Flammability Levels of Texas Panhandle Plants

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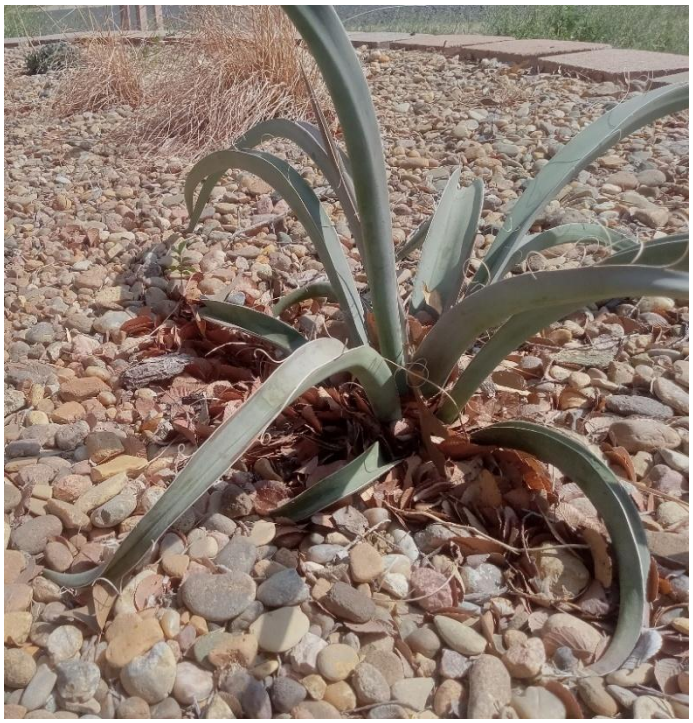

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1: WHY DOES FLAMMABILITY MATTER?

Fires cannot be predicted. But in the semi-arid Texas Panhandle region they are predictably becoming more frequent and more destructive (Campo and Schumann, 2024).

In the Panhandle rainfall is limited and long droughts are frequent. Intense winds sweep through both flat Llano areas and the canyons of the Rolling Plains. Low humidity winds dry vegetation and feed oxygen to small sparks. The landscape on the Llano is mostly monoculture patches for grazing or crops. The rolling areas have had fire suppressed for a century and woody plants are increasing in non-working areas. Controlled burns at intervals of one to several years are efficient tools to reduce the risk of out-of-control wildfires on land that is not actively grazed or mowed. Prescribed fire is a relatively new idea that is becoming accepted, but it requires careful planning and is labor-intensive. A backlog of fuel is accumulating across the region. More than 85% of Texas wildfires ignite within 2 miles of communities (Campo and Schumann, 2024) and vulnerable housing has multiplied at the edges of wild areas (the wildland urban interface or WUI).

Fires can ignite when live embers travel as much as a mile beyond the fire front (Stephens, 2009), but houses are most often lost if fuel is found within 5 or 10' of the building. Flammable bushes, trees, lawn furniture, fences, trellises, and woodpiles are all fuel (Ondei, Price and Bowman, 2024), along with dry grasses, leaf litter and weeds. Owners who must coexist with more frequent fire may prepare using firewise strategies to stay and fight the fire, greatly increasing the chance to save buildings (Radtke, 2004).

How to Plan for Fire

Texas A&M Forest Service provides critical firewise information about 'hardening' buildings against fire (n.d., TFR) including:

- Use fire-resistant roofing and roof edges
- Cover eaves and roof vents to keep embers out
- Keep anything flammable away from propane tanks and buildings- 100' is good

But instructions about safer site planning focus on removing plants:

- Allow fire equipment needed access (12' wide x 15' high with a 60' radius to turn)
- Keep plants away from buildings and each other
- Keep tree limbs up above shrubs and grass and don't let vines climb onto shrubs or into trees

Texas firewise landscaping (Texas A&M Forest Service, n.d. TFL) and Ready Set Go (n.d.) brochures recommend:

- Separate plants from house or deck with rock or stone mulch
- Within 10' ('Zone 1') use low, moist, healthy plants (clean and green) scattered or in small groups
- No shrubs near deciduous trees between 10' and 30' ('Zone 2')
- Trim all trees to keep branches 10' from structures and other trees
- Keep high flame species and larger trees more than 30' from the house ('Zone 3')

But Texas has little online information regarding how plants vary regarding fire risk (n.d. TFL, TFS).

One Australian study (Ondei et al, 2024) evaluated 32 properties after fires to determine which elements helped buildings survive. The Australian zone from 0- 5' can be called the No Fuel area. The Open Zone from 5- 33' is approximately equal to how far flames can extend from canopy fires. The researchers noted that the No Fuel area near the house was the most important to emphasize, and these strategies helped the most:

Use only succulents or mowed lawn with enough water to not suffer drought stress
Propane cooking areas further from buildings and from plants
No wood fence, firewood or furniture
No flammable mulch or litter under shrubs, decks or porches

In the Open Zone the most important factors were separating shrub beds with non-flammable pavement or gravel, keeping plants well watered, and not having flammable materials under trees with peeling bark (fire ladders).

In both zones and in the area beyond, less damage occurred to buildings when the mix of plants included a higher proportion of low-flame species than high-flame species.

When a fire happens with good humidity levels and low-flame species, the flames stay relatively low. Shown below was a prescribed burn at 40% relative humidity in May in Spearman, Texas. Although there was some standing dry grass and dry 'skirt' leaves on the yuccas, flames were mostly low. The photo on the right shows flame that resulted when the grassfire climbed up into the branches of more highly flammable trees. This type of canopy fire can produce streams of flame 30 feet long. When larger shrubs or a large group of trees are engulfed in flames their embers can be carried by the winds for as much as a mile. Prescribed fires are often set to burn from a safe location (near a water body or wide road) up into the wind, so that if wind speeds increase the fire front speed won't accelerate, and many embers will land on already burned ground.

Images, left to right: When short-grass prairie native grasses burn with small flames, green yuccas are only scorched; Flames surround Yucca glauca to burn the dry leaves of their 'skirts'; Flames of juniper trees rise high compared to shrubs at right (photo by Jacob Nelson of Quails Forever, used with permission).

Those living with fire need a full palette of tools, including the understanding of how prescribed fire reduces future wildfire risk, and which plants respond with high flames and which with low. High-flame response plants can be safely included in Panhandle landscapes, but are best kept 30' or more from buildings.

Many common native or naturalized plants in the Panhandle have shown a high flame response under laboratory testing, including:

Honey Locust
Eastern Red Cedar and Oneseed Juniper (very high)
White and Post Oak
Most pines
Tulip Poplar
Black Cherry

Edible garden plants that tested high start with grains that are extremely flammable near harvest. These fruit trees had mostly very high flames, and these bush fruit, vines and herbs were highly flammable:

Some apple varieties and wine grape varieties
Chestnut , Fig, Pear
Squash
Rosemary, Gooseberry
Some thyme varieties

If your property is near open land with mid-grass or tall-grass prairie grasses, fire risk varies widely throughout the growing season. Risk is very low when the grasses are actively growing and are mowed or grazed low. Standing dried stems are flammable. Many species of perennial flowers and grasses that do not grow densely provide limited fuel. Many taller native grasses and all ornamental grasses grow densely and are highly flammable because thin grass leaves dry quickly even during the growing season. Taller grasses, reeds and bamboo are some of the most flammable vegetation.



Images, left to right: A perennial flower with dry stems that are not dense; Some taller native grasses grow densely like introduced ornamentals and have increased fire risk; Flames rise higher in a small patch of 24” dry, ungrazed native grass than in nearby short-grass prairie species.

Other types of common landscape plants that have shown a tested higher flame response include:

Arborvitaes
Bald Cypress (very high)
Cypresses, including Lawson Cypress
English Hawthorn
American and Yaupon Hollies
Chinese Juniper, both tree and creeping forms (very high)
Southern Magnolia
Japanese Maple (very high)
London Plane Tree
Yew
Euonymus
Heather
English Ivy
Lavender
Wisteria


Images, left to right: Juniper tree torching photo by Joshlyn Perez of Pheasants Forever used with permission; Mature pine tree with moderately high branches.

Always temper decisions to keep or remove existing vegetation by considering whether the plant is healthy, and if it has deep tap roots that keep it well hydrated even in difficult conditions. Surprising examples of tree vigor include one massive Deodar cedar (which shows medium flame height that burned only on one side during recent California wildfires. This tree may have been hard to ignite. It served to stop ember spread and the opposite side was untouched.

Although this news may be discouraging, for new plantings consider plants that have less flammable chemistry and tend to burn more slowly. When planting near buildings in areas prone to fire, owners can choose safer species (see chapter 3), and also manage their plants to reduce fire risk.

2: HOW TO REDUCE FIRE RISK FOR ANY PLANT

All plants vary in how easily they burn, between species and during different seasons, but all plants will burn if the fire is intense enough. Many variables increase chances for milder wildfires (Murray, 2020; Varner, 2021).

Keep Plants Clean and Green

Keep plants well watered, healthy, and growing. Plants are more flammable when stressed in any way, including:

Lack of water
Too much sun for their preferred conditions
Too shallow soil for their preferred conditions
Wrong soil texture, whether heavy clay, sandy or rocky
Wrong pH for them (too alkaline can interfere with nutrient uptake)
Disease or pest problems

Choose plants that are suited to local conditions. This is most important for larger shrubs and trees whose roots will extend well beyond any initial planting bed amendments. They live for years and occupy a lot of space. Consider native species that grow well on rainwater alone as they will rarely need supplemental water to avoid drought stress.

Use more slow growing plants. Fast growth often occurs with more branch die back. Prune to remove dead material and reduce fuel loads. This is easier on low shrubs than on a 10' tall firethorn or a mature Siberian Elm. Avoid fast growing species like the Siberian elm that has weak wood and might drop branches (possibly when burning) on a building.

Reduce maintenance by choosing plants that don't litter. Fire usually begins and travels first on the ground layer. Leaf litter and wood mulch burn readily (Quarles, 2011), along with dry grass (anything above the 3" high base material of low native short-grass species like buffalo and blue grama). The deeper the accumulation of dry material, the hotter the fire and the higher flames reach. Plants that hold dry leaves through the winter have higher risk in that season. In the Panhandle dropped leaves that are not blown away may stay dry and flammable, especially deciduous osk leaves that curl as they dry. Pine needles' volatile oils slow decomposition and create hot fires.

Fire-resistant Shapes

Thick succulent leaves with high moisture content char but seldom burn, although dense cactus spines can burn off. Recent research showed succulent hens and chicks and non-succulent chives and saxifrage did not support flame (Silva, 2024), confirming online video claims that succulents like aloes, aeoniums and jade trees don't flame (Baldwin, n.d.).

Use less dense plants. An airy Desert Willow or Thornless Mesquite contains less fuel than a Red Maple. Many shrubs or small trees can also be pruned to reduce the number of major branches and produce a more open shape.

Image, left to right: Succulent leaves of Jade Plant, oak leaves and thinner decaying Cedar Elm leaves both one year old, very twiggy Cedar Elm branches, more open Desert Willow tree.

Use less twiggy plants or plants that don't accumulate fine branches. Elms generally have low tested branch flame height, but Lacebark Elm has a medium high response. Untested Cedar Elm is desirable for its drought tolerance, but with a lot of very fine twigs should be considered risky until tested. Some vines like Trumpet Vine accumulate dead branches beneath their growing outer layer. But all plants can be pruned to reduce density.

In general, larger and thicker leaves don't burn as easily. Evergreen broadleaf plants also avoid the autumn drying process when many deciduous leaves become more flammable (Corbett, 2021).

But because healthy leaves of many species contain volatile chemicals, scientists have not yet been able to estimate flame response from shape or size alone (Murray, 2023). Test results are more reliable than flammability estimates. Researchers try to guess plant flammability without burning samples. Faccenda and Daehler used 21 characteristics like leaf thickness, leaf area, type of plant, density, or retaining dead litter (2021) but found that for 49 exotic plants becoming naturalized the ones rated dangerous in fire by experts could be predicted only by whether they fit one or more of these categories:

A type of grass, reed or sedge
Reported somewhere as flammable
Had a close relative (in the same genus) that is flammable
A plant that accumulates leaf litter

Keep kindling (like leaf litter) off the ground by regularly removing it and by pruning. Fire usually ignites leaves before branches or trunks, so plants that have branches with leaves near the ground are likely to catch on fire quickly. Bushy trees can be shaped up by removing lower limbs. Avoid bark that peels or shreds, like Ashe Juniper whose branches have a medium flame response, but its shredded bark allows fire to climb upward easily.

Don't combine plants to make fire ladders. Don't plant shrubs in tall grass or forbs. Don't let vines climb up into trees. Don't place shrubs with low branches near medium height shrubs. Don't let shrubs grow up to touch lower tree branches. When fire climbs into tree tops it intensifies.

Image, left to right: High-flame grass in bloom, chamisa shrub with low branches, savannah mix of grasses and juniper at Caprock Canyon.

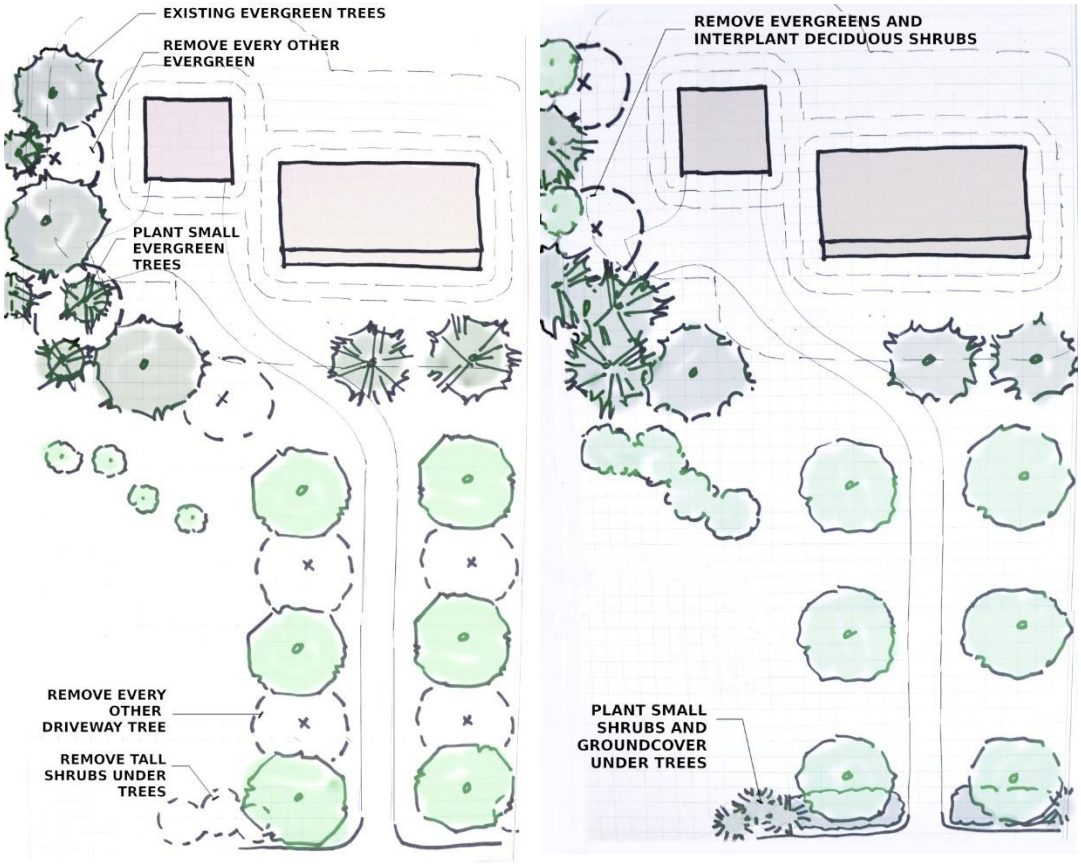
Many of our local shrub-grass ecosystems consist of vulnerable mixed plant heights. Savanna vegetation is often tall grass and perennials between small trees, whether low-flame mesquite or extremely flammable junipers. Prairie meadows include many flowering perennials whose stems die in the fall leaving dense, tall fuel that is vulnerable during the Panhandle's late winter fire season (Campo and Schumann, 2024). Even short-grass prairie's buffalo or blue grama grass with low flowers only has lower fire risk while it is kept short-cropped or mowed at 3- 4" height.

Get expert advice about mature existing trees because shape and condition influence fire risk. Many plant evaluations are only very approximate estimates. Most conifers are highly flammable, but high-flame species may be appropriate as a lesser proportion mixed with many lower-flame plants. Consider each species in a genus separately because they may

vary. For example, Pinon pines can have low branch flame response but these small trees tend to have branches near the ground. Native range and site conditions imply that pinon (usually found further north or at higher altitudes) may be stressed at our locations. Mature Austrian or Pitch Pines have tested medium branch flammability but because their lower limbs can be quite high, the trees may seldom ignite.

Large mature trees may vary from test results on smaller plants, due to deep roots able to access water better than younger trees. Stephanie Landregen, director of the UCLA landscape architecture program, witnessed fire burning one side of one massive Deodar Cedar that did not fully ignite, and houses on a street lined with these cedars 30' apart that did not burn during intense California WUI fires (Gray et al, 2025). Obviously estimates of high flammability for this type of Cedar from observations of damage in Australia and estimates of high flammability for multiple cedrus species from California fire departments did not apply. The only actual test results for the genus were Valette's medium flame level for green leaves of Atlas Cedar in June with higher results in autumn, so Deodar Cedar values are not known.

Panhandle windbreaks are often precious historic site elements the result of group efforts to grow. Past generations responsible for supplying heat understood that a single-row, high density windbreak reduces air infiltration when planted between 2 and 6x tree height from the building, saving up to 15% of heating energy. Windbreaks also reduce drying winds on plants and reduce blown dust (Brown and Dekay, 2001). Yet if the trees used are high-flame species, buildings may be safer when the canopies of these mature trees don't connect. Porous shelterbelts are effective for greater distances between 4 and 15x the tree height (ibid.). Existing windbreaks can be modified gradually into staggered rows to reduce fire risk in a process of multiple steps. Start by interplanting new low-flame response species upwind of existing trees, and as new trees mature remove some of the high-flame species.



High-flame trees lining drives can act as wicks leading fire to buildings (Corbett, 2021). Fire risk should be evaluated considering the whole site and the neighboring property conditions, but these boulevard trees may also benefit from increasing space by selective interplanting and thinning over time.

Images above, left to right: First stage of improving existing windbreak and driveway plantings, Final stage of windbreak and driveway improvements.

3: CHOOSING PLANTS FOR THE FIRE-PRONE TEXAS PLAINS

Choosing Healthy Plants for the Panhandle

This paper is a practical guide to recommend species suited to the Panhandle climate and soils that are proven to burn relatively mildly.

Plants vary in how quickly they catch fire, how intense the flames are, how long they burn and how much is left (Varner, 2021). The Panhandle's dry winds at extreme speeds can decrease slight ignition time differences between species. Plants that burn longer can send flaming embers in multiple directions as wind directions change. But for Panhandle fires near residences, a critical variable is the intensity of flame: does it barely smolder, or become an explosive torch? Does this plant burn hot enough to dry the next group of shrubs ready to catch? Does that plant burn high enough to catch the tree canopy or the house eaves?

Consider available water carefully. Trees intended for future decades should not become limited as aquifer withdrawals become less available. Farmers with irrigation systems are shifting from whole circle to quarter circle areas for high water need crops, as their wells cannot maintain higher output levels for as many weeks. Measurements of the Ogallalla aquifer indicate a steady decline of about 1" per year.

Choose plants able to survive with small inputs of extra water during droughts, or with rainwater alone despite droughts. Species needing extra water can be located in gentle hollows (waffle planting). At existing stormwater drainage swales depressed basin areas can be added with a half-moon berm on the downslope side to allow water infiltration (Lancaster, 2025). Water can also be supplied by harvesting rain from paved areas or roofs, or by re-using laundry, air conditioner condensate, or shower water (Texas Comm. on Environmental Quality, 2025).

Desert plants that like poor soil and hot surface conditions cannot be fertilized or mulched heavily if they prefer poor soil and hot surface conditions. Do not randomly mix plants needing extra water with natives because many drought-tolerant plants need dry roots during the winter (Radtke, 2004). But even shrubs native to arid or semi-arid regions require significant added water if they have been produced in nurseries are used to higher water levels. They can only become drought tolerant by watering deeply but not frequently during the first year or two to wean them from dependence on high amounts of water. The Panhandle's heavy clays slow water from soaking deeply, so apply irrigation for trees into special systems like vertical perforated pipes or french-drain type release areas (Lancaster, 2025) providing water under the surface so that roots grow deep.

Information in the Plant Lists

Plant height and water use ratings have been taken from local sources where available: the High Plains Gardening website (Hanna, 2022) or the Plant List for Canyon's Edge Nursery (Hinders, 2025). Water ratings from a xeriscape plant list (2020) have been adapted with ratings recorded as one level less than those listed for Albuquerque, since the Amarillo area receives twice as much rain as Albuquerque. The online databases of the Native Plant Society of Texas or the Missouri Botanical Gardens were used as sources for height and water use ratings for plants not found on other lists.

Most soil types in the Texas Panhandle are alkaline, with large areas above pH 7.5 (Oregon State U, 2025). Many soils have calcium carbonate deposits or caliche. Planting acid-loving shrubs (like azaleas) requiring deep soil modification is unwise because it is impossible to keep soil (and water in the soil) acidic. Preferred pH shown in the plant lists are approximations from authoritative sources like the USDA and/ or botanical gardens that showed similar levels.

Plants that are noted as locally native are either listed by the Native Plant Society of Texas database as present in local ecosystems or have been noted by research quality observations on iNaturalist in one of the region's wildlife areas. Plants that are locally native often provide the best support for local butterflies, birds, and pollinator insects, whether shelter, nectar, grazing or nest material. Plants that are native to North America but not local are also noted.

Unfortunately, many overwintering animals or insects are best supported by dead stems left in place until spring (Bender, 2009). Since wildfire risk peaks between February to April as well as again during August to October (Campo and

Schumann, 2024), resource managers prefer reduced fuel loads through the winter. Property owners with larger properties can locate native plants for biodiversity outside their No Fuel and Open Zones. Owners of smaller properties may decide to limit target wildlife shelter plantings to smaller, well separated beds.

All plants have been checked against the online lists of invasive plants legally listed for Texas (Texas Invasive Plant and Pest Council, n.d.) and against maps of the Invasive Plant Atlas (Swearingen and Bargeron, 2016). Fewer plants can spread in our semi-arid climate, but occurrences of a species invading within Texas or near to the Panhandle are noted.

This information owes a great debt to Lesley Corbett for her summary of research for Australia's plants in *Safer Gardens* (2021). Many thanks also to local Texas experts: Tracy Black and Valerie Cathey of Chaparral Cactus, Ethan Law of the Texas State Forest Service, and Juan Rodriguez of the TSFS WUI program.

Using the Plant Lists

Plant lists formed from a series of plant characteristics don't estimate flammability very well without testing by burning.

The plants in **bold face** are rated based on burning samples of leaves and/ or stems. Example:

Quercus laceyi/ Lacey Oak (Mahmud)	**VL**	*This species was tested*

When this author could not access laboratory research that Corbett rated in *Safer Gardens*, her Low, Med or High rating was included. Example:

Populus alba/ Silver/ White Poplar (C:King)	**VL**	*This species was tested, Corbett rated it very low.*

Because a lot of plants have not had direct testing, plants from estimated ratings lists are included, but followed by 2- or 3-letter codes for the source (see the key starting on page 27 in the bibliography). Example:

Juglans major/ Arizona Walnut (WFC, OR)	L	*Untested, estimated by two organizations*

Plant ratings followed by a ± symbol are less certain because based on similar species. Example:

Ulmus crassifolia/ Cedar Elm (~C:S all spp. L)	L ±	Corbett said a*n organization rated all elms as low.*

Sometimes an approximate value is used for an untested and previously unrated species if several closely related and very similar species have been all rated the same. If an approximate rating is listed for a plant name without a source, it is a locally known species that some local authorities have seen survive fire.

Flammability Research

These lists focus only on test results for flame height, flame temperature or peak heat release rate (PHRR). Varner's large data set recorded flame heights from 9 cm for Canadian Hemlock to 1 meter for the same volume of material from Sourwood/ Oxydendron arboreum (2021). Many other researchers recorded peak heat release rate, ranging from 20- 800 MJ. As much as possible, results in flame height have been converted to peak heat release values using a recommended formula (Byram,1959 cited in Varner, 2021). PHRR levels were then divided into five rating levels:

VL- Very low flames (or none) <80 MJ/m^2	L- Low <160 MJ/m^2	
M- Medium 160- 239 MJ/m^2	H- High 240- 320 MJ/m^2	VH- Very high flames >320 MJ/m^2

The scale was chosen to be conservative since only very low flame plants will be helpful to reduce fire danger. The very high flammability rating was based on junipers (common in the US), which are all considered highly flammable by fire fighters and resource managers. The results for juniper ranged from ~340 MJ/m^2 for J. virginiana and ~370 for J. pinchottii (Mahmud) to ~810 for J. chinensis 'Hollywood' (Etlinger, 2004). Eucalyptus of all types are problems in fires in Australia and E. grandis was ~550 (Pacheco, 2022).

Some authors did not clarify their unit values. Some test protocols differed (i.e. samples dried longer, stems used or only leaves). Samples were taken at different times during the growing season, which creates PHRR variation by as much as 15% between August and December (Weise et al, 2005) or by as much as 100% between March and May (White et al, 2002). To provide an approximate comparison between species from low to high, rather than authoritative heat release values, plants repeated in separate test reports including seven oaks and three pines were used as indicator species. Although many were not suitable for use in the Panhandle, all species tested were listed in order of flame height/ maximum temperature or peak heat release rate to compare the full range of results obtained. The numerical values of the differing sets of results were adjusted to match the value spread of research using larger data sets. If data differed for a single species, the recorded rating reflects the highest value.

Many USDA fact sheets discuss fire resilience of species, relative to plant survival. The plant lists in this document do not consider whether a plant itself can survive. If serious soil erosion must be prevented after fire, further research will be needed to narrow choices to low-flame plants with thick bark or plants that can resprout from the roots.

Plants are divided into categories reflecting their possible use.

Trees include multi-trunk species that naturally have branches a meter or more above the ground and can be limbed up. Small trees with shrubby branching patterns are included with large shrubs. In the Panhandle trees may grow slowly and not reach as great heights as seen in other regions, so small trees often cannot be underplanted with shrubs.

Tall, upright trees with narrower widths may be more practical to cast shade on buildings without branches hanging over to endanger them. Round or wide spreading trees are beautiful and have a great impact on microclimate during the growing season as the leaves all evaporate water. Especially in dry climates this natural evapo-transpiration causes significant cooling. But to be firewise, large spreading trees will need to be planted far from each other and far from buildings. But especially in the WUI, buildings with higher risk should plant trees far enough that if the tree falls it cannot hit the building.

Groundcovers are divided into Shrub, Evergreen, Succulent and Perennials because these categories have different maintenance needs. The few shrubs or perennials that grow well in shade are listed separately. The vigor of ground covers is critical because a species that does not keep weeds out will be likely to increase flammability. Vines or ramblers must be used only with care because of their risk of bridging between ground layers and trees, or connecting separate shrub beds.

Chapter 8 includes an index of all plants included in these lists, alphabetically by botanical name.

For more information about strategies for firewise landscaping that takes beauty, social values, thermal needs and wildscaping into consideration, check this author's web pages at academia.edu for reports and at Landscape Architecture | Build Simple Inc. for examples and information.

4: LOW-FLAME PLANTS TO USE IN THE HIGH PLAINS AND ROLLING PLAINS

All plants can burn, but if they catch on fire, the plants in this list will probably have comparatively small flames.

Trees

Height x Width	*Plant names*	*Water Use*	*Flammability*	*Notes*
Healthy plants resist burning, and these will not often be stressed by droughts. Little or no added water needed:				
25x25	Celtis reticulata/ Hackberry (WA)	Low	L	Local native
60'x25'	Celtis laevigata/ Hackberry, Sugarberry (~C. occidentalis WFC, OR, WA)[1]	Low	L ±[2]	Local native
40x40	Celtis occidentalis/ Common Hackberry (WFC, OR, WA)	Low+	L	US native
20x20	Cercis canadensis/ Canadian Redbud (WA)	Low+	L	Fast growing Texas native
30x30	Cercis canadensis 'texensis'/ Texas redbud (~C. canadensis WA)[3]	Low	L ±	Texas native for neutral soil
20x20	**Diospyros texana/ Texas Persimmon (Mahmud)**	Low	**L**	Texas native, rocky open woods
25x25	Fraxinus texana/ Texas Ash (~WA all spp.)	Low+	L ±	Texas native, grows fast, limestone
40x30	Fraxinus velutina/ Arizona Ash (all spp. rated L, Chladil)	RW	L	US native
50x50	Juglans major/ Arizona Walnut (OR, WA)	Low	L	US native
30x30	Juglans microcarpa/ Little or Texas Walnut (~J. major)	Low	L ±	Texas native
20x20	Juglans regia 'carpathian'/ Carpathian Walnut (~CN J. regia)	Low+	L ±	Large nuts on sunny slopes
90x60	Platanus racemosa/ California Sycamore (CN, C:anecdote fol. grn in Santa Barbara fire)	Low	L	US native
30x35	Prosopis glandulosa 'inermis'/ Thornless Honey Mesquite (~P. glandulosa tested by Mahmud)	RW	L ±	Can be controlled with grazing
20x20	Prunus armeniaca/ Apricot (C:S)	Low+	L	Mildly alkaline soil, sun
25x8	**Quercus gambelii/ Gambel Oak (White)**	RW	**VL**	Local native broadleaf shrub or tree
45x20	**Quercus laceyi/ Lacey Oak (Mahmud)**	Low	**VL**	Texas native
40x25	Robinia x ambigua 'idahoensis/ Idaho Locust (~R. pseudoacacia tested by Dibble)	Low+	L ±	Invasive in this region
25x15	Robinia neomexicana/ NM Locust (~R. pseudoacacia Dibble)	Low+	L ±	Blooming thorny tough small tree
30x30	Sapindus drummondii/ Western Soapberry	Low	L ±	Local native shade tree

[1] Genus similarities- when very similar species in the same genus are rated and/ or test the same and no species have divergent ratings an approximate rating is valid; C. occidentalis (FC, OR, WA) and C. reticulata (WA).
[2] Approximate rating
[3] Variety similarity- if no testing or rating is available for a specific variety similar to the species, the species rating is used.

Trees (cont.)

40x40	Ulmus crassifolia/ Cedar Elm (~C:S all spp. L)[1]	RW	L ±	Local native

These trees need weekly extra water. Do not plant a tree that will be tall and widespreading unless you will be able to provide enough water in the future:

Height x Width	*Plant names*	*Water Use*	*Flammability*	*Notes*
40x30	Acer negundo 'sensation'/ Sensation Box Elder (WA)	Med	L	Texas native
35x25	Fraxinus angustifolia v. oxyacarpa/ Raywood Sterile Ash (~C:S all spp. L)	Med	L ±	Non-invasive cultivar
35x35	**Ostrya virginiana/ Ironwood (Varner, Mola)**	Med	**L**	US native
70x60	**Platanus orientalis/ Oriental Plane Tree (C:Dimitrak.)**	Med	**L**	Prefers rich moist soil
50x40	**Populus alba/ Silver or White Poplar (C:King)**	Med	**VL**	Invasive in Texas
80x40	**Populus nigra/ Black Poplar (C:Wyse)**	Med	**L**	Quick growing European tree
20x20	Crataegus phaenopyrum/ Washington Hawthorn (CM)	Med	L	Thorny berried tree
20x20	Fraxinus cuspidata/ Fragrant Ash (~WA all spp. L)	Med	L ±	Multi-trunked Texas native
45x12	Populus nigra 'italica'/ Lombardy Poplar[4]	Med	L	Narrow upright European variety
30x30	Prunus avium/ Bird or Sweet Cherry (C:V)	Med	L	Birds love showy berries
45x30	**Quercus lobata/ Valley Oak (Engber)**	Med	**L**	US native for damp soil
20x20	Syringa reticulata/ Japanese Tree Lilac (OR)	Med	L	Tolerates drought and damp soil
70x45	**Tilia americana/ American Basswood (Varner)**	Med	**L**	Native for bees, deep soil <7.6 pH
40x30	Tilia cordata/ Littleleaf Linden (WA)	Med	L	Tolerates urban soil, pruning
70x40	Ulmus americana/ American Elm	Med	L ±	Local native

Large Shrubs/ Shrubby Trees

Height x Width	*Plant names*	*Water Use*	*Flammability*	*Notes*
Little or no added water needed:				
20x20	Acer ginnala/ Amur Maple (CM, WA)	Low	L	Shrubby flowering, part shade
15x8	**Amelanchier alnifolia/ Western Serviceberry (Varner)**	Low	**VL**	US native, small and shrubby
10x6	Amelanchier utahensis/ Utah Serviceberry (CO)	RW	L	US native
15x12	Cercis mexicana/ Mexican Redbud (~C. canadensis)	Low+	L ±	Drought tolerant Texas native
15x10	Cercis occidentalis/ Western Redbud (CM)	Low+	L	Introduced understory tree

[4] Corbett anecdotes of fire slowing or stopping at row of these trees

Large Shrubs/ Shrubby Trees (cont.)

Height x Width	*Plant names*	*Water Use*	*Flammability*	*Notes*
Little or no added water needed				
15x12	Cercis reniformis/ Oklahoma Redbud (~C. canadensis)	Low+	L ±	Variety of local native
20x12	**Cercocarpus montanus or betuloides/ Silverleaf or Mountain Mahogany (White)**	RW	**L**	US native for neutral soil
8x6	Cylindropuntia imbricata/ Walkingstick Cholla	RW	VL	Local native, spiny, succulent
8x6	Cylindropuntia spinisior/ Cane Cholla	RW	VL	Can weed under this US native
12x10	**Forestiera pubescens/ Stretchberry (Mahmud)**	RW	**L**	Local native, low maint. thicket
15x8	**Lagerstroemia indica/ Crepe Myrtle (C:Bellamy)**	Low+	**VL**	Tree for rich soil
10x8	Philadelphus coronarius/ Golden Mockorange (ID)	Low+	L	Shrub for rich moist rocky soil
10x10	Philadelphus lewisii/ Cheyenne Mockorange (ID)	Low	L	US native, tough, flower-covered
15x15	Prunus angustifolium/ Chickasaw Plum (C:S)	Low+	L ±	Local native produces jelly plums
12x12	Prunus dulcis/ Almond (C:S)	Low+	L	Nut tree for hot dry location
12x10	Rhamnus frangula 'asplenifolia'/ Fernleaf Buckthorn (OR)	Low+	L	Upright fine-leaf deciduous hedge
10x12	**Rhus microphylla/ Littleleaf Sumac (Mahmud)**	Low	**VL**	Local native, tiny leaves, red berries
8x8	Rhus ovata var. traskiae/ Sugarbush (~Mahmud)[5]	Low	L ±	Evergreen, sweet berry clusters
12x20	**Rhus virens/ Evergreen Sumac (Mahmud)**	Low	V**L**	Texas native broadleaf for zone 7
8x5	Ribes aureum/ Golden Current (OR)	Low	L	US native, thorny, blooms, berries
15x15	**Senegalia or Acacia berlandieri/ Berlandier's Acacia (Mahmud)**	RW	**L**	US native nitrogen fixer
15x10	**Senegalia or Acacia wrightii/ Wright Acacia (Mahmud)**	RW	**VL**	Local native, large flowers
15x15	Yucca brevifolia/ Joshua Tree (OR all spp. L, ~ C:Bellamy Y. filamentosa)	RW	L ±	Short leaves = short dead leaf 'skirt'
12x6	Yucca thompsoniana/ Thompson Yucca (~OR all spp.)	RW	L ±	Texas native, large flowers
These shrubs and small trees need weekly extra water. Do not plant a large shrub unless you can provide enough water:				
15x20	Cornus mas/ Cornelian Cherry (CM)	Med	L	US native, moist soil
8x10	**Forsythia x intermedia/ Forsythia (Long)**	Med	**L**	Introduced, spring-flowers
8x5	Holodiscus discolor/ Oceanspray (WA)	Med	L	US native, large blooms

[5] Tests of 2 other evergreen Rhus, microphylla and virens and deciduous R. trilobata all showed very low flame intensity.

Large Shrubs/ Shrubby Trees (cont.)

Height x Width	*Plant names*	*Water Use*	*Flammability*	*Notes*
10x10	Prunus domestica 'Stanley'/ Dwarf Plum (C:S, C:V)	Med	L	Needs moist, neutral soil
Weekly added water needed:				
10x10	**Prunus persica var. nectarina 'Mericrest'/ Nectarine variety (C:Bellamy)**	Med	**L**	Needs moist, neutral soil
7x3	Rhamnus frangula 'Fine Line'/ Non-invasive Buckthorn (OR)	Med	L	Hedges, screens 2- 3' wide
12x10	Viburnum tinus/ Laurustinus (CM)	Med	L	Drought tolerant evergreen

Small Shrubs

Height x Width	*Plant names*	*Water Use*	*Flammability*	*Notes*
Some shrubs that prefer neutral soil are included because soil can be modified to small shrubs' root depth.				
Little or no added water needed				
3'	Arctostaphylos pungens/ Pointleaf Manzanita (CN)	Low	L	Texas native
3	Atriplex confertifolia/ Shadscale (WA)	RW	L	< flammable in saline soil
6	**Berberis or Mahonia trifoliata/ Agarita, Desert Holly (Mahmud)**	RW	V**L**	Local native, lower pH soil
3	Berberis aquifolium 'repens'/ Creeping Mahonia (CM, WA)	Low	L	Drought tolerant evergreen
6	**Callicarpa americana/ American Beautyberry (Long)**	Low+	**L**	For moist soil pH <7.0
4	Caryopteris x clandonensis/ Blue Mist Spirea (OR)	Low+	L	Blooms in shade, soil pH <7.0
3	Ceanothus americanus/ New Jersey Tea (CO, ID, WA)	Low	L	Needs soil pH <7.3
5	**Ceanothus cultivar/ 'Joyce Coulter' Ceanothus (White)**	Low	**L**	Evergreen for soil pH <7.3
4	Cotoneaster apiculatus / Cranberry Cotoneaster (CN, OR)	Low	L `	Likes humus rich soil
4	Dasylirion wheeleri/ Blue Sotol/ Desert Spoon	RW	L ±	Local native prickly rosette
3	Ephedra antisyphilitica/ Clapweed	RW	VL	Local native, green stems
3	Ephedra nevadensis/ Mormon Tea	RW	L ±	US native fine evergreen stems
4	Ephedra viridis/ Green Mormon Tea	RW	L ±	Local native with fine green stems
6	Hesperaloe parviflora/ Red False Yucca (CM, ID, OR)	RW	L	Local native, flowers, tough
6	**Mimosa borealis/ Fragrant Mimosa (Mahmud)**	Low	**VL**	Local native
3	Nolina lindheimeriana/ Dwarf Bear Grass (~CM all spp. L)	RW	L ±	Texas native
1.3'	Opuntia phaecantha 'Plum'/ 'Plum' Prickly Pear	RW	VL ±	Variety of local native, purple pads
5	Opuntia lindheimeri/ Texas Prickly Pear (CO, ID, OR)	RW	VL ±	Dense, fruiting spiny barrier

Small Shrubs (cont.)

Height x Width	*Plant names*	*Water Use*	*Flammability*	*Notes*
Little or no added water needed				
5	Perovskia atriplicifolia/ Russian Sage (OR, C:V)	RW	L	Tolerates some shade
6	Philadelphus var. 'virginalis'/ Minnesota Snowflake Compact Mockorange (ID)	Low+	L	For rich, moist soil
6	Prunus besseyi/ Western Sand Cherry (OR)	Low	L	US native
6	**Purshia tridentata/ Antelope Bitterbrush (White)**	Low	**L**	US native
3	Rhus aromatica v. Low Gro/ Compact Fragrant Sumac (ID, OR)	RW	L	Local native, compact
3	Rhus glabra cismontana/ Cutleaf Sumac (CM)	Low+	L	Thickets
6	**Rhus trilobata/ Skunkbush Sumac (Mahmud)**	RW	**VL**	Local native
2	Rhus trilobata 'Autumn Amber'/ Prostrate Sumac (CO, ID)	Low	L	Var. of US native, compact
2	Sedum spurium/ 'Dragon's Blood' Stonecrop (ID, WA)	Low+	VL	Semi-evergreen succulent
3	Sedum telephium/ 'Autumn Joy' Stonecrop (ID)	Low	VL	Evergreen succulent
6	**Symphoricarpos albus/ Snowberry (White)**	Low+	**VL**	US native
4	Yucca baccata/ Banana Yucca (CO)	RW	VL	Local native, evergreen
4	**Yucca filamentosa/ Adam's Needle (Long)**	RW	**L**	Texas native
3	Yucca glauca/ Plains Soapweed (CO, WA)	RW	L	Local native
2	Yucca rupicola/ Twistleaf Soapweed (~OR all spp.)	RW	VL ±	Texas native, soft leaves
Weekly added water needed for these small shrubs:				
2	Berberis/ Mahonia aquifolium 'compactum'/ Compact Grape Holly (OR)	Med	L	US native, soil pH <7.1
4	**Callicarpa dichotoma 'profusion'/ Asian beautyberry variety (Long)**	Med	**L**	Prefers neutral soil
1	Cotoneaster dammeri/ Bearberry Cotoneaster (WA)	Med	L	Shade or sun
4	Daphne x Burkwoodi/ Carol Mackie Daphne (WFC, OR, WA)	Med	L	For soil pH <7.6
4'	Daphne odora/ Winter Daphne (C:S)	Med	L	For soil pH <7.1
4	Philadelphus 'Manteau d'Hermine'/ Dwarf Mockorange (ID)	Med	L	For rich, moist soil
6	Philadelphus pekinensis/ Peking Mockorange (ID)	Med	L	For rich moist soil
6	Spiraea douglasii/ Western or Rose Spiraea (OR)	Med	L	US native

Succulent Ground Covers for Full Sun

High moisture plants often don't burn but instead cook in wildfires. Evergreen sedums and euphorbia (Spurge) are succulents but deciduous species are not.

Height x Width	*Plant names*	*Water Use*	*Flammability*	*Notes*
12"	Agave utahensis/ Utah Agave (~Pacheco, C:V)	RW	VL ±	US native
12"	Agave victoria-reginae/ Victoria Agave (~Pacheco, C:V)	RW	VL ±	Mexico native for zone 7
2"	Aloinopsis spathulate/ Hardy Living Stones (WFC)	RW	L ±	
2"	Chasmatophyllum masculinum/ Hardy Tiger Jaws (WFC)	RW	L ±	
3- 6"	Delosperma alba or basuticum or cooperi or nubigenum/ Iceplant species (CO, ID, OR)	RW	L	Partly succulent leaves
12"	Euphorbia polychrome/ Cushion Succulent Spurge (CM)	RW	L	Deciduous
2- 4"	Other low delosperma spp. (WFC)	Low	L ±	Partly succulent
8"	Opuntia x humifusa 'Fire and Ice'/ Spineless Blue Prickly Pear (CO, ID, OR)	RW	VL	Variety of US native
3"	Opuntia fragilis/ debreczyi v. denuda/ Potato Cactus (CO, ID, OR)	RW	VL	US native, spineless variety
8"	Sedum lanceolatum/ Spearleaf Evergreen Stonecrop (CO, ID)	RW	VL	US native, spreads 12"
6"	Sedum reflexum/ Blue Spruce Evergreen Stonecrop (ID)	RW	VL	Spreads to 24"
3"	Sedum rupestre/ Angelina Evergreen Stonecrop (ID, WA)	RW	VL	Spreads 12" +
10"	Sedum sediform 'turquoise tails'/ Turquoise Tails Evergreen Stonecrop (WFC)	RW	VL ±	Spreads with runners 12"
8"	Sedum sichotense/ Ukrainian Evergreen Stonecrop (ID, WA)	RW	VL	Clumps, spreads to 2'
4"	Sedum spathulifolia/ Broadleaf Evergreen Stonecrop (ID, WA)	RW	VL	Round leaves, spreads 18"
4"	**Sempervivum ciliosum/ Hens and Chicks (Silva)**	Low	**VL**	Fuzzy clusters don't burn
12"	**Sempervivum tectorum/ Hens and Chicks (Silva)**	Low	**VL**	Spreading clusters don't burn

Succulent Annuals/ Potted Plants

Height	*Plant names*	*Water Use*	*Flammability*	*Notes*
3'	**Aloe vera/ Medicinal Aloe (White, Weise)**	Low	**VL**	Tolerates shade
1.5	Aloe x spinosissima/ Spider Aloe (C:S, C:V)	Low	VL	Thinner, darker leaves.
2.5	Kalanchoe tomentosa/ Panda Plant (C:V)	RW	VL	Oval leaves, part shade
6	Crassula ovata/ Jade Plant (CS)	Low	VL	Small tree form

Prickly Succulent Ground Covers for Sun

Don't locate them too close to walks. Plant close in a long curving line so weeding is easier than spreading in a wide bed. Cactus spines burn off while the plant cooks.

Height	*Plant names*	*Water Use*	*Flammability*	*Notes*
4"	Coryphantha or Escobaria vivipara/ Clustering Pincushion Cactus (WFC)	RW	L ±	
9"	Echinocereus fendleri/ Strawberry Hedgehog Cactus (WFC)	RW	L ±	Texas native
1'	Echinocereus triglochidiatus/ Green Claret Cup Cactus (WFC)	RW	L ±	US native
6"	Echinocereus viridiflorus/ Green Flowered Hedgehog Cactus (WFC)	RW	L ±	Local native
6"	Escobaria orcuttii/ Clustering Snowball (WFC)	RW	L ±	Local native
8"	Escobaria vivipara/ Spinystar	RW	L ±	Local native
8"	Opuntia aurea/ Creeping Beavertail (CO, ID, OR)	RW	VL	US native
10"	Opuntia phaecantha 'Dark Knight'/ Prickly Pear var.	RW	VL ±	Var. of local native

Shrub or Perennial Ground Covers for Sun

Height	*Plant names*	*Water Use*	*Flammability*	*Notes*
6"	Achillea ageratifolia/ Greek Yarrow (~CM A. tomentosa)	Low	L ±	A. millefolium tested VL
12"	Achillea tomentosa/ Wooly Yarrow (CM)	Low+	L	Protect from wind, cut stems back
6"	Antennaria parviflora/ Evergreen Pussytoes (CO, ID, WA)	RW	L	Needs acid- neutral soil
1'	Artemisia schmidtiana/ Silver Mound Artemisia (WA)	Low	L	Fine gray mound
1'	Artemisia stelleriana/ Silver brocade artemisia (WA)	Low+	L	Silver spreading mound, deadhead
9"	Aubretia deltoides/ False Rock Cress (OR)	Low+	L	Semi-evergreen
12"	Aurinia saxatilis/ Basket of Gold (CO, ID, OR)	Low	L	Heavy blooming evergreen in sun
12"	Centaurea or Senecio cineraria/ Dusty Miller (CM)	Low	L	Wooly gray annual or perennial
6"	Dianthus deltoides/ Maiden Pink (~ID D. caryophyllus)	Low+	L ±	Little water
1'	Ephedra regeliana/ Creeping Ephedra (CO, ID, WA)	Low+	L	US native
8"	Erigeron linearis/ Fleabane (CM, CO, ID, OR)	Low+	L	US native
12"	Iberis sempervirens/ Evergreen Candytuft (CM, CO, ID, OR)	Low+	L	Spreading
4"	Penstemon caespitosus/ Mat Penstemon (CO)	Low	L	US native
6"	Teucrium majoricum/ Greek Germander (CO)	Low+	L	Mound, spreads 2'

Shrub or Perennial Ground Covers for Part Shade or Darker

These plants grow well with more sun, or sun during only a few hours.

Some succulents can also grow in part shade, including delospermas and Sedum reflexum, S. rupestre and S. sieboldii. Prickly Agave lechuguilla and parryi also both have 12" tall rosettes and tolerate part shade.

Height	*Plant names*	*Water Use*	*Flammability*	*Notes*
12"	Achillea ageratifolia/ Greek Yarrow (~CM A. tomentosa)	Low	L ±	
6"	Antennaria rosea/ Evergreen Rose (CO, ID, OR, WA)	Low	L	US native
4"	Artemisia viridis 'Tiny Green'/ Creeping Evergreen Artemisia (WA)	Low+	L	Mound to 18" wide
4"	Bellium minutum/ Miniature Daisy (OR, WA)	Low+	L	Rock gardens
4"	Campanula poscharskyana/ Serbian Bellflower (ID)	Low+	L	Spreads if moist
6"	Euphorbia x martini var./ Dwarf Suculent Spurge (ID)	RW	L	Succulent
12"	Helianthemum nummularium/ Evergreen Rock Rose (CO, ID, OR)	Low+	L	Trailing, gray green
9"	Liriope spicata/ Lilyturf (ID)	Low+	L	For acid- neutral soil
9"	(Shade) Marrubium rotundifolium/ Roundleaf Horehound (CO, ID)	RW	L	Vigorous, must deadhead
6"	(Shade) Pachysandra terminalis/ Spurge (CO, ID)	Low	L	Dark evergreen leaves
6"	Phyla nodiflora/ Frogfruit (MC)	Low+	L	Local native
12"	Saxifraga hirsuta/ Evergreen Saxifrage (CO, ID)	Low	L	Slightly acid- neutral soil
12"	(Shade) Veronica incana/ Silver Speedwell (~OR all spp. L)	RW	L ±	Spreading gray leaves
1"	Veronica liwanensis/ Evergreen Turkish Speedwell (ID, OR, WA)	Low	L	Slow spreading green lvs
A part succulent that needs some extra water:				
8"	**Saxifraga x arendsii/ Mossy Saxifrage (Silva)**	Med	**VL**	Doesn't flame

Low Flowering Evergreens

These are perennial flowers, but less maintenance is required when leaves don't dry out and die every year.

Height	*Plant names*	*Water Use*	*Flammability*	*Notes*
Little or no added water needed				
1'	Acantholimon spp./ Prickly Dianthus (ID)	RW	L ±	
1	Armeria maritima/ Thrift (CM, CO, ID, OR)	Low+	L	Tolerates salt
2.5	**Hemerocallis aurantiaca/ Orange Daylily (C:Bellamy)**	Low+	**VL**	Leaves hold more moisture
<1	Lewisia cotyledon/ Cliff Maids (OR)	Low	L	US native
1	Teucrium chamaedrys/ Wall Germander (~CO T. majoricum)	Low+	L ±	

Flowering Deciduous Perennials

These are only firewise if dead stems are promptly removed in autumn.

Height	*Plant names*	*Water Use*	*Flammability*		*Notes*
Little or no added water needed					
3’	**Achillea millefolium vars./ Yarrow (Pagadala)**		Low+	**VL**	Local native
1	Allium spp./ Ornamental Onions (WA)		Low+	L	Chives don’t burn
2	Aquilegia caerulea or A. chrysantha/ Columbines (CM, CO, ID, OR)		Low+	L	US native, moist soil
1	Arabis spp./ Rock Cress (CO, ID, OR)		Low+	L	Grow on rocky, dry slopes
2- 3	Asclepias spp./ Milkweed (~WA all spp. L)		Low	L ±	7 local native species
<1	Aubretia spp./ False Rock Cress (~OR all spp. L)		Low+	L ±	
3	Callirhoe involucrate/ Winecups (CO, ID, OR)		Low	L	Local native
1.5	Callochortus gunnisonii/ Mariposa Lily (ID, OR)		Low+	L	US native
<1	Campanula carpatica, C. poscharskyana/ Bellflower (WA)		Low+	L	
0.5	Claytonia lanceolata/ Western Spring Beauty (CO)		Low	L	US native, shade
<1	Cerastium tomentosum/ Snow-in-Summer (CM, CO, ID, OR)		Low+	L	
1	Ceratostigma plumbaginoides/ Leadwort (CO, ID)		Low	L	Blue fall flowers
3	Chamerion/ Epilobium angustifolia/ Fireweed (WA)		Low	L	US native
3	Coreopsis verticillate/ Threadleaf Coreopsis (C:V, C:V)		Low+	L	US native
3’	Delphinium vars./ Delphinium (~OR, WA all varieties L)		Low	L ±	D. carolinianum is a local native species
2	Erysimum capitatum/ Western Wallflower (CM, CO)		RW	L	Texas native
2	Euphorbia polychrome/ Decid. Cushion Spurge (ID)		Low+	L	Partly succulent
2- 3	Gaillardia x grandiflora, G. pinnatifida (ID)		Low+	L	G. pinnatifida local native
<1	**Gazania linearis/ Colorado Gold Gazania (C:Bellamy)**		Low	L ±	
1.5	Geranium caespitosum/ Rocky Mountain Geranium (CO, ID)		Low+	L	Texas native
1	**Geranium x Cantabrigiense/ Perennial Geranium (C:Bellamy)**		Low+	L ±	Long lasting flowers
1.5	Leucanthemum x Superbum/ Shasta Daisy (OR)		Low	L	Hardy, long bloom
<1	Leucocrinum montanum/ Sand Lily (CO)		Low+	L	US native
1-3	Liatris punctata, p. mucronate, scariosa/ Gayfeather (OR)		Low	L ±	Local native
1.5	Linum perenne/ Blue Flax (ID, OR, WA)		Low+	L	Local native
2	Lupinus argenteus/ Silverstem Lupine (CN, CO)		RW	L	US native
1	Mertensia lanceolata/ Prairie Bluebell (CO)		Low	L	US native

Flowering Deciduous Perennials (cont.)

These are only firewise if dead stems are promptly removed in autumn.

Height	*Plant names*	*Water Use*	*Flammability*	*Notes*
Little or no added water needed				
1- 1.5	Nierembergia gracilis or repens/ Cup Flowers (CO, ID)	Low+	L	
1- 2	Oenothera spp./ Evening Primrose (~OR, WA all spp.)	RW- Low+	L ±	Some spp. local natives
1.5	Papaver orientale/ Oriental Poppy (CO, ID, OR, WA)	Low+	L	Showy flowers
1- 3	Penstemon cultivars/ Penstemons (~CM, CO, OR all cultivars)	RW- Low	L ±	Some spp. local natives
0.5	Phlox subulate/ Creeping Phlox (WFC, ID, OR)	Low+	L	
1	Pulsatilla patens/ Pasque Flower (OR)	Low+	L	Gritty well drained soil
2	Ranunculus californica/ California Buttercup (CM)	RW	L	
2	Rudbeckia fulgida/ Goldsturm Rudbeckia (OR, WA)	Low+	L	Texas native
<1’	Saponaria ocymoides or S. officinalis/ Soapworts (ID, WA)	Low+	L	US native
1	Scutellaria spp./ Skullcaps (~OR all spp. L)	RW- Low	L ±	Deadhead flowers
1	Stachys byzantine/ Wooly Lamb’s Ear (CM, OR)	Low+	L	Fuzzy gray leaves
1	Verbena rigida/ Sandpaper Verbena (CN)	RW	L	
1+	Veronica spp./ Speedwell (~OR all spp. L)	RW- Low+	L ±	
<1	Viola spp./ Violets (~TFL all spp. L)	Low+	L ±	V. missouriensis is a Texas native
2	Zauschneria arizonica/ Orange Carpet (WA)	Low+	L	US native

Flowering Deciduous Perennials that Need More Maintenance

These plants could spread fire if no one removes dead branches and dry leaves, or if vines climb on shrubs or trees.

3- 4	Aster or Symphiotrichium spp./ Asters (WA)	Low+	L	S. ericoides and S. fendleri are local natives
3	Centranthus ruber vars./ Jupiter's Beard (CO, ID, WA)	Low+	L	Long bloom
3- 5	Dasylirion leiophyllum/ Green Sotol	RW	VL	Local native zone 7, spiny
3- 5	Dasylirion texanum/ Texas Sotol	RW	L	Local native zone 7
4	**Jasminum nudiflorum/ Winter Jasmine (Long)**	Low	**L**	Sprawling plant often tied to fences
5	Kniphofia uvaria/ Red Hot Poker (CM, CO, ID, OR)	Low	L	
6	Malvaviscus arboreus or 'Big Momma'/ Turk's Cap (TFL)	Low	L	
4	**Mirabilis jalapa/ Garden Four O'Clock (C:Bellamy)**	Low+	**L**	Local native
4'	Nolina microcarpa/ Sacahuista (CM)	RW	L	Texas native
2.5	Ratibida columnifera/ Mexican Hat (ID, OR, WA)	RW	L	Local native
5	Rosa woodsia/ Woods Rose (OR, WA)	Low+	L	Local native
4	Sidalcea malviflora/ Prairie Mallow (CM)	Low+	L	US native
2.5	Sphaeralcea munroana/ Orange Globe Mallow (OR)	Low	L	US native, other spp. local
2	Tradescantia occidentalis or T. pallida/ Spiderworts (OR)	Low+	L	
15	Yucca elata/ Soap Tree (~OR all spp. L)	RW	L ±	Trim the skirt on old trunked natives
6	**Zizyphus or Condalia obtusifolia/ Lotebush (Mahmud)**	RW	**VL**	Local native, thorny

This rambling climber needs some weekly water:

6	Rosa banksiae/ Lady Banks Rose (CM)	Med	L	Sprawling, yellow bloom

Vegetables/ Grains/ Vine Fruits

Allium cernuum/ Chives (CO)	L
Allium fistulosum/ Bunching or Spring Onions (Pagadala)	**VL**
Allium schoenoprasum/ Edible Chives (Silva)	VL
Beta vulgaris 'Mangelwurzel'/ Fodder Beet (Pagadala)	**VL**
Brassica napus/ Rapeseed (Pagadala)	**VL**
Brassica oleracea var Sabellica/ Kale (Pagadala)	**VL**
Capsicum annuum/ Bell Pepper (Pagadala)	**VL**
Fragraria virginiana/ Wild Strawberry (CO, ID, OR)	L
Origanum majorana/ Marjoram[6]	L
Pisum sativum/ Peas (Pagadala)	**VL**
Salvia officinalis/ Common Sage (CO)	L
Solanum lycopersicum/ Tomato **(Pagadala)**	**VL**
Solanum tuberosum/ Potato (Pagadala)	**VL**
Vitis vinifera 'Pinot Noir', 'Reisling'/ Wine Grape Vines (Pagadala)	**VL**

Grasses, Pasture Plants and Weeds

These are very low plants. Lawn grasses are not a danger when watered and mowed, but any grass more than 3" can dry out very quickly. Grasses that go dormant (tan or brown) in the summer become very dry also.

Plant names	*Flammability*	*Notes*
Bouteloua gracilis/ Blue Grama Grass (CO, ID)	L	Local native
Buchloe dactyloides/ Buffalo Grass (CO, ID)	L	Local native
Carex spp./ Sedge (~ID, OR all species)[7]	L ±	C. texensis, C. spicata local natives
Cichorium intybus/ Chicory or Wild Lettuce (Pagadala)	VL	
Festuca ovina/ Sheep's Fescue (CO, ID)	L	Needs more than RW, less than bluegrass
Festuca ovina glauca/ Blue Fescue (C:S)	L	
Lotus pedunculatus/ Big Trefoil (Pagadala)	VL	
Plantago lanceolata/ Ribwort Plantain (Pagadala)	VL	
Trifolium ambiguum or repens/ Clover (Pagadala)	VL	
Trifolium pratense/ Red Clover (Pagadala)	L	

[6] Corbett anecdote survived at burnt vineyard
[7] Except Carex morowii/ Japanese Sedge

5: HIGH-FLAME PLANTS TO AVOID

Some very high flame plants burst into flame before the fire front reaches them, and become torches that ignite their neighbors. Flammable oils and a volume of dead twigs inside a plant create danger in wildfires.

If several sources had different results these ratings are based on the highest results.

High-Flame Trees

Plant names	*Flammability*	*Notes*
Abies concolor/ White Fir (CM, KF)	VH	US native
Acer palmatum/ Japanese Maple (Chladil)	VH	
Arbutus arizonica/ Arizona Madrone (~A. unedo tested by Henaoui)	H ±	US native
Betula pendula/ Silver Birch (Chladil)	H	
Buddleia davidii 'royal red'/ Butterfly Bush (Chladil H, Long L)	H	
Castanea dentata/ Chestnut (Varner)	VH	
Castanea sativa/ Sweet Chestnut (C:Valette, C:Dimitrak. L)	H	
Cedrus spp./ Cedars (~MC; C:Valette tested C. atlantica)	H ±	
Cercocarpus ledifolius and var. intricatus/ Curlleaf, Narrowleaf Mountain Mahogany (KF- note other spp. L)	VH	US native
Chamaecyparis lawsoniana/ Lawson Cypress (Chladil H, C:Bellamy L-M)	H	US native
Crataegus monogyna/ English Hawthorn (C:Neyisci grn lf H)	H	Invasive outside Texas
Cupressus spp./ Cypresses (C:Dimitrak. some spp. grn lf L)	H	
Ficus carica/ Edible Fig (Pacheco VH, C:Srecec L)	VH	
Gleditsia triaconthos 'inermis'/ Thornless Honey Locust (Chladil H, C:Bellamy L-M)	H	Texas native
Gymnocladus dioicus/ Kentucky Coffee Tree (ID H, OR, WA L)	H	US native
Ilex opaca/ American Holly (Varner H near M, Mola M)	H	Texas native
Ilex vomitoria/ Yaupon Holly (Mahmud VL, Long H)	H	Texas native
Juniperus chinensis/ Chinese Juniper (Long)	VH	Including horizontalis var.
Juniperus monosperma/ Oneseed or Utah Juniper (White)	VH	Local native, bark shreds
Juniperus virginiana/ Eastern Red Cedar (Mahmud)	VH	Local native
Liriodendron tulipifera/ Tulip Poplar (Mola)	H	US native
Magnolia grandiflora/ Southern Magnolia (Varner H, Mola M, Batista L; C:Bellamy L)	H	Texas native
Malus domestica 'Braeburn'/ Braeburn Apple (Pagadala)	VH	
Malus domestica 'Royal Gala'/ Royal Gala Apple (Pagadala)	H	
Olea europea/ Olive Tree (White H, Pacheco, Murray M)	H	
Pinus spp./ Pines (C:Neyisci litter ignites easily esp. 2-needle)	H	
Pinus strobiformis/ Southwestern White or Border Pine (KF)	H	
Platanus x acerifolia/ London Plane Tree (Chladil H, C:Bellamy L-M)	H	
Prunus serotina/ Black Cherry (Varner H, Mahmud VL)	H	Texas native
Pyrus communis/ European Pear (Pagadala)	VH	
Quercus alba/ White Oak (Varner)	H	Texas native
Quercus marilandica/ Black Jack Oak (Varner)	H	Texas native
Quercus robur/ English Oak (Chladil H, C:Bellamy L-M)	H	
Quercus stellata/ Post Oak (Varner H near M, Mola M)	H	Texas native
Quercus suber/ Cork Oak (C:Henaoui, C:Valette)	H	
Rhamnus alaternus/ Italian Buckthorn (C:Henaoui)	H	

High-Flame Trees (cont.)

Plant names	*Flammability*	*Notes*
Taxodium distichum/ Bald Cypress (KF)	VH	Texas native
Taxus spp./ Yew (~CM all sp.p H)	H±	
Thuja spp./ Arborvitaes (~CM all spp. H)	H±	
Ulmus parvifolia/ Lacebark Elm (Huber M-H)	H	Common, disease resitant

High-Flame Shrubs and Vines:

Adenostoma, Sarcobatus fasciculatum/ Greasewood (White)	H	Texas native
Artemisia californica/ California Sagebrush (CM, USDA 'lvs cont. terpenes)	H	US native
Baccharis pilularis/ Dwarf Coyotebush (KF)	VH	US native
Bambusa vulgaris/ Common Bamboo (Chladil H, C:Bellamy M-H)	**H**	
Bouganvillea spp./ Bouganvillea (~CS all spp. H)	H	
Calluna vulgaris/ Heather (C:Valette grn lvs VH Aug- Nov)	H	
Campsis radicans/ Trumpetvine (Engel)	H	Texas native
Eriogonum fasciculatum 'poliofolium'/ Flattop Buckwheat (KF)	VH	US native
Euonymus fortunei/ Euonymus (Engel)	H	
Fallopia baldschuanica/ Russian-vine (Engel)	H	
Gaylussacia baccata/ Black Huckleberry (Dibble)	H	US native
Genista monspessulana/ French Broom (Chladil M, C:LeBlanc VH)	H	Hard to ignite if damp, cool
Hedera Helix/ English Ivy (Engel- old plants H, young VH)	H	
Jasminum mesnyi/ Primrose Jasmine (C:Bellamy)	VH	
Juniperus chinensis var. pfitzeriana/ Pfitzer juniper (Long)	H	
Juniperus horizontalis/ Creeping Juniper (MN hard to ignite, burns VH)	H	US native
Lavandula angustifolia 'munstead'/ Compact English Lavender (Silva, Engel H near M, Chladil L)	H	
Lavandula stoechas/ Spanish Lavender (C:Henaoui)	H	
Ribes uva-crispa/ European Gooseberry (Pagadala)	H	
Rosmarinus officinalis/ Rosemary (Weise M, C:Valette H)	H	
Rubus ulmifolia/ Elm-leaf Blackberry (C:Henaoui grn lf)	H	
Sophora or Dermatophyllum secundiflora/ Texas Mountain Laurel (Mahmud)	H	Texas native
Viburnum opulus/ American Cranberrybush (Chladil H)	H	US native
Vitis vinifera/ European Grape (C:Bellamy M-H grn lf)	H	
Vitis vinifera 'Pinot Gris'/ Pinot Gris Wine Grape (Pagadala)	VH	
Wisteria spp./ Wisteria (Engel)	VH	
Zamia pumila, Coontie Palm (CM)	H	US native, hardy to 7b

Other High-Flame Plants

Vegetables, Perennials, Ground Cover, Weeds:

Note: Any ornamental grass is highly flammable. During its growing season thin leaves can dry very, very quickly in a hot wind. Appreciate the beauty of mid-grass prairie at some distance from anything to be preserved from wildfire.

Plant names	*Flammability*	*Notes*
Avena sativa/ Oats (Pagadala)	VH	
Cajanus cajan/ Pigeon Pea (Pagadala)	VH	
Cucurbita spp./ Gourds (Pagadala)	H	
Eriogonum herbaceous spp./ Wild Buckwheat (KF)	H	Many species local natives
Glossopetalon spinescens/ Spiny Greasebush (C:Henaoui)	VH	
Hordeum vulgare/ Barley (Pagadala)	VH	
Humulus lupulus/ Hops (Engel)	VH	
Nicotiana glauca/ Tobacco Bush (Chladil)	H	
Thymus ciliatus/ Moroccan Wild Thyme (C:Henaoui grn lf)	H	
Thymus vulgaris/ Common Thyme (C:Valette grn lf)	H	
Triticum aestivum/ Wheat (Pagadala)	>VH	The highest flame of all tests
Zea mays var. everta/ Popcorn (Pagadala)	VH	
Zea mays var. rugosa/ Sweet Corn (Pagadala)	VH	

6: MEDIUM-FLAME PLANTS TO USE WITH CARE

If a plant is not listed here as medium, or in the low or high flame lists, it has not yet been tested or estimated, or it is unsuitable for growing in this northern section of the Texas Panhandle.

Remember, these categories are rough approximations, and some medium flame plants are only slightly higher energy than the low flame plants.

Medium-Flame Trees

Plant names	*Flammability*	*Notes*
Acer rubrum/ Swamp or Red Maple (Dibble, Varner)	M	US native
Aesculus hippocastanum/ Horse Chestnut (Chladil H, C:Bellamy L-M)	M	
Ailanthus altissimus/ Tree of Heaven (Dibble)	M	Invasive
Alnus incana/ European Gray or Speckled Alder (Dibble)	M	
Amelanchier canadensis/ Canadian Serviceberry (Dibble)	M	US native
Berberis thunbergii / Barberry (Dibble)	M	Invasive in other states
Carya illinoinensis/ Pecan (C:Bellamy L-M grn lf)	M	Texas native
Cotinus coggygria/ American Smoketree (Guney)	M	
Cupressocyparis x leylandii/ Leyland Cypress (Long)	M	
Frangula alnus/ Glossy Buckthorn (Dibble)	M	
Heteromeles arbutifolia/ Toyon (White)	M	
Ilex aquifolium/ English Holly (C:Bellamy, C:Sheridan)	M	
Juniperus asheii/ Ashe Juniper (Long)	M	Local native
Juniperus scopulorum/ Rocky Mountain Juniper (White)	M	Local native
Morus spp./ Berry Cultivar Mulberry (Pacheco, Chladil)	M	M. alba invasive near Lubbock
Nyssa sylvatica/ Black Tupelo (Varner)	M	Texas native
Parthenocissus quinquefolia/ Boston Ivy (Engel)	M	
Physalis peruviana/ Cape Gooseberry (C:Bellamy)	**M**	**Green leaves low flammability**
Picea abies/ Norway Spruce (C:Dmitrak.)[8]	M	
Pinus nigra, ponderosa/ Austrian, Ponderosa Pine (C:Neyisci)	M	Green needles burn slowly
Pinus pinea/ Italian Stone Pine (C:Neyisci)[9]	M	
Pinus rigida/ Pitch Pine (Dibble)	M	US native
Pistacia chinensis/ Chinese Pistache (CN, CM)	M ±	
Pistacia vera/ Pistachio Nut[10]	M	
Populus tremuloides/ Quaking Aspen (Dibble)[11]	M	US native
Pseudotsuga menziesii/ Douglas Fir (White)	M	US native
Punica granatum/ Pomegranate (Pacheco)	M	Fruits well with summer water
Quercus macrocarpa/ Bur Oak (USFS litter –'a lot of heat')	M	Local native
Quercus nigra/ Water Oak (Varner M, Mola L near M)	M	Texas native
Salix babylonica/ Weeping Willow (Chladil M, C:Bellamy L-M)	M	
Sambucus canadensis/ American Elderberry (Pacheco)	M	Texas native
Sassafras albidum/ Sassafras (Varner)	M	Texas native
Sorbus aucuparia/ European Mountain Ash (Chladil)	M	Needs pH <7.6

[8] Least flammable of ten conifers tested

[9] Corbett reports that Silva noted these are the least flammable pine forests in Portugal

[10] Corbett anecdote orchard badly damaged 2016 CA chimney fire

[11] Corbett reports Alexander (2010) observed this species functioned as a fuelbreak in CA forests for summer fires, but leaves were too dry in the autumn to slow fire spread

Medium-Flame Shrubs and Vines

Plant names	*Flammability*	*Notes*
Vitex agnus-castus/ Chaste Tree (C:Neyisci)	M	
Abelia x grandiflora/ Glossy Abelia (Long)	M	Risk increases if stems trap trash
Akebia quinata/ Chocolate Vine (Engel)	M	Invasive
Arctostaphylos densiflora/ Bearberry (Etlinger)	M	US native
Aristolochia macrophylla/ Dutchman's Pipe (Engel)	M	US native
Atriplex halimus/ Mediterranean Saltbush (Weise)	M	
Baccharis halimifolia/ Groundsel Tree (WO)	M	US native
Berberis vulgaris/ European Barberry (Dibble)	M	
Buxus microphylla/ Winter Gem Boxwood (Long M, Murray L)	M	
Buxus sempervirens/ English Boxwood (C:Valette grn lf)	M	
Ceanothus papillosus/ Pacific Blue or Wartleaf Ceanothus (Chladil M)	M	US native
Celastrus orbiculatus/ Oriental Bittersweet (Dibble)	M	Invasive in other regions
Chaenomeles japonica/ Japanese Quince (Chladil)	M	
Clematis vitalba/ Old Man's Beard (Engel)	M	Invasive in other regions
Cotoneaster glaucophyllus/ Grayleaf Cotoneaster (Chladil M, C:Bellamy L-M)	M	
Cotoneaster lactea or parneyi/ Clusterberry Cotoneaster (Etlinger)	M	
Cytisus scoparius/ Scotch Broom (Dibble M near H)	M	
Hydrangea anomala 'petiolaris'/ Climbing Hydrangea (Engel)	M	
Lonicera caprifolium/ Italian Honeysuckle (Engel)	M	
Lonicera henryi/ Henryi Honeysuckle (Engel)	M	
Lonicera japonica/ Japanese Honeysuckle (Dibble)	M	
Lonicera nitida/ Boxleaf Honeysuckle (Engel)	M	
Myrica pennsylvanica/ Northern Bayberry (Dibble)	M	US native
Myrtus communis/ Common Myrtle (C:Neyisci)	M	
Phlomis fruticosa/ Jerusalem Sage (C:Dimitrak.)	M	
Photinia glabra/ Redleaf Photinia (Chladil)	M	
Prunus laurocerasis/ Cherry Laurel (C:Ganteaume)	M	
Rosa floribunda/ Shrub Rose (Chladil)	M	Needs rich, acid soil
Rosa multiflora/ Multiflora Rose (Chladil, Dibble)	M	Invasive in Texas
Santolina chamaecyparissus or S. virens/ Santolinas (C:Nord)[12]	M	
Spartium junceum/ Spanish Broom (C:Neyisci L, incr. with age)	M	
Syringa vulgaris/ Lilac (Chladil)	M	
Viburnum dentatum/ Arrowwood Viburnum (Dibble)	M	
Viburnum odoratissima/ Fragrant Viburnum (Murray M, Batista L)	M	
Vitis coignetiae/ Crimson Glory Vine (Engel)	M	
Vitis labrusca/ American Grape (Dibble)	M	
Vitis vinifera 'purpurea'/ Purple Leaf Grape (Engel)	M	
Vitis vinifera 'chardonnay'/ Chardonnay Wine Grape (Pagadala)	M	
Vitis vinifera 'merlot'/ Merlot Wine Grape (Pagadala)	M	
Vitis vinifera 'sauvignon blanc'/ Sauvignon Blanc Wine Grape (Pagadala)	M	

[12] Dried stems burn readily

Other Medium-Flame Plants

Weigelia florida/ Weigelia (Chladil M, Long L)	M	Needs pH <7.6
Actinidia arguta/ Hardy Kiwi Vine (C:Bellamy L-VL, Engel M)	M	
Asparagus officinalis/ Asparagus (Pacheco)	M	
Bergenia cordifolia/ Heartleaf Bergenia (Engel)	M	
Eriogonum umbellatum/ Sulfur Buckwheat (ID, OR L)	M	
Ipoma batatas/ Sweet Potato (Pacheco)	M	
Lythrum salicaria/ Purple Loosestrife (Dibble M near L)	M	Locally invasive
Ocimum basilicum/ Basil (Pacheco)	M	
Solidago rugosa/ Wrinkle-leaf Goldenrod (Dibble)	M	
Symphytum officinale/ Comfrey (Pagadala)	M	
Tithonia rotundifolium/ Mexican Sunflower (Pacheco)	M	
Vincetoxicum nigrum/ Black Swallow-wort (Dibble)	M	Invasive

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8: INDEX OF PLANTS BY BOTANICAL NAME

Antennaria parviflora/ Evergreen Pussytoes	L
Antennaria rosea/ Evergreen Rose	L
Aquilegia caerulea or A. chrysantha/ Columbines	L
Arabis spp./ Rock Cress	L
Arbutus arizonica/ Arizona Madrone	H ±
Arctostaphylos densiflora/ Bearberry	M
Arctostaphylos pungens/ Pointleaf Manzanita	L
Aristolochia macrophylla/ Dutchman's Pipe	M
Armeria maritima/ Thrift	L
Artemisia californica/ California Sagebrush	H
Artemisia schmidtiana/ Silver Mound Artemisia	L
Artemisia stelleriana/ Silver brocade artemisia	L
Artemisia viridis 'Tiny Green'/ Creeping Evergreen Artemisia	L
Asclepias spp./ Milkweed	L ±
Asparagus officinalis/ Asparagus	M
Aster or Symphiotrichium spp./ Asters	L
Atriplex confertifolia/ Shadscale	L
Atriplex halimus/ Mediterranean Saltbush	M
Aubretia deltoides/ False Rock Cress	L
Aubretia spp./ False Rock Cress	L ±
Aurinia saxatilis/ Basket of Gold	L
Avena sativa/ Oats	VH
Baccharis halimifolia/ Groundsel Tree	M
Baccharis pilularis/ Dwarf Coyotebush	VH
Bambusa vulgaris/ Common Bamboo	H
Bellium minutum/ Miniature Daisy	L
Berberis aquifolium 'repens'/ Creeping Mahonia	L
Berberis or Mahonia trifoliata/ Agarita	VL
Berberis thunbergii / Barberry	M
Berberis vulgaris/ European Barberry	M
Berberis/ Mahonia aquifolium 'compactum'/ Compact Grape Holly	L

Bergenia cordifolia/ Heartleaf Bergenia	M
Beta vulgaris ‘Mangelwurzel’/ Fodder Beet	VL
Betula pendula/ Silver Birch	H
Bouganvillea spp./ Bouganvillea	H
Bouteloua gracilis/ Blue Grama Grass	L
Brassica napus/ Rapeseed	VL
Brassica oleracea var Sabellica/ Kale	VL
Buchloe dactyloides/ Buffalo Grass	L
Buddleia davidii ‘royal red’/ Butterfly Bush	H
Buxus microphylla/ Winter Gem Boxwood	M
Buxus sempervirens/ English Boxwood	M
Cajanus cajan/ Pigeon Pea	VH
Callicarpa americana/ American Beautyberry	L
Callicarpa dichotoma 'profusion'/ Asian Beautyberry var.	L
Callirhoe involucrate/ Winecups	L
Callochortus gunnisonii/ Mariposa Lily	L
Calluna vulgaris/ Heather	H
Campanula carpatica/ Bellflower	L
Campanula poscharskyana/ Bellflower	L
Campanula poscharskyana/ Serbian Bellflower	L
Campsis radicans/ Trumpetvine	H
Capsicum annuum/ Bell Pepper	VL
Carex spp./ Sedge	L ±
Carya illinoinensis/ Pecan	M
Caryopteris x clandonensis/ Blue Mist Spirea	L
Castanea dentata/ Chestnut	VH
Castanea sativa/ Sweet Chestnut	H
Ceanothus americanus/ New Jersey Tea	L
Ceanothus cultivar/ ‘Joyce Coulter’ Ceanothus	L
Ceanothus papillosus/ Pacific Blue or Wartleaf Ceanothus	M
Cedrus spp./ Cedars	H

Celastrus orbiculatus/ Oriental Bittersweet	M
Celtis laevigata/ Hackberry, Sugarberry	L ±
Celtis occidentalis/ Common Hackberry	L
Celtis reticulata/ Hackberry	L
Centaurea or Senecio cineraria/ Dusty Miller	L
Centranthus ruber vars./ Jupiter's Beard	L
Cerastium tomentosum/ Snow-in-Summer	L
Ceratostigma plumbaginoides/ Leadwort	L
Cercis canadensis 'texensis'/ Texas Redbud	L ±
Cercis canadensis/ Canadian Redbud	L
Cercis mexicana/ Mexican Redbud	L ±
Cercis occidentalis/ Western Redbud	L
Cercis reniformis/ Oklahoma Redbud	L ±
Cercocarpus ledifolius var. intricatus/ Narrowleaf Mntn Mahogany	VH
Cercocarpus ledifolius/ Curlleaf Mountain Mahogany	H
Cercocarpus montanus, betuloides/ Silverlf, Mntn Mahogany	L
Chaenomeles japonica/ Japanese Quince	M
Chamaecyparis lawsoniana/ Lawson Cypress	H
Chamerion/ Epilobium angustifolia/ Fireweed	L
Chasmatophyllum masculinum/ Hardy Tiger Jaws	L ±
Cichorium intybus/ Chicory or Wild Lettuce	VL
Claytonia lanceolata/ Western Spring Beauty	L
Clematis vitalba/ Old Man's Beard	M
Coreopsis verticillate/ Threadleaf Coreopsis	L
Cornus mas/ Cornelian Cherry	L
Coryphantha or Escobaria vivipara/ Clustering Pincushion Cactus	L ±
Cotinus coggygria/ American Smoketree	M
Cotoneaster apiculatus / Cranberry Cotoneaster	L
Cotoneaster dammeri/ Bearberry Cotoneaster	L
Cotoneaster glaucophyllus/ Grayleaf cotoneaster	M
Cotoneaster lactea or parneyi/ Clusterberry Cotoneaster	M

Crassula ovata/ Jade Plant	VL
Crataegus monogyna/ English Hawthorn	H
Crataegus phaenopyrum/ Washington Hawthorn	L
Cucurbita spp./ Gourds	H
Cupressocyparis x leylandii/ Leyland Cypress	M
Cupressus spp./ Cypresses	H
Cylindropuntia imbricata/ Walkingstick Cholla	VL
Cylindropuntia spinisior/ Cane Cholla	VL
Cytisus scoparius/ Scotch Broom	M
Daphne odora/ Winter Daphne	L
Daphne x Burkwoodi/ Carol Mackie Daphne	L
Dasylirion leiophyllum/ Green Sotol	VL
Dasylirion texanum/ Texas Sotol	L
Dasylirion wheeleri/ Blue Sotol/ Desert Spoon	L ±
Delosperma alba	L
Delosperma basuticum	L
Delosperma cooperi	L
Delosperma nubigenum	L
Delphinium vars./ Delphinium	L
Dianthus deltoides/ Maiden Pink	L ±
Diospyros texana/ Texas Persimmon	L
Echinocereus fendleri/ Strawberry Hedgehog Cactus	L ±
Echinocereus triglochidiatus/ Green Claret Cup Cactus	L ±
Echinocereus viridiflorus/ Green Flowered Hedgehog Cactus	L ±
Ephedra antisyphilitica/ Clapweed	VL
Ephedra nevadensis/ Mormon Tea	L ±
Ephedra regeliana/ Creeping Ephedra	L
Ephedra viridis/ Green Mormon Tea	L ±
Erigeron linearis/ Fleabane	L
Eriogonum fasciculatum ‘poliofolium’/ Flattop Buckwheat	VH
Eriogonum herbaceous spp./ Wild Buckwheat	H

Eriogonum umbellatum/ Sulfur Buckwheat	M
Erysimum capitatum/ Western Wallflower	L ±
Escobaria orcuttii/ Clustering Snowball	L ±
Escobaria vivipara/ Spinystar	L ±
Euonymus fortunei/ Euonymus	H
Euphorbia polychrome/ Cushion Succulent Spurge	L
Euphorbia polychrome/ Decid. Cushion Spurge	L
Euphorbia x martini var./ Dwarf Suculent Spurge	L
Fallopia baldschuanica/ Russian-vine	H
Festuca ovina glauca/ Blue Fescue	L
Festuca ovina/ Sheep's Fescue	L
Ficus carica/ Edible Fig	VH
Forestiera pubescens/ Stretchberry	L
Forsythia x intermedia/ Forsythia	L
Fragraria virginiana/ Wild Strawberry	L
Frangula alnus/ Glossy Buckthorn	M
Fraxinus angustifolia v. oxyacarpa/ Raywood Sterile Ash	L ±
Fraxinus cuspidata/ Fragrant Ash	L ±
Fraxinus texana/ Texas Ash	L ±
Fraxinus velutina/ Arizona Ash	L
Gaillardia x grandiflora, G. pinnatifida	L
Gaylussacia baccata/ Black Huckleberry	H
Gazania linearis/ Colorado Gold Gazania	L ±
Genista monspessulana/ French Broom	H
Geranium caespitosum/ Rocky Mountain Geranium	L
Geranium x Cantabrigiense/ Perennial Geranium	L ±
Gleditsia triaconthos 'inermis'/ Thornless Honey Locust	H
Glossopetalon spinescens/ Spiny Greasebush	VH
Gymnocladus dioicus/ Kentucky Coffee Tree	H
Hedera Helix/ English Ivy	H
Helianthemum nummularium/ Evergreen Rock Rose	L

Hemerocallis aurantiaca/ Orange Daylily	VL
Hesperaloe parviflora/ Red False Yucca	L
Heteromeles arbutifolia/ Toyon	M
Holodiscus discolor/ Oceanspray	L
Hordeum vulgare/ Barley	VH
Humulus lupulus/ Hops	VH
Hydrangea anomala ‘petiolaris’/ Climbing Hydrangea	M
Iberis sempervirens/ Evergreen Candytuft	L
Ilex aquifolium/ English Holly	M
Ilex opaca/ American Holly	H
Ilex vomitoria/ Yaupon Holly	H
Ipoma batatas/ Sweet Potato	M
Jasminum mesnyi/ Primrose Jasmine	VH
Jasminum nudiflorum/ Winter Jasmine	L
Juglans major/ Arizona Walnut	L
Juglans microcarpa/ Little or Texas Walnut	L ±
Juglans regia ‘carpathian’/ Carpathian Walnut	L ±
Juniperus asheii/ Ashe Juniper	M
Juniperus chinensis var. pfitzeriana/ Pfitzer juniper	H
Juniperus chinensis/ Chinese Juniper	VH
Juniperus horizontalis/ Creeping Juniper	H
Juniperus monosperma/ Oneseed or Utah Juniper	VH
Juniperus scopulorum/ Rocky Mountain Juniper	M
Juniperus virginiana/ Eastern Red Cedar	VH
Kalanchoe tomentosa/ Panda Plant	VL
Kniphofia uvaria/ Red Hot Poker	L
Lagerstroemia indica/ Crepe Myrtle	VL
Lavandula angustifolia ‘munstead’/ Compact English Lavender	H
Lavandula stoechas/ Spanish Lavender	H
Leucanthemum x Superbum/ Shasta Daisy	L
Leucocrinum montanum/ Sand Lily	L

Lewisia cotyledon/ Cliff Maids	L
Liatris mucronate/ Gayfeather	L ±
Liatris punctata/ Gayfeather	L ±
Liatris scariosa/ Gayfeather	L ±
Linum perenne/ Blue Flax	L
Liriodendron tulipifera/ Tulip Poplar	H
Liriope spicata/ Lilyturf	L
Lonicera caprifolium/ Italian Honeysuckle	M
Lonicera henryi/ Henryi Honeysuckle	M
Lonicera japonica/ Japanese Honeysuckle	M
Lonicera nitida/ Boxleaf Honeysuckle	M
Lotus pedunculatus/ Big Trefoil	VL
Lupinus argenteus/ Silverstem Lupine	L
Lythrum salicaria/ Purple Loosestrife	M
Magnolia grandiflora/ Southern Magnolia	H
Malus domestica ‘Braeburn’/ Braeburn Apple	VH
Malus domestica ‘Royal Gala’/ Royal Gala Apple	H
Malvaviscus arboreus or ‘Big Momma’/ Turk’s Cap	L
Marrubium rotundifolium/ Roundleaf Horehound	L
Mertensia lanceolata/ Prairie Bluebell	L
Mimosa borealis/ Fragrant Mimosa	VL
Mirabilis jalapa/ Garden Four O’Clock	L
Morus spp./ Berry Cultivar Mulberry	M
Myrica pennsylvanica/ Northern Bayberry	M
Myrtus communis/ Common Myrtle	M
Nicotiana glauca/ Tobacco Bush	H
Nierembergia gracilis/ Cup Flowers	L
Nierembergia repens/ Cup Flowers	L
Nolina lindheimeriana/ Dwarf Bear Grass	L ±
Nolina microcarpa/ Sacahuista	L
Nyssa sylvatica/ Black Tupelo	M

Ocimum basilicum/ Basil	M
Oenothera spp./ Evening Primrose	L ±
Olea europea/ Olive Tree	H
Opuntia aurea/ Creeping Beavertail	VL
Opuntia fragilis/ debreczyi v. denuda/ Potato Cactus	VL
Opuntia lindheimeri/ Texas Prickly Pear	VL ±
Opuntia phaecantha ‘Dark Knight’/ Prickly Pear var.	VL ±
Opuntia phaecantha ‘Plum’/ ‘Plum’ Prickly Pear	VL ±
Opuntia x humifusa 'Fire and Ice'/ Spineless Blue Prickly Pear	VL
Origanum majorana/ Marjoram	L
Ostrya virginiana/ Ironwood	L
Pachysandra terminalis/ Spurge	L
Papaver orientale/ Oriental Poppy	L
Parthenocissus quinquefolia/ Boston Ivy	M
Penstemon caespitosus/ Mat Penstemon	L
Penstemon cultivars/ Penstemons	L ±
Perovskia atriplicifolia/ Russian Sage	L
Philadelphus ‘Manteau d’Hermine’/ Dwarf Mockorange	L
Philadelphus coronarius/ Golden Mockorange	L
Philadelphus lewisii/ Cheyenne Mockorange	L
Philadelphus pekinensis/ Peking Mockorange	L
Philadelphus var. ‘virginalis’/ Minnesota Snowflake' Mockorange	L
Phlomis fruticosa/ Jerusalem Sage	M
Phlox subulate/ Creeping Phlox	L
Photinia glabra/ Redleaf Photinia	M
Phyla nodiflora/ Frogfruit	L
Physalis peruviana/ Cape Gooseberry	M
Picea abies/ Norway Spruce	M
Pinus nigra, ponderosa/ Austrian, Ponderosa Pine	M
Pinus nigra, ponderosa/ Austrian, Ponderosa Pine	M
Pinus pinea/ Italian Stone Pine	M

Pinus rigida/ Pitch Pine	M
Pinus spp./2 needle Pines	H
Pinus strobiformis/ Southwestern White or Border Pine	H
Pistacia chinensis/ Chinese Pistache	M ±
Pistacia vera/ Pistachio Nut	M
Pisum sativum/ Peas	VL
Plantago lanceolata/ Ribwort Plantain	VL
Platanus orientalis/ Oriental Plane Tree	L
Platanus racemosa/ California Sycamore	L
Platanus x acerifolia/ London Plane Tree	H
Populus alba/ Silver or White Poplar	VL
Populus nigra ‘italica’/ Lombardy Poplar	L
Populus nigra/ Black Poplar	L
Populus tremuloides/ Quaking Aspen	M
Prosopis glandulosa ‘inermis’/ Thornless Honey Mesquite	L ±
Prunus armeniaca/ Apricot	L
Prunus angustifolium/ Chickasaw Plum	L ±
Prunus avium/ Bird or Sweet Cherry	L
Prunus besseyi/ Western Sand Cherry	L
Prunus domestica ‘Stanley’/ Dwarf Plum	L
Prunus dulcis/ Almond	L
Prunus laurocerasis/ Cherry Laurel	M
Prunus persica var. nectarina ‘Mericrest’/ Nectarine var.	L
Prunus serotina/ Black Cherry	H
Pseudotsuga menziesii/ Douglas Fir	M
Pulsatilla patens/ Pasque Flower	L
Punica granatum/ Pomegranate	M
Purshia tridentata/ Antelope Bitterbrush	L
Pyrus communis/ European Pear	VH
Quercus alba/ White Oak	H
Quercus gambelii/ Gambel Oak	VL

Quercus laceyi/ Lacey Oak	VL
Quercus lobata/ Valley Oak	L
Quercus macrocarpa/ Bur Oak	M
Quercus marilandica	H
Quercus nigra/ Water Oak	M
Quercus robur/ English Oak	H
Quercus stellata/ Post Oak	H
Quercus suber/ Cork Oak	H
Ranunculus californica/ California Buttercup	L
Ratibida columnifera/ Mexican Hat	L
Rhamnus alaternus/ Italian Buckthorn	H
Rhamnus frangula ‘asplenifolia’/ Fernleaf Buckthorn	L
Rhamnus frangula ‘Fine Line’/ Non-invasive Buckthorn	L
Rhus aromatica v. Low Gro/ Compact Fragrant Sumac	L
Rhus glabra cismontana/ Cutleaf Sumac	L
Rhus microphylla/ Littleleaf Sumac	VL
Rhus ovata var. traskiae/ Sugarbush	L ±
Rhus trilobata ‘Autumn Amber’/ Prostrate Sumac	L
Rhus trilobata/ Skunkbush Sumac	VL
Rhus virens/ Evergreen Sumac	VL
Ribes aureum/ Golden Current	L
Ribes uva-crispa/ European Gooseberry	H
Robinia neomexicana/ NM Locust	L ±
Robinia x ambigua ‘idahoensis/ Idaho Locust	L ±
Rosa banksiae/ Lady Banks Rose	L
Rosa floribunda/ Shrub Rose	M
Rosa multiflora/ Multiflora Rose	M
Rosa woodsia/ Woods Rose	L
Rosmarinus officinalis/ Rosemary	H
Rubus ulmifolia/ Elm-leaf Blackberry	H
Rudbeckia fulgida/ Goldsturm Rudbeckia	L

Salix babylonica/ Weeping Willow	M
Salvia officinalis/ Common Sage	L
Sambucus canadensis/ American Elderberry	M
Santolina chamaecyparissus/ Santolina	M
Santolina virens/ Green Santolina	M
Saponaria ocymoides/ Soapworts	L
Saponaria officinalis/ Soapworts	L
Sassafras albidum/ Sassafras	M
Saxifraga hirsuta/ Evergreen Saxifrage	L
Saxifraga x arendsii/ Mossy Saxifrage	VL
Scutellaria spp./ Skullcaps	L ±
Sedum lanceolatum/ Spearleaf Evergreen Stonecrop	VL
Sedum reflexum/ Blue Spruce Evergreen Stonecrop	VL
Sedum rupestre/ Angelina Evergreen Stonecrop	VL
Sedum sediform ‘turquoise tails’/ Turquoise Tails Evergreen Stonecrop	VL ±
Sedum sichotense/ Ukrainian Evergreen Stonecrop	VL
Sedum spathulifolia/ Broadleaf Evergreen Stonecrop	VL
Sedum spurium/ ‘Dragon’s Blood’ Stonecrop	VL
Sedum telephium/ ‘Autumn Joy’ Stonecrop	VL
Sempervivum ciliosum/ Hens and Chicks	VL
Sempervivum tectorum/ Hens and Chicks	VL
Senegalia or Acacia berlandieri/ Berlandier's Acacia	L
Senegalia or Acacia wrightii/ Wright Acacia	VL
Sidalcea malviflora/ Prairie Mallow	L
Solanum lycopersicum/ Tomato	VL
Solanum tuberosum/ Potato	VL
Solidago rugosa/ Wrinkle-leaf Goldenrod	M
Sophora or Dermatophyllum secundiflora/ Texas Mntn Laurel	H
Sorbus aucuparia/ European Mountain Ash	M
Sapindus drummondii/ Western Soapberry	L ±
Spartium junceum/ Spanish Broom	M

Sphaeralcea munroana/ Orange Globe Mallow	L
Spiraea douglasii/ Western or Rose Spiraea	L
Stachys byzantine/ Wooly Lamb's Ear	L
Symphoricarpos albus/ Snowberry	VL
Symphytum officinale/ Comfrey	M
Syringa reticulata/ Japanese Tree Lilac	L
Syringa vulgaris/ Lilac	M
Taxodium distichum/ Bald Cypress	VH
Taxus spp./ Yew	H ±
Teucrium chamaedrys/ Wall Germander	L ±
Teucrium majoricum/ Greek Germander	L
Thuja spp./ Arborvitaes	H ±
Thymus ciliatus/ Moroccan Wild Thyme	H
Thymus vulgaris/ Common Thyme	H
Tilia americana/ American Basswood	L
Tilia cordata/ Littleleaf Linden	L
Tithonia rotundifolium/ Mexican Sunflower	M
Tradescantia occidentalis or T. pallida/ Spiderworts	L
Trifolium ambiguum or repens/ Clover	VL
Trifolium pratense/ Red Clover	L
Triticum aestivum/ Wheat	>VH
Ulmus americana/ American Elm	L ±
Ulmus crassifolia/ Cedar Elm	L ±
Ulmus parvifolia/ Lacebark Elm	H
Verbena rigida/ Sandpaper Verbena	L
Veronica incana/ Silver Speedwell	L ±
Veronica liwanensis/ Evergreen Turkish Speedwell	L
Veronica spp./ Speedwell	L ±
Viburnum dentatum/ Arrowwood Viburnum	M
Viburnum odoratissima/ Fragrant Viburnum	M
Viburnum opulus/ American Cranberrybush	H

Viburnum tinus/ Laurustinus	L
Vincetoxicum nigrum/ Black Swallow-wort	M
Viola spp./ Violets	L ±
Vitex agnus-castus/ Chaste Tree	M
Vitis coignetiae/ Crimson Glory Vine	M
Vitis labrusca/ American Grape	M
Vitis vinifera ‘chardonnay’/ Chardonnay Wine Grape	M
Vitis vinifera ‘merlot’/ Merlot Wine Grape	M
Vitis vinifera ‘Pinot Gris’/ Pinot Gris Wine Grape	VH
Vitis vinifera ‘Pinot Noir’ Wine Grape Vines	VL
Vitis vinifera ‘purpurea’/ Purple Leaf Grape	M
Vitis vinifera ‘Reisling’/ Wine Grape Vines	VL
Vitis vinifera ‘sauvignon blanc’/ Sauvignon Blanc Wine Grape	M
Vitis vinifera/ European Grape	H
Weigelia florida/ Weigelia	M
Wisteria spp./ Wisteria	VH
Yucca baccata/ Banana Yucca	VL
Yucca brevifolia/ Joshua Tree	L ±
Yucca elata/ Soap Tree	L ±
Yucca filamentosa/ Adam’s Needle	L
Yucca glauca/ Plains Soapweed	L
Yucca rupicola/ Twistleaf Soapweed	VL ±
Yucca thompsoniana/ Thompson Yucca	L ±
Zamia pumila, Coontie Palm	H
Zauschneria arizonica/ Orange Carpet	L
Zea mays var. everta/ Popcorn	VH
Zea mays var. rugosa/ Sweet Corn	VH
Zizyphus or Condalia obtusifolia/ Lotebush	VL