NSC 2016 Winter Conference:

Improving silviculture planning and practice from current standards to our future forests

February 16-17, 2016

Important Copyright Information

Overview of, and Critical Strategies for, Future Timber Supply and AAC Management in Interior Timber Supply Areas

John Pousette, MSc, RPF

February 16, 2016

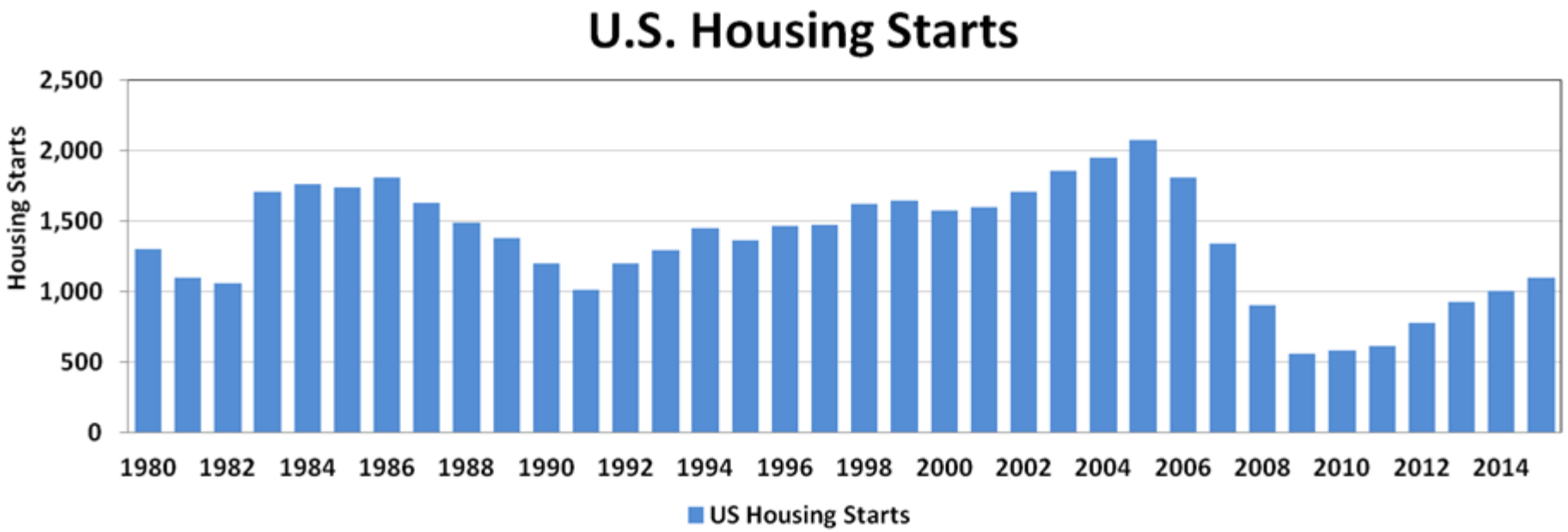
Northern Silviculture Committee NSC

Outline

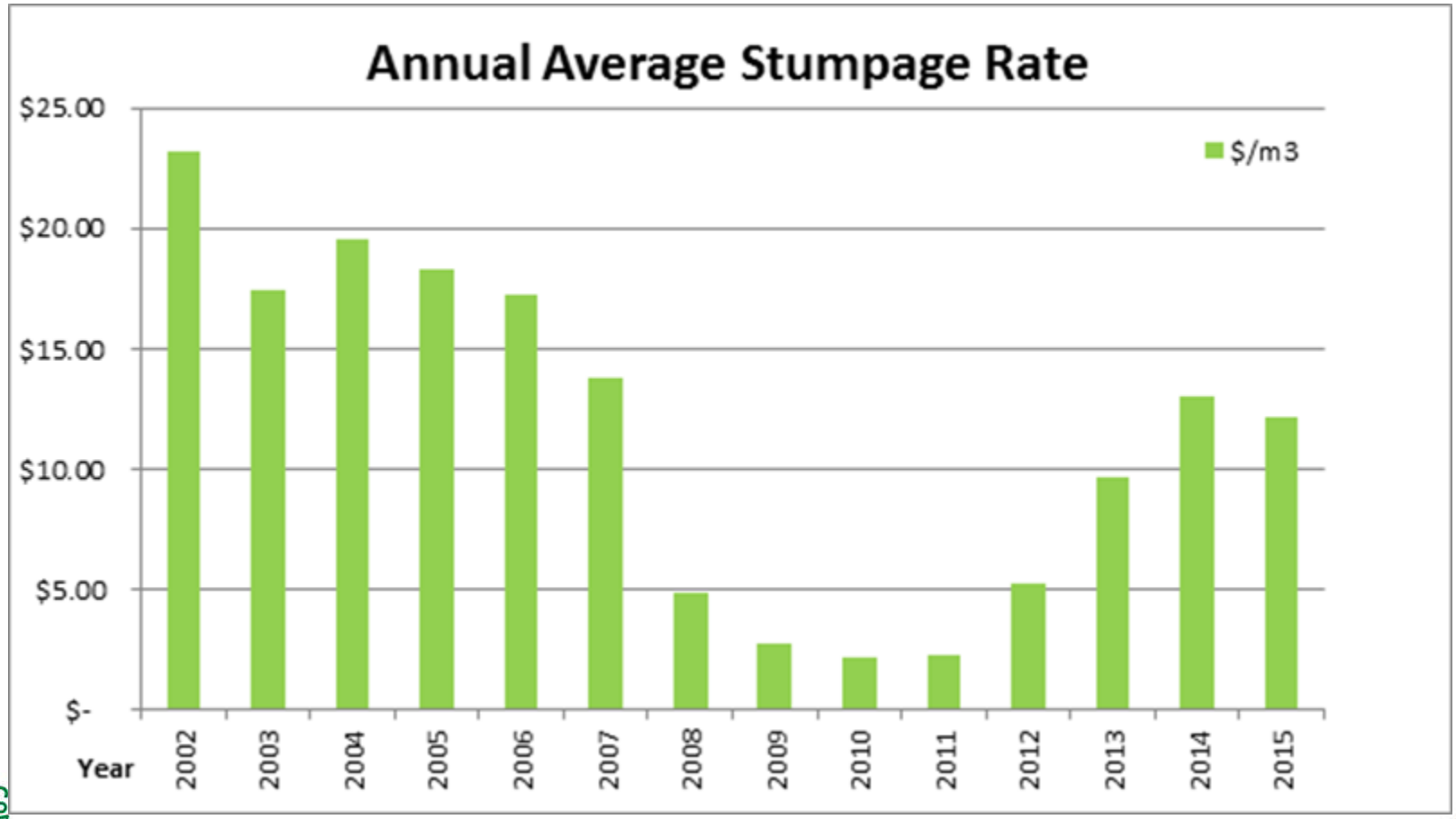
- Providing the Context: The Economics
- Timber Supply Review 101
- Uncertainty in Timber Supply – Modeling the Base Case
- Current Timber Supply in the Central Interior of BC
- Some Current Pressures on Timber Supply
  - Spruce Beetle??? It can't be!!
  - Landscape and Stand level Retention
  - Wildlife habitat
- Conclusions and Future Predictions

Lumber – Housing Starts

- U.S. Housing is the cornerstone of U.S. lumber demand, and therefore B.C. production
  - Lumber is the major driver of harvest in the B.C. Interior
  - The U.S. housing crash was far worse than anything seen in the last 30 years
  - Recovery has been significantly slower than originally anticipated, and has just recently passed the previous low seen in the early 80's and 1991
- China has helped B.C. as a destination for lumber since the recession, but industry analysts anticipate little to no growth in that market for the next few years



Average Stumpage Rate – Central Interior



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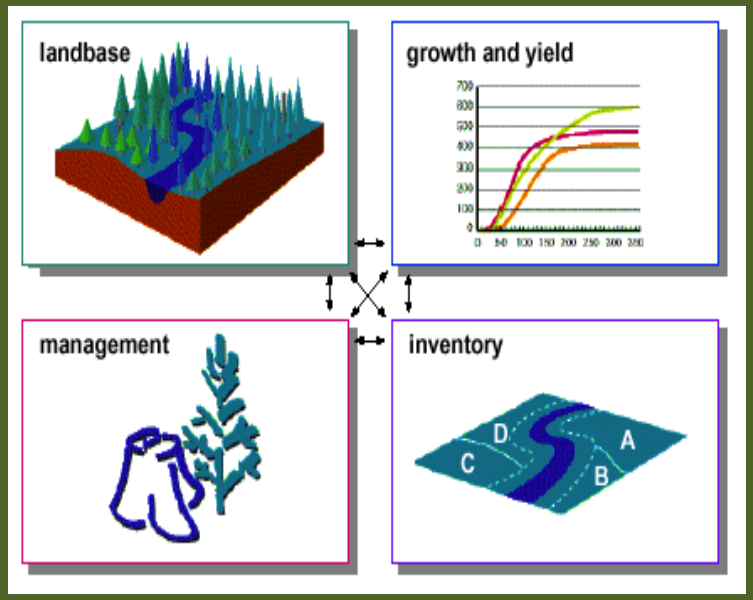
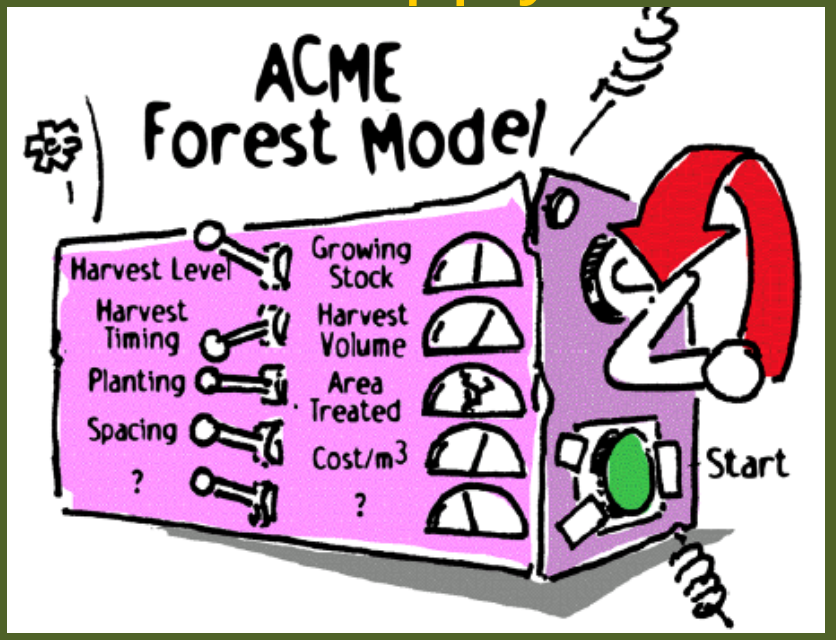
Base Case(s) and Uncertainty in Modeling

Modeling Timber Supply - Knowledge Base

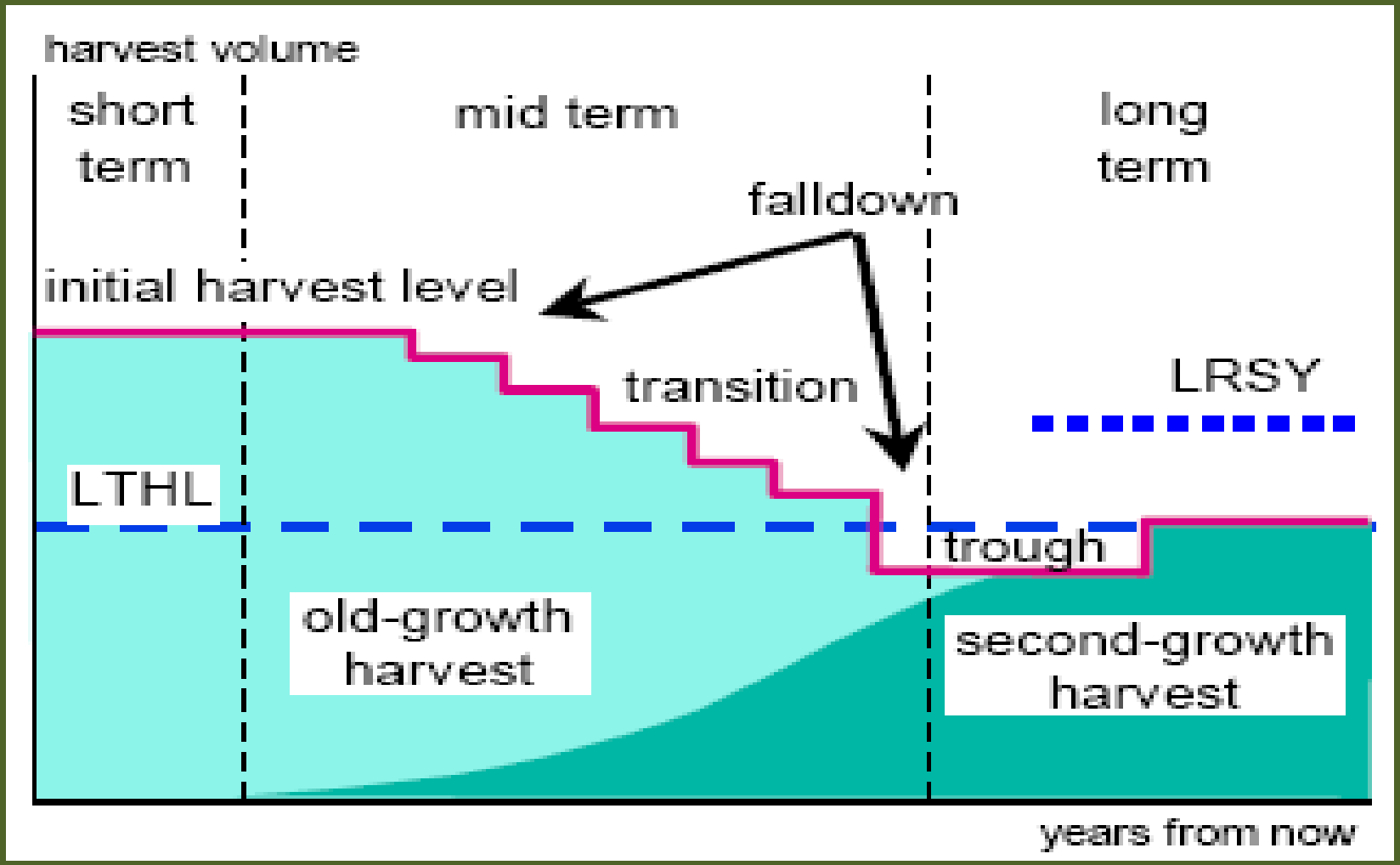
How do we do Timber Supply Analysis?



Timber Supply Model



Timber Supply Analysis 101



Harvest forecast

Prince George, BC

No Alerts in effect

Current Conditions

Past 24 hours | Radar | Satellite | Lightning

1°C

°C | °F

Observed at: **Prince George Airport**

Date: **7:00 PM PST Monday 15 February 2016**

Condition: **Cloudy**

Pressure: **100.8 kPa**

Visibility: **16 km**

Temperature: **1.4°C**

Dewpoint: **-2.9°C**

Humidity: **73%**

Wind: **calm**

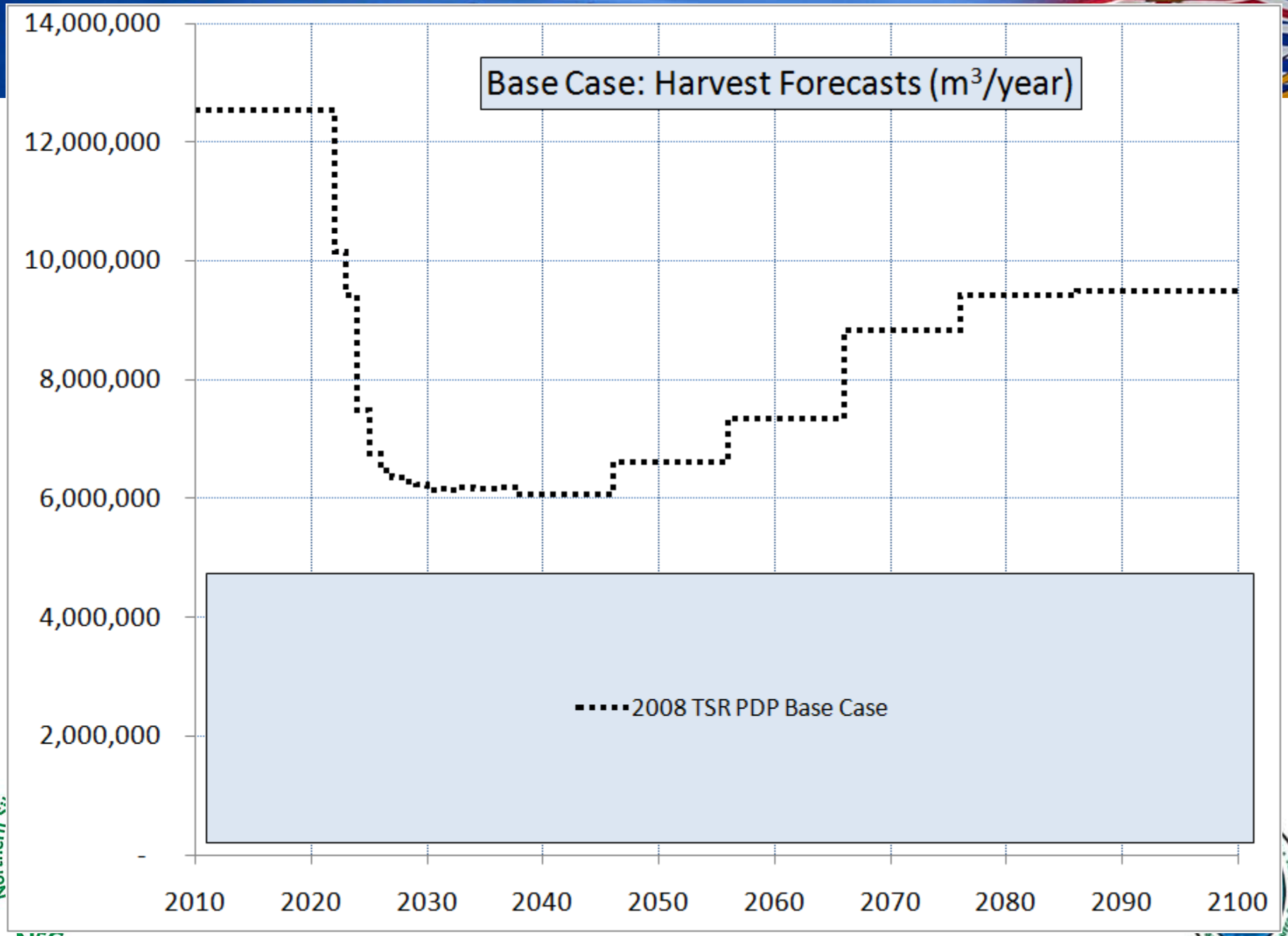
Forecast

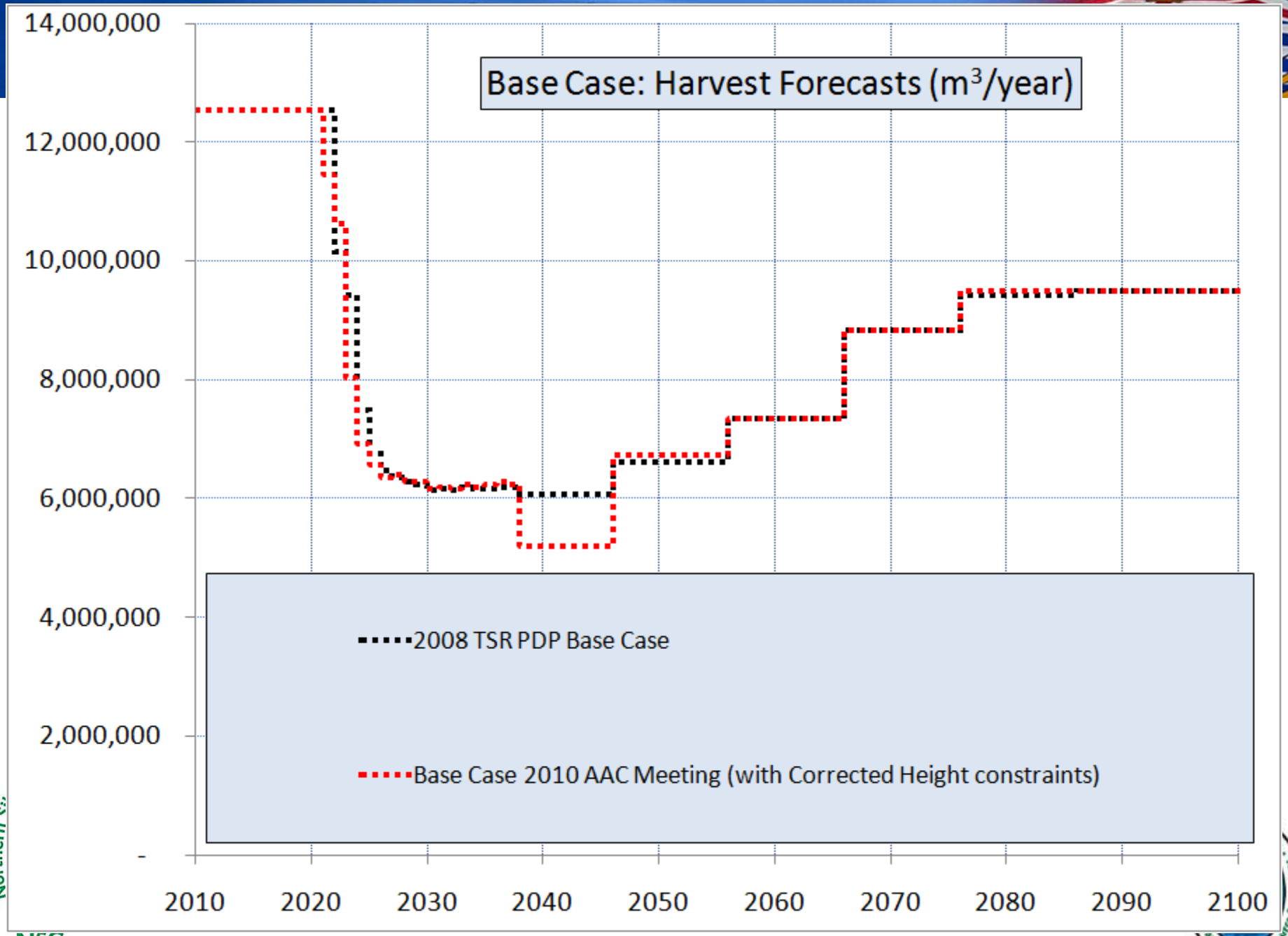
24 Hour Forecast | AQHI | Alerts | Jet Stream

Mon 15 Feb	Tue 16 Feb	Wed 17 Feb	Thu 18 Feb	Fri 19 Feb	Sat 20 Feb	Sun 21 Feb
		70%		60%		
	5°C	5°C	1°C	3°C	5°C	6°C
0°C	-2°C	1°C	-1°C	-5°C	-6°C	

Issued: 4:00 PM PST Monday 15 February 2016

Tonight Increasing cloudiness then snow or periods of rain beginning this evening and ending after midnight. Becoming partly cloudy after midnight. Snowfall amount 2 to 4 cm. Wind south 20 km/h. Low zero.


Base Case: Harvest Forecasts (m3/year)
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100
2008 TSR PDP Base Case


Base Case: Harvest Forecasts (m3/year)
14,000,000
12,000,000
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2010
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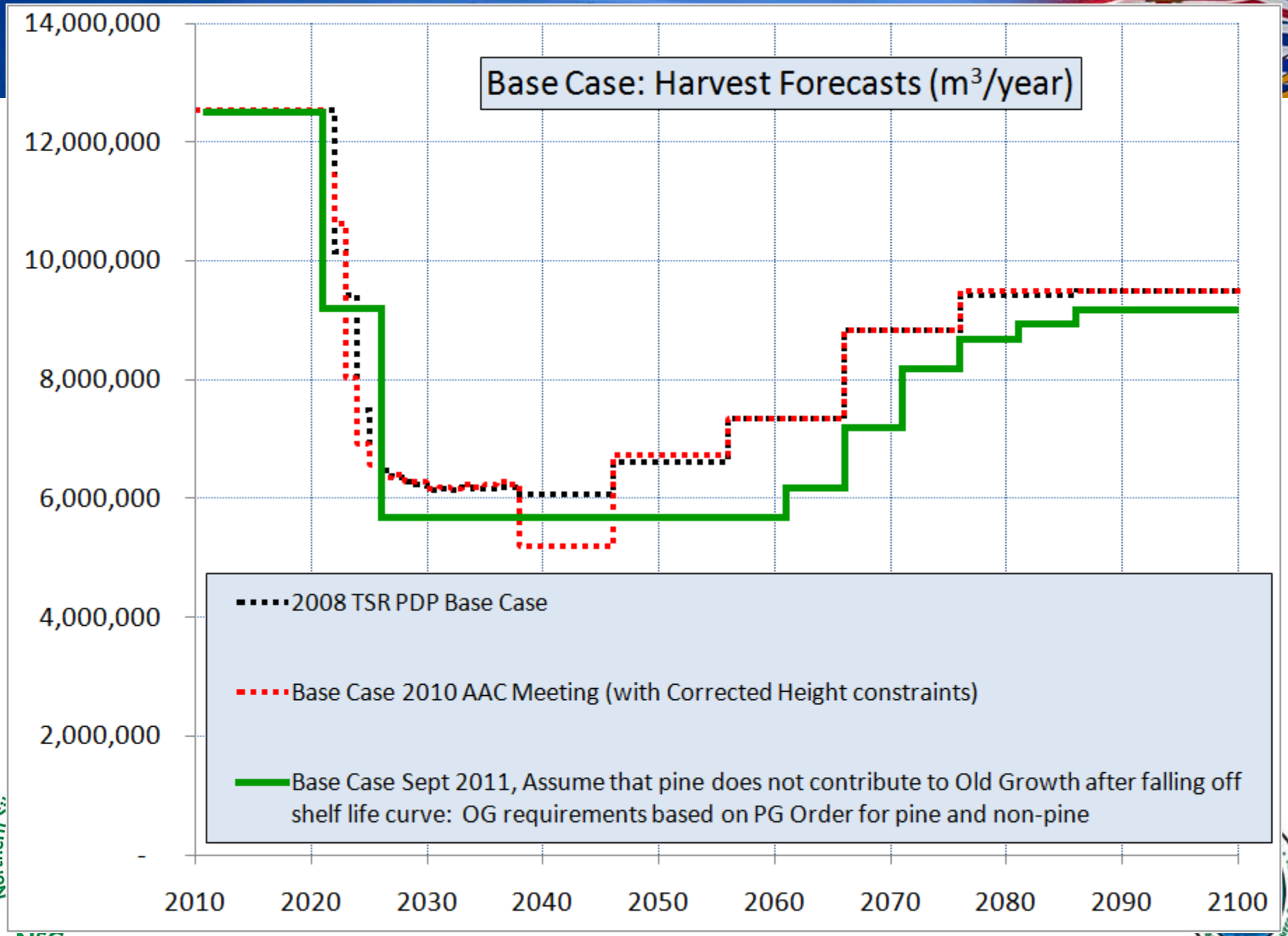
2008 TSR PDP Base Case
Base Case 2010 AAC Meeting (with Corrected Height constraints)


Base Case: Harvest Forecasts (m3/year)
14,000,000
12,000,000
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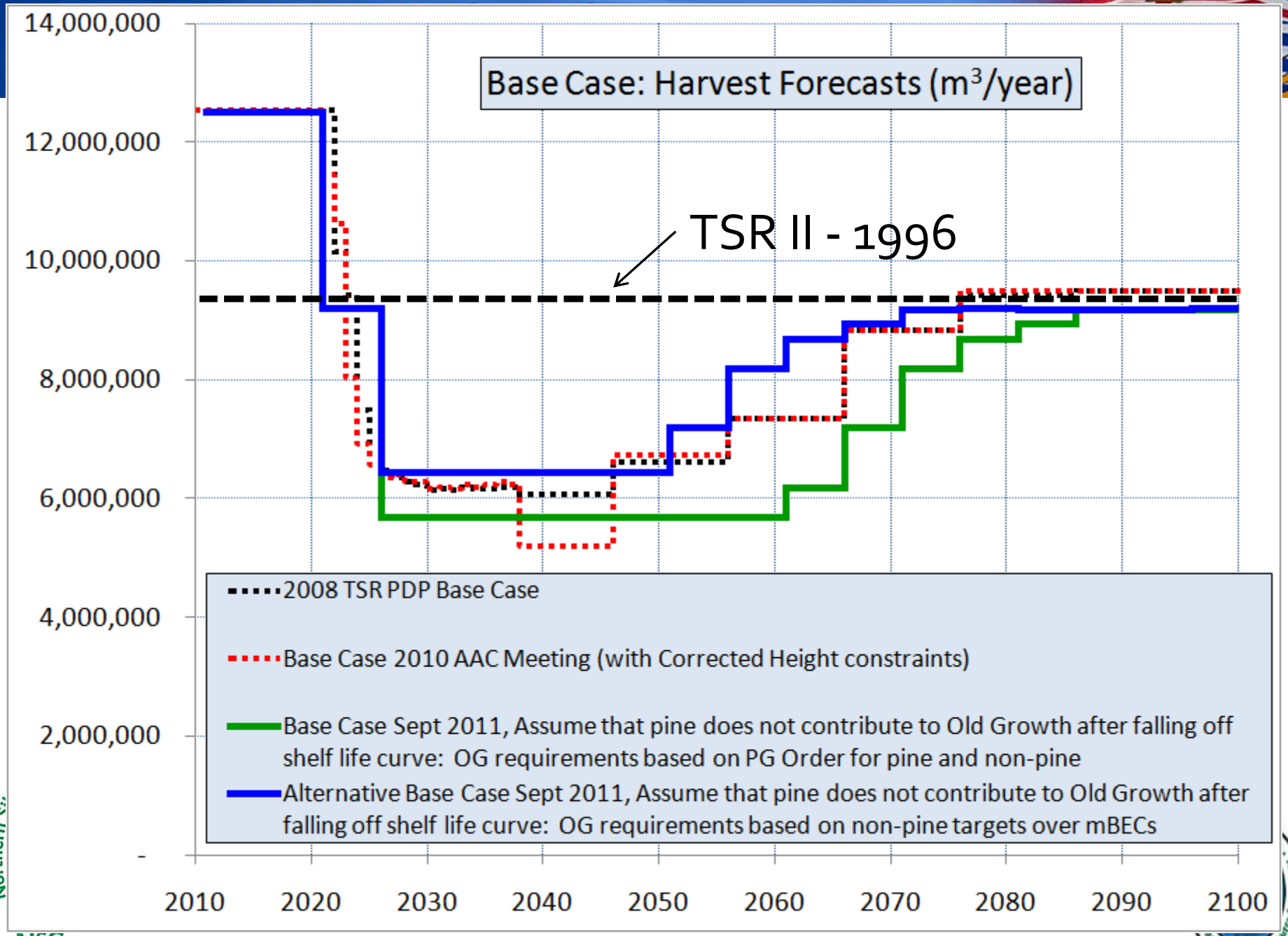
2100
2008 TSR PDP Base Case
Base Case 2010 AAC Meeting (with Corrected Height constraints)
Base Case Sept 2011, Assume that pine does not contribute to Old Growth after falling off shelf life curve: OG requirements based on PG Order for pine and non-pine


Base Case: Harvest Forecasts (m³/year)
TSR II - 1996
14,000,000
12,000,000
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8,000,000
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2,000,000
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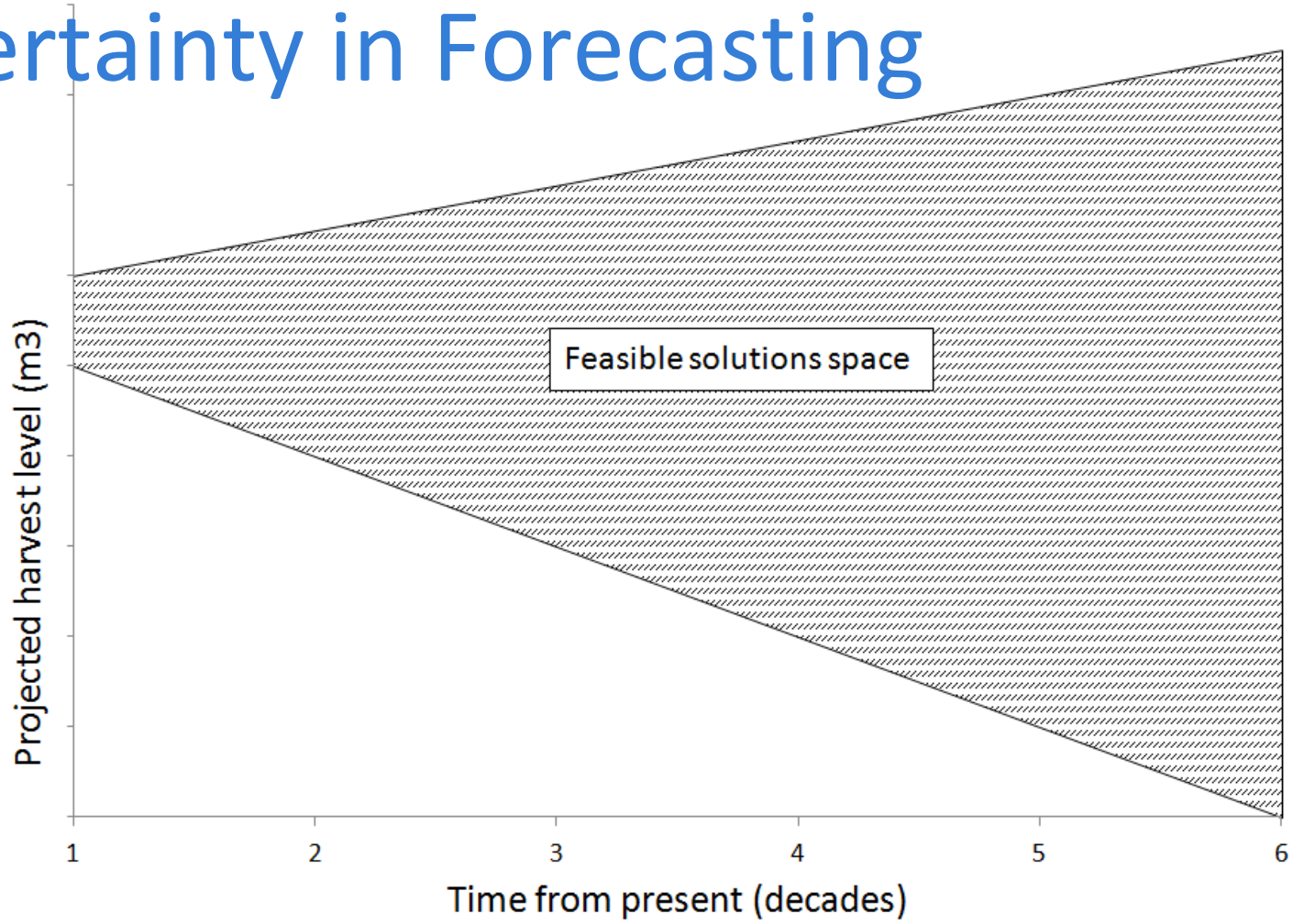
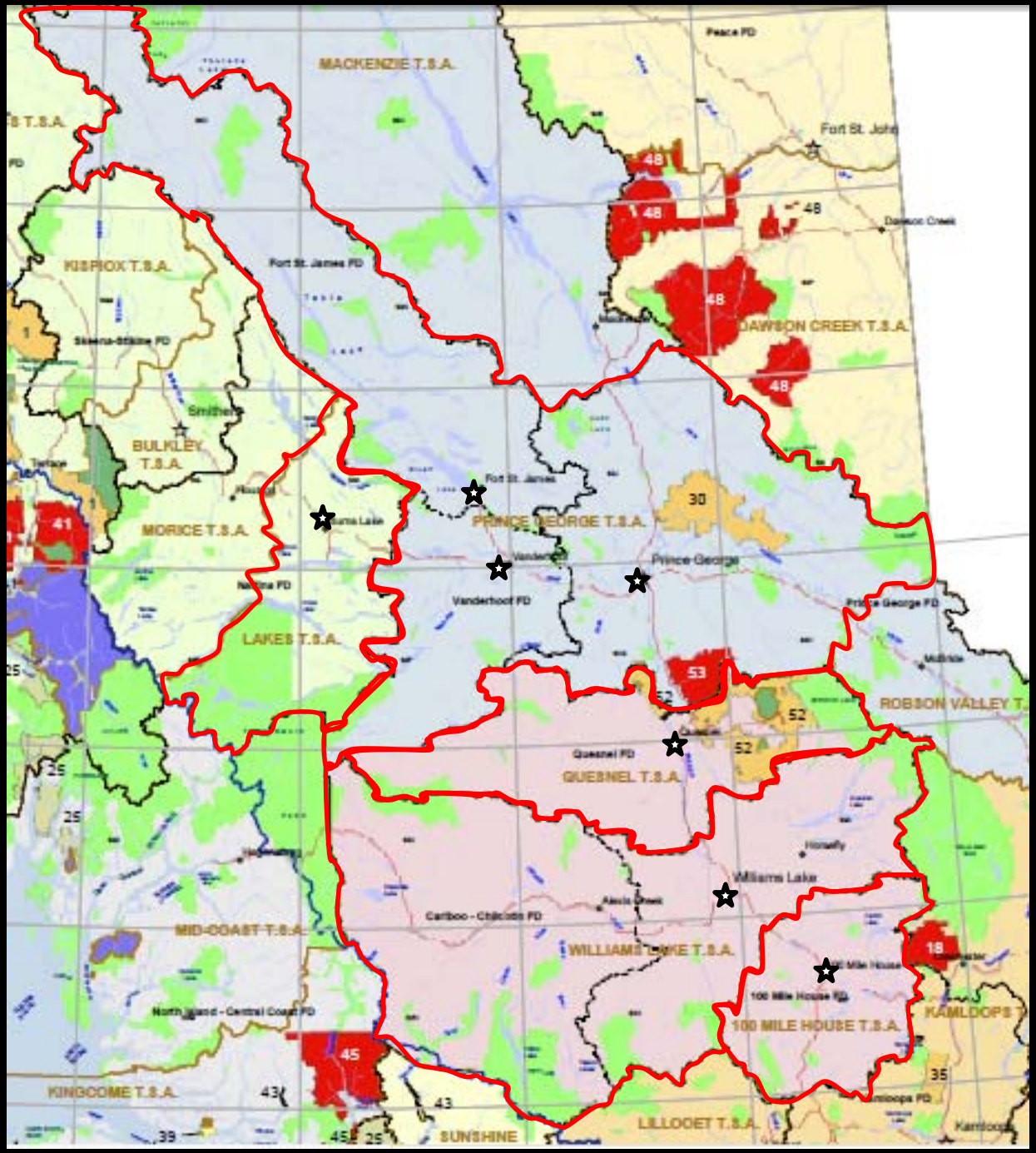
2050
2060
2070
2080
2090
2100
2008 TSR PDP Base Case
Base Case 2010 AAC Meeting (with Corrected Height constraints)
Base Case Sept 2011, Assume that pine does not contribute to Old Growth after falling off shelf life curve: OG requirements based on PG Order for pine and non-pine
Alternative Base Case Sept 2011, Assume that pine does not contribute to Old Growth after falling off shelf life curve: OG requirements based on non-pine targets over mBECs

Timber Supply 101 – Uncertainty in Forecasting

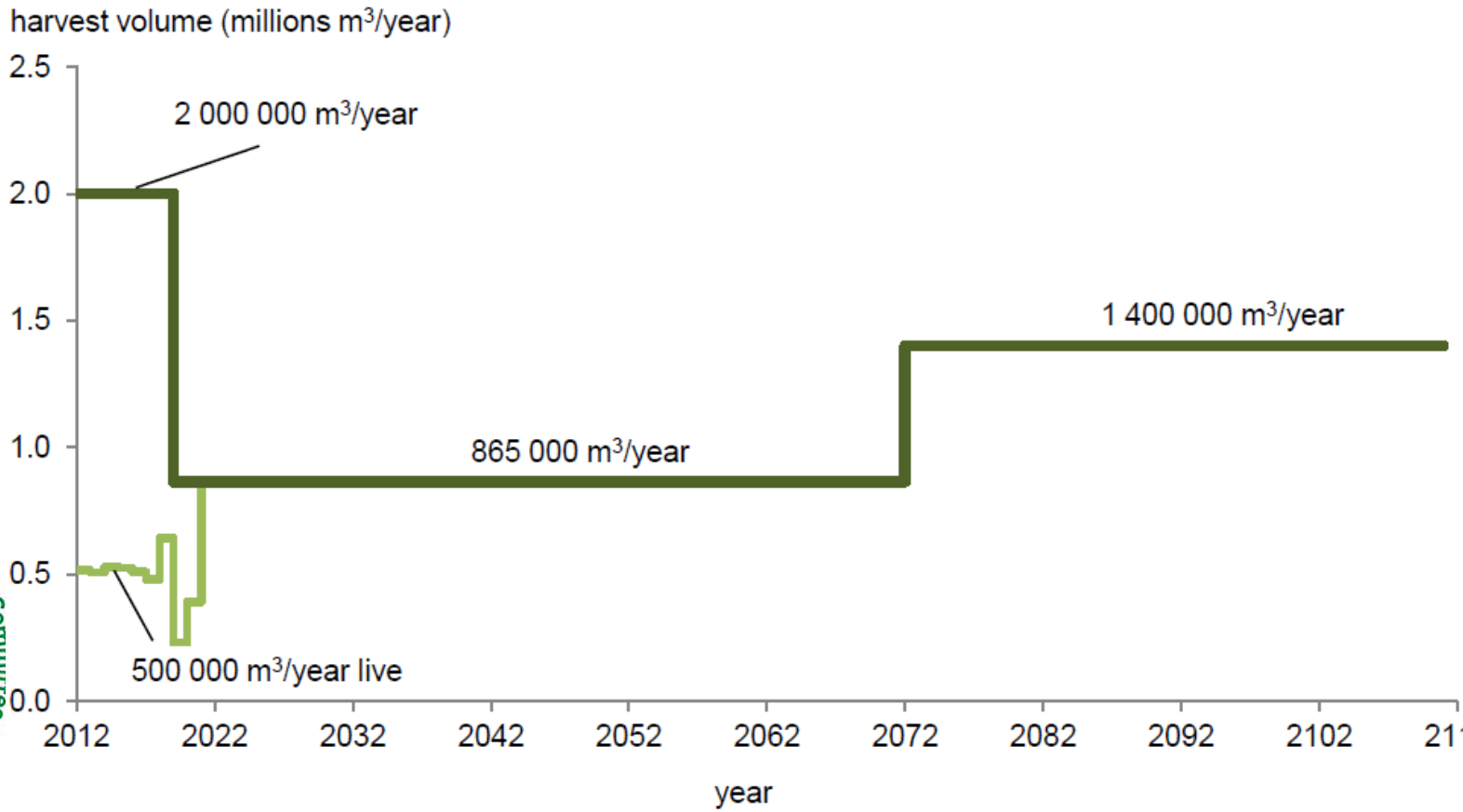


Current Timber Supply in the Central Interior of BC

Base Case and Mitigation Scenarios

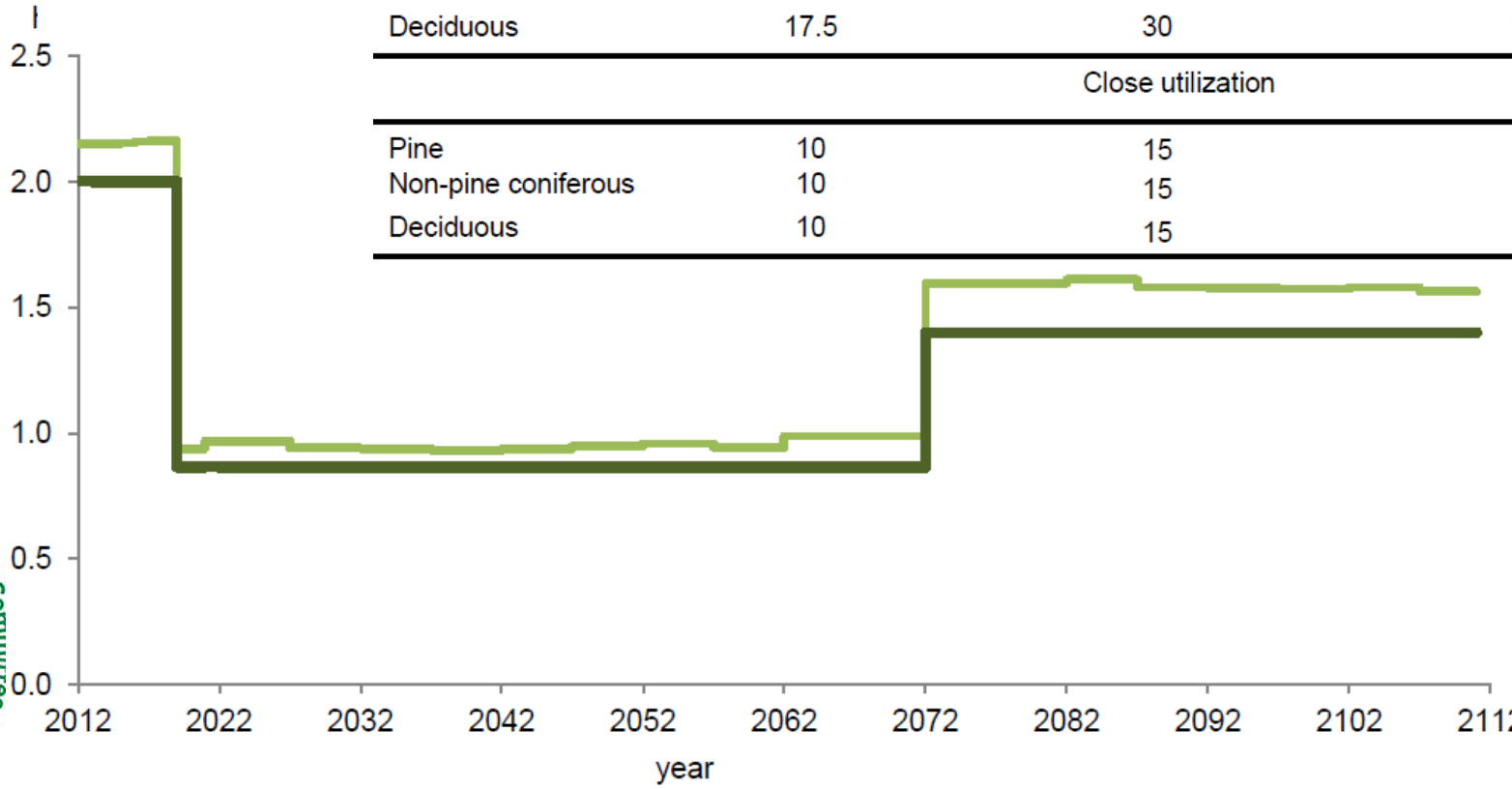

MACKENZIE T.S.A.
KISPIOX T.S.A.
BULKLEY T.S.A.
MORICE T.S.A.
LAKES T.S.A.
PRINCE GEORGE T.S.A.
DAWSON CREEK T.S.A.
QUESNEL T.S.A.
WILLIAMS LAKE T.S.A.
100 MILE HOUSE T.S.A.
MID-COAST T.S.A.
KINGCOME T.S.A.
LILLOOET T.S.A.
ROBSON VALLEY T.
Fort St. John
Dawson Creek
Fort St. James
Smithers
Prince George
Vanderhoof FD
Quesnel FD
Williams Lake
Cariboo - Chilcotin FD
100 Mile House FD
North Island - Central Coast FD
Peace FD
Fort St. James FD
Prince George FD
48
41
30
53
52
45
43
39
35
25
18

100 Mile House TSA: AAC 2.0 million



100 Mile House TSA

Analysis unit	Standard utilization		
	Minimum dbh (cm)	Maximum stump height (cm)	Minimum top dib (cm)
Pine	12.5	30	10
Non-pine coniferous	17.5	30	10
Deciduous	17.5	30	10
	Close utilization		
Pine	10	15	4
Non-pine coniferous	10	15	4
Deciduous	10	15	4



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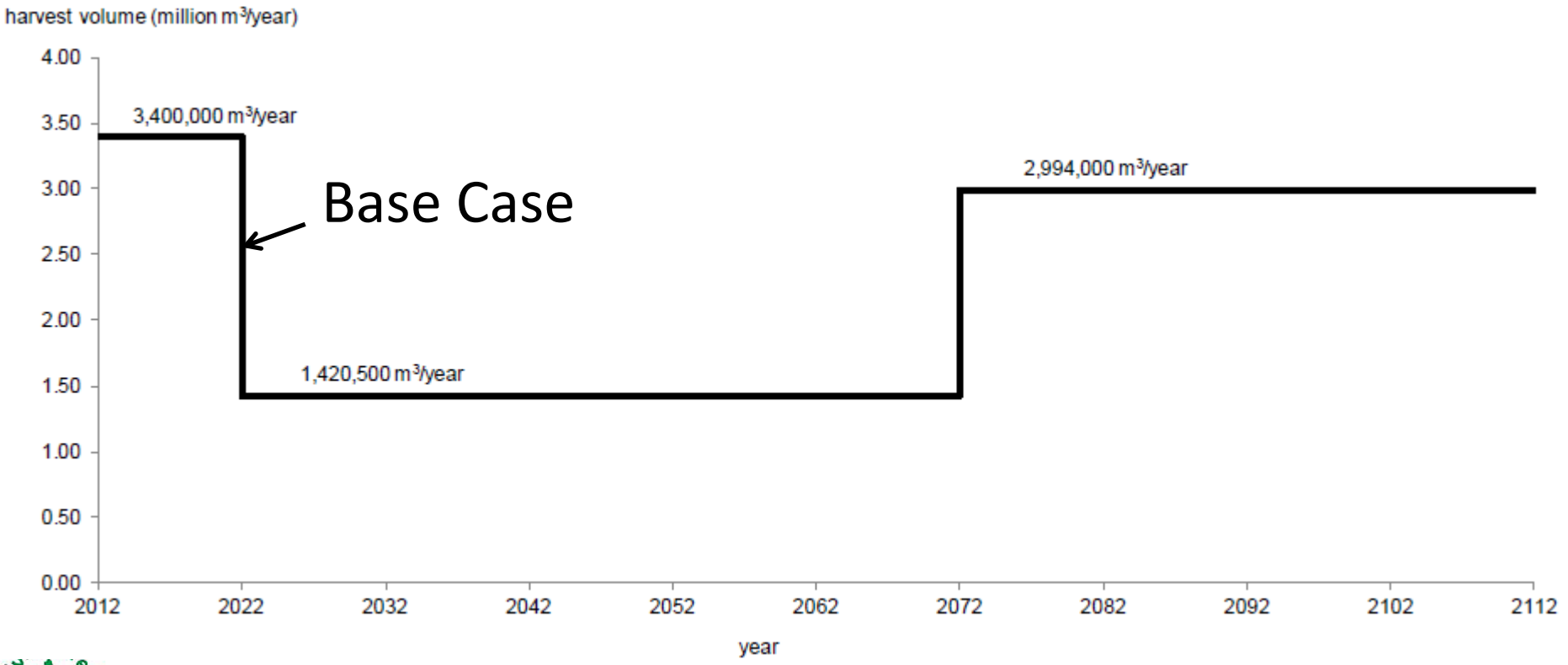
Williams Lake TSA: AAC 3.0 million



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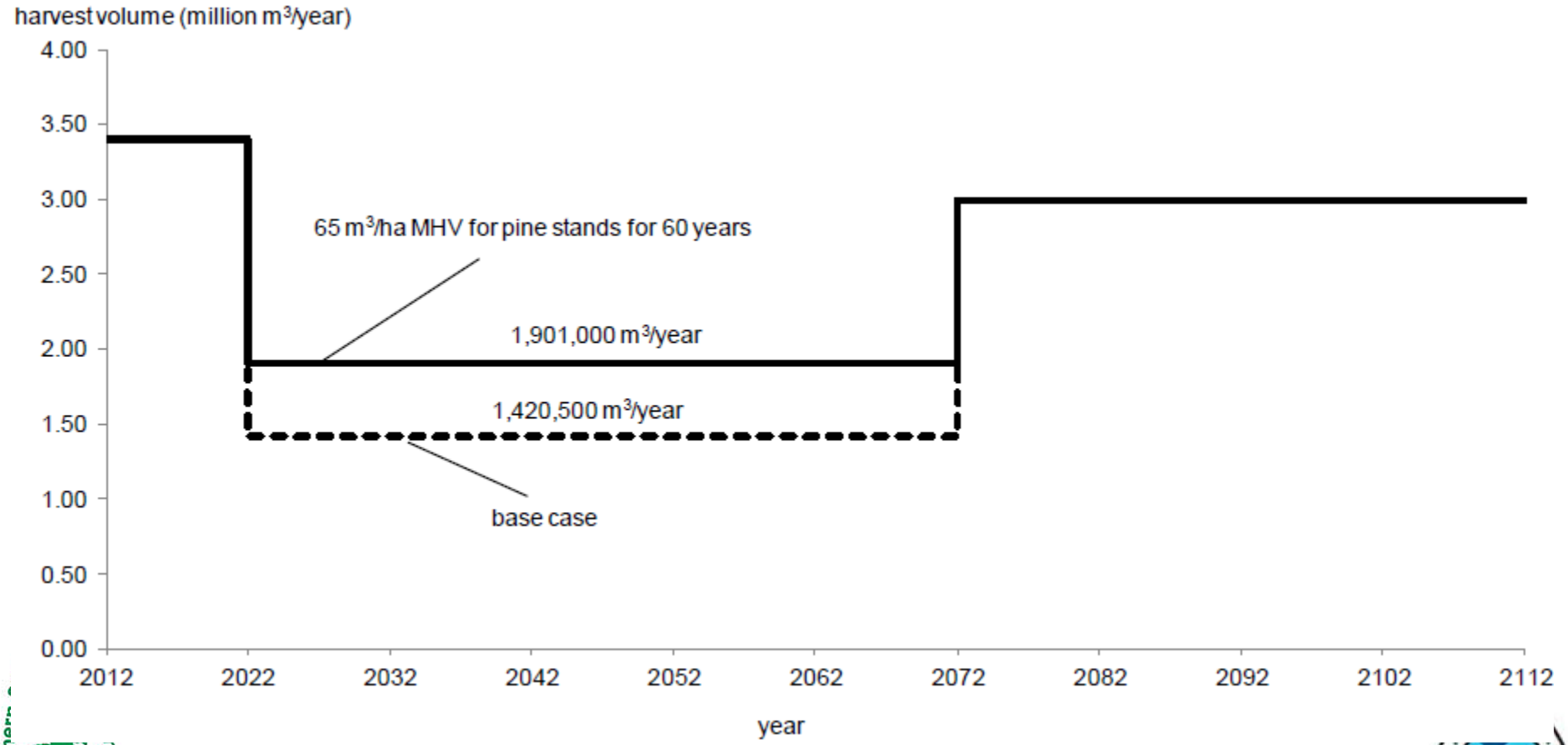
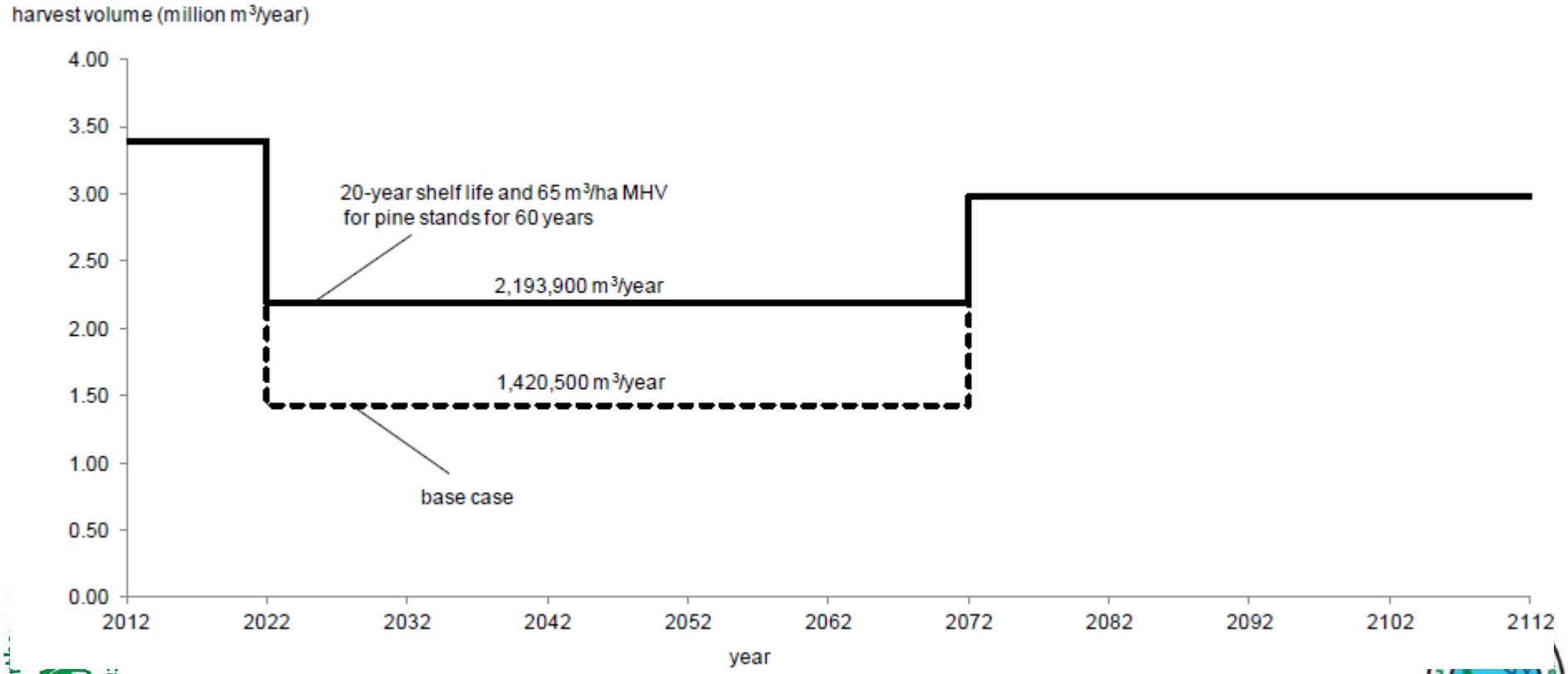
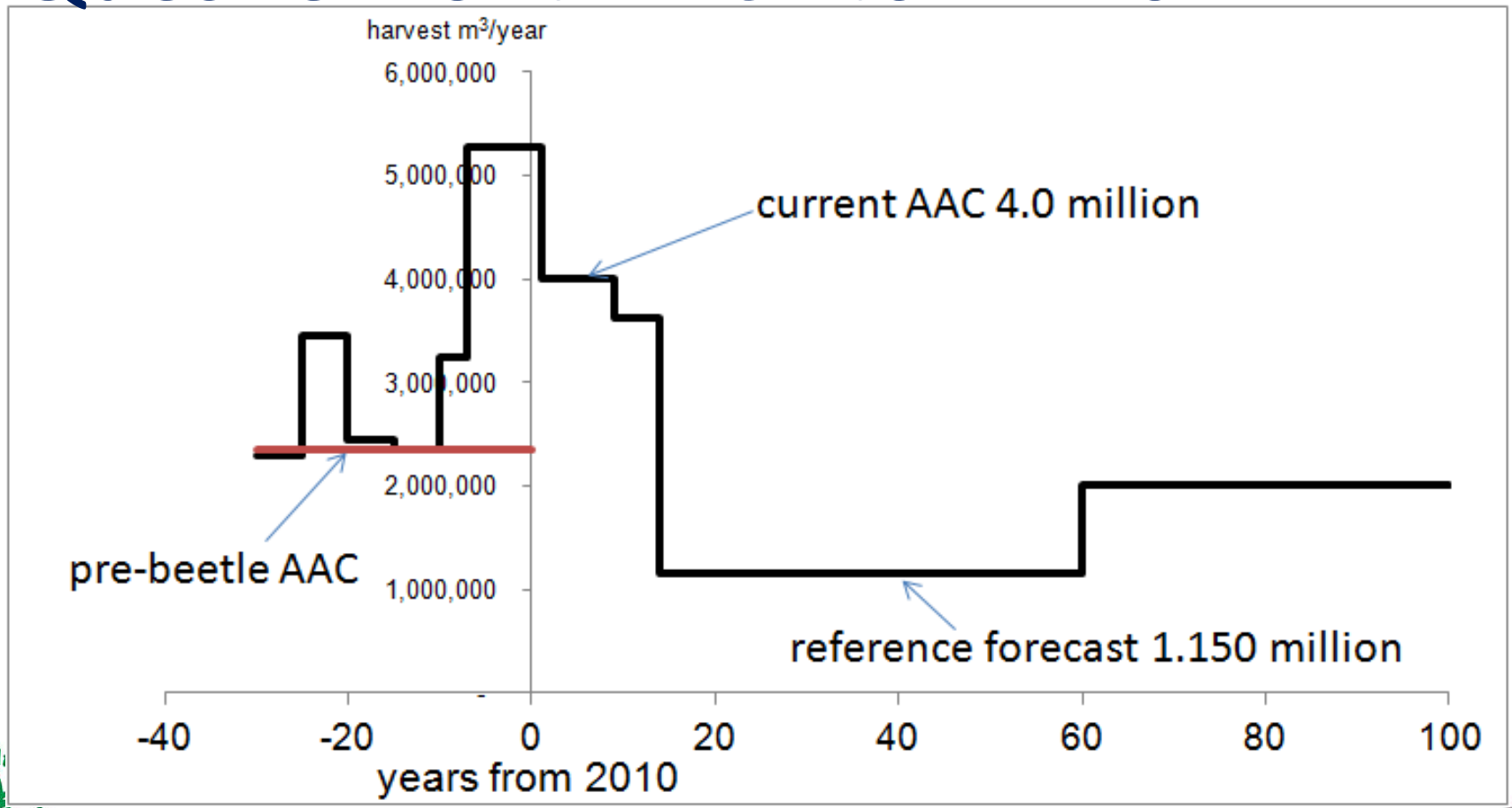
Williams Lake TSA: reduce MHV



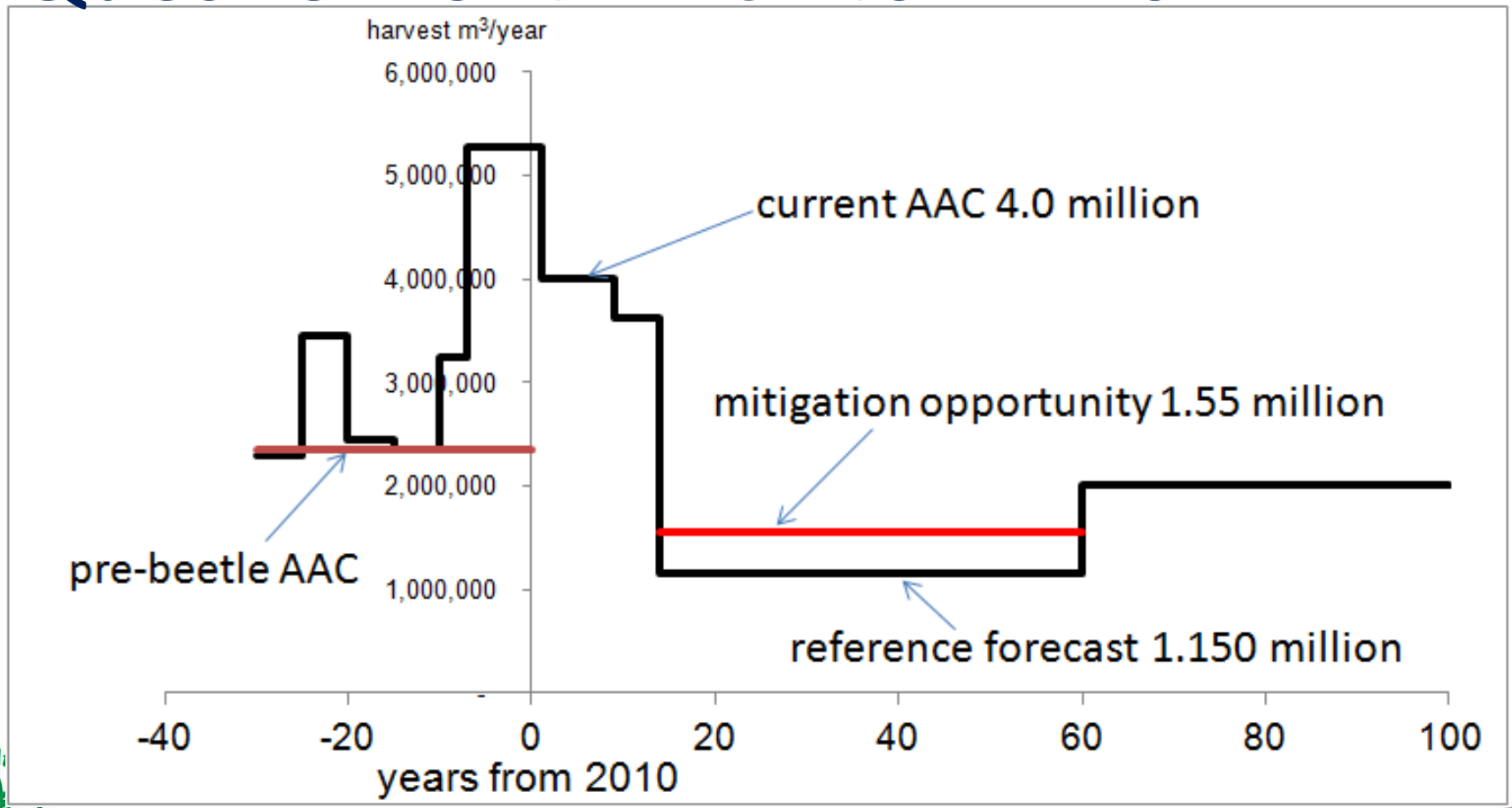
Williams Lake TSA: reduce MHV and increase shelf life



Quesnel TSA: AAC 4.0 million



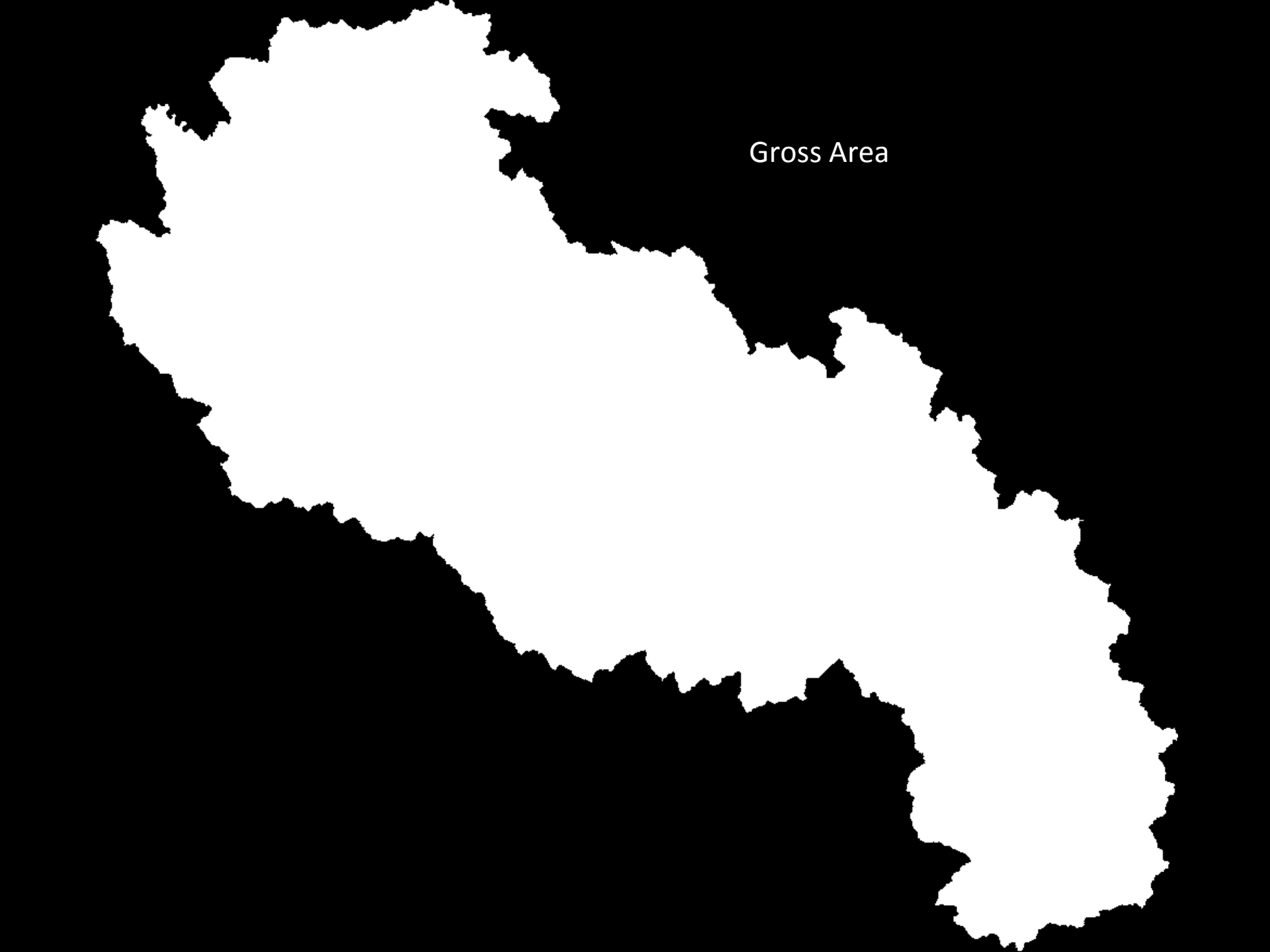
Quesnel TSA: AAC 4.0 million



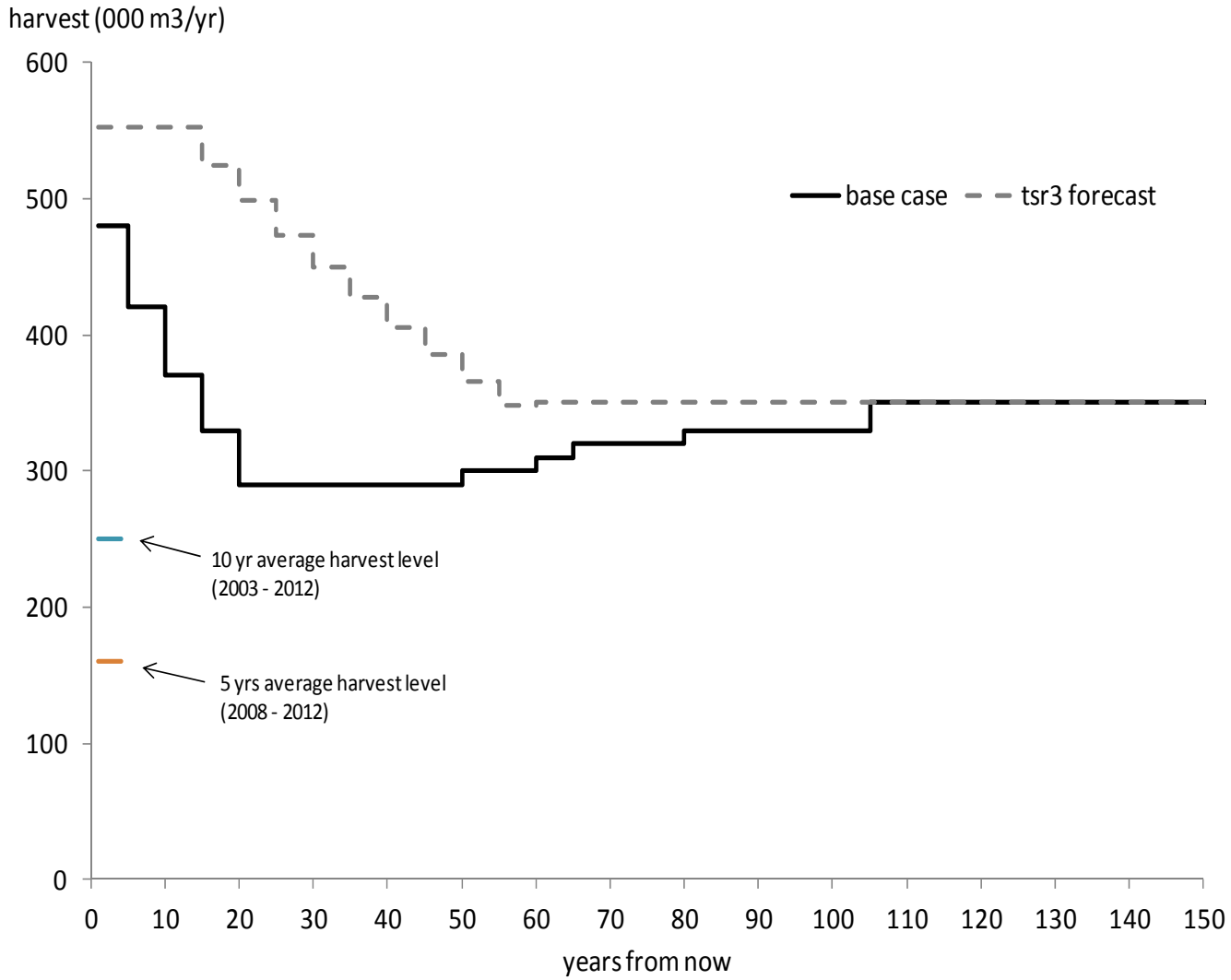
Quesnel TSA: Mitigation

- Increased yield: by **400,000** m3/year for 50 years
- Mitigation measures:
  - Harvest Old Growth Management Areas (OGMAs) in the ERDZ and IRMZ zones specified in the CCLUP
  - Eliminate stand level biodiversity requirement
  - Eliminate conservation legacy areas
  - Eliminate Partial Retention and Modification visual quality objective
  - Reclassify Retention to Partial retention visual quality objective
  - Harvest less productive sites

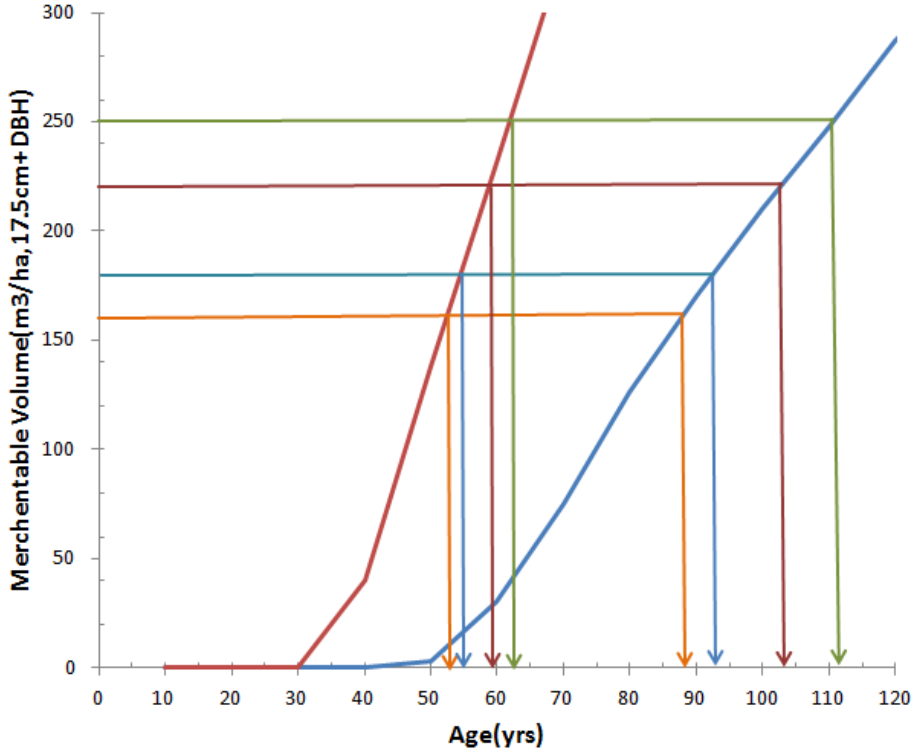
Robson Valley TSA

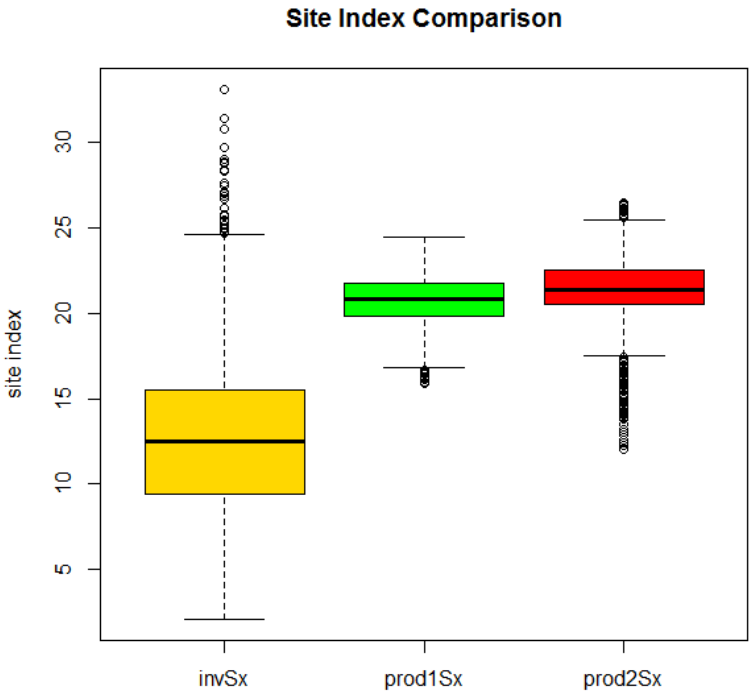

Gross Area

Robson Valley TSA: AAC 400,000

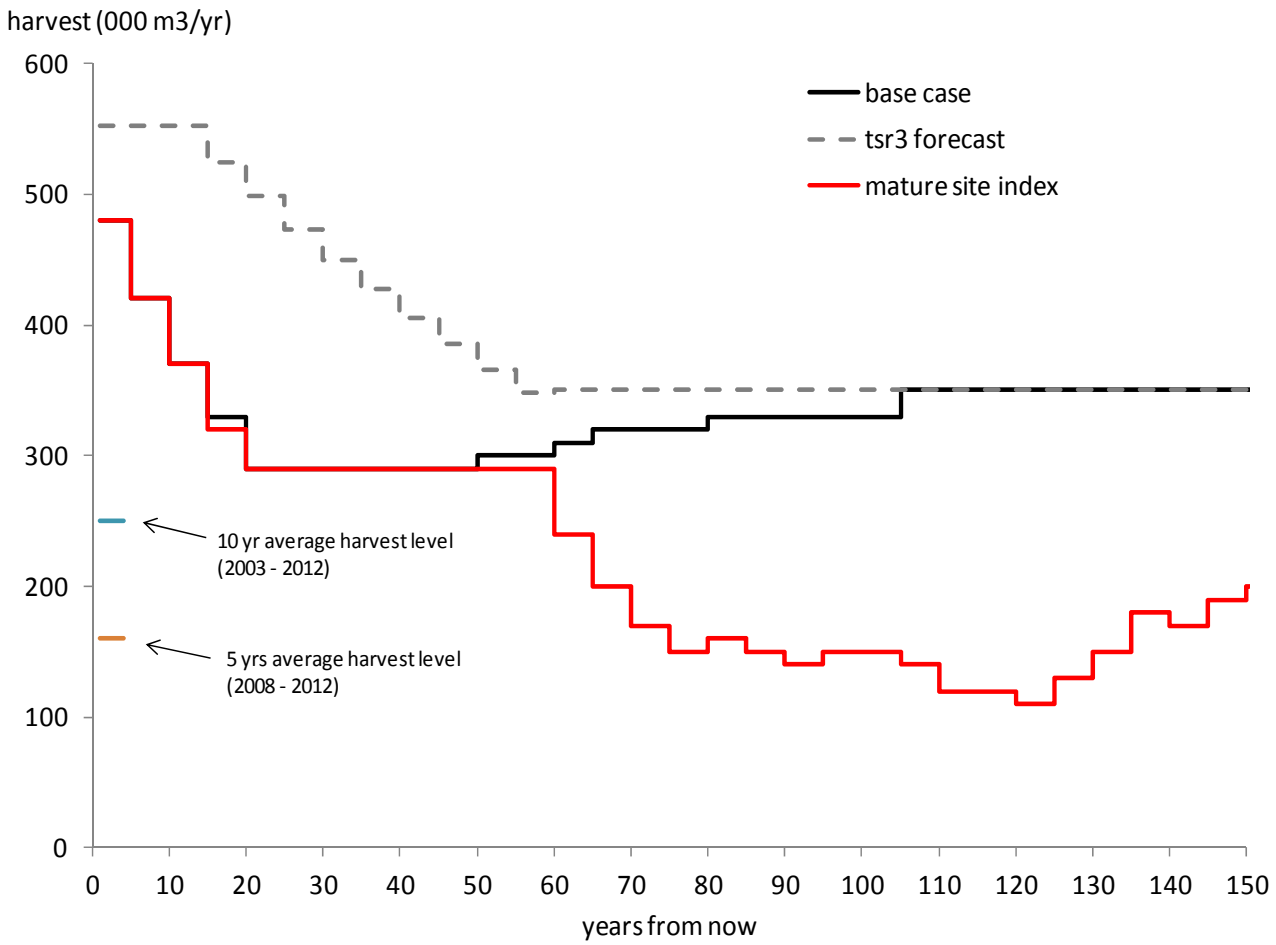


Key Sensitivities



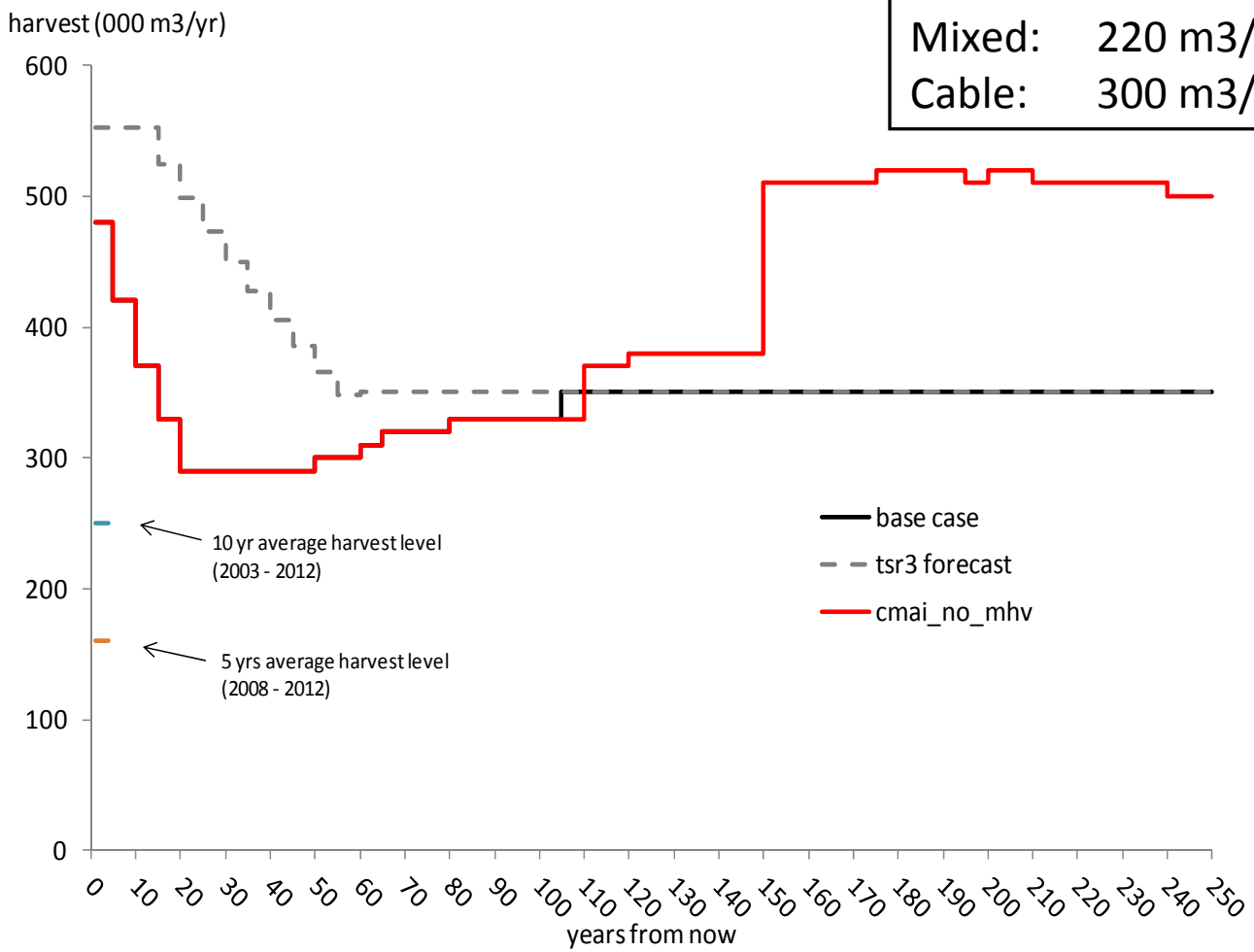


Robson Valley TSA: Natural stand Site index



Robson Valley TSA: No Min. Harvest Volume

Conventional: 160 m3/ha
Mixed: 220 m3/ha
Cable: 300 m3/ha



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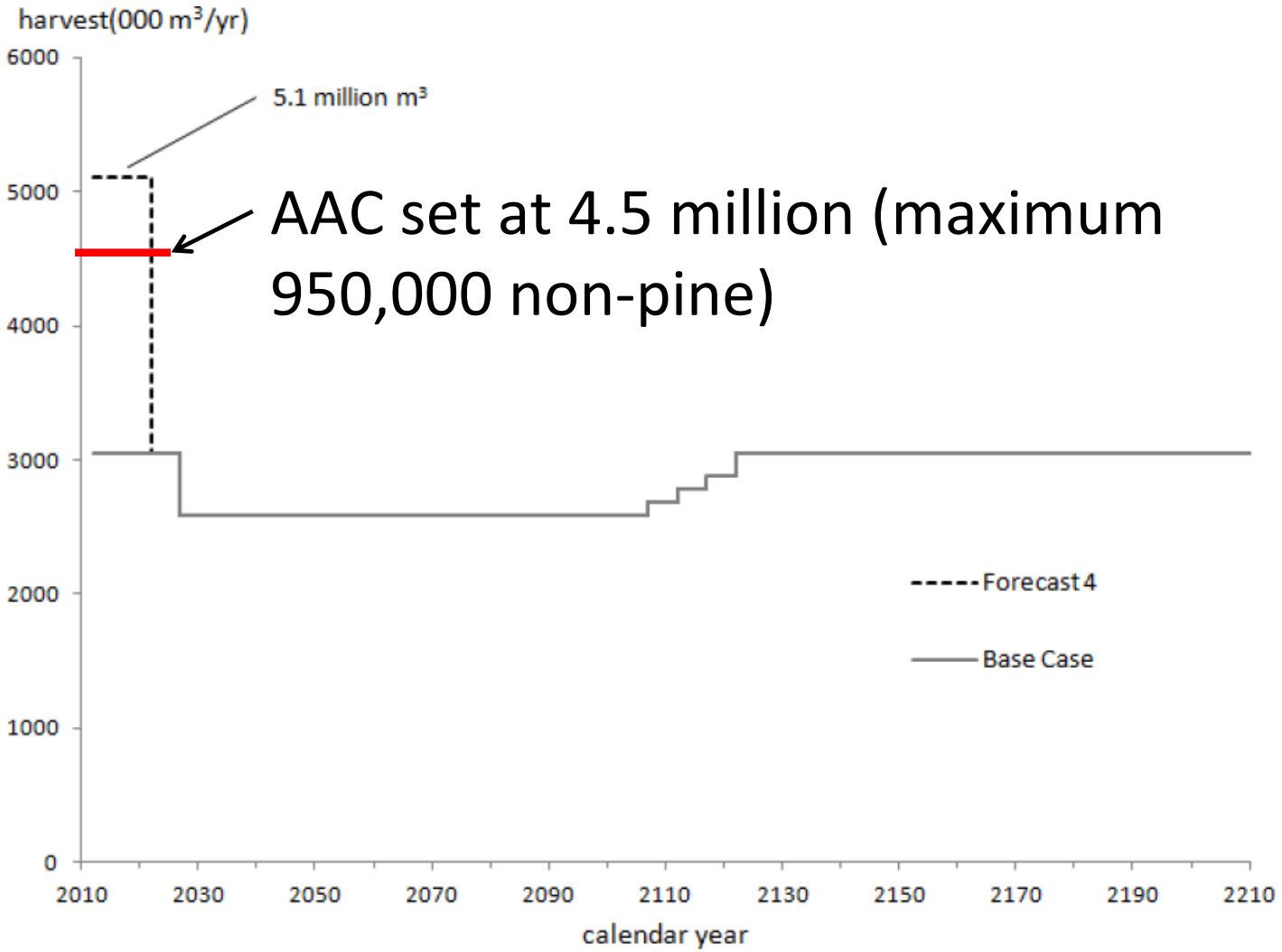
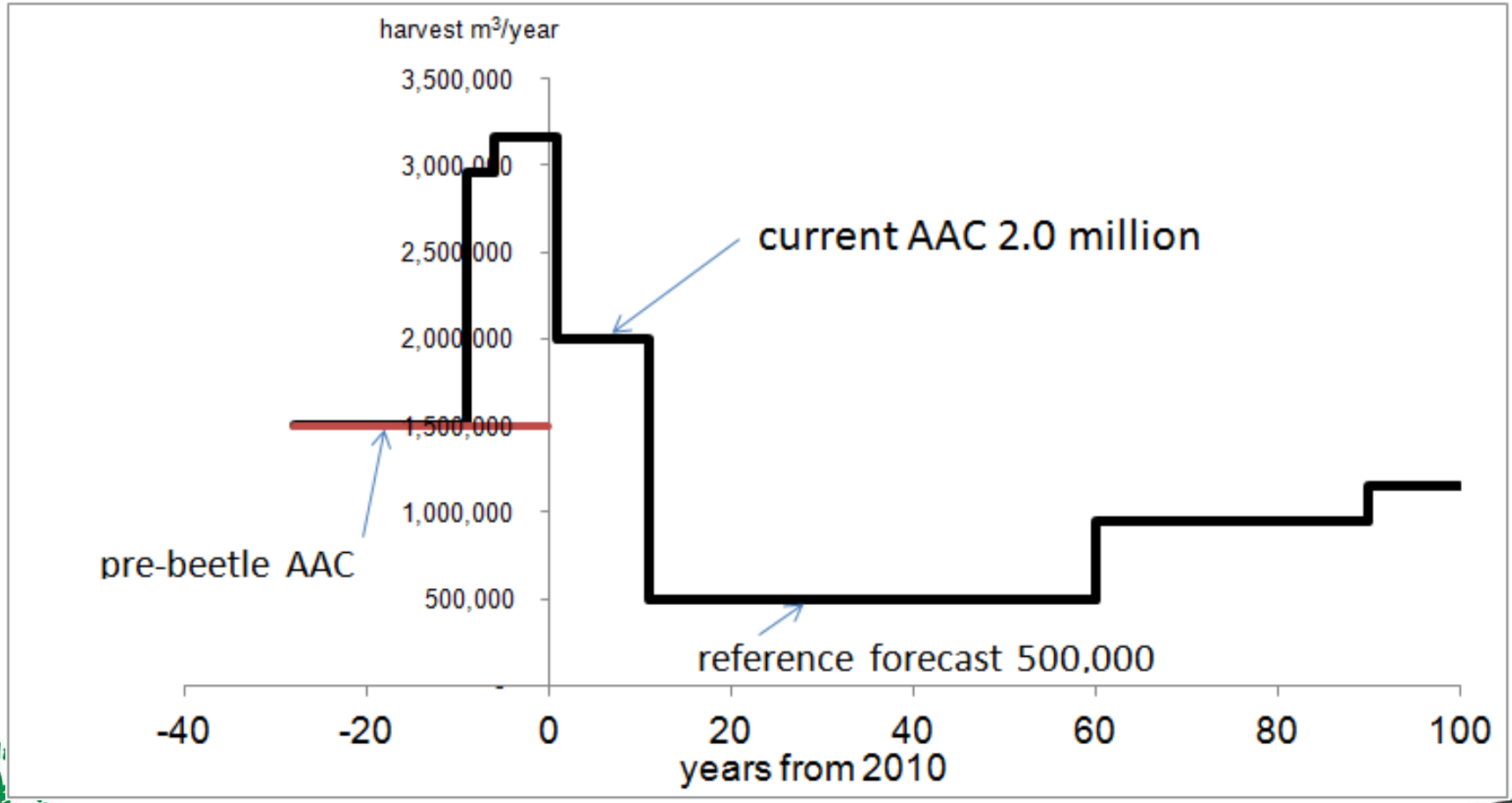
Mackenzie TSA – Base Case

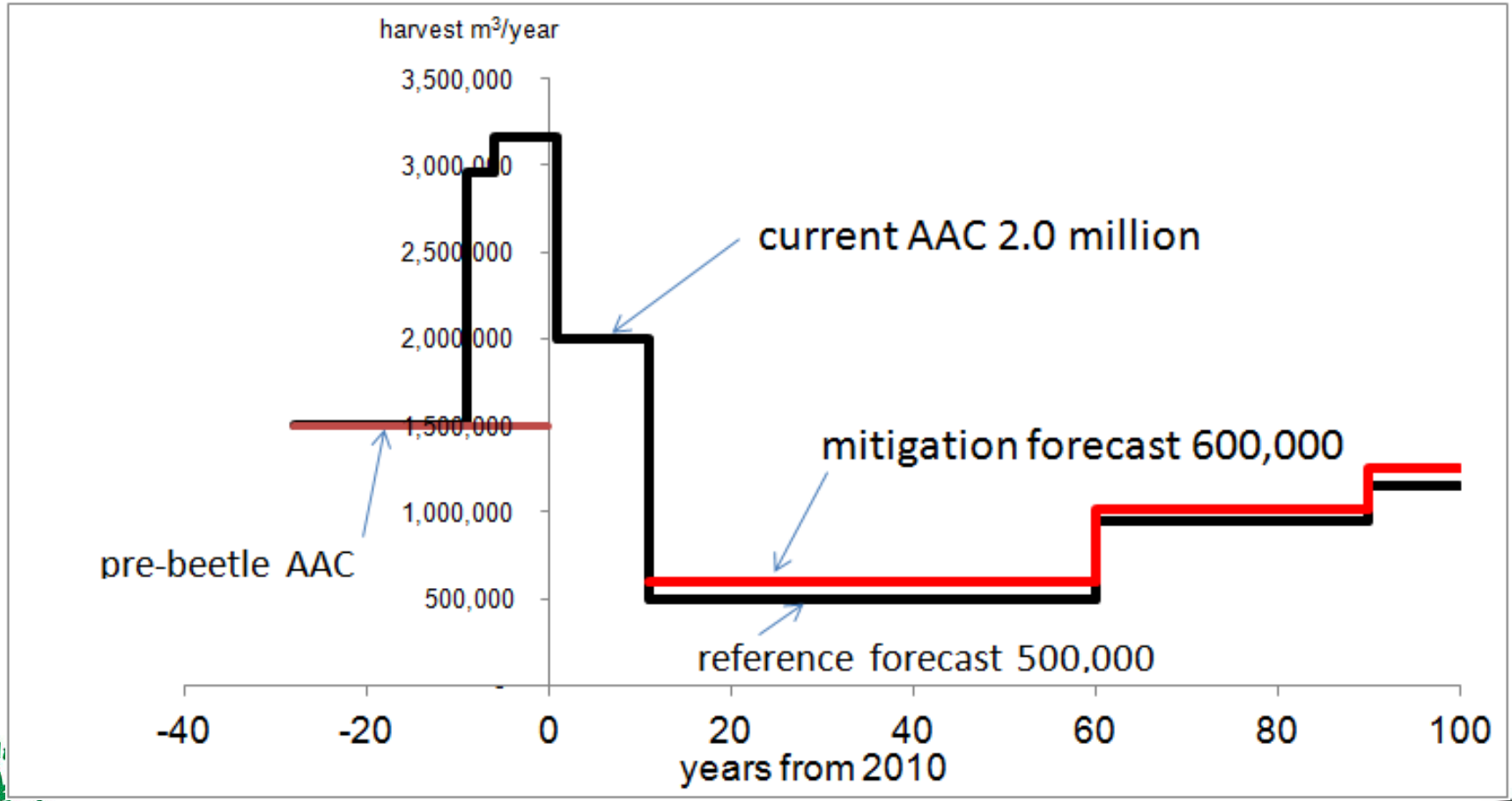


Lakes TSA

Lakes TSA: AAC 2.0 million



Lakes TSA: AAC 2.0 million



Lakes TSA: Mitigation Scenarios

- Increased yield: **100,000** m3/year for 50 years
- Mitigation measures:
  - Harvest Old Growth in all but southern area
  - Eliminate wildlife corridors
  - Relaxation of visual quality objectives
  - Relaxation of management practices for moose and caribou

Morice TSA

Ministry of Fore
Natural R

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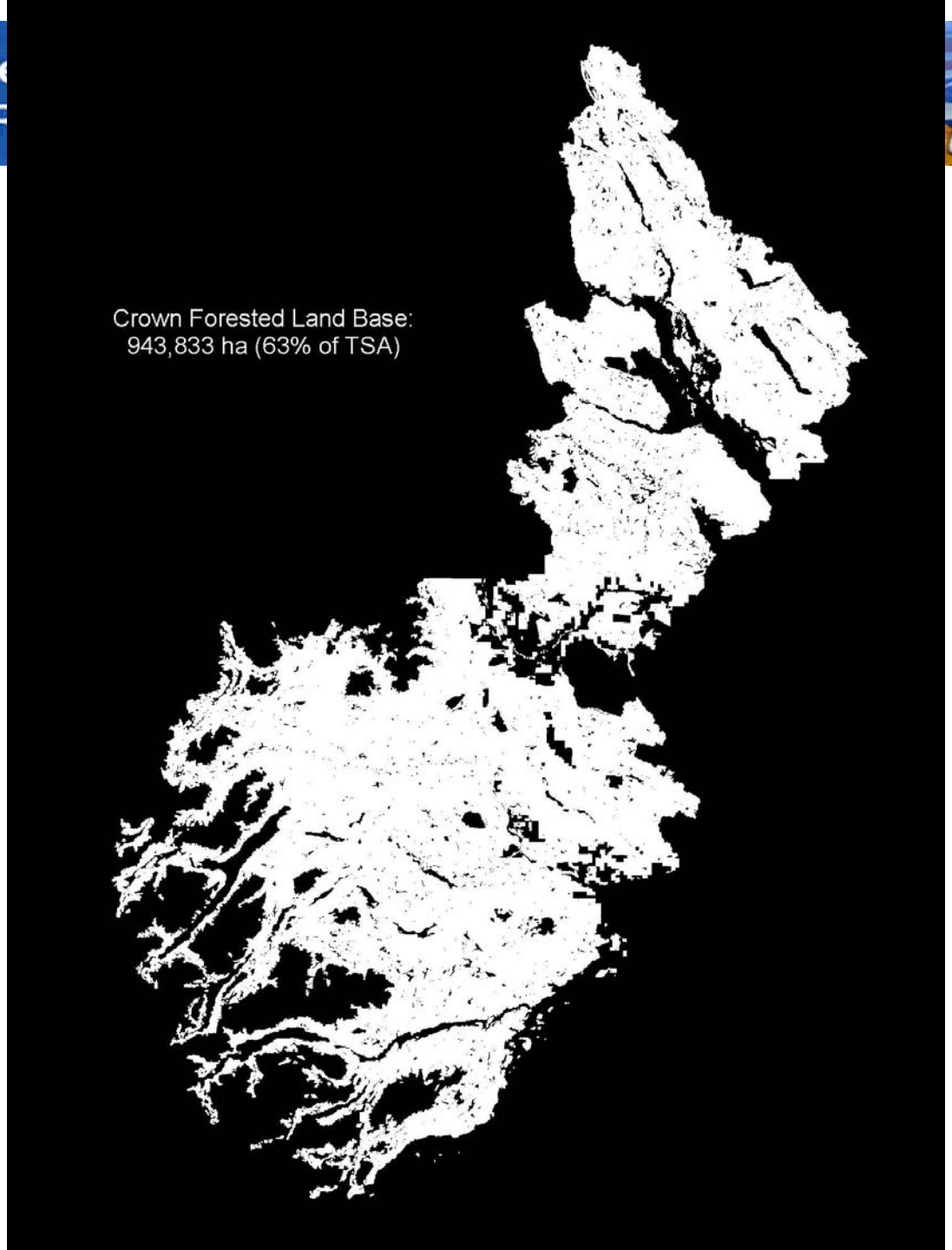
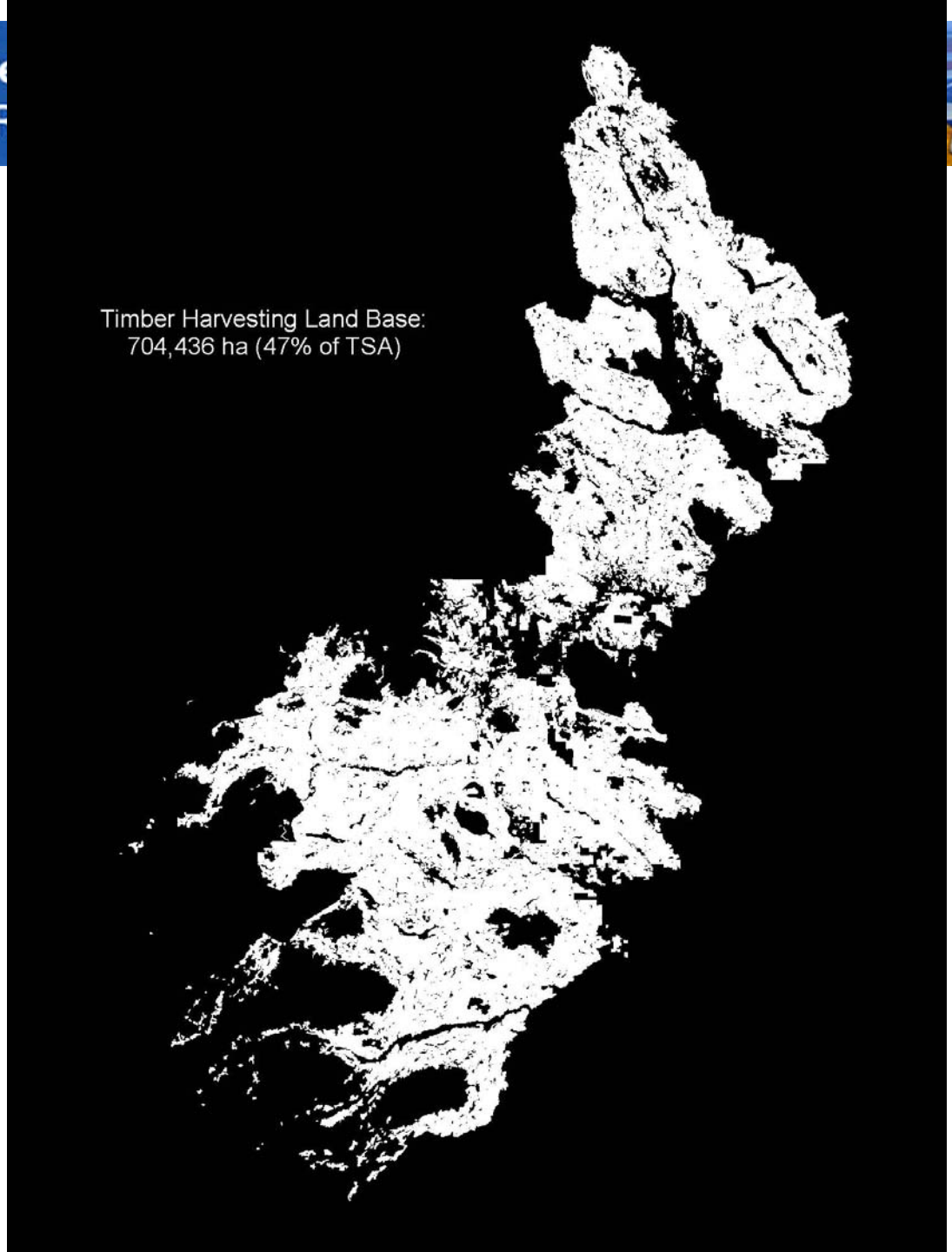

Crown Forested Land Base:
943,833 ha (63% of TSA)

Ministry of Fore
Natural R



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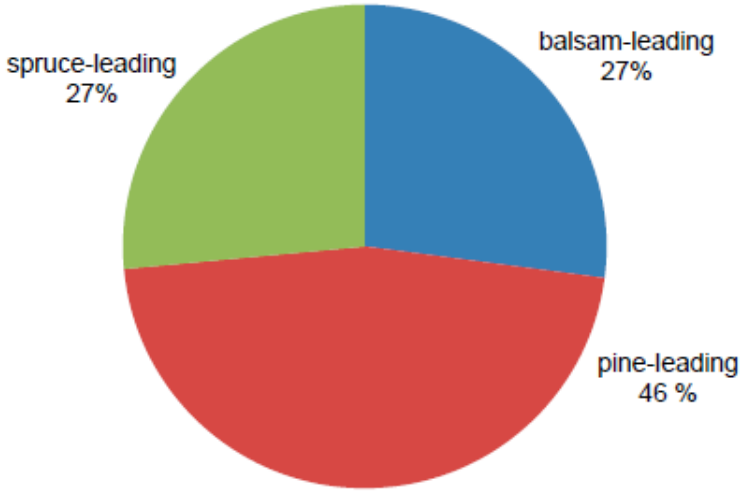
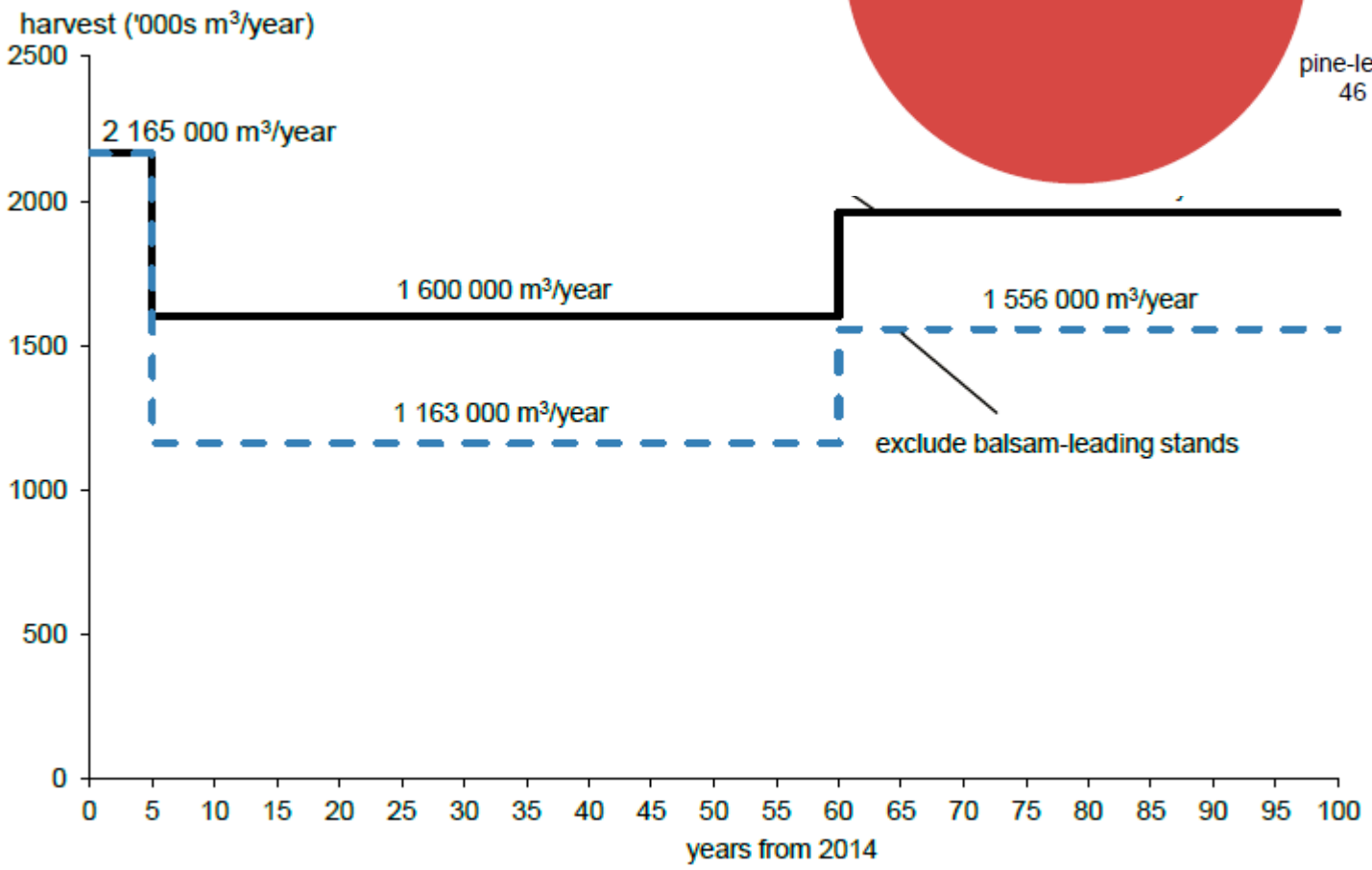
Morice TSA:





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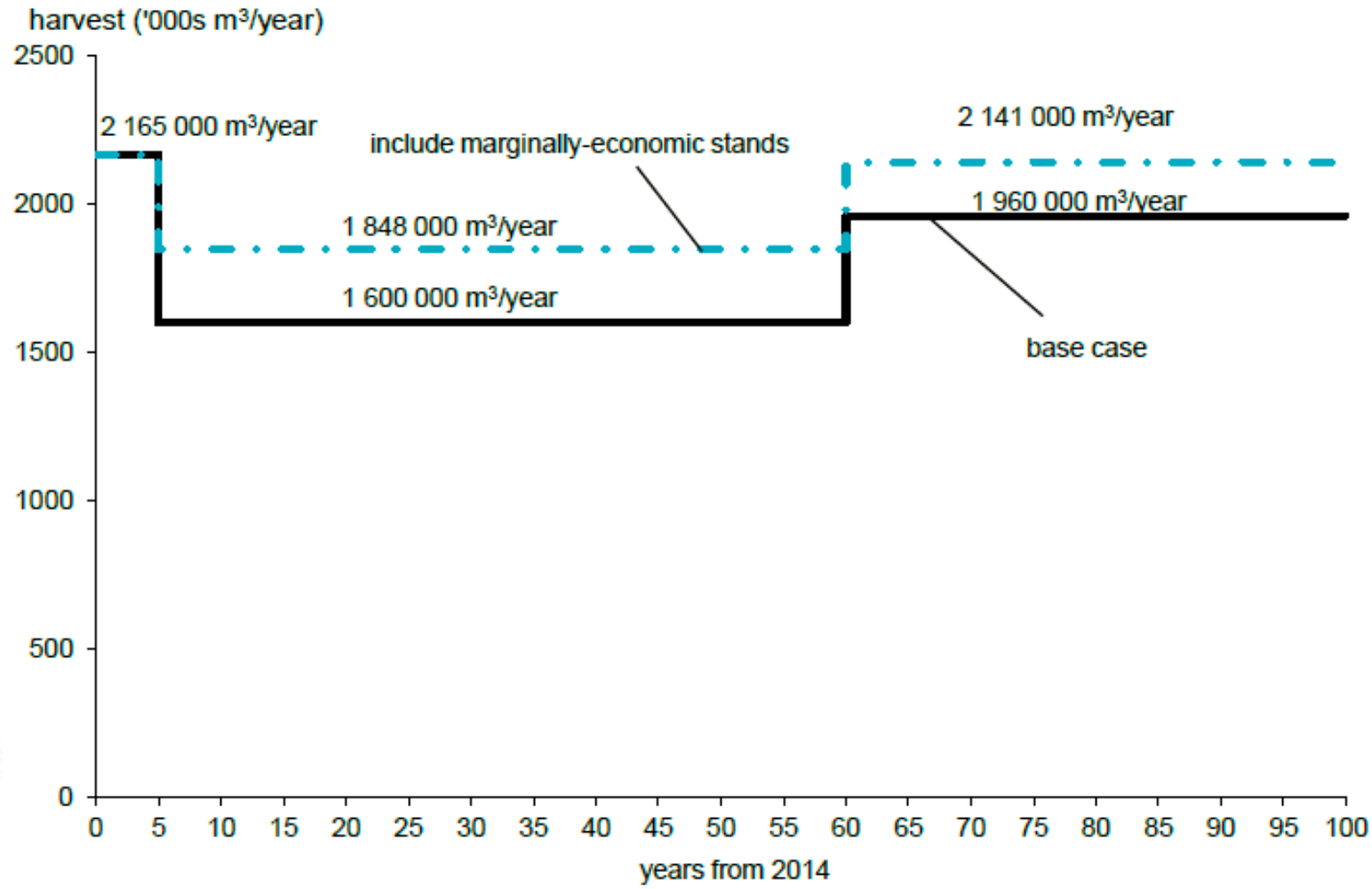
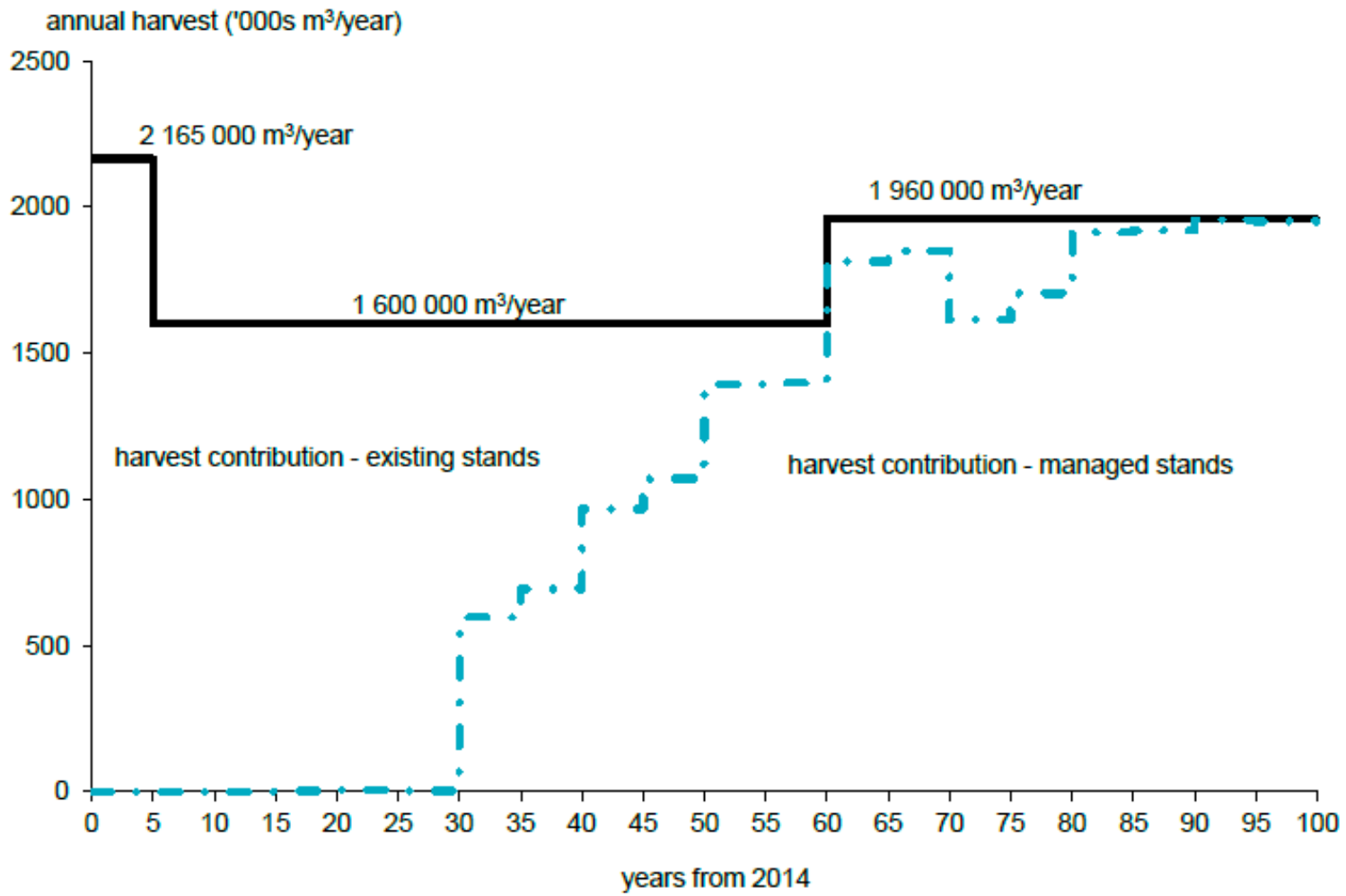
Morice TSA – Include stands >100 m3



Morice TSA



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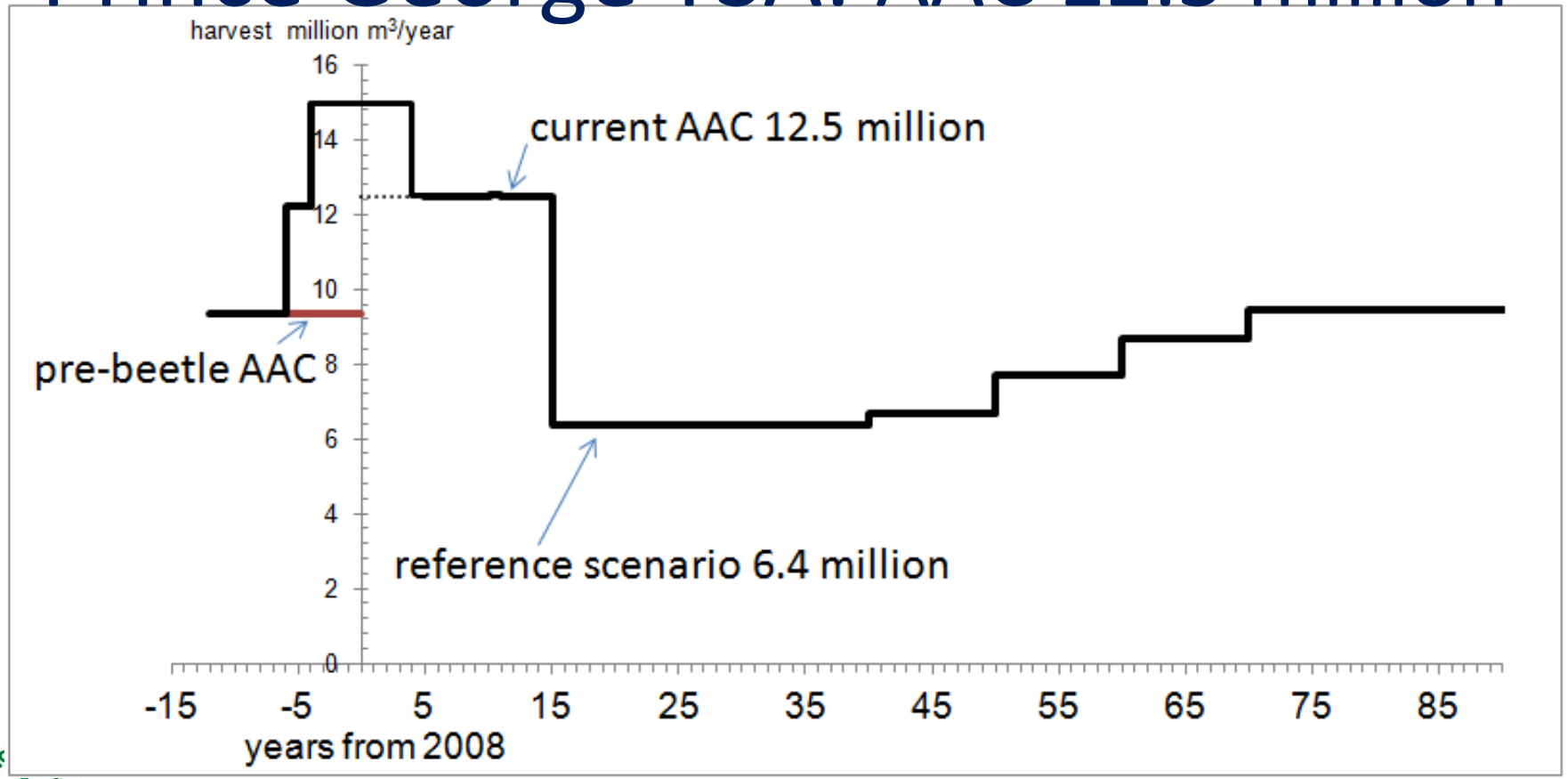
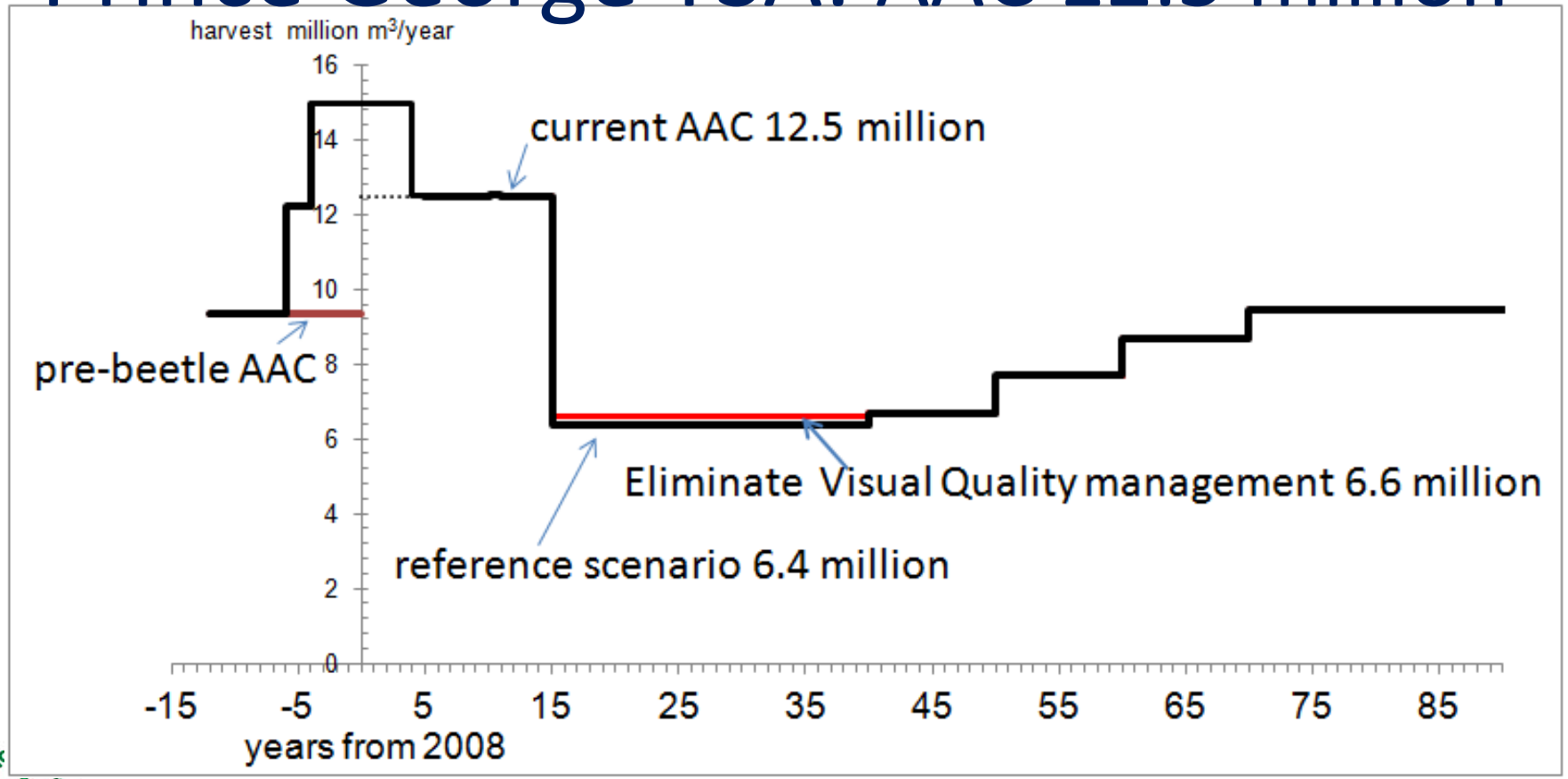
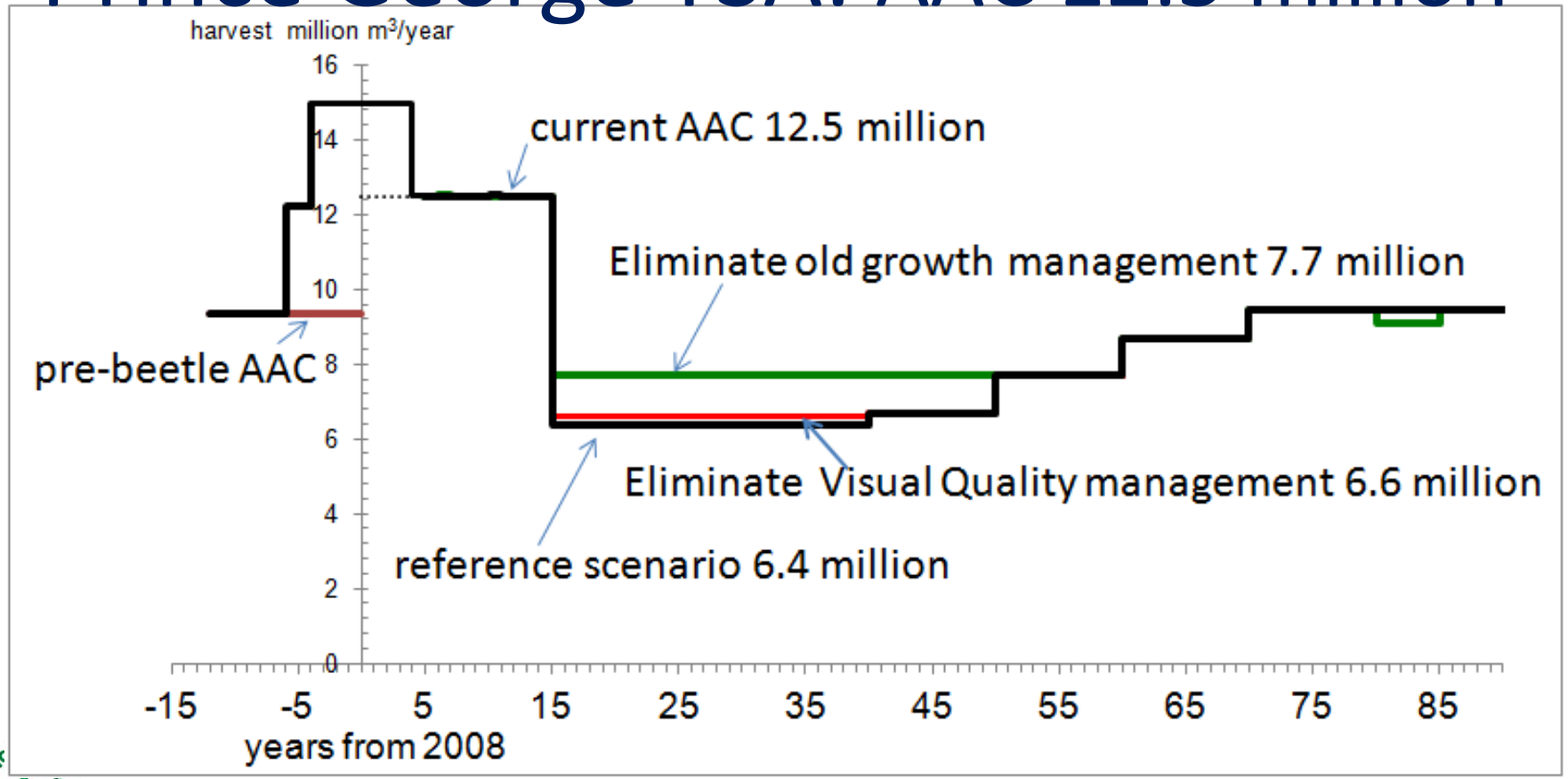
Prince George TSA: AAC 12.5 million



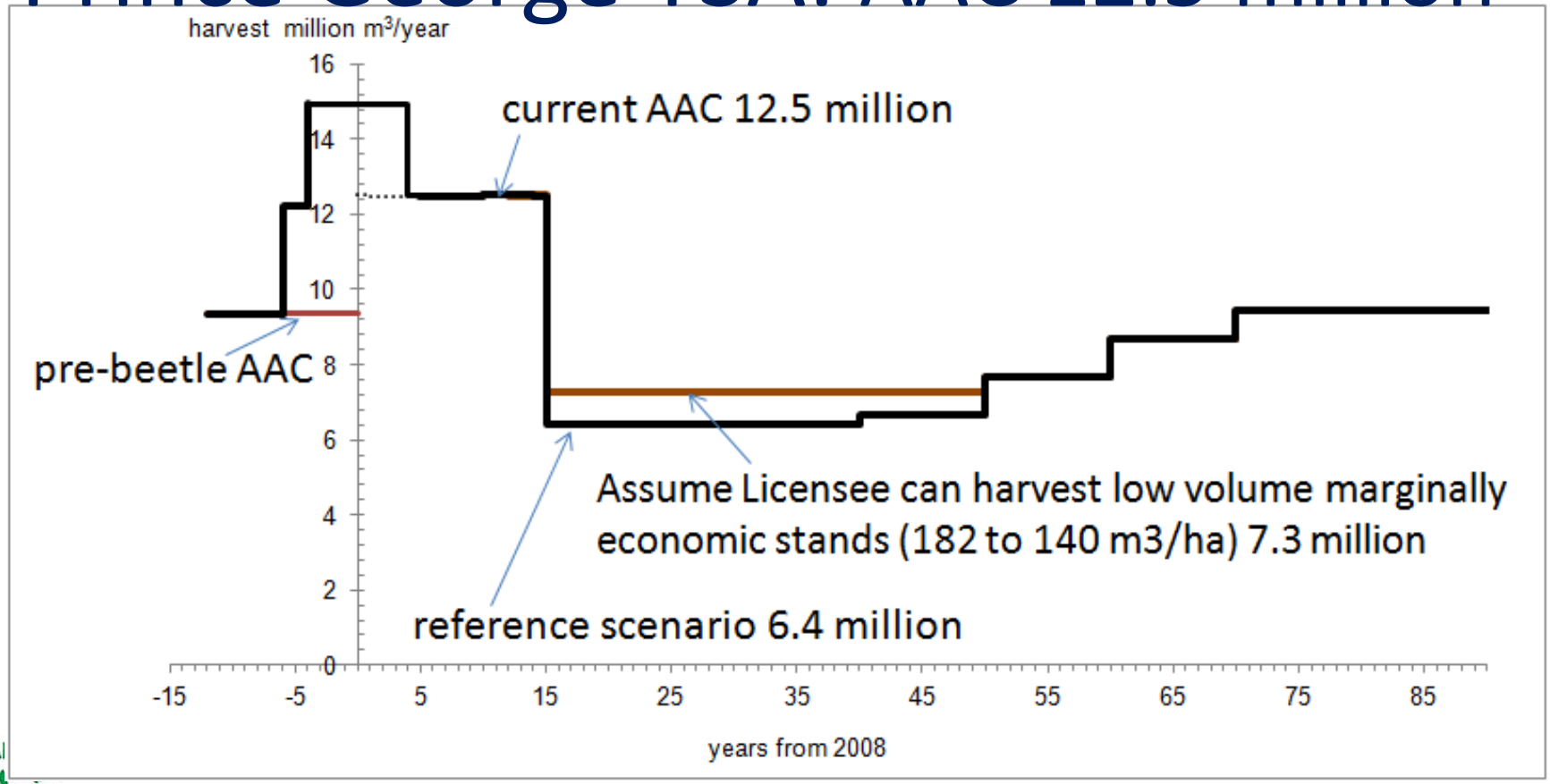
Prince George TSA: AAC 12.5 million



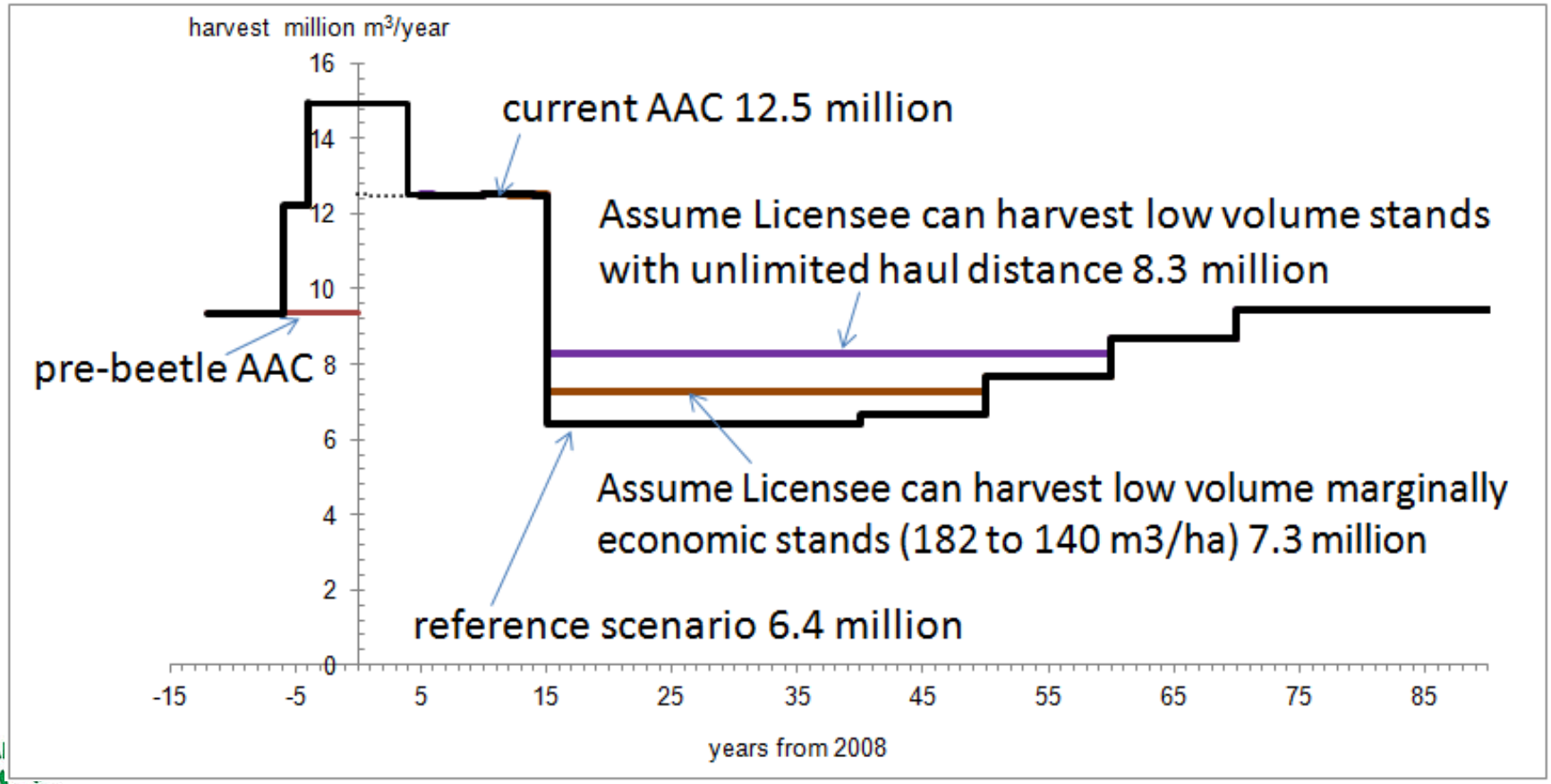
Prince George TSA: AAC 12.5 million



Prince George TSA: AAC 12.5 million



Economic Scenarios



Economic Scenarios

Other Timber Supply Pressures in the Northern Interior

Spruce Beetle

Omineca outbreak progression

2013: 7,653 ha

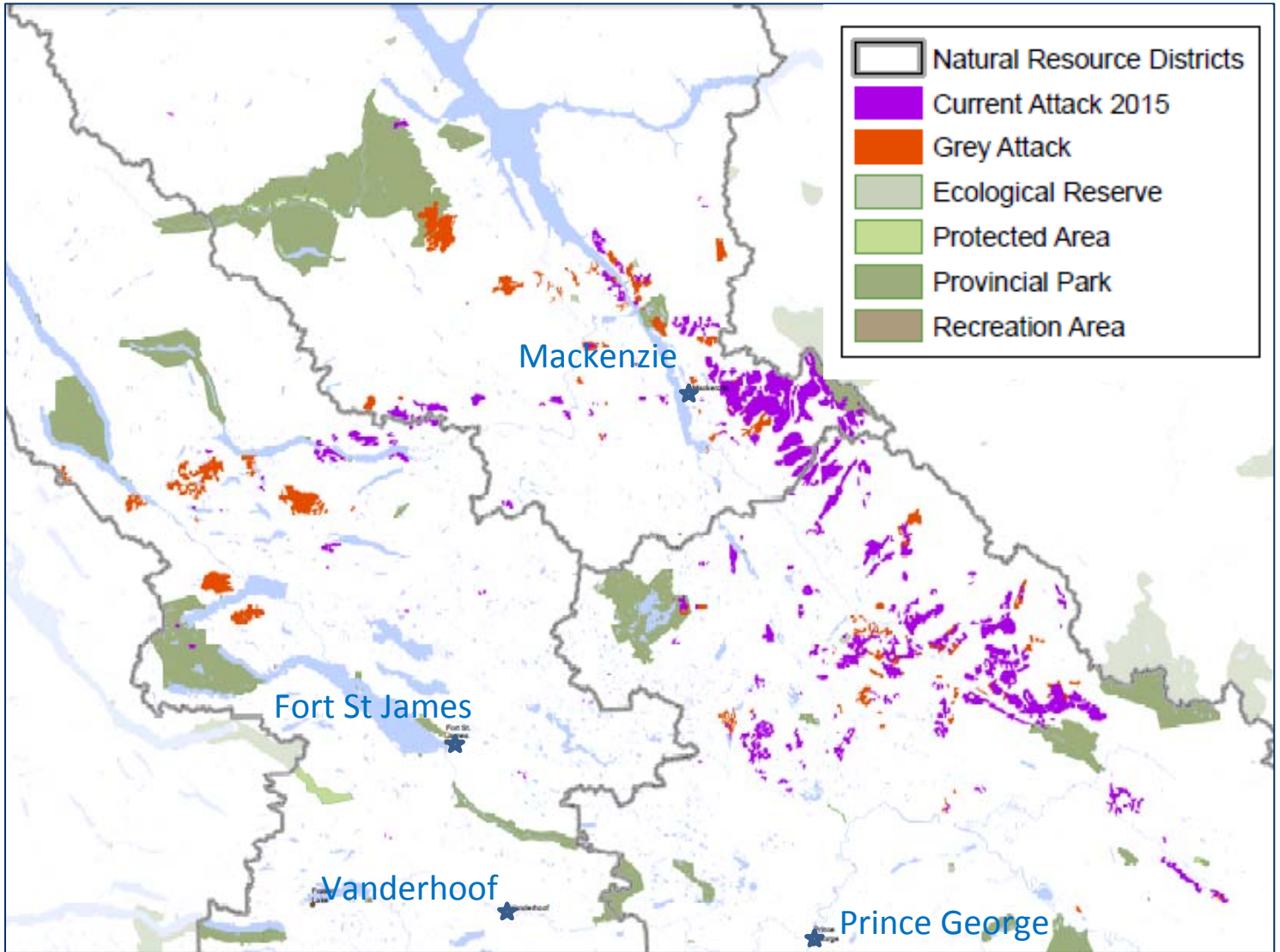
2014: 217,251 ha

2015: 154,253 ha

Newly infested areas have higher beetle concentrations compared to those of 2014.

Objective: To protect midterm timber supply and maintain ecosystem functions.

Spruce Beetle – PG, FSJ and Mac 2015



Spruce Beetle - Population trends

- Both one and two year life cycles are present in surveys
- Beetles are attacking large and small diameter trees

Spruce Beetle Action Plan

FLNRO: beetle detection (over $1 million in 2016)

- Air Surveys
- Ground Surveys
- Remote sensing

Licensees: population suppression

- Targeted harvesting - Harvest priority areas of spruce with active beetle populations
- Trap trees
- Minimize impact on ecosystem health

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FRPA – Section 26 ?

This Act is Current to January 27, 2016

This Act has "Not in Force" sections. *See* the Table of Legislative Changes.

FOREST AND RANGE PRACTICES ACT

[SBC 2002] CHAPTER 69

FRPA Section 26?

Control of insects, diseases, animals or abiotic factors

26 (2) If the minister determines that on a forested area on Crown land that is subject to

(a) a forest stewardship plan,

(b) a woodlot licence plan, or

(c) another prescribed operational plan

there are insects, diseases, animals or abiotic factors that are causing damage to the forest, the minister, by written notice given to the holder of the plan, may require the holder to submit, for that forested area, a proposal that conforms to subsection (3) to control or dispose of the insects, diseases, animals or abiotic factors.

FRPA Section 26?

26 (3) An owner required under subsection (1), or a holder required under subsection (2), to submit a proposal must

(a) submit the proposal to the minister within the period specified by the minister,

(b) in the proposal, specify reasonable measures to be carried out for that forested area by the owner or holder, as the case may be, to control or dispose of the insects, diseases, animals or abiotic factors, and

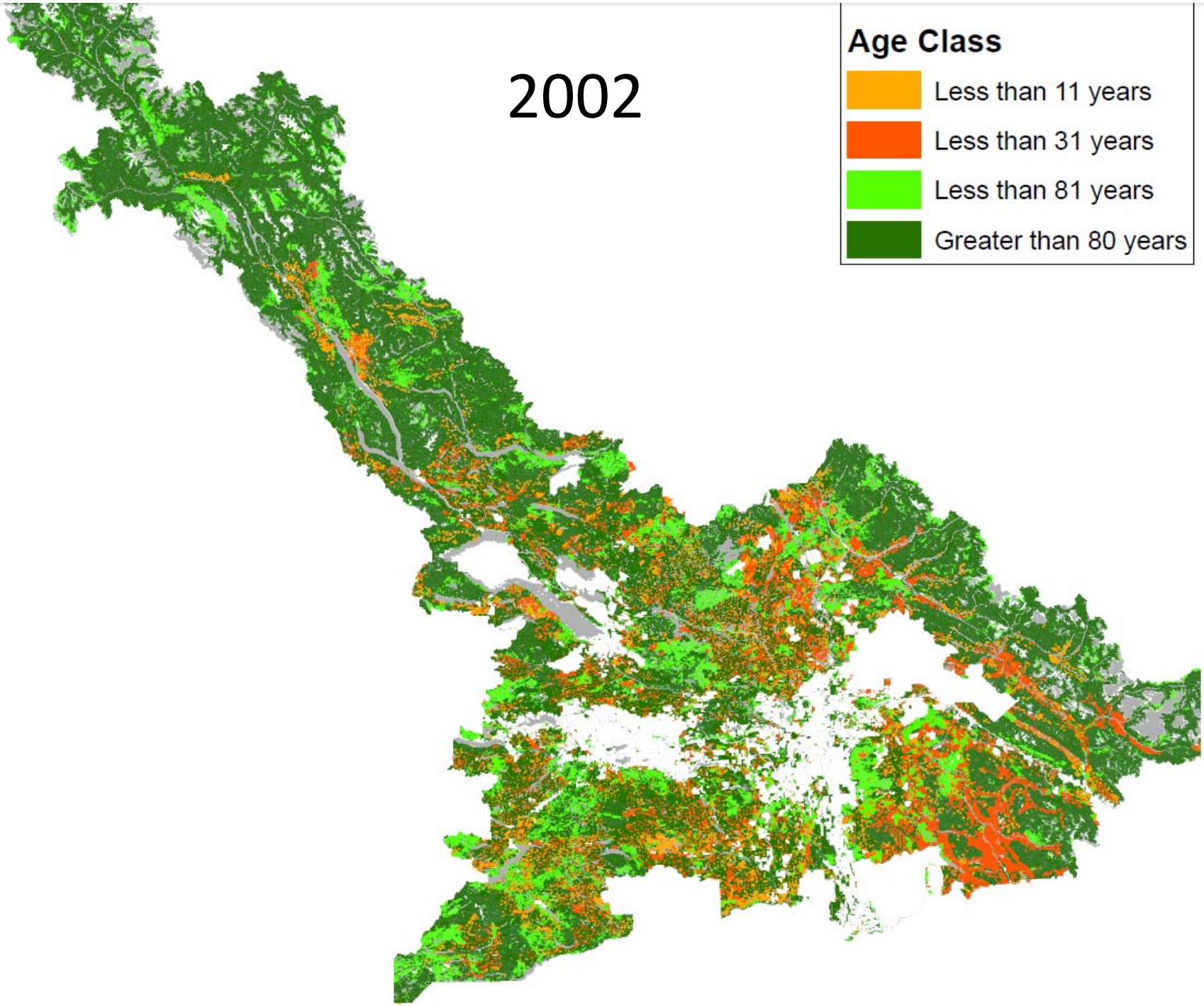
(c) state the time frame within which the measures are to be completed.

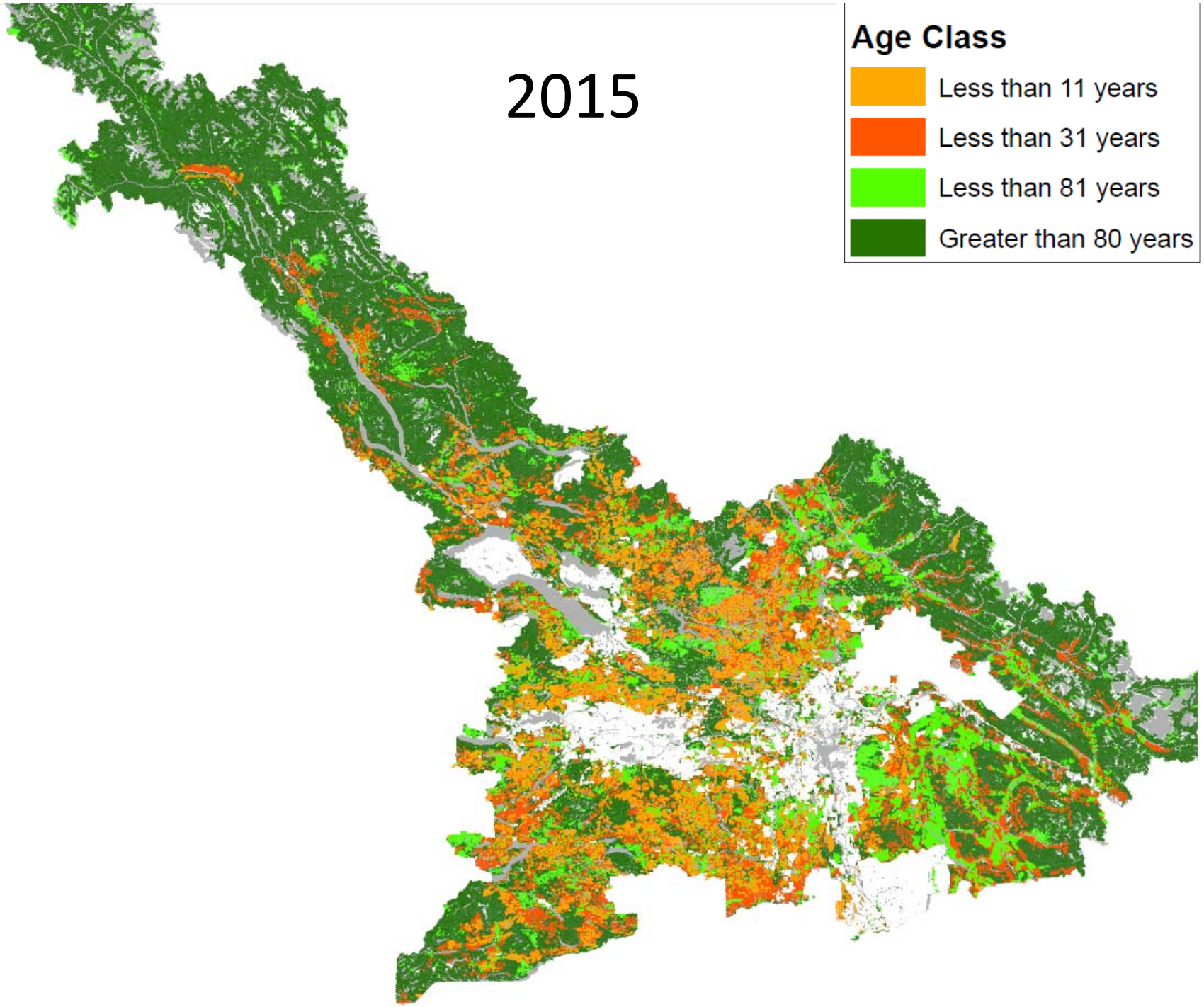
(4) The minister may approve or reject a proposal received in response to the minister's written notice given under subsection (1) or (2).

(5) If the minister approves a proposal under subsection (3), the owner or holder who made the proposal must carry out the measures specified in the proposal.

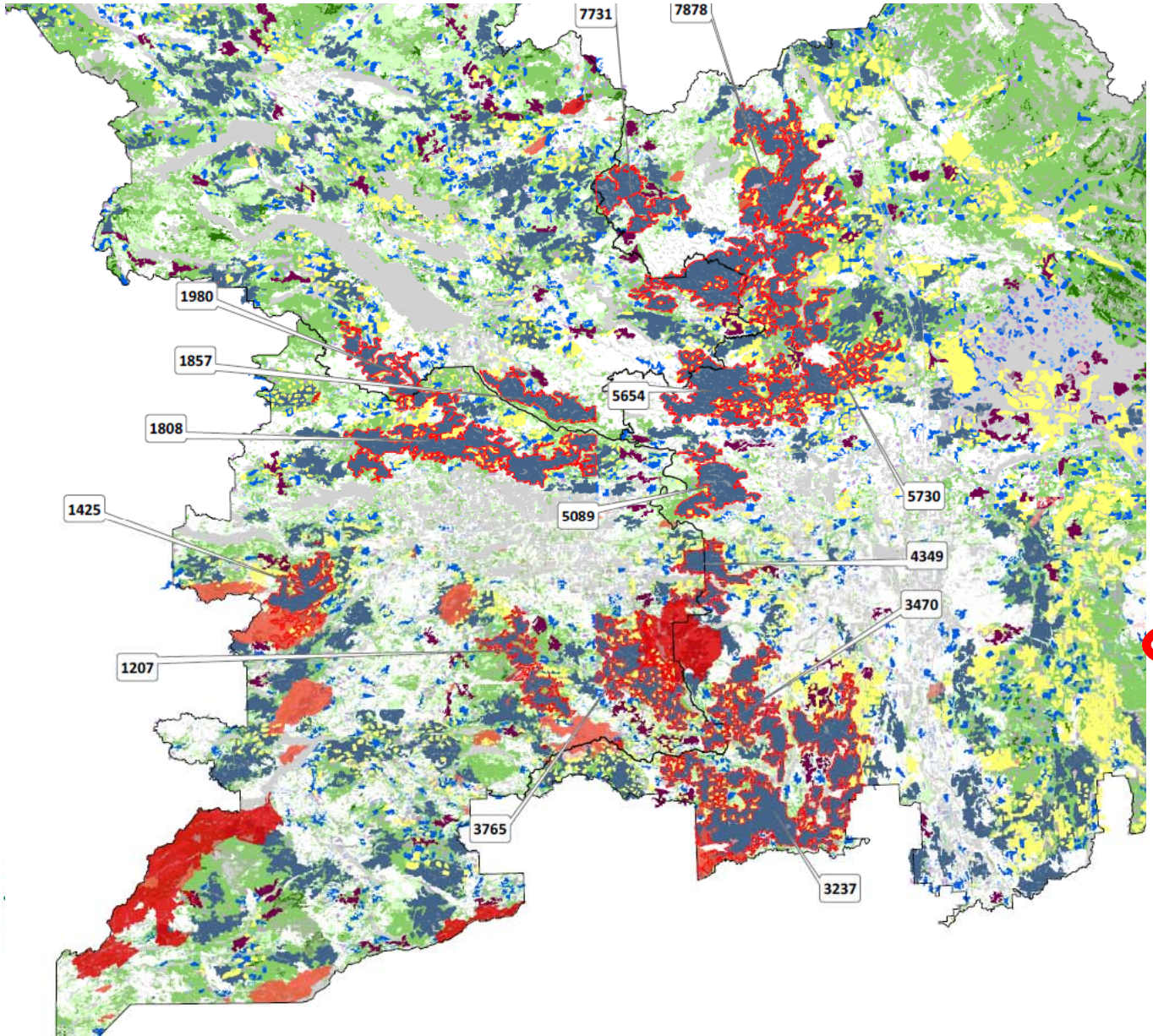
Other Timber Supply Pressures in the Northern Interior

Landscape and Stand level Retention


2002
Age Class
Less than 11 years
Less than 31 years
Less than 81 years
Greater than 80 years


2015
Age Class
Less than 11 years
Less than 31 years
Less than 81 years
Greater than 80 years

Ministry of **Forests, Lands and Natural Resource Operations**



Legend

patch > 10 000 ha

fires since 1984

FIRE_YEAR

- 1985 - 1989
- 1990 - 2000
- 2001 - 2010
- 2011 - 2015

patches

class

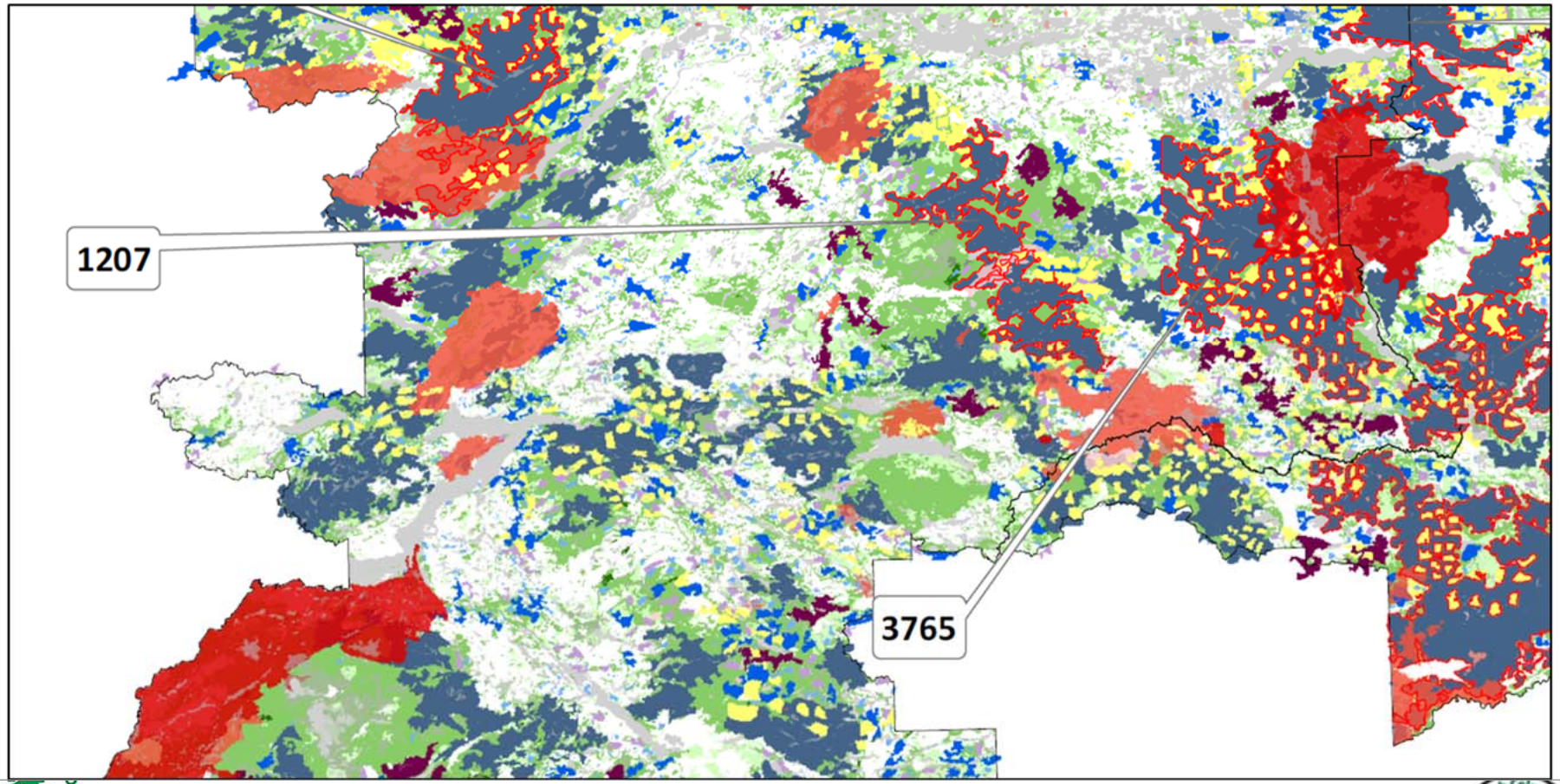
- less than 51 ha
- 51-100 ha
- 101-500 ha
- 501-1000 ha
- greater than 1000 ha

VRI

Old Forest

- 121 - 140 years
- 141 - 250 years
- greater than 250 years
- Non-Forest
- blocks greater than 30 years

Patch Analysis – Patch Size Distribution



patch id	patch area	managed stand	mature forest	inblock retention	pct managed	pct mature forest	pct retention patch	pct retention combined
3237	62,522	52,399	5,560	4,563	83.81	8.89	7.30	16.19
6209	46,642	40,144	2,791	3,708	86.07	5.98	7.95	13.93
1808	39,156	32,676	3,175	3,305	83.45	8.11	8.44	16.55
7878	35,337	30,485	2,455	2,397	86.27	6.95	6.78	13.73
5654	23,396	20,094	1,446	1,856	85.89	6.18	7.93	14.11
3765	22,827	19,362	1,851	1,614	84.82	8.11	7.07	15.18
3470	21,676	18,447	1,878	1,351	85.10	8.66	6.23	14.90
5730	19,087	16,513	1,144	1,430	86.51	5.99	7.49	13.49
1425	14,881	11,953	1,774	1,154	80.33	11.92	7.75	19.67
7731	14,494	12,163	1,283	1,048	83.92	8.85	7.23	16.08
Totals	300,018	254,235	23,356	22,427	84.62	7.96	7.42	15.38

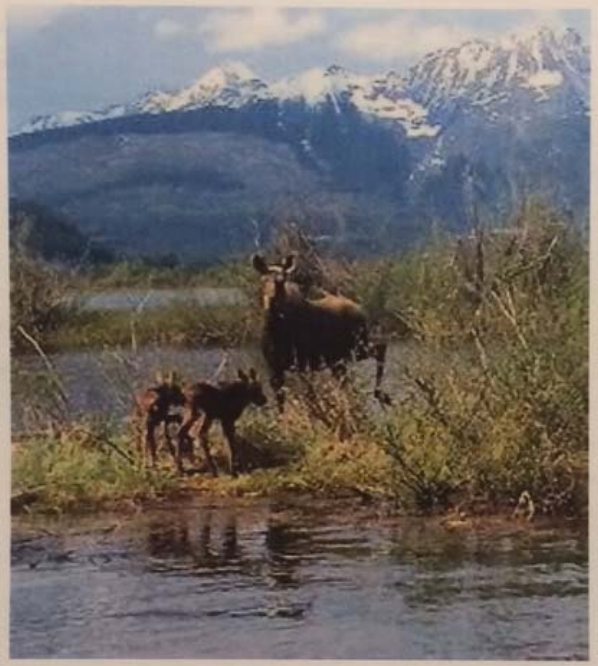
Northern Silviculture Committee NSC

British Columbia · Forests, Lands and Natural Resource Operations

Other Timber Supply Pressures in the Northern Interior

Improving Wildlife Habitat

Ministry of Fo
Natural



GETTING THE BALANCE RIGHT: IMPROVING WILDLIFE HABITAT MANAGEMENT IN BRITISH COLUMBIA

STRATEGIC ADVICE TO THE MINISTER OF FORESTS LANDS AND NATURAL RESOURCE OPERATIONS

Mike Morris
Parliamentary Secretary to the Minister of Forests, Lands and Natural Resource Operations

August, 2015

Northern Silviculture Committee
NSC

Getting the Balance Right….

Authored by Mike Morris – Parliamentary Secretary to the Minister of FLNRO

Objective – Review of the policy Framework provisions in place that affect wildlife and Habitat

Objective – Provide advice on how to better support the maintenance and recovery of habitat across the province, allowing for healthy, robust and growing wildlife populations while at the same time ensuring a balance that will provide our resource sectors opportunities….

Getting the Balance Right….

- "The massive mountain pine beetle epidemic dramatically altered the ecology of the landscape with significant implications for wildlife due to epic losses in habitat.

In addition,

- the attempt to recover as much economic value as reasonable and possible from the dead forest further jeopardized these habitats.
- Simply put, new strategies are required to support impacted wildlife populations and needed habitat to allow species to recover"

Northern Silviculture Committee NSC

Getting the Balance Right….

Key Recommendations:

3.2 Consolidate the authorization, planning, control and sustainable development of all natural resources in British Columbia.

- Undertake a comprehensive review of all resource statutes with a view to consolidate…

3.3 Develop a landscape-level planning model that incorporates the natural resource features and environmental values that exist in a single watershed…

- Balancing the cumulative impact of resource development and biodiversity

Getting the Balance Right….

Key Recommendations:

Create a provincial "Resource Developers Guild" and include representatives of all resource sectors and First Nations.

Objective – Collaborate at the landscape level to mitigate impacts on biodiversity through better:

- hydrological management
- Access management
- Stakeholder engagement

Getting the Balance Right….

Key Recommendations

3.4 Improve and expand upon results based management system.

- Remove the very subjective phrase from FRPA…"without unduly reducing the supply of timber for British Columbia's forests".
- This is…"a very subjective "default" term that significantly lowers the threshold protecting our biodiversity. This ambiguity has contributed to a degradation of biodiversity and ultimately, a reduced ability for professionals to meet the spirit and intent of the legislation."

Getting the Balance Right….

Key Recommendations

3.5 Harness the wisdom, talent and expertise of BC Wildlife practitioners in wildlife /habitat management.

- Combine Forest and Range Evaluation Program (FREP) with Cumulative Effects Framework program and participate as member of Resource Developers Guild.
- Develop a program that utilizes the knowledge, wisdom and experience of long term wildlife tenure holders and wildlife practioners including resident hunters.

Conclusions

- Timber Supply is complex and uncertain
- There are may external forces affecting inputs and results

Predictions

Prediction number 1:

- There will be increased pressure from forest dependent communities and associated major timber/fibre licensees to 'FIND' more timber.
- Government will look for ways to expand the economic range of forest licensees to increase timber supply.

Prediction Number 2

- Major Licensees will run out of sawlog grade dead pine in 2 to 5 years (except Mackenzie)
- In the central interior Harvesting will shift off the central cariboo plateau into more rugged terrain with spruce and balsam stand types. Spruce beetle will guide harvest in Mackenzie and Prince George

Prediction Number 2 (continued)

- Bioenergy tenures will put additional pressure on remaining salvage pine material in an effort to merchandise that last bit of sawlog.
- Pellet manufacturers will be become more dependent on fibre from MPB residuals including on-block waste within an economic radius of manufacturing facilities (3 to 6 hr cycle time)
- Expect sawmill realignments in 3 to 6 years due to reduced available fibre

Predictions number 3 - focused on First Nations

Williams Decision will have far reaching consequences including:

- More area put into First Nation Woodland Licences (FNWL) targeted to high strength of claim areas where FN may want to retain control of Other Values.
- Greater stewardship and Monitoring roll and responsibility of FN as a result of negotiation of local agreements with Bands. This is directly linked to resource development for LNG.
  Eg. Saulteau, Mcleod Lk IB, Carrier Sekani etc.

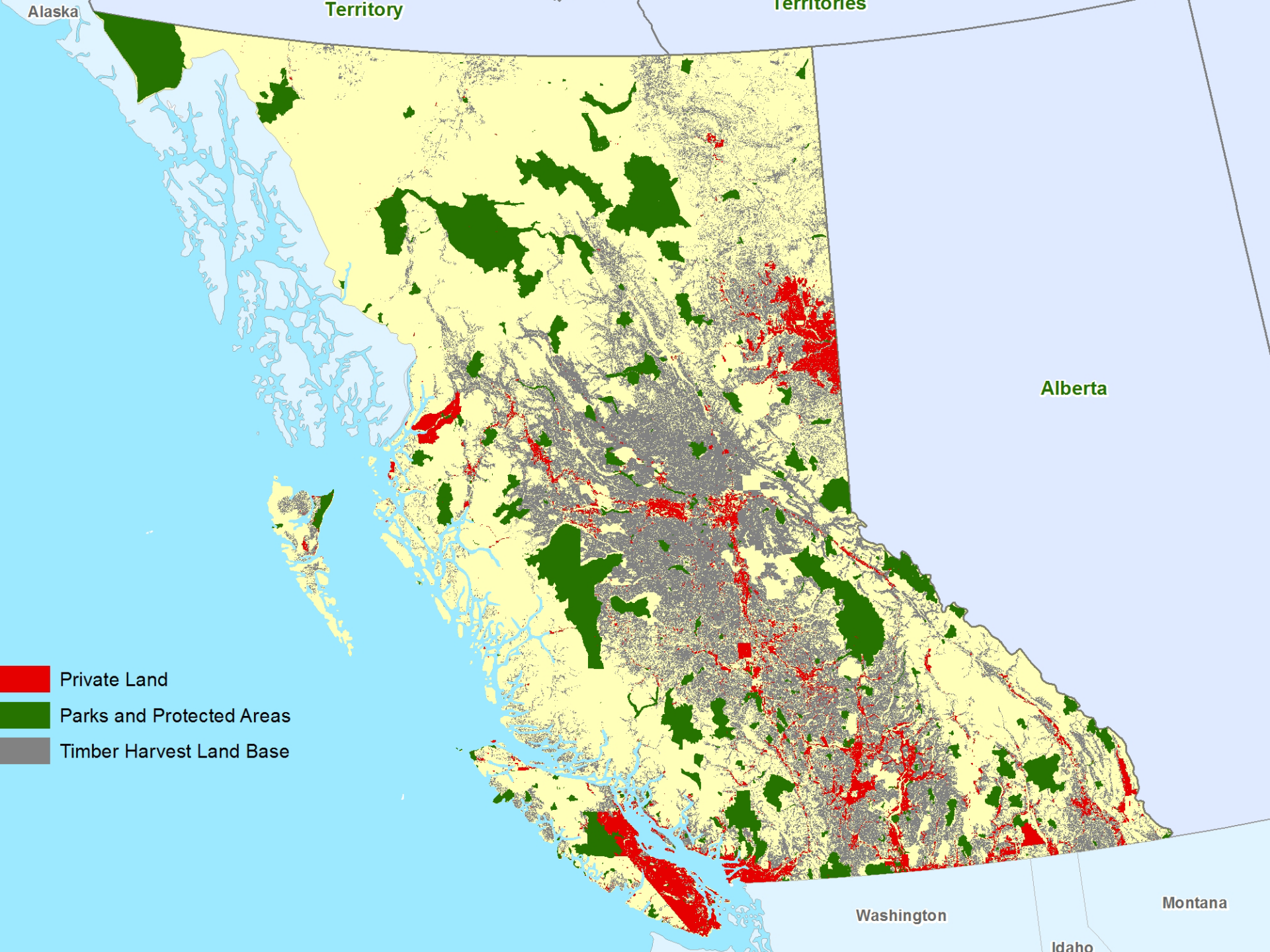
Prediction number 4 - focused on other values

- For some units in the central interior significant ‘budget’ remains for Ungulate Winter Range (UWR), Wildlife Habitat Areas (WHA) , Fisheries Sensitive Watersheds etc. As these become established timber supplies could be reduced. This will happen slowly over the next 10 to 15 years.
- The implementation of protection of habitat for certain Red and blue listed Species under the Species at Risk Act (SARA) have unknown consequences in the next 2 to 8 years. Watch for this one!

Prediction number 5

- Government will place increasing dependence on the Professional Reliance concept. Government will gradually move away from spending its resources on administrivia and move to audit, monitoring and C&E functions. Expect this to begin in earnest over the next 2 to 8 years as functions like Cutting Permit submissions/approvals become electronic.
- FRPA concepts and principles will be applied to all other Crown land resource users. This may be tied to the increasing roll FN will play in stewardship and monitoring of the land. This may begin to emerge sooner than later.

Thank-you


Alaska
Territory
Territories
Alberta
Private Land
Parks and Protected Areas
Timber Harvest Land Base
Washington
Montana
Idaho