

Flammability of native plant species



A guide to reducing fire hazard around your home

Many householders living in rural areas or on the rural/urban fringe face dangers from wildfires; they can reduce these dangers by managing the vegetation around their homes.



Flammability classes

These flammability classes are intended as a guide only. Species flammability also varies as a result of genetic and environmental factors, so that the flammability of a particular species will depend on age and situation. For example, flammability may increase as a result of drought or other critical fire weather conditions, or mature vegetation could carry greater amounts of dead material, adding to the potential severity of any fire.

Why plant less flammable species?

- The best way to protect your house is to reduce the intensity of the fire as it approaches. This can be achieved by creating an area around your house where all flammable material, such as scrub vegetation, long, rank grass, leaves and twigs, has been removed.
- The flammability of vegetation affects fire intensity, which has a major influence on fire control and the chance of homes being damaged or destroyed by fire.
 - High flammability fuels have characteristics that greatly assist fire spread; for example, heavy fuel loads, continuous structure, volatile oils, or low moisture contents.
- Fuel is the only component of a fire environment that can be altered to reduce the probability of damage from wildfires - we cannot control the weather, and topography is more or less fixed.
- The replacement of high flammability species with lower flammability species can reduce fire hazard and help create a DEFENSIBLE SPACE around your home that allows heat and embers to dissipate.
- Low flammability species can also be used in GREEN BREAKS, positioned to break up flammable landscapes, provide a buffer zone bordering urban areas, or to reduce fire hazard in the immediate vicinity of individual properties.

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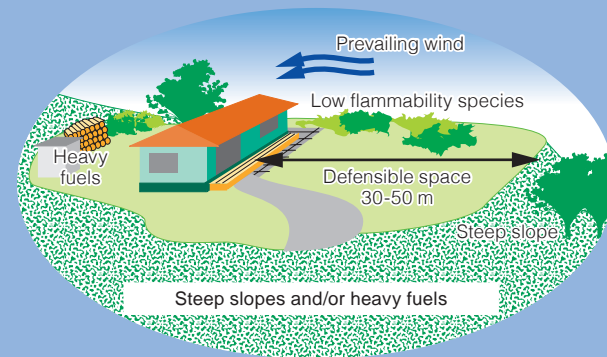
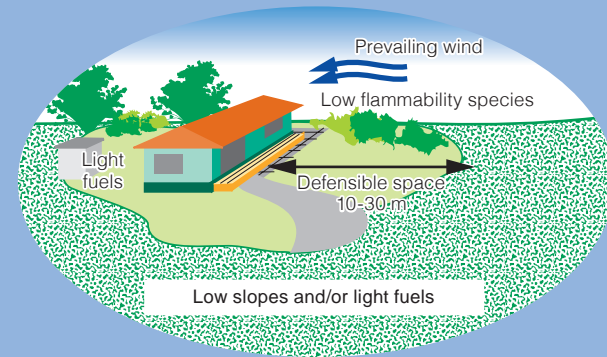
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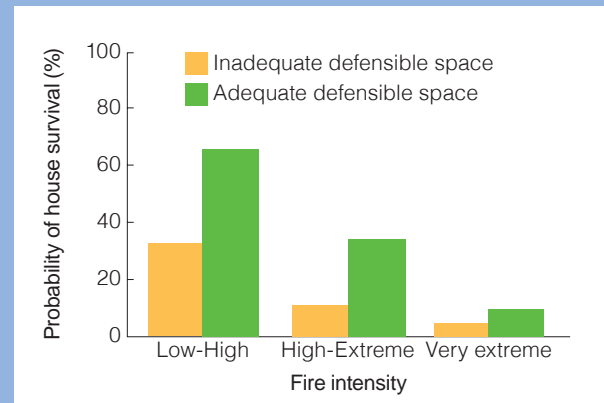
Defensible space

How do you develop defensible space?

- Defensible space may be created by removing vegetation, and/or by selecting low flammability species for planting in green breaks or replacement planting.
- The size and shape of your defensible space depends on factors such as slope, prevailing wind strength and direction, and nature of the surrounding fuel.
- Overseas experience has shown that the preferred option is for this area to extend for 100 m; this is difficult for homeowners to achieve, but a zone of at least 30-50 m of defensible space is recommended.
- Creating defensible space does not mean that all trees and shrubs need to be removed - well-kept lawns and gardens provide little fuel for wildfires.



The replacement of exotic weed species with New Zealand natives is one option for the homeowner.



Adequate defensible space greatly increases the probability of a house surviving a wildfire.

- The removal of trees and scrub may be restricted by council bylaws, or a “bush” setting may be preferred; in these instances, highly flammable fuels should be replaced by plantings of less flammable species.
- A combination of lawns/gardens and scattered low-flammability shrubs often provides the best solution.
- Whatever option is adopted, the defensible areas should be kept clear of rubbish, dead vegetation, and heavy fuels such as wood piles.

The research

The following flammability classes are based on surveys conducted by Scion Rural Fire Research.

Experienced fire managers throughout New Zealand were asked to rank a list of native species in terms of flammability in the light of their observations at wildfires and prescribed burns under different fire danger conditions. The responses were subjected to statistical procedures, to produce a final list of 42 species in 5 flammability classes.

Classes:

- Low.** Suitable for green breaks or defensible space, but when in the immediate vicinity of structures, there should be at least a 3-4 m break between the crowns to reduce fuel continuity.
- Low/Moderate.** Not recommended for planting in green breaks. If planted in defensible space, elevated dead material and litter should be removed regularly, more than 4 m should be left between tree crowns, and trees or shrubs in this category should not be within 10 m of structures.

Low flammability species

<i>Fuchsia excorticata</i>	Kōtukutuku
<i>Pseudopanax crassifolius</i>	Horoeka/lancewood
<i>Pseudopanax arboreus</i>	Five finger
<i>Coprosma robusta</i>	Karamu
<i>Coprosma grandifolia</i>	Raurēkau/kanono
<i>Geniostoma ligustrifolium</i>	Hangehange
<i>Coprosma australis</i>	Raurēkau
<i>Coprosma repens</i>	Taupata
<i>Carpodetus serratus</i>	Putaputawētā
<i>Corynocarpus laevigatus</i>	Karaka
<i>Griselinia littoralis</i>	Papauma/broadleaf
<i>Griselinia lucida</i>	Puka
<i>Macropiper excelsum</i>	Kawakawa/peppertree
<i>Solanum aviculare</i>	Poroporo

Low/moderate flammability species

<i>Hebe salicifolia</i> & <i>H. stricta</i>	Koromiko
<i>Meliccytus lanceolatus</i>	Mahoe wao
<i>Meliccytus ramiflorus</i>	Mahoe/whiteywood
<i>Aristolelia serrata</i>	Makomako/wineberry
<i>Coriaria arborea</i>	Tutu
<i>Myoporum laetum</i>	Ngaio
<i>Pittosporum crassifolium</i>	Karo
<i>Pittosporum eugenioides</i>	Tarata/lemonwood
<i>Hoheria</i> spp.	Houhere/lacebark
<i>Knightia excelsa</i>	Rewarewa
<i>Nothofagus menziesii</i>	Tawhai/silver beech
<i>Phyllocladus glaucus</i>	Toatoa
<i>Plagianthus regius</i>	Mānatu/ribbonwood
<i>Weinmannia racemosa</i>	Kamahi

- Moderate.** Most of these species produce heavy accumulations of flammable litter and elevated dead material, and/or have flammable green foliage. Not recommended for green breaks or for planting in defensible space.
- Moderate/High.** Species may have flammable green foliage and/or produce high levels of litter and elevated fuel. Not recommended for green breaks or defensible space.
- High.** Burn readily at Low/Moderate forest fire danger conditions.

Moderate flammability species

<i>Beilschmiedia tawa</i>	Tawa
<i>Cordyline australis</i>	Tī kōuka/Cabbage tree
<i>Pittosporum tenuifolium</i>	Kōhūhū
<i>Dacrydium cupressinum</i>	Rimu
<i>Metrosideros umbellata</i>	Southern rata
<i>Agathis australis</i>	Kauri
<i>Phormium</i> spp.	Harakeke/flax
<i>Podocarpus dacrydioides</i>	Kahikatea/white pine
<i>Weinmannia silvicola</i>	Tawhero/towhai

Moderate/high flammability species

<i>Podocarpus totara</i>	Tōtara
<i>Dodonaea viscosa</i>	Ake ake
<i>Cyathea</i> & <i>Dicksonia</i> spp.	Tree ferns
<i>Cyathodes fasciculata</i>	Mingimingi

High flammability species

<i>Kunzea ericoides</i>	Kānuka
<i>Leptospermum scoparium</i>	Mānuka

For further information on:

- Which species to grow best in your area, contact your local nursery.
- Protecting your property from fire, contact your local Fire Authority i.e. local council.
- Research into fire behaviour and fuel (vegetation) types, contact www.ruralfireresearch.co.nz