

FINDLAY BASIN RANGE UNIT FOREST INGROWTH MANAGEMENT STRATEGY

Introduction

The purpose of this document is to develop a strategic plan for the implementation of the Kootenay Boundary Land Use Plan NDT4 Guidelines. The intent of the NDT4 guidelines is to “improve the productivity and health of fire-maintained forests and rangelands by restoring stand structure and species composition through modern methods of logging, thinning and prescribed burning”. Previous resource uses and management practices, including harvesting, grazing, and suppression of fires, have resulted in excessive overstocking of pole sized Ponderosa Pine and Douglas-fir of low quality, lodgepole pine seral patches and decreasing and degrading open grasslands dominated by lower quality grass and shrubs.

Methodology

The study area was initially mapped by land ownership, tenure holders and previous resource activities to determine feasible areas for the implementation of the NDT4 guidelines (eg. Christmas tree permits and private lands are not considered for the re-introduction of fire). Initial treatment units were set based on:

- 1) Historic patterns of development that would allow for, or restrict, the re-introduction of fire to the ecosystem. This included recognition of possible fire guards and burn boundaries;
- 2) Biogeoclimatic subzone. This was done to delineate, based on elevation, the NDT4 from the NDT3;
- 3) Current and historic vegetation cover. This was estimated using current conifer ages, stump densities and relative state of decay, and presence or absence of herbaceous cover (ie remnant fescues, saskatoon etc.).

Following this initial mapping exercise the areas were ground checked to determine management priorities for the implementation of the NDT4 guidelines.

Guiding Principles

The following guiding principles were used to set treatment scheduling:

- (a) The Kootenay/Boundary Fire-Maintained Ecosystem Restoration Components and Targets (Table 1) and the Kootenay Boundary Land Use Plan Fire Maintained Ecosystem (NDT4) Management Guidelines (Table 2) would guide, but not dictate, areas to be managed under each of the 4 ecosystem component types within any individual range unit. Rather the percentage of each component would be considered for the entire NDT4 within the Invermere Forest District. This could mean that any given plan area could potentially exceed or lack in any given component.
- (b) The current levels of crown closure, over the entire management unit, would be the maximum allowable over time.
- (c) Current tenure holders would be respected in the development of the strategy.
- (d) It is desirable to reintroduce fire, where feasible, into these ecosystems in-order to keep crown closure in check, invigorate shrubs and grass, and reduce the risk of catastrophic wildfires.
- (e) Stand tending activities and harvesting prior to initiation of burns, to capture existing volumes and avoid wasting current under sized volumes would be employed were possible.
- (f) Harvesting could occur over time in all ecosystem components.

Overview:

This management strategy covers the Findlay Basin Range Unit located within the Invermere Forest District. This range unit encompasses the majority of the Findlay Creek drainage basin from the confluence with the Kootenay River west to the Purcell Wilderness Conservancy.

The majority of this unit is located outside the IDFdm2/IDFun, with only the lower elevations, below 1200m being considered for Open Range/Open Forest management.

Ungulate capability in this area is designated as either 1W,2W or 3, indicating high to medium quality winter range.

TREATMENT UNIT ONE

Description:

This treatment unit follows the boundaries of Saddle pasture. Saddle pasture has experienced large-scale wildfires (1985 Spen Fire) and prescribed burns in the past 1-13 years. As a result this pasture has a high proportion of open range and open forest types.

Burning should continue within this pasture, where fireguards are available, to maintain this high quality range.

There are two stratum within this treatment unit.

Stratum A:

This stratum is a mosaic of open range and open forest consisting of Py plantations and natural dispersed conifer regeneration. As of 1997 the plantations are approximately 35 years old and 6-8m tall. These plantations have reached a fire resistant nature. There is significant deciduous cover dispersed throughout this stratum.

Stratum B:

This stratum is fully stocked with a mixture of mature Py,Fdi,Lw and Pl. Harvesting of Pl should occur to capture volumes and create a more open forest stand structure.

This pasture should be managed under an open forest regime. There will be a mosaic of open range and open forest throughout this pasture.

MANAGEMENT OBJECTIVES FOR TREATMENT UNIT ONE

Pasture	Stratum	Management Objectives	Objectives/Comments	Action Items
Saddle	A	Open Forest	Manage current conifer stocking to open forest densities through commercial thinning activities and prescribed burning.	<ul style="list-style-type: none">Continue prescribed burning in short term (next 25 yrs.)Commercial thin approximately 40 years.
	B	Open Forest	Manage to open forest structure through harvesting and prescribed burning activities. Manage densities in the upper end of open forest (250-400 sph).	<ul style="list-style-type: none">Direct initial Pl harvesting to occur in next 10 years.Initiate prescribed burning along with stratum A.

TREATMENT UNIT TWO

Description:

This treatment unit follows the Stinky Slough pasture boundaries. This treatment unit is within the 1985 Spen Wildfire and as a result is currently a mosaic of open range and open forest areas. There are no current fully stocked mature stands within this treatment unit. Terrain is a series of benches interspersed with erosion gullies. Deciduous types are prevalent throughout this treatment unit on the moister benches and gullies. This area is heavily used winter range. There are 4 stratum within this treatment unit.

Stratum A:

This stratum is currently an open range type. There are small Py and Pl plantations scattered throughout this stratum, as well as deciduous patches. This stratum should be managed in the long term as open range, with small open forest patches scattered throughout. Current plantations within the Stinky Slough pasture to be allowed approximately 25-30 years prior to the next fire to be allowed to develop fire resistance. Manage these plantations to open forest densities.

Stratum B:

This stratum is in two distinct units, one located at the east end of Stinky Slough pasture, encompassing Stinky Slough itself, and the other to the west on the toe of Fir Mountain up to approximately 1400m of elevation. Current stocking is an open forest/open range Fdi,Py type (with a minor component of other species including Lw,Pl and At). There is Fdi regeneration ingressing throughout this stratum, which will require treatment in the future to limit to maintain open forest structure.

Stratum C:

This stratum is located to the extreme west within the Stinky Slough pasture and is in close proximity to private lands, making introduction of fire problematic. Stand structure is currently a mix of open forest and closed forest. This stratum has a good component of mature Py and should be managed to an open forest structure through mechanical harvesting and stand tending.

Stratum D:

This stratum is located between the Findlay FSR and Findlay Creek. This stratum is currently has dispersed stocking of regenerated Pl (from the 1985 Spen Wildfire) and At. Stocking levels within the Pl clumps are very high and will warrant stand tending in the near future. This stratum is to be maintained in managed forest densities.

MANAGEMENT OBJECTIVES FOR TREATMENT UNIT TWO

Pasture	Stratum	Management Objectives	Objectives/Comments	Action Items
Stinky Slough	A	Open Range	Manage to Open Range with a scattered Open Forest component throughout. Open Forest component from plantations. Manage densities of plantations through mechanical methods and burning.	<ul style="list-style-type: none"> Allow plantations to develop for approximately 20 years then manage densities mechanically. Re-introduce fire in approximately 30 years once plantations are fire resistant and biomass has built up.
•	B	Open Forest	Manage to open forest structure through harvesting and prescribed burning activities.	<ul style="list-style-type: none"> Assess regeneration progress and managed densities through mechanical means in approximately 10-15 years. Re-introduce fire in approximately 30 years once plantations are fire resistant and biomass has built up.
•	C	Open Forest	Manage to open forest structure using mechanical means. Fire to be restricted due to proximity to private land.	<ul style="list-style-type: none"> Harvest/Stand tending when crown closure exceeds 40% to maintain in open forest condition.
•	D	Managed Forest	Managed to full stocking standards for timber production, with range value supplied in regeneration phase.	<ul style="list-style-type: none"> Stand tending 5-10 years. Harvest/Commercial thinning as per Forest Development Plan.

TREATMENT UNIT THREE

This treatment unit follows the Findlay pasture boundaries, with a small extension into the Whitetail pasture at the extreme west end near the Crestbrook Forest Industries private lands (SL 167). The northern fence line of the Findlay pasture is used as the boundary of this treatment unit as this is a good fire-guard for burning. This treatment unit contains an exclosure seeding trial. There are three stratum within this treatment unit.

Stratum A:

This stratum is the current open range type within the Findlay pasture. Manage for Open Range thorough prescribed burning.

Stratum B/B1:

Stratum B is the forested type surrounding stratum A between Findlay creek and the fenceline to the north. This stratum is currently a “fully stocked” conifer stand, consisting of Fdi,Py and Pl. There are immature Pl stands located in the western end of this unit (designated Stratum B1)

This stratum should be managed to open forest structure through harvesting and the re-introduction of fire. Harvest B to open forest conditions and re-introduce fire along with stratum A.

Allow Pl to mature within stratum B1 prior to the re-introduction of fire. Following harvest of Pl move burn boundary from western edge of B to western edge of B1

Stratum C:

This stratum is a small unit surrounded by SL 167 (private land) making the re-introduction of fire problematic. This unit is within the NDT4 and as such should be managed to an Open Forest structure

through mechanical means. There are immature PI areas that have been spaced within this stratum. Allow PI to mature. Harvest to promote open forest structure and managed densities mechanically.

MANAGEMENT OBJECTIVES FOR TREATMENT UNIT THREE

Pasture	Stratum	Management Objectives	Objectives/Comments	Action Items
Findlay	A	Open Range	Maintain in open range condition through burning	<ul style="list-style-type: none"> Re-introduce fire within 10 years.
•	B	Open Forest	Manage for open forest structure through a combinations of harvesting, stand tending and burning.	<ul style="list-style-type: none"> Harvest to low end open forest structure to promote regeneration for recruitment. Re-introduce fire along with stratum A. Burn once for slash disposal and PI exclusion, then allow recruitment of fire resistant conifers.
•	B1	Open Forest	Manage for open forest structure. This stratum contains immature PI. Allow PI to mature and harvest prior to re-introduction of fire	<ul style="list-style-type: none"> Allow PI stands to mature (approximately 40-50 years to merchantability). Following harvest re-introduce fire to limit PI regeneration.
•	C	Open Forest	Manage to open forest conditions through mechanical means	<ul style="list-style-type: none"> Allow PI to mature and harvest.

TREATMENT UNIT FOUR

This treatment unit is comprised of the Lavington Pasture south of Findlay creek. There are 3 stratum within this treatment unit.

Stratum A:

This stratum is the current open range portion of the Lavington Pasture. There are scattered conifer and deciduous patches within this stratum, which supply small areas of cover (mostly shade for cattle in the summer months). These small patches should be retained within the greater open range management prescribed for this stratum.

Stratum B:

This stratum is currently stocked to a multi-aged stand of mixed species conifers, including PI,Py,Fdi and Lw. The areas was harvested in the winter of 1996/97 leaving a mosaic of pole to mature Py,Fdi and Lw with immature PI dispersed throughout. The PI, which was spaced in conjunction with the harvesting pass is currently late age class 1 - early age class 2 and should be allowed to mature prior to the reintroduction of fire. Harvest PI when merch.

Stratum C:

This stratum is a very small polygon cut off from the remainder of the pasture by Crestbrooks Private Lands. Site index's are better than those to the east. The increased site index and isolation of this stratum dictate managed forest densities.

MANAGEMENT OBJECTIVES FOR TREATMENT UNIT FOUR

Pasture	Stratum	Management Objectives	Objectives/Comments	Action Items
Lavington	A	Open Range	Maintain in open range condition through burning	<ul style="list-style-type: none">• Re-introduce fire in approximately 40 years.
•	B	Open Forest	Manage for open forest structure through a combinations of harvesting, stand tending and burning.	<ul style="list-style-type: none">• Allow dispersed PI to mature and harvest along with other species.• Re-introduce fire following initial harvest.
•	C	Managed Forest	Manage for timber production with range attributes supplies in the regeneration phase.	<ul style="list-style-type: none">• None. Harvest as per Forest Development Planning.

TREATMENT UNIT FIVE

This treatment unit is comprised of the NDT3 areas within the Findlay Basin Range Unit. This entire area is to be managed for timber with range attributes in the regeneration phase.

MANAGEMENT OBJECTIVES FOR TREATMENT UNIT FOUR

Pasture	Stratum	Management Objectives	Objectives/Comments	Action Items
Whitetail	A	Managed Forest	Manage for timber production with range attributes supplied in regeneration phase.	<ul style="list-style-type: none">• Harvest as per Forest Development Planning.

Long Term Scheduling Summary

<i>Pasture</i>	<i>Stratum</i>	<i>Management Objective</i>	<i>1997-2005</i>	<i>2006-2015</i>	<i>2016-2025</i>	<i>2026-2035</i>	<i>2036-2045</i>	<i>2046-2055</i>	<i>2056-2065</i>	<i>2066-2075</i>	<i>2076-2085</i>	<i>2086-2095</i>
Saddle	A	Open Forest	None	Prescribed Burn	Harvest Prescribed Burn	None	None	None	Prescribed Burn	Prescribed Burn	Harvest Prescribed Burn	None
	B	Open Forest	Harvest Pl	Prescribed Burn	Harvest Prescribed Burn	None	None	None	Prescribed Burn	Prescribed Burn	Harvest Prescribed Burn	None
Stinky Slough	A	Open Range	None	Stand Density Treatments	None	Prescribed Burn	Prescribed Burn	Harvest Pl Stands Prescribed Burn	None	None	None	Prescribed Burn
	B	Open Forest	None	None	Harvest	Prescribed Burn	Prescribed Burn	Harvest Prescribed Burn	None	None	None	Prescribed Burn
	C	Open Forest	None	None	Harvest	None	Stand Density Treatments	None	Harvest	None	Stand Density Treatments	None
	D	Managed Forest	Stand Density Treatments	None	None	None	None	Harvest Pl	None	Stand Density Treatments	None	None
Findlay	A	Open Range	None	Prescribed Burn	Prescribed Burn	None	None	None	Prescribed Burn	Prescribed Burn	Prescribed Burn	None
	B	Open Forest	Harvest	Prescribed Burn	Prescribed Burn	None	None	None	Prescribed Burn	Prescribed Burn	Harvest Prescribed Burn	None
	B1	Open Forest	None	None	None	None	None	Harvest Pl	Prescribed Burn	Prescribed Burn	Harvest Prescribed Burn	None
	C	Open Forest	None	None	None	None	None	Harvest Pl	None	Stand Density Treatments	None	None
Lavington	A	Open Range	Juvenile Space Pl clumps	None	None	None	Harvest Pl Prescribed Burn	Prescribed Burn	Prescribed Burn	None	None	None
	B	Open Forest	None	None	None	None	Harvest Pl Prescribed Burn	Prescribed Burn	Harvest Prescribed Burn	None	None	None
	C	Managed Forest	Stand Density Treatments	None	None	None	None	Harvest	None	Stand Density Treatments	None	None
Stinky Slough Whitetail	All	Managed Forest	Harvest as per FDP *	Harvest as per FDP	Harvest as per FDP	Harvest as per FDP	Harvest as per FDP	Harvest as per FDP	Harvest as per FDP	Harvest as per FDP	Harvest as per FDP	Harvest as per FDP

* FDP = Forest Development Planning Process