



FireSmart

A Guide to Landscaping Practices that
Protect Your Home from Wildfire



Every year, many homes in the Province of Manitoba are threatened by wildfire.

Nearly all of these homes could have been saved if owners had followed a few simple rules to protect their homes. This guide is designed to provide homeowners with the information they need to protect their homes from wildfires through appropriate landscaping techniques. The guide also includes information on what and where the risks from wildfires are, and how individual homeowners can manage their property to minimize the risk of wildfire damage.

Recognizing Wildfire Risk

How do you know if you're at risk from wildfire? It is easy to see that a home is at risk from wildfire if it sits in the middle of a forested area or on the edge of an overgrown field. However, homes are at risk in what fire experts call the Wildland-Urban Interface (WUI).

The WUI is really anywhere along the suburban fringe. Many developed neighbourhoods with streets and stoplights are at significant risk from wildfire. It's hard to say exactly where the risk ends, but undeveloped forests and fields in and around a neighborhood means that residents should know how to defend their homes in case of a wildfire.

FireSmart

"...UNDEVELOPED FORESTS AND FIELDS IN AND AROUND A NEIGHBOURHOOD MEANS THAT RESIDENTS SHOULD KNOW HOW TO DEFEND THEIR HOMES..."

A crown fire in the tree canopy.

A well-managed Home Priority Zone helps keep wildfire away.

Closed eaves and soffits decrease structural fire dangers.

Properly stored firewood (combustibles) should be more than 10 metres from your home.

" ...KEEP YOUR PROPANE TANKS CLEAR OF VEGETATION AND DEBRIS FOR APPROXIMATELY 3 METRES..."

TWO TYPES OF WILDFIRES

Two types of wildfires - **surface** and **crown fires** - can affect homes. Surface fires burn materials lying on or immediately above the ground including pine needles, leaves, grass, downed logs, stumps, tree limbs and low shrubs. This type of wildfire can surround a home and slowly find vulnerable spots to attack.

Crown fires move through the canopy of a forest stand, burning from one treetop to the next. They can have extremely high flame lengths, which often start spot fires far ahead of the fire front.

Crown fires can shoot burning embers onto your property, including your home. Crown fires are the most destructive of all wildfires, able to burn mature trees and shrubs, and can move over large areas in short periods of time. Surface fires can become crown fires in stands where there are "ladder fuels" (ex: branches that extend to the ground and allow a fire to climb up a tree from branch to branch to its crown).

The Home Priority Zone

Homeowners in the Wildfire-Urban Interface (WUI) should pay the most attention to producing a safety zone (Home Priority Zone) immediately surrounding the home. Characteristics of the Home Priority Zone determine a home's potential for being ignited by a wildfire. A well-managed Priority Zone will cause a crown fire that is approaching the property to decrease in intensity due to reduced fuels.

As the fire continues to get closer to a home, it will move from the crowns of the trees to the ground and slowly die out due to a lack of flammable materials. The fire might continue to rage around the Priority Zone, but the home can remain intact with minimal damage.

It is unlikely that we can prevent all wildfires from occurring. The goal of a "FireSmart" approach is to make sure that a house can survive a wildfire with little or no damage.

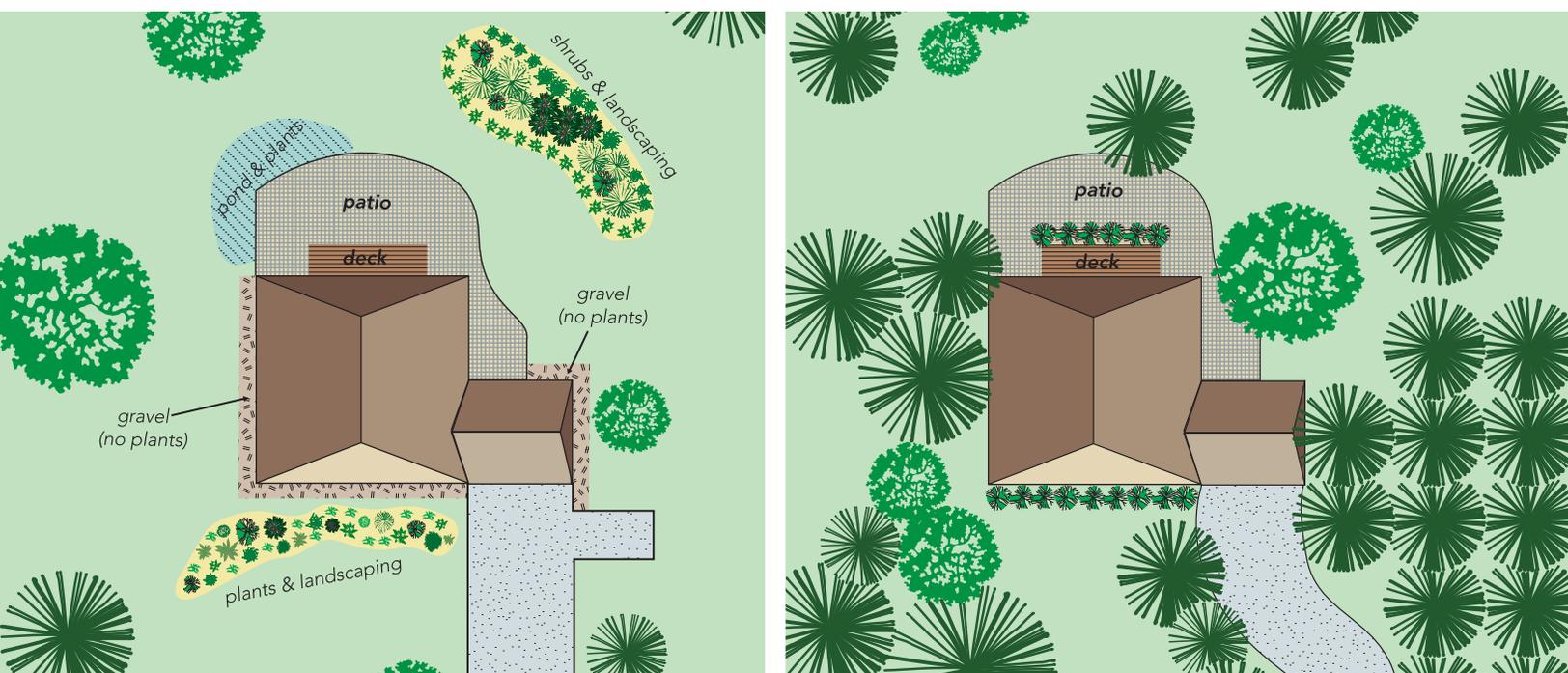
Landscaping to Defend Your Home

Foundation to Immediate Landscaped Area

Some experts recommend keeping the first one to three metres around the base of your home and any outbuildings completely free of any fuel for a fire. It's easy to understand why tall grasses or evergreen shrubs near the house are risky - when ignited, they could put hot flames directly against the siding and eaves. However, other materials can ignite when dry and should also be kept away from buildings. These include leaves, evergreen needles, straw bales, wood piles and organic landscaping mulch. These materials can host a smoldering fire long after the main fire has completely passed. In fact, a high percentage of homes lost to wildfire ignite well after the most intense portions of the wildfire have passed.

"...A HIGH PERCENTAGE OF HOMES LOST TO WILDFIRE IGNITE WELL AFTER THE MOST INTENSE PORTIONS OF THE WILDFIRE HAVE PASSED..."

Moving farther away from the house, landscape trees, shrubs and plants should be managed to ensure that any fire in this area remains on the ground and burns quickly (ex: no smoldering) and with low intensity. That means keeping the lawn clean of fallen evergreen needles and leaves that are flammable.



Well-designed landscaping (**left**) can be attractive and will also help keep fire away. Landscaping that is not "FireSmart" (**right**) could allow crown fires and ground fires to reach the house.



All vegetation should be well manicured, green, and healthy. Keep the lawn mowed and foliage well watered. In the overall landscaping plan, use plants that are not highly flammable. Low-growing plants with thick succulent leaves tend to resist fire and provide greater protection for buildings. A number of these plants are highlighted throughout this publication.

Landscaping within 10 metres of the home should not include trees and shrubs that hold their needles all year (evergreens). Deciduous trees and shrubs that drop their leaves every fall typically burn with much less intensity than evergreens and are a better choice if trees are close to the house. Keep trees and shrubs in this area well pruned and manicured. All tree branches should be pruned to a height of at least two metres from the ground, kept free of any dead wood, and pruned away from the roof, eaves and gutters.

Take care to arrange landscape plants so they are well spaced to prevent fire from moving from one plant to the next. Try to maintain a space of at least two metres between the branches of adjacent trees and shrubs. Avoid planting directly beneath trees, because plants burning in a ground fire might then spread the fire to the tops (crowns) of the trees. Fire burning in the crowns of trees, especially evergreens, can move rapidly and quickly become very intense.

Managing this area closest to the house represents a significant step in protecting a home. However, the chance that a home can survive a wildfire increases if additional steps are taken for the remainder Home Priority Zone.



"...REDUCE COMBUSTIBLE MATERIALS NEAR YOUR HOME BY CHIPPING BRANCHES AND SMALL TREES AND COMPOSTING LIGHTER VEGETATION..."



FIRESMART PLANT

NANNYBERRY - *Viburnum lentago*

A common native shrub with white flowers in May, and fruit which change from blue to black in fall. The shrub tolerates shade and its fall color is often a vivid combination of oranges and reds. The fruit is sweet and eaten by an array of birds and wildlife.

Beyond the Landscaped Area

Landscaping practices for the remainder of the Priority Zone should be designed to take away enough fuel from a fast-moving crown fire to slow fire down, reduce its intensity, and move the fire out of the tree crowns and onto the ground. Simply put, the goals are to:

-  prevent fire in this area from moving into the crowns of trees
-  prevent any fire that does happen to reach the crown of a tree or shrub from spreading to the crowns of neighbouring trees or shrubs



FIRESMART PLANT
COLUMBINE - *Aquilegia canadensis*

This plant blooms from March to July and sets fruit in mid to late summer (June to August). Red columbine is pollinated by hummingbirds, hawk moths, and at least four bee species.



To reduce the possibility of a crown fire, thin trees (and remove some if necessary) to keep them well spaced. This is particularly true for evergreens, which should have at least two metres between branches.

"...MAKE SURE YOUR DRIVEWAY IS AT LEAST FOUR METRES WIDE WITH A VERTICAL CLEARANCE OF FIVE METRES FOR FIRE DEPARTMENT VEHICLE ACCESS..."

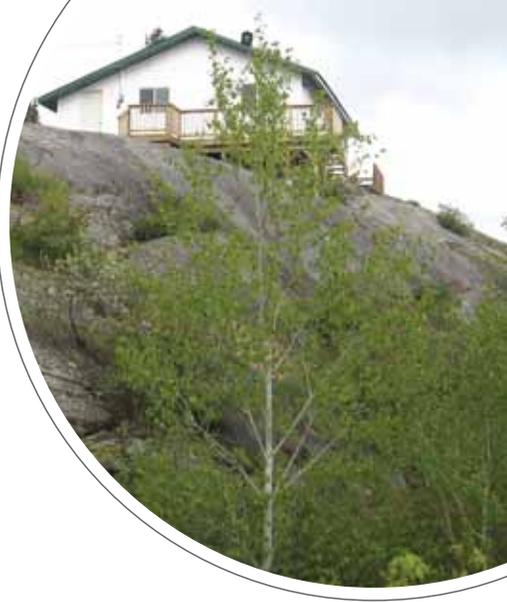
Under most conditions, protective measures in a 30 metre zone around a home are sufficient to protect the home from wildfire damage. Fire scientists have shown that large flames of a high-intensity wildland fire typically do not ignite homes at distances greater than 30 metres. A home's materials and design in relation to the vegetation within 30 metres is what determines the potential for a home to ignite.

In some cases, however, the Priority Zone should be maintained out past 30 metres. This is true for homes built in areas surrounded by steep topography, or if the trees on and around the property are mostly evergreens. Fire burns faster uphill, making the removal of vegetation farther out essential to slow the fire down.

Topography and Slope

Wildfires are typically most intense on sloped ground, particularly at the top edge of a hill, because fire burning uphill preheats and dries the fuel in its path causing those fuels to burn more rapidly and intensely. As a result, the tops of slopes are dangerous places to build a house. At this point many people tend to think "but the Manitoba region is so flat!" Even small changes in topography can have significant impacts on local fire behavior, and you should be most concerned with fire behavior as local as where your house is.

House built on the edge of a slope with an excellent safety zone



If a house is built on, next to, or closer than 10 metres to the edge of a slope, the Home Priority Zone will need to be wider and extend farther down hill, away from the home. This will create a larger, reduced fuel area that the fire will have to move through as it burns uphill towards the house. The longer and steeper the slope around the house, the more the landscaped safety zone should be expanded.

In the Manitoba Region, evergreens are the most flammable tree types and are known to carry crown fire and burning embers up to 1.6 kilometres ahead of the fire front.

"...DRY, BURNING LEAVES IN A PILE CAN EASILY BE PICKED UP AND CARRIED BY THE WIND, AND CAN ALSO ACCUMULATE AGAINST VULNERABLE SPACES ON A HOUSE ..."



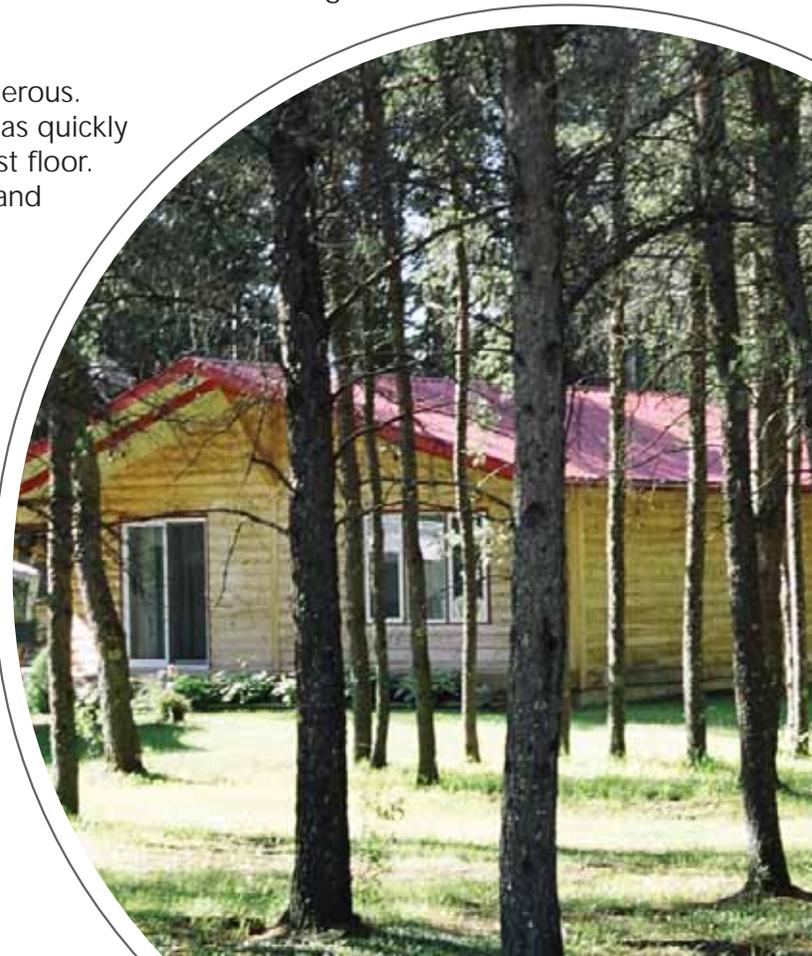
FIRESMART PLANT
MOSS PHLOX - *Phlox subulata*

A perennial forming evergreen mats of needle-like foliage covered by lots of flowers in various shades of pink, purple or white that bloom from March to June.

If the home is surrounded by evergreens or is built in the middle of a plantation, thin the trees and keep them pruned and free of dead wood out to 100 metres from the home. Remove any dead standing trees. These trees can turn into "chimneys," spewing hot firebrands (ex: burning pine cones or leaves) high into the air. A house fire is possible if firebrands accumulate on a roof, in rain gutters, under a deck, or along the house foundation.

Raking leaves into the woods can also be dangerous. Leaves in large, deep piles do not decompose as quickly as a natural accumulation of leaves on the forest floor. Dry, burning leaves in a pile can be picked up and carried by the wind, and can also accumulate against vulnerable spaces on a house. Keep in mind that most significant wildfires in the Manitoba region occur on days with intense winds.

Outside of the Home Priority Zone, fire can essentially burn unabated without causing a home to ignite. However, it is important to note that most homes do not burn from high intensity fires. Most of the homes lost to wildfire burn either from surface fires in the wake of the main fire front, or from the accumulation of windblown firebrands in advance of the fire. Simply put, "FireSmart" landscaping and maintenance is critical.





FIRESMART PLANT
 BEARBERRY - *Arctostaphylos uva-ursi*

A popular ground cover whose name comes from the grape-like fruit it produces. It produces clusters of small, white to pink, urn-shaped flowers that bloom from May to June. The fruit is bright red to pink that will persist on the plant into early winter, and are eaten by a few species of songbirds and game animals.

Conflicting Values, Desires and Laws

Some of the "FireSmart" recommendations presented here obviously conflict with other values or desires that people have when living in the country or planning for that dream vacation cottage. These include a sense of privacy, the feeling of living or vacationing in a natural landscape, the sense of getting away from it all and not spending a lot of time maintaining the yard and surrounding areas. Common questions might include:

TREE SPECIES	FLAMMABILITY
Aspen	Very Low
Birch	Low
Maple	Very Low
Poplar	Very Low
Elm	Very Low
Black spruce	Very High
White spruce	High
Jack pine	High
White pine	Medium
Red pine	Medium
Eastern White cedar	Medium
Balsam fir	Very High
Tamarack (Larch)	Low
Bur Oak	Very Low
Green Ash	Very Low
Basswood	Very Low
Eastern Cottonwood	Very Low
Peachleaf Willow	Low
Large-tooth Aspen	Low

- 
 If the house is near a lake, is it possible to cut down trees and still maintain a natural and healthy shoreland buffer?

- 
 What happens if the property borders on, or includes a native prairie with grasses naturally prone to fire?

- 
 Is it right to keep some trees on the property if they are highly flammable evergreens?

- 
 Does cutting down trees interfere with energy conservation goals?

In other cases, efforts to protect a home from wildfires can conflict with provincial, municipal and provincial park laws. A discussion with the town, city, municipal or Conservation office is a good place to start to answer questions as to what can and cannot legally be done on the property.



FIRESMART PLANT
 WINTERGREEN - *Gaultheria procumbens*

A low woody ground cover with shiny dark green leaves which turn reddish with the advent of cold weather. Small bell-shaped white to pink flowers are produced from June to August, followed by red berries in the fall that may persist through the winter. This leathery perennial has creeping underground stems thus forming small colonies of plants.

Working with Prairies

For those living among native ecosystems that are adapted to occasional wildfires, there are ways to maintain these systems and still protect a home. Restoring prairies has become popular but landowners need to keep in mind that this is a fire-prone ecosystem. Breaking up large blocks of prairie around a home into smaller blocks, will minimize very damaging surface fires. Additionally, focusing on wildflower plantings over grasses, the small blocks of prairie around the house will be even less hazardous and more like gardens. Finally, seeding prairies with species that leave a smaller fuel load on the ground in the fall and spring will reduce the severity of prairie fires. Fire guarding your home with a mineral soil fireguard will also assist in protecting your home.



"... KEEP YOUR ROOF AND RAIN GUTTERS FREE OF FLAMMABLE LEAVES, PINE AND SPRUCE NEEDLES, AND OTHER DEBRIS THAT CAN BE IGNITED BY WIND BLOWN SPARKS AND EMBERS..."

Managing Evergreen Forests

Many new homeowners build within evergreen forests and then struggle with maintaining the aesthetic nature of the forest in while protecting their home. Reducing the number of trees around the house and pruning the remaining to reduce ladder fuels is recommended for fire protection, but changes the habitat for wildlife and the overall character of the property. However, pruning a few select trees only and leaving scattered full trees will still provide cover and screening while reducing the danger. Cutting down trees around the house helps keep large fires from burning right up to the foundation and above the roof. Removing most of the trees very close to the house and gradually removing fewer and fewer trees as you move away from the house will help maintain a natural look while reducing the fire threat.

To reduce the visual impact of cut down trees, use a staggered pattern for tree removal (rather than removing blocks of trees) leaving enough trees to maintain a forest character. Further, replacing some evergreen trees with deciduous trees will increase the visual and biological diversity of the stand and reduce the risk of wildfires.



Energy Conservation Issues

Planting trees near homes has long been advocated for energy conservation reasons. Trees, especially deciduous trees, provide shade in the summer while allowing sunlight to filter through in the winter. Maples are a preferred species for this task because their crowns are very dense and provide the best shade. They are also less of a fire hazard compared to oak and birch trees that have flakey or paper-like bark. Energy conservation does not have to conflict with wildfire protection if some simple guidelines are followed:

- 🌿 If planting close to the house seems necessary, plant on the south side of the home because the south side will help retain moisture in an otherwise dry area.
- 🌿 Plant deciduous trees, not evergreens.
- 🌿 Prune any sprouts from the base of the trees.
- 🌿 Rake and remove fallen leaves away from the home.

"... KEEP ALL FIREWOOD AT LEAST 10 METRES FROM ALL STRUCTURES, INCLUDING DECKS..."

Remember, with a little thought and effort, protecting a home from wildfire does not have to conflict with other goals, and can enhance the beauty and diversity of the property.

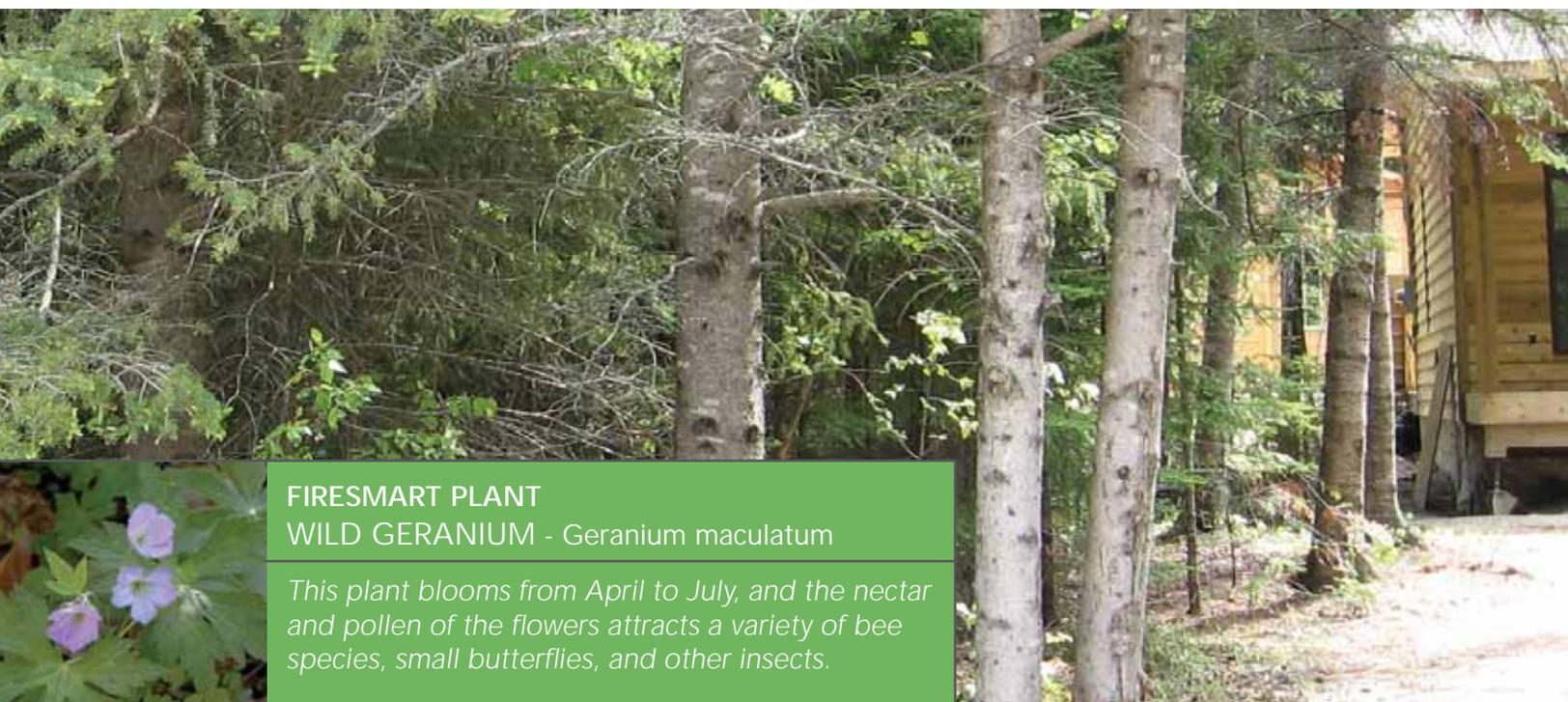
Looking Beyond the Property Line

When considering wildfire danger, it is also important to consider how the community as a whole fits into the surrounding landscape.

- 🌿 Is there a history of wildfires in the area, and what causes them?
- 🌿 If a wildfire were to start, in which direction would the prevailing winds likely push the fire?

In many localities, good fire prevention requires co-operation among neighbours.

"Ladder fuels" on neighbouring land could create a crown fire close to the home in dry weather.



FIRESMART PLANT
WILD GERANIUM - *Geranium maculatum*

This plant blooms from April to July, and the nectar and pollen of the flowers attracts a variety of bee species, small butterflies, and other insects.

- 🍃 Are there large areas, forests or pine plantations located around the community?
- 🍃 What is the nature of the surrounding topography?
- 🍃 Would firefighters be limited in their ability to reach your home due to area lakes, rivers or marshlands?

Consider the management of the surrounding lands. Are the forests, grasslands, and marshlands in the area actively managed to keep the landscape healthy and productive? If not, you may want to contact neighboring landowners to encourage them to use fuel reduction techniques to reduce wildfire risk.

"...TALK TO NEIGHBOURS ABOUT WILDFIRE SAFETY AND MAKE A PLAN TO WORK TOGETHER TO REDUCE THE WILDFIRE RISK..."

Cooperation Between Neighbours

Residential developments within the wildland-urban interface often include a higher density of housing than typically found in more rural areas. In these cases, an individual's home ignition zone might overlap that of a neighbour's. In these developments, if one property owner does everything possible to improve the condition of the property and the neighbour does nothing, the neighbour's fuel load might be enough to cause the loss of both homes. Talk to neighbours about wildfire safety and make a plan to work together to reduce the wildfire risk. Wildfire does not pay attention to property lines!

Some housing developments include areas of wildland vegetation commonly owned by everyone in the development. These could be wooded areas between houses or greenbelts on the outskirts of a neighbourhood. These greenbelts are kept open around a community to create a boundary for development while preserving natural, agricultural, recreational, and scenic values beyond the developed area.

Work with neighbours or a neighbourhood association to keep these common areas thinned, pruned, and healthy. If these areas are left unmanaged and fill in with dense vegetation or down and dead wood, the overall wildfire hazard of the community greatly increases. Ideally, fuel reduction practices are built into subdivision covenants.



FIRESMART PLANT NINEBARK - *Physocarpus opulifolius*

A common native shrub that produces flowers and fruit from May to July. The clusters of white flowers in the spring are an excellent nectar source, and the red fruits in the autumn are eaten by many species of birds.





REPORT WILDFIRES - 1-800-782-0076

For all other fires call - 911 or your local emergency number.

FOR MORE INFORMATION CONTACT:

Office of the Fire Commissioner

508 - 401 York Ave.

Winnipeg, MB R3C 0P8

Telephone: 204-945-3322

Fax: 204-948-2089

Toll Free: 1-800-282-8069

Email: firecomm@gov.mb.ca

Manitoba Conservation

Fire Program:

Box 10-200 Saulteaux Cres.

Winnipeg, MB R3J 3W3

Telephone: 204-945-7786

Fax: 204-945-7782

Email: hqfire@gov.mb.ca

