



Pest Management Plan BCTS-PG-PMP 16/21

May 1, 2016 – April 30, 2021
Forest Vegetation Management within the
Prince George Natural Resource District

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1.0 INTRODUCTION

1.1 Purpose

The mandate of this Pest Management Plan (PMP) is to implement a proactive program of identification, prevention and monitoring of pests (herbs, shrubs and deciduous trees) while carrying out sound silviculture practices. This PMP, within the Integrated Pest Management (IPM) legislative framework, will facilitate the fulfillment of BC Timber Sales' silviculture obligations as required by the Forest and Range Practices Act, the Forest Practices Code of British Columbia Act, and associated regulations.

BC Timber Sales aims to carry out vegetation management activities to meet the following objectives:

- ▶ To establish free growing crop trees on a disturbed area in a cost effective manner with full consideration of human safety and social, environmental, and cultural values.
- ▶ To control competing vegetation or brush encroachment on young tree seedlings.
- ▶ To establish a clear decision making process that sets standards for timely and effective treatments.
- ▶ To promote the use of integrated vegetation management that minimizes vegetation pest problems and reduces the need for the use of herbicides.
- ▶ To promote reforestation of well-stocked stands and valuable tree species that support the future timber supply.
- ▶ To provide an open forum for public participation concerning PMP development and content.

2.0 GEOGRAPHIC BOUNDARIES AND CONTACTS

2.1 Geographic Boundaries

This Pest Management Plan is for Crown land areas within the Prince George Natural Resource District, which forms part of the BCTS Prince George Business Area (see Appendix I for a map of the PMP area). This PMP covers a general area from Cottonwood River in the south to McLeod Lake in the north, and from Bednesti Lake in the west to Hugh Allen Creek in the east. This area includes the communities of Hixon, McLeod Lake, Willow River, Giscome, Bear Lake, Upper Fraser, McBride, Dunster, Valemount, and Crescent Spur.

2.2 Term

This PMP will be in effect from May 1, 2016 to April 30, 2021.

2.3 Contacts

Ian R. Hamann, P. Eng, RPF (Responsible for managing pests on behalf of BC Timber Sales- PGBA)
Timber Sales Manager
BC Timber Sales – Prince George Business Area
Telephone: (250) 614-7400

Larry Fielding, RPF (Primary Contact)
Woodlands Supervisor
BC Timber Sales – Prince George Business Area
Telephone: (250) 614-7400
Email: Larry.Fielding@gov.bc.ca

Mailing address:
BC Timber Sales
2000 South Ospika Boulevard
Prince George, BC V2N 4W5

3.0 INTEGRATED PEST MANAGEMENT

3.1 Prevention

Integrated Pest Management is a strategy focusing on long term prevention of pests or their resultant damage. Preventing vegetation from becoming a pest is an important component of this PMP. The following defines the existing management strategies and commitments of BC Timber Sales silviculture program for preventing vegetation from becoming a pest.

Prediction (planning):

The Forest and Range Practices Act stipulates that a Site Plan (SP) be prepared for each cut-block to be harvested. Similar plans known as Silviculture Prescriptions were developed under pre-existing legislation. A Site Plan defines management strategies for all aspects of forest operations including harvest plan information, site assessment, maximum soil disturbance, results or strategies, retention requirements, and other critical factors.

Blocks are generally stratified using the Biogeoclimatic Ecological Classification system during the development of the SP. Site specific data (vegetation and species distribution, expected brush hazard, and moisture and nutrient status) coupled with knowledge of how vegetation responds to harvest on a given ecotype is used to predict a potential pest problem and prescribe mitigating measures. Preventative measures include site preparation, species selection, stock type selection, harvest timing, planting timing, and variations of stocking standards.

Stocking standards:

Stocking standards currently utilized by BC Timber Sales are approved under a Forest Stewardship Plan or a Forest Development Plan. Approved variations from these standards may be applied for standard units having site limiting factors.

Site preparation:

The intent of site preparation is to reduce the impacts of growth limiting factor(s) that might inhibit seedling establishment or growth potential and/or to encourage the natural regeneration of trees. The need for site preparation is usually identified at the prediction stage of the SP and verified during a post-harvest assessment.

Figure 1.0 OBJECTIVES OF SITE PREPARATION

Limiting Factor	Site Preparation Method
Reduce established vegetative competition	Mechanical, Manual, Chemical, Prescribed Burning
Improve soil temperature	Mechanical, Prescribed Burning
Improve soil moisture and aeration	Mechanical
Reduce slash loading/increase no. of plantable spots	Mechanical, Prescribed burning
Improve drainage	Mechanical
Encourage natural regeneration of trees	Mechanical, Prescribed Burning

Planting:

The use of stock with high genetic worth for reforestation operations will ensure better survival and performance of planted seedlings. BC Timber Sales will continue to plant with high quality and improved stock.

Species selection:

Species selection will be made based on the ecological suitability of a species to the specific site conditions present on an area. Additional considerations include immediate and long term forest health factors, future forest products, volume and value, climate change, and consistency with the Timber Supply Analysis.

Stock type:

Successful seedling establishment also requires the appropriate choice of stock type. Sites will be evaluated and appropriate stock type selected on the basis of competitive species, distribution and ability of seedlings to compete with present and potential competing vegetation, and the ability of seedlings to establish themselves on the soil type found on-site.

Microsite selection:

Optimum crop tree growth is achieved through the selection of appropriate microsites. Traditionally, planting carried out by BC Timber Sales has involved planting in mineral soil on raised microsites. Where duff and humus is shallow, planting without screening may be carried out, to enable seedlings to use nutrients that are available in the organic-rich soils layers.

Planting timing:

In order to ensure seedling survival, establishment, development and the ability to compete with associated vegetation, timing of reforestation activities on sites having high to very high brush hazards is critical. This may also preclude the need to carry out a brushing treatment. Where stock availability, slash loading, plantability, and other logistics allow, planting will be completed within two growing seasons of harvesting activities.

3.2 Identification

The Integrated Pest Management Act defines “pest” as an injurious, noxious or troublesome living organism, but does not include a virus, bacteria, fungus or internal parasite that exists on or in humans or animals. For the purposes of vegetation management activities under this integrated Pest Management Plan, the term “pest” refers to herbaceous, shrub and broadleaf (deciduous) complexes or communities that:

- ▶ Inhibit plantation establishment;
- ▶ Hinder optimal growth and development of crop trees;
- ▶ Prevent a stand from achieving free growing;
- ▶ Affect an established plantation’s overall health; or,
- ▶ When combined with snow, causes damage to crop trees by snow press.

For the purpose of this PMP, vegetation is divided into three possible competing vegetation communities.

- 1) **Herbaceous plants (vegetation community A):** Herbaceous species predominately compete with newly planted seedlings for light and commonly contribute to vegetation and snow press. Species found in areas within this PMP include, but are not limited to: fireweed (*Epilobium angustifolium*), grass (*Calamagrostis* spp.), wood fern and lady fern (*Dryopteris* spp.).

- 2) **Shrubs (vegetation community B):** Shrubs can be divided into two categories: low and high. Low shrubs are woody plants that typically grow to be less than 1.5 metres in height, whereas high shrubs tend to typically grow to heights taller than 1.5 metres.
- ▶ **low shrubs:** Include, but are not limited to: thimbleberry (*Rubus parviflorus*), black twinberry (*Lonicera involucrata*), white flowering rhododendron (*Rhododendron albiflorum*), prickly rose (*Rosa acicularis*), red elderberry (*Sambucus racemosa*), and red raspberry (*Rubus idaeus*).
 - ▶ **high shrubs:** These include, but are not limited to: alder (*Alnus* spp.) and willow (*Salix* spp.). Alder is commonly found in many mature stands within the PMP area. After harvest, alder can potentially be a significant competitive species depending on the ecology, distribution and density throughout the site, and may negatively impact seedling establishment and development.
- 3) **Broadleaf (Deciduous) trees (vegetation community C):** Species include, but are not limited to: trembling aspen (*Populus tremuloides*), cottonwood (*Populus balsamifera*) and paper birch (*Betula papyrifera*). Many forest stands have a minor component of mature aspen. A moderate to very high brush hazard from aspen may occur after harvest of stands with a component of aspen due to root suckering. Plantations with greater than 1000 stems per hectare (SPH) of evenly distributed aspen, cottonwood, birch are considered to have a potential brush hazard. Lower densities can be a brush hazard if their presence impacts seedling development.

The chief reference for identification of these species and other plants commonly found within the PMP area is Plants of Northern British Columbia, (Mackinnon, Pojar, Coupé, 1999).

3.3 Monitoring

Harvested blocks and plantations are evaluated on a regular basis. Each block, stratum and microsite presents a unique environment for brush ingress. Properly timed and thorough surveys are essential in identifying and addressing problems which may affect the survival, and or growth of crop trees or restrict the achievement of a free growing plantation.

Surveys and walkthroughs are scheduled throughout the plantations' development in order to ensure that stocking and brush levels are acceptable and that free growing parameters will be achieved within the appropriate time frame. The data and information collected during the surveys includes, but is not limited to the following: density of the vegetation, height of the crop trees, height of the brush species, type of brush species, and the affect the brush is having on the crop trees.

The normal monitoring regime is:

- ▶ **Pre-harvest stage:** Pre harvest brush assessments are performed while reviewing Site Plans. Evaluation and recommendation for pre-harvest vegetation management is initially assessed at this stage.
- ▶ **Year 0:** Post-harvest assessments to determine the plantability of an area, the necessity of site preparation, stock type selection, verification of the brush hazard of an area, and to verify the Site Plan.
- ▶ **Years 1-4:** A regeneration delay survey is completed at the time of planting to ensure that regen delay has been met. A survival survey is completed one to two years after planting to evaluate survival and crop tree performance. Both surveys include an assessment of brush.
- ▶ **Years 5-8:** Regeneration surveys/walkthroughs and/or brush assessments (detailed site assessments) to determine the level of stocking and the need for brushing treatments.
- ▶ **Years 9-20:** Free growing surveys to determine whether free growing requirements have been met.

3.4 Injury Thresholds

Decision Thresholds - Herbaceous and Shrub

Thresholds will be based on whether competing vegetation meets the criteria as outlined in Section 3.2. Each block that is considered for vegetative management will have a brush assessment completed, and stocking levels and crop tree performance assessed. These assessments will be reviewed and approved by a qualified forest professional.

Decision Thresholds - Broadleaf

Conifer release from broadleaf trees may be required to reduce suppression or increase growth rates to meet free growing requirements. Specific thresholds with respect to treatment of deciduous are difficult to quantify. The following thresholds provide guidance:

- ▶ Distribution of deciduous species in an area > 1.0 hectare that results or may result in less than the minimum number of required free growing stems and where without treatment, free growing obligations may not be met.
- ▶ Deciduous species encroaching upon the effective growing space of crop trees where distribution and/or density may result in mortality or the suppression of crop trees.

3.5 Treatment Options

Pest control methods are selected and applied in an effective and economical manner that minimizes risks to human health, beneficial and non-target organisms, and the environment. There are currently 14 options that could be utilized for treating vegetation complexes. One or a combination of the following methods may be utilized during the term of this PMP:

Manual and Biological Methods

- ▶ Girdling
- ▶ Snap / Hinge
- ▶ Mechanical Brushing and Weeding (Saw)
- ▶ Manual Brushing and Weeding (Hand)
- ▶ Brush Mats
- ▶ Sheep Grazing
- ▶ Prescribed Burning
- ▶ Cut Stump with a Bioherbicide
- ▶ Mechanical Site Preparation

Chemical Methods

- ▶ Aerial (Broadcast and/or Discretion)
- ▶ Backpack (Broadcast)
- ▶ Backpack (Directed Foliar)
- ▶ Basal Bark
- ▶ Cut Stump with a Herbicide

Figures 2.0 and 3.0 represent the primary treatments and influencing factors governing those treatments to be used by BC Timber Sales in its vegetation management activities under this PMP.

Figure 2.0 HERBICIDE and BIOLOGICAL HERBICIDE METHODS

HERBICIDE APPLICATION METHODS					
	Aerial Broadcast and Pilot Discretion (glyphosate)	Backpack Broadcast and Directed Foliar (glyphosate)	Basal Bark (triclopyr)	Cut Stump (glyphosate)	Cut Stump (biological herbicide)
Target Vegetation	<ul style="list-style-type: none"> Herbaceous Shrubs Deciduous 	<ul style="list-style-type: none"> Herbaceous Shrubs Deciduous 	<ul style="list-style-type: none"> Deciduous 	<ul style="list-style-type: none"> Shrubs Deciduous 	<ul style="list-style-type: none"> Shrubs Deciduous
Efficacy	<ul style="list-style-type: none"> 2-4 years 	<ul style="list-style-type: none"> 2-4 years 	<ul style="list-style-type: none"> 4+ years 	<ul style="list-style-type: none"> 4+ years 	<ul style="list-style-type: none"> Poor efficacy on deciduous. Moderate reduction of resprouting and regrowth on shrubs.
Method of Application	<ul style="list-style-type: none"> Using an aerial boom mounted on a helicopter, small droplets of herbicide are applied to the leaves of target vegetation. 	<ul style="list-style-type: none"> Using a backpack sprayer, workers on the ground apply herbicide to the leaves of target vegetation. 	<ul style="list-style-type: none"> Using a backpack sprayer, workers on the ground apply herbicide to the lower part of the stem to form a band approximately 5cm in width. 	<ul style="list-style-type: none"> Workers on the ground cut down the target vegetation. Then using a backpack sprayer, squeeze bottle, or nozzle mounted to the saw, herbicide is applied to the stump. 	<ul style="list-style-type: none"> Workers on the ground cut down the target vegetation. Then using a squeeze bottle, biological herbicide is applied to the stump.
Worker Safety	<ul style="list-style-type: none"> Minimal exposure to herbicide application. Proper safety gear required. 	<ul style="list-style-type: none"> Exposure to herbicide. Proper safety gear required. 	<ul style="list-style-type: none"> Exposure to herbicide. Proper safety gear required. 	<ul style="list-style-type: none"> Exposure to herbicide. Use of dangerous tools & saws. Proper safety gear required. 	<ul style="list-style-type: none"> Exposure to herbicide. Proper safety gear required.
Effects on Wildlife	<ul style="list-style-type: none"> Mammal populations: reduced cover in the short term. Limited effect on food supply. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Mammal populations: reduced cover in the short term. Limited effect on food supply. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Mammal populations: limited effect on cover in the short term. Limited effect on food supply. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Mammal populations: limited effect on cover in the short term. Limited effect on food supply. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Mammal populations: no reports of adverse effects on birds or mammals.
Effects on Fish	<ul style="list-style-type: none"> Adequate PFZ required. 	<ul style="list-style-type: none"> Adequate PFZ required. 	<ul style="list-style-type: none"> Adequate PFZ required. 	<ul style="list-style-type: none"> Adequate PFZ required. 	<ul style="list-style-type: none"> Adequate PFZ required.
Measures for Reducing Hazards	<ul style="list-style-type: none"> PFZ and NWZ required. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area.
Public Concerns	<ul style="list-style-type: none"> Exposure to herbicide Posting of signs and notification. 	<ul style="list-style-type: none"> Exposure to herbicide Posting of signs and notification. 	<ul style="list-style-type: none"> Exposure to herbicide Posting of signs and notification. 	<ul style="list-style-type: none"> Exposure to herbicide Posting of signs and notification. 	<ul style="list-style-type: none"> No known mammalian toxins.

Figure 3.0 MECHANICAL, MANUAL, and BIOLOGICAL METHODS

NON-CHEMICAL METHODS						
	Manual Brushing and Weeding	Mechanical Brushing and Weeding	Mechanical Site Preparation	Prescribed Burning	Girdling/Snap and Hinge	Sheep Grazing
Efficacy	<ul style="list-style-type: none"> < 1 year 	<ul style="list-style-type: none"> < 1 year for herbaceous +/- 2 years for deciduous 	<ul style="list-style-type: none"> 3 – 5 years 	<ul style="list-style-type: none"> 3 – 5 years (if appropriate intensity achieved) 	<ul style="list-style-type: none"> +/- 3 years setback for deciduous if successful 	<ul style="list-style-type: none"> 1 – 2yrs or longer if treatment repeated. Not suitable for alder, tall shrubs/deciduous.
Method of Application	<ul style="list-style-type: none"> Spot treat around crop trees using handheld cutters. 	<ul style="list-style-type: none"> Spot treat around crop trees using brush saws or chainsaws. 	<ul style="list-style-type: none"> Raised microsites created by excavator. 	<ul style="list-style-type: none"> Using fire by ground crews and/or helicopter to apply a controlled burn. 	<ul style="list-style-type: none"> Girdling: removal of a strip of bark to form a band around the lower part of the stem. Snap/hinge: partially breaking smaller stems by hand 	<ul style="list-style-type: none"> Using a flock of sheep to graze competing vegetation.
Worker Safety	<ul style="list-style-type: none"> Repetitive movement. Hard, physical work. 	<ul style="list-style-type: none"> Use of dangerous tools & saws. High risk of injury. Exposure to exhaust fumes. 	<ul style="list-style-type: none"> Use of dangerous machinery. 	<ul style="list-style-type: none"> Use of dangerous tools and machinery. Exposure to smoke and fire. 	<ul style="list-style-type: none"> Repetitive movement. 	<ul style="list-style-type: none"> Generally safe for workers.
Effects on Wildlife	<ul style="list-style-type: none"> Mammals: may reduce mobility and access. May reduce browse and hiding cover in the short term. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Mammals: may reduce mobility and access. May reduce browse and hiding cover in the short term. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Mammals: may reduce mobility and access. May reduce browse and hiding cover in the short term. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Mammals: may reduce mobility and access. May reduce browse and hiding cover in the short term. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Mammals: may reduce mobility and access. May reduce browse and hiding cover in the short term. Birds: reduced cover for nests. 	<ul style="list-style-type: none"> Reduction of local food for native ungulates. Potential for negative interactions with predators such as cougars and bears.
Effects on Fish	<ul style="list-style-type: none"> Adequate buffer required to keep debris out of water course and maintain stream shading. 	<ul style="list-style-type: none"> Adequate buffer required to keep debris out of water course and maintain stream shading. 	<ul style="list-style-type: none"> Adequate buffer required to keep debris out of water course and maintain stream shading. 	<ul style="list-style-type: none"> Adequate buffer required to keep debris out of water course and maintain stream shading. 	<ul style="list-style-type: none"> Adequate buffer required to maintain stream shading. 	<ul style="list-style-type: none"> Adequate buffer required to maintain stream shading. Corrals not to be constructed in riparian management areas.
Measures for Reducing Hazards	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area. 	<ul style="list-style-type: none"> PFZ and NWZ (no work zone) required. Danger trees fallen prior to entering area.
Public Concerns	<ul style="list-style-type: none"> General acceptance of method. 	<ul style="list-style-type: none"> General acceptance of method. 	<ul style="list-style-type: none"> General acceptance of method. 	<ul style="list-style-type: none"> General acceptance. Concerns of smoke do exist. 	<ul style="list-style-type: none"> General acceptance of method. 	<ul style="list-style-type: none"> General acceptance of method.

Treatment Selection

Treatment selection is directly linked to the recommendations from a silviculture survey or detailed site assessment (DSA). The selection process includes a determination of limiting factors and the necessity for treatment through the use of decision thresholds. If a treatment is required, information including treatment objective, target species description, and site limiting factors will be incorporated into the treatment selection process.

Influencing Factors

- ▶ **Target Species Height** – Backpack foliar treatments are typically not appropriate once the height of the target brush species approaches approximately 2 metres in height. Sheep grazing will similarly be constrained by the ability of sheep to reach the foliage.
- ▶ **Target Species Diameter** – While virtually any deciduous tree stem can be girdled, there are upper and lower diameter limits beyond which treatment becomes impractical. These will vary somewhat depending on the species of tree and the type of girdling tool being used. In general, diameters less than approximately 3 cm, or greater than 20 cm, are not suitable for treatment. Manual treatments will have an upper practical limit as diameters approach 10 cm.
- ▶ **Target Species Distribution** – Broadcast foliar treatments are not appropriate if the target brush is distributed only in discrete clumps. Discretionary treatments are not generally appropriate if the target brush is uniformly distributed over the treatment unit.
- ▶ **Physical Impediments to Treatment** – Large numbers of overhead obstacles such as residual trees can preclude aerial treatments. Steep slopes and heavy slash loading can make ground-based treatments such as backpack, manual, mechanical and sheep grazing impractical.
- ▶ **Degree of Constraint of Treatment Due to Required Buffering etc.** – Blocks with many features that require buffering may be impractical to treat chemically. Pesticide free zones, no treatment zones, and buffers may be required for water bodies, wetlands, roads, etc. Some highly constrained units may have little area left treatable once the chemical buffers are in place.
- ▶ **Target Species-Crop Tree Protection Conflict** – Some brush species such as cow parsnip may no longer be susceptible to chemical treatment by the time the crop trees have hardened off sufficiently to avoid chemical damage. This incompatibility may be consistent every year, or it may only apply in certain years when a wet summer has slowed conifer hardening off or when early frosts cause succulent target species to wilt.
- ▶ **Vulnerable Plant Species** – Vulnerable plant species are defined as those plants whose numbers are either limited or are important for browse or forage. The status and distribution of rare plant communities is available from the Conservation Data Centre on line at: www.env.gov.bc.ca
- ▶ **Special Wildlife Features** – Special wildlife features may be identified within some units that will constrain treatment options. Heavy browsing might reduce the need for brushing in an area that had little alternative browse available. Manual and mechanical treatments might be restricted when the slash loads likely to result from the treatment could obstruct a high use game trail. Sheep grazing is opposed by MOE in higher grizzly bear use areas.

- ▶ **Aboriginal Rights Infringement** – When specific information indicates that there is a higher likelihood of treatments infringing on aboriginal rights on a unit, certain treatments may be considered unsuitable, or a buffer/no treatment zone may be implemented. For example, if consultation with a First Nation produced information that a specific site was used for berry-picking, a broadcast chemical treatment would be considered inappropriate.
- ▶ **Potential for Conflict** – Certain features of a proposed treatment unit might indicate that chemical treatment could result in an unacceptable risk of creating conflict with members of the general public, First Nations, local residents or stakeholders. For example, proximity to a residence might result in the choice of a less controversial treatment.
- ▶ **Potential Damage to Crop Trees** – Certain treatments may expose the crop trees in a unit to unacceptable levels of risk of damage. For example, crop trees that have developed under a thick aspen canopy often become spindly. Treatments that remove the surrounding stems suddenly can result in toppling of the crop trees. Aerial spraying or girdling may be preferred in such cases. Alternately, manual treatments may be inappropriate where heavy slash loading can occur or palatability of target vegetation can be an issue when considering sheep grazing. Another potential risk to a stand is if there are root rot issues within the block, this could cause the potential rapid spread of the root rot if brushing were to occur.

Other factors such as treatment windows, administrative workload, treatment priority based on risk of crop tree mortality, and efficacy constraints are weighed separately from the above process, but are also considered when selecting treatment methods.

Assessments or surveys for each anticipated treatment site will be completed within 18 months of the scheduled treatment date.

3.6 Post-treatment Evaluation

Post-treatment Evaluations shall be completed in the year following treatment when full leaf out has occurred. An aerial flight or an on-block field inspection will be the methods used to complete the evaluations. The assessments shall focus on the previous year's treatments with regards to efficacy of the treatment, coverage, slash loading, degree of release, crop tree damage, and conformance of PFZ's and boundaries. The evaluation will also confirm that there was no unreasonable impact to the environment.

Future surveys on the areas will also be used to determine long-term efficacy of the treatment.

The Post-treatment Evaluation will be implemented in an effort to refine future vegetation management prescriptions and strategies, and it will determine the need for any immediate follow-up treatment (i.e. missed areas).

4.0 SAFE HANDLING PRACTICES

4.1 Pesticide Transport

Minimum standards for pesticide transport are stipulated in the *Transportation of Dangerous Goods Act*, and the *Integrated Pest Management Act and Regulations*. These minimum requirements are:

- ▶ Transport shall be limited to undamaged containers.
- ▶ All pesticides shall be secured during transport.
- ▶ Decking of a transport vehicle shall be of a non-absorbent material.

- ▶ Spill cleanup equipment along with spill contingency plan and first aid kit shall accompany transported pesticides. Spill contingency and spill cleanup kit requirements are outlined in the BC Timber Sales Environmental Management System (EMS).
- ▶ Transport of pesticides shall occur in a lockable compartment, separate from the passenger section of the vehicle.
- ▶ All pesticides shall be kept in a locked compartment when a vehicle is left unattended.
- ▶ All drivers of vehicles transporting pesticides shall be trained and aware of the spill contingency plan.
- ▶ Pesticides shall not be transported with food, feed, seeds, drugs, drinking water or clothing in the same compartment.
- ▶ People and / or animals shall not ride in the back of a vehicle containing herbicides.
- ▶ Herbicide mixture shall not be transported in mixing vessels. Mixture shall be transported only in labelled herbicide containers, marked "mixture" and include the mix ratio. Total mixture transported cannot exceed the single load capacity of the aircraft working from any mix site for aerial application, or the capacity for one refill for ground-based equipment in use.
- ▶ Personal protection equipment and personal first aid equipment shall be carried in a closed compartment separate from the pesticide containers.
- ▶ When transporting herbicides, required documentation includes Material Safety Data Sheets (MSDS) and Product Labels.

4.2 Pesticide Storage

The *Integrated Pest Management Regulation* stipulates that all herbicides, when not in use, shall be stored:

- ▶ In a locked shed (not used for the storage of food intended for human or animal consumption) and:
 - a. having clearly posted warning signs ("**WARNING: CHEMICAL STORAGE – AUTHORIZED PERSONS ONLY**") at each entrance;
 - b. proper ventilation to the outside; and
 - c. accessible to authorized personnel only.

Temporary storage in the back of a locked vehicle (i.e. 5 ton van) is permissible when all conditions for herbicide storage are met. The locked vehicle must be parked in a location such that no product could flow into a waterbody should a leak occur.

4.3 Mixing and Loading of Pesticides

All pesticides used under this PMP shall be mixed at designated mixing and filling stations. Requirements and procedures to be followed during the mixing and loading of pesticides follows:

- ▶ Wherever possible, the mixing / loading station will be located in the treatment area. The mixing site shall be selected so that it is on level ground, and situated so that if a spill does occur, contamination of waterbodies will not occur.
- ▶ As a minimum, the *Integrated Pest Management Regulation* will be complied with, and a supervisor who holds a valid Pesticide Applicator Certificate of the appropriate category shall supervise each crew.
- ▶ The minimum crew size for mixing and loading will be one (1) dedicated person. Crew size will be dependent upon the number of pieces of spray equipment in use for the operation. Certification and/ or training of applicators will meet legislative requirements.
- ▶ Mixers and loaders of pesticides shall have an emergency spill kit on site and be familiar with the BC Timber Sales Environmental Emergency Response Plan. Mixers and loaders shall ensure that all equipment is in good operating condition.

- ▶ The appropriate protective clothing and personal protective equipment as specified on the pesticide label shall be worn.
- ▶ Ensure that an appropriate backflow device is used within the system used to fill the application equipment.
- ▶ Equipment shall not be left unattended during filling.
- ▶ First aid equipment and an eye wash station shall be located in close proximity of the filling station.
- ▶ Ensure that clean water is available for rinsing.
- ▶ Ensure that empty containers are triple rinsed and slashed, unless other arrangements are made.
- ▶ Ensure that approved rates are not exceeded.
- ▶ Know the exact inventory of product on site prior to starting any mixing.
- ▶ Perform all mixing outdoors. If mixing in the back of a vehicle, ensure adequate lighting and ventilation is available.
- ▶ Load water into delivery system last in order to rinse lines free of residual herbicide.

4.4 Herbicide Application Calibration

All herbicide application equipment shall be calibrated to the satisfaction of BC Timber Sales before herbicide application operations commence. This includes verifying that the application equipment is in proper working order and, if required, is calibrated to conform to the application rates on the pesticide label.

Calibration is an ongoing process. Equipment speeds, nozzle sizes, spray pressure and helicopter height are examples of variables that are adjusted during spray operations to achieve optimal herbicide application coverage and rates.

Aerial

Equipment calibration and swath kit analysis will be performed by BC Timber Sales staff or an approved external contractor. Proof of calibration and the swath kit analysis shall be submitted to BC Timber Sales and kept for at least 2 years.

Maintenance of the spray equipment is the responsibility of the application contractor. The contractor shall have qualified personnel on each spray site who will ensure the equipment conforms, at all times, to the manufacturer's standards.

Ground

The application contractor shall calibrate equipment used for backpack applications.

Equipment should be calibrated:

- ▶ for each individual applicator using hand-held or backpack equipment;
- ▶ at the beginning of each season and the start of each new treatment area;
- ▶ any time the application equipment is changed or repaired;
- ▶ for each change in size or type of nozzle; and
- ▶ any time the pesticide or formulation of a pesticide is changed.

A maintenance person, designated by the application contractor, must conduct maintenance and repairs. The maintenance person must be knowledgeable in the operation and repair of the equipment. The equipment operation must conform to the manufacturers' specifications. Records will be kept by contractors for each piece of calibrated equipment for a minimum of 2 years.

4.5 Weather Conditions and the Application of Herbicide

Aerial Broadcast

Aerial broadcast spraying operations shall be stopped when any of the following conditions exist on the Treatment Unit(s):

- ▶ wind velocity exceeds 8 km/h;
- ▶ temperature exceeds 26.5°C;
- ▶ temperature is at or below 0°C for dormant application;
- ▶ relative humidity (R.H.) is less than 50% (R.H. as low as 40% may be accepted when high volume and large droplet-producing nozzles (i.e. D10-46, Acuflo®) are used;
- ▶ snow or ice covers brush;
- ▶ when vegetation is too wet (from dew or precipitation);
- ▶ when precipitation is predicted within one hour (VisionMax) or two hours (Vision) following herbicide application (exceptions will be discussed at the pre-work conference);
- ▶ inversion or air turbulence (i.e. thermal updrafts) is so great as to seriously affect the normal application pattern;
- ▶ foggy weather; or
- ▶ inadequate daylight for safe application.

(NOTE: Herbicide label restrictions will take precedence over those listed in this paragraph where those label restrictions are more stringent)

The Ministry Representative or designated, independent Contract Administrator on site will be responsible for collecting and monitoring weather conditions and will advise the Contractor when conditions are such that broadcast spraying operations cannot commence or are to be stopped. Spraying operations cannot commence or resume until such time as the weather conditions improve as determined by the Ministry Representative on site.

Ground Broadcast

Ground broadcast spraying operations shall be stopped when any of the following conditions exist on the Treatment Unit(s):

- I. wind velocity exceeds 8 km/h or when wind is dead calm;
- II. temperature is at or below 0°C or exceeds 30°C;
- III. relative humidity (R.H.) is less than 25% for Ester formulations, or it is less than 30% for Glyphosate formulations;
- IV. rain, snow or ice covers brush;
- V. when vegetation is too wet (from dew or precipitation);
- VI. when precipitation is predicted within two hours following herbicide application (exceptions will be discussed at the pre-work conference); or
- VII. overall conditions favour herbicide drift.

Ground – Cut Stump and Basal Bark Applications

- ▶ Cut Stump and Basal Bark applications shall be stopped when the bole of the target trees is too wet from dew or precipitation.
- ▶ Basal Bark operations shall be stopped when the bole of target trees is covered with frost.

4.6 Container and Unused Pesticide Disposal

All 115 litre empty returnable pesticide containers (shuttles) are to be returned to the manufacturer for re-use. If the containers should become damaged, they shall be triple rinsed and returned for recycling. Upon project completion, all 10 litre containers should be triple rinsed, punctured and disposed of in a landfill which is under the control of the Regional District, and has been approved for pesticide container disposal. All rinse volume should be applied to the treatment area.

Applicators must ensure that they have no more than 500 (five hundred) litres worth of empty pesticide containers on any site at any given time. In order to exceed this limit, the applicator or PMP holder will require a Generator Registration Number, pursuant to the *Environmental Management Act*, Hazardous Waste Regulation, Schedule 6.

4.7 Spill Response

A spill plan is an integral part of this PMP and a copy must be on-site at all pesticide operations. For spill plan content and responsibilities, refer to the British Columbia Timber Sales, Environmental Management System Emergency Response Plan, sections that cover Hazardous Materials Spills, Spill Preparedness, Spill Preparedness Responsibilities and Spill Action Steps. Refer also to the same section for Reportable Levels of Hazardous Materials Spills (PEP and BC Timber Sales reportable levels) and for Minimum Spill Kit Requirements.

All contractors engaged in herbicide operation activities shall be familiar with the BC Timber Sales Prince George Business Area EMS Emergency Response Plan and shall keep this plan available at all mixing and loading stations as well as in the compartments of vehicles involved in the transportation or storage of herbicides.

Initial Spill Response Activity

Initial response activity is consistent with the BC Timber Sales Environmental Emergency Response Plan. It may be updated as modifications to the BC Timber Sales Environmental Emergency Response Plan occur. The following is an excerpt from that Response Plan.

a. Discovery and Assessment

- ▶ Follow safety procedures and use appropriate personnel protective equipment prior to initiating a response plan
- ▶ If safe, **STOP THE PRODUCT FLOW!** Halt activities that are causing the spill (i.e. close valves; elevate leaking hoses, shut off pumps, etc.). **Minimize Impact of Spill**
- ▶ Prior to taking action, complete an incident assessment (Safety, Spill Id/Volume and Environmental)

b. Notification and Documentation

- ▶ Report spills in accordance with spill reporting criteria listed in "Table 1" below.
- ▶ If you feel that the spill is beyond your level of training and experience to handle, it is advisable that you seek assistance from a spill response specialist.

c. Containment and Recovery

- ▶ Take action within your ability using resources (hand tools, heavy equipment and spill response equipment) at hand to minimize the spread and impact of the spill until additional resources and expertise arrive.

I. Spills to Land

- ▶ Determine extent of spill. Contain spills away from a water course.

- ▶ Mark the perimeter of the spill. Dig recovery ditches around the perimeter and recovery pits (sumps) within the spill area.
- ▶ Monitor ditches and recovery pits to ensure the collection system is effective.
- ▶ Recover the product from the containment area, treat or dispose of it appropriately.
- II. **Spills to Water**
 - ▶ In a ditch or stream, contain the spill using whatever surface water containment system possible.
 - ▶ Divert and corral the spilled product to the containment system using absorbent booms or other methods.
 - ▶ Continue to sweep and corral the spilled product to one corner for recovery
- III. **For Spills less than 25 litres**
 - ▶ Soak up all free products with absorbent pads, booms, and other materials.
 - ▶ Place used absorbent materials in a heavy duty plastic bag or other suitable container for disposal or recycling. Mix stained soil with loose absorbents or commercial bioremediation agents.

d. **Follow-up, Disposal and Site Restoration**

- ▶ Ensure spills have been documented and reported to agencies and BC Timber Sales as required.
- ▶ Complete clean-up and required mitigation actions. If required, contact a spill response specialist for assistance.
- ▶ Complete CHK-009 Incident Report Form and submit to BC Timber Sales.

Spill Roles and Responsibilities

- ▶ Assess risk for potential spills and identify additional preventative and control measures.
- ▶ Ensure all workers understand the Emergency Response Plan and it is available on site at all times.
- ▶ Ensure all workers are familiar with worksites, spill kit locations and spill kit requirements.
- ▶ Ensure workers are trained/ aware in WHMIS, TDG and spill response.
- ▶ Have the appropriate MSDS available on site.
- ▶ Conduct periodic drills of spill preparedness and response based on employee knowledge and experience, environmental impact, and adjacent values. Where applicable, refer to local procedures. Complete BC Timber Sales CHK-010 Emergency Response Test & Drill Report Form and retain records for BC Timber Sales review.
- ▶ Complete spill kits inspections and maintain spill kits as necessary.

Spill kits must be present in vehicles transporting and dispensing fuels and pesticides. Minimum Spill Kit requirements include:

- ▶ 3 - Heavy duty plastic bags or suitable container(s)
 - ▶ 10 - Absorbent pads (or equivalent absorbent material) appropriate for each type of spill
 - ▶ 3 – 3”x 48” absorbent booms/ socks
 - ▶ Commercial bioremediation product
 - ▶ One shovel
 - ▶ A container of emergency tank sealant (i.e. Plug-N-Dike, Seal-it or equivalent which are commercial product names for bentonite clay)
 - ▶ Personal protective safety gear as required for the type of spill
- ▶ Respond to all spills in accordance with the emergency response plan.
 - ▶ If you are responsible for a spill of hazardous material, you are then responsible to take appropriate action to minimize environmental impact.

Report all reportable spills to the appropriate agencies and to BC Timber Sales.

Spill Reporting Criteria:

- ▶ All spills that are equal to or greater than the Provincial Emergency Program (PEP) reportable level must be reported to PEP as soon as possible and within 24hrs.
- ▶ Any spills of deleterious substance into a watercourse must be reported to PEP as soon as possible and within 24hrs.
- ▶ All spills that are equal to or greater than the BC Timber Sales reportable level must be reported to BC Timber Sales as soon as possible and within 24hrs.

Table 1: Reportable Levels of Hazardous Materials Spills

Hazardous Material	PEP Reportable Level ⁽¹⁾	BC Timber Sales Reportable Level ⁽²⁾
Antifreeze	5 kilograms (5 litres)	5 litres
Diesel fuel	100 litres	25 litres
Gasoline (auto & saw)	100 litres	25 litres
Greases	100 litres	25 litres
Hydraulic Oil	100 litres	25 litres
Lubricating Oils	100 litres	25 litres
Pesticides	1 kilogram	1 kilogram

(1) as required by the BC Spill Reporting Regulation

(2) or a spill of ANY quantity that enters a surface waterbody (i.e.: running ditch, stream, lake)

4.8 Pesticide Treatment Signs

Signs containing site specific information with regards to treatment of each site shall be posted at all road or trail accessible points to the treatment area. Signs will be posted prior to treatment and will remain posted for a minimum of fourteen (14) days following treatment at which time they will be removed by a BC Timber Sales representative. All Pesticide Treatment Signs will meet the requirements of the Integrated Pest Management Regulation and will:

- ▶ Be a minimum size of 550 cm².
- ▶ Be water resistant.
- ▶ Display the title “**Notice of Pesticide Use**” in bold block letters that are clearly legible to a person approaching the treatment area. Substitution of “pesticide” with “herbicide” or another category of pesticide is permissible.
- ▶ Display a cautionary symbol.
- ▶ Contain the following:
 1. Date and time of application
 2. Confirmation number
 3. Pesticide trade name or active ingredient
 4. Precautions to be taken to prevent harm to people
 5. Purpose of treatment
 6. Method of application
 7. BC Timber Sales office, address, contact name and phone number

5.0 ENVIRONMENTAL PROTECTION

5.1 Strategies to Protect Community Watershed and Other Domestic and Agricultural Water Sources

The following community watersheds fall within BC Timber Sales' operating area and are covered by this PMP: Pritchard Creek, Swift Creek, Dominion, Martinson and Edard Community Watersheds. There is a low likelihood of BC Timber Sales conducting any work within the community watersheds listed above, and brushing treatments would be avoided wherever possible. If any brushing treatments were to take place within a community watershed, the following extra precautions will be taken:

- ▶ Pesticides will not be stored for any more time than it takes to complete the brushing treatment.
- ▶ There will be a no treatment zone in places where it could directly impact a water source. Any creeks that are within or drain into a community watershed will have a minimum 50 metre no treatment zone.
- ▶ There will be a minimum 50 metre no treatment zone placed around any intakes and wells.
- ▶ There will be continuous monitoring during any use of pesticides in these areas. If pesticides or pesticide residues were to be detected in a community watershed stemming from a BC Timber Sales brushing treatment, all precautions necessary would be undertaken by BC Timber Sales to ensure no further damage was done. These precautions include: discontinued use of the pesticide in the area, cleanup work to remove any contaminated soils, advisement of the situation to the Drinking Water Officers with full cooperation to ensure the clean-up is done properly and effectively.

If during the PMP review and afterwards, there are domestic and agricultural water sources that are brought to our attention, BC Timber Sales will ensure appropriate no treatment zones are put in place to avoid contamination of these water sources.

5.2 Strategies to Protect Fish and Riparian Areas

Riparian features are identified pre-harvest and are managed through approved Site Plans, Silviculture Prescriptions, Forest Stewardship Plans, and Forest Development Plans. Riparian features are further assessed through silviculture surveys, detailed site assessments, pre-treatment inspections by BC Timber Sales staff, treatment layout, and the final pre-treatment block reconnaissance.

The area encompassed within this PMP includes many significant fisheries values. In keeping with mandates outlined in all forest plans and relevant legislation, identified fisheries and riparian habitat shall be protected with a PFZ and an appropriate buffer width as defined in Figure 4.0.

Figure 4.0 MINIMUM PESTICIDE FREE ZONE AND BUFFER WIDTHS

Area of Concern	Application Method	PFZ Width (m)	Buffer Width (m)	No Treatment Zone Width (m)
Classified S1,S2,S3,S4 Streams, L1,L2,L3,L4 Lakes W1,W2,W3 Wetlands	Aerial (low drift delivery system)	10	5	
	Backpack (Broadcast)	10	5	
	Backpack (Directed Foliar)	10	5	
	Cut Stump	10	5	
	Basal Bark	10	5	
Wet S5, S6, NCD's (non classified drainages)	Aerial (low drift delivery system)	10	5	
	Backpack Ground	10	5	
	Backpack (Directed Foliar)	10	5	
	Cut Stump	2	3	
	Basal Bark	10	5	
Dry S5, S6, NCD's, Temporary free standing body of water <25 m ²	Aerial (low drift delivery system)	N/A		
	Backpack Ground	N/A		
	Cut Stump	N/A		
	Basal Bark	10	5	
Temporary free standing body of water >25 m ² (not fish bearing and does not drain into a fish bearing waterbody)	All application methods using glyphosate	High Water Mark	N/A ¹	
	Basal Bark	10	5	
Domestic water intake	All			50
Active beaver dam	Aerial	-	-	100
Raptor nest	All (except manual)	-	-	100
Mineral lick	All application methods using herbicide			100 ²
	Manual			50

1) Glyphosate may be applied to a body of water, providing it meets the above criteria and is either smaller than 25 m² or not a wetland. Glyphosate may be applied to a dry stream bed if the dry stream is not a wildlife habitat feature and is not fish bearing when wet.

2) If a mineral lick is discovered post-harvest in the Net Area to Reforest, BCTS will protect it from herbicide by establishing a minimum 100 m No Treatment Zone around the mineral lick, including the establishment of a minimum 100m buffered corridor to and from the mineral lick.

5.3 Strategies to Protect Wildlife and Wildlife Habitat

The Prince George Natural Resource District has many important and diverse habitats for mammals, birds, amphibians and fish species. Wildlife shall be managed according to current and evolving biodiversity guidelines and all standards as stated within legislation will be followed.

For the purpose of this PMP, criteria used for habitat management will be set in the context of biodiversity guidelines. Specific attention will be given to those species and/or habitats that are noted as Species at Risk.

All wildlife values and critical habitats identified in higher level plans, or while conducting fieldwork, or through the consultation/referral process shall be considered prior to carrying out any treatments under this PMP.

Examples of treatment strategies tailored to protect wildlife habitat needs include:

- ▶ pesticide free zones/no treatment zones
- ▶ pesticide application rate thresholds
- ▶ selective treatments
- ▶ manual treatments
- ▶ where feasible, the retention of ungulate browse species such as willow and red osier dogwood

The above strategies are preferred in areas known to hold wildlife and wildlife habitat valued by stakeholders and/or First Nations, such as traplines. In those identified areas, a common concern is herbicides, particularly the application of aerial herbicide. BCTS intends to work with stakeholders and First Nations through a balanced approach and flexible decision making.

5.4 Strategies to Prevent Pesticide Contamination of Food Intended for Human Consumption

First Nations and stakeholders use berry plants and other plants for food and medicinal purposes, and under certain circumstances, cattle and livestock may graze within cut-blocks that fall under this PMP. As part of the PMP public review and consultation process and annual Notification of Intent to Treat (NIT) process, BC Timber Sales will attempt to learn of important berry-picking and medicinal plant harvest areas, range, and grazing areas. On sites where proposed treatment areas are identified as containing food, medicinal plants, or within a tenure for cattle and livestock intended for human consumption, BC Timber Sales will attempt to prevent exposure to herbicides by utilizing selective treatments, timing of treatments, using non-herbicide methods, or avoidance of treatment by communicating with First Nations and stakeholders. All blocks treated with herbicides will have signs posted at entrances as required by the IPM regulations.

5.5 Pre-Treatment Inspection Procedures for Identifying Treatment Area Boundaries

Once a block is identified as requiring treatment, BC Timber Sales staff will carry out a spatial exercise to identify proposed treatment areas that are adjacent to and/or overlap various interests including but not limited to First Nations, stakeholders, private property holders, and Species at Risk communities. Potential conflicts are individually explored and strategies identified to mitigate or negate harmful impacts to adjacent interests.

Treatment Area Layout

With strategies in place as appropriate for each block, trained staff lay out the treatment areas. Layout activities are carried out with the help of GPS shape files, aerial photos and/or the most recent map as a reference.

Layout consists of an intensive block reconnaissance to identify and mark all treatment boundaries, PFZ's, associated buffers, No Treatment Zones and retention patches identified in the silviculture survey or detailed site assessment, or discovered during the reconnaissance. Additionally the treatment prescriptions are verified to ensure:

1. The most appropriate treatment is prescribed;
2. External and internal treatment boundaries are adequate to ensure pesticide is not applied to adjacent property and sensitive features; and
3. Applicable regulatory requirements and standards can be met while carrying out the bushing treatment.

All boundaries are located and tied in using GPS or compass and hip chain to then be accurately mapped. Treatment area boundaries not already captured on the layout maps are GPS traversed. Riparian areas and PFZ's are GPS traversed as part of layout.

Treatment boundaries are clearly marked with bags or flagging ribbon to ensure they are clearly visible to the herbicide applicators.

Following field layout, the GPS shape file is entered into BC Timber Sales' forest management computer program (CENGEA) so that the exact treatment area boundary and all internal boundaries such as PFZ's are captured. Using this updated information, finalized treatment maps are produced which incorporate all treatment boundaries, PFZ's, allocated buffer, No Treatment Zones and retention patches. These maps, along with a GPS shape file, are provided to the pesticide application contractors. This GPS shape file is entered into all field computers including the GPS computer on board any helicopters involved in herbicide application.

Final Pre-treatment Block Reconnaissance

Immediately prior to the application of herbicide, a final block reconnaissance is carried out for each treatment area. For aerial applications this is done by helicopter with the application pilot. The Implementation supervisor is also present on this flight.

During this final reconnaissance, the following are reviewed:

1. Verify that all pesticide applicators, monitors and pilot (if applicable) understand the block layout, permit specifications, application rate, the location of any special resource features that are to be protected and all internal and external boundaries.
2. All boundaries, PFZ's and NTZ's present on the block are verified.
For aerial applications, the layout map and the pilot's digital map on their onboard computer are compared against what actually exists on the ground.
Any changes found on the ground that have occurred since layout such as heavy rains resulting in a temporary waterbody or a waterbody having been missed during layout, are identified. Any new features are GPS traversed and entered into the aerial applicators onboard GPS computer or added onto layout maps for other application methods.
3. Is the general public, wildlife or livestock present in the treatment area? Treatment does not commence until it is confirmed there is no presence of the general public, and there is no visible wildlife or livestock in the treatment area.

6.0 HERBICIDES USED FOR VEGETATION CONTROL

BC Timber Sales in the Prince George Business Area commits to using the lowest treatment rates that will provide effective control of competing vegetation. Herbicides and biological herbicides to be used for brush control under this PMP are:

▶ Trade Name: <i>Weed-Master™</i>	Active Ingredient: <i>Glyphosate 35.6%</i>	PCP No.: 29009
▶ Trade Name: <i>Vision MAX®</i>	Active Ingredient: <i>Glyphosate 49.0%</i>	PCP No.: 27736
▶ Trade Name: <i>Garlon™ XRT</i>	Active Ingredient: <i>Triclopyr 75.5%</i>	PCP No.: 28945
▶ Trade Name: <i>Garlon™ RTU</i>	Active Ingredient: <i>Triclopyr 14.4%</i>	PCP No.: 29334
▶ Trade Name: <i>Chontrol Peat Paste</i>	Active Ingredient: <i>Chondrostereum purpureum 0.67%</i>	PCP No.: 29293

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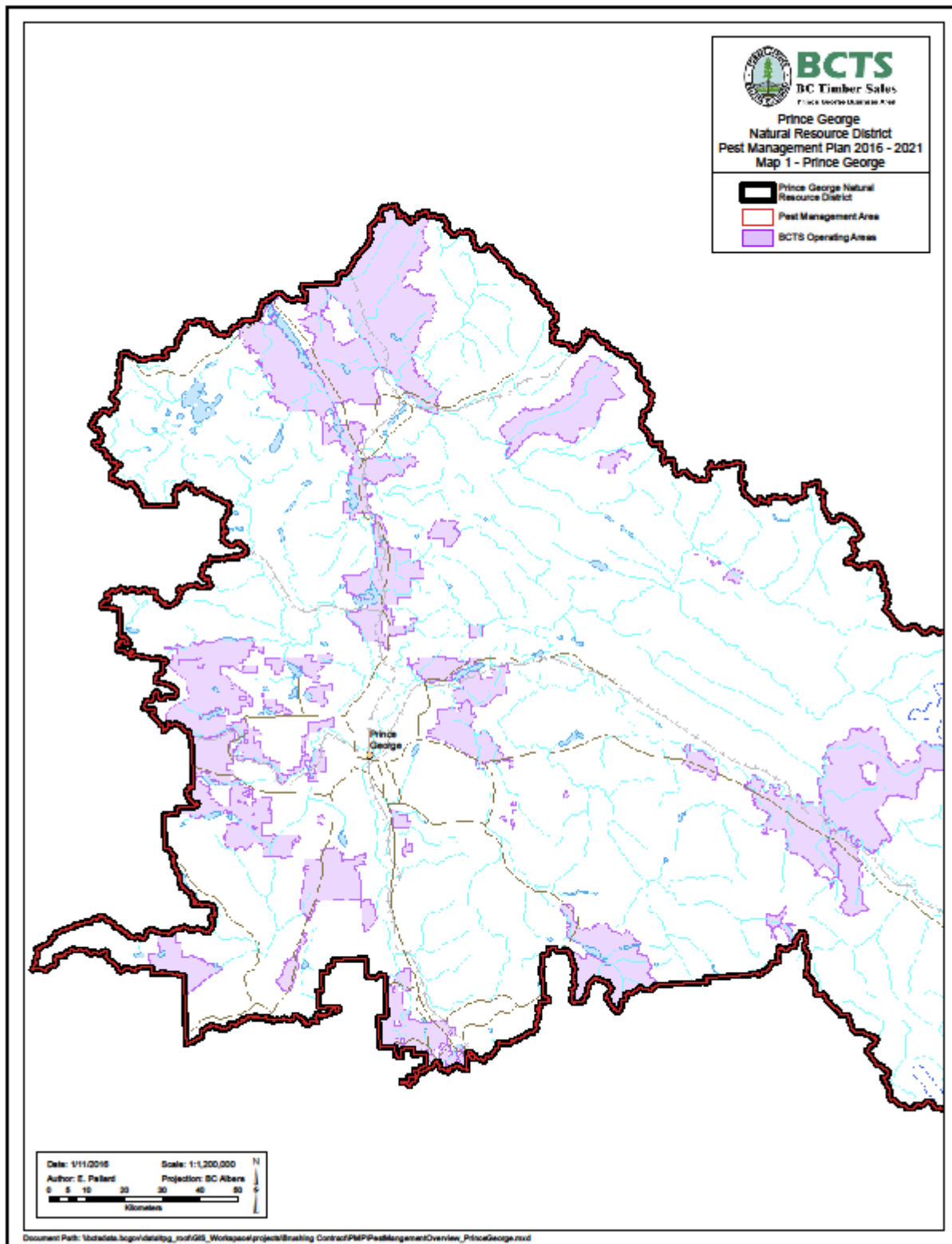
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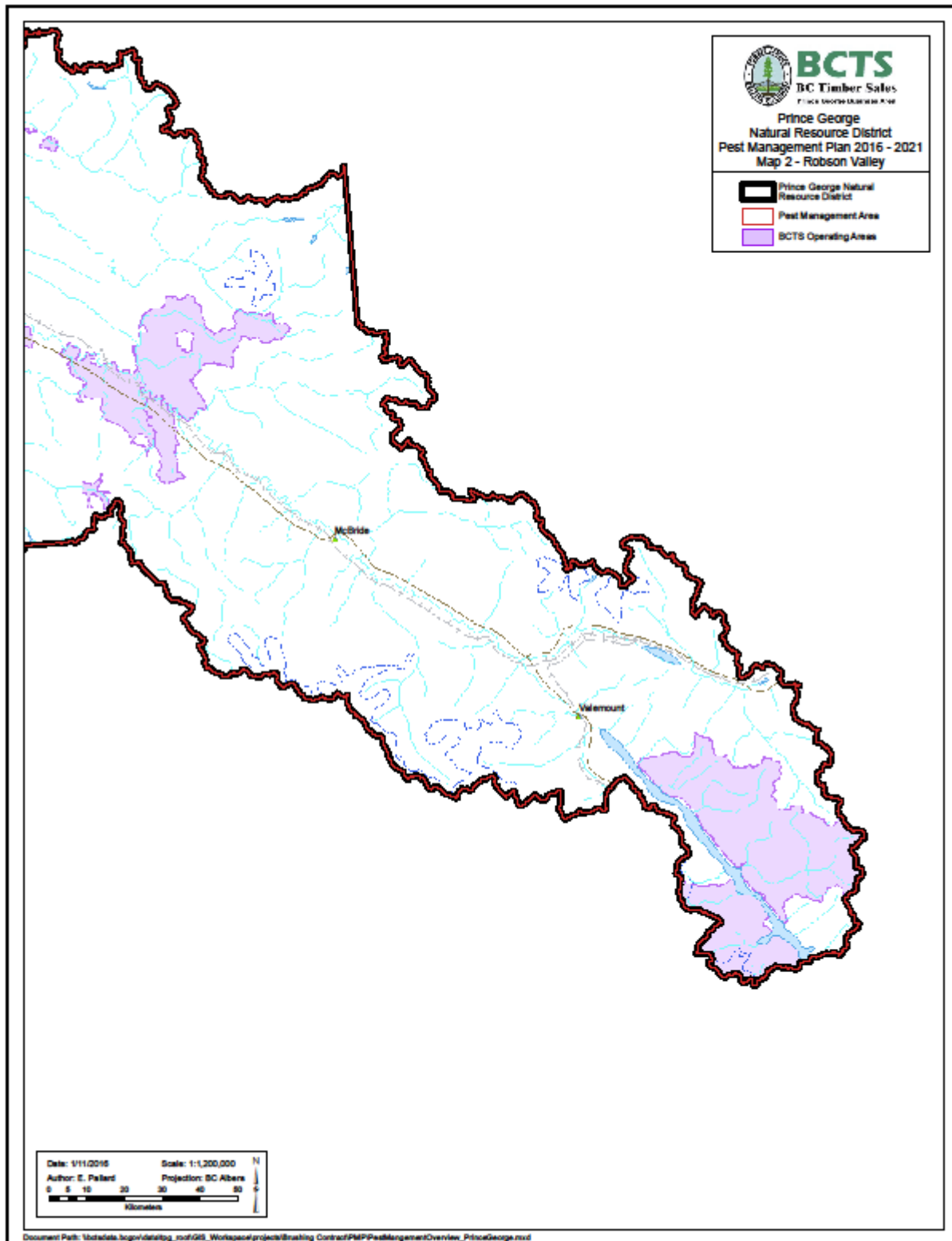
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APPENDIX I – MAPS OF PMP BOUNDARY AND BCTS OPERATING AREAS





APPENDIX II

Guidelines for Pest Management Activities

Alfred Schneider – Range User - Guide Outfitter

- 1) BCTS will provide annual written notification to Alfred Schneider by May 15th of each calendar year for the term of this Pest Management Plan (PMP) and will include:
 - ***An overview map outlining proposed treatments within the interest area for the calendar year.***
 - ***1:10 000 maps of any units proposed for treatment in the calendar year and within the interest area.***
- 2) If requested, BCTS will conduct on-site meetings with Alfred to discuss site specific concerns and treatment options for scheduled treatments within the interest area.
- 3) BCTS will limit aerial operations within the interest area.
- 4) BCTS will use selective treatment methods where deemed operationally suitable.
- 5) Backpack will be the preferred application method for broadcast treatments.
- 6) If treatments are scheduled during a given calendar year, BCTS will provide additional notification (14 days) prior to treatment.

APPENDIX III

Guidelines for Pest Management Activities

Walter and Susan Steidle – Range User - Apiary

- 1) Walter and Susan Steidle have concerns about herbicide and its effect on their cattle and bee apiary. Manual brushing is to be carried out within their range tenure, if brushing is required.
- 2) If brushing is required within the area of the Steidle's range tenure in any given year for the term of this Pest Management Plan (PMP), BCTS will provide written notification to Walter and Susan Steidle by May 15th of that year. This will include:
 - **An overview map outlining proposed treatments within the area of interest for the calendar year.**
 - **1:10 000 maps of any units proposed for treatment in the calendar year and within the area of interest.**
- 3) If requested, BCTS will conduct on-site meetings with Walter and Susan to discuss site specific concerns.
- 4) If treatments are scheduled during a given calendar year, BCTS will provide additional communication (14 days) prior to treatment.

APPENDIX IV

Guidelines for Pest Management Activities

Susan Gehrig – Concerned Member of the Public

- 1) Susan Gehrig contacted BCTS during the advertisement of the PMP in the Valemount Sentinel newspaper. She has concerns with the use of pesticides in the control of our natural habitat and wishes to be informed of when and where pesticides are implemented.
- 2) If brushing is required in the Robson Valley TSA in any given year for the term of this Pest Management Plan (PMP), BCTS will provide written notification to Susan Gehrig by May 15th of that year. This will include:
 - **An overview map outlining proposed treatments within the area of interest for the calendar year.**
 - **1:10,000 maps of any units proposed for treatment in the calendar year and within the area of interest.**

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APPENDIX V

Guidelines for Pest Management Activities

Sally Sam – Trapper

- 1) Jim Munroe contacted BCTS on behalf of Sally Sam during the consultation period of the PMP. They expressed interest in establishing an information sharing platform.
- 2) If brushing is required in the trapline of Sally Sam (TR725T008) in any given year for the term of this Pest Management Plan (PMP), BCTS will provide written notification to Susan Gehrig by May 15th of that year. This will include:
 - **An overview map outlining proposed treatments within the area of interest for the calendar year.**
 - **1:10,000 maps of any units proposed for treatment in the calendar year and within the area of interest.**
- 3) If requested, BCTS will conduct on-site meetings with Sally Sam to discuss site specific concerns.

APPENDIX VI

Guidelines for Pest Management Activities

Gerald Gagnon – Trapper

- 1) Gerald Gagnon contacted BCTS during the consultation period of the PMP. He is opposed to herbicide and prefers manual brushing.
- 2) If brushing is required in the trapline of Gerald Gagnon (TR708T002), manual brushing will be the preferred method in any given year for the term of this Pest Management Plan (PMP). BCTS will provide written notification to Gerald Gagnon by May 15th of that year. This will include:
 - **An overview map outlining proposed treatments within the area of interest for the calendar year.**
 - **1:10,000 maps of any units proposed for treatment in the calendar year and within the area of interest.**
- 3) If requested, BCTS will conduct on-site meetings with Gerald Gagnon to discuss site specific concerns.

APPENDIX VII

Guidelines for Pest Management Activities

Saik'uz First Nation

- 1) Saik'uz First Nation contacted BCTS during the consultation period of the PMP. They are opposed to herbicide. Efforts will be made by BCTS to conduct manual methods and selective treatments.
- 2) If brushing is required in the traditional territory of the Saik'uz First Nation in any given year for the term of this Pest Management Plan (PMP), BCTS will provide written notification by May 15th of that year. This will include:
 - **An overview map outlining proposed treatments within the area of interest for the calendar year.**
 - **1:10,000 maps of any units proposed for treatment in the calendar year and within the area of interest.**
- 3) If requested, BCTS will conduct on-site meetings with members of the Saik'uz First Nation to discuss site specific concerns.