

APPENDIX IX
TWENTY-YEAR PLAN

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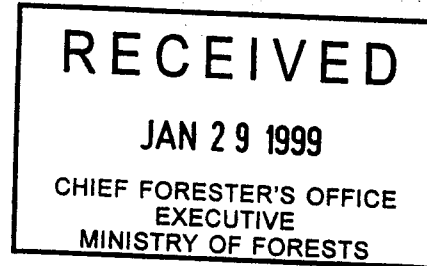
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TFL 23 MP#9

January 19, 1999

Doug Lang
Forestry Manager
Pope & Talbot Ltd.
Box 2000
Nakusp, B.C. V0G 1R0



Dear Doug:

As provided under paragraphs 2.17 and 2.21 of the Tree Farm Licence (TFL) No. 23 Licence Agreement, we are accepting the "20-Year Spatial Feasibility Analysis" associated with Management Plan (MP) No. 9. This plan projects a periodic harvest by Landscape Unit (LU) for the period January, 1999 to December, 2019.

Our acceptance of this plan acknowledges the company's use of a spatial analysis model that incorporates current management practices to support the feasibility of achieving the base case harvest level. Our acceptance recognizes that this is a "tactical plan" only and does not constitute acceptance that the proposed blocks are operationally feasible or that they would be approved, as submitted, in a Forest Development Plan (FDP).

There is a concern by the Columbia Forest District that relates to their district's implementation of the Minister's Advisory Committee (MAC) recommendations as they relate to land use. These recommendations affect forest development in the landscape units of the Shelter Bay Block. Although they have not been formally approved or adopted as a higher level plan under the Forest Practices Code, they are being used in draft form to guide forest development planning in this area.

The MAC recommendations propose specific resource emphasis areas and forest cover requirements for non-timber values and biodiversity for the Shelter Bay landscape units. Some of these requirements are more restrictive than the 20-year plan and project a less optimistic available timber supply. This is confirmed with independent maximum eligible depletion (MED)

.../2



runs which were done by the Columbia District. As the MAC recommendations are currently guiding operational planning, the Columbia Forest District will be requesting that the Chief Forester consider them in his AAC determination.

The Arrow Forest District has identified blocks on the proposed plan that, in reality, are not available. It is unknown if the proposed level of harvest is actually available in other parts of the same landscape unit because Maximum Eligible Depletion (MED) runs were not completed on a landscape unit basis.

If you have any questions, please contact Ted Evans, Planning Forester with the Arrow Forest District in Castlegar, at (250) 365-8680.

This letter is an integral part of Management Plan No. 9 and should be attached thereto.

Yours truly,



Brian Simpson
District Manager
Arrow Forest District



Dave Raven, R.P.F.
District Manager
Columbia Forest District

cc Larry Pedersen, Chief Forester
Ross Tozer, Regional Manager, Nelson Forest Region
Gerald Reichenback, Issues Forester, Nelson Forest Region
Pat Field, Manager Resource Planning, Arrow Forest District
Jim Blake, Zone Forester, Columbia Forest District
Gerry Fox, Habitat Biologist, Kootenay Region

*For maps to 20 year
plan, contact Arrow
or Columbia Forest
District*

**POPE & TALBOT LTD.
ARROW LAKES TREE FARM LICENCE 23
MANAGEMENT PLAN #9
20 YEAR SPATIAL FEASIBILITY ANALYSIS

FINAL VERSION**

Prepared by:

Pope & Talbot Ltd.
&
Timberline Forest Inventory Consultants Ltd.
October 27, 1998
Reference: 9740014.2.

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1. Introduction

As laid out in the MoF guidelines for the preparation of the 20-year plan, the spatial plan sets out a hypothetical sequence of harvesting over a period of at least 20 years. The 20 year plan utilizes spatial constraints with little or no field information, to test achievement of a harvest level that conforms to current standards and practices as defined for the base case in the Timber Supply Analysis Information Package.

The TFL 23 20-year spatial feasibility analysis is being prepared with these objectives in mind. It is not designed to be an operational plan, but a test of timber availability given the current structural characteristics and spatial distribution of components of the resource, and the structural and spatial management objectives associated with KBLUP and the Forest Practices Code.

2. Methodology

In general, the methodology employs the existing 5-year development plan and 20-year plan blocks as a starting point. The balance of the productive forested area was then subdivided into “pseudo-blocks” around all of these blocks, employing GIS features, which would be expected to define logical block boundaries. The combination of the planned blocks and the “pseudo blocks” generated in the GIS environment is then used to test the 20 year spatial feasibility of alternative timber supply scenarios, using Timberline’s CASH6 timber supply model. This model is a simulation tool, which can be used to model the forest cover and seral stage requirements defined by the Kootenay Boundary Land Use Plan Implementation Strategy, using similar functionality to that employed by the Ministry of Forests FSSIM timber supply model. In addition, CASH6 has full spatial functionality, enabling the explicit allowance for cut block adjacency, and permitting the user to specify maximum opening size requirements and long-term patch size distribution objectives. In the model, adjacent blocks are aggregated together if the resulting aggregated components do not exceed the maximum opening criteria for the management zone, and if such aggregation will improve the patch size distribution relative to the specified objectives.

2.1 GIS Data Preparation Steps

The steps described in Sections 2.1.1-2.1.6 were used to define “pseudo-blocks” for the TFL. However at this point no harvest schedule has been assigned. The rationale for employing these themes to define pseudo-blocks, was that at some point, any and all of these feature boundaries could conceivably define a limit to harvesting, and therefore would define harvest block boundaries.

2.1.1 Road buffer generation.

200 metre and 600 metre road buffers were generated around all existing and proposed roads. These were used to define operational timber access limits for the purpose of generating pseudo-block boundaries.

2.1.2 Terrain hazard definition

Slope and terrain coverages were overlaid to define a terrain hazard landbase netdown attribute. All resultant polygons with slope > 75% and TSIL “D” class IV and V terrain hazard ratings were identified.

2.1.3 Age class definition

Forest cover data was generalized to define age-based “patches”, for the purpose of characterizing existing and future patch size distributions. The following age categories were employed:

1-20, 21-40, 41-60, 61-100, 101-140, 141-250, 251+

Adjacent forest stand polygons falling within the same age grouping were aggregated to define patches for biodiversity purposes.

2.1.4 Non-harvestable forest components

Based on the netdown criteria outlined in the data package, all non-productive and productive but non-harvestable components of the forest were also identified.

Note: Existing roads were not netted out for the 20-year spatial feasibility analysis, as it was assumed that the majority of these roads would fall outside of the scheduled blocks.

2.1.5 GIS overlays

The following GIS coverages were overlaid in order to define blocks for the spatial analysis:

- caribou habitat
- domestic watersheds
- BEC/NDT
- slope
- ungulate winter range
- VQO zones
- ESA (regeneration)
- community watersheds
- non-productive/ non-harvestable components
- operability
- patch age classes
- riparian reserve zones
- hazardous terrain
- 5-year plan blocks and 20-year plan blocks
- 200 and 600 metre road buffers
- landscape unit boundaries

2.1.6 Elimination of small resultant polygons

To avoid unnecessary detail, all resultant polygons < .5 ha were eliminated by merging them into larger adjacent polygons. In addition, a hierarchical merging process was used to systematically reduce the number of polygons in the .5 to 2.0 hectare range.

2.1.7 Definition of within block stand conditions

The block is the basic unit of harvesting in CASH6. However, blocks can contain varying stand conditions, each with its own pattern of growth and regeneration. Analysis unit characteristics, as described in the data package, are defined at the forest cover polygon level. Capturing the within block stand detail is accomplished by overlaying the pseudo block layer onto the forest cover.

2.2 Development of 20 Year Harvest Schedule

Using CASH6, a 20 year schedule was developed based on achieving an annual harvest level of 680,000 cubic metres.

Note: No allowance was made for non-recoverable losses in the 20 year spatial feasibility analysis, as it was assumed that the schedule would exclude these areas.

2.2.1 KBLUP rules

This analysis incorporates all of the KBLUP biodiversity and REA forest cover requirements as described in the data package.

2.2.2 Cut block adjacency

Blocks are considered adjacent if they touch at any point on their perimeters. A block cannot be harvested as long as any adjacent block is below greenup (2 metres). However, adjacency is waived if aggregation of blocks will improve patch size distribution relative to the target distribution, and if the resultant block size does not exceed the maximum specified for the REA zone. Maximum block size definitions for each REA were specified as follows:

- Caribou 100 ha
- VQO 40 ha
- Com. watershed 40 ha
- Dom. Watershed 40 ha
- Ungulate Winter Range 20 ha
- IRM 100 ha

A general patch size distribution target was specified as follows:

- | • Size | Percent |
|--------------|---------|
| • < 2 ha | 0 |
| • 2 - 40 ha | 30 |
| • 41 - 80 ha | 30 |
| • 81 - 250 | 40 |
| • 251+ ha | 0 |

2.2.3 Harvest priorities

The following harvest block priorities were assigned in descending order of importance
5 year development plan block > 20-year plan block > oldest non-plan block

Note: No block can be harvested if doing so will violate forest cover objectives. With the exception, of 5-year development plan blocks, all stands within a block must be above minimum harvest age before the block can be harvested. In the case of 5-year development plan blocks, it is assumed that they have been assessed operationally, and meet minimum volume and piece size requirements regardless of stand age.

2.3 Mapping the 20-year Schedule

Once the schedule has been developed within the CASH6 environment, the results are returned to the GIS environment for mapping at the landscape unit level. For each landscape unit, three map themes have been prepared.

Pre-harvest age distribution: This map shows the spatial distribution of age-based patches at the start of the 20-year planning period. The following features are included:

Harvest schedule: This map presents the harvest schedule by 5-year period.

Post Harvest distribution: This will follow the same format as the pre-harvest age distribution. Scheduled blocks replace pre-cut conditions and all stands are aged by 20 years

3.0 Results

Table 3.1 provides a summary of the harvest by landscape unit, for each of the four harvest periods. While the target harvest is 680,000 cubic metres per year, or 3,400,000 cubic metres for each five-year harvest period, actual levels may differ by a small amount, as CASH6 harvests blocks as discrete units.

Table 3.1 Harvested volume (cubic metres) by landscape unit

Landscape Unit	Period 1	Period 2	Period 3	Period 4	Total
R1 (Pingston)	162767	199491	73498	96939	532695
R2\3 (Cranberry/Akolkoalex)	271349	102920	0	153022	527291
R4 (Mulvehill)	242760	17261	56698	187003	503722
N510 (Johnston)	154740	126364	460653	173188	914945
N511 (Cayuse)	45017	48233	101456	111180	305886
N518(Gladstone)	140671	157494	251859	275347	825371
N520 (Barnes)	405982	478256	689456	469052	2042746
N521 (Woden)	153689	294943	289243	181154	919029
N526 (Vipond)	67997	348431	405580	175370	997378
N527 (Fosthall)	525037	530425	379179	481388	1916029
N529 (Halfway)	463628	512297	467255	463380	1906560
N530 (Trout)	538567	350122	148686	368728	1406103
N531 (Fish)	227761	233699	76401	264244	802105
Total	3399965	3399936	3399964	3399995	13599860

Table 3.2 Harvested area (hectares) by landscape unit

Landscape Unit	Period 1	Period 2	Period 3	Period 4	Total
R1 (Pingston)	402	529	222	251	1404
R2\3 (Cranberry/Akolkoalex)	640	241	0	351	1232
R4 (Mulvehill)	552	34	148	437	1171
N510 (Johnston)	642	477	1651	663	3433
N511 (Cayuse)	216	171	404	383	1174
N518(Gladstone)	623	548	953	960	3084
N520 (Barnes)	1549	1440	2274	1524	6787
N521 (Woden)	524	904	1009	558	2995
N526 (Vipond)	221	971	1358	499	3049
N527 (Fosthall)	1618	1504	1206	1374	5702
N529 (Halfway)	1437	1353	1454	1239	5483
N530 (Trout)	1273	899	434	883	3489
N531 (Fish)	513	550	203	594	1860
Total	10210	9621	11316	9716	40863

Table 3.3 summarizes the harvest with the aerial operability classification, while Table 3.4 shows the harvest which occurred within the private land and timber license tenures within the TFL.

Table 3.3 Harvested volume (cubic metres) by landscape unit – Aerial operability only

Landscape Unit	Period 1	Period 2	Period 3	Period 4	Total
R1 (Pingston)	9717	0	3311	8110	21139
R2\3 (Cranberry/Akolkolex)	2544	854	0	14823	18221
R4 (Mulvehill)	0	0	3065	22252	25317
N510 (Johnston)	11087	0	81751	11232	104071
N511 (Cayuse)	0	0	0	0	0
N518(Gladstone)	1806	0	46778	32411	80995
N520 (Barnes)	1310	0	73675	9541	84527
N521 (Woden)	25810	3263	125272	38309	192653
N526 (Vipond)	0	0	33749	3514	37263
N527 (Fosthall)	3894	0	15406	77779	97079
N529 (Halfway)	66140	2650	118260	74799	261850
N530 (Trout)	57537	35830	38028	104814	236209
N531 (Fish)	15095	4674	33872	105876	159517
Total	194943	47271	573166	503460	1318840

The aerial operability classification represents 9% of the net timber harvesting landbase for TFL 23. Over the 20 year time horizon of this analysis, the harvest within the aerial operability classification comprises 9.7% of the total harvest. However, as shown in Table 3.3, this harvest is largely concentrated in periods 3 and 4 of the 20 year plan. This is a direct result of the scheduling priorities employed in the analysis (5 year development plan block > 20 year plan block > oldest non-plan block). As the plan blocks, particularly those in the 20 year plan component, were largely placed in the conventional operability zone, the scheduling priorities concentrate harvesting within this zone in the first two periods. However, as the harvest shifts into the non-plan “pseudo-blocks” in the last two periods, a greater proportion of the harvest occurs in the aerial zone. This represents only one scenario. There is ample opportunity within the spatial rules applied in the analysis, to redistribute the harvest to balance the aerial component within each 5 year period.

Table 3.4 Harvested volume (cubic metres) by landscape unit – Schedule A lands only

Landscape Unit	Period 1	Period 2	Period 3	Period 4	Total
R1 (Pingston)	4049	1508	24830	6952	37340
R2\3 (Cranberry/Akolkolex)	17807	427	0	0	18234
R4 (Mulvehill)	0	0	4980	10698	55574
N510 (Johnston)	0	0	0	0	0
N511 (Cayuse)	0	0	0	871	871
N518(Gladstone)	0	0	0	0	0
N520 (Barnes)	0	6642	910	0	7552
N521 (Woden)	0	0	0	0	0
N526 (Vipond)	8615	19736	13440	1757	43548
N527 (Fosthall)	1622	59602	21694	13313	96233
N529 (Halfway)	0	4544	5784	0	10328
N530 (Trout)	0	0	6167	0	6167
N531 (Fish)	0	3824	1505	1335	6664
Total	32094	96284	79311	34926	242615

Sections 3.1-3.13 provide summaries for each landscape unit. They include volume and area harvest summaries by REA, as well as forest cover by REA and seral stage status by BEC/NDT. It should be noted that, as REA boundaries often overlap, the harvest figures for different REAs are not additive.

3.1 Landscape Unit R1 - Pingston

Table 3.1.1 Harvest Schedule (Volume (m3)) – LU 1

REA	Period				Total
	1-5	6-10	11-15	16-20	
Ungulate	25770	65509	54340	31420	177039
IRM	136997	133982	19157	65519	355655

Table 3.1.2 Harvest Schedule (Area (ha)) – LU 1

REA	Period				Total
	1-5	6-10	11-15	16-20	
Ungulate	93	213	161	85	475
IRM	308	315	60	166	693

Table 3.1.3 Biodiversity seral stage status – LU 1

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvesting)				
				Ag	%	Year 0	Year 5	Year 10	Year 15	Year 20
ESSFwc1	1	Avg	Mat+Old	≥120	≥30	14	14	14	14	14
ESSFwc1	1	Avg	Old	≥250	≥14	0	0	0	0	0
ESSFwc4	1	Avg	Mat+Old	≥120	≥30	79	77	77	77	76
ESSFwc4	1	Avg	Old	≥250	≥14	3	3	3	3	3
ICHmw2	2	Avg	Mat+Old	≥100	≥25	62	59	55	52	50
ICHmw2	2	Avg	Old	≥250	≥7	1	1	1	1	1
ICHmw3	3	Avg	Mat+Old	≥100	≥20	32	30	28	28	25
ICHmw3	3	Avg	Old	≥140	≥11	32	30	28	28	25
ICHwk1	1	Avg	Mat+Old	≥120	≥30	41	37	32	33	32
ICHwk1	1	Avg	Old	≥250	≥14	6	6	6	6	6

Table 3.1.4 REA constraint status – LU 1

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Percent	Year 0	Year 5	Year 10	Year 15	Year 20
Ungulate	Disturb	<15	≤25	11	14	11	16	16
	Thermal	≥120	≥40	42	41	40	47	47
IRM	Disturb	<15	≤25	18	24	15	14	11

3.2 Landscape Unit R2\3 – Cranberry/Akolokolex

Table 3.2.1 Harvest Schedule (Volume (m3)) – LU 2

REA	Period				Total
	1-5	6-10	11-15	16-20	
Dom H2O	0	6003	0	19165	25168
Ungulate	0	0	0	0	0
IRM	271349	96916	0	133856	502121

Table 3.2.2 Harvest Schedule (Area (ha)) – LU 2

REA	Period				Total
	1-5	6-10	11-15	16-20	
Dom H2O	0	11	0	42	28
Ungulate	0	0	0	0	18
IRM	640	229	0	308	889

Table 3.2.3 Biodiversity seral stage status – LU 2

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvest)				
				Age	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc4	1	Avg	Mat+Old	≥120	≥30	71	65	63	63	59
ESSFwc4	1	Avg	Old	≥250	≥14	0	0	0	0	0
ICHmw2	2	Avg	Mat+Old	≥100	≥25	54	54	56	60	63
ICHmw2	2	Avg	Old	≥250	≥7	0	0	0	0	0
ICHmw3	3	Avg	Mat+Old	≥100	≥20	28	25	23	24	23
ICHmw3	3	Avg	Old	≥140	≥11	27	23	22	22	20
ICHwk1	1	Avg	Mat+Old	≥100	≥28	38	35	34	34	33
ICHwk1	1	Avg	Old	≥250	≥10	1	1	1	1	1

Table 3.2.4 REA constraint status – LU 2

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Percent	Year 0	Year 5	Year 10	Year 15	Year 20
Dom H2O	Disturb	<27	≤25	36	36	23	17	18
Ungulate	Disturb	<15	≤25	4	4	2	0	0
	Thermal	≥120	≥40	19	19	20	21	21
IRM	Disturb	<15	≤25	12	22	21	15	8

3.3 Landscape Unit R4 – Mulvehill

Table 3.3.1 Harvest Schedule (Volume (m3)) – LU 4

REA	Period				Total
	1-5	6-10	11-15	16-20	
Dom H2O	4936	1191	4071	7638	17836
Ungulate	11437	1970	24054	38231	75692
IRM	226387	14098	31399	142152	414036

Table 3.3.2 Harvest Schedule (Area (ha)) – LU 4

REA	Period				Total
	1-5	6-10	11-15	16-20	
Dom H2O	11	2	13	15	53
Ungulate	32	5	66	96	131
IRM	508	25	78	328	641

Table 3.3.3 Biodiversity seral stage status – LU 4

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Ag	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc4	1	Avg	Mat+Old	≥120	≥30	93	89	89	90	86
ESSFwc4	1	Avg	Old	≥250	≥14	2	2	2	2	2
ICHmw3	3	Avg	Mat+Old	≥100	≥20	67	58	60	58	51
ICHmw3	3	Avg	Old	≥140	≥11	33	28	27	28	26
ICHwk1	1	Avg	Mat+Old	≥100	≥28	81	81	82	82	82
ICHwk1	1	Avg	Old	≥250	≥10	14	14	14	14	14

Table 3.3.4 REA constraint status – LU 4

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Perce	Year 0	Year 5	Year 10	Year 15	Year 20
Dom H2O	Disturb	<27	≤25	0	4	5	10	16
Ungulate	Disturb	<15	≤25	7	10	5	8	12
	Thermal	≥120	≥40	30	30	31	36	40
IRM	Disturb	<15	≤25	7	25	21	22	16

3.4 Landscape Unit N510 - Johnston

Table 3.4.1 Harvest Schedule (Volume (m3)) – LU 10

REA	Period				Total
	1-5	6-10	11-15	16-20	
Dom H2O	39509	46170	188033	98966	372678
Ungulate	1000	4029	21889	1911	28829
IRM	114229	76163	256079	73094	519565

Table 3.4.2 Harvest Schedule (Area (ha)) – LU 10

REA	Period				Total
	1-5	6-10	11-15	16-20	
Dom H2O	176	138	708	368	1059
Ungulate	5	16	103	7	162
IRM	459	322	866	289	1687

Table 3.4.3 Biodiversity seral stage status – LU 10

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Ag	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	Inter	Mat+Old	≥120	≥36	32	32	32	34	34
ESSFwc1	1	Inter	Old	≥250	≥19	2	2	2	2	2
ESSFwc4	1	Inter	Mat+Old	≥120	≥36	40	37	36	37	36
ESSFwc4	1	Inter	Old	≥250	≥19	0	0	0	0	0
ICHdw	3	Inter	Mat+Old	≥100	≥23	29	28	27	32	31
ICHdw	3	Inter	Old	≥140	≥14	17	16	16	16	15
ICHmw2	2	Inter	Mat+Old	≥100	≥31	29	29	29	31	31
ICHmw2	2	Inter	Old	≥250	≥9	2	2	2	2	2

Table 3.4.4 REA constraint status – LU 10

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Perce	Year 0	Year 5	Year 10	Year 15	Year 20
Dom H2O	Disturb	<27	≤25	15	17	16	21	17
Ungulate	Disturb	<15	≤25	1	1	1	5	4
	Thermal	≥120	≥40	25	25	25	33	33
IRM	Disturb	<15	≤25	5	9	11	16	14

3.5 Landscape Unit N511 - Cayuse

Table 3.5.1 Harvest Schedule (Volume (m3)) – LU 11

REA	Period				Total
	1-5	6-10	11-15	16-20	
Com. H2O	0	0	0	0	0
Dom H2O	17467	43434	61848	84275	207024
Ungulate - ICH	0	0	1383	6674	8057
Ungulate - IDF	0	0	0	764	764
IRM	27549	4798	38686	26140	97173

Table 3.5.2 Harvest Schedule (Area (ha)) – LU 11

REA	Period				Total
	1-5	6-10	11-15	16-20	
Com. H2O	0	0	0	0	46
Dom H2O	65	147	234	274	493
Ungulate - ICH	0	0	6	22	54
Ungulate - IDF	0	0	0	3	49
IRM	151	22	165	104	388

Table 3.5.3 Biodiversity seral stage status – LU 11

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Ag	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	Inter	Mat+Old	≥120	≥36	23	23	23	24	24
ESSFwc1	1	Inter	Old	≥250	≥19	0	0	0	0	0
ESSFwc4	1	Inter	Mat+Old	≥120	≥36	46	45	40	41	36
ESSFwc4	1	Inter	Old	≥250	≥19	0	0	0	0	0
ICHdw	3	Inter	Mat+Old	≥100	≥23	32	31	37	42	47
ICHdw	3	Inter	Old	≥140	≥14	14	14	14	14	14
ICHmw2	2	Inter	Mat+Old	≥100	≥31	24	24	24	31	31
ICHmw2	2	Inter	Old	≥250	≥9	0	0	0	0	0
IDFunn	4	Inter	Mat+Old	≥100	≥34	23	23	24	39	39
IDFunn	4	Inter	Old	≥250	≥13	0	0	0	0	0

Table 3.5.4 REA constraint status – LU 11

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Perce	Year 0	Year 5	Year 10	Year 15	Year 20
Com. H2O	Disturb	<36	≤20	0	0	0	0	0
Dom H2O	Disturb	<27	≤25	19	20	15	17	17
Ungulate - ICH	Disturb	<15	≤25	1	1	0	0	0
	Thermal	≥120	≥40	17	17	17	20	22
Ungulate - IDF	Disturb	<15	≤25	1	1	0	0	0
	Thermal	≥120	≥25	5	5	6	8	24
IRM	Disturb	<15	≤25	3	11	12	21	15

3.6 Landscape Unit N518 - Gladstone

Table 3.6.1 Harvest Schedule (Volume (m3)) – LU 18

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	8041	14993	22594	3100	48728
Com. H2O	8273	0	4108	30583	42964
Dom H2O	64929	36344	37603	97878	236754
Ungulate	8936	41454	55153	36058	141601
IRM	58531	91665	165280	120131	435607

Table 3.6.2 Harvest Schedule (Area (ha)) – LU 18

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	33	45	81	12	214
Com. H2O	32	0	18	106	106
Dom H2O	253	124	130	319	564
Ungulate	35	139	190	113	422
IRM	302	325	648	445	1335

Table 3.6.3 Biodiversity seral stage status – LU 18

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Age	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	Low	Mat+Old	≥120	≥19	21	21	20	22	22
ESSFwc1	1	Low	Old	≥250	≥6	0	0	0	0	0
ESSFwc4	1	Low	Mat+Old	≥120	≥19	45	44	43	46	44
ESSFwc4	1	Low	Old	≥250	≥6	0	0	0	0	0
ICHdw	3	Low	Mat+Old	≥100	≥14	57	56	53	59	56
ICHdw	3	Low	Old	≥140	≥5	28	27	25	32	30
ICHmw2	2	Low	Mat+Old	≥100	≥15	44	42	40	44	40
ICHmw2	2	Low	Old	≥250	≥3	0	0	0	0	0

Table 3.6.4 REA constraint status – LU 18

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Percen	Year 0	Year 5	Year 10	Year 15	Year 20
VQO	Disturb	<24	≤15	0	2	6	13	14
Com. H2O	Disturb	<36	≤20	16	19	19	19	19
Dom H2O	Disturb	<27	≤25	1	9	11	15	24
Ungulate	Disturb	<15	≤25	1	2	7	12	15
	Thermal	≥120	≥40	44	44	41	51	50
IRM	Disturb	<15	≤25	6	10	12	16	18

3.7 Landscape Unit N520 – Barnes Whatshan

Table 3.7.1 Harvest Schedule (Volume (m3)) – LU 20

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	5957	0	3222	0	9179
Dom H2O	2353	0	3749	5090	11192
Ungulate	0	0	563	5939	6502
IRM	397671	478255	682483	458022	2016431

Table 3.7.2 Harvest Schedule (Area (ha)) – LU 20

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	28	0	14	0	107
Dom H2O	11	0	11	18	89
Ungulate	0	0	3	20	71
IRM	1509	1439	2247	1485	5265

Table 3.7.3 Biodiversity seral stage status – LU 20

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Age	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	Inter	Mat+Old	≥120	≥36	30	30	31	33	35
ESSFwc1	1	Inter	Old	≥250	≥19	2	2	2	2	2
ESSFwc4	1	Inter	Mat+Old	≥120	≥36	60	57	53	53	48
ESSFwc4	1	Inter	Old	≥250	≥19	1	1	1	1	1
ICHdw	3	Low	Mat+Old	≥100	≥14	28	28	36	53	52
ICHdw	3	Low	Old	≥140	≥5	12	12	12	12	12
ICHmw2	2	Low	Mat+Old	≥100	≥15	38	35	39	39	38
ICHmw2	2	Low	Old	≥250	≥3	2	2	2	2	2
ICHwk1	1	Low	Mat+Old	≥100	≥17	66	63	47	48	48
ICHwk1	1	Low	Old	≥250	≥4	37	37	24	24	24

Table 3.7.4 REA constraint status – LU 20

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Percen	Year 0	Year 5	Year 10	Year 15	Year 20
VQO	Disturb	<24	≤15	10	13	13	14	14
Dom H2O	Disturb	<27	≤25	1	5	5	9	14
Ungulate	Disturb	<15	≤25	0	0	0	0	2
	Thermal	≥120	≥40	13	13	21	24	33
IRM	Disturb	<15	≤25	7	11	11	16	16

3.8 Landscape Unit N521 - Woden

Table 3.8.1 Harvest Schedule (Volume (m3)) – LU 21

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	0	16480	15460	0	31940
Dom H2O	1657	0	0	18262	19919
Ungulate	0	0	0	0	0
IRM	152031	278462	273782	162890	867165

Table 3.8.2 Harvest Schedule (Area (ha)) – LU 21

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	0	59	50	0	184
Dom H2O	7	0	0	63	84
Ungulate	0	0	0	0	78
IRM	516	844	958	494	2398

Table 3.8.3 Biodiversity seral stage status – LU 21

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Ag	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	Inter	Mat+Old	≥120	≥36	29	29	32	34	36
ESSFwc1	1	Inter	Old	≥250	≥19	2	2	2	2	2
ESSFwc4	1	Inter	Mat+Old	≥120	≥36	41	38	39	39	39
ESSFwc4	1	Inter	Old	≥250	≥19	0	0	0	0	0
ICHmw2	2	Inter	Mat+Old	≥100	≥31	59	57	55	55	53
ICHmw2	2	Inter	Old	≥250	≥9	2	2	2	2	2

Table 3.8.4 REA constraint status – LU 21

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Percent	Year 0	Year 5	Year 10	Year 15	Year 20
VQO	Disturb	<24	≤15	0	0	8	14	14
Dom H2O	Disturb	<27	≤25	23	24	24	24	24
Ungulate	Disturb	<15	≤25	0	0	0	0	0
	Thermal	≥120	≥40	0	0	0	15	27
IRM	Disturb	<15	≤25	10	16	18	24	24

3.9 Landscape Unit N526 - Vipond

Table 3.9.1 Harvest Schedule (Volume (m3)) – LU 26

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	2903	173760	164316	90995	431974
Dom H2O	0	24698	26814	24056	75568
Ungulate	0	0	10215	2076	12291
IRM	65092	174670	230159	83139	553060

Table 3.9.2 Harvest Schedule (Area (ha)) – LU 26

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	9	468	546	258	1107
Dom H2O	0	70	76	67	233
Ungulate	0	0	42	8	130
IRM	211	502	771	236	1574

Table 3.9.3 Biodiversity seral stage status – LU 26

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Ag	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	Low	Mat+Old	≥120	≥19	41	41	41	42	41
ESSFwc1	1	Low	Old	≥250	≥6	0	0	0	0	0
ESSFwc4	1	Low	Mat+Old	≥120	≥19	80	80	80	80	80
ESSFwc4	1	Low	Old	≥250	≥6	0	0	0	0	0
ICHmw2	2	Low	Mat+Old	≥100	≥15	43	43	44	44	43
ICHmw2	2	Low	Old	≥250	≥3	1	1	1	1	1

Table 3.9.4 REA constraint status – LU 26

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Percent	Year 0	Year 5	Year 10	Year 15	Year 20
VQO	Disturb	<24	≤25	15	15	15	19	18
Dom H2O	Disturb	<27	≤25	16	16	19	24	24
Ungulate	Disturb	<15	≤25	8	8	4	1	1
	Thermal	≥120	≥40	19	19	22	32	38
IRM	Disturb	<15	≤25	5	7	7	12	12

3.10 Landscape Unit N527 - Fosthall

Table 3.10.1 Harvest Schedule (Volume (m3)) – LU 27

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	7559	2508	32703	2909	45679
Ungulate	0	0	6939	0	6939
IRM	517476	527916	346475	478478	1870345

Table 3.10.2 Harvest Schedule (Area (ha)) – LU 27

REA	Period				Total
	1-5	6-10	11-15	16-20	
VQO	33	7	92	7	227
Ungulate	0	0	17	0	115
IRM	1584	1497	1113	1366	4294

Table 3.10.3 Biodiversity seral stage status – LU 27

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Ag	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	Inter	Mat+Old	≥120	≥36	56	52	50	50	45
ESSFwc1	1	Inter	Old	≥250	≥19	5	5	5	5	5
ESSFwc4	1	Inter	Mat+Old	≥120	≥36	74	70	69	69	66
ESSFwc4	1	Inter	Old	≥250	≥19	4	4	4	4	4
ICHmw2	2	Low	Mat+Old	≥100	≥15	47	44	42	41	40
ICHmw2	2	Low	Old	≥250	≥3	3	3	3	3	3
ICHwk1	1	Low	Mat+Old	≥100	≥17	56	51	51	51	46
ICHwk1	1	Low	Old	≥250	≥4	6	6	6	6	6

Table 3.10.4 REA constraint status – LU 27

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Perce	Year 0	Year 5	Year 10	Year 15	Year 20
VQO	Disturb	<24	≤15	12	14	14	14	14
Ungulate	Disturb	<15	≤25	10	10	3	6	6
	Thermal	≥120	≥40	15	15	15	74	74
IRM	Disturb	<15	≤25	16	21	17	15	14

3.11 Landscape Units N529 - Halfway

Table 3.11.1 Harvest Schedule (Volume (m3)) – LU 29

REA	Period				Total
	1-5	6-10	11-15	16-20	
Caribou – ESS	95967	47552	27259	95724	266502
Caribou – ICH	102307	286775	125698	142087	656867
VQO	41634	37129	30986	32809	142558
Com. H2O	0	0	2241	0	2241
Dom H2O	11248	110422	98045	63464	283179
Ungulate	50799	19563	83918	19840	174120
IRM	189547	77036	131105	134889	532577

Table 3.11.2 Harvest Schedule (Area (ha)) – LU 29

REA	Period				Total
	1-5	6-10	11-15	16-20	
Caribou – ESS	297	123	98	247	619
Caribou – ICH	277	730	415	376	1524
VQO	129	129	102	93	465
Com. H2O	0	0	8	0	114
Dom H2O	33	257	293	170	690
Ungulate	152	52	250	56	562
IRM	625	214	390	364	1339

Table 3.11.3 Biodiversity seral stage status – LU 29

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Ag	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	High	Mat+Old	≥120	≥54	78	77	76	76	73
ESSFwc1	1	High	Old	≥250	≥28	12	12	12	12	12
ESSFwc4	1	High	Mat+Old	≥120	≥54	85	84	84	84	83
ESSFwc4	1	High	Old	≥250	≥28	7	7	7	7	7
ICHmw2	2	Inter	Mat+Old	≥100	≥31	56	51	49	49	48
ICHmw2	2	Inter	Old	≥250	≥9	3	3	3	3	3
ICHwk1	1	Inter	Mat+Old	≥100	≥34	73	72	69	67	66
ICHwk1	1	Inter	Old	≥250	≥13	21	21	20	20	20

Table 3.11.4 REA constraint status – LU 29

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Perce	Year 0	Year 5	Year 10	Year 15	Year 20
Caribou – ESS	Disturb	<15	≤25	3	11	14	15	13
	Thermal	≥140	≥30	81	76	74	73	69
	Old growth	≥250	≥10	8	8	8	8	8
Caribou – ICH	Disturb	<15	≤25	6	9	14	15	16
	Thermal	≥140	≥40	48	46	41	41	40
	Old Growth	≥250	≥10	14	14	13	13	13
Caribou – Oper	Old Growth	≥140	≥70	77	76	76	76	76
VQO	Disturb	<24	≤15	7	11	12	14	15
Com. H2O	Disturb	<36	≤20	37	37	15	15	8
Dom H2O	Disturb	<27	≤25	15	16	17	21	24
Ungulate	Disturb	<15	≤25	4	12	11	22	17
	Thermal	≥120	≥40	44	41	48	55	53
IRM	Disturb	<15	≤25	8	20	15	22	18

3.12 Landscape Unit N530 - Trout

Table 3.12.1 Harvest Schedule (Volume (m3)) – LU 30

REA	Period				Total
	1-5	6-10	11-15	16-20	
Caribou – ESS	119003	61913	30524	121562	333002
Caribou – ICH	407767	281134	105052	236934	1030887
Com. H2O	0	0	0	0	0
Dom H2O	10701	31084	25303	58452	125540
IRM	9236	4673	8139	6735	28783

Table 3.12.2 Harvest Schedule (Area (ha)) – LU 30

REA	Period				Total
	1-5	6-10	11-15	16-20	
Caribou – ESS	336	179	111	342	737
Caribou – ICH	902	700	276	512	1990
Com. H2O	0	0	0	0	116
Dom H2O	39	72	78	119	306
IRM	21	13	27	20	181

Table 3.12.3 Biodiversity seral stage status – LU 30

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvestin				
				Age	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFwc1	1	High	Mat+Old	≥120	≥54	79	76	77	77	74
ESSFwc1	1	High	Old	≥250	≥28	6	6	6	6	6
ESSFwc4	1	High	Mat+Old	≥120	≥54	81	79	79	79	78
ESSFwc4	1	High	Old	≥250	≥28	3	3	3	3	3
ICHmw2	2	High	Mat+Old	≥100	≥46	54	53	46	46	46
ICHmw2	2	High	Old	≥250	≥13	3	3	3	3	3
ICHvk1	1	High	Mat+Old	≥100	≥51	81	76	70	68	66
ICHvk1	1	High	Old	≥250	≥19	10	10	10	10	10
ICHwk1	1	High	Mat+Old	≥100	≥51	67	60	58	57	53
ICHwk1	1	High	Old	≥250	≥19	15	15	15	15	15

Table 3.12.4 REA constraint status – LU 30

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Age	Perce	Year 0	Year 5	Year 10	Year 15	Year 20
Caribou – ESS	Disturbed	<15	≤25	8	17	17	20	17
	Thermal	≥140	≥30	82	75	72	72	66
	Old growth	≥250	≥10	6	6	6	6	6
Caribou – ICH	Disturb	<15	≤25	6	14	16	17	14
	Thermal	≥140	≥40	57	51	47	46	42
	Old Growth	≥250	≥10	13	13	13	13	13
Caribou – Oper	Old Growth	≥140	≥70	79	78	78	78	77
Com. H2O	Disturb	<36	≤20	33	33	33	14	1
Dom H2O	Disturb	<27	≤25	13	15	15	19	24
IRM	Disturb	<15	≤25	2	5	6	9	9

3.13 Landscape Unit N531 - Fish

Table 3.13.1 Harvest Schedule (Volume (m3)) – LU 31

REA	Period				Total
	1-5	6-10	11-15	16-20	
Caribou – ESS	37204	42910	0	14372	94486
Caribou – ICH	40468	0	0	35388	75856
Dom H2O	20268	8961	3329	14694	47252
Ungulate	0	0	0	0	0
IRM	135497	181827	73071	202442	592837

Table 3.13.2 Harvest Schedule (Area (ha)) – LU 31

REA	Period				Total
	1-5	6-10	11-15	16-20	
Caribou – ESS	111	119	0	43	351
Caribou – ICH	90	0	0	78	212
Dom H2O	49	22	10	34	208
Ungulate	0	0	0	0	128
IRM	277	407	193	445	1007

Table 3.13.3 Biodiversity seral stage status – LU 31

BEC	NDT	BEO	Seral stage	Target		Achieved (end of period after harvesti				
				Age	%	Year 0	Year 5	Year 1	Year 1	Year 2
ESSFvc	1	Low	Mat+Old	≥120	≥19	97	97	97	97	97
ESSFvc	1	Low	Old	≥250	≥6	2	2	2	2	2
ESSFwc1	1	Low	Mat+Old	≥120	≥19	84	82	79	79	78
ESSFwc1	1	Low	Old	≥250	≥6	17	17	17	17	17
ESSFwc4	1	Low	Mat+Old	≥120	≥19	85	83	82	82	82
ESSFwc4	1	Low	Old	≥250	≥6	9	9	9	9	9
ICHmw2	2	Low	Mat+Old	≥100	≥15	37	37	34	33	33
ICHmw2	2	Low	Old	≥250	≥3	3	3	3	3	3
ICHvk1	1	Low	Mat+Old	≥100	≥17	70	68	65	64	60
ICHvk1	1	Low	Old	≥250	≥4	23	22	21	21	21
ICHwk1	1	Low	Mat+Old	≥100	≥17	65	62	63	67	66
ICHwk1	1	Low	Old	≥250	≥4	13	12	11	11	11

Table 3.13.4 REA constraint status – LU 31

REA	Constraint	Target		Achieved (end of period after harvesting)				
		Ag	Perce	Year 0	Year 5	Year 10	Year 15	Year 20
Caribou – ESS	Disturbed	<15	≤25	0	12	24	24	18
	Thermal	≥140	≥30	98	87	76	76	73
	Old Growth	≥250	≥10	2	2	2	2	2
Caribou – ICH	Disturb	<15	≤25	0	25	25	25	22
	Thermal	≥140	≥40	96	75	75	75	60
	Old Growth	≥250	≥10	14	10	10	10	10
Caribou – Oper	Old Growth	≥140	≥70	89	87	86	86	86
Dom H2O	Disturb	<27	≤25	2	10	14	15	21
Ungulate	Disturb	<15	≤25	0	0	0	0	0
	Thermal	≥120	≥40	4	4	4	14	14
IRM	Disturb	<15	≤25	19	24	15	14	17