Rocky Mountain Trench Ecosystem Restoration Program
Integrated Ecosystem Restoration, Wildlife Habitat and Fuel Management Plan

Five Year Plan 2019-2023

I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work.

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November 10th, 2018

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Chapter 1 Introduction

This plan is designed to coordinate projects designed to meet Ecosystem Restoration, wildlife habitat and fuel management objectives throughout the Rocky Mountain Natural Resource District for the period 2018 to 2023. It is a continuation of the long standing Ecosystem Restoration process that has been active since 1997 and covers areas prescribed for Ecosystem Restoration, habitat enhancement and fuel management activities. Regardless of the program almost all projects proposed involve spacing by mechanical thinning and/or prescribed burning, with the primary objective of converting dense forests to a more open canopy. This thinning is necessitated by the interruption of the historic fire regime of the local forests and grasslands by more effective fire suppression that has occurred since the Second World War (Blueprint for Action, 2001). The valley bottom dry Ponderosa Pine and Douglas-fir forests tended to burn every 2 to 20 years with light impact or "stand-maintaining" fires (Blueprint for Action 2001, Gray et al 2004, Gray, Daniels 2005). Farther uphill, forests would burn less frequently with slighter higher impact burns (Blackwall et al 2003; Daniels et al 2006, Daniels et al 2007). Most forests in the district have been affected, to some extent, by ingrowth which increases fuel loads that feed more severe impact wildfires and denser canopies that shade out the grass and shrub forage that support wildlife and cattle (Blueprint for Action 2006).

This plan is sponsored by the Rocky Mountain Trench Ecosystem Restoration Program, a coalition of government agencies, First Nations, forest and range licensees, naturalist, hunting, and environmental clubs, united in a goal of restoring the grasslands and historic open forest conditions of the Rocky Mountain Trench. All the coalition partners (which are listed in Blueprint for Action 2013) agree to the Mission and Vision of the Program.

Vision:
A restored Trench Landscape functioning at its ecological potential and thereby supporting:

- The native and historical and condition matrix of trees plants and animals
- A sustainable forage resource for wild and domestic grazing ungulates and
- The social economic and cultural needs of stakeholders as they relate to the open range and open forests of the Trench

Mission:

- Progressively restore the designated 109,400 hectares of the Trench to an ecologically appropriate fire maintenance condition by 2030, in accordance with tree stocking standards for open range and open forest sites.
- Maintain the restored 109,400 hectares in an open range or open forest condition in perpetuity.

This plan is designed to achieve these goals across the entire Rocky Mountain Trench as defined as critical Ecosystem Restoration area. The entire Rocky Mountain Natural Resource District (see figure 1) is to be considered as a Forest Development Unit as per the *Forest Planning and Practices Regulation*; projects for fuel management, wildlife habitat or range improvement can be proposed anywhere in the district so long as the legal planning, referral and consultation

requirements of the *Forest and Range Practices Act* and the Kootenay Boundary Higher Level Plan are met.

1.1 Ecosystem Restoration

The common definition of Ecosystem Restoration can be found at the Society for Ecological Restoration International website http://www.ser.org/

Process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Practice of restoring ecosystems (Society for Ecological Restoration International [SERI] 2004).

In the context of the Rocky Mountain Trench, the ecosystem in need of restoration is the treed grassland/ savannah that occupied the valley bottom prior to European settlement and the suppression of the historic fire regime. The issue had been recognised by local residents for many years and it was brought to ahead in the 1990s. The consensus of land use across the district arrived at in the 1990s can be found contained in the final draft of the Kootenay Boundary Land Use Plan (KBLUP 1998).

The idea of improving the valley bottom dry forests is contained the Kootenay Boundary Higher Level Plan Order declared in January 2003 and amended several times since then. It established nine Resource Objectives, one of which is Fire Maintained Ecosystems (which outlines management in the area for Ecosystem Restoration). Note this legislation also stablishes a Steering Committee to oversee the Ecosystem Restoration Program and this steering committee oversees and approves this plan.

1.2 Wildlife Habitat

Two orders issued under the *Government Action Regulation* dated February 10, 2005 (U-4-006 Cranbrook and U-4-008 Invermere) cover the ungulate winter range in the Invermere and Cranbrook Timber Supply Areas. These ungulate winter ranges completely overlap the NDT4-Ecosystem Restoration Area. It is these orders that establish the stocking standards for Open Range and Open Forest stands and it defines these two desired stand conditions by Biogeoclimatic ecosystem types.

Table 1 Open Range and Open Forest defined by Biogeoclimatic zone variant and sites series as per Ungulate Winter Range orders UWR-4-006 (Cranbrook) and UWR-4-008 (Invermere)

Habitat Type	Concept Definition	Stocking standards	Intended Field Verified Ecosystem Units
Open Range	Lands ecologically suited to production of bunchgrass and dry land shrub species. Snow accumulations are typically low. (includes existing open range, meadows, cultivated and similar cover classes with </= 10% tree crown closure	0 to 70 stems/ha. Include 5 to 20 of largest trees in stand	PPdh2, 02a, 02b, 01 IDFdm2, un, 02, 03 IDFdm2a, un2, 02 MSdk 02 ICHdm, 02 (& rock talus sites)
Open Forest	Lands ecologically suited for production of large crowned trees in an open forest with bunchgrass	70 to 400 stems/ha with 20 to 50 in largest diameter class in stand	PPdh2, 03, 04 IDFdm2, un, 01 warm and neutral sites

	and dry land shrub species. Snow accumulations are typically light. (typically </= 40% tree crown closure, multi-storied stand structure and low stocking levels)		<1000m (except in LUs I32, I35 and I38) IDFdm2a, un2, 03 with Fd leading MSdk 03 with Fd leading, ICHdw 02 ICHdm, 03 with Fd leading ICHmk1 except Golden 02 ESSFdk 02, ICHwk1, 02, ICHvk1 02

Ungulate Winer range generally covers the valley bottom but many projects are proposed in this plan to cover off specific projects for rare and endangered species, wildlife movement corridors, wildlife management areas and wildlife habitat areas that may not be covered by the Fire Maintained Ecosystem area. Most projects will prescribe stocking similar to the standards listed above.

1.3 Fuel Management

Although not contained in the original plans, fuel management to reduce fire hazards has recently become an extremely important goal for any field operations (Abbott and Chapman 2018, Filmon 2003). As most of the communities of the district are clustered in the valley bottom of the Rocky Mountain Trench, the thinning of stands for ecosystem restoration or wildlife habitat will also serve as hazard reduction treatments. The recent Flood and Wildfire Review (Abbott and Chapman 2018) also points to a need to integrate fuel management with other treatments which is the intent of this plan. All local governments in the district have developed Community Wildfire Protection plans, with funding from the Union of BC Municipalities. The projects propose specific units for thinning and funding can come from the Strategic Wildfire Protection plan or other funding sources. The online location of these plans are listed below. Note that four First Nations Bands also have Community Wildfire Protection plans but they do not post them.

Location of Community Wildfire Protection Plans:
Fernie: https://fernie.civicweb.net/document/441
Elkford http://www.elkford.ca/wildfire_fuel_reduction_program
Sparwood http://www.sparwood.ca/wildfire-management
Regional District of East Kootenay
http://www.rdek.bc.ca/departments/emergencyservices/wildfireplans/
Invermere https://invermere.civicweb.net/document/28880
Canal Flats
https://canalflats.civicweb.net/filepro/documents/293?expanded=3316&preview=1325
Cranbrook Not Posted
Kimberley http://kimberley.ca/services/emergency-services/fire-services/wildfire-protection-plan

1.4 Range Improvements

This plan will also propose small range improvements such as fence repair, grass seeding or waterlines throughout the district.

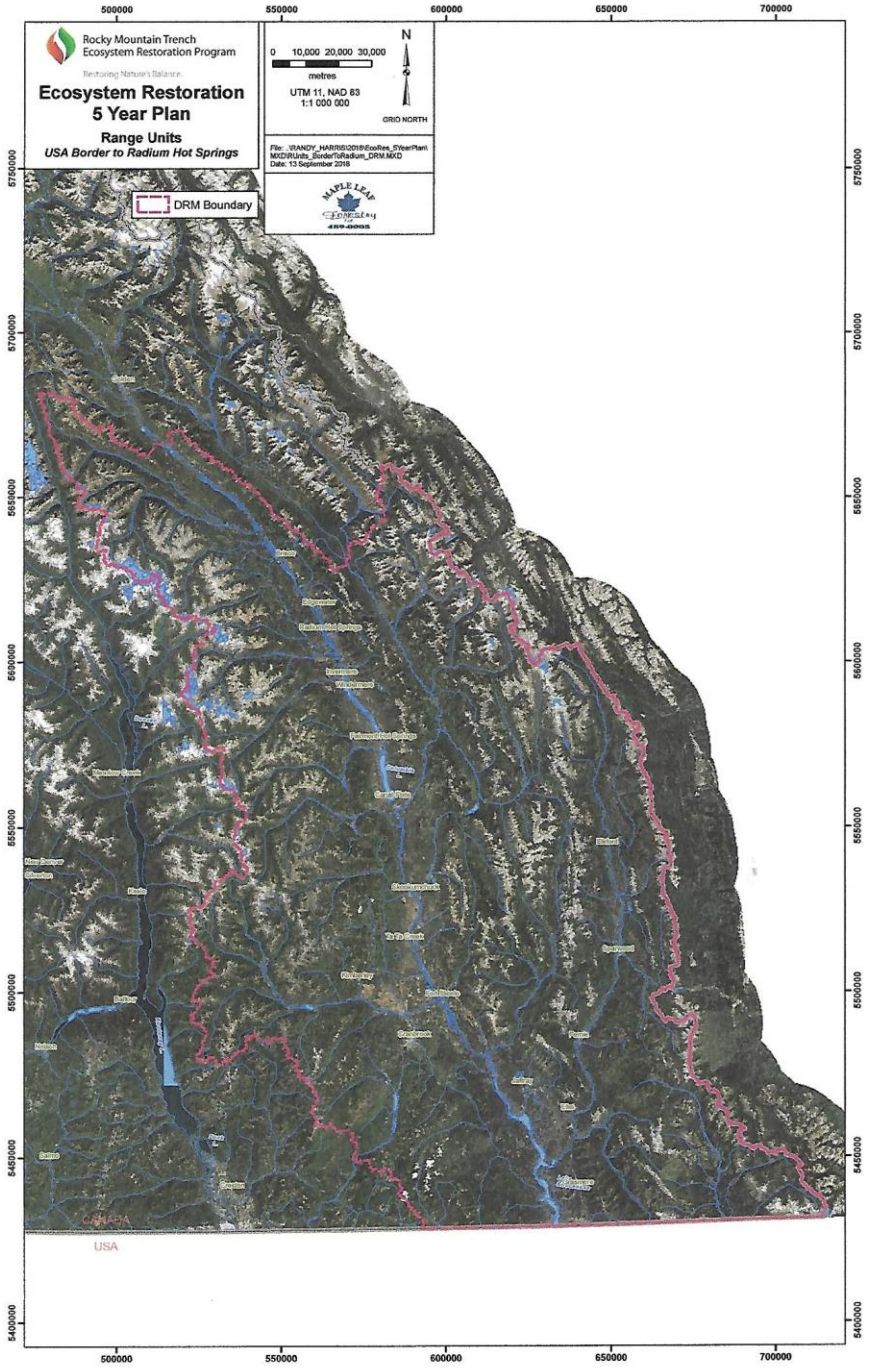

Figure 1 Map showing Rocky Mountain Natural Resource District to be treated as a Forest Development Unit under this plan as per the *Forest and Range Practices Act*

Chapter 2 Process of Plan Development

2.1 Description of Operations

A full description of what operations are carried out to create a tree thinning prescription is listed in the Operations chapter of Blueprint for Action 2013 available at http://trencher.com/our_blueprint. Regardless of funding, all proponents operating under this plan will carry out operations closely related to this description. The various legislation such as the *Forest and Range Practices Act* and the *Kootenay Boundary Land Use Plan*, the *Ungulate Winter Range* orders create several resource values and objectives that this plan is required to address. The measures to be taken by all participants in this plan to address these legal requirements is documented in detail in a Companion Document found on the Rocky Mountain Natural Resource District website at https://www.for.gov.bc.ca/drm/downloads.htm

To better interpret the content of the tables in Appendix 1 the following points should be made:

- Prior to any work being carried out the site must be evaluated by a qualified professional and a prescription addressing treatment and issues on site must be developed.
- All treatments are designed to thin forest stands out to a more functional level. The forest canopy in overstocked stands have stocking reduced by machinery in one of three processes
    - **commercial harvest** by a forest licensee not covered in this plan,
    - a non commercial t**hinning** where merchantable volumes are sold or burnt at landings
    - **mastication** of large trees into smaller burnable pieces
- if the trees are less dense or under 15 centimetres at breast height the stand will be **spaced** by crews using chainsaws or brushsaws. This may also involve the piling and burning of non merchantable trees
- Finally, sites may be treated by prescribed burns to rejuvenate shrubs, reduce fuel hazards or reduce regenerating forests. This is often a maintenance process that should be repeated every 5 to 10 years as per the historic fire regime.
- Sites should be treated for invasive plant control before and after any machine or prescribed burn treatments
- Upon completion of stocking reduction, the results should be entered into the government RESULTS database.

2.2 Ecosystem Restoration prioritisation process and table of results

To focus operations toward achieving the Ecosystem Restoration goals and to ensure the highest value areas in the Ecosystem Restoration zone were treated, the NDT4 Operations Committee drafted criteria to prioritise all 41 ecosystem restoration related “R Units” in the Rocky Mountain Trench. From March 2010 to April 2012 a subcommittee of the Ecosystem Restoration Operations Committee met to revisit the prioritisation table developed by the committee in 2006 to 2007. After four meetings and six Geographic Information systems analyses Table 2 was arrived at. The table was approved by the Rocky Mountain Trench Ecosystem Restoration Steering Committee at a general meeting in May 2012. A high score does not necessarily mean funds are allocated to that R-Unit. For example a high fire interface score could direct fuel management projects and resources to that restoration unit despite a low

overall score. Similarly a high scoring Restoration Unit may not receive a lot of work if heavy off road vehicle use reduces the effectiveness of the treatments. It is also desirable to spread out projects within the same restoration or range unit so that operations of range or forest licensees are not disturbed and that a steady supply of habitat features (snags, rejuvenated shrubs etc.) are provided across the landscape on a more or less steady stream. The table is used to direct general funds to areas of greatest values and to facilitate the allocation of scarce resources.

Table 2 Prioritisation rating for Ecosystem Restoration Treatments for all Restoration Units in Rocky Mountain Trench

Restoration Unit	***ER Score***	**ER Score**	**Red and Blue listed Spp.**	**Elk**	**Bighorn Sheep**	**Biodiversity-Shannon Score**	**Proper Functioning Condition**	**Provincial Crown (Y/N)**
Possible Scores	*%*	130	25	10	15	30	50	
Tobacco Plains Village and Reserve	85%	110.2	11	9.5	13.5	26.2	50	N
Grasmere	85%	110.2	11	9.5	13.5	26.2	50	Y
Waldo South - Kikomun Highway	77%	100.4	11	9.5	7.5	27.4	45	Y
Premier Ridge	77%	99.8	6	10	15	28.8	40	Y
East Columbia Lake	77%	99.6	7	9	15	28.6	40	Y
Peckhams	74%	96.2	7	9	9	26.2	45	Y
Wigwam	73%	94.3	3	9	15	27.3	40	Y
Akisqnuk	74%	96	15	8.3	12	25.7	35	N
Windermere-Fairmont	72%	94.1	15	8.3	12	23.8	35	Y
Wild Horse-Lewis Ck	72%	94	9	7.8	13.5	28.7	35	Y
Waldo North of Kikomun Highway	71%	92.9	11	9.5	0	27.4	45	Y
Lewis-Wolf/ Wasa	70%	91.6	7	8.4	9	27.2	40	Y
Powerplant	70%	91.3	5	8.1	15	23.2	40	Y
ʔaq̓am	68%	88	13	7.5	0	22.5	45	N
Wycliffe Corridor	68%	88	13	7.5	0	22.5	45	Y
St. Mary's Prairie	68%	88	13	7.5	0	22.5	45	Y
TaTa Skookumchuck	66%	86.1	7	8.2	0	25.9	45	Y
Cranbrook Fort Steele	65%	85.1	6	9.1	0	30	40	Y
Newgate	65%	85.1	7	8.6	0	24.5	45	Y
Cherry Tata	64%	83.2	8	8.7	0	26.5	40	Y
Westside	63%	82.3	11	5.6	0	25.7	40	Y

Restoration Unit	***ER Score***	**ER Score**	**Red and Blue listed Spp.**	**Elk**	**Bighorn Sheep**	**Biodiversity-Shannon Score**	**Proper Functioning Condition**	**Provincial Crown (Y/N)**
Pickering Hills	62%	80.6	6	5.7	6	22.9	40	Y
Dutch-Findlay	60%	78.3	6	6.3	0	26	40	Y
East Findlay Basin	60%	78.1	6	6.1	0	26	40	Y
Colvalli North	59%	77.1	4	9.1	0	19	45	Y
Shuswap Reserve	59%	76.9	5	8	15	23.9	25	N
Windermere-Sinclair	59%	76.9	5	8	15	23.9	25	Y
Tokay Hills	57%	74.1	4	8.9	0	26.2	35	Y
Toby Benches	56%	72.7	5	6.1	0	26.6	35	Y
Sheep Cr North	56%	72.5	5	8.5	3	21	35	Y
Rampart-Mayook	53%	68.9	5	4.5	0	19.4	40	Y
Gold-Plumbob East Newgate Rd	52%	67.7	10	8.2	0	24.5	25	Y
Gold-Plumbob West Newgate Rd	52%	67.7	10	8.2	0	24.5	25	Y
West Findlay Basin	49%	63.6	5	6.1	0	22.5	30	Y
Rocky Chipka	47%	61.2	4	5.7	0	16.5	35	Y
Baker	47%	60.7	4	8.4	0	18.3	30	Y
Rosen lake	46%	60.2	5	2.5	0	22.7	30	Y
Perry (Jim Smith)	45%	58.7	14	4.5	0	20.2	20	Y
Burton Lake	43%	56.4	3	5.4	7.5	20.5	20	Y
Alkali/ Cranbrook Community Forest	40%	51.5	4	7.5	0	15	25	Y
Watson	*36%*	*46.4*	*1*	*8.4*	*3*	*14*	*20*	*Y*

2.2 Rationale for Ecosystem Restoration Prioritisation values

By column these are the sources and rationales for the scoring.

2.2.1 Red and blue listed species

This is a simple count of how many occurrences of any red or blue listed species (animal, plant or invertebrate) exist in each R unit. The number and occurrence was derived by the non masked occurrences recorded in the Conservation Data Centre (CDC) mapping tool in the Land and Resource Data Warehouse (source: SDE:WHSE_TERRESTRIAL_ECOLOGY.BIOT_OCCR_NON_SENS-AREA_SVW) . The aquatic and alpine species (such as pond weed or caribou) were discarded and a few occurrences known to committee members added if they were not in the CDC data base (e.g. giant helleborine in East Columbia)

2.2.2 Elk

The was a measure of how much area of each range unit was in class 1 and 2 elk range condition as determined by the mapping layer provided with the Ungulate Winter Range Orders for Cranbrook and Invermere (Source: http://www.env.gov.bc.ca/wld/frpa/uwr/approved_uwr.html). The areas were expressed as a percentage of the total area proposed for Open Range and Open Forest treatment (Source W:FOR\RSI\DRM\Projects\Ecosystem Restoration\Layers\fmer_v32_drm.lyr) in the FMER (Fire Maintained Ecosystem Restoration) mapping Layer version 3.4. The percentage was multiplied by 10 to get a score out of 10 for elk values.

2.2.3 Bighorn Sheep

After two efforts at Geographic Information Systems analysis it was noted that both the existing Ungulate Winter Range map layer and the new proposed Ungulate winter Range map layer did not mathematically reflect the importance of the R units for sheep as well as they had worked for elk. In both GIS analyses the areas in class 1 and 2 condition were minute in comparison to the total areas of the restoration unit, therefore the percentage was too small to be rated accurately. In this case Larry Ingham R.P. Bio for the Fish Wildlife Compensation Program (Columbia Basin) and Irene Teske R.P. Bio., both wildlife biologist specialising in bighorn sheep, and both working for the Ministry of Forests, Lands and Natural Resource Operations rated 15 restoration units for relative sheep importance. The scores were very close and when they differed the average was set as the score.

2.2.4 Biodiversity

Biodiversity was determined using the Shannon biodiversity index (Shannon and Weaver 1949) and using the site types found in each restoration unit as a surrogate for the related species. Site types are the distinct land units (wet, riparian, rock outcrop, mesic, hygric, etc.) used to classify both Cranbrook and Invermere districts during Predictive Ecosystem mapping.

The Shannon biodiversity index considers how many site series (and related species) are in a restoration unit and relates that to how rare that site series is across the entire FMER area contained in each R Unit. The numbers were calculated by Shawna Larade P. Ag of Rocky Mountain Resource District Range staff. The scores ranged from 1.03 to 2.19. To simplify the ranking of 30 points it was decided that each Shannon index point was worth 13.64 points in scoring. For the three restoration units with no Shannon scores East Columbia was assumed to be similar to Dutch Findlay in scoring, Wigwam similar to Waldo and Windermere Sinclair to Windermere Fairmont.

$$H' = -\sum_{i=1}^{S}(p_i \ln p_i)$$

where

pi is the proportion (n/N) of individuals of one particular species (or total area of individual site series) found (n) divided by the total number of individuals (or total area of Ru Unit) found (N),

ln is the natural log,

Σ is the sum of the calculations

S number of unique sites

H is the Shannon Index (versus the Simpson)

2.2.5 Proper Functioning Condition

Proper Functioning Condition is intended to be a measure of the health of the grasslands and how well they will respond to Ecosystem Restoration treatments. The range health data was and is not available so Rocky Mountain Resource District range staff (Shawna Larade, Ken Walburger and Leanne Colombo) devised an expert layer indicating the relative importance of each range unit for wildlife and cattle forage, how well it should respond to ER treatments (i.e. lots of bunch grasses under forest cover) and decreased scores by invasive plant abundances.

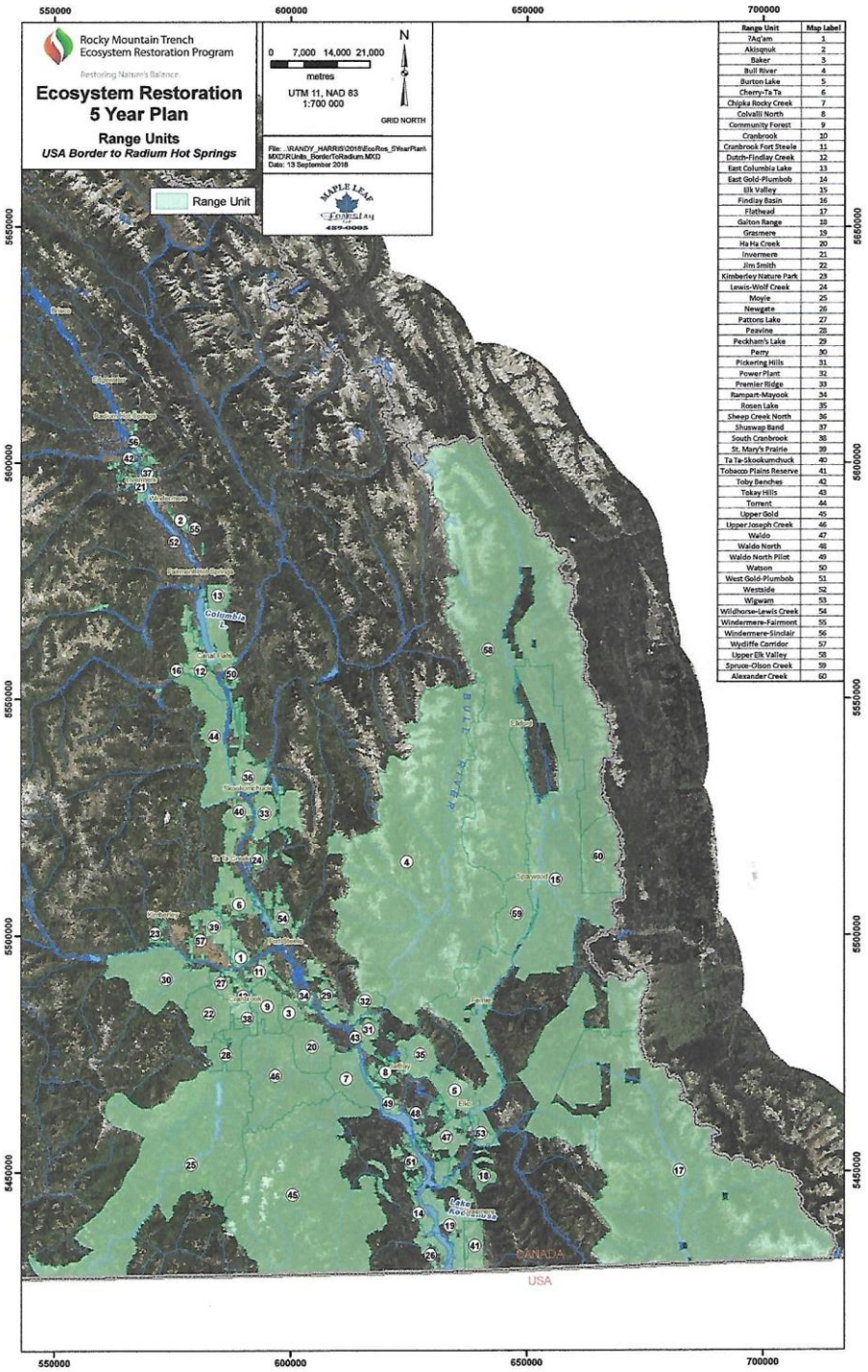

Figure 2 Key map showing Ecosystem Restoration R Units and Fuel Management Units in Rocky Mountain District.

2.4 Fuel Management prioritisation process and table of results

Based on the success of the Ecosystem Restoration prioritisation process, the First Nations Emergency Services Society contracted by the Forest Enhancement Society in May 2017 to draft a similar prioritisation process for Fuel Management and opportunity wood projects (Price et al 2018). The process overlaid three existing fire management planning process, quantified the input from each layer and summarised the results in Table 3.

The draft analysis process with data sources, relative scoring and land units was reviewed in series of meetings and emails in August through November 2017 by

- Wildfire Management Services (Provincial and Regional),
- Provincial Ecosystem Restoration program
- Rocky Mountain Resource District,
- Integrated Investment specialist,
- Forest Enhancement Society,
- Rocky Mountain Trench Natural Resources Society and
- First Nation Land and Resource staff.

Input was taken in, better data sets utilised (especially an upgraded Provincial Strategic Threat Analysis) and scoring for the various factors.

Table 3 Priority matrix for units showing Fuel Management priority ratings and scores, sorted by Interface Percent Score.

Interface Unit	*Interface Percent Score*	Total Interface Score	Fire Interface			CWPP Unit	District Wildfire Management Plan Values			Frequent Nuisance Fires	First Nation Wildfire Plans			Prov. Crown Area (Y/N)
			PSTA[1]	Cons.[2]	Total LC score[3]		Commun. Prot. Line	1° Fire Break	2° Fire break		Inside 1° zone	Inside 2° zone	Inside 3° zone	
Maximum possible	*100%*	*85*	*10*	*5*	*50*	*10*	*8*	*4*	*2*	*5*	*4*	*2*	*0*	
ʔaq̓am	91%	79	10	5	50	10	8			5	4	2		N
Alkali/ Cranbrook Community Forest	76%	67	8	5	40	10	8	4		5			0	Y
Cranbrook Fort Steele	73%	64	10	4	40	8	8	4	2			2	0	Y
Akisqnuk	72%	63	8	5	40	9	8				4	2		N
Fernie	71%	60	8	5	40	10	8		2				0	Y
Radium	66%	58	8	5	40	10	8						0	Y
Fairmont	62%	55	8	5	40	3	8				4			Y
Peavine Ck, Gold Ck, Joseph Ck, South Cranbrook	62%	55	8	5	40	3	8	4					0	Y
Windermere	61%	54	8	5	40	2	8				4			Y
Windermere-Fairmont	61%	54	8	5	40	4	8					2		Y
Waldo South - Kikomun Highway	59%	52.5	6.5	5	32.5	10	8		2					Y
Perry (Jim Smith)	59%	52	8	5	40	0	8	4					0	Y
St. Mary's Prairie	59%	52	9	4	36	2	8				4	2		Y
Kimberley West St, Mary's R	59%	52	8	5	40	6		4					0	Y

Interface Unit	*Interface Percent Score*	Total Interface Score	Fire Interface			CWPP Unit	District Wildfire Management Plan Values			Frequent Nuisance Fires	First Nation Wildfire Plans			Prov. Crown Area (Y/N)
			PSTA[1]	Cons.[2]	Total LC score[3]		Commun. Prot. Line	1° Fire Break	2° Fire break		Inside 1° zone	Inside 2° zone	Inside 3° zone	
Grasmere/ Tobacco Plains Village	58%	49	8	4	32	5	8				4			N
Wycliffe Corridor	56%	48	8	5	40		8						0	Y
Toby Benches	55%	47	5	5	25	10	8	4					0	Y
Shuswap Band	55%	47	5	5	25	10	8				4			N
Cherry Tata	54%	46	8	4	32	4	8		2				0	Y
Grasmere	52%	44	8	4	32	10						2		Y
Invermere	51%	43	5	5	25	10	8							Y
Kimberley (Nature Park)	51%	43	5	5	25	10	8						0	Y
Sparwood	51%	43	5	5	25	10	8						0	Y
Windermere-Sinclair	51%	43	5	5	25	6	8				4			Y
Moyie-Yahk	49%	42	8	4	32	6		4					0	Y
TaTa Skookumchuck	48%	41	8	4	32	3		4	2				0	Y
Peckhams	45%	38	8	3	24	10		4					0	Y
Canal Flats	45%	38	5	4	20	10	8						0	Y
Elkford	45%	38	5	4	20	10	8						0	Y
Lewis-Wolf/ Wasa	41%	35	8	4	32	3							0	Y
Burton Lake	40%	34	8	4	32	2							0	Y
Waldo North of Kikomun Highway	39%	33	8	3	24	7						2		Y
Watson	38%	32	8	4	32									Y

Interface Unit	*Interface Percent Score*	Total Interface Score	Fire Interface			CWPP Unit	District Wildfire Management Plan Values			Frequent Nuisance Fires	First Nation Wildfire Plans			Prov. Crown Area (Y/N)
			PSTA[1]	Cons.[2]	Total LC score[3]		Commun. Prot. Line	1° Fire Break	2° Fire break		Inside 1° zone	Inside 2° zone	Inside 3° zone	
Westside	38%	32	8	4	32								0	Y
Dutch-Findlay	38%	32	5	5	25	5			2				0	Y
Edgewater	38%	32	5	4	20	0	8	4					0	Y
Rampart-Mayook	36%	31	8	3	24	1		4	2				0	Y
Brisco	35%	30	5	3	15	3	8	4					0	Y
East Findlay Basin	34%	29	5	5	25	2			2				0	Y
Baker	33%	28	8	3	24			4						Y
Sheep Cr North	33%	28	8	3	24	2			2				0	Y
Premier Ridge	32%	27	8	3	24	3							0	Y
Gold-Plumbob East Newgate Road	32%	27	8	3	24	1			2				0	Y
Wild Horse-Lewis Cr	32%	27	8	3	24	3							0	Y
E. Columbia Lake	32%	27	5	3	15	4	8						0	Y
Spillimacheen	31%	26	5	3	15	3	8						0	Y
Frances Creek	29%	25	5	3	15	4		4	2				0	Y
Newgate	29%	25	8	3	24	1					0			Y
Rosen lake	29%	25	5	3	15	2	8						0	Y
Colvalli north	28%	24	8	3	24								0	Y
Pickering Hills	29%	25	5	3	15		8						0	Y
Gold-Plumbob West Newgate Rd	25%	21	8	2	16	3			2				0	Y

Interface Unit	*Interface Percent Score*	Total Interface Score	Fire Interface			CWPP Unit	District Wildfire Management Plan Values			Frequent Nuisance Fires	First Nation Wildfire Plans			Prov. Crown Area (Y/N)
			PSTA[1]	Cons.[2]	Total LC score[3]		Commun. Prot. Line	1° Fire Break	2° Fire break		Inside 1° zone	Inside 2° zone	Inside 3° zone	
Rocky Chipka	25%	21	5	4	20	1								Y
HaHa Creek	19%	16	8	2	16								0	Y
Torrent	19%	16	5	2	10			4	2				0	Y
Tokay Hills	18%	15	5	3	15								0	Y
Powerplant	12%	10	5	2	10									Y
West Findlay Basin	12%	10	5	2	10								0	Y
Wigwam	8%	7	5	1	5				2				0	Y

[1] Likelihood score based on the Provincial Strategic Threat Analysis rating
[2] Consequence Score
[3] Total Likelihood Consequence Score

2.5 Description of Fuel Management priority weighting criteria and rationale

2.5.1 Likelihood and Consequences

Likelihood and consequences are multiplied together to determine the risk of a forest catching on fire and engulfing an urban or rural community.

Likelihood is determined by averaging the stand level values of the flammability scores of the forest surrounding a community as determined by the latest version of the Fuel type layer contained in the Provincial Strategic Threat Analysis. Note that individual stands in the threat analysis are rated qualitatively from very low to extreme flammability as follows:

1 - very low
2 - low
5 - medium
8 - high
10 - extreme

Consequence is scored qualitatively 1 to 5, based on whether unit is down wind of community or housing, size of community, or if unit is adjacent to community or community defence line[1]:

0 - > 5 km from any habitation
1 - >2 km from any habitation downwind and 1 km distance up wind
2 - 1 to 3 km away from habitation
3 - adjacent to or < 2 km upwind of any populations <100 people
4 - adjacent to or < 2 km upwind of populations > 100 people or downwind of <1000 people
5 - adjacent to or < 2 km upwind of populations > 1000 people

2.5.2 Community Wildfire Protection Plan

If a unit has proposed units in it from existing Community Wildfire Protection Plans (CWPP) points are awarded based on: One point for each approved CWPP unit up to a maximum of ten points

2.5.3 Nuisance Fires

An expert layer was added if there was known problem area; high recreation traffic and a history of at least 5 nuisance fires over last 10 years; score up to 5 points. Based on Local knowledge, this layer was only assigned in Cranbrook Community Forest and Grasmere.

[1] Community defence line is from the District Fire Management Plan updated to 2017 standards. Size of communities were determined from Canada post website https://www.canadapost.ca/cpotools/mc/app/tpo/pym/targeting.jsf

2.5.4 District Wildfire Protection Plan

In 2017 the Rocky Mountain Natural Resource District was covered by a new District Fire Management Plan updated to 2017 standards in which community protection lines and primary and secondary fuel breaks were proposed. This factor demonstrates a Landscape Level plan for fuel hazard reduction.

If the Analysis unit or LBU falls within or straddles a Community Defence line score = 8,
If the Analysis unit or LBU falls within or straddles a primary fuel break score = 4,
If the Analysis unit or LBU falls within or straddles a secondary fuel break score =2

2.5.5 First Nation Wildfire Plans

In Analysis units which are covered by the First Nation Emergency Services Society zoning mapping, (which is currently only available on Indian reserves which is contained in the District Fire Management Plan updated to 2017 standards) we suggest the following scoring. If the unit falls within or straddles:
category 1 zone (immediate within 100 metres of habitation) score =4.
category 2 zone (within 100 to 300 metres of habitation) score = 2
category 3 zone (over 300 metres from habitation) score = 0,

3.0 Chapter 3 Process of Referral and approval

This integrated plan proposes projects that involve cutting and harvesting trees, building roads, landings and fireguards, and carrying out silviculture-like operations and prescribed burns, under a variety of programs. The following is a series of interpretations of the Act that should be considered in developing or evaluating this plan.

Under section 52 of the *Forest and Range Practices Act* no trees may be cut or destroyed on Crown land unless authorised by a license granted under the *Forest Act*, the *Land Act*, or the *Parks Act*. Harvests under major licences granted under the *Forest Act* require a Forest Stewardship Plan and are not covered in this plan. Activities funded by sources voted upon and assigned by BC legislature (such as Land Based Investment fund or activities by Wildfire Services) are authorised under section 52 and need no further authorisation. Unfortunately, the majority of funding sources in this plan do not fall into this category and other authority is required.

Under Section 52.1 of the same Act the Minister may authorise cutting trees for silviculture, stand tending, fuel abatement, forest health or other reasons. Ecosystem Restoration falls into this category. The Rocky Mountain District Manager has requested that the review and comment period of this plan meet the same review and consultation process that a Forest Stewardship Plan would normally meet. These conditions are outlined in Section 16 and 17 of the *Forest Planning and Practices Regulation*. So,

accordingly, this plan is to be advertised, referred to stakeholders and sent to First Nations for consultation.

This plan sets up a five year schedule for treatments for Ecosystem Restoration, Wildlife Habitat or Fuel Management projects which provides a comprehensive overview suitable for consultation and referral purposes. It expected that every year, preferably starting in January 2019, an annual update with new tables possibly with projects not listed in these current attached tables will be completed and subjected to referrals and First Nations consultation.

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Appendix 1 Tables of Five Year Plan Separated by Year and Activity