Boucher Bros. Lumber Ltd.

P14 2009-2018
Forest Management Plan

Chapter 3:
Performance Standards (VOITs)

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1. Introduction

This chapter defines the performance standards applicable to the 2009 – 2018 Forest Management Plan (FMP) for the P14 Define Forest Area (DFA). The Performance Standards follow the Value – Objective – Indicator – Target (VOIT) structure and include those defined as mandatory in the Alberta Forest Management Planning Standard (SRD, 2006). These mandatory Performance Standards are classified into one of the six Canadian Council of Forest Ministers (CCFM) sustainable forest management criteria as follows (with the number of performance standards established for each):

- Biological diversity (17);
- Ecosystem productivity (5);
- Soil and water (4);
- Global ecological cycles (2);
- Multiple benefits to society (5); and
- Accepting society's responsibility for sustainable development (2).

Each performance standard was developed through a collaborative effort involving representation from the forestry operators (in particular, Boucher Bros. Lumber Ltd. (Boucher Bros.)), Sustainable Resource Development (SRD), and where applicable other stakeholders, such as First Nations and the general public.

Forest management planning on the P14 Forest Management Unit (and therefore the DFA) is the responsibility of SRD, as there is no Forest Management Agreement on the FMU. SRD and the forest tenure holders (quota holders) work cooperatively to fulfill the forest management responsibilities, including the monitoring and reporting functions required to assess the success in meeting the performance standards defined for the DFA.

The Performance standards defined within this document are in effect until the end of the 2018 Timber year, at which time they will be replaced by those accompanying the 2019 - 2028 Forest Management Plan.

2. Performance Standards Summary

This section contains a tabular summary of the Performance Standards. Detailed information for each of the Performance Standards can be found in Section 3. Performance Standards Details.

PS	CSA SFM Element	Value	Objective	Indicator	DFMP Target	Reporting	Acceptable Variance	Response
CCFM Criterion: 1. Biological Diversity.								
1	1.1. Ecosystem Diversity.	1.1.1. Landscape Scale Biodiversity.	1.1.1.1. Maintain biodiversity by retaining the full range of cover types and seral stages.	Area of old, mature, and young forest in DFA by strata.	At the end of year 10 (2018 Timber Year), achieve the seral stage class strata proportions in the managed and gross landbases as defined in the target tables.	FMP: - Gross and managed landbase forecasted area and proportion within each seral stage class and strata at years 0, 10, 50, 100 and 200. Stewardship Report: - Actual area and proportion of area within each of the seral stage classes for each strata; - Variance between actual area and proportion of area within each of the seral stage classes for each strata and the target values.	Old + Mature seral stage class: - Area by strata shall be between 90% and 100% of target area. Young seral stage class: - Area by strata class shall not exceed 110% of target area.	Adjust strategies in subsequent FMP.
2			1.1.1.2. Maintain biodiversity by avoiding landscape fragmentation.	Range of opening patch sizes on the gross landbase.	At the end of year 10 (2018 Timber Year), achieve a distribution of opening patch (harvest area) sizes consistent with attaining a patch size pattern over the 200 year planning horizon on the gross landbase, that approximates patterns created by natural disturbances as defined in the target table.	FMP: - Tables summarizing opening patch (harvest area) size distribution on the gross landbase at years 0, 10 and 50; - Maps illustrating patch size distribution on the gross landbase at years 0, 10 and 50. Stewardship Report: - Actual opening patch area and proportion of total opening patch area on the gross landbase within each opening patch size class; - Variance between actual opening patch area on the gross landbase within each patch size class and the target values.	At end of the 10-year FMP, target distribution is achieved; or demonstrated progress to achieving target in one rotation where the pattern has deviated significantly from target.	Adjust strategies in subsequent FMP.
3				Area of mature and old interior forest of each strata on the gross landbase.	At the end of year 10 (2019 Timber Year), the area of mature and old interior forest, for each strata on the gross landbase will not be less than those as defined in the target table.	FMP: - Tables summarizing area of mature and old interior forest by strata on the gross landbase for years 0, 10 and 50 - Maps illustrating area of mature and old interior forest strata proportions on the gross landbase for years 0, 10 and 50. Stewardship Report: - Actual mature and old interior forest area within each strata; - Variance between actual mature and old interior forest area in each strata and the target values.	At the end of year 10, the actual values are not less than 80% of the target values.	Adjust strategies in subsequent FMP.
4			1.1.1.3. Maintain biodiversity by minimizing access.	Open all-weather forestry road density within the Defined Forest Area.	At the end of year 10 (2018 Timber Year), the target open all-weather forestry road density on the Defined Forest Area (DFA) will be less than 0.0404 km/km^2.	FMP: - The length and density of open all weather roads on the DFA, by disposition holder class. Stewardship Report - Actual open all-weather road density for the DFA for forestry and other users; - Variance between actual open all-weather forestry road density and the target values.	A variance not exceeding greater than 20% of the target must be achieved.	Adjust strategies in subsequent FMP.
5				Open seasonal / temporary forestry road length within the Defined Forest Area.	On an annual basis, the total length of exterior block seasonal/temporary forestry road length utilized on Defined Forest Area (DFA)will be less than, or equal to, 32.0 km.	Annual Operating Plan: - Schedule and maps of seasonal/temporary roads for use in upcoming Timber Year; - Table of indicator actual and variance from previous Timber Year schedule. Stewardship Report: - Actual open seasonal/temporary forestry road length on the DFA; - Variance between actual seasonal/temporary forestry road length and the target value.	A variance not exceeding greater than 20% of the target must be achieved.	Adjust strategies in subsequent AOPs.
6			1.1.1.4. Maintain plant communities uncommon in DFA or Province.	Area or occurrence of each uncommon plant community within the Defined Forest Area.	Maintain 80% of the plant community area, for each community confirmed to exist within the Defined Forest Area (DFA), as defined within the ANHIC's Element Occurrence database.	FMP: - Identity and location of known uncommon plant communities. Stewardship Report: - Summary of progress in developing a rare plant or ecological community maintenance strategy; - Area and location of identified rare plant or ecological communities discovered and the maintenance of them when associated with operations.	By the end of the 10-year FMP period, a rare plant or ecological community maintenance program is implemented and the targets associated with it are achieved.	If uncommon plant communities are found, harvest plans will be modified to protect or conserve these communities, where feasible.

PS	CSA SFM Element	Value	Objective	Indicator	DFMP Target	Reporting	Acceptable Variance	Response
7			1.1.1.5. Maintain unique habitats provided by wildfire and blowdown events.	Area of unsalvaged burned forest.	Adhere to SRDs targets for 1) Live Trees, and 2) Burned Trees at the compartment scale and the harvest area scale.	FMP: - Number of fires and area burned on DFA in last ten years. Stewardship Report: - Number of fires and area burned on DFA; - Burned area on DFA, in which salvage operations were conducted.	At the end of the 10-year FMP term the defined operational targets are achieved or exceeded.	Adjust strategies in AOPs.
8				Area of unsalvaged blowdown.	In areas of significant blowdown, greater than or equal to 10% of the merchantable stems will be left unsalvaged.	FMP: - Number of blowdown events and affected area on DFA in last 10 years. Stewardship Report: - Number of areas affected by significant blowdown events and the area affected; and - Percentage of merchantable blowdown stems left on-site (unsalvaged) at each area affected by significant blowdown event.	At the end of the 10-year FMP term the target is achieved or exceeded.	Adjust strategies in AOPs.
9			1.1.1.5. Retain ecological values and functions associated with riparian zones.	Compliance with OGRs as they relate to the retention of ecological values and functions associated with riparian zones.	Zero incidents of non-compliance with Operating Ground Rules.	Stewardship Report: - Number of non-compliance incidents and summary of each.	No variance.	Immediate remedial action and / or administrative penalty.
10			1.1.2.1. Retain stand level structure.	% of merchantable volume of structure retention within the area harvested over the DFA.	Maintain structure retention greater than or equal to 2% of the Defined Forest Area's Annual Allowable Cut volume annually.	Stewardship Report: - Merchantable volume harvested; - Merchantable volume maintained in structure retention; - Percentage of total merchantable volume that is maintained in structure retention.	At the end of the 10-year FMP term the target is achieved or exceeded.	Adjust strategies in subsequent FMP.
11		1.1.2. Local / stand scale biodiversity.	1.1.2.1. Retain stand level structure.	% of harvested area on DFA with downed woody debris equivalent to pre-harvest conditions.	Greater than, or equal to, 75% of annual harvest area will contain downed woody debris levels greater than, or equal to, pre-harvest conditions.	ARIS: - As defined by Alberta gov't. Stewardship Report: - Actual area and proportion of total harvest area in which the level of downed woody debris is greater than, or equal to, pre-harvest conditions.	+/- 20 % of the target at the end of the 10-year FMP.	Adjust strategies in subsequent FMP.
12			1.1.2.2 Maintain integrity of sensitive sites.	Compliance with respect to sensitive sites (e.g. mineral licks, major game trails).	Zero incidents of non-compliance with Operating Ground Rules and provincial protocols associated with the protection of sensitive sites.	Stewardship Report: - Status of development and implementation of sensitive site strategy and protocols; - Number of non-compliance incidents and summary of each.	None.	Adjust strategy and/or protocols in subsequent AOPs.
13			1.1.2.3 Maintain aquatic biodiversity by minimizing impacts of water crossings.	Compliance with the Code of Practice for Water Course Crossings.	Zero incidents where watercourse crossing designs do not meet the standards of the Code of Practice for Water Course Crossings.	Annual Operating Plan: - Number of crossings by type within the DFA by compliance status. Stewardship Report: - Number of crossings by type within the DFA by compliance status; - Number of non-compliance incidents and summary of each.	None.	Act immediately to eliminate problems and adjust strategies in subsequent AOPs.
14	1.2 Species Diversity: Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained throughout time.	1.2.1 Viable populations of identified plant and animal species.	1.2.1.1 Maintain habitat for identified high value species (i.e., economically valuable, socially valuable, species at risk, species of management concern).	Area of suitable habitat within the DFA.	Currently there are no high value species of concern within the DFA.	Not applicable.	Not applicable.	Not applicable.
15	1.3 Genetic Diversity: Conserve genetic diversity by maintaining the variation of genes within species.	1.3.1 Genetic integrity of natural tree populations.	1.3.1.1: Retain a wild forest for each tree species in each seed zone.	Number and area of in situ genetic conservation areas for selected tree species.	For each selected tree species in seed zone DM 1.2, establish one permanent in situ gene conservation area comprised of greater than 5,000 trees (at rotation), surrounded by a 500 m buffer.	FMP: - Number of in situ gene conservation areas required for each species. Stewardship Report: - Status of all gene conservation areas.	At the end of the 10-year FMP term the target is achieved or exceeded.	Assess impact to net landbase and adjust AACs, if requred.

PS	CSA SFM Element	Value	Objective	Indicator	DFMP Target	Reporting	Acceptable Variance	Response
16			1.3.1.2: Retain a population sample for each tree species in each seed zone.	Number of operational and conservation seedlots for selected tree species.	Collect and store at ATISC, one operational and one conservation seedlot sample for seed zone DM 1.2, for any species for which artificial reforestation is planned in the DFA.	Stewardship Report: - Seed planning and seed collection progress.	Confirmed program plan.	FGRMS has been approved by cabinet and guides ex situ seed conservation activities.
17	1.4 Protected Areas: Respect protected areas identified through government processes.	1.4.1 Areas with minimal human disturbances within managed landscapes.	1.4.1.1 Integrate transboundary values and objectives into forest management.	Stakeholder consultation.	Ongoing consultation with relevant protected areas agencies.	Stewardship Report: - Summary of consultation initiatives, issues and outcomes.	None.	Adjust strategies in subsequent FMP.
CCFM Criterion: 2. Ecosystem Productivity.								
18	2.1 Ecosystem resilience.	2.1.1 Reforested harvest areas.	2.1.1.1 Meet reforestation targets on all harvested areas.	Annual % of satisfactorily restocked regeneration surveys.	100% of annual regeneration surveys satisfactorily restocked.	AOP: - Reforestation prescriptions by strata and schedule of treatments. ARIS: - Annual results from all regen surveys. Stewardship Report: - Summary of all area surveyed and survey results.	10% for a given Timber Year.	Assign accelerated treatment regime and re-survey schedule.
19				Cumulative % of reforested areas that meet reforestation target.	100% of cumulative reforested area satisfactorily restocked.	AOP: - Reforestation prescriptions by strata and schedule of treatments. Stewardship Report: - Summary of cumulative area surveyed and survey results.	None.	SRD adjusts AAC.
20		2.1.2 Maintenance of forest landbase.	2.1.2.1 Limit conversion of productive forest landbase to other uses.	Existence of strategy to limit the amount of change in forest landbase.	Develop and implement strategy to limit the conversion of the managed landbase to non-managed landbase.	Stewardship Report: - Status of the process for coordinating, communicating and tracking conversion of the managed landbase to other uses; and - area of land that has been converted from, or to, the managed landbase.	Report actual.	Review and revise strategy, and adjust net landbase projections in next TSA.
21			2.1.2.2 Recognize lands affected by insects, disease or natural calamities.	Area of the DFA affected by insects, disease or natural calamities.	Report all areas on the DFA greater than, or equal to, 1.0 ha in size, (or as otherwise defined by SRD from time to time), identified as being affected by insect, disease or natural calamity.	Stewardship Report: - Status of the protocol development; and - Area of the DFA affected by insects, disease or natural calamity.	Report actual.	Event specific.
22		2.1.3 Control invasive species.	2.1.3.1 Control non-native plant species (weeds).	Compliance with OGRs, directives or plan approval conditions with respect to weed management.	Zero incidents of non-compliance with applicable Operating Ground Rules, directives or plan approval conditions.	Stewardship Report: - Summary of the field inspections and actions taken to control weeds.	Report actual.	Improve noxious weed program.
CCFM Criterion: 3. Soil and Water.								
23	3.1 Soil quantity and quality.	3.1.1 Soil productivity.	3.1.1.1 Minimize impact of roading and bared areas in forest operations.	Compliance with respect to roading and bared areas in forest operations.	Zero incidents of non-compliance with the 5% limit of harvest area covered by barred area, rutting and/or displaced soil.	Operational: - Inspection reports submitted to SRD upon completion. Stewardship Report: - Number of non-compliance incidents and summary of each.	None without prior approval of SRD.	Immediate remedial action to correct.
24			3.1.1.2 Minimize incidence of soil erosion and slumping.	Compliance with respect to soil erosion and slumping.	Zero incidents of non-compliance with respect to soil erosion and slumping.	Operational: - Inspection reports submitted to SRD upon completion. Stewardship Report: - Number of non-compliance incidents and summary of each.	None.	Immediate remedial action to correct.
25	3.2 Water quantity and quality.	3.2.1 Water quantity.	3.2.1.1 Limit impact of timber harvesting on water yield.	Compliance with the Water Act, Operating Ground Rules and the Spatial Harvest Sequence.	Zero penalties assessed under the Water Act, zero incidents of non-compliance with the OGRs, and adhere to the P14 Spatial Harvest Sequence.	Stewardship Report: - Progress and results of any water yield/quality assessment; - Summary of adherence to SHS; - Number of non-compliance incidents and summary of each.	No variance associated with the Water Act penalties or OGRs non-compliance. Report planned and actual variance from the Spatial Harvest Sequence.	Immediate remedial action to correct incidents of non compliance. Adjust harvest pattern if water yield/quality concerns arise.

PS	CSA SFM Element	Value	Objective	Indicator	DFMP Target	Reporting	Acceptable Variance	Response
26		3.2.2 Effective riparian habitats.	3.2.2.1 Minimize impact of operations in riparian areas.	Compliance with respect to riparian area protection.	Zero incidents of non-compliance with the Operating Ground Rules, with respect to riparian area protection.	Stewardship Report: - Number of non-compliance incidents and summary of each.	None.	Immediate correction and/or administrative penalty.
CCFM Criterion: 4. Global Ecological Cycles.								
27	4.1 Carbon uptake and Storage.	4.1.1 To be determined.	4.1.1.1 To be determined.	Results of carbon budget modeling.	To be determined.	Not applicable.	Not applicable.	Not applicable.
28	4.2 Forest land conversion.	Refer to PS 20.	Refer to PS 20.	Refer to PS 20.	Refer to PS 20.	Refer to PS 20.	Refer to PS 20.	Refer to PS 20.
CCFM Criterion: 5. Multiple Benefits to Society.								
29	5.1 Timber and non-timber benefits.	5.1.1 Sustainable timber supplies.	5.1.1.1 Establish appropriate AACs.	Compliance with respect to process and standards defined in Annex 1 of Alberta Forest Management Planning Standard, Ver. 4.1 - April 2006 (Alberta 2006).	Comply with process and standards defined in Annex 1 of Alberta Forest Management Planning Standard.	FMP: - Documentation of process and variations. GDP: - Progressive updates through annual cut control tracking.	Issue specific, as determined by SRD, and as indicated in the RFP Checklist.	Adjust AAC using most current and relevant information.
30	5.2 Communities and Sustainability.	5.2.1 Risk to communities and landscape values from wildfire is low.	5.2.1.1 To reduce wildfire threat potential by reducing fire behaviour, fire occurrence, threats to values at risk and enhancing fire suppression capability.	% reduction in Fire Behaviour Potential area within the FireSmart Community Zone.	The DFA does not fall within a FireSmart Community Zone.	Not applicable.	Not applicable.	Not applicable.
31				% reduction in Fire Behaviour Potential area across the DFA now and over the planning horizon.	Reduce the area in the extreme, very high and high Fire Behaviour Potential rating categories by greater than, or equal to, 4% across the DFA over the 20 year Spatial Harvest Sequence.	FMP: - Area of DFA in each FBP rating class at years 0, 10, 20 and 50. Stewardship Report: - Actual amount of area harvested in the extreme, very high and high FBP classes.	Issue specific.	Adjust harvest sequence.
32		5.2.2 Provide opportunities to derive benefits and participate in use and management.	5.2.2.1 Integrate other uses and timber management activities.	Extent of various uses.	Adhere to P14 Communication Plan.	FMP: - Stakeholder involvement in FMP development. Stewardship Report: - Summary of consultation initiatives, issues and outcomes with all stakeholders.	Issue specific.	Adjust activities.
33		5.2.3 Forest Productivity.	5.2.3.1 Maintain Long Run Sustained Yield Average.	Regenerated stand yield compared to natural stand yield.	No net decrease from the natural stand productivity (the managed stand Long Run Sustained Yield Average is greater than, or equal to, that of the natural stand).	FMP: - Documentation of process for development and application of yield curves. Stewardship Report: - Updates on the development of ARS and regenerated stand yields; - ARS derived LRSYA compared to FMP natural stand LRSYA; and - ARS performance survey results compared to predicted values.	Report actual.	Adjust AAC using most current and relevant information.
CCFM Criterion: 6. Accepting Society's Responsibility for Sustainable Development.								
34	6.1 Aboriginal and treaty rights and aboriginal forest values.	6.1.1 Compliance with government regulations and policies.	6.1.1.1 Implement Public Involvement Program.	Meet Alberta's current expectations for aboriginal consultation.	Consult at the community level with designated representatives of affected aboriginal communities.	FMP: - Summary of consultation initiatives undertaked for FMP development. Stewardship Report: - Summary of consultation initiatives, issues and outcomes with all stakeholders.	Issue specific.	Adjust activities.
35	6.2 Public participation and information for decision-making.	6.2.1 Meaningful public involvement is achieved.	6.2.1.1 Implement public involvement program.	Meet expectations of Section 5 of CSA Z809-02.	Adhere to P14 Communication Plan.	FMP: - Summary of consultation initiatives undertaked for FMP development. Stewardship Report: - Summary of consultation initiatives, issues and outcomes with all stakeholders.	Issue specific.	Adjust activities.

3. Performance Standards Details

3.1 Biological Diversity

As described within the CSA Z809-02 standard, the performance standards associated with the CCFM SFM Criterion 1 (Conservation of biological diversity), are intended to "conserve biological diversity by maintaining integrity, function, and diversity of living organisms and the complexes of which they are part." (CSA 2002) There are a total of 17 performance standards for this criterion in the P14 FMP.

P.S. 1 – Area of old, mature, and young forest in DFA by strata.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.1. Maintain biodiversity by retaining the full range of cover types and seral stages.

Target

At the end of year 10 (2018 Timber Year), achieve the seral stage class strata proportions in the managed and gross landbases as defined in Table 1 and Table 2 respectively.

Table 1. Target managed landbase seral stage distribution by strata at end of year 10 (2018 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Managed Landbase (%)										Total Managed Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
10	Dec	3,655	4.2	24,221	27.6	9,915	11.3	34,136	38.9	0	0.0	43,461	49.5
10	Du	156	0.2	9,354	10.7	4,613	5.3	13,967	15.9	0	0.0	14,123	16.1
10	DC	1,671	1.9	4,366	5.0	1,556	1.8	5,922	6.7	0	0.0	8,578	9.8
10	CD	1,672	1.9	1,275	1.5	1,103	1.3	2,378	2.7	0	0.0	6,190	7.0
10	Pl	116	0.1	242	0.3	199	0.2	441	0.5	0	0.0	745	0.8
10	Sb	1,862	2.1	63	0.1	0	0.0	63	0.1	0	0.0	1,985	2.3
10	Sw	4,389	5.0	4,493	5.1	2,223	2.5	6,717	7.6	0	0.0	12,745	14.5
10		13,520	15.4	44,013	50.1	19,610	22.3	63,623	72.4	0	0.0	87,827	100.0

Table 2. Target gross landbase seral stage distribution by strata at end of year 10 (2018 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Gross Landbase (%)										Total Gross Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
10	Dec	3,825	3.0	27,744	21.8	10,345	8.1	38,089	29.9	0	0.0	47,649	37.4
10	Du	159	0.1	10,070	7.9	4,821	3.8	14,891	11.7	0	0.0	15,061	11.8
10	DC	1,718	1.3	4,727	3.7	1,626	1.3	6,353	5.0	0	0.0	9,062	7.1
10	CD	1,825	1.4	1,589	1.2	1,251	1.0	2,840	2.2	0	0.0	6,829	5.4
10	Pl	117	0.1	247	0.2	204	0.2	451	0.4	0	0.0	758	0.6
10	Sb	11,865	9.3	3,729	2.9	184	0.1	3,913	3.1	0	0.0	15,886	12.5
10	Sw	4,795	3.8	4,755	3.7	2,367	1.9	7,122	5.6	0	0.0	13,574	10.7
10	Lt	0	0.0	36	0.0		0.0	36	0.0	0	0.0	36	0.0
10	NF	0	0.0	0	0.0	0	0.0	0	0.0	18,476	14.5	18,476	14.5
10		24,304	19.1	52,896	41.5	20,798	16.3	73,694	57.9	18,476	14.5	127,331	100.0

Means of Achieving Objective and Target

Adhere to the Spatial Harvest Sequence.

Monitoring and Measurement

Regular updates to inventory.

Reporting – FMP

The FMP reporting requirements associated with this performance standard are summarized below, by managed and gross landbase.

Managed Landbase

As derived from the FMP forecasting process, the seral stage strata proportions on the managed landbase are summarized for the years 0 (0), 10 (Table 4), 50 (0), 100 (Table 6) and 200 (Table 7) of the 200 year planning horizon. Also, as derived from the FMP forecasting process, the seral stage distribution on the managed landbase is illustrated for the years 0 (Figure 1), 10 (Figure 2) and 50 (Figure 3) of the 200 year planning horizon.

Table 3. Managed landbase seral stage distribution by strata at the start of year 0 (2009 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Managed Landbase (%)										Total Managed Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
0	Dec	5,196	5.9	25,638	29.2	10,801	12.3	36,439	41.5	0	0.0	43,461	49.5
0	Du	1,219	1.4	10,147	11.6	4,354	5.0	14,501	16.5	0	0.0	15,720	17.9
0	DC	2,172	2.5	4,765	5.4	626	0.7	5,392	6.1	0	0.0	8,578	9.8
0	CD	897	1.0	1,990	2.3	497	0.6	2,487	2.8	0	0.0	4,594	5.2
0	Pl	151	0.2	417	0.5	130	0.1	547	0.6	0	0.0	745	0.8
0	Sb	1,886	2.1	99	0.1	0	0.0	99	0.1	0	0.0	1,985	2.3
0	Sw	4,631	5.3	5,939	6.8	1,348	1.5	7,286	8.3	0	0.0	12,745	14.5
0		16,150	18.4	48,996	55.8	17,756	20.2	66,752	76.0	0	0.0	87,827	100.0

Table 4. Managed landbase seral stage distribution by strata at the end of year 10 (Timber Year 2018).

		Seral Stage Area (ha) and Proportion of Total Managed Landbase (%)										Total Managed Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
10	Dec	3,655	4.2	24,221	27.6	9,915	11.3	34,136	38.9	0	0.0	43,461	49.5
10	Du	156	0.2	9,354	10.7	4,613	5.3	13,967	15.9	0	0.0	14,123	16.1
10	DC	1,671	1.9	4,366	5.0	1,556	1.8	5,922	6.7	0	0.0	8,578	9.8
10	CD	1,672	1.9	1,275	1.5	1,103	1.3	2,378	2.7	0	0.0	6,190	7.0
10	Pl	116	0.1	242	0.3	199	0.2	441	0.5	0	0.0	745	0.8
10	Sb	1,862	2.1	63	0.1	0	0.0	63	0.1	0	0.0	1,985	2.3
10	Sw	4,389	5.0	4,493	5.1	2,223	2.5	6,717	7.6	0	0.0	12,745	14.5
10		13,520	15.4	44,013	50.1	19,610	22.3	63,623	72.4	0	0.0	87,827	100.0

Table 5. Managed landbase seral stage distribution by strata at the end of year 50 (2058 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Managed Landbase (%)										Total Managed Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
50	Dec	19,121	21.8	2,932	3.3	12,918	14.7	15,851	18.0	0	0.0	43,461	49.5
50	Du	0	0.0	156	0.2	8,274	9.4	8,430	9.6	0	0.0	8,430	9.6
50	DC	4,327	4.9	562	0.6	2,581	2.9	3,143	3.6	0	0.0	8,578	9.8
50	CD	9,284	10.6	126	0.1	566	0.6	692	0.8	0	0.0	11,883	13.5
50	Pl	454	0.5	113	0.1	106	0.1	219	0.2	0	0.0	745	0.8
50	Sb	762	0.9	960	1.1	3	0.0	963	1.1	0	0.0	1,985	2.3
50	Sw	5,149	5.9	2,722	3.1	2,918	3.3	5,640	6.4	0	0.0	12,745	14.5
50		39,097	44.5	7,572	8.6	27,367	31.2	34,938	39.8	0	0.0	87,827	100.0

Table 6. Managed landbase seral stage distribution by strata at the end of year 100 (2108 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Managed Landbase (%)										Total Managed Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
100	Dec	24,464	27.9	10,809	12.3	2,104	2.4	12,913	14.7	0	0.0	43,461	49.5
100	Du	0	0.0	0	0.0	3,592	4.1	3,592	4.1	0	0.0	3,592	4.1
100	DC	4,096	4.7	2,700	3.1	1,168	1.3	3,868	4.4	0	0.0	8,578	9.8
100	CD	7,244	8.2	6,277	7.1	507	0.6	6,784	7.7	0	0.0	16,721	19.0
100	Pl	180	0.2	265	0.3	56	0.1	321	0.4	0	0.0	745	0.8
100	Sb	1,369	1.6	230	0.3	75	0.1	305	0.3	0	0.0	1,985	2.3
100	Sw	9,816	11.2	164	0.2	627	0.7	792	0.9	0	0.0	12,745	14.5
100		47,168	53.7	20,445	23.3	8,130	9.3	28,575	32.5	0	0.0	87,827	100.0

Table 7. Managed landbase seral stage distribution by strata at the end of year 200 (2208 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Managed Landbase (%)										Total Managed Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
200	Dec	19,492	22.2	9,977	11.4	7,346	8.4	17,322	19.7	0	0.0	43,461	49.5
200	Du	0	0.0	0	0.0	322	0.4	322	0.4	0	0.0	322	0.4
200	DC	4,994	5.7	1,862	2.1	575	0.7	2,437	2.8	0	0.0	8,578	9.8
200	CD	9,433	10.7	6,905	7.9	780	0.9	7,685	8.7	0	0.0	19,992	22.8
200	Pl	240	0.3	266	0.3	32	0.0	298	0.3	0	0.0	745	0.8
200	Sb	1,569	1.8	300	0.3	7	0.0	307	0.4	0	0.0	1,985	2.3
200	Sw	9,591	10.9	982	1.1	327	0.4	1,309	1.5	0	0.0	12,745	14.5
200		45,319	51.6	20,291	23.1	9,389	10.7	29,680	33.8	0	0.0	87,827	100.0

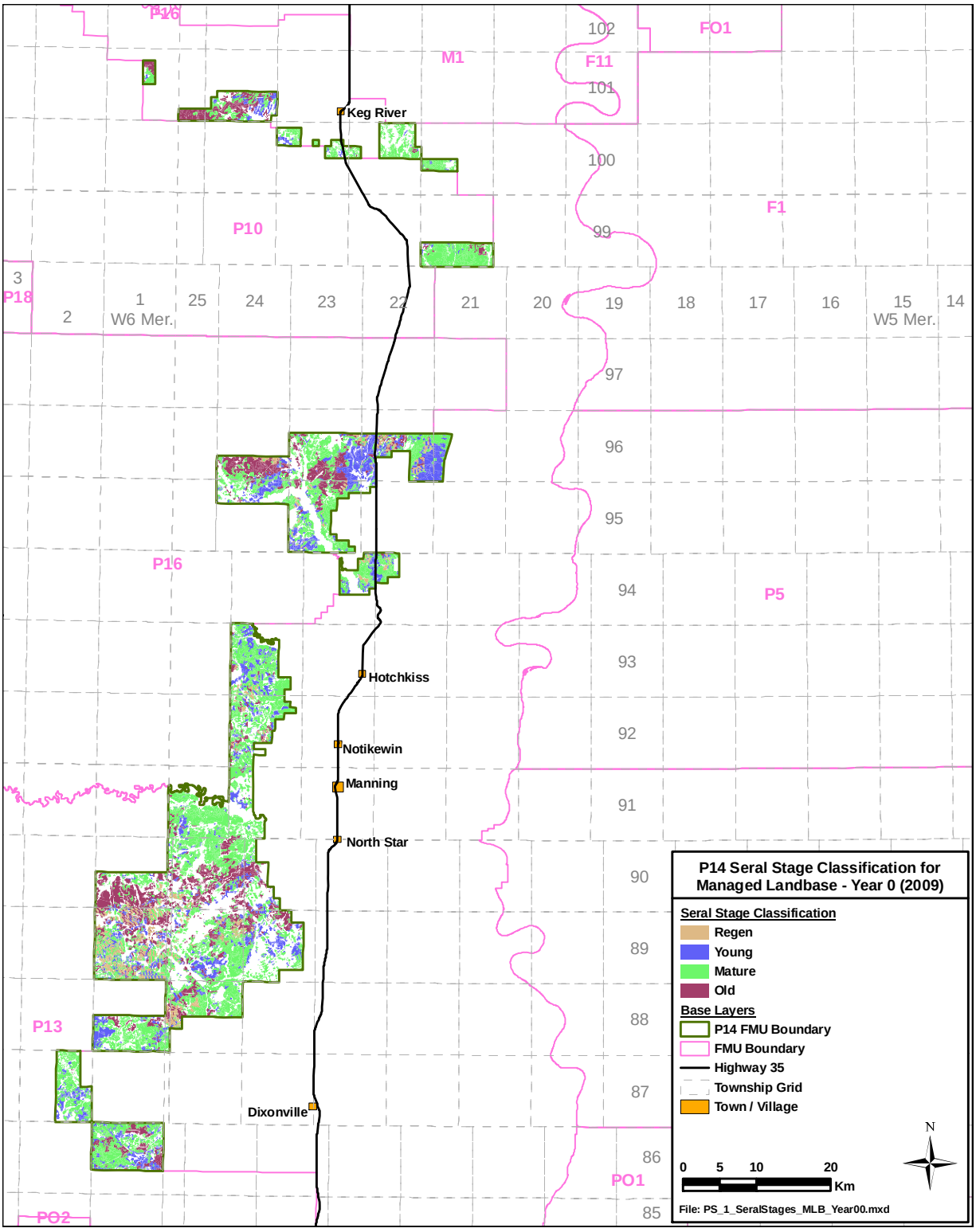

Figure 1. Managed landbase seral stage distribution at the start of year 0 (2009 Timber Year).

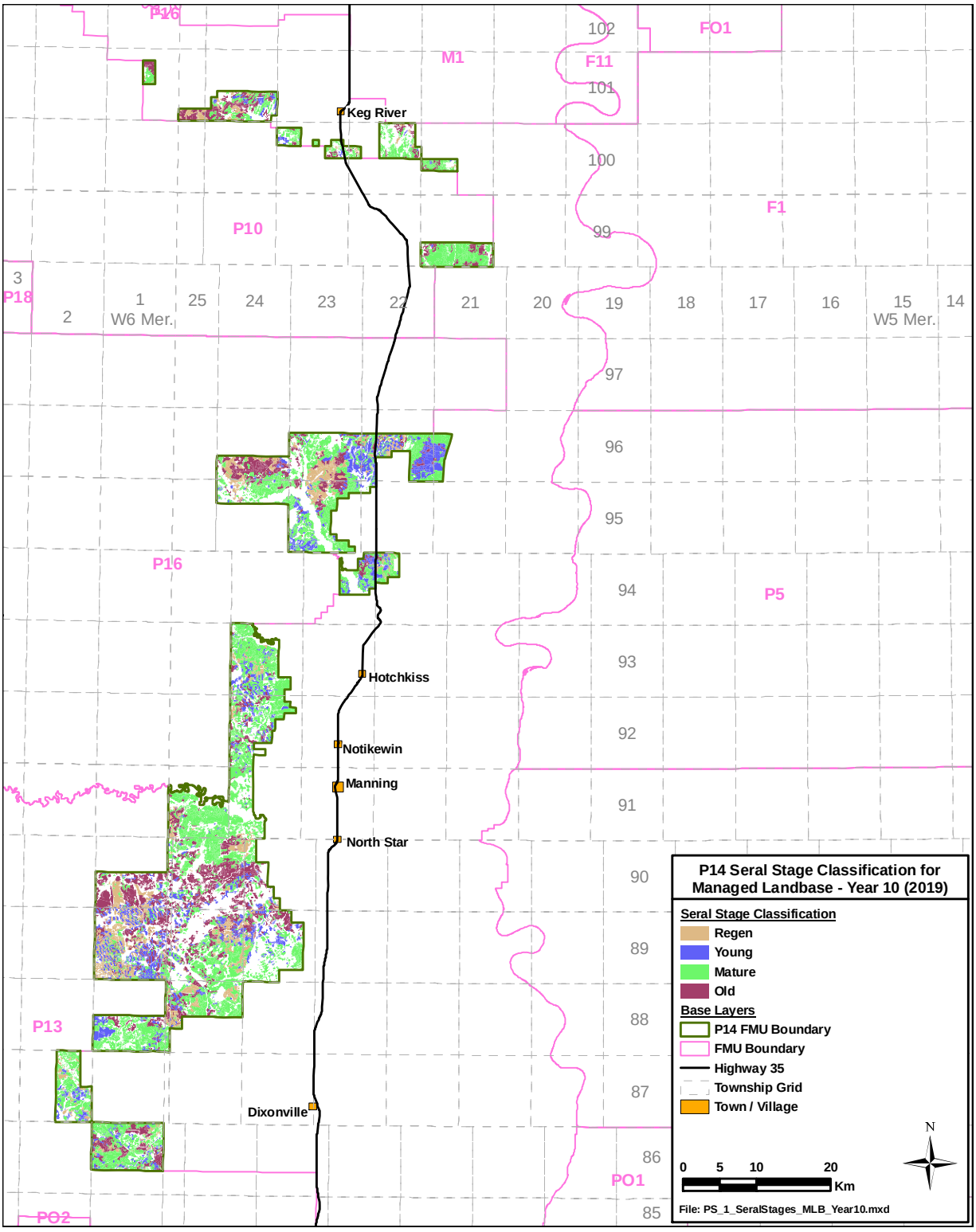

Figure 2. Managed landbase seral stage distribution at the end of year 10 (2018 Timber Year).

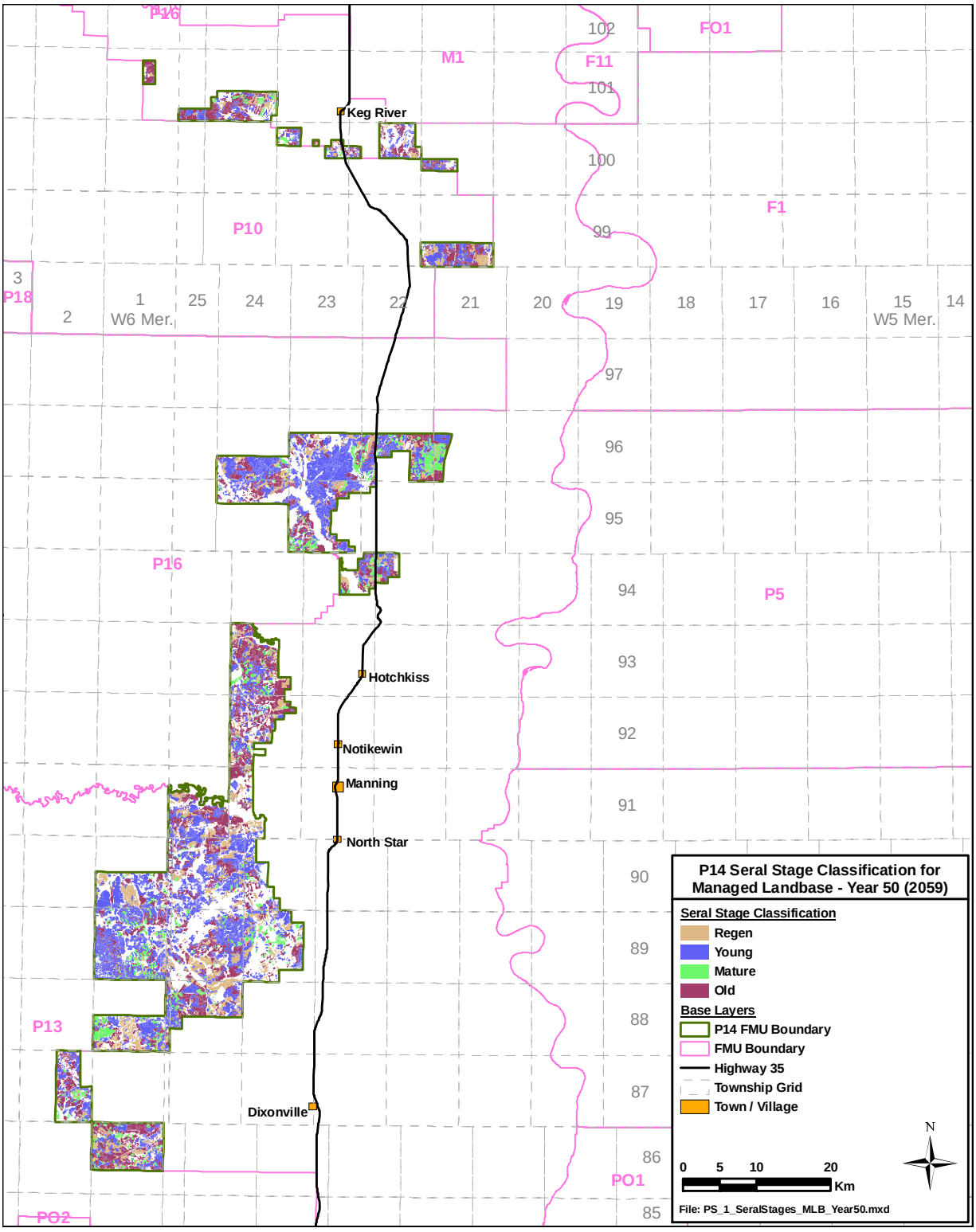

Figure 3. Managed landbase seral stage distribution at the end of year 50 (2058 Timber Year).

Gross Landbase

As derived from the FMP forecasting process, the seral stage strata proportions on the gross landbase are summarized for the years 0 (Table 8), 10 (Table 9), 50 (Table 10), 100 (Table 11) and 200 (Table 12) of the 200 year planning horizon. Also, as derived from the FMP forecasting process, the seral stage distribution on the gross landbase is illustrated for the years 0 (Figure 4), 10 (Figure 5) and 50 (Figure 6) of the 200 year planning horizon

Table 8. Gross landbase seral stage distribution by strata at the start of year 0 (2009 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Gross Landbase (%)										Total Gross Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
0	Dec	5,592	4.4	28,972	22.8	11,222	8.8	40,194	31.6	0	0.0	47,649	37.4
0	Du	1,229	1.0	10,900	8.6	4,532	3.6	15,432	12.1	0	0.0	16,674	13.1
0	DC	2,374	1.9	5,024	3.9	643	0.5	5,667	4.5	0	0.0	9,062	7.1
0	CD	1,113	0.9	2,360	1.9	522	0.4	2,882	2.3	0	0.0	5,216	4.1
0	Pl	153	0.1	427	0.3	132	0.1	559	0.4	0	0.0	758	0.6
0	Sb	12,099	9.5	3,499	2.7	48	0.0	3,547	2.8	0	0.0	15,886	12.5
0	Sw	5,075	4.0	6,305	5.0	1,361	1.1	7,666	6.0	0	0.0	13,574	10.7
0	Lt	0	0.0	36	0.0	0	0.0	36	0.0	0	0.0	36	0.0
0	NF	0	0.0	0	0.0	0	0.0	0	0.0	18,476	14.5	18,476	14.5
0		27,635	21.7	57,523	45.2	18,460	14.5	75,983	59.7	18,476	14.5	127,331	100.0

Table 9. Gross landbase seral stage distribution by strata at the end of year 10 (2018 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Gross Landbase (%)										Total Gross Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
10	Dec	3,825	3.0	27,744	21.8	10,345	8.1	38,089	29.9	0	0.0	47,649	37.4
10	Du	159	0.1	10,070	7.9	4,821	3.8	14,891	11.7	0	0.0	15,061	11.8
10	DC	1,718	1.3	4,727	3.7	1,626	1.3	6,353	5.0	0	0.0	9,062	7.1
10	CD	1,825	1.4	1,589	1.2	1,251	1.0	2,840	2.2	0	0.0	6,829	5.4
10	Pl	117	0.1	247	0.2	204	0.2	451	0.4	0	0.0	758	0.6
10	Sb	11,865	9.3	3,729	2.9	184	0.1	3,913	3.1	0	0.0	15,886	12.5
10	Sw	4,795	3.8	4,755	3.7	2,367	1.9	7,122	5.6	0	0.0	13,574	10.7
10	Lt	0	0.0	36	0.0		0.0	36	0.0	0	0.0	36	0.0
10	NF	0	0.0	0	0.0	0	0.0	0	0.0	18,476	14.5	18,476	14.5
10		24,304	19.1	52,896	41.5	20,798	16.3	73,694	57.9	18,476	14.5	127,331	100.0

Table 10. Gross landbase seral stage distribution by strata at the end of year 50 (2058 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Gross Landbase (%)										Total Gross Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
50	Dec	19,348	15.2	3,090	2.4	16,627	13.1	19,716	15.5	0	0.0	47,649	37.4
50	Du	13	0.0	157	0.1	9,152	7.2	9,309	7.3	0	0.0	9,322	7.3
50	DC	4,355	3.4	601	0.5	2,991	2.3	3,592	2.8	0	0.0	9,062	7.1
50	CD	9,396	7.4	233	0.2	1,016	0.8	1,249	1.0	0	0.0	12,568	9.9
50	Pl	458	0.4	115	0.1	113	0.1	228	0.2	0	0.0	758	0.6
50	Sb	1,871	1.5	12,527	9.8	1,226	1.0	13,753	10.8	0	0.0	15,886	12.5
50	Sw	5,207	4.1	3,129	2.5	3,265	2.6	6,394	5.0	0	0.0	13,574	10.7
50	Lt	0	0.0	18	0.0	17	0.0	36	0.0	0	0.0	36	0.0
50	NF	0	0.0	0	0.0	0	0.0	0	0.0	18,476	14.5	18,476	14.5
50		40,648	31.9	19,871	15.6	34,406	27.0	54,277	42.6	18,476	14.5	127,331	100.0

Table 11. Gross landbase seral stage distribution by strata at the end of year 100 (2108 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Gross Landbase (%)										Total Gross Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
100	Dec	24,704	19.4	10,930	8.6	5,857	4.6	16,787	13.2	0	0.0	47,649	37.4
100	Du	0	0.0	0	0.0	4,440	3.5	4,440	3.5	0	0.0	4,440	3.5
100	DC	4,123	3.2	2,719	2.1	1,601	1.3	4,320	3.4	0	0.0	9,062	7.1
100	CD	7,300	5.7	6,335	5.0	1,102	0.9	7,437	5.8	0	0.0	17,450	13.7
100	Pl	183	0.1	268	0.2	62	0.0	330	0.3	0	0.0	758	0.6
100	Sb	1,427	1.1	2,102	1.7	12,045	9.5	14,147	11.1	0	0.0	15,886	12.5
100	Sw	9,898	7.8	185	0.1	1,343	1.1	1,528	1.2	0	0.0	13,574	10.7
100	Lt	0	0.0	0	0.0	36	0.0	36	0.0	0	0.0	36	0.0
100	NF	0	0.0	0	0.0	0	0.0	0	0.0	18,476	14.5	18,476	14.5
100		47,634	37.4	22,538	17.7	26,486	20.8	49,024	38.5	18,476	14.5	127,331	100.0

Table 12. Gross landbase seral stage distribution by strata at the end of year 200 (2208 Timber Year).

		Seral Stage Area (ha) and Proportion of Total Gross Landbase (%)										Total Gross Landbase	
		Young		Mature		Old		Mature + Old		Undefined			
Year	Strata	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
200	Dec	19,703	15	10,083	8	10,857	9	20,940	16	0	0	47,649	37
200	Du	14	0		0	1,012	1	1,012	1	0	0	1,141	1
200	DC	5,036	4	1,873	1	956	1	2,830	2	0	0	9,062	7
200	CD	9,526	7	6,963	5	1,246	1	8,208	6	0	0	20,749	16
200	Pl	246	0	268	0	35	0	303	0	0	0	758	1
200	Sb	2,804	2	302	0	10,447	8	10,749	8	0	0	15,886	12
200	Sw	9,905	8	989	1	735	1	1,724	1	0	0	13,574	11
200	Lt	17	0	0	0	0	0	0	0	0	0	36	0
200	NF	0	0	0	0	0	0	0	0	18,476	15	18,476	15
200		47,252	37	20,478	16	25,288	20	45,766	36	18,476	15	127,331	100

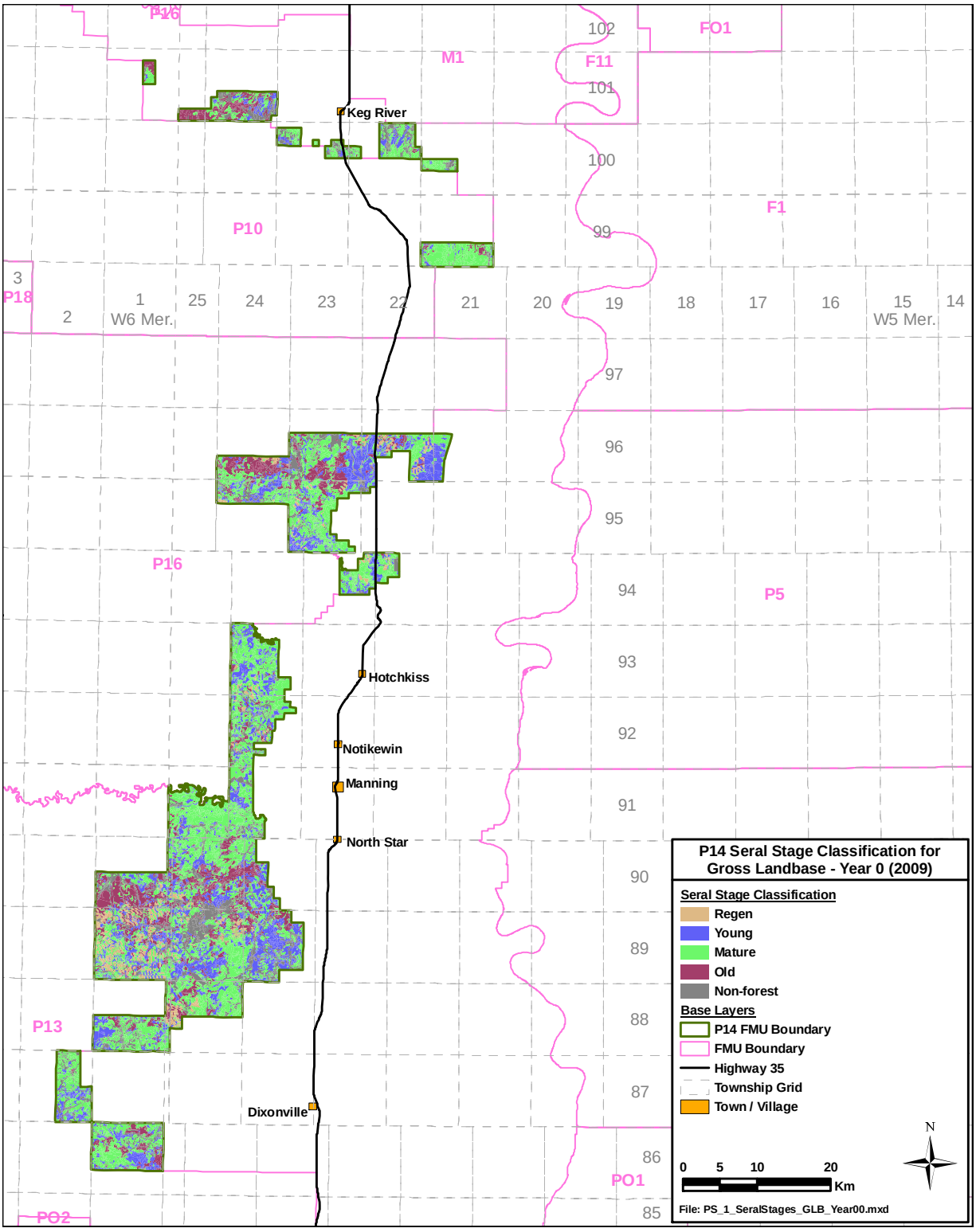

Figure 4. Gross landbase seral stage distribution at the start of year 0 (2009 Timber Year).

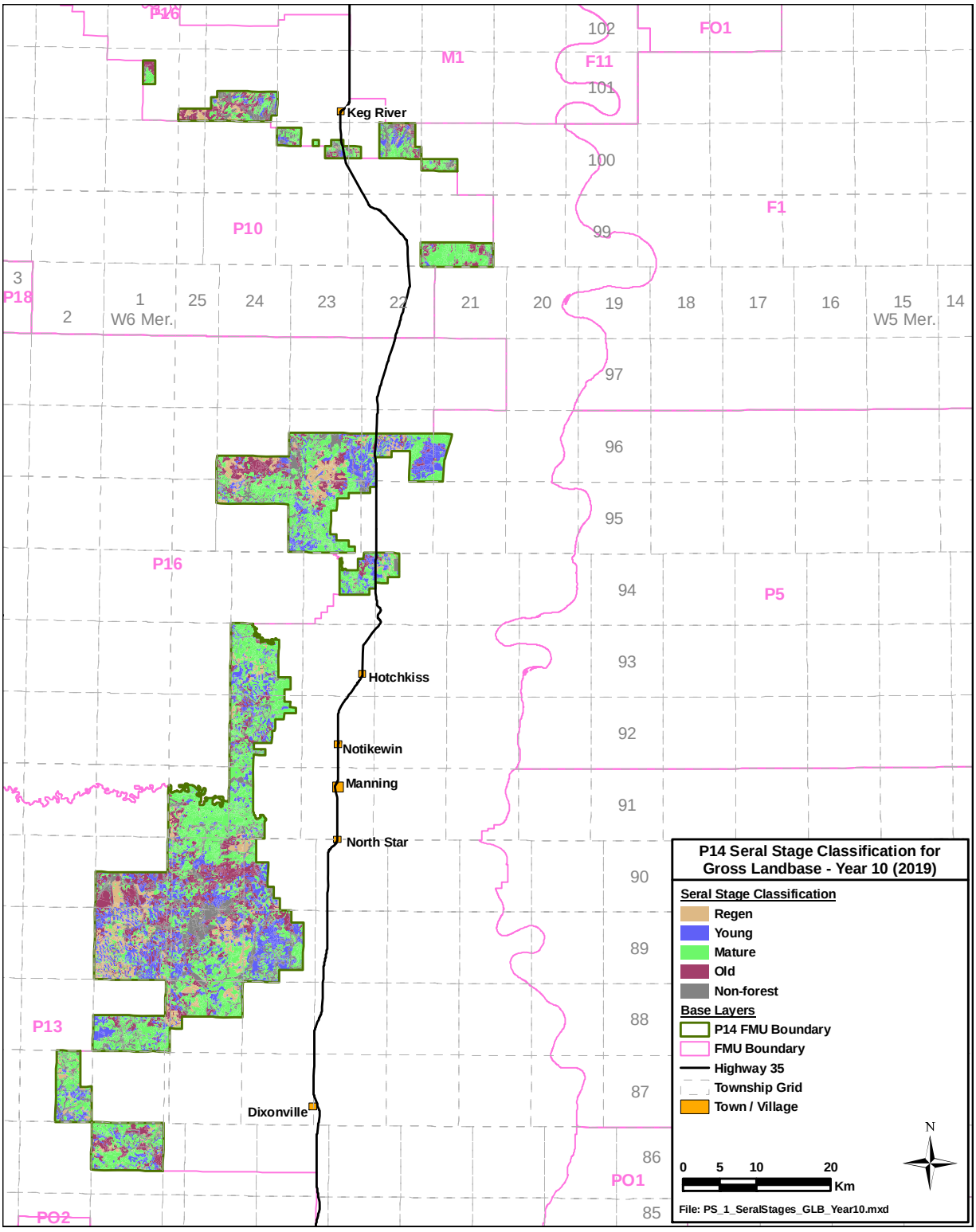

Figure 5. Gross landbase seral stage distribution at the end of year 10 (2018 Timber Year).

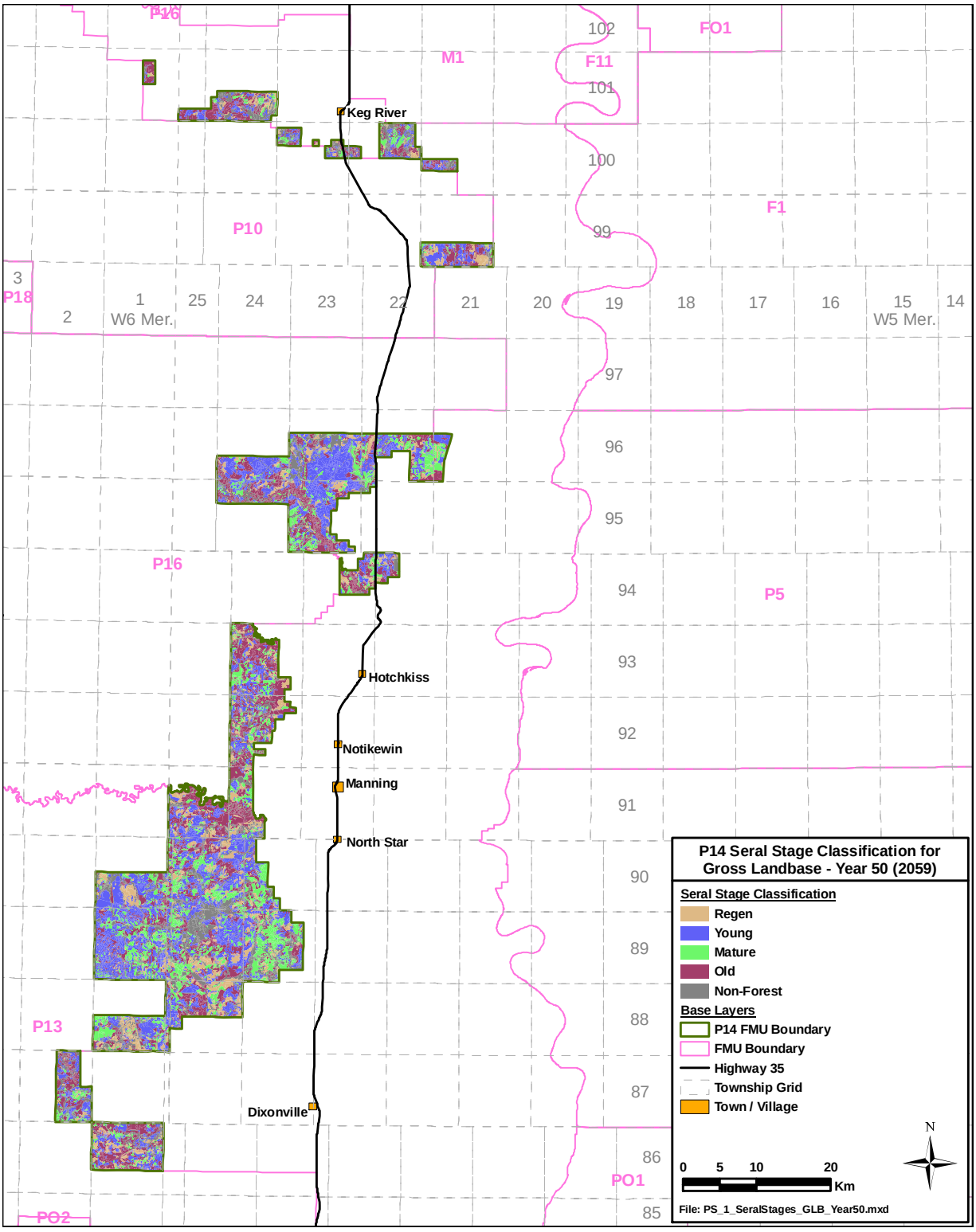

Figure 6. Gross landbase seral stage distribution at the end of year 50 (2058 Timber Year).

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Actual area and proportion of area within each of the seral stage classes for each strata; and
- Variance between actual area and proportion of area within each of the seral stage classes for each strata and the target values.

Acceptable Variance

Old + Mature seral stage class:

- Area by strata shall be between 90% and 100% of target area.

Young seral stage class:

- Area by strata class shall not exceed 110% of target area.

Response

Adjust strategies in subsequent FMP.

Notes

Seral stage and strata are described within Chapter 4: Forecasting and the PFMS.

P.S. 2 – a) Range of opening patch sizes on the gross landbase.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.2. Maintain biodiversity by avoiding landscape fragmentation.

Target

At the end of year 10 (2018 Timber Year), achieve a distribution of opening patch (harvest area) sizes consistent with attaining a patch size pattern over the 200 year planning horizon on the gross landbase, that approximates patterns created by natural disturbances as defined in the Table 13.

Table 13. Gross landbase opening patch size distribution at the end of year 10 (2018 Timber Year).

	> 0 and < 2 ha		>= 2 and < 200 ha		>= 200 and < 500 ha		>= 500 ha		Total Patch Area
Year	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)
10	73	0.7%	6,776	62.4%	2,439	22.5%	1,569	14.5%	10,857

Means of Achieving Objective and Target

Spatial and temporal harvest planning. Opening patch size distribution targets are set for forest opening patches less than 20 years old.

Monitoring and Measurement

Regular updates to inventory.

Reporting – FMP

As derived from the FMP forecasting process, the opening patch (harvest area) size distribution on the gross landbase at years 0 (2009), 10 (2018) and 50 (2058) of the 200 year planning horizon, is summarized in Table 14. Also, as derived from the FMP forecasting process, the opening patch size distribution on the gross landbase is illustrated for the years 0 (Figure 7), 10 (Figure 8) and 50 (Figure 9) of the 200 year planning horizon.

Table 14. Gross landbase patch size distribution at years 0 (2009), 10 (2018) and 50 (2058).

	> 0 and < 2 ha		>= 2 and < 200 ha		>= 200 and < 500 ha		>= 500 ha		Total Patch Area
Year	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)
0	54	1.0%	4,963	94.7%	221	4.2%	0	0.0%	5,238
10	73	0.7%	6,776	62.4%	2,439	22.5%	1,569	14.5%	10,857
50	220	1.6%	11,759	84.4%	1,952	14.0%	0	0.0%	13,931

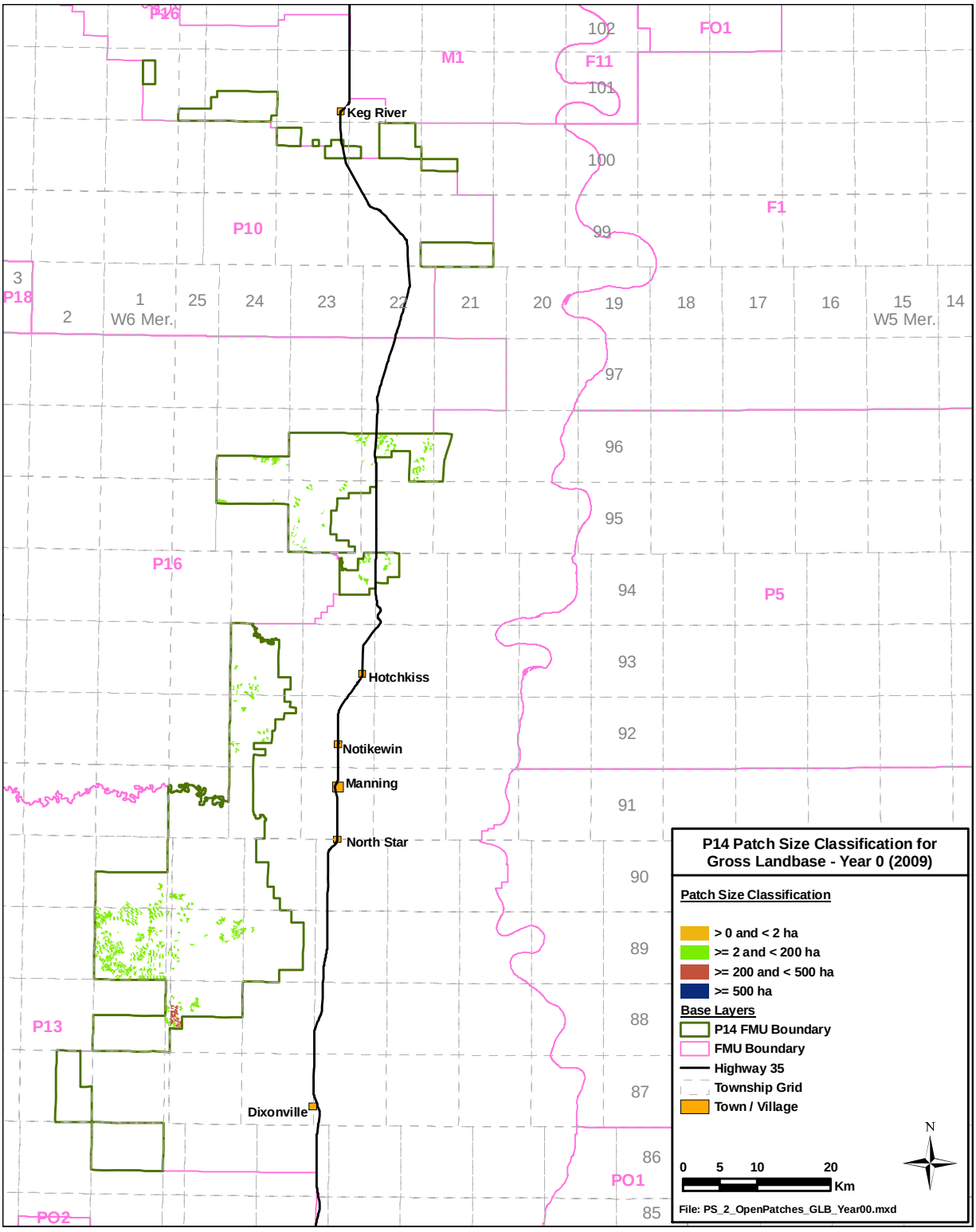

Figure 7. Gross landbase patch size distribution at the start of year 0 (2009 Timber Year).

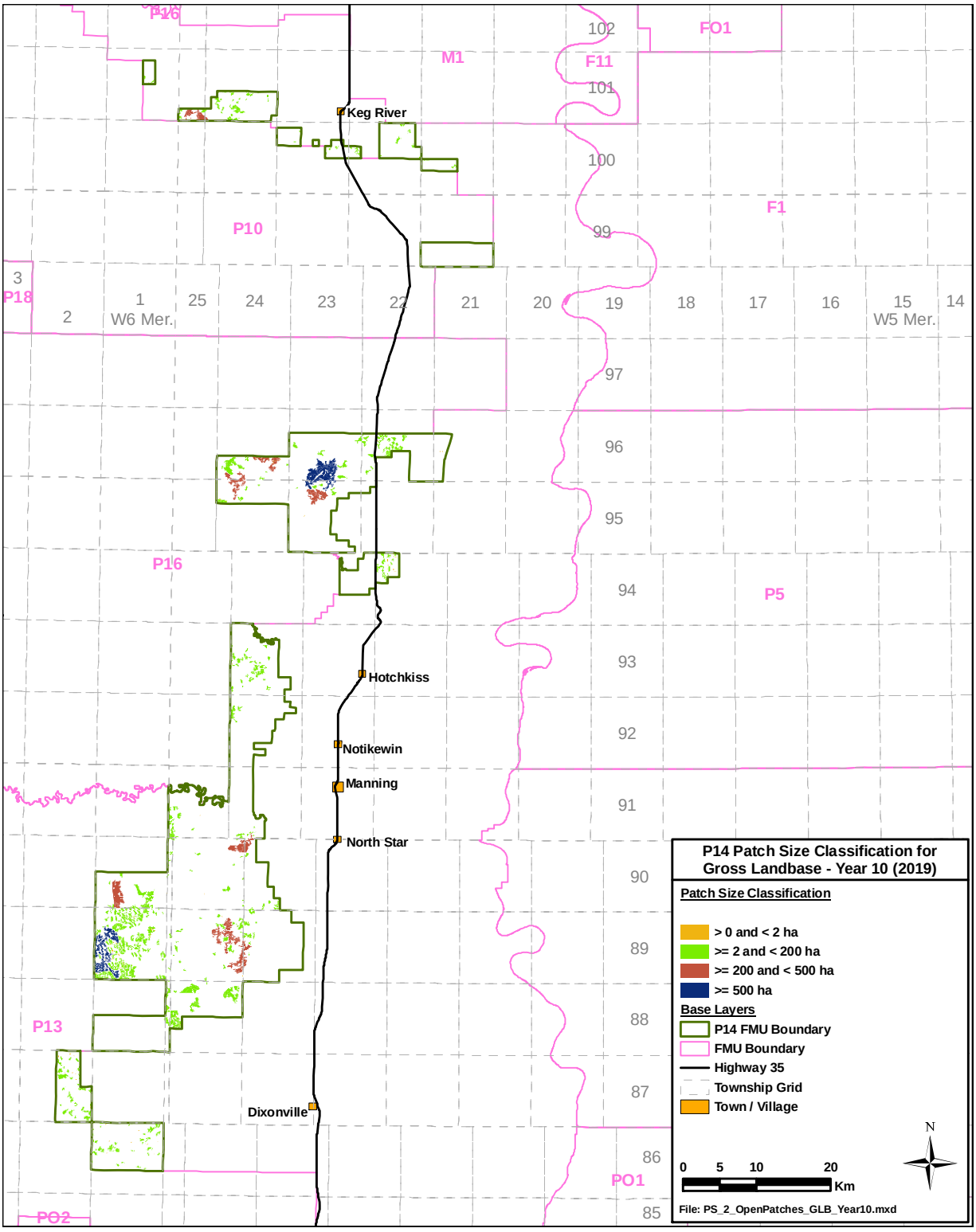

Figure 8. Gross landbase patch size distribution at the end of year 10 (2018 Timber Year).

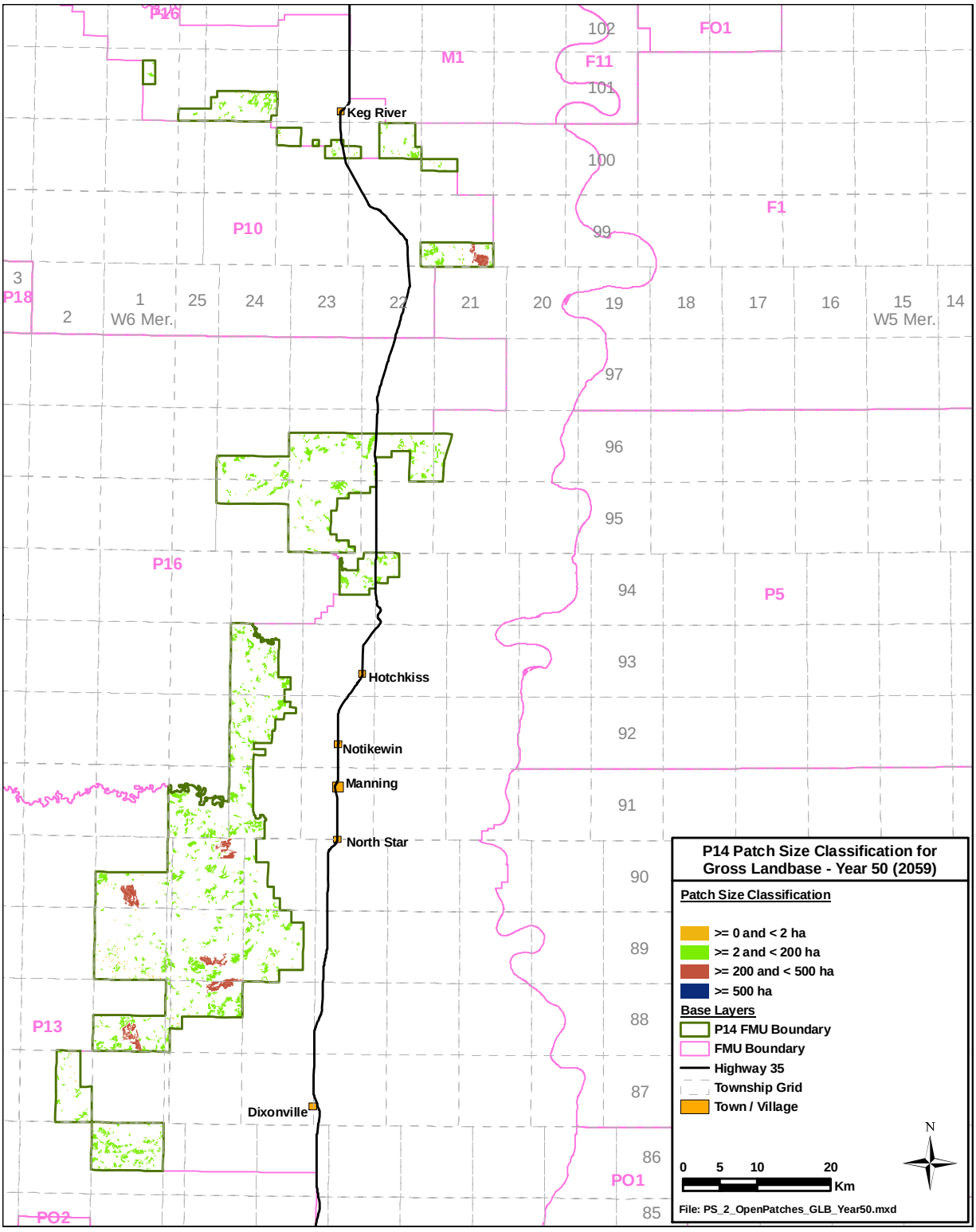

Figure 9. Gross landbase patch size distribution at the end of year 50 (2058 Timber Year).

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Actual opening patch area and proportion of total opening patch area on the gross landbase within each opening patch size class; and

- Variance between actual opening patch area on the gross landbase within each patch size class and the target values.

Acceptable Variance

At the end of the 10-year FMP term, the target distribution is achieved; or demonstrated progress to achieving target in one rotation where the pattern has deviated significantly from the target.

Response

Adjust strategies in subsequent FMP.

Notes

Opening patches and the size classes are described within Chapter 4: Forecasting and the PFMS.

P.S. 3 – b) Area of mature and old interior forest of each strata on the gross landbase.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.2 Maintain biodiversity by avoiding landscape fragmentation.

Target

At the end of year 10 (2019 Timber Year), the area of mature and old interior forest, for each strata on the gross landbase will not be less than those as defined in Table 15.

Table 15. Gross landbase target mature and old interior forest by strata at the end of year 10 (2018 Timber Year).

		Interior Forest Mature + Old		Total Gross Landbase	
Year	Strata	(ha)	(%)	(ha)	(%)
10	Dec	35,882	28.2	47,649	37.4
10	Du	13,926	10.9	15,061	11.8
10	DC	5,960	4.7	9,062	7.1
10	CD	2,648	2.1	6,829	5.4
10	Pl	405	0.3	758	0.6
10	Sb	3,597	2.8	15,886	12.5
10	Sw	6,724	5.3	13,574	10.7
10	Lt	36	0.0	36	0.0
10	NF	-	0.0	18,476	14.5
10		69,179	54.3	127,331	100.0

Means of Achieving Objective and Target

Spatial and temporal harvest planning.

Monitoring and Measurement

Regular updates to forest inventory.

Reporting – FMP

As derived from the FMP forecasting process, the area of mature and old interior forest by strata on the gross landbase is summarized for years 0 (Table 16), 10 (Table 17) and 50 (Table 18) of the 200 year planning horizon. Also, as derived from the FMP forecasting process, the area of mature and old interior forest strata proportions on the gross landbase are illustrated for the years 0 (Figure 10), 10 (Figure 11) and 50 (Figure 12).

Table 16. Gross landbase mature and old interior forest by strata at the start of year 0 (2009 Timber Year.

		Interior Forest Mature + Old		Total Gross Landbase	
Year	Strata	(ha)	(%)	(ha)	(%)
0	Dec	38,175	30.0	47,649	37.4
0	Du	14,381	11.3	16,674	13.1
0	DC	5,346	4.2	9,062	7.1
0	CD	2,674	2.1	5,216	4.1
0	Pl	491	0.4	758	0.6
0	Sb	3,203	2.5	15,886	12.5
0	Sw	7,281	5.7	13,574	10.7
0	Lt	36	0.0	36	0.0
0	NF	-	0.0	18,476	14.5
0		71,588	56.2	127,331	100.0

Table 17. Gross landbase mature and old interior forest by strata at the end of year 10 (2018 Timber Year).

		Interior Forest Mature + Old		Total Gross Landbase	
Year	Strata	(ha)	(%)	(ha)	(%)
10	Dec	35,882	28.2	47,649	37.4
10	Du	13,926	10.9	15,061	11.8
10	DC	5,960	4.7	9,062	7.1
10	CD	2,648	2.1	6,829	5.4
10	Pl	405	0.3	758	0.6
10	Sb	3,597	2.8	15,886	12.5
10	Sw	6,724	5.3	13,574	10.7
10	Lt	36	0.0	36	0.0
10	NF	-	0.0	18,476	14.5
10		69,179	54.3	127,331	100.0

Table 18. Gross landbase mature and old interior forest by strata at the end of year 50 (2058 Timber Year).

		Interior Forest Mature + Old		Total Gross Landbase	
Year	Strata	(ha)	(%)	(ha)	(%)
50	Dec	17,204	13.5	47,649	37.4
50	Du	8,441	6.6	9,322	7.3
50	DC	3,117	2.4	9,062	7.1
50	CD	1,106	0.9	12,568	9.9
50	Pl	223	0.2	758	0.6
50	Sb	11,470	9.0	15,886	12.5
50	Sw	5,688	4.5	13,574	10.7
50	Lt	33	0.0	36	0.0
50	NF	-	0.0	18,476	14.5
		47,282	37.1	127,331	100.0

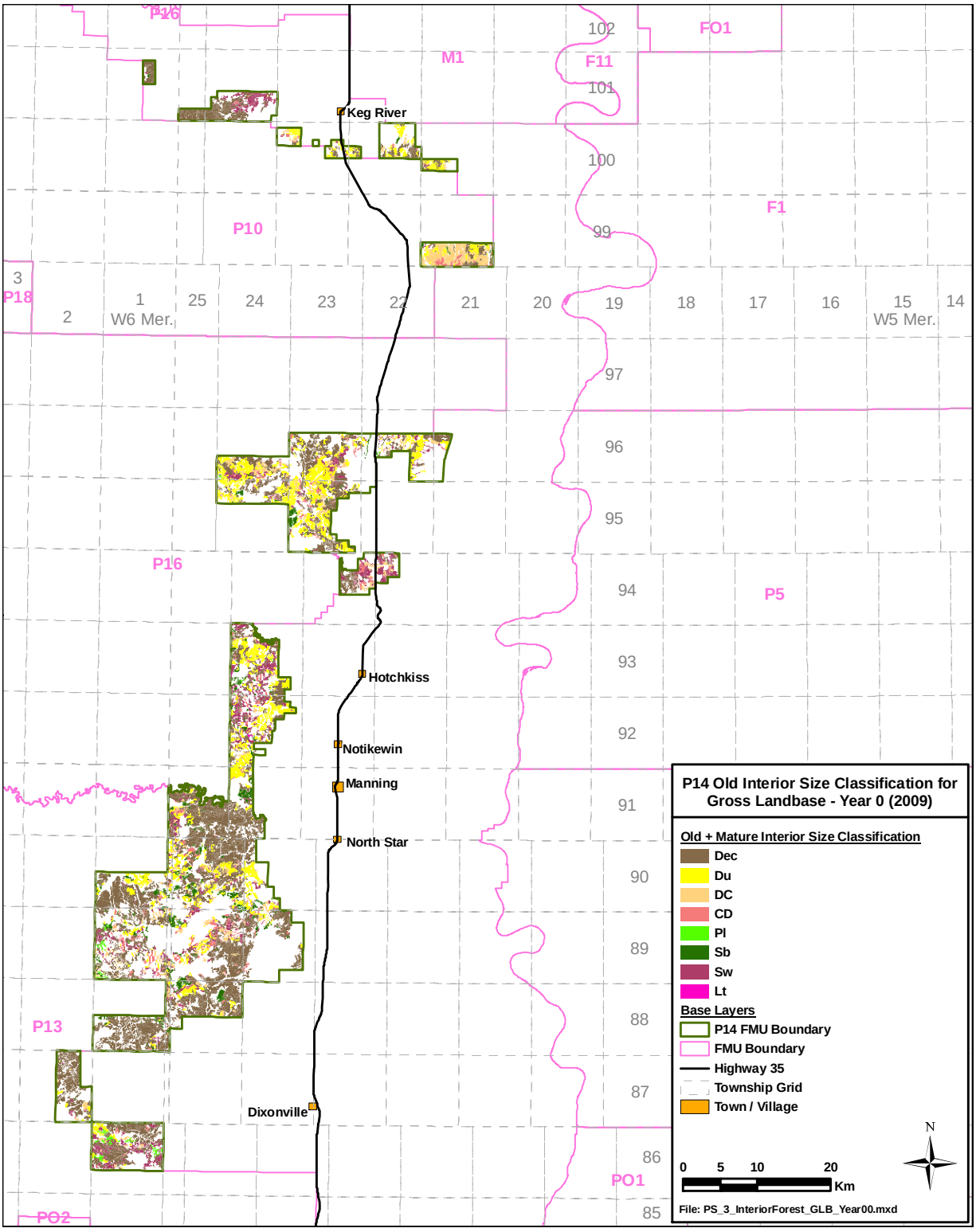

Figure 10. Gross landbase mature and old interior forest by strata at the start of year 0 (2009 Timber Year).

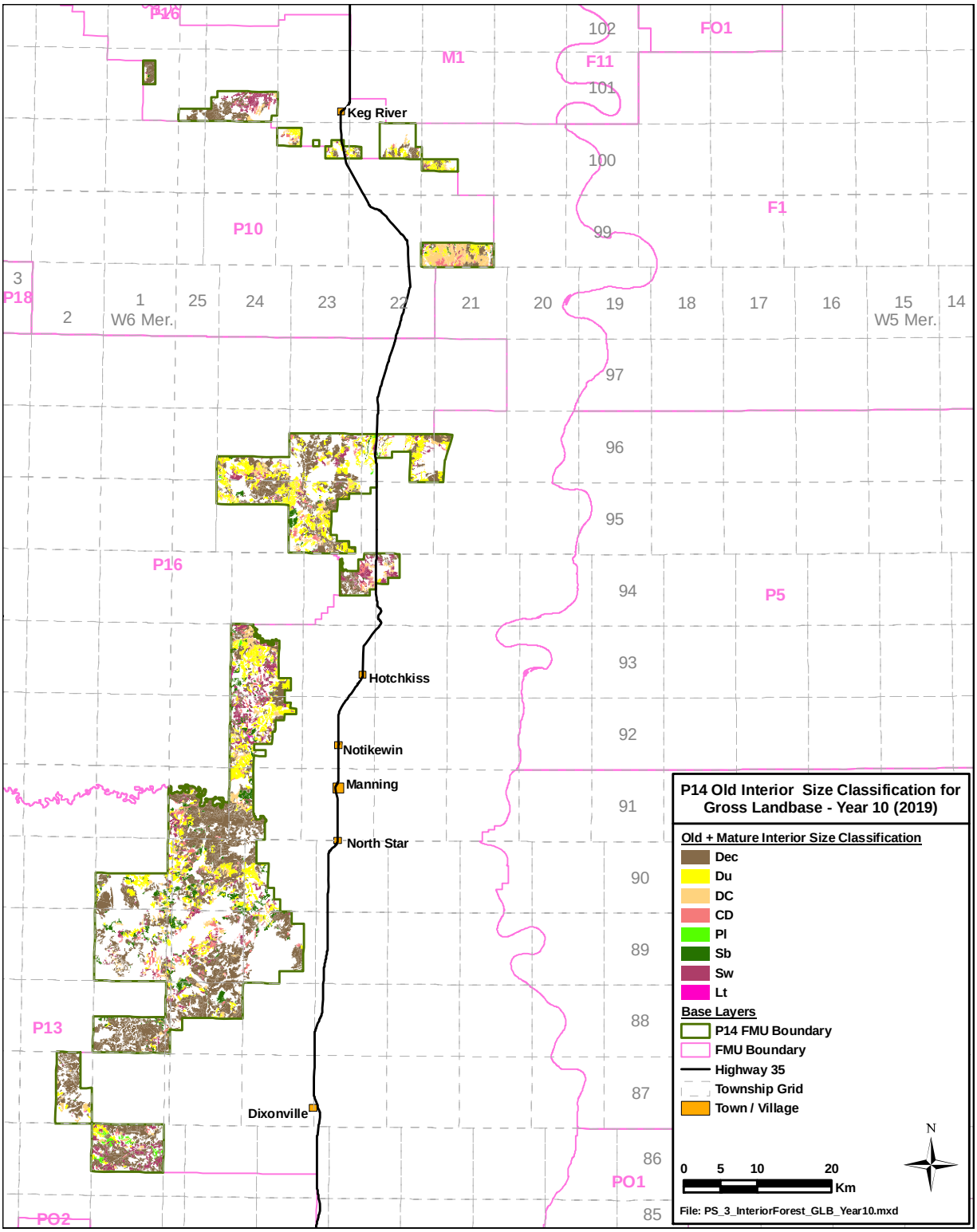

Figure 11. Gross landbase mature and old interior forest by strata at the end of year 10 (2018 Timber Year).

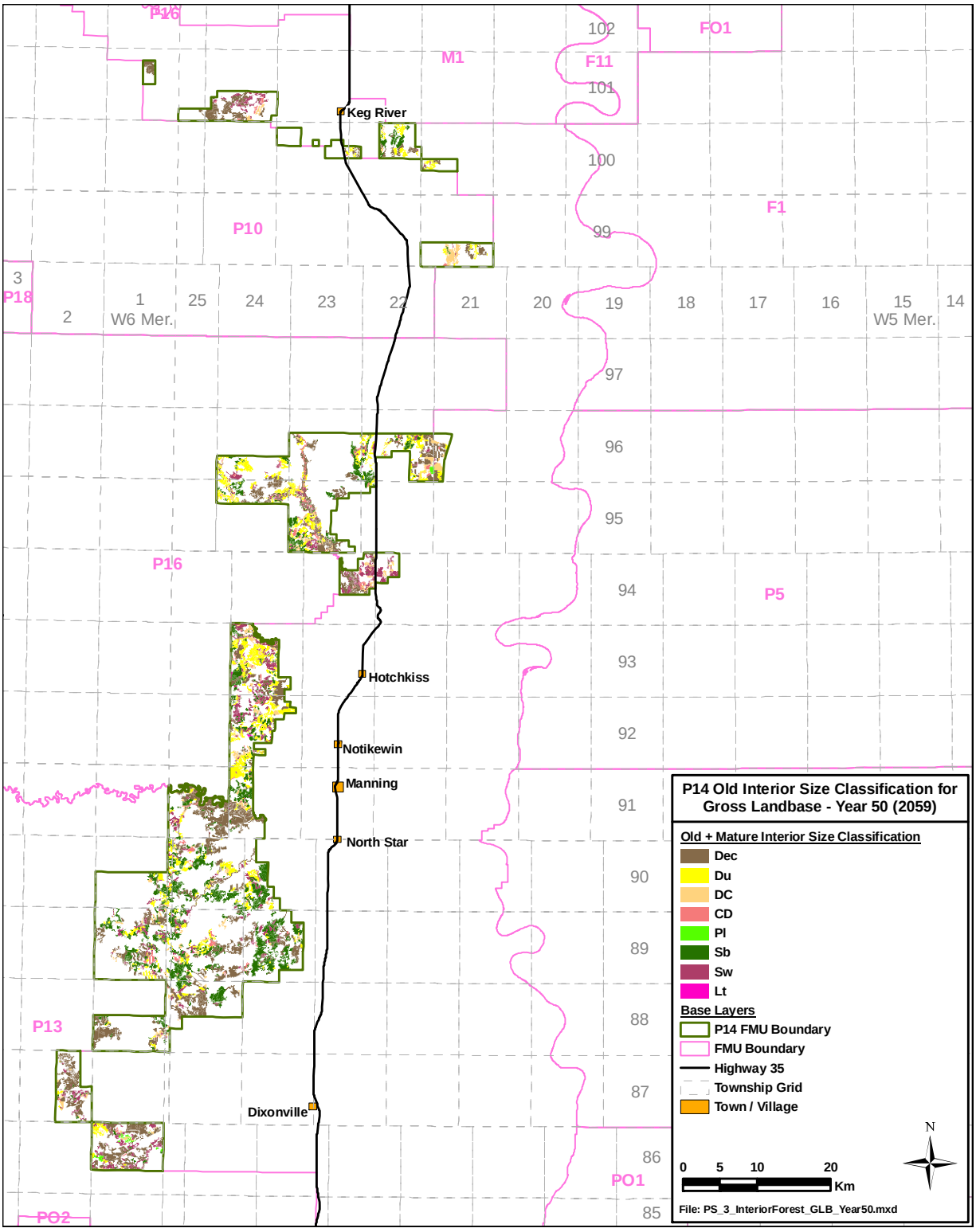

Figure 12. Gross landbase mature and old interior forest by strata at the end of year 50 (2058 Timber Year).

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Actual mature and old interior forest area within each strata; and
- Variance between actual mature and old interior forest area in each strata and the target values.

Acceptable Variance

At the end of year 10 (2018 Timber Year), the actual values are not less than 80% of the target values.

Response

Adjust strategies in subsequent FMP.

Notes

Interior forest, seral stage and strata are described within Chapter 4: Forecasting and the PFMS.

P.S. 4 – a) Open all-weather forestry road density within the Defined Forest Area.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.3. Maintain biodiversity by minimizing access.

Target

At the end of year 10 (2018 Timber Year), the target open all-weather forestry road density on the Defined Forest Area (DFA) will be less than 0.0404 km/km^2.

Means of Achieving Objective and Target

Coordinate access development with other resource users and adhere to the Spatial Harvest Sequence (Chapter 4: Forecasting and the PFMS) and the P14 Long-term Road Plan (Appendix V).

Monitoring and Measurement

Regular updates to forest inventory.

Reporting – FMP

The length and density of open all weather roads on the DFA, by disposition holder class (industry sector), is summarized for the start of year 0 (2009 Timber year) and for the end of year 10 (2018 Timber Year) in Table 19 and Table 20 respectively. Open all weather roads at the start of year 0 (2009 Timber Year) are illustrated in Figure 13.

Table 19. DFA all weather open road density by disposition holder class at the start of year 0 (Timber Year 2009).

Road Status	Disposition Holder Class	Road Length (km)	Road Density (km/km^2)
Existing	Forest Industry	7.31	0.0057
	Government	9.78	0.0077
	Oil and Gas Industry	24.10	0.0189
Total		41.19	0.0323
Proposed	Forest Industry	0.00	0.0000
Total		0.00	0.0000

Table 20. DFA all weather open road density by disposition holder class at the end year 10 (2018 Timber Year).

Road Status	Disposition Holder Class	Road Length (km)	Road Density (km/km^2)
Existing	Forest Industry	9.14	0.0072
	Government	12.23	0.0096
	Oil and Gas Industry	30.13	0.0237
Total		51.49	0.0404

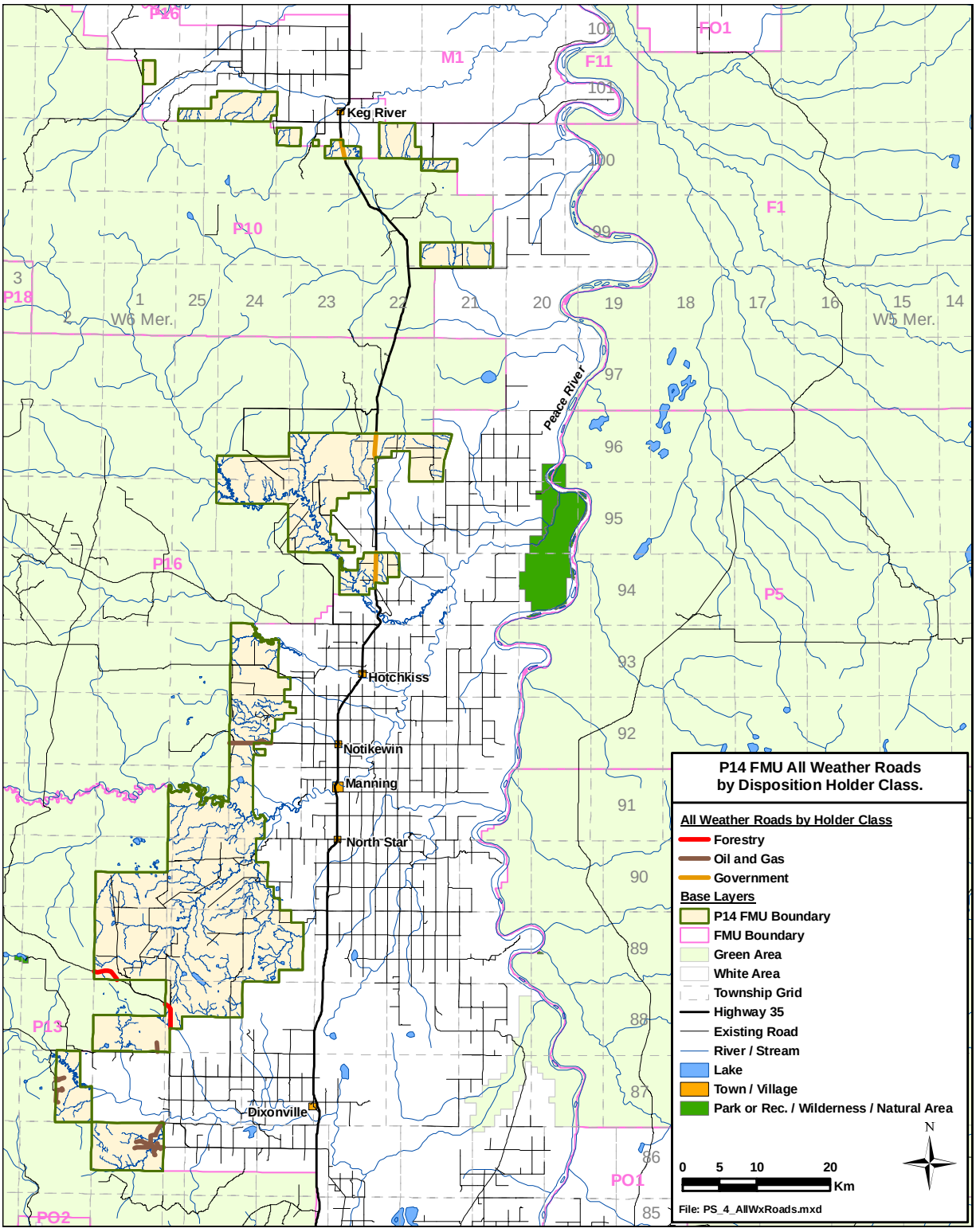

Figure 13. Existing open all weather roads within Defined Forest Area, by disposition holder class, at year 0 (2009 Timber Year).

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Actual open all-weather road density for the DFA for forestry and other users; and
- Variance between actual open all-weather forestry road density and the target values.

Acceptable Variance

A variance not exceeding greater than 20% of the target must be achieved.

Response

Adjust strategies in subsequent FMP.

Notes

Traditionally, and as planned for the future, all weather roads are not used for forestry operations on the FMU. Other users (ie. oil and gas) occasionally do build all weather roads, but this is not common.

P.S. 5 – b) Open seasonal / temporary forestry road length within the Defined Forest Area.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.3. Maintain biodiversity by minimizing access.

Target

On an annual basis, the total length of exterior block seasonal/temporary forestry road length utilized on Defined Forest Area (DFA) will be less than, or equal to, 32.0 km.

Means of Achieving Objective and Target

Assess and consider seasonal/temporary road network requirements in conjunction with the SHS, when developing AOP.

Monitoring and Measurement

Road planning, construction, maintenance, deactivation and reclamation will be completed in accordance with the Operating Ground Rules.

Reporting – FMP

N/A

Reporting – Performance

The following will be reported in the AOP for operators on the DFA:

- Schedule of seasonal/temporary forestry roads planned for use in the upcoming Timber Year.
- Map indicating seasonal/temporary forestry roads planned for use in the upcoming Timber Year.
- Table of indicator actual and variance from the previous Timber Year schedule.

The following will be assessed and reported in the Stewardship Report:

- Actual open seasonal/temporary forestry road length on the DFA; and
- Variance between actual seasonal/temporary forestry road length and the target value.

Acceptable Variance

A variance not exceeding greater than 20% of the target must be achieved.

Response

Adjust strategies in subsequent Annual Operating Plans.

Notes

Not applicable.

P.S. 6 – Area or occurrence of each uncommon plant community within the Defined Forest Area.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.4 Maintain plant communities uncommon in DFA or province.

Target

Maintain 80% of the plant community area, for each community confirmed to exist within the Defined Forest Area (DFA), as defined within the Alberta Natural Heritage Information Centre's (ANHIC) Element Occurrence database.

Means of Achieving Objective and Target

Develop and implement a rare plant or ecological community maintenance strategy that includes the following elements:

- Ongoing review and refinement of rare plant or ecological community listing;
- Communication and training for field staff for identification and information capture;
- Reporting protocols;
- Spatial inventory of identified rare plant or ecological communities; and
- Operational avoidance of communities, through spatial planning, including coordinating with other resource users.

Monitoring and Measurement

Regular updates to operational inventory (harvesting and road operations) are completed on a regular basis. When encountered, rare plant or ecological communities will be reported to Alberta Natural Heritage Information Centre, as per the protocols developed under the maintenance strategy described in the previous section. In addition, these findings will be captured such that they can and will be identified on harvest planning map products.

Reporting – FMP

The ANHIC's Element Occurrence database contains one confirmed rare plant within, or in close proximity to, the DFA, as identified in Table 21. The location associated with the survey in which this rare plant was confirmed is shown in Figure 14 (please note that the region shown on the map indicates a circular area around the point where the surveyors confirmed the existence of the particular plant/community – it does not represent the full extent of the area in which the plant or community is known to exist).

Table 21. Confirmed uncommon plant community listing for the P14 DFA.

Element Code	EO ID	Plant Name	First Observed	Last Observed	Rank	% Maintainence
PDFAB0F1C0	8707	*Astragalus bodinii* (Bodin's milk vetch)	July 20, 1958	July 20, 1958	S1	80

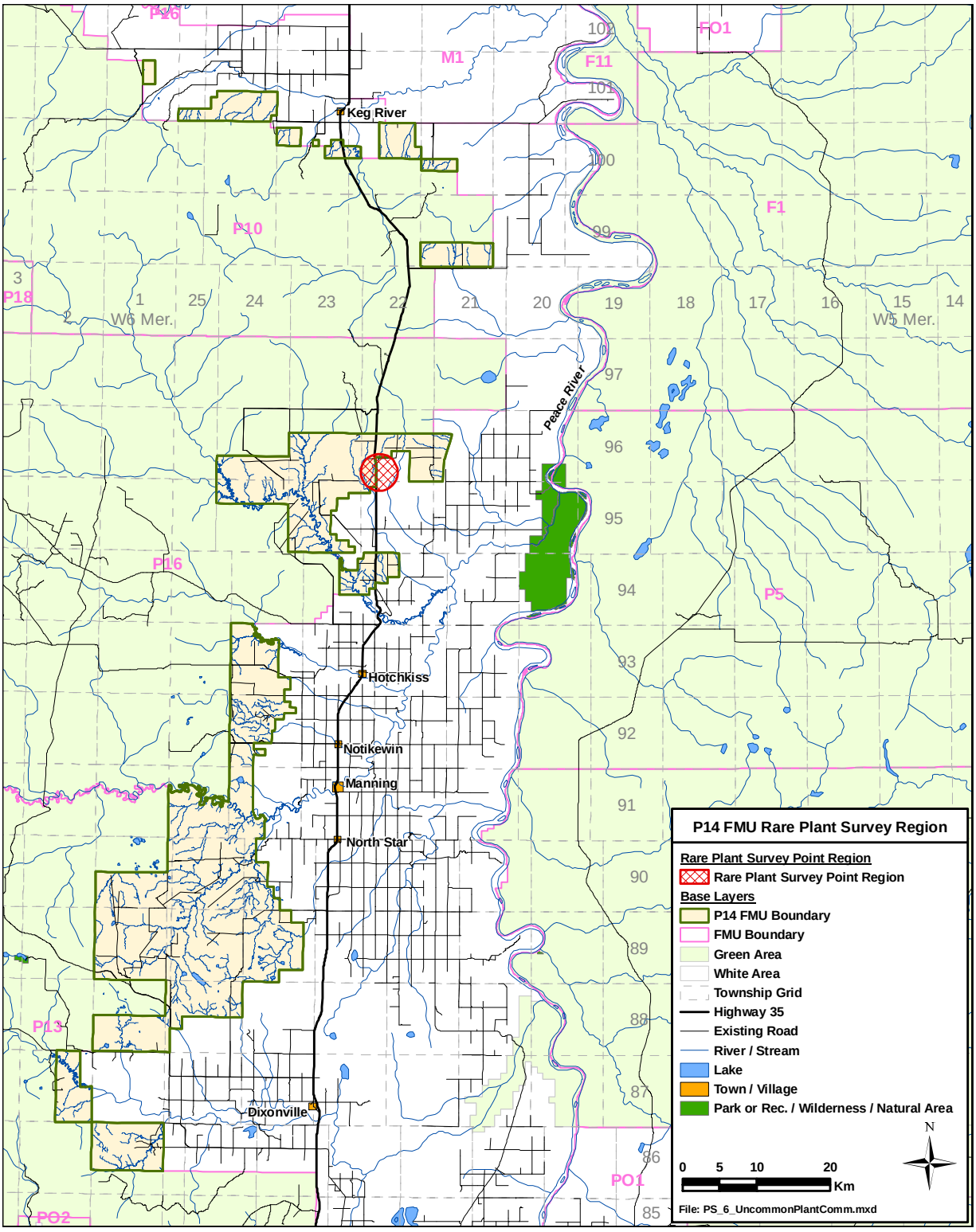

Figure 14. Survey region in which uncommon plant community was confirmed in or near the DFA.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Summary of progress in developing a rare plant or ecological community maintenance strategy; and

- Area and location of identified rare plant or ecological communities discovered and the maintenance of them when associated with operations.

Acceptable Variance

By the end of the 10-year FMP period, a rare plant or ecological community maintenance program is implemented and the targets associated with it are achieved.

Response

If uncommon plant communities are found, harvest plans will be modified to protect or conserve these communities, where feasible.

Notes

Not applicable.

P.S. 7 – Area of unsalvaged burned forest.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.5 Maintain unique habitats provided by wildfire and blowdown events.

Target

Live trees - Retain all unburned trees in green islands and retained patches recognizing timber condition, access, non timber needs.

Burned trees - Compartment Scale: Retain greater than 10% of merchantable black trees in patches greater than 100 ha.

Burned trees - Harvest Area Scale: Retain greater than 10% of merchantable black trees in patches 10 -100 ha; and Retain greater than 5% of merchantable black trees in small patches, single trees according to loggers choice.

Means of Achieving Objective and Target

Prompt salvage planning consistent with:

- Operating Ground Rules;
- Forest Management Branch Directive 2007-01, Fire Salvage Planning and Operations; and
- Forest Operations Branch's Fire Salvage Strategy – Forest Management Planning and Operations 2002.

Monitoring and Measurement

Organization reports, air photo interpretation, ground surveys, post harvest assessments.

Reporting – FMP

There have been no significant natural disturbance on the DFA in the last ten years, therefore, no reportable salvage operations have been undertaken.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Number of fires and area burned on the DFA; and
- Burned area on the DFA, in which salvage operations were conducted.

Acceptable Variance

At the end of the 10-year FMP term the defined operational targets are achieved or exceeded.

Response

Adjust strategies in subsequent AOPs.

Notes

Not applicable.

P.S. 8 – Area of unsalvaged blowdown.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.5 Maintain unique habitats provided by wildfire and blowdown events.

Target

In areas of significant blowdown, greater than or equal to 10% of the merchantable stems will be left unsalvaged.

Means of Achieving Objective and Target

Prompt salvage planning consistent with:

- Operating Ground Rules.

Monitoring and Measurement

Inventory updates.

Reporting – FMP

There have been no significant natural disturbance on the DFA in the last ten years, therefore, no reportable salvage operations have been undertaken.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Number of areas affected by significant blowdown events and the area affected; and
- Percentage of merchantable blowdown stems left on-site (unsalvaged) at each area affected by significant blowdown event.

Acceptable Variance

At the end of the 10-year FMP term the target is achieved or exceeded.

Response

Adjust strategies in subsequent AOPs.

Notes

Not applicable.

P.S. 9 – Compliance with OGRs as they relate to the retention of ecological values and functions associated with riparian zones.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.1. Landscape Scale Biodiversity.

Objective: 1.1.1.6 Retain ecological values and functions associated with riparian zones.

Target

Zero incidents of non-compliance with Operating Ground Rules.

Means of Achieving Objective and Target

Conduct strategic and operational planning consistent with the Alberta Timber Harvest Planning and Operating Ground Rules Framework for Renewal.

Monitoring and Measurement

Organization reports, air photo interpretation, ground surveys, post harvest assessments or other existing compliance monitoring systems.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- The number of incidents of non-compliance;
- A summary of each incident of non-compliance including the following:
    - Date, time and location;
    - General description of incident;
    - General description of remedial measures (if applicable); and
    - Resulting policy or procedural changes (if applicable).

Acceptable Variance

No variance.

Response

Immediate remedial action and / or administrative penalty.

Notes

Not applicable.

P.S. 10 – % of merchantable volume of structure retention within the area harvested over the DFA.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.2 Local/stand scale biodiversity.

Objective: 1.1.2.1 Retain stand level structure.

Target

a) Maintain structure retention greater than or equal to 2% of the Defined Forest Area's Annual Allowable Cut volume annually.

Means of Achieving Objective and Target

The structure retention target will be achieved through adhering to the following:

- Structure retention must be: 1) Merchantable; 2) Representative of the surrounding stands contained within the harvest area; 3) Outside mandatory deletions – ie. buffers; 4) Separate from harvest area boundaries; and 5) Be maintained for a minimum period of one rotation;

- A minimum of 50% of the structure retention within a harvest area must contained in patches that are laid out in the field and approved, while the remaining amount can be determined by the harvesting operators;

- Within a given harvest area, the amount of structure retention can range from 0 to 50%, but across the DFA, the annual average must achieve the target; and

- Placement of stand structure should take into account specific natural features (ie. High value features for wildlife).

Where the preceding does not address specific issues associated with structure retention, the Operating Ground Rules will be adhered to.

Monitoring and Measurement

Structure retention will be recorded in each harvest area, for the purposes of monitoring the success in achieving the performance standard. For laid out patches of structure retention, the volume will be determined by applying the AAC volume of the stand to the area within the patch. For structure retention not captured in laid out patches, ocular volume estimates will be made by qualified field staff following harvesting activities.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Merchantable volume harvested;

- Merchantable volume maintained in structure retention;
- Percentage of total merchantable volume that is maintained in structure retention.

Acceptable Variance

At the end of the 10-year FMP term the target is achieved or exceeded.

Response

Adjust strategies in subsequent FMP.

Notes

Not applicable.

P.S. 11 – % of harvested area on DFA with downed woody debris equivalent to pre-harvest conditions.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.2 Local/stand scale biodiversity.

Objective: 1.1.2.1 Retain stand level structure.

Target

b) Greater than, or equal to, 75% of annual harvest area will contain downed woody debris levels greater than, or equal to, pre-harvest conditions.

Means of Achieving Objective and Target

In the course of operational silviculture planning, limit the scheduling of pre-planting treatments that reduce the level of downed woody debris from pre-harvest levels, to less than 25% of the area harvested annually.

Monitoring and Measurement

Both harvesting and silviculture treatments are input into the company's GIS. Block areas and silviculture treatments are captured primarily through GPS technology.

Reporting – Performance

On an annual basis, both harvesting and silviculture treatments and their respective areas (among other attributes) are submitted to SRD's Alberta Regeneration Information System (ARIS).

The following will be assessed and reported in the Stewardship Report:

- Actual area and proportion of total harvest area in which the level of downed woody debris is greater than, or equal to, pre-harvest conditions (as determined by the amount of post-harvest area using silviculture treatment that reduce the level of downed woody debris from pre-harvest levels).

Acceptable Variance

+/- 20 % of the target at the end of the 10-year FMP.

Response

Adjust strategies in subsequent FMP.

Notes

Not applicable.

P.S. 12 – Compliance with respect to sensitive sites (e.g. mineral licks, major game trails).

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.2 Local/stand scale biodiversity.

Objective: 1.1.2.2 Maintain integrity of sensitive sites.

Target

Zero incidents of non-compliance with Operating Ground Rules and provincial protocols associated with the protection of sensitive sites.

Means of Achieving Objective and Target

Develop, implement and communicate a strategy and set of protocols for identifying, assessing, and maintaining the integrity of sensitive sites. Adhere to applicable Operating Ground Rules or provincial protocols.

Monitoring and Measurement

Organization reports, air photo interpretation, ground surveys.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Status of the development and implementation of any specific sensitive site strategy and its protocols; and
- The number of incidents of non-compliance;
- A summary of each incident of non-compliance including the following:
    - Date, time and location;
    - General description of incident;
    - General description of remedial measures (if applicable); and
    - Resulting policy or procedural changes (if applicable).

Acceptable Variance

None.

Response

Adjust strategy and/or protocols in subsequent AOPs.

Notes

Not applicable.

P.S. 13 – Compliance with the Code of Practice for Water Course Crossings.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.1. Ecosystem Diversity: Conserve ecosystem diversity at the landscape level by maintaining the variety of communities and ecosystems that occur naturally in the DFA.

Value: 1.1.2 Local/stand scale biodiversity.

Objective: 1.1.2.3 Maintain aquatic biodiversity by minimizing impacts of water crossings.

Target

Zero incidents where watercourse crossing designs do not meet the standards of the Code of Practice for Water Course Crossings.

Means of Achieving Objective and Target

Adhere to Code of Practice for Water Course Crossings when designing crossings and completing road construction, maintenance and reclamation activities.

Monitoring and Measurement

Develop and implement water course crossing monitoring program, consistent with the Operating Ground Rules and Code of Practice for Water Course Crossings.

Reporting – Performance

The following will be assessed and reported in the Annual Operating Plan:

- Number of crossings by type within the DFA by compliance status; and

The following will be assessed and reported in the Stewardship Report:

- Number of crossings by type within the DFA by compliance status;
- The number of incidents of non-compliance; and
- A summary of each incident of non-compliance including the following:
    - Date, time and location;
    - General description of incident;
    - General description of remedial measures (if applicable); and
    - Resulting policy or procedural changes (if applicable).

Acceptable Variance

None.

Response

Act immediately to eliminate problems and adjust strategies in subsequent AOPs.

Notes

Not applicable.

P.S. 14 – Area of suitable habitat within the DFA.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.2 Species Diversity Conserve species diversity by ensuring that habitats for the native species found in the DFA are maintained throughout time.

Value: 1.2.1 Viable populations of identified plant and animal species.

Objective: 1.2.1.1 Maintain habitat for identified high value species (i.e., economically valuable, socially valuable, species at risk, species of management concern).

Target

Currently there are no high value species of concern within the DFA.

Means of Achieving Objective and Target

Not applicable.

Monitoring and Measurement

Not applicable.

Reporting – Performance

Not applicable.

Acceptable Variance

Not applicable.

Response

Not applicable.

Notes

SRD reserves the right to undertake wildlife habitat assessments on the DFA and the surrounding area. The results of such assessments will be communicated to the forestry operators, and may be accompanied by SRD's recommendation(s) to revise strategies in the FMP.

P.S. 15 – Number and area of in situ genetic conservation areas for selected tree species.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.3 Genetic Diversity: Conserve genetic diversity by maintaining the variation of genes within species.

Value: 1.3.1 Genetic integrity of natural tree populations.

Objective: 1.3.1.1: Retain a wild forest for each tree species in each seed zone.

Target

For each selected tree species in seed zone DM 1.2, establish one permanent in situ gene conservation area comprised of greater than 5,000 trees (at rotation), surrounded by a 500 m buffer.

Means of Achieving Objective and Target

The objective and target will be achieved through the following:

- Genetic resources will be managed in accordance with provincial policies (as recommended by the Alberta Forest Genetic Resources Council) and direction contained in the Alberta Forest Genetic Resource Management and Conservation Standards (FGRMS).
- Protective Notations (PNT) will be applied to all in situ gene conservation areas.
- Permanent genetic conservation areas will be identified by Forest Management Branch in co-operation with Alberta Tourism Parks and Recreation, and in accordance with FGRMS.
- An in situ genetic conservation areas management plan will identify how genetic conservation areas will be maintained over time (ie. insect and disease events, fire, stand decadence, etc.)

Monitoring and Measurement

AVI updates, ground or air checks to confirm status. FMP planning and Stewardship Reporting.

Reporting – FMP

One in situ gene conservation area is required for each species, as determined by SRD, for the seed zone DM 1.2 in the DFA. No genetic conservation areas currently exist in the DFA.

Reporting – Performance

SRD will report on the status of all gene conservation areas within the Stewardship Report.

Acceptable Variance

At the end of the 10-year FMP term the target is achieved or exceeded.

Response

The net forest landbase may potentially be reduced if gene conservation areas are established (NOTE: gene conservation areas could be established within existing or future protected areas). The requirement for revision to set AACs resulting from landbase changes would be determined according to the provincial policies in effect at the time.

Notes

The Forest Genetic Resource Management and Conservation Standards (FGRMCS) has been approved by Cabinet.

The following actions, which would be undertaken independent of the FMP planning process, are anticipated, to establish genetic conservation areas:

- Natural Sub-regions identified
- Seed zones within Natural Sub-regions identified
- Tree species within seed zones identified
- Genetic conservation areas proposed, evaluated and ranked within each seed zone

As in situ genetic conservation areas evolve in the future, they will be incorporated in harvest schedules.

In situ genetic conservation areas may shift their location over time as identified in genetic conservation management plans.

P.S. 16 – Number of operational and conservation seedlots for selected tree species.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.3 Genetic Diversity Conserve genetic diversity by maintaining the variation of genes within species.

Value: 1.3.1: Genetic integrity of natural tree populations.

Objective: 1.3.1.2: Retain a population sample for each tree species in each seed zone.

Target

Collect and store at ATISC, one operational and one conservation seedlot sample for seed zone DM 1.2, for any species for which artificial reforestation is planned in the DFA.

Means of Achieving Objective and Target

Operational reforestation and conservation seed will be managed in accordance with Forest Genetic Resource Management and Conservation Standards (FGRMS).

Monitoring and Measurement

Operational reforestation and conservation seed will be managed in accordance with FGRMS.

Reporting – Performance

SRD will report on seed planning and seed collection within the Stewardship Report.

Acceptable Variance

Confirmed program plan.

Response

FGRMS has been approved by cabinet and guides ex situ seed conservation activities.

Notes

Not applicable.

P.S. 17 – Stakeholder consultation.

CCFM Criteria: 1. Biological Diversity.

CSA SFM element: 1.4 Protected Areas: Respect protected areas identified through government processes.

Value: 1.4.1 Areas with minimal human disturbances within managed landscapes.

Objective: 1.4.1.1 Integrate transboundary values and objectives into forest management.

Target

Ongoing consultation with relevant protected areas agencies.

Means of Achieving Objective and Target

Adhere to the P14 Communication Plan (Appendix VI).

Monitoring and Measurement

Documentation of communication initiatives are described within the P14 Communication Plan (Appendix VI).

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Summary of consultation initiatives, issues and outcomes.

Acceptable Variance

None.

Response

Adjust strategies in subsequent FMP.

Notes

Not applicable.

3.2 Ecosystem Productivity

As described within the CSA Z809-02 standard, the performance standards associated with the CCFM SFM Criterion 2 (Maintenance and enhancement of forest ecosystem condition and productivity), are intended to "conserve forest ecosystem condition and productivity by maintaining the health, vitality, and rates of biological production." (CSA 2002) There are a total of five performance standards for this criterion in the P14 FMP.

P.S. 18 – Annual % of satisfactorily restocked regeneration surveys.

CCFM Criteria: 2. Ecosystem Productivity.

CSA SFM element: 2.1 Ecosystem resilience.

Value: 2.1.1 Reforested harvest areas.

Objective: 2.1.1.1 Meet reforestation targets on all harvested areas.

Target

100% of annual regeneration surveys satisfactorily restocked.

Means of Achieving Objective and Target

Annual development of, and ongoing adherence to, approved Reforestation Program submitted under the AOP.

Monitoring and Measurement

Regeneration surveys.

Reporting – Operational

The following will be assessed and reported in the Annual Operating Plan:

- Reforestation prescriptions by strata and schedule of treatments (including silviculture surveys) for the upcoming year.

The following will be submitted to the Alberta Regeneration Information System by May 15 of each year:

- Annual results of all regeneration surveys.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Summary of the area surveyed in each Timber Year, and that which is satisfactorily restocked.

Acceptable Variance

10% for a given Timber Year.

Response

Where harvest areas do not achieve satisfactory survey results, they will be assessed and assigned an accelerated treatment regime and re-survey schedule.

Notes

Not applicable.

P.S. 19 – Cumulative % of reforested areas that meet reforestation target.

CCFM Criteria: 2. Ecosystem Productivity.

CSA SFM element: 2.1 Ecosystem resilience.

Value: 2.1.1 Reforested harvest areas.

Objective: 2.1.1.1 Meet reforestation targets on all harvested areas.

Target

100% of cumulative reforested area satisfactorily restocked.

Means of Achieving Objective and Target

Annual development of, and ongoing adherence to, approved Reforestation Program submitted under the AOP.

Monitoring and Measurement

Regeneration surveys.

Reporting – Operational

The following will be assessed and reported in the Annual Operating Plan:

- Reforestation prescriptions by strata and schedule of treatments (including silviculture surveys) for the upcoming year.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Summary of the cumulative area surveyed and the area that is satisfactorily restocked.

Acceptable Variance

None.

Response

SRD adjusts AAC.

Notes

Not applicable.

P.S. 20 – Existence of strategy to limit the amount of change in forest landbase.

CCFM Criteria: 2. Ecosystem Productivity.

CSA SFM element: 2.1 Ecosystem resilience.

Value: 2.1.2 Maintenance of forest landbase.

Objective: 2.1.2.1 Limit conversion of productive forest landbase to other uses.

Target

Develop and implement strategy to limit the conversion of the managed landbase to non-managed landbase.

Means of Achieving Objective and Target

Development and implementation of strategy to:

- Coordinate activities that result in the conversion of the managed landbase to other uses; and
- Efficiently track the conversion of the managed landbase to other uses.

Monitoring and Measurement

Inventory updates and tracking of land dispositions.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Status of the process for coordinating, communicating and tracking conversion of the managed landbase to other uses; and
- The area of land that has been converted from, or to, the managed landbase.

Acceptable Variance

Report actual.

Response

Review and revise strategy, and adjust net landbase projections in next TSA.

Notes

Not applicable.

P.S. 21 – Area of the DFA affected by insects, disease or natural calamities.

CCFM Criteria: 2. Ecosystem Productivity.

CSA SFM element: 2.1 Ecosystem resilience.

Value: 2.1.2 Maintenance of forest landbase.

Objective: 2.1.2.2 Recognize lands affected by insects, disease or natural calamities.

Target

Report all areas on the DFA greater than, or equal to, 1.0 ha in size, (or as otherwise defined by SRD from time to time), identified as being affected by insect, disease or natural calamity.

Means of Achieving Objective and Target

Develop, implement and communicate protocols for identifying, capturing information (ie. nature of affliction, severity, location, etc.) and reporting to SRD areas affected by insects, disease or natural calamity.

Monitoring and Measurement

Ongoing monitoring by field staff as per protocols developed as part of this performance standard.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Status of the protocol development; and
- The area of the DFA affected by insects, disease or natural calamity.

Acceptable Variance

Report actual.

Response

Event specific.

Notes

Not applicable.

P.S. 22 – Compliance with OGRs, directives or plan approval conditions with respect to weed management.

CCFM Criteria: 2. Ecosystem Productivity.

CSA SFM element: 2.1 Ecosystem resilience.

Value: 2.1.3 Control invasive species.

Objective: 2.1.3.1 Control non-native plant species (weeds).

Target

Zero incidents of non-compliance with applicable Operating Ground Rules, directives or plan approval conditions.

Means of Achieving Objective and Target

Conduct operations according to the OGRs, directives (2001-06) and plan approval conditions (ie. AOP) associated with weed management.

Monitoring and Measurement

Field inspections.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Summary of the field inspections and actions taken to control weeds.

Acceptable Variance

Report actual.

Response

Improve noxious weed program.

Notes

Not applicable.

3.3 Soil and Water

As described within the CSA Z809-02 standard, the performance standards associated with the CCFM SFM Criterion 3 (Conservation of soil and water resources), are intended to “conserve soil and water resources by maintaining their quantity and quality in forest ecosystems.” (CSA 2002) There are a total of four performance standards for this criterion in the P14 FMP.

P.S. 23 – Compliance with respect to roading and bared areas in forest operations.

CCFM Criteria: 3. Soil and Water.

CSA SFM element: 3.1 Soil quantity and quality.

Value: 3.1.1 Soil productivity.

Objective: 3.1.1.1 Minimize impact of roading and bared areas in forest operations.

Target

Zero incidents of non-compliance with the 5% limit of harvest area covered by barred area, rutting and/or displaced soil.

Means of Achieving Objective and Target

Effective planning and supervision of operations and adherence to the Operating Ground Rules and the Forest Soils Conservation guidelines (AFPA/LFS, 1996).

Monitoring and Measurement

Field inspection reports and audits.

Reporting – Operational

Inspection reports will be submitted to SRD upon completion.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- The number of inspections completed and the number of incidents on non-compliance; and
- A summary of each incident of non-compliance including the following:
    - Date, time and location:
    - General description of incident
    - General description of remedial measures (if applicable); and
    - Resulting policy or procedural change (if applicable).

Acceptable Variance

None without prior approval of SRD.

Response

Immediate remedial action to correct.

Notes

Not applicable.

P.S. 24 – Compliance with respect to soil erosion and slumping.

CCFM Criteria: 3. Soil and Water.

CSA SFM element: 3.1 Soil quantity and quality.

Value: 3.1.1 Soil productivity.

Objective: 3.1.1.2 Minimize incidence of soil erosion and slumping.

Target

Zero incidents of non-compliance with respect to soil erosion and slumping.

Means of Achieving Objective and Target

Effective planning and supervision of operations and adherence to the Operating Ground Rules and the Forest Soils Conservation guidelines (AFPA/LFS, 1996).

Monitoring and Measurement

Field inspection reports and audits.

Reporting – Operational

Inspection reports will be submitted to SRD upon completion.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- The number of inspections completed and the number of incidents on non-compliance; and
- A summary of each incident of non-compliance including the following:
    - Date, time and location:
    - General description of incident
    - General description of remedial measures (if applicable); and
    - Resulting policy or procedural change (if applicable).

Acceptable Variance

None.

Response

Immediate remedial action to correct.

Notes

Not applicable.

P.S. 25 – Compliance with the Water Act, Operating Ground Rules and the Spatial Harvest Sequence.

CCFM Criteria: 3. Soil and Water.

CSA SFM element: 3.2 Water quantity and quality.

Value: 3.2.1 Water quantity.

Objective: 3.2.1.1 Limit impact of timber harvesting on water yield.

Target

Zero penalties assessed under the Water Act, zero incidents of non-compliance with the OGRs, and adhere to the P14 Spatial Harvest Sequence.

Means of Achieving Objective and Target

Conduct planning and operations consistent with the Water Act, Operating Ground Rules and the P14 Spatial Harvest Sequence.

Monitoring and Measurement

Planning and operational initiatives or incidents that require assessments under the Water Act, will be communicated to SRD.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Progress on the completion of any water yield/quality assessment(s);
- Results of any water yield/quality assessment(s);
- Summary of the adherence to the P14 Spatial Harvest Sequence;
- The number of inspections completed and the number of incidents on non-compliance; and
- A summary of each incident of non-compliance including the following:
    - Date, time and location:
    - General description of incident
    - General description of remedial measures (if applicable); and
    - Resulting policy or procedural change (if applicable).

Acceptable Variance

No variance associated with the Water Act penalties or OGRs non-compliance. Report planned and actual variance from the Spatial Harvest Sequence.

Response

Immediate remedial action to correct incidents of non-compliance.

Adjust harvest pattern if water yield/quality concerns arise.

Notes

SRD reserves the right to undertake water yield and/or quality assessments and forecasts on the DFA, and the surrounding area. The results of any hydrologic-related assessment will be communicated to the forestry operators, and may be accompanied by SRD's recommendation to revise strategies contained in the FMP.

P.S. 26 – Compliance with respect to riparian area protection.

CCFM Criteria: 3. Soil and Water.

CSA SFM element: 3.2 Water quantity and quality.

Value: 3.2.2 Effective riparian habitats.

Objective: 3.2.2.1 Minimize impact of operations in riparian areas.

Target

Zero incidents of non-compliance with the Operating Ground Rules, with respect to riparian area protection.

Means of Achieving Objective and Target

Effective planning and supervision of operations and adherence to the Operating Ground Rules.

Monitoring and Measurement

Field inspection reports and audits.

Reporting – Operational

Inspection reports will be submitted to SRD upon completion.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- The number of inspections completed and the number of incidents on non-compliance; and
- A summary of each incident of non-compliance including the following:
    - Date, time and location:
    - General description of incident
    - General description of remedial measures (if applicable); and
    - Resulting policy or procedural change (if applicable).

Acceptable Variance

None.

Response

Immediate correction and/or administrative penalty.

Notes

Not applicable.

3.4 Global Ecological Cycles

As described within the CSA Z809-02 standard, the performance standards associated with the CCFM SFM Criterion 4 (Forest ecosystem contributions to global ecological cycles), are intended to “Maintain forest conditions and management activities that contribute to the health of global ecological cycles.” (CSA 2002) There are a total of two performance standards for this criterion in the P14 FMP.

P.S. 27 – Results of carbon budget modeling.

CCFM Criteria: 4. Global Ecological Cycles.

CSA SFM element: 4.1 Carbon uptake and Storage.

Value: 4.1.1 To be determined.

Objective: 4.1.1.1 To be determined.

Target

To be determined.

Means of Achieving Objective and Target

Not applicable.

Monitoring and Measurement

Not applicable.

Reporting – Performance

Not applicable.

Acceptable Variance

Not applicable.

Response

Not applicable.

Notes

SRD reserves the right to undertake carbon budget modeling on the DFA and surrounding area. The results of any carbon-related assessment will be communicated to the forestry operators, and may be accompanied by SRD's recommendation to revise strategies contained in the FMP.

P.S. 28 – Amount of change in forest landbase.

CCFM Criteria: 4. Global Ecological Cycles.
CSA SFM element: 4.2 Forest land conversion.

Refer to Performance Standard 20.

3.5 Multiple Benefits to Society

As described within the CSA Z809-02 standard, the performance standards associated with the CCFM SFM Criterion 5 (Multiple benefits to society), are intended to “Sustain flows of forest benefit for current and future generations by providing multiple goods and services.” (CSA 2002) There are a total of five performance standards for this criterion in the P14 FMP.

P.S. 29 – Compliance with respect to process and standards defined in Annex 1 of Alberta Forest Management Planning Standard, Ver. 4.1 - April 2006 (Alberta 2006).

CCFM Criteria: 5. Multiple Benefits to Society.

CSA SFM element: 5.1 Timber and non-timber benefits.

Value: 5.1.1 Sustainable timber supplies.

Objective: 5.1.1.1 Establish appropriate AACs.

Target

Comply with process and standards defined in Annex 1 of Alberta Forest Management Planning Standard.

Means of Achieving Objective and Target

Effective implementation of planning process.

Monitoring and Measurement

Monitoring will be completed as defined within the Alberta Forest Management Planning Standard and the Operating Ground Rules.

Reporting – FMP

The development of the landbase (Appendix III, Landbase Development), the yield curves (Appendix IV – Yield Curve Development) and the forecasting (Chapter 4 – Forecasting and the PFMS) components are contained within this FMP. The specific documentation for each of these components contains information on any deviations from SRD's process or standards. In addition, the RFP Checklist (Appendix I – RFP Checklist), summarizes deviations from the process and standards.

Reporting – Operational

Progressive reporting associated with AAC will be accomplished through cut control tracking and reporting on an annual basis in the General Development Plan submission.

Acceptable Variance

Issue specific, as determined by SRD, and as indicated in the RFP Checklist (Appendix I).

Response

Adjust AAC using most current and relevant information.

Notes

Not applicable.

P.S. 30 – a) % reduction in Fire Behaviour Potential area within the FireSmart Community Zone.

CCFM Criteria: 5. Multiple Benefits to Society.

CSA SFM element: 5.2 Communities and Sustainability.

Value: 5.2.1 Risk to communities and landscape values from wildfire is low.

Objective: 5.2.1.1 To reduce wildfire threat potential by reducing fire behaviour, fire occurrence, threats to values at risk and enhancing fire suppression capability.

Target

The DFA does not fall within a FireSmart Community Zone.

Means of Achieving Objective and Target

Not applicable.

Monitoring and Measurement

Not applicable.

Reporting – FMP

Not applicable.

Reporting – Performance

Not applicable.

Acceptable Variance

Not applicable.

Response

Not applicable.

Notes

SRD reserves the right to undertake FireSmart assessments and forecasts on the DFA and the surrounding area. The results of any FireSmart-related assessment will be communicated to the forestry operators, and may be accompanied by SRD's recommendation to revise strategies in the FMP.

P.S. 31 – b) % reduction in Fire Behaviour Potential area across the DFA now and over the planning horizon.

CCFM Criteria: 5. Multiple Benefits to Society.

CSA SFM element: 5.2 Communities and Sustainability.

Value: 5.2.1 Risk to communities and landscape values from wildfire is low.

Objective: 5.2.1.1 To reduce wildfire threat potential by reducing fire behaviour, fire occurrence, threats to values at risk and enhancing fire suppression capability.

Target

Reduce the area in the extreme, very high and high Fire Behaviour Potential rating categories by greater than, or equal to, 4% across the DFA over the 20 year Spatial Harvest Sequence.

Means of Achieving Objective and Target

Adhere to the Spatial Harvest Sequence. In addition, potentially, implement prescribed fire in areas of DFA and potential disturbances on the non-commercial landbase to increase the reduction in high, very high and extreme Fire Behaviour Potential after thorough consultation with stakeholders.

Monitoring and Measurement

Annual Operating Plan.

Reporting – FMP

Table 22 summarizes the area in each of the Fire Behaviour Potential rating classes at years 0, 10, 20 and 50 of the 200 year planning horizon.

Table 22. Area and proportion of the forested landbase within each of the Fire Behaviour Potential classes at years, 0, 10, 20 and 50.

	Area and Proportion within FBP Classes at Various Time Periods							
	Year 0		Year 10		Year 20		Year 50	
Fire Behaviour Potential Class	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
Extreme	15,321	13%	22,324	19%	20,988	18%	19,661	16%
Very High	12,270	10%	2,319	2%	2,210	2%	1,982	2%
High	5,393	5%	7,181	6%	5,698	5%	4,342	4%
Moderate	83,424	70%	85,690	72%	88,068	73%	90,649	75%
Low	3,262	3%	2,284	2%	2,879	2%	3,452	3%
Total	119,670	100%	119,798	100%	119,843	100%	120,086	100%

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Actual amount of area harvested in the extreme, very high and high Fire Behaviour Potential rating classes.

Acceptable Variance

Issue specific.

Response

Adjust harvest sequence.

Notes

To best utilize the fire regime data and meet landscape objectives, the following recommendations should be considered in the management of the P14 FMU:

- Where possible, harvest disturbances should be located in the fuel types which are prone to burning that result in the largest fire size.

- To mimic wildland fire events, harvest disturbances size should be based on the most current fire regime data. Retention targets should be based on natural disturbance principles (both merchantable and non-merchantable timber retention) and the aggregation of harvest areas should be considered in order to emulate the disturbance size of large fires.

- Once the disturbance emulation model NEPTUNE is calibrated for NW Alberta, it should be run on the spatial harvest sequence designed for P14 and the results should be analysed to compare planned disturbance variation to the historic disturbances. Revisions to the spatial harvest sequence should then be considered if there is significant variance.

P.S. 32 – Extent of various uses.

CCFM Criteria: 5. Multiple Benefits to Society.

CSA SFM element: 5.2 Communities and Sustainability.

Value: 5.2.2 Provide opportunities to derive benefits and participate in use and management.

Objective: 5.2.2.1 Integrate other uses and timber management activities.

Target

Adhere to P14 Communication Plan (Appendix VI).

Means of Achieving Objective and Target

Effective implementation of P14 Communication Plan (Appendix VI).

Monitoring and Measurement

Documentation of efforts, responses, issues raised and means of addressing issues identified through planning processes (Annual Operating Plan, General Development Plan and Compartment Assessments).

Reporting – FMP

Stakeholder involvement associated with the development of the P14 FMP is contained within Appendix II – Communication Summary.

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Summary of consultation initiatives, issues and outcomes with all stakeholders.

Acceptable Variance

Issue specific.

Response

Adjust activities.

Notes

Not applicable.

P.S. 33 – Regenerated stand yield compared to natural stand yield.

CCFM Criteria: 5. Multiple Benefits to Society.

CSA SFM element: 5.2 Communities and Sustainability.

Value: 5.2.3 Forest Productivity.

Objective: 5.2.3.1 Maintain Long Run Sustained Yield Average.

Target

No net decrease from the natural stand productivity (the managed stand Long Run Sustained Yield Average is greater than, or equal to, that of the natural stand).

Means of Achieving Objective and Target

For the FMP, the managed stand LRSYA is greater than, or equal to, the natural stand LRSYA.

For the performance stage, the LRSYA from Alternative Regeneration Standards (ARS) predictions and actual field measurements will be greater than, or equal to, the predicted natural stand LRSYA.

Monitoring and Measurement

FMP and Stewardship Report.

Reporting – FMP

The managed stand yield curves used in the FMP are the natural stand curves, with the only modeled conversion being the deciduous with coniferous understory (Du) strata converting to the coniferous-deciduous (CD) strata. Table 23 summarizes the LRSYA for the natural and managed stand yield types, and the net gain produced using the managed. This increase is the result of the increase in mean annual increment associated with the conversion from Du (0.49 m^3/ha/year) to CD (1.23 m^3/ha/year).

Table 23. LRSYA for the natural and managed stand yield types.

	LRSYA (m^3/year)		
Stand Yield Type	**Coniferous**	**Deciduous**	**Total**
Natural	50,320	74,997	125,317
Managed	62,015	74,997	137,012
Net gain under Managed	11,695	0	11,695

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Updates on the development of ARS and regenerated stand yields;
- ARS derived LRSYA compared to FMP natural stand LRSYA; and
- ARS performance survey results compared to predicted values.

Acceptable Variance

Report Actual.

Response

Adjust AAC using most current and relevant information.

Notes

Unique regenerated yield curves were not developed for the P14 FMP as there was insufficient volume sampling data available. All timber supply analysis was completed using natural stand yield curves.

3.6 Accepting Society's Responsibility for Sustainable Development

As described within the CSA Z809-02 standard, the performance standards associated with the CCFM SFM Criterion 6 (Accepting Society's responsibility for sustainable development), are intended to ensure that forest management decisions are arrived at in a fair, equitable and effective manner (CSA 2002). There are a total of two performance standards for this criterion in the P14 FMP.

P.S. 34 – Meet Alberta's current expectations for aboriginal consultation.

CCFM Criteria: 6. Accepting Society's Responsibility for Sustainable Development.

CSA SFM element: 6.1 Aboriginal and treaty rights and aboriginal forest values.

Value: 6.1.1 Compliance with government regulations and policies.

Objective: 6.1.1.1 Implement Public Involvement Program.

Target

Consult at the community level with designated representatives of affected aboriginal communities.

Means of Achieving Objective and Target

Effective implementation of P14 Communication Plan (Appendix VI).

Monitoring and Measurement

Documentation of efforts, responses, issues raised and means of addressing issues identified through planning processes.

Reporting – FMP

Refer to the Communication Summary (Appendix II).

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Summary of consultation initiatives, issues and outcomes with all stakeholders.

Acceptable Variance

Issue specific.

Response

Adjust activities.

Notes

Aboriginal consultation for the P14 FMP included the Duncan First Nation.

P.S. 35 – Meet expectations of Section 5 of CSA Z809-02.

CCFM Criteria: 6. Accepting Society's Responsibility for Sustainable Development.

CSA SFM element: 6.2 Public participation and information for decision-making.

Value: 6.2.1 Meaningful public involvement is achieved.

Objective: 6.2.1.1 Implement public involvement program.

Target

Adhere to P14 Communication Plan (Appendix VI).

Means of Achieving Objective and Target

Effective implementation of P14 Communication Plan (Appendix VI).

Monitoring and Measurement

Documentation of efforts, responses, issues raised and means of addressing issues identified through operational planning processes.

Reporting – FMP

Refer to the Communication Summary (Appendix II).

Reporting – Performance

The following will be assessed and reported in the Stewardship Report:

- Summary of consultation initiatives, issues and outcomes with all stakeholders.

Acceptable Variance

Issue specific.

Response

Adjust activities.

Notes

Not applicable.

4. References

Alberta Sustainable Resource Development, April 2006. Alberta Forest Management Planning Standard. Version 4.1.

Alberta Forest Products Association / Alberta Land and Forest Service, 1996. Forest Soils Conservation – Task Force Report.

Canadian Standards Association, 2002 (Updated May 2003), Z809-02: Sustainable Forest Management: Requirements and Guidance, Mississauga, ON, Canada, ISBN 1-55397-087X.

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