The Quest for All-Purpose Plants[1]

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The Problem

The fire safety of a home in the wildland/urban interface is influenced by several factors—one of which is the presence and proximity of vegetation to the home. Landscaping may either provide a significant barrier to fire spread and thus potentially increase a home's fire safety or favor fire spread and reduce a home's fire safety. However, fire safety of vegetation is not the only criterion a homeowner or landscape designer uses when selecting plants for use in a yard. Other criteria include drought resistance, erosion prevention, and esthetics.

Many lists of "fire retardant" plants are available in trade magazines, newspapers, and from various public agencies like water districts and resource conservation districts. The bases of these lists are often unknown; fire safety ratings for a particular plant may vary appreciably from list to list, only the genus of the plant may be given with no species name, or the same species names keep appearing from list to list including even misidentifications and misspellings. For example, *Cupressus sp* is listed in one publication as being highly flammable (Baptiste 1992); however, *Cupressus arizonica* was rated as weakly flammable in France for the months of May, June, and October; not very flammable for July, August, and September; and moderately flammable in November (Valette n.d.).

Plant lists often fail to consider the fact that plants may be reasonably fire retardant (however it is defined) when watered but become more flammable when dry. Some plants have a natural ability to retain a higher fuel moisture content longer than others after the onset of the dry months, which prolongs their fire-retardant characteristics later into the dry season on unirrigated sites.

Furthermore, relying on only one attribute, flammability, as a guide to plant selection ignores the many other functions we expect from our landscape plants such as the abilities to control erosion on slopes, to shade our homes during the hot summers, to provide food for us and for wildlife, to conserve water, and to be esthetically pleasing. Some lists of "fire-retardant" plants have information about other desirable attributes, but there are enormous gaps in this information as well.

A Possible Solution

We propose to develop a preliminary set of techniques based on flammability tests for building materials to determine flammability and total heat release rates of intact vegetation, both green and dried. This information can then be used to devise a rating scale for relative "fire retardance" which then can be coupled with another series of ratings for water consumption, frost tolerance, climate modification, erosion control, wildlife habitat, etc. *Table 1* lists possible candidate species that meet criteria other than flammability. Information on fire retardance is often missing. This information will help homeowners, planners, plan checkers, and others to make intelligent and economical landscaping decisions based on the particular hierarchy of needs of each site. Once such a system exists, fire-safe landscaping decisions will have a stronger scientific basis.

[1] An abbreviated version of this paper was presented at the Biswell Symposium: Fire Issues and Solutions in Urban Interface and Wildland Ecosystems, February 15-17, 1994, Walnut Creek, California.

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Table 1– ***Candidates for fire retardance tests with ratings for other desirable characteristics for landscape plants.***

Plant	Fr [1]	Wtr	Aes	Er	Oth
Oenothera berlandieri	?[2]	x	x	x	x
Cistus crispus	?	x	x	x	?
Olea europa	?	x	x	?	x
Rhus ovata	?	x	x	x	x
Correa 'Carmine Bells'	?	x	x	x	?
Muhlenbergia rigens	?	x	x	x	?
Rhagodia spinescens	?	x	x	x	?
Rosmarinus officinalis	?	x	x	x	x
Melia azedarach	?	x	x	?	x
Cistus salviifolius	x	x	x	x	?
Baccharis pilularis	?	x	?	x	?
Salvia microphylla	?	x	x	x	x
Myoporum 'Putah Creek'	?	x	x	x	?
Heteromeles arbutifolia	?	x	x	x	x
Verbena tenuisecta	?	x	x	x	?
Westringia rosmariniformis	?	x	x	?	?
Salvia greggii	?	x	x	?	x
Acacia redolens	?	x	x	x	?
Calystegia macrostegia	?	x	x	x	x
Cistus purpureus	?	x	x	x	?
Prunus ilicifolia	?	x	x	x	x
Sophora japonica	?	x	x	?	x

[1] Fr = fire resistant, Wtr = drought resistant, Er = erosion resistant, Aes = esthetically pleasing, Oth = other (wildlife habitat, food production, climate modification)

[2] x = suitable application, ? = information not available

References

Baptiste, L. 1992. **FIRESCAPE—Landscaping to reduce fire hazard**. Oakland, CA: East Bay Municipal Utility District; 16 p.

Valette, Jean-Charles. n.d. **Flammabilities of Mediterranean species—I.N.R.A.'s methodology**. Document PIF 9328. Avignon, France: Laboratoire de Recherches Forestieres Mediterraneennes; 15 p.