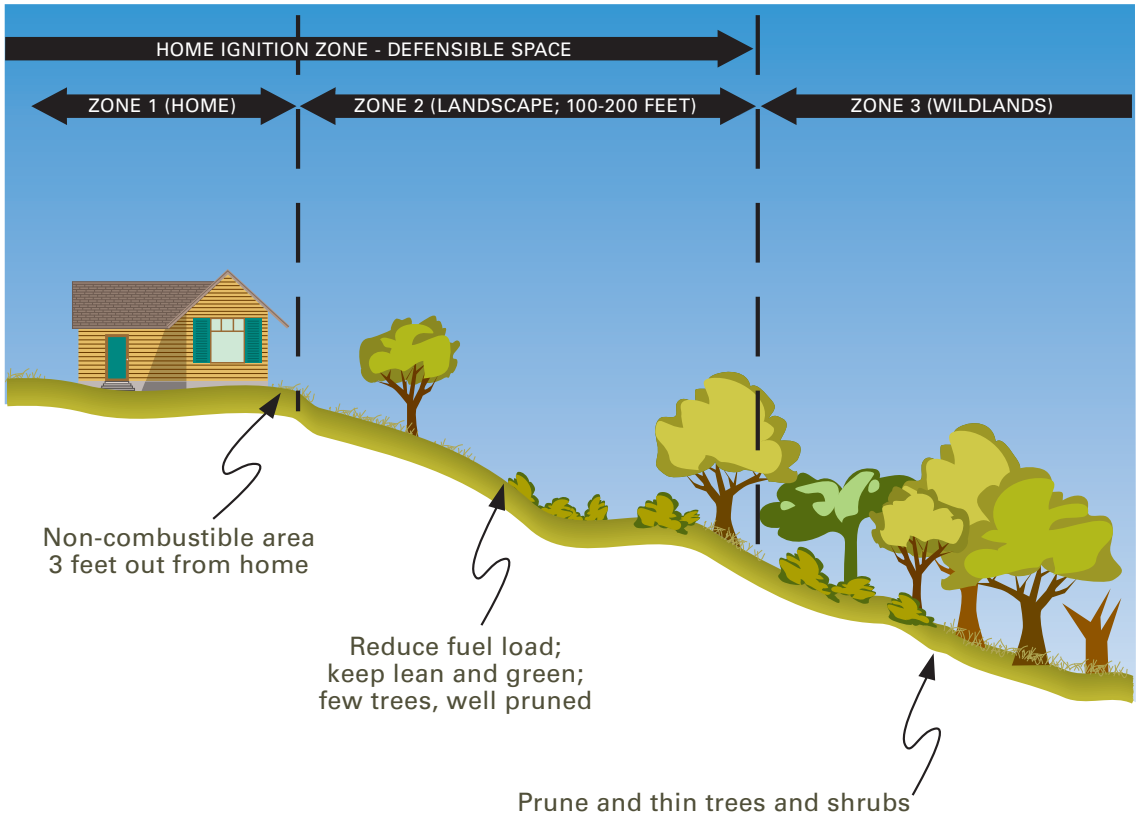
Zone 2: Your landscape

- The idea in this zone is to create a low-fuel landscape that minimizes chances of a fire burning from the landscape or surround-

ing wildlands to the home, or the chances of flying firebrands igniting the landscape.

- Maintain a non-combustible area within 3 feet of a house. This can include pavement, rocks, gravel, and irrigated non-woody plants like lawn, small flowers, and low ground covers. Do not use flammable mulches or allow dead plant material to accumulate.
- Throughout this zone use non-combustible areas like gravel beds and structures like retaining walls to create firebreaks between groups of plants and other flammable materials.
- Trees can be left in Zone 2 for shade and esthetics, but should be widely spaced. Leave at least 10 feet between mature tree crowns or small groups of trees or shrubs to keep fire from easily moving across the landscape. Favor broadleaved trees and small trees, and avoid resinous conifers. Remove all dead trees and shrubs.
- Keep tree crowns at least 10 to 15 feet horizontally from structures, chimney outlets, and powerlines. Pruning near powerlines should be done by the power company. Prune without leaving stubs that cause sprouting and decay.
- Brush and low limbs provide a "fire ladder" for low fires to move into taller trees. Break up this ladder by removing shrubs and small trees near larger trees. Prune lower tree branches to keep a 6 to 15 foot clearance from the ground to the bottom of the crown. However, at least half of the tree's crown should be left with live branches to ensure its health.
- Keep this zone clean and green. Remove accumulated woody debris, dry herbaceous material, and dead needles. Mow lawns, prune shrubs and trees to remove dead wood, and thin and prune ground covers and other vegetation.

HOME IGNITION ZONE AND FUEL TREATMENT ZONES NEAR AN INTERFACE HOME



- Keep Zone 2 well watered according to plant needs. Plants with sufficient moisture will be less flammable. Avoid over-watering, which can cause excess growth.

- Store firewood 30 to 100 feet from structures. Locate propane tanks well away from your home according to code (contact your fire department). Keep flammable materials, including tree crowns, other vegetation, and wooden fences, at least 15 feet from firewood and propane tanks.

- Replace flammable plastic, wood, or fabric outdoor furniture with non-flammable metal or glass.

Zone 3: Beyond 100 feet

- This zone can be left fairly natural, but pruning and thinning trees and brush is beneficial.

- Thin dense tree groups to slow fire spread. Also remove brush that provides a "fire ladder" into tree crowns.

- Prevent buildup of dead plant material and litter. Do not pile brush removed from elsewhere in this zone; get rid of it. Neighbors may want to get together to sponsor cleanup days, with a chipper and truck available for debris removal.

If all or parts of zones 2 and 3 are outside your property line, cooperate with your neighbors to create firewise conditions. Notify larger landowners like the Forest Service or Bureau of Land Management of the presence of your home or cabin adjacent to their property. Be sure to learn about their fire prevention and suppression plans.

In general, this home has a good Zone 2, with low and widely-spaced plants. However, the large spruce and pine represent a lot of fuel that nearly allowed a wildfire to reach the house.

These homeowners are raking and removing pine needles and other debris, and pruning dead material from shrubs.

VEGETATION CLEARANCE AND ROOF COMPOSITION ARE KEYS TO IGNITION PREVENTION

In 1997, Forest Service fire scientist Jack Cohen carried out a revealing experiment (Cohen 2000). As part of a research project on crown fires, he tested the ignitability of wood home walls at varying distances from crown fires. He found that a wall 33 feet away from an intense crown fire (with flame lengths sometimes reaching 33 feet) only ignited if flames actually touched the wall. A wall placed at 66 feet from the forest was lightly scorched, and a wall placed at 99 feet was not scorched. The lesson here is that even if your property is surrounded by forest, proper clearance around your home, along with good maintenance, can protect it from ignition.

Roof composition is another key factor. One study showed that homes with non-flammable roofs and a vegetation clearance of 33 to 60 feet had a 95 percent fire survival rate (Howard et al. 1973). A study of a 1990 fire in Santa Barbara reported that homes with non-flammable roofs and a vegetation clearance of at least 33 feet had an 86 percent fire survival rate (Foote 1994).

Darren McAvoy

This home did not have sufficient clearance from the surrounding forest because of a non-firewise landscape within their home ignition zone.

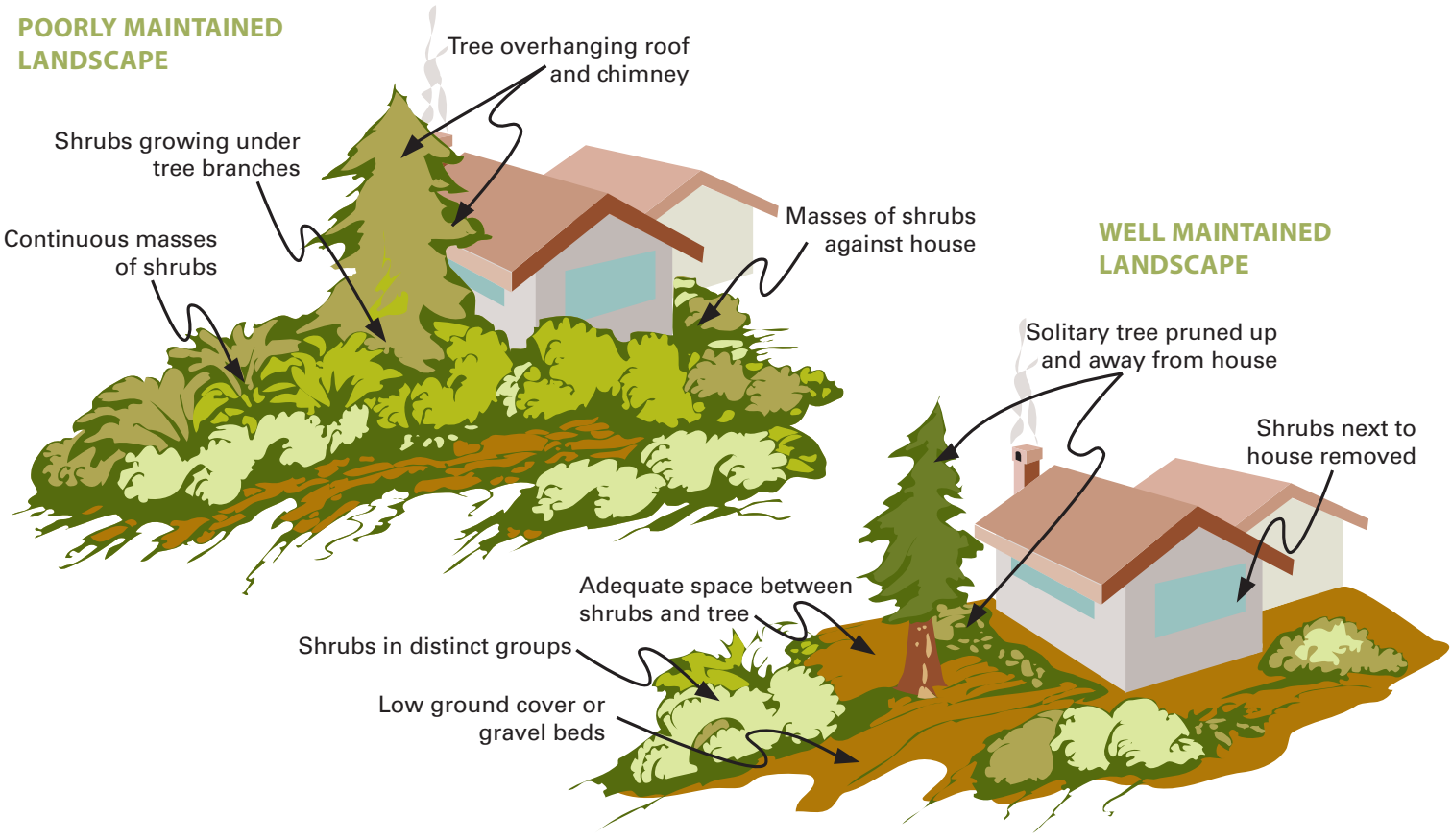
Darren McAvoy

This home survived a very hot crown fire passing nearby. Good firewise landscaping in Zone 2, along with a non-flammable roof and other firewise features, contributed to the home's safety, even with a large pine tree very near.

LANDSCAPE MAINTENANCE

Maintenance of your firewise landscape is just as important as planning and installation. Any planted landscape, even one planned with fire safety in mind, can become overgrown and hazardous without regular, mindful maintenance. Here are suggestions for keeping your firewise landscape in shape:

- Water your landscape as necessary to maintain green, succulent vegetation. Do not allow plants to dry out, thus increasing fire risk. Less frequent, deep watering is better for most plants than frequent, shallow watering. Water wide areas around trees and shrubs, since their roots extend well away from their trunks or stems.
- When possible, install drip irrigation in planting areas. This will conserve water while giving plants optimum moisture.
- Mow and water grass regularly, according to its needs. Tall, dry grasses can spread a fire to your home or other combustible materials. Some grasses, like buffalograss, need fairly little water to stay green and healthy, while others, like bluegrass, need more.
- Rake up and remove dead needles, leaf litter, and other plant debris. Do not pile these materials in Zones 2 or 3; get rid of them. Neighbors may want to cooperate to arrange chipping and removal if large amounts of material are involved. If possible take material to a composting/recycling facility where it can be processed for use elsewhere. If you have a compost pile, try to place it at least 100 feet away from your house.



- Remove tops of annual and perennial plants after they have gone to seed or when the stems become dry.
- Keep shrubs small by pruning them off close to the ground annually, or at least remove dead wood and prune branches regularly. Do not allow shrubs to grow against the side of structures, or up into tree crowns.
- On large trees, prune branches to a height of 8 to 15 feet above the ground to help prevent low fires from reaching the tree crowns.

Maintenance is a never-ending task. Inspect landscapes monthly and attend to problem situations before they become serious hazards.

Rake and remove dead leaves, needles and other flammable debris from near structures.

Glenn Beagle

A brush disposal crew clearing and chipping thick underbrush.

MAINTENANCE IS KEY

Even with good firewise landscape design, fire can still burn unmaintained structures if debris accumulates in the home ignition zone. Cohen (1999) cites several examples of homes catching fire even though the wildfire was miles away. In one fire he found that removal of pine needles from the base of wood-covered walls kept several homes from igniting (Cohen 2000). Keeping your roof, foundation, decks, and the ground near your house clear of flammable debris is a critical activity all of the time, and especially as fire season approaches.


Evening Primrose


Lilac

FIREWISE PLANT SELECTION

Firewise plants have a number of characteristics in common, but also can vary considerably. Below are some important points about these plants and their management. Following this section is a list of firewise plant choices for Utah landscapes. This is only a partial listing. Many other plants could be considered firewise if they have the appropriate characteristics.

- No plant is fireproof. All will burn in a very intense fire.
- Firewise plants all have one or more of these firewise characteristics:
  - ◇ Tissues contain more moisture, especially during the fire season.
  - ◇ Tissues contain low amounts of volatile oils and other readily flammable chemicals.
  - ◇ Plants provide less fuel, either by producing less litter or by staying small.
  - ◇ Plants are compact or low to the ground, so they can be used in the landscape to interrupt fire pathways.
- All trees provide large amounts of fuel to a fire, so they should be carefully placed and maintained. Broadleaved trees found in Utah generally are less flammable than conifers (pines, firs, spruces, junipers).
- Most of the firewise plants listed in this publication do well in open, sunny areas typical of most fire-prone sites.
- Some firewise plants need minimal or no irrigation to remain green and healthy; over-irrigation may harm such plants or may cause them to grow too fast and become hazardous. Other plants will need supplemental water to survive. Know your plants' needs and habits so you can use and manage them appropriately.
- When choosing a particular plant species or cultivar for a firewise planting, favor those that stay low to the ground and are compact, green and healthy, with low maintenance and minimal water, especially during the dry season.
- All firewise plants should receive periodic maintenance, including removal of dead leaf and stem material within the crown and on the ground, pruning to keep crowns clean and high (in trees), and removal of individual plants to break up fuel continuity.
- Make sure that the plants you are considering are cold-hardy in your area (check the USDA hardiness zone for the plant and compare it to the zone for your area) and otherwise well-suited for your locale and the specific planting site.
- Some plants are weedy and may even be illegal to plant or cultivate.

All plant photos by Michael Kuhns unless otherwise attributed.

Wasatch Penstemon – an herbaceous perennial native to the Wasatch mountains and foothills.

USING NATIVE PLANTS

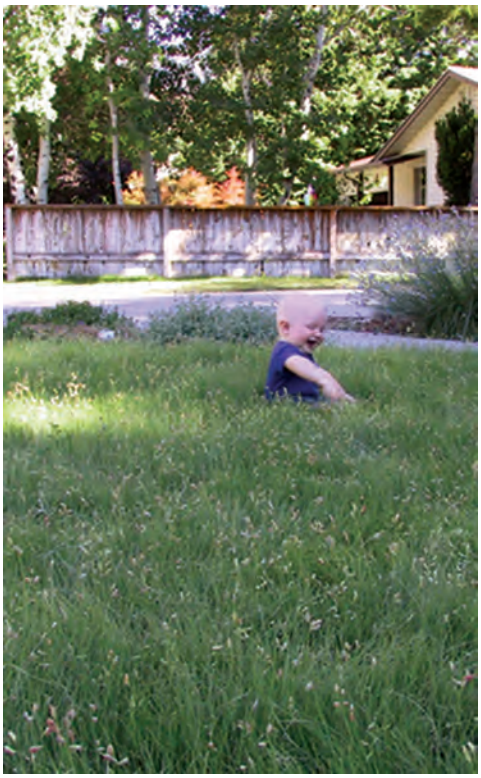
Using firewise plants native to your landscape often is the best option. Native plants may survive better, rarely are weedy, and may do well with little or no additional water or other resources. The important point is to know plants and your site well enough to choose plants appropriate to your site. Remember, just because a plant is native to your state doesn't mean it is well adapted or native to your local area. Aspen, for example, is native to the mountains throughout Utah, but not to warmer, drier valleys. So while aspen is a Utah native, it is not a good landscape choice away from the mountains.

Silvery Lupine – an herbaceous perennial native to higher elevations throughout Utah.

Creeping Oregon Grape – a low-growing shrub native to high elevation forests throughout Utah.

PLANTS TO AVOID

Some plants are pyrophytic – these plants are extremely flammable due to high resin or oil content or other characteristics. Common tree pyrophytes in Utah landscapes are juniper, pine, fir, and spruce. Do not plant these species in your firewise landscape, especially in Zone 2, or use them sparingly. if they are already present, consider replacing them with some of the firewise species listed here. If you decide to keep a pyrophytic plant in your landscape, keep it pruned and thinned, remove dead material regularly, and keep it at least 15 feet from any structure or other plant. Cheatgrass is an invasive, pyrophytic grass that should be mowed and gotten rid of if possible.



Paul Johnson

Buffalograss

GRASSES

Low-growing grasses are useful anywhere in a firewise landscape, and can serve well as your primary landscape plants. Keep grasses well watered, and mowed or trimmed. In especially dry areas, consider using buffalograss or other grasses that require less water and are slow growing. Also look for grasses that are less prone to drying out during the summer.

RECOMMENDED FIREWISE GRASSES

Common Name	Scientific Name
Wheatgrass	*Agropyron* species (some Native)
Buffalograss	*Buchloe dactyloides*
Orchardgrass	*Dactylis glomerata*
Blue Fescue	*Festuca cinerea* and other species
Rye Grass	*Lolium* species
Western Wheatgrass	*Pascopyrum smithii* (Native)
Kentucky Bluegrass	*Poa pratensis*
Sandberg Bluegrass	*Poa secunda* (Native)

Kentucky Bluegrass

Blue Fescue

Comments

resists fire spread due to growth form
low growing without mowing; green through summer with minimal irrigation
must be mowed or grazed
most low growing; may need to mow; stays moist with irrigation
stays green with less irrigation than some; need to mow or graze
low fuel loads; regrows quickly after fire
low growing; may need to mow; stays moist with irrigation
low growing without mowing; low fuel loads

Eileen Coite, NCSU Cooperative Extension

Orchardgrass

Tall Fescue

Morgan Mendenhall

Blair Waldron

Crested Wheatgrass


Bearberry

GROUND COVERS

Low-growing ground covers make effective firewise plants, especially near the home. Ground covers often are succulent or have other firewise characteristics that make them useful, functional, and attractive. When planted in beds surrounded by walkways and paths, in raised beds, or as part of a rock garden, they are an effective barrier to fire spread. The best ground cover is a spreading plant which forms a dense mat of roots and foliage that reduces soil erosion while excluding weeds. Maintain ground covers by providing adequate irrigation, and clipping off and removing dead stems and other litter annually.


Sea Pink

RECOMMENDED FIREWISE GROUND COVERS

Common Name	Scientific Name
Bearberry, Kinnikinnick, Manzanita	*Arctostaphylos uva-ursi* (Native)
Sea Pink, Sea Thrift	*Armeria maritima*
Beach Wormwood, Dusty Miller	*Artemisia stelleriana*
Snow-in-summer	*Cerastium tomentosum*
Bearberry Cotoneaster	*Cotoneaster dammeri*
Hardy Ice Plant *	*Delosperma nubigenum* (yellow) & other *Delosperma* species
Evergreen Candytuft	*Iberis sempervirens*
Spring Cinquefoil, Creeping Potentilla	*Potentilla neumanniana* 'Nana' (*P. verna*)
Stonecrop, Sedum	*Sedum* species (some Native)
Hen and Chicks	*Sempervivum tectorum*
Periwinkle *	*Vinca* species

*Can become weedy in certain circumstances.


Evergreen Candytuft


Snow-in-summer

Hardy Ice Plants

Comments

very low and spreading; evergreen; use on poor soils; needs little pruning; salt tolerant

low growing; dry, infertile sites only; salt tolerant

needs very well-drained soil; moist in summer

low growing; fairly moist in summer

low growing; evergreen; minimal maintenance; dry sites

also other ice plants; succulent; very drought tolerant; low growing; may be weedy in warm climates

fairly low growing; evergreen

very low growing

very low growing; fleshy, moist leaves; drought tolerant

very low growing; succulent; good on dry, poor soils

low growing, prostrate ground covers; sun or shade; vincas can spread aggressively

White Stonecrop

Hen and Chicks

Large Periwinkle

Columbine

Dianthus

Artemisia 'Silver Mound'

HERBACEOUS PERENNIALS

Herbaceous perennials in your landscape will add color and variety. However, tall perennials can present some fire danger if allowed to dry out. To reduce fire hazard, plant herbaceous perennials in widely spaced beds in Zone 2. As with ground covers, separate beds with gravel walkways, rock walls or areas of mown lawn. Do not plant these perennials next to structures unless they are small in stature, frequently watered and weeded, and the tops are removed after they dry out. Keep all perennial beds watered, and prune away dead stalks and foliage throughout the summer and fall.

RECOMMENDED FIREWISE HERBACEOUS PERENNIALS

Common Name	Scientific Name
Silvery Yarrow	*Achillea clavennae*
Fernleaf Yarrow	*Achillea filipendulina*
Yarrow*	*Achillea* — other species & hybrids (some Native)
Columbine	*Aquilegia* species & hybrids (some Native)
Artemisia (various names)*	*Artemisia* — species & hybrids (some Native)
Bergenia	*Bergenia* species & hybrids
Red Valerian, Jupiter's Beard	*Centranthus ruber*
Dwarf Mouse Ear Coreopsis	*Coreopsis auriculata* var. *Nana*
Coreopsis	*Coreopsis* — perennial species
Pinks	*Dianthus plumarius* & others
Fleabane*	*Erigeron* species & hybrids (some Native)
Blanketflower	*Gaillardia* x *grandiflora* hybrid & other species (some Native)
Hardy Geranium	*Geranium cinereum*

*Can become weedy in certain circumstances.

Red Valerian

Coreopsis

Blanketflower

Comments

small plants for dry sites

large; likes dry sites; moist in summer

some are volatile; good for dry sites

likes moisture and some shade

some are volatile; all like dry soils

moisture loving; medium-sized; semi-evergreen

gets fairly large; moist in summer

needs moisture; fairly low growing

more drought tolerant; larger plants

use perennials; needs moisture; moist in summer

moist through summer

drought, heat tolerant; moist in summer; large; spreads from seed

low growing; cool sites

Fleabane

Daylily

Hardy Geranium

Red-hot Poker

Lupine

FIREWISE HERBACEOUS PERENNIALS

Common Name	Scientific Name
Bloody Cranesbill	*Geranium sanguineum*
Geranium	*Geranium* species (some Native)
Daylily	*Hemerocallis* species
Coral Bells, Alum Root	*Heuchera sanguinea* & other species (some Native)
Iris	*Iris* species & hybrids (some Native)
Red-hot Poker	*Kniphofia* species & hybrids
Lavender	*Lavandula* species
Shasta Daisy	*Leucanthemum* x *superbum*
Sea-lavender, Statice	*Limonium latifolium*
Flax	*Linum* species (some Native)
Lily-turf	*Liriope spicatum*
Lupine*	*Lupinus* species & hybrids (some Native)
Alfalfa	*Medicago sativa*
Primrose	*Oenothera* species (some Native)
Poppy	*Papaver* species (some Native)
Penstemon	*Penstemon* species & hybrids (some Native)
Russian Sage, Azure Sage	*Perovskia atriplicifolia*
Nepal Cinquefoil	*Potentilla nepalensis*
Cinquefoil, Potentilla*	*Potentilla*—other non-shrubby species & hybrids (some Native)
Salvia, Sage*	*Salvia* species & hybrids (some Native)
Wineleaf Cinquefoil	*Sibbaldiopsis (Potentilla) tridentata*
Lamb's Ear	*Stachys byzantina*
Yucca	*Yucca filamentosa* & other species (some Native)

*Can become weedy in certain circumstances.

Lavender

Penstemon

Comments

low/medium growing; partial shade or sun

use perennials; most low growing; need shade where hot

green and moist through summer

also other species, hybrids; low growing foliage

green and moist through summer

large plants; green in summer

compact; contains oils but slow to ignite when moist; moist in summer; cut to ground regularly

green and moist through summer

low growing leaves; salt resistant; dry soils

good for tough sites & soils

fairly low growing; moist or dry sites; evergreen

some are annuals; poisonous to livestock; good for poor soils

green & moist through summer; low growing

fairly low growing; best on poor soils

easy to grow; cut back regularly

use on well-drained soils

green through summer; cut back yearly

prostrate form

sulfur cinquefoil is weedy; full sun; moist through summer

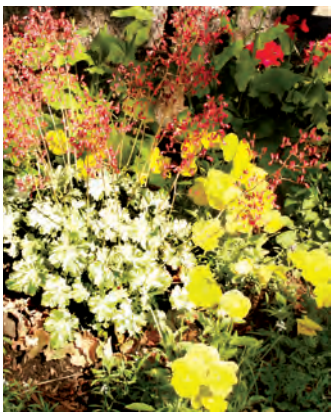
some are annuals; Mediterranean sage is weedy; only use low growing, small plants

prostrate, spreading form

green through summer; good on poor soils

evergreen; very drought tolerant

Lamb's Ear



Heuchera 'Coral Bells'

Heuchera 'Purple Palace'

Russian Sage

Yucca

English Ivy

SHRUBS AND WOODY VINES

Shrubs add color and structure to a well-designed landscape. However, shrubs are a special concern in a firewise landscape, because they can be a source of significant fuel. Additionally, if shrubs are planted under tree crowns, under overhanging decks or adjacent to buildings, they can function as a fire ladder to spread flames to new areas. When planning your firewise landscape, plant shrubs individually, or plant in small clumps apart from each other. Near trees and buildings, plant only widely separated, low-growing, non-resinous varieties. Mow grass low around shrubs, and trim away dead leaves and branches annually.

RECOMMENDED FIREWISE SHRUBS AND WOODY VINES

Common Name	Scientific Name
Saltbush	*Atriplex* species (Native)
Serviceberry	*Amelanchier* species (some Native)
New Jersey Tea	*Ceanothus americanus*
Ceanothus	*Ceanothus ovatus (C. herbaceous)* & others (some Native)
Mountain-mahogany	*Cercocarpus* species (Native)
Rock-rose	Cistus species
Rockspray, Rock Cotoneaster	*Cotoneaster horizontalis*
Cotoneaster	*Cotoneaster*—other compact species
English Ivy *	*Hedera helix*
Prostrate Kochia	*Kochia prostrata*

*Can become weedy in certain circumstances

Rockspray

Creeping Oregon Grape

Utah Serviceberry

Serviceberry Hybrid

Comments

very drought tolerant; low maintenance
fairly tough, attractive shrubs/small trees; nice flowers
low, dense form; evergreen; fairly trouble free; drought tolerant
fairly low growing; evergreen; low maintenance
tough shrubs/small trees; curlleaf mtn. mahogany (C. ledifolius) is evergreen and can get pretty large
not all are cold hardy; evergreen; dry sites; size varies
very low and spreading; evergreen
low growth form; low maintenance; tough
evergreen vine; low growing, spreading, climbing; prune to control spread; sun or shade; can be weedy
stays green; no volatiles; clumps break up fuel continuity; don't use weedy annual kochia (*K. scoparia*)

Honeysuckle

Spreading Cotoneaster

Buckthorn

FIREWISE SHRUBS AND WOODY VINES

Common Name	Scientific Name
Honeysuckle	*Lonicera* species & hybrids (some Native)
Creeping Oregon Grape	*Mahonia repens* (Native)
Western Sandcherry	*Prunus besseyi (P. pumila* var. *besseyi*) (Native)
Bitterbrush, Antelope Bitterbrush	*Purshia tridentata* (Native)
Firethorn, Pyracantha	*Pyracantha coccinea*
Buckthorn	*Rhamnus* species (some Native)
Skunkbush Sumac	*Rhus trilobata (R. aromatica)* (Native)
Sumac	*Rhus*—other species (some Native)
Currant, Gooseberry	*Ribes* species (Native)
Rugosa Rose *	*Rosa rugosa* & other hedge roses
Woods Rose	*Rosa woodsii* (Native)
Buffaloberry	*Shepherdia* species (Native)
Snowberry	*Symphoricarpos* species
Lilac	*Syringa vulgaris*

*Can become weedy in certain circumstances.

Skunkbush Sumac

Roundleaf Buffaloberry

Comments

shrubs or vines; use low growing species, cultivars
very low growing, spreading shrub; evergreen; needs some shade
small, spreading shrub for dry, tough sites
low maintenance; good for tough, dry sites
evergreen shrub; use low growing selections; prune or cutback regularly
tough shrubs; low maintenance
easy to grow shrub; fairly small; low maintenance
fairly tough and drought tolerant; some get large; thin or prune periodically
use low growing dwarf forms; fairly tough, adaptable
medium shrub; tough, fairly drought and salt tolerant
tough; drought tolerant; pink flowers
does well on very poor soils; drought tolerant; fixes nitrogen; salt tolerant
small shrubs; fairly tough
small to large shrubs; stay green through summer with irrigation; thin and prune regularly

Firethorn

Golden Currant

Woods Rose

Hedge Rose

Bigtooth Maple

TREES

Any tree provides a large potential source of fuel for a wildfire, so include trees in your firewise landscape sparingly. In Zone 2 trees should be small and placed so that there crowns will be at least 10 to 15 feet away from structures. Leave plenty of room between trees to allow for growth; keep 10 feet between mature tree crowns. Prune tree limbs up to a height of 8 to 15 feet above the ground, and do not allow shrubs to grow up under the trees, creating ladder fuels.

Broadleaved (deciduous) trees are better firewise choices than conifers. Deciduous trees have higher moisture content, less flammable chemical content, and provide less fuel during their dormant period. Most conifers have flammable resins, and their dry needles can drop and accumulate on roofs and the ground, giving fire a place to start and a way to spread. A few firewise trees are listed below, but there are many others. Just remember, any tree provides a lot of fuel, so trees should be used carefully in a firewise landscape.

RECOMMENDED FIREWISE TREES

Common Name	Scientific Name and Origin
Maple	*Acer* species (some Native)
Thinleaf Alder	*Alnus tenuifolia* (Native)
Birch	*Betula* species (some Native)
California Redbud	*Cercis occidentalis* (Native)
Quaking Aspen	*Populus tremuloides* (Native)
Poplar, Cottonwood	*Populus*—other species (some Native)
Willow	*Salix* species (some Native)

Quaking Aspen

Water Birch

Fremont Cottonwood

Comments

needs supplemental moisture
stays moist in summer but will need irrigation
needs supplemental moisture; use borer resistant selections
small tree or shrub; drought and heat resistant
needs supplemental moisture; good if maintained in young clumps, otherwise not suitable for valleys
needs supplemental moisture; most need plenty of space; some reproduce from sucker sprouts
needs supplemental moisture; disease prone; some good shrubs

California Redbud

This home has a triple threat: wood shake roof, pine trees overhanging the house, and dead needles and other debris collected on the roof.

This wood pile should be moved at least 30 to 100 feet away from the house. Notice the unenclosed deck and tree growing up through the deck – both increase risk from a wildfire.

OTHER FIRE SAFETY FACTORS

Creating and maintaining a firewise landscape in your home ignition zone will certainly reduce your risk of damage from a wildfire, but there are other steps you can take to lower the risk even further. As you prepare your property for fire safety, also consider the measures listed below.

BUILDING

- Class A roof – As emphasized earlier, roof composition is one of the keys to your home's ignitability. Use Class A materials for your roof if you are building. If your existing structure does not have a Class A roof, consider replacing it.
- Decks – Consider replacing wood decks and walkways with non-flammable materials like concrete or pavers. Enclose the sides of decks, especially if they overhang a slope, to prevent sparks and firebrands from getting under them. Never store combustible materials (including vehicles) under your deck.
- Non-combustible soffits – If your home or building has overhanging eaves, enclose the underside (soffit) with non-combustible material. Cover soffit vents with metal screening to exclude embers.
- Screen on chimney – Make sure all chimneys have a spark arrestor or screening of one-half inch mesh.
- Window materials – Windows broken by heat will let fire into a structure. Double- or triple-glazed windows will last longer than single-pane windows during a fire. Tempered, low-E glass will last the longest. Smaller windows are less likely to break during a fire than are larger windows.

The road in this rural subdivision is clearly marked with a reflective sign.

- Skylights - A skylight can melt in the intense heat of a fire, creating an opening into the home. You can easily construct covers for skylights out of 2x4s and shingles; then just put them in place if you are evacuated in the event of a wildfire.

MAINTENANCE

- Debris cleanup – Keep roofs, gutters, decks, porches, and the house perimeter free of dead pine needles and other flammable debris. They can easily ignite and spread a fire.
- Firewood, propane – Firewood and propane tanks, including small gas grill tanks, should be stored away from the house at the edge of your home ignition zone (at least 100 feet from the house). Consider burying large propane tanks. Check with your local gas company and fire department for advice on tank placement.

EMERGENCY PREPAREDNESS

- Fire plan – Create a family fire plan. Know how you will contact each other, and where you will meet in the event of a fire. Practice home fire drills.
- Hand tools – During fire season keep hoses and hand tools (rake, axe, hoe, shovel) easily accessible. Raking dead vegetation away from your home and wetting your roof as a fire approaches may prevent your home from igniting.
- Phone numbers – Post the fire department phone number and other emergency numbers where they can be found quickly in the event of a fire.
- Street signs and house numbers – Ensure that your street is marked with easily readable, visible, and non-combustible signs. House numbers should be large, reflective, and not obscured by vegetation. Post your house number at the end of the driveway if your house is not easily visible from the road.
- Water and electricity – If your home is on well water with an electrical pump, consider having an emergency generator in case the electricity fails during a fire. A pool or pond can be a good emergency water source for you and firefighters.

THE LAST WORD — LET'S GET REAL

A firewise landscape set in Utah's pine forests, juniper woodlands, or oak hills may not look "natural" to our eyes. Open space and thinned, spread out vegetation may not appear as green and inviting as a dense stand of trees. Many of us would love to live in a home or cabin nestled in the woods. However, when we make the choice to build in a wildland landscape, the homes we build are at the same risk from fire as the surrounding vegetation. Living in the woods comes at a price – if it is not paid by landscaping to prevent fire, it might be paid by the loss of a home.

Firewise landscaping can be attractive, but appreciating it may take an adjustment from what we are accustomed to. Consider the example of water-wise landscaping. A decade ago, when few people were concerned with water conservation, only extensive green lawns surrounded by thirsty annuals were considered beautiful, desirable, and "normal". Now, low-water-use landscapes filled with native and water-wise perennials are becoming more common and perceptions of what is attractive are changing. If we continue to build in wildland areas, our perception of what constitutes attractive surroundings in those settings may need to change too.

If you have a home or cabin in the woods and just cannot bear to dramatically change your surrounding landscape to make it firewise, take at least a few steps to reduce your risk of fire damage. Refer to the other sections of this booklet for specifics, but here is the minimum you should consider:

- Replace wood roofing with metal, tile, or non-flammable shingles.
- Maintain a 3 foot non-combustible area around your home.
- Move firewood piles and propane tanks 30 to 100 feet away from the home, preferably to an open area.
- Do not let dead pine needles and other flammable debris accumulate on roofs and decks,
- Thin dead material from shrubs and trees. Remove any limbs that touch the side or roof of the home.

Your property will not be completely safe, but following these steps will help greatly.

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SOURCES FOR INFORMATION AND ASSISTANCE IN MAKING YOUR HOME/PROPERTY FIREWISE

- Contact your local fire department.
- USU Forestry Extension: http://forestry.usu.edu, or write to 5230 Old Main Hill, Utah State University, Logan, Utah 84322-5230. Forestry information and assistance for homeowners and forest landowners.
- Firewise: http://www.firewise.org. National organization providing information on how to make your home and property firewise. Includes a virtual tour of a firewise property.
- Utah Fire Info: http://www.utahfireinfo.gov. Information on fire prevention at home, on the job, and during recreational activities.
- Utah Division of Forestry, Fire and State Lands: http://www.ffsl.utah.gov/ffsl.htm. Fire information from the state forestry agency in Utah.
- Hire an ISA (International Society of Arboriculture) certified arborist for tree work. A searchable list of certified arborists is found at http://www.isa-arbor.com.
- USDA Forest Service: Contact your local Ranger District, or go to http://www.fs.fed.us to find the Forest and District nearest you.
- USDA Forest Service Rocky Mountain Research Station Fire Sciences Lab: http://www.firelab.org. Information on wildfire research and links to current wildfire activity.

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