

Canadian Forest Products Limited

Grande Prairie

FireSmart Management

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Completed By:

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Wildfire Management Branch**

Introduction

The aim of wildfire management is to balance the ecological role of fire while protecting human life, communities, watersheds and sensitive soils, natural resources, and infrastructure. The intention of the Alberta FireSmart program is to integrate fire, forest management, land management and community protection planning through a broad risk and resource management approach.

The goal of FireSmart forest management planning is to create a landscape in which catastrophic fire is minimized. This is accomplished through a combination of:

- Reducing the fire behaviour potential
- Reducing the exposure of values at risk to fire
- Targeting harvest to locations with problematic forest fuel types
- The consideration of species conversion reduced stand stocking densities and reduced coarse woody debris retention in locations harvested near communities.
- Ensuring linkages to other Fire Smart strategies—such as Community Wildfire Mitigation Strategies

FireSmart landscapes are managed with the recognition of the interaction between the ecological, economic, and social impacts of fire while identifying opportunities for the use timber harvest and other disturbance strategies to meet landscape management objectives.

In order to meet FireSmart objectives, forest management activities in the Canadian Forest Products Ltd. (Canfor) FMA should:

- Comply with provincial forest protection legislation, policy, and directives.
- Apply feasible FireSmart strategies within the FMA.
- Reduce the likelihood of large high-intensity, high-severity fires through the use of timber harvest targeting older age classes adjacent to values at risk.
- Ensure consultation with the public and stakeholders has occurred.

The Canadian Forest Products Ltd. Landscape - Natural Subregions and Forest Fuel Types

Natural Sub Regions

The Canfor FMA is comprised of six Natural Subregions (NSR). These include the Central Mixedwood and Lower Foothills, Upper Foothills, Subalpine, Montane, and Dry Mixedwood Natural Subregions (Figure 1).

The Central Mixedwood NSR and Lower Foothills NSR cover most of the FMA. The Central Mixedwood and Lower Foothills are characterized by the following attributes (Tymstra, Wang and Rogeau, 2005):

- Areas with infrequent large fires and frequent small wildfires. (Central Mixedwood)
- Lightning-caused wildfires during the summer months (more frequent in the Central Mixedwood compared to the Lower Foothills).
- Human caused wildfires—spike in the spring prior to aspen and poplar green-up which usually occurs in late May. (Central Mixedwood and Lower Foothills)
- Frequent, medium sized wildfires. (Lower Foothills)

The Upper Foothills NSR covers the southern portion of the Canfor FMA. This area has similar wildfire characteristics to the Lower Foothills NSR.

The Subalpine NSR covers a small portion of the Canfor FMA. The Subalpine NSR is dominated by coniferous vegetation and the number of wildfires peaks in August (Tymstra, Wang and Rogeau, 2005). In general, this area has an infrequent small wildfire regime with the odd large, high intensity wildfire (Tymstra, Wang and Rogeau, 2005)

The Montane NSR has a general fire regime of frequent, small human-caused fires. Wildfires in this NSR peak in spring—likely due to the pine, leafless aspen and grass fuels.

The Dry Mixedwood NSR is associated with the northernmost portion of the Canfor FMA. This NSR is associated with human-caused fires in the spring which are usually small in size due to effective wildfire suppression.

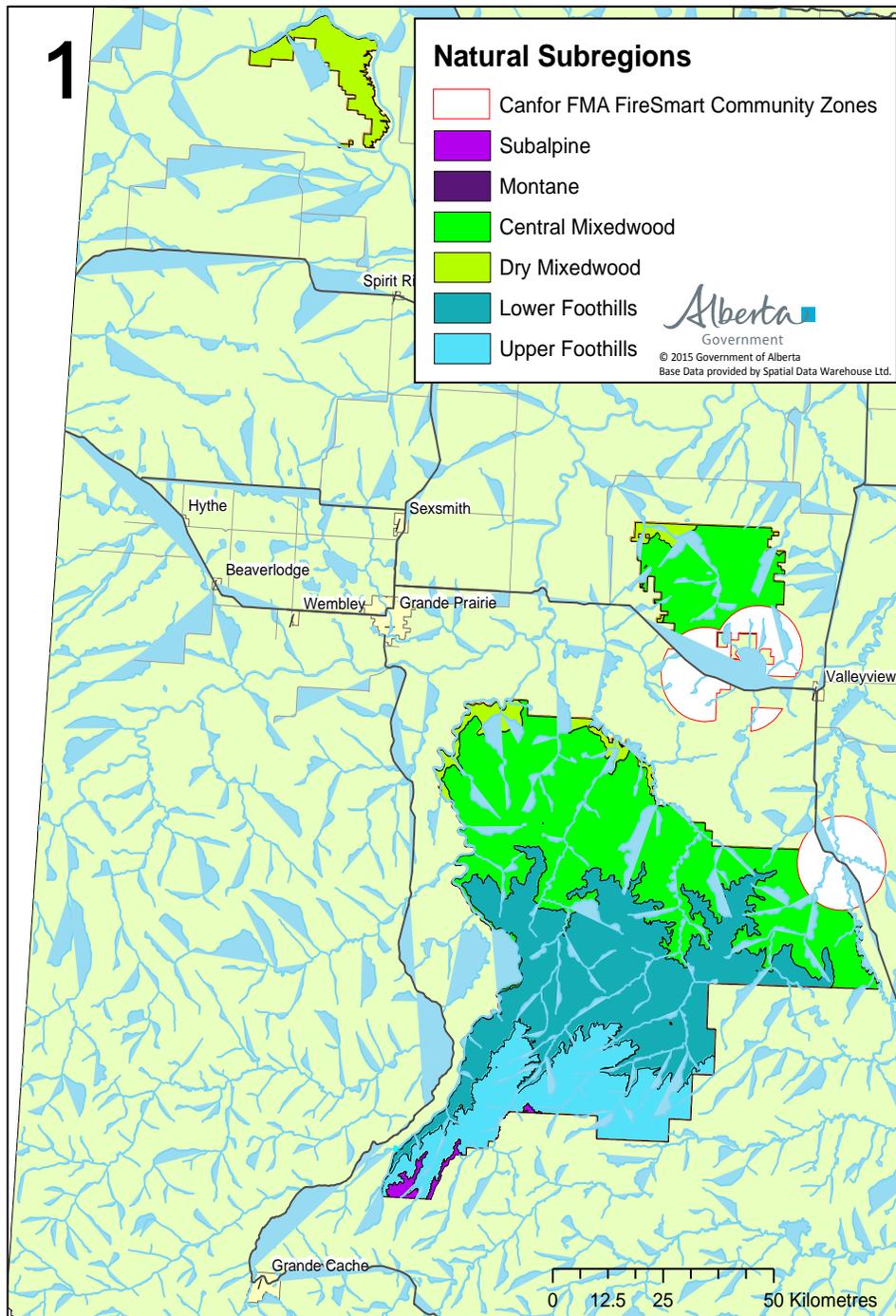


Figure 1. Natural Subregions.

Forest Fuel Types

The three most common Canadian Forest Fire Behaviour Prediction (FBP) fuel types occurring in the FMA are C2 – Boreal Spruce (134,552 hectares) and O1 – Grass (91,258 hectares) and D1/D2 Aspen. There are also a large portion of mixedwood stands (M1/M2) with 50 percent to 80 percent conifer (147,124 hectares) and a significant area of C3 Mature Lodgepole Pine (38,724 hectares).

Based on recommendations contained in the *Flat Top Complex Wildfire Review Committee Final Report* (2012), the following (Recommendation 4) should be considered on Canfor FMA lands adjacent to communities:

“Accelerate fuel management treatments near communities in forested areas that are at risk from wildfires. Priority should be given to thinning or conversion of coniferous stands, particularly black spruce, which threaten community developments.”

There are two FireSmart Community Zones which have portions occurring on the Canfor FMA. These zones include (Figure 2):

- Sturgeon Lake-Clarkson Valley FireSmart Community Zone
- Little Smoky FireSmart Community Zone

Canfor should consider the harvest of coniferous stands early in the spatial harvest sequence which are located in FireSmart Community Zones or which are located adjacent to communities where there may not be formal FireSmart Community Zones.

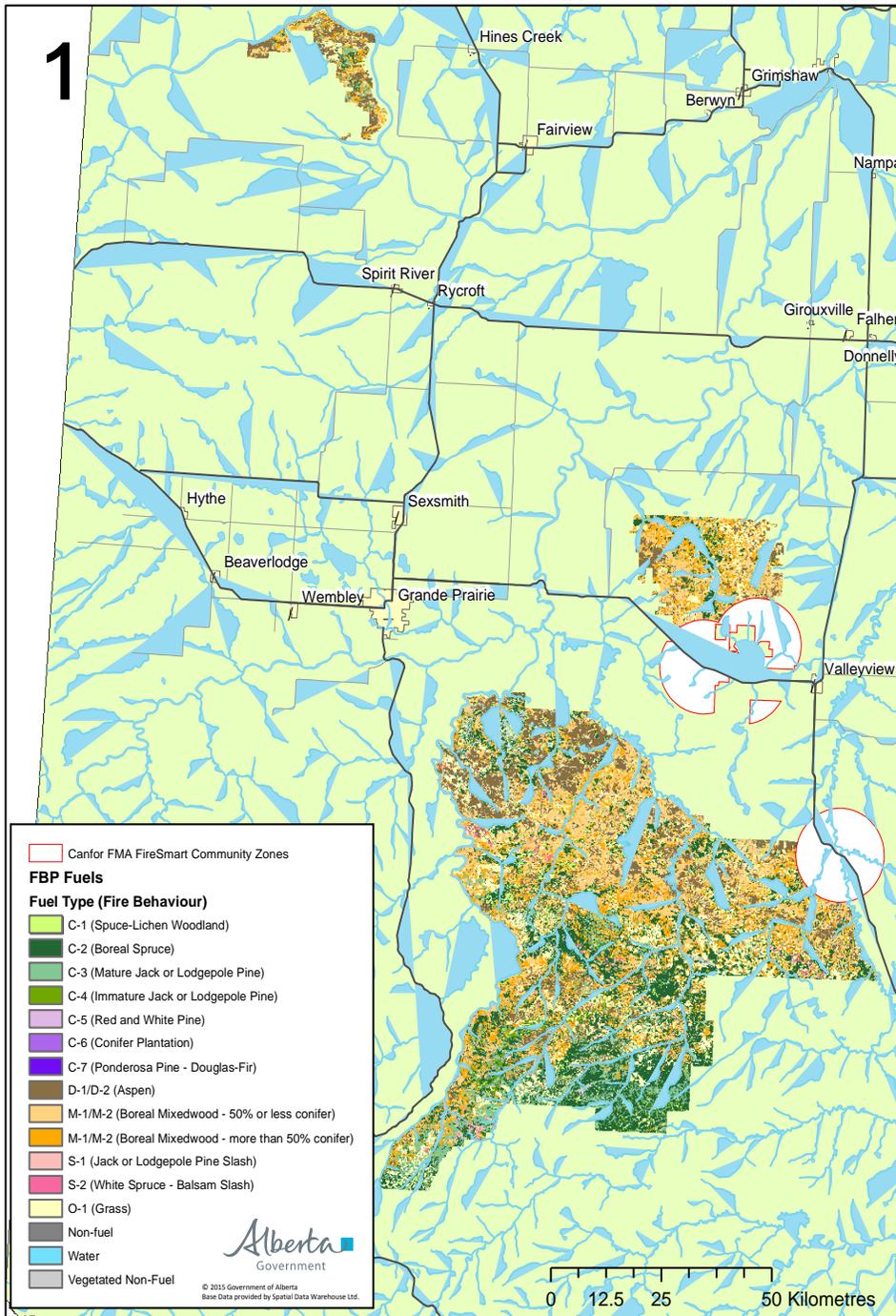


Figure 2. Canadian Forest Fire Behaviour Prediction System (FBP) Fuel Types.

Wildfire Threat Assessment – Fire Behaviour Potential

The Wildfire Threat Assessment Model (WTA Model) allows an analysis of what influence the preferred forest management strategy will have in achieving wildland fire management objectives on both the current and future forest states in the FMA.

The WTA Model is a spatial model which is used to rate the susceptibility of an area to the negative impact of wildfires. The WTA Model is an ArcGIS application which combines several data layers into one layer representing the final wildfire threat rating. Each of the underlying layers is weighted according to pre-determined parameters.

The FireSmart objective for the preferred forest management strategy is to reduce the overall wildfire threat potential in the Canfor FMA through:

- Reducing the fire behaviour potential
- Reducing the exposure of values at risk to fire
- Targeting harvest to locations with problematic forest fuel types
- The consideration of species conversion reduced stand stocking densities and reduced coarse woody debris retention in locations harvested near communities.
- Ensuring linkages to other Fire Smart plans and strategies—such as Community Wildfire Mitigation Strategies

Wildfire Threat Analysis –Fire Behaviour Potential and Community Zone Detailed Fuels Analysis

The wildfire threat analysis for the Canfor FMA focused on the spring season as it is the season in which the greatest area of high to very high fire behaviour potential occurs (Figure 3 and Figure 4). The analysis was done both for the entire FMA and for the FireSmart Community Zones occurring on the FMA.

This output used forest fuel types, head fire intensity at the 90th percentile and crown fraction burn predictions as inputs. Fire behaviour potential was run for the current forest state.

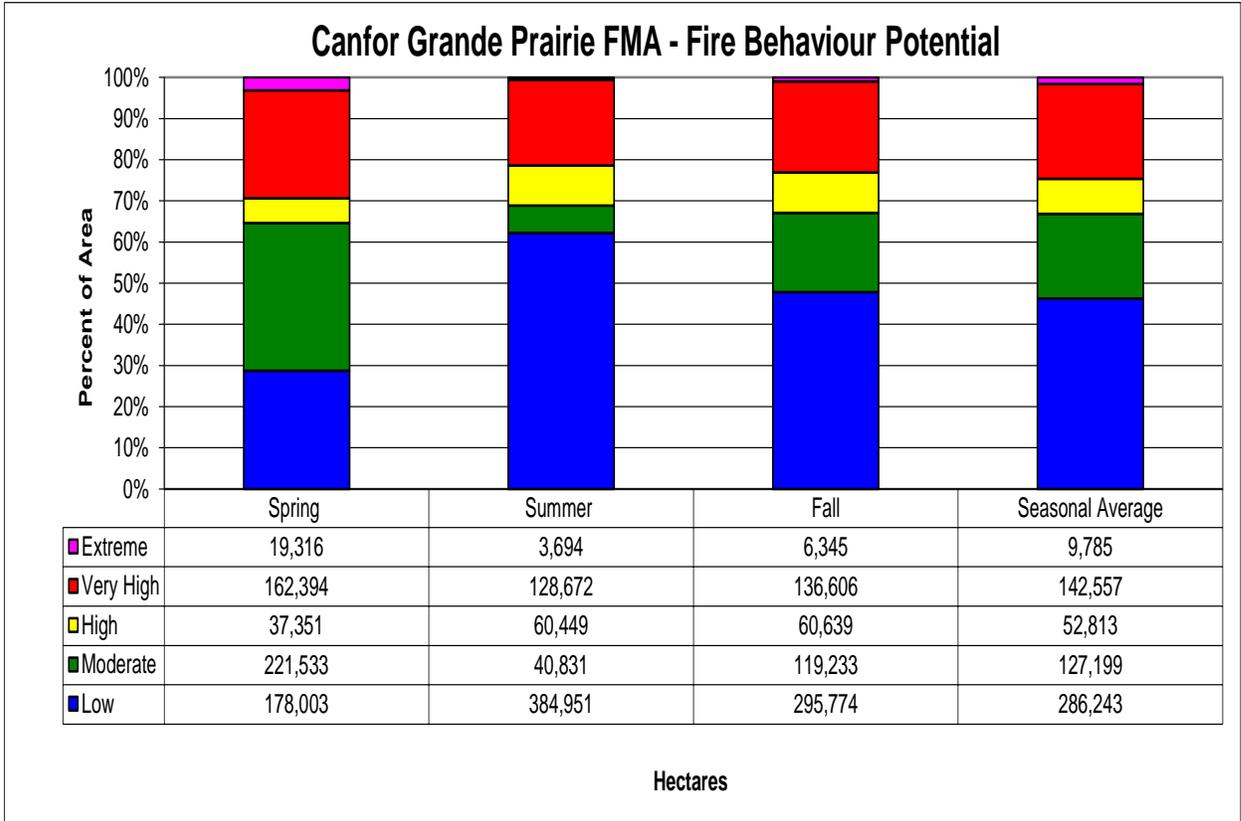


Figure 3. Canfor FMA Base Fire Behaviour Potential for the entire FMA.

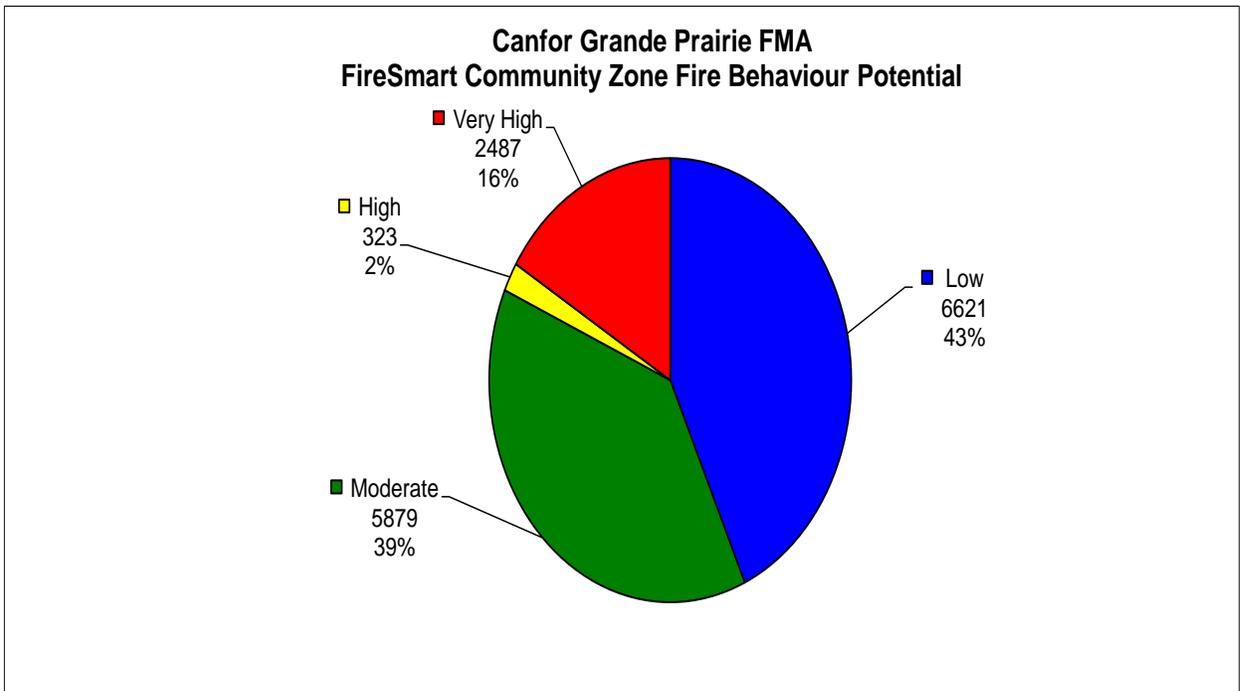


Figure 4. Canfor FMA FireSmart Community Zones Base Fire Behaviour Potential for the Community Zones clipped out of the FMA. Area (hectares) and percent are displayed in the figure.

Hazardous Fuels Assessment –Conifer Stands

Two assessments using the current FBP layer were completed for the Canfor FMA. The first focused on all of the coniferous stands located throughout the FMA. The second analysis consisted of isolating the coniferous and M1/2 > 50 % conifer composition located in the FireSmart Community Zones. Maps are included.

Recommendations – Canfor and FireSmart

The following recommendations pertain to FireSmart Activities within the Canfor FMA:

- Harvest should align with community protection objectives and Grande Prairie Wildfire Management Area Wildfire Mitigation Strategies. Sequencing within FireSmart Community Zones should occur early within the SHS (subject to merchantability of timber).
- Instead of percent reduction in the various fire behaviour potential categories, the locations where harvest occurs and the FBP fuel types targeted should be utilized as an input into SHS development.
- Species conversion reduced stand stocking densities and reduced coarse woody debris retention in locations harvested near communities should be considered.
- Mountain Pine Beetle infected stands should also be given priority from a FireSmart perspective to mitigate the amount of MPB kill trees left on the FMA.

References

Tymstra, C., D. Wang, and M-P. Rogeau. 2005. Alberta wildfire regime analysis. Alberta Sustainable Resource Development, Forest Protection Division, Wildfire Policy and Business Planning Branch. Wildfire Science and Technology Report PFFC-01-05.