

Arizona Wildfire and the Environment Series

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[ag.arizona.edu/pubs/
natresources/az1289.pdf](http://ag.arizona.edu/pubs/natresources/az1289.pdf)

This information
has been reviewed by
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Introduction

Creating defensible space around your home is one of the most important and effective steps you can take to protect you, your family, and your home from catastrophic wildfire. *Defensible space* is the area between a structure and an oncoming wildfire (or between a burning structure and wildland vegetation) where nearby vegetation has been modified to reduce a wildfire's intensity and ability to spread.

All vegetation, naturally occurring and otherwise, is potential fuel for fire. Its type, amount and arrangement can have dramatic effects on fire behavior. There are no "fireproof" plant species. Plant choice, spacing and maintenance are critical; where and how you plant can be more important than what species you use. However, given options, choose plant species for your landscape that are more fire resistant.

Choosing FIREWISE Plants

Keep in mind these general concepts when choosing FIREWISE plant species for your home landscape plan:

- A plant's moisture content is the most important factor governing its volatility. However, resin content and other factors in some species keep them flammable even when the plant is well watered. Conifers such as pines, firs, spruces, junipers, and Arizona cypress tend to be flammable due their oil and pitch content, regardless of moisture status or content.
- Deciduous plants tend to be more fire resistant, because their leaves have higher moisture content. Also, when trees drop their leaves in the winter, there is less fuel to carry fire through their canopies.

In some cases, drought tolerance and fire resistance are related. Here are some general plant characteristics that can provide drought tolerance and increase fire resistance in your landscape:

- Plants that shed their leaves or needles in extreme drought.

- Drought-adapted plants that have smaller leaves or very succulent leaves that store water.
- Salt tolerant plants that show natural fire resistance. A notable exception is salt cedar, which is highly salt tolerant but contains extremely volatile oils and burns very hot.

Plants that are more resistant to wildfire have one or more of the following characteristics:

- They grow without accumulating large amounts of combustible dead branches, needles, or leaves (e.g. aspen).
- They have open, loose branches with a low volume of total vegetation (e.g. currant and mountain mahogany).
- They have low resin content (many deciduous species).
- They have high-moisture content (succulents and some herbaceous plants).
- They grow slowly and do not need frequent pruning.
- They are short and grow close to the ground, such as small wildflowers and non-coniferous groundcovers.
- They can re-establish following a fire, reducing the costs of planting new trees (aspen, locust).

At a Glance

- FIREWISE landscaping can be aesthetically pleasing while reducing potential wildfire fuel.
- Plant choice, spacing, and maintenance are critical.
- Your landscape, and the plants in it, must be maintained to retain their Firewise properties.
- Many native and local species are appropriate for FIREWISE plant materials.

FIREWISE Trees

Scientific Name	Common Name	Water Needs	Sun / Shade	Mature Height	Elevation (1000')									
					3	4	5	6	7	8	9			
<i>Acer glabrum</i>	Rocky Mountain maple	M-H	S/PS/Sh	6-10	N	N	Y	Y	Y	Y	Y	Y	Y	Y
<i>Acer grandidentatum</i>	big-tooth maple	M-H	S/PS	10-20	N	Y	Y	Y	Y	Y	Y	Y	Y	?
<i>Acer ginnala</i>	amur maple	M	S/PS	15-20	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
<i>Acer negundo</i>	Boxelder	H	S/PS/Sh	30-50	Y	Y	Y	Y	Y	Y	Y	Y	Y	?
<i>Alnus tenuifolia</i>	thin leaf alder	H	S/PS	10-20	N	?	Y	Y	Y	Y	Y	Y	Y	Y
<i>Betula occidentalis</i>	water birch	M	S/PS/Sh	20-30	N	N	Y	Y	Y	Y	Y	Y	Y	?
<i>Catalpa speciosa</i>	northern catalpa	M-H	S/PS	25-60	?	Y	Y	Y	Y	Y	Y	Y	Y	?
<i>Celtis reticulata</i>	netleaf hackberry	L-M	S	10-20	Y	Y	Y	Y	Y	Y	N	N	N	N
<i>Cercis canadensis</i>	eastern redbud	M	S	5-20	?	Y	Y	Y	N	N	N	N	N	N
<i>Cercis occidentalis</i>	western redbud	M	S/PS	10-15	N	Y	Y	Y	?	N	N	N	N	N
<i>Chilopsis linearis</i>	desert-willow	L-M	S/PS	6-20	Y	Y	Y	N	N	N	N	N	N	N
<i>Cotinus coggyria</i>	purple smoketree	M	S	20-30	?	N	Y	Y	Y	?	?	?	?	?
<i>Crataegus oxyacantha</i>	English hawthorn	M-H	S	20-25	?	Y	Y	Y	Y	?	N	N	N	N
<i>Forestiera neomexicana</i>	New Mexican olive	L-M	S/PS	10-20	Y	Y	Y	Y	Y	?	N	N	N	N
<i>Fraxinus pennsylvanica</i>	green ash	M-H	S	30-40	N	N	N	Y	Y	Y	Y	Y	Y	N
<i>Fraxinus velutina</i>	velvet ash	M	S/PS	20-30	Y	Y	Y	Y	N	N	N	N	N	N
<i>Gleditsia tricanthos</i>	honeylocust	M	S	35-70	Y	Y	Y	Y	Y	N	N	N	N	N
<i>Juglans major</i>	Arizona walnut	M-H	S	20-40	Y	Y	Y	Y	Y	N	N	N	N	N
<i>Malus spp.</i>	crabapple	M-H	S	8-30	Y	Y	Y	Y	Y	Y	Y	Y	Y	?
<i>Platanus x acerifolia</i>	sycamore or London planetree	M-H	S	20-80	?	?	Y	Y	Y	Y	Y	Y	Y	?
<i>Platanus wrightii</i>	Arizona sycamore	M-H	S	20-80	Y	Y	Y	Y	N	N	N	N	N	N
<i>Populus acuminata</i>	lanceleaf cottonwood	H	S	40-70	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
<i>Populus angustifolia</i>	narrow-leaf cottonwood	H	S	30-90	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
<i>Populus fermentii</i>	Fremont cottonwood	H	S	60-90	Y	Y	Y	Y	Y	N	?	?	?	?
<i>Populus tremuloides</i>	quaking aspen	H	S	20-60	N	N	N	Y	Y	Y	Y	Y	Y	Y
<i>Prunus americana</i>	American wild plum	M	S/PS	10-20	Y	Y	Y	Y	Y	Y	Y	Y	Y	?
<i>Prunus virginiana</i>	western chokecherry	H	S/PS	10-30	?	Y	Y	Y	Y	Y	Y	Y	Y	N
<i>Prunus cerasifera</i>	flowering plum	H	S	15-30	Y	Y	Y	Y	Y	N	N	N	N	N
<i>Prunus padus</i>	Mayday tree	M-H	S	15-29	N	N	Y	Y	Y	Y	Y	Y	Y	N
<i>Robinia neomexicana</i>	New Mexico locust	L	S/PS	10-20	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
<i>Robinia pseudoacacia</i>	black locust	L	S/PS	50-75	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
<i>Sambucus cerulea</i>	New Mexico elder	M	S/PS	10-20	Y	Y	Y	Y	Y	Y	Y	Y	Y	?

Grasses

Scientific Name	Common Name	Seeding Rate (lbs/acre)	Water Needs	Cool/Warm Season	Sun/Shade	Mature Height (feet)	Elevation (1000')								
							3	4	5	6	7	8	9		
<i>Agropyron smithii</i>	western wheatgrass	10	11 - 17"	Cool	S	1-2, S	N	Y	Y	Y	Y	N	N	N	
<i>Bouteloua curtipendula</i>	sideoats grama	3-4	12 - 16"	Warm	S	2-3, B	Y	Y	Y	Y	Y	N	N	N	
<i>Bouteloua gracilis</i>	blue grama	3-4	12 - 16"	Warm	S	1, S	Y	Y	Y	Y	Y	Y	Y	N	
<i>Buchloe dactyloides</i>	buffalograss	4-8	VL-L	Warm	S	1, S	Y	Y	Y	N	N	N	N	N	
<i>Festuca arizonica</i>	Arizona fescue	3	VL-L	Cool	S-PS	2-3, B	N	N	N	N	Y	Y	Y	Y	
<i>Hilaria jamesii</i>	galleta grass	3-4	9-12"	Warm	S	1-2, B	N	N	Y	Y	Y	N	N	N	
<i>Leptochloa dubia</i>	green sprangletop	6	L	Warm	S	1-2, B	Y	Y	Y	Y	Y	N	N	N	

Sun/Shade: S = full sun, PS = partial sun, Sh = shade

Mature Height: feet, B = bunchgrass, S = sod forming

Water Needs: VL = very low, L = low, M = moderate, H = high

Elevation in 1000': Y = yes, N = not recommended, ? = unknown or doubtful

Grasses (cont'd)

Scientific Name	Common Name	Seeding Rate (lbs/acre)	Water Needs	Cool/Warm Season	Sun/Shade	Mature Height (feet)	Elevation (1000')								
							3	4	5	6	7	8	9		
<i>Koeleria macrantha</i>	Junegrass	1-2	VL-L	Cool	S-PS	1-2, B	N	Y	Y	Y	Y	Y	Y	Y	
<i>Muhlenbergia rigens</i>	deergrass	2	L-M	Warm	S	2-5, B	Y	Y	Y	Y	Y	N	N	N	
<i>Muhlenbergia wrightii</i>	spike muhly	2	12 - 16"	Warm	S	1-2, B	Y	Y	Y	Y	Y	Y	Y	Y	
<i>Poa fendleriana</i>	muttongrass	1-2	VL-L	Cool	PS	1-2, B	N	N	Y	Y	Y	Y	Y	Y	
<i>Elymus elymoides</i>	bottlebrush squirreltail	8-10	VL-L	Cool	S-PS	1-2, B	N	Y	Y	Y	Y	N	N	N	
<i>Sporobolus cryptandrus</i>	sand dropseed	2	VL-L	Warm	S	2-3, B	Y	Y	Y	Y	Y	N	N	N	
<i>Stipa comata</i>	needle-and-thread	8	VL-L		S	1-2, B	Y	Y	Y	?	N	N	N	N	
<i>Stipa hymenoides</i>	Indian ricegrass	5	9 - 13"	Cool	S	1-2, B	N	Y	Y	Y	Y	N	N	N	

FIREWISE Shrubs

Scientific Name	Common Name	Water Needs	Sun/Shade	Mature Height	Elevation (1000')								
					3	4	5	6	7	8	9		
<i>Acer glabrum</i>	Rocky Mountain maple	M-H	S/PS/Sh	6-10	N	N	Y	Y	Y	Y	Y	Y	Y
<i>Agave parryi</i>	mescal	VL	S	2-12	Y	Y	Y	Y	N	N	N	N	N
<i>Amelanchier alnifolia</i>	Saskatoon alder-leaf / serviceberry	L-M	S	6-15	Y	Y	Y	Y	Y	Y	Y	Y	Y
<i>Amelanchier utahensis</i>	Utah serviceberry	VL-M	S	5-10	?	Y	Y	Y	Y	?	N		
<i>Amorpha fruticosa</i>	false indigo, indigobush	M-H	S/PS	2-3	Y	Y	Y	Y	Y	?	N		
<i>Arctostaphylos uva-ursi</i>	kinnikinnick, bearberry	M-H	PS/Sh	1-2	N	N	N	Y	Y	Y	Y	Y	Y
<i>Atriplex canescens</i>	four-wing saltbrush	L	S	3-6	Y	Y	Y	Y	Y	N	N		
<i>Berberis fremontii</i>	algerita	L	S	6-8	Y	Y	Y	Y	Y	N	N		
<i>Ceanothus fendleri</i>	buckbush, Fendler ceanothus	M	S	2	?	?	Y	Y	Y	Y	Y		
<i>Cercocarpus intricatus</i>	dwarf mountain mahogany	VL-L	S	4-6	?	?	Y	Y	Y	?	N		
<i>Cercocarpus montanus</i>	mountain mahogany	L-M	S/PS	6-8	Y	Y	Y	Y	Y	?	?		
<i>Chrysothamnus spp</i>	rabbitbrush	VL-L	S	2-4	Y	Y	Y	Y	Y	Y	Y		
<i>Cornus stolonifera</i>	red osier dogwood	H	S/Sh	4-6	N	Y	Y	Y	Y	Y	Y		
<i>Fallugia paradoxa</i>	Apache plume	VL-L	S	2-4	Y	Y	Y	Y	Y	?	N		
<i>Fendlera rupicola</i>	cliff fendlerbush	L-M	S/PS	4-6	N	Y	Y	Y	Y	N	N		
<i>Holodiscus dumosus</i>	ocean spray/ rock cliff/ rock spirea	L-M	S/PS	4	N	N	Y	Y	Y	Y	Y		
<i>Lonicera involucrata</i>	Lonicera involucrata	M-H	PS/Sh	4	N	N	?	?	Y	Y	Y		
<i>Mahonia repens</i>	creeping grapeholly	L-H	S/Sh	1-2	?	Y	Y	Y	Y	Y	Y		
<i>Nolina microcarpa</i>	beargrass	VL-L	S	3	Y	Y	Y	Y	Y	Y	N		
<i>Opuntia spp</i>	cholla and prickly pear actus	VL-L	S	3	Y	Y	Y	Y	Y	N	N		
<i>Penstemon ambiguus</i>	sand penstemon	VL-L	S	1-3	Y	Y	Y	Y	Y	N	N		
<i>Physocarpus monogynus</i>	mountain ninebark	M	S/Sh	2-4	N	N	Y	Y	Y	Y	Y		
<i>Potentilla fruticosa</i>	shrubby cinquefoil	M	S/PS	2-3	N	N	Y	Y	Y	Y	Y		
<i>Ribes aureum</i>	golden currant	M	S/PS	2-3	N	Y	Y	Y	Y	?	N		
<i>Rosa woodsii</i>	Wood's wild rose	M	S/PS	2-3	N	Y	Y	Y	Y	Y	Y		
<i>Shepherdia argentea</i>	silver buffaloberry	M	S/PS	10-15	?	?	Y	Y	Y	Y	?		
<i>Symphoricarpos spp.</i>	snowberry	M-H	S/PS	2-3	?	?	Y	Y	Y	Y	Y		
<i>Syringa vulgaris</i>	common lilac	M	S	6-8	Y	Y	Y	Y	Y	Y	Y		
<i>Yucca baccata</i>	banana yucca	VL-L	S	2-3	N	Y	Y	Y	Y	N	N		
<i>Yucca glauca</i>	Great Plains yucca	VL-L	S	2-3	Y	Y	Y	Y	Y	Y	N		
<i>Yucca elata</i>	soaptree yucca	VL-L	S	3-15	Y	Y	Y	Y	Y	N	N		

Sun/Shade: S = full sun, PS = partial sun, Sh = shade

Mature Height: feet, B = bunchgrass, S = sod forming

Water Needs: VL = very low, L = low, M = moderate, H = high

Elevation in 1000': Y = yes, N = not recommended, ? = unknown or doubtful

Designing the Landscape

When planning a FIREWISE landscape consider the following:

- The plants nearest your home should be more widely spaced and smaller than those farther away. Landscape according to the recommended defensible-space zones.
- Plant in small, irregular clusters and islands, not in large masses.
- Break up the continuity of the vegetation with decorative rock, gravel, and stepping stone pathways. This will slow the spread of fire across your property
- Use a variety of plant species to support a mixed and healthy landscape. Diversity of plants in the landscape will result in fewer insects and diseases and will better resist catastrophic fires.

Don't Forget Maintenance

A landscape is a dynamic, constantly changing system. Your landscape and the plants in it must be maintained to retain their FIREWISE properties.

- Remove annual plants after they have gone to seed or when the stems dry out.
- Use mulch to conserve moisture and reduce weed growth. Mulch can be organic (wood chips or small bark pieces) or inorganic (gravel or rock). Avoid pine bark, thick layers of pine needles or other materials that can easily catch fire.
- In the event of drought and water rationing, prioritize the plants you wish to save. Provide supplemental water to those nearest your home.

- Rake up and dispose of excess litter as it builds up over the season.
- Mow or trim grasses to a low height within your defensible space. Keep grass shortest in the inner part of your defensible space and no more than 6 inches high in the outer portions.
- Remove any damaged plant parts. Timely pruning is critical. It reduces fuel volume and maintains healthier plants with more succulent, vigorous growth.
- Water trees and other plants during the winter dry periods, before water rationing becomes necessary in the summer.

List of Fire Resistant Plant Materials for Arizona

The following list of trees and shrubs are deciduous plants that are known to have fire resistant characteristics. No annual, biennial, or perennial flowers are listed; however, most have fire resistant characteristics. Given the arid climate of Arizona and the fact that some of the species listed have higher water requirements, homeowners are encouraged to work closely with their county extension agent or a local plant materials specialist in selecting plants for use in their home landscape.

Also included is a list of grasses that may be used to reduce erosion or as landscape plants.

This publication is based on and borrowed heavily from publications titled "FIREWISE Plant Materials" by Chuck Dennis of the Colorado State Forest Service, Colorado State University and also by New Mexico State University Cooperative Extension Service. FIREWISE is a multi-agency program that encourages the development of defensible space and the prevention of catastrophic wildfire.

Arizona FIREWISE Communities Cooperators

University of Arizona, Northern Arizona University, Arizona State Land Department, Arizona Fire Chiefs Association, Arizona Community Tree Council, Arizona Fire Districts Association, Arizona Emergency Services Association, Arizona Planning Association, Bureau of Indian Affairs, Bureau of Land Management, Bureau of Reclamation, Inter-Tribal Council of Arizona, National Park Service, USDA Forest Service, USDA Natural Resources Conservation Service, U.S. Fish and Wildlife Service

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