

*Morice and Lakes Timber Supply Area
Innovative Forest Practices Agreement*

**Lakes TSA Timber Supply Analysis
Report for the Current Status,
Beetle Mitigation
& FRPA Implementation Scenarios**



Three Scenarios:

- Current Status or Base Case
- Beetle Mitigation
- FRPA Implementation



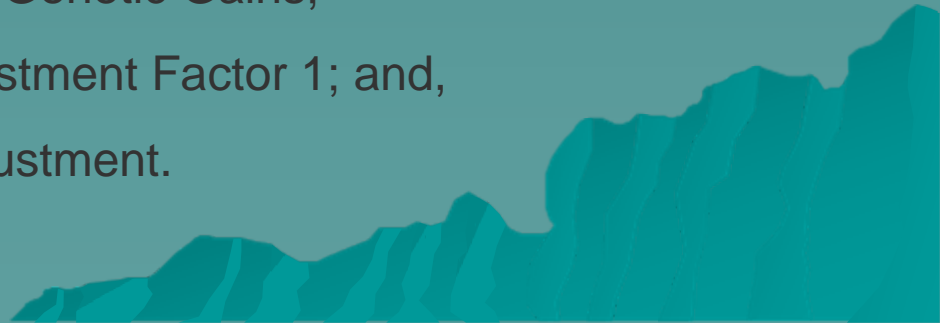
Many Sensitivities

- Current Status or Base Case
- Beetle Mitigation
 - Reserved COGMAs in Lakes South SRMP Area
 - Reduced Minimum Harvest Volume in Beetle Attacked Stands;
 - Relaxed Binding Seral Targets;
 - Future Managed Species Mix - Sx 60%: PI 40%; and,
 - Future Managed Species Mix - Sx 80%: PI 20%;
- FRPA Implementation



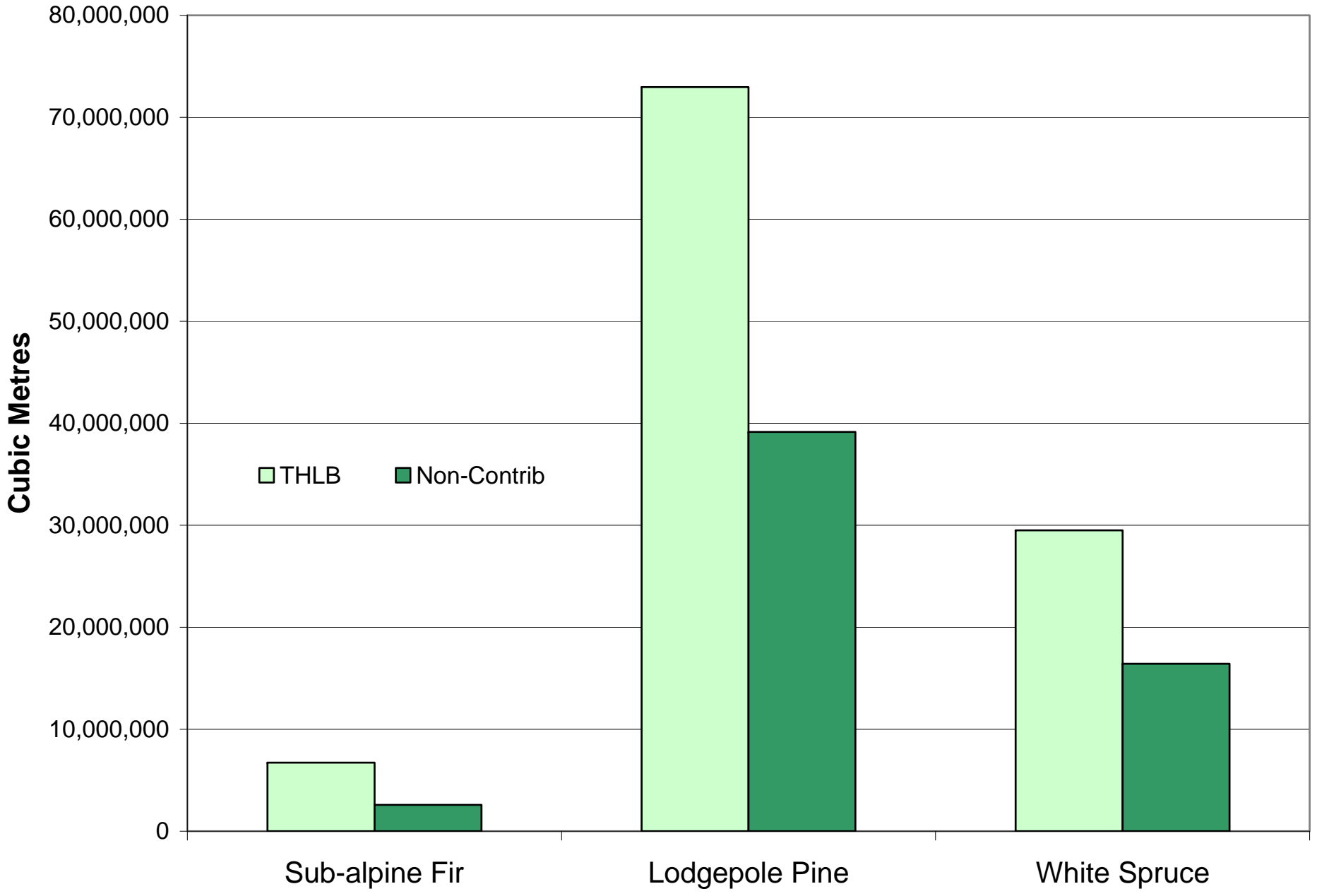
Many Sensitivities

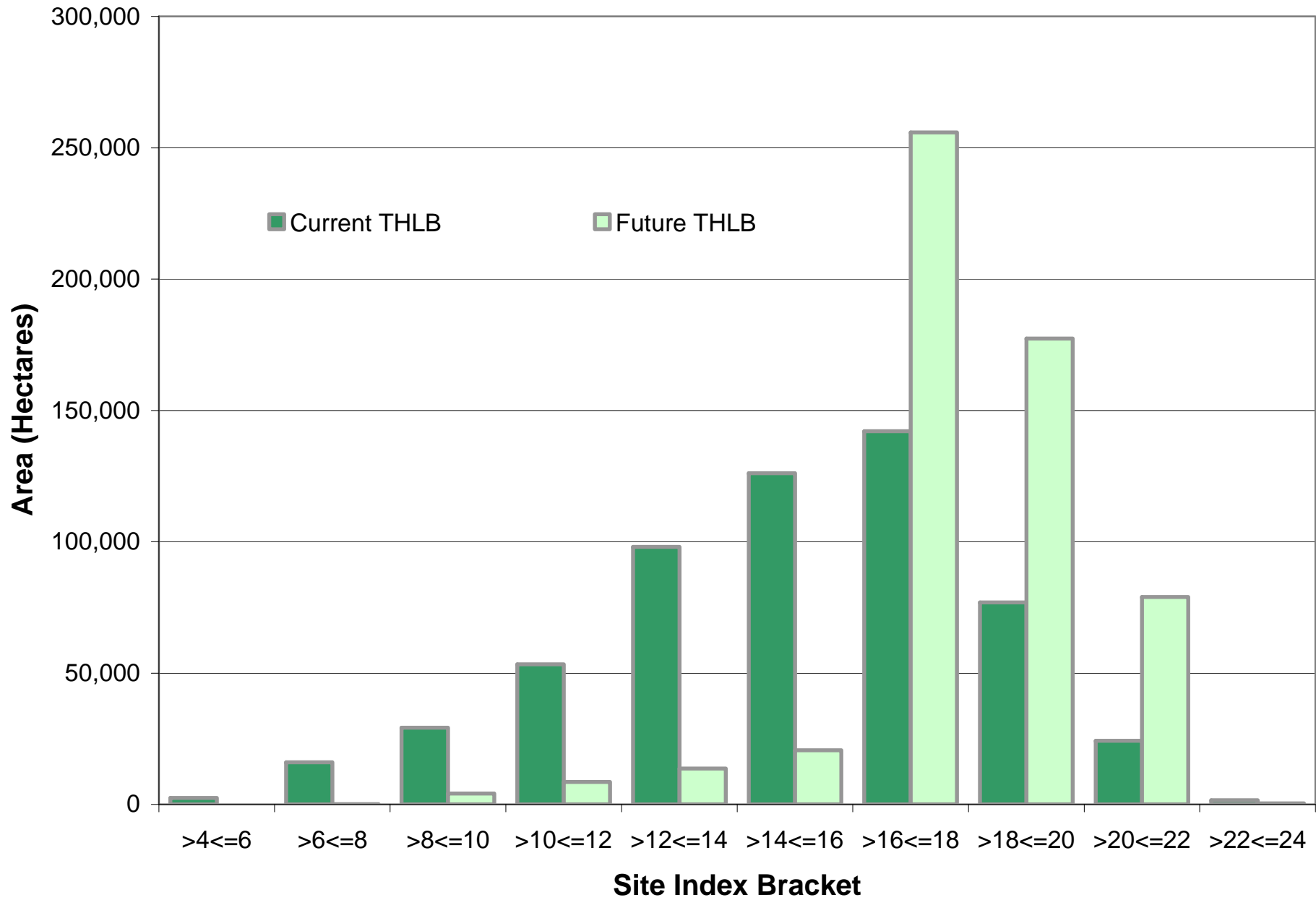
- Current Status or Base Case
- Beetle Mitigation
- FRPA Implementation
 - Adjusted Desired Patch Distribution;
 - Adjusted MPB Mortality Projections;
 - Waive Early Seral Targets;
 - Rehabilitate MPB Affected Stands – Case 1;
 - Rehabilitate MPB Affected Stands – Case 2;
 - Forest Genetics Council – Genetic Gains;
 - Adjusted Operational Adjustment Factor 1; and,
 - Old Growth Site Index Adjustment.

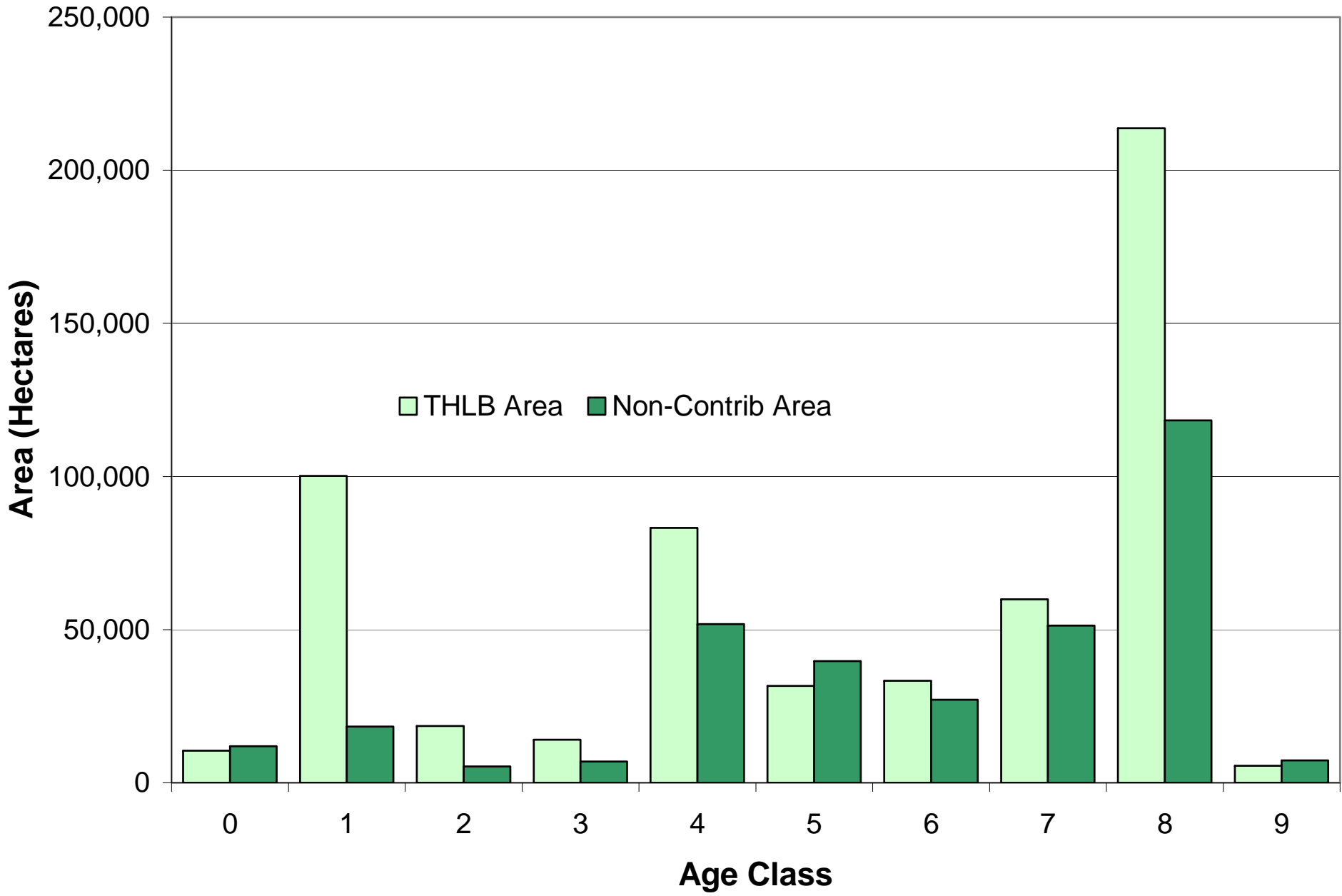


Base Case Classification	Gross Area (ha)	Net Area (ha)	Percent of Gross Area	Percent of Total Productive Area	Percent of Volume Based Tenure Agreement Lands
Lakes TSA	1,121,620.5	1,121,620.5	100%		
Reductions to Total Land Base					
Unclassified Lands	262.3	262.3	0%		
Natural Non-Treed Non-Productive	164,132.9	164,132.9	15%		
Total Productive Land Base		957,225.3	85%	100%	
Reductions to Total Productive Landbase:					
Deforested Lands for Agriculture and Settlement	29,443.4	29,443.4	3%	3%	
Deforested Lands for Timber Harvesting and Forest Management	12,107.3	10,806.8	1%	1%	
Natural Treed Non-Productive	10,842.3	10,815.6	1%	1%	
Net Productive Land Base:		906,159.4	81%	95%	
Lands to which Volume Based Tenure Agreements cannot be Granted	280,028.6	228,520.1	20%	24%	
Forested Area where Land Based Tenure Agreements Apply:		677,639.3	60%	71%	100%
Reductions to Volume Based Tenure Agreement Lands:					
Non-Commercial Cover	4,079.8	2,295.7	0%	0%	0%
Non Merchantable Forest Types	71,183.2	34,138.6	3%	4%	5%
Low Productivity Sites	4,421.3	4,301.4	0%	0%	1%
Environmentally Sensitive Areas	36,417.9	21,912.4	2%	2%	3%
Inoperable	2,808.0	38.0	0%	0%	0%
Recreation Areas (ESA Rec)	4,839.8	2,058.9	0%	0%	0%
Riparian Management Areas	46,991.2	27,369.5	2%	3%	4%
Areas Unavailable due to Economic Constraints	0.0	0.0	0%	0%	0%
Wildlife Tree Retention	43,833.8	26,690.8	2%	0%	0%
Mountain Goat Habitat Access Management	6,601.7	1,471.3	0%	0%	0%
Current Timber Harvesting Land Base:		557,362.7	50%	58%	82%
Future Reductions:					
Conversion to Agriculture	2,010.1	1,596.5	0%	0%	0.0
Deforested Lands for Timber Harvesting and Forest Management	26,451.7	18,790.7	2%	2%	3%
Future Timber Harvesting Land Base:		536,975.4	48%	56%	79%

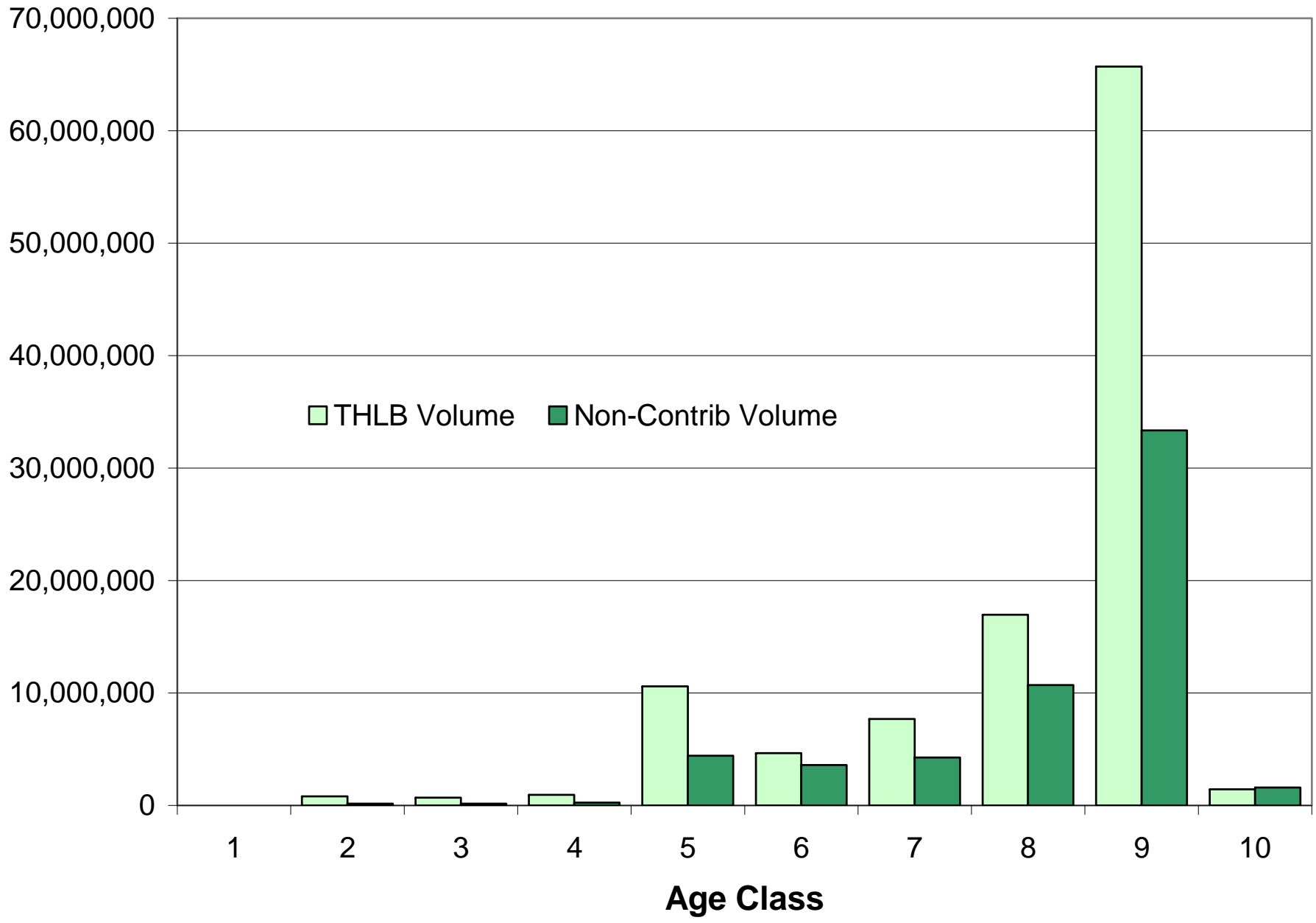
FRPA Scenario Classification with Community Forests represented as Areas where Land Based Tenure Agreements Apply	Gross Area (ha)	Net Area (ha)	Percent of Gross Area	Percent of Total Productive Area	Percent of Volume Based Tenure Agreement Lands
Lakes TSA	1,121,620.5	1,121,620.5	100%		
Reductions to Total Land Base					
Unclassified Lands	262.3	262.3	0%		
Natural Non-Treed Non-Productive	164,132.9	164,132.9	15%		
Total Productive Land Base		957,225.3	85%	100%	
Reductions to Total Productive Landbase:					
Deforested Lands for Agriculture and Settlement	29,443.4	29,443.4	3%	3%	
Deforested Lands for Timber Harvesting and Forest Management	12,107.3	10,806.8	1%	1%	
Natural Treed Non-Productive	10,842.3	10,815.6	1%	1%	
Net Productive Land Base:		906,159.4	81%	95%	
Lands to which Volume Based Tenure Agreements cannot be Granted	196,570.0	155,457.2	14%	16%	
Forested Area where Land Based Tenure Agreements Apply:		750,702.2	67%	78%	100%
Reductions to Volume Based Tenure Agreement Lands:					
Non-Commercial Cover	4,079.8	2,581.0	0%	0%	0%
Non Merchantable Forest Types	71,183.2	39,018.6	3%	4%	5%
Low Productivity Sites	4,421.3	4,301.4	0%	0%	1%
Environmentally Sensitive Areas	36,417.9	25,716.8	2%	3%	3%
Inoperable	2,808.0	38.0	0%	0%	0%
Recreation Areas (ESA Rec)	4,839.8	2,532.3	0%	0%	0%
Riparian Management Areas	46,991.2	29,123.2	3%	3%	4%
Areas Unavailable due to Economic Constraints	0.0	0.0	0%	0%	0%
Old Growth Management Areas	61,489.2	44,155.8	4%	5%	6%
Wildlife Tree Retention	75,582.4	28,805.2	3%	0%	0%
Mountain Goat Habitat Access Management	6,601.7	2,504.8	0%	0%	0%
Current Timber Harvesting Land Base:		571,925.1	51%	60%	76%
Future Reductions:					
Conversion to Agriculture	2,010.1	1,236.9	0%	0%	0.0
Deforested Lands for Timber Harvesting and Forest Management	16,379.7	9,902.2	1%	1%	1%
Future Timber Harvesting Land Base:		560,786.0	50%	59%	75%



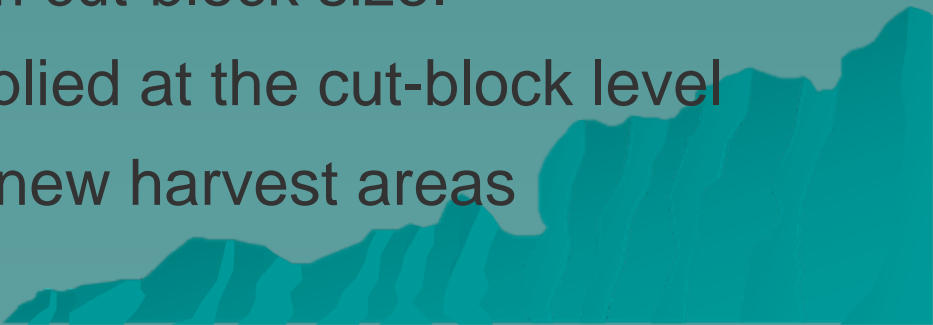




Cubic Metres



Spatially explicit elements using the Tesera Scheduling Model (TSM)

- Polygon specific slope-based assessment of visually effective green-up.
 - Explicit assessment areas for constraint monitoring and enforcement.
 - Green-up adjacency in the IRM zone. Only applies in the Base Case.
 - Polygon specific yield functions.
 - Enforcement of maximum cut-block size.
 - Wildlife tree retention applied at the cut-block level
 - Road building to access new harvest areas
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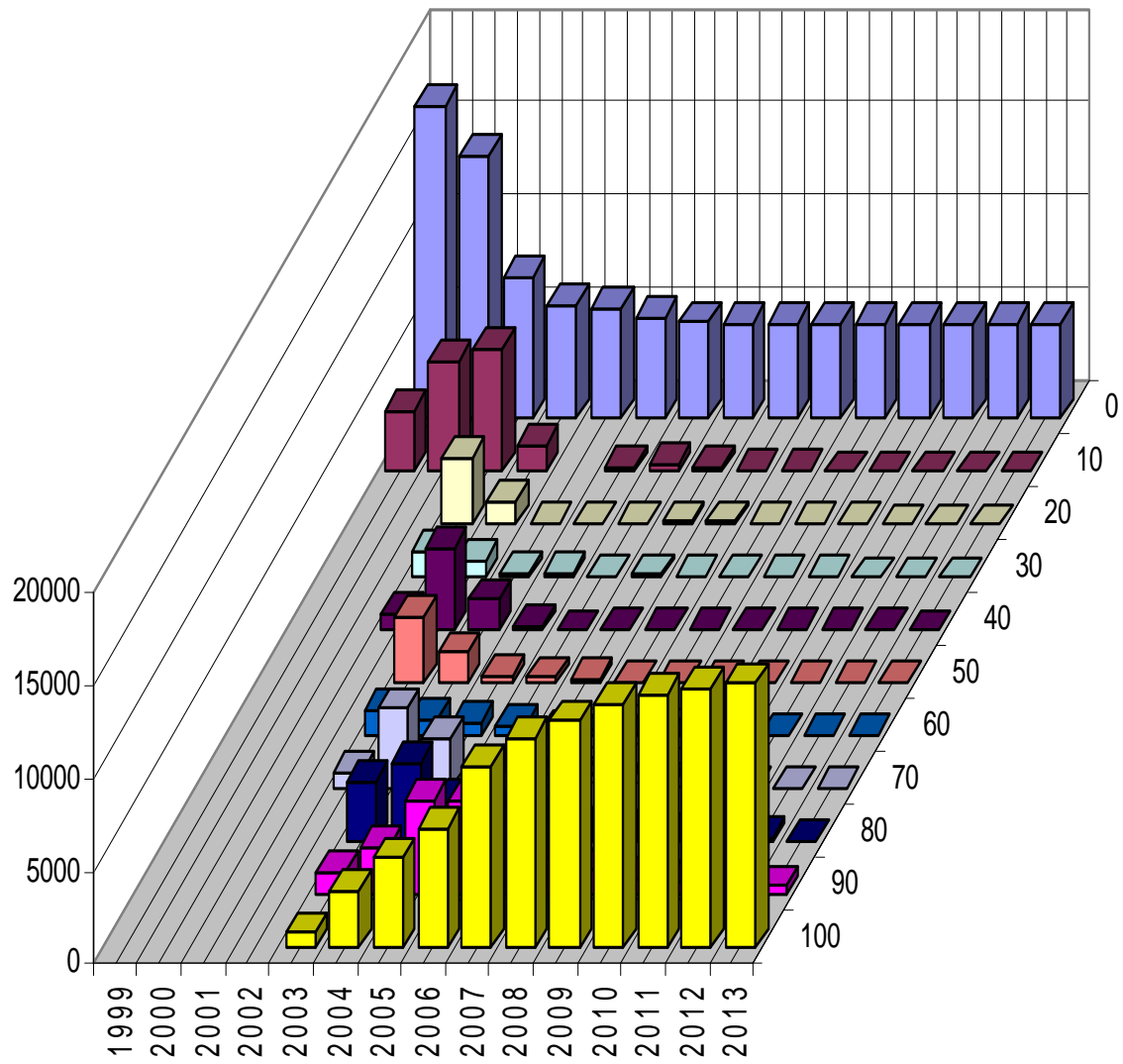
M&L IFPA committed to using the best available data

- Applies to all resultant file data layers
- Applies to growth and yield
- Applies to modeling MPB induced mortality



LU Name Intata pcpClass 100

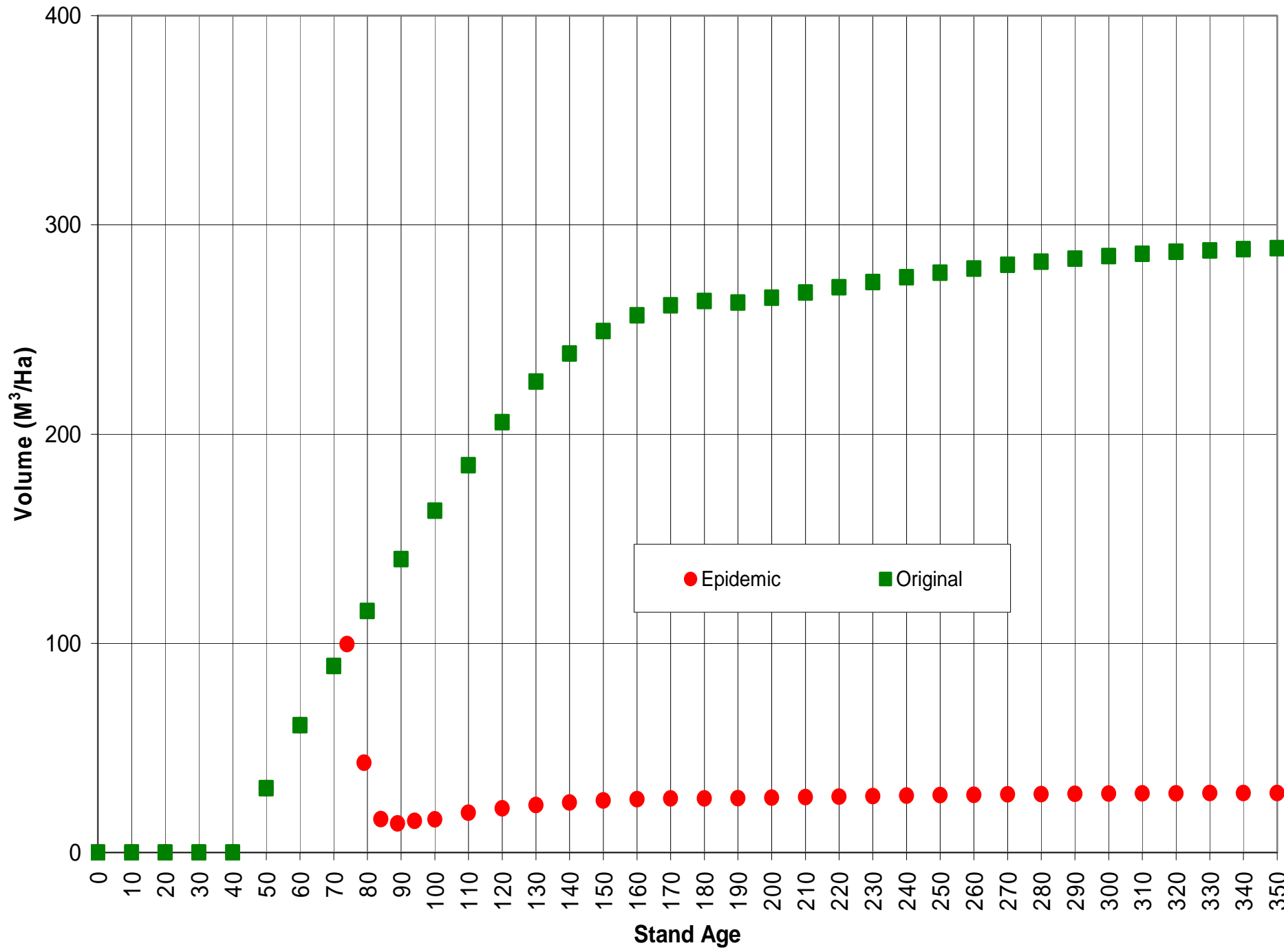
Sum of LandArea



cumKillClass

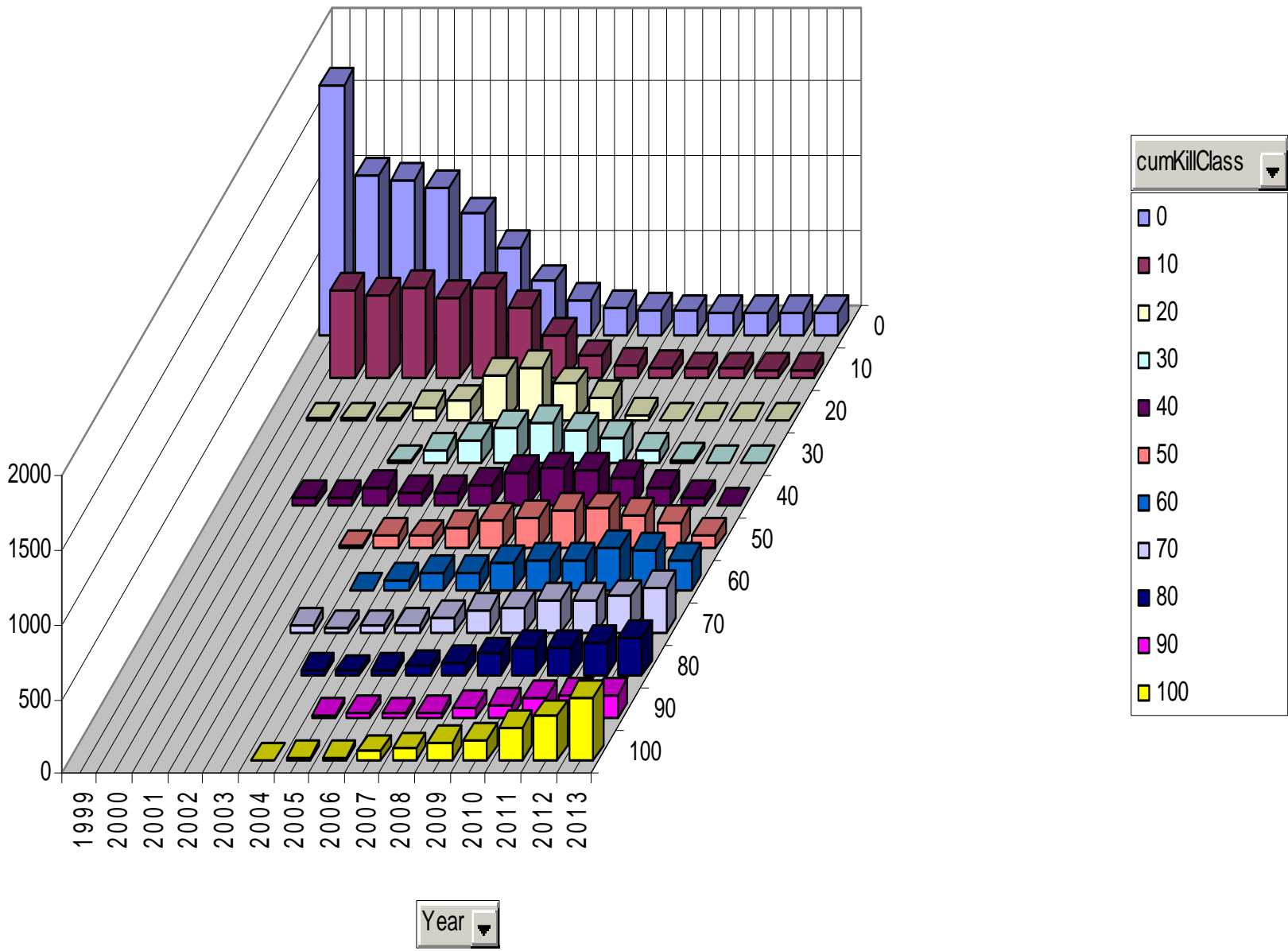
- 0
- 10
- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90
- 100

Year



LU Name Babine East pcpClass 40

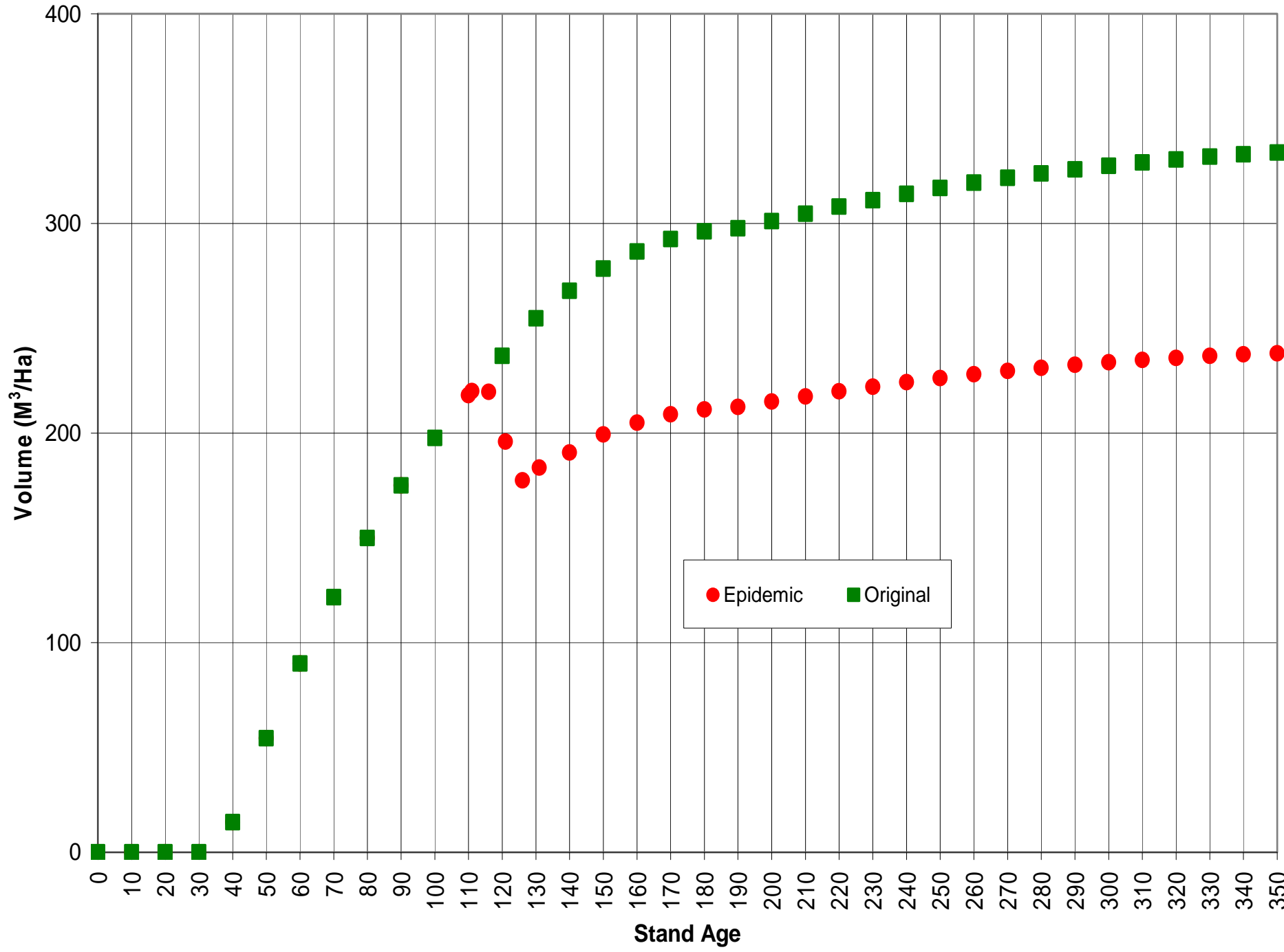
Sum of LandArea



cumKillClass

- 0
- 10
- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90
- 100

Year



Harvest Flow Rule

- match the AAC uplift 3.13 million cubic metres per year for the first five years of the planning horizon
- minimize the depth and duration of the MPB epidemic induced harvest trough
- return to a maximum sustainable LTHL (non declining THLB growing stock)

Planning Horizon

250 years

Short Term – first 20 years

Mid Term – next 80 years


Long Term – last 150 years



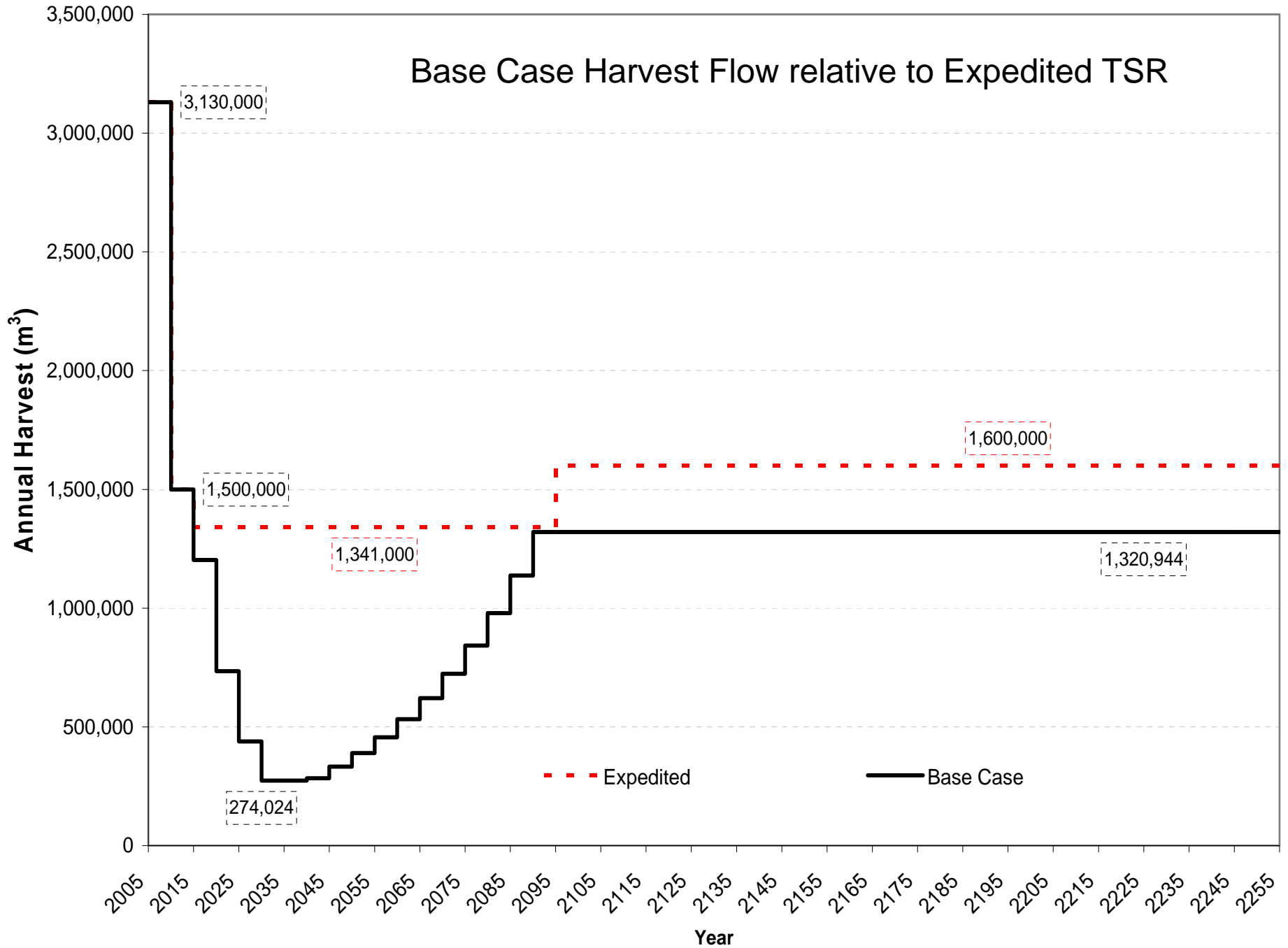
Base Case Scenario Inputs and Assumptions

- Intended to represent status quo management in the Lakes TSA
 - Remained consistent with TSR2 where relevant
 - Went from aspatial FSSIM to spatial TSM
 - Incorporated some updated spatial information

 - Incorporates management assumptions from the Expedited TSR
 - Uplift
 - Waived green up adjacency for first 20 years allowing larger openings
 - Waived early seral constraints for first 20 years
 - Beetle Mortality accounted for, but more extensively
 - Heavily impacted stands placed on recovery curves in 2033 already 15 years old

 - Incorporates LRMP objectives
 - Biodiversity Emphasis Option constraints applied
 - Biological Ecosystem Network constraints applied
 - Mountain Goat Habitat Access Management requirements
- 

Base Case Harvest Flow relative to Expedited TSR



Base Case Average Harvest Levels relative to Expedited TSR

Scenario		Expedited TSR	Base Case
Short Term Average 2003-2022	Achieved	1,828,000	1,641,912
	Vs Expedited TSR	0	-186,088
		0.00%	-10.2%
Mid Term Average 2023-2102	Achieved	1,373,375	702,972
	Vs Expedited TSR	0	-670,403
		0.00%	-48.8%
Long Term Average 2103-2252	Achieved	1,600,000	1,320,944
	Vs Expedited TSR	0	-279,056
		0.00%	-17.4%
Minimum Harvest Level	Achieved	1,341,000	274,024
		2013-2092	2028-2037
	Vs Expedited TSR	0	-1,066,976
0.00%		-79.6%	

Discussion of Base Case Results

- Lower harvest levels due to applying BCMPB projections through 2013
- 20 year delay in switching to recovery curves was not enough to prevent widespread forest cover constraint violations
- This happened to about 25% of the THLB
- Those stands remained in an early seral stage until 2058
- Those stands remained ineligible for harvest for longer
 - until minimum harvest heights and volumes were reached
- Other stands that remained eligible for harvest had much lower vol/ha leading to binding constraints
- Unlike the Expedited TSR visual quality objectives were not relaxed for the first 20 years
- THLB was 5% smaller due to increased area within community forests.



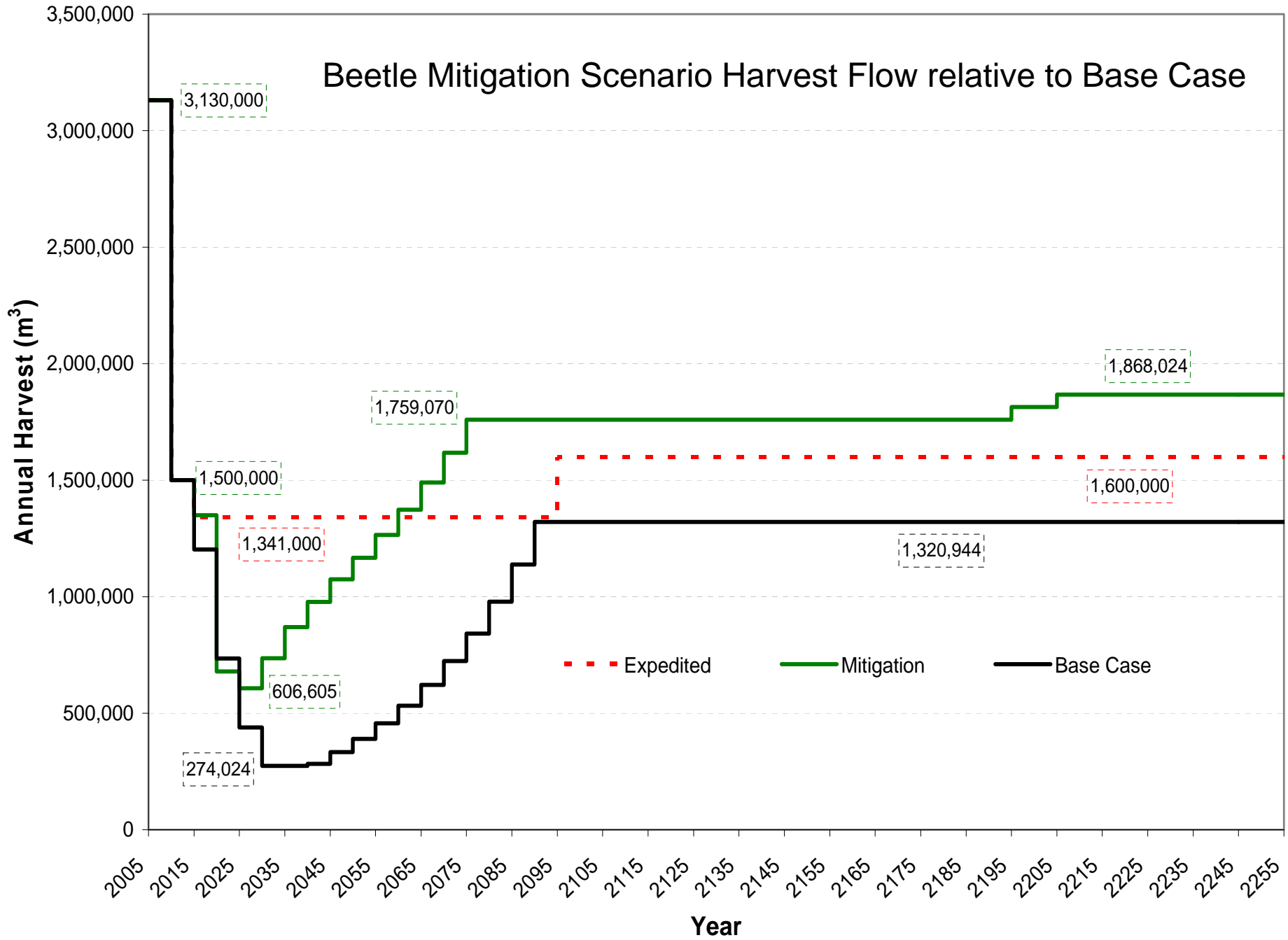
Beetle Mitigation Scenario Inputs and Assumptions

The intent of this scenario was to reduce the negative effects to the Forest Industry of the current MPB epidemic.

- Refined system of harvest priorities was incorporated into TSM
- Forest Productivity growth and yield assumptions were used for future managed stands
- Refined assumptions governing recovery of MPB depleted stands along succession pathways
- Plan to perspective VQO adjustments
- Green-up adjacency requirements dropped
- Elimination of future landings



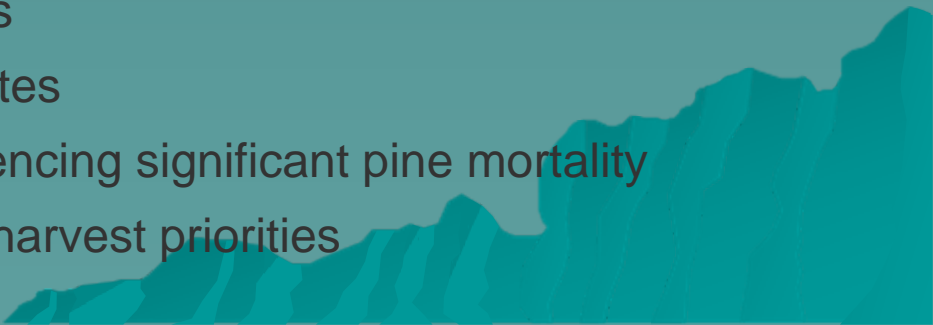
Beetle Mitigation Scenario Harvest Flow relative to Base Case



The modeling assumptions applied in the Beetle Mitigation Scenario were effective at improving the projected sustainable harvest flow. There was a significant positive response to harvest levels in all planning terms; short, mid, and long.

Scenario		Base Case	Mitigation
Short Term Average 2003-2022	Achieved	1,641,912	1,664,706
	Vs Base Case	0	22,794
		0.00%	1.39%
Mid Term Average 2023-2102	Achieved	702,972	1,358,273
	Vs Base Case	0	655,301
		0.00%	93.22%
Long Term Average 2103-2252	Achieved	1,320,944	1,799,020
	Vs Base Case	0	478,075
		0.00%	36.19%
Minimum Harvest Level	Achieved	274,024	606,605
		2028-2037	2023-2027
	Vs Base Case	0	332,581
		0.00%	121.37%

Discussion of Beetle Mitigation Scenario Results

- Avoided widespread seral target binding through 'Volume Matching'
 1. Heavily impacted stands were switched recovery curves later in the planning horizon
 2. The age of these stands did not drop to fifteen to make this transition.
 3. Allowed stands to retain residual live volume when succeeding to VDYP recovery curves
 - Allowing increased levels of denudation within VQO areas using an accepted plan to perspective ratio adjustment
 - Removing the green up adjacency requirements
 - Removed maximum block size requirements
 - Used forest productivity yield curve sets which incorporate first generation genetic worth values
 - Used SIBEC site productivity estimates
 - Improved targeting of stands experiencing significant pine mortality through 'best of the worst first' harvest priorities
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Beetle Mitigation Scenario Sensitivity Analyses

Reserved COGMAs in Lakes South SRMP Area

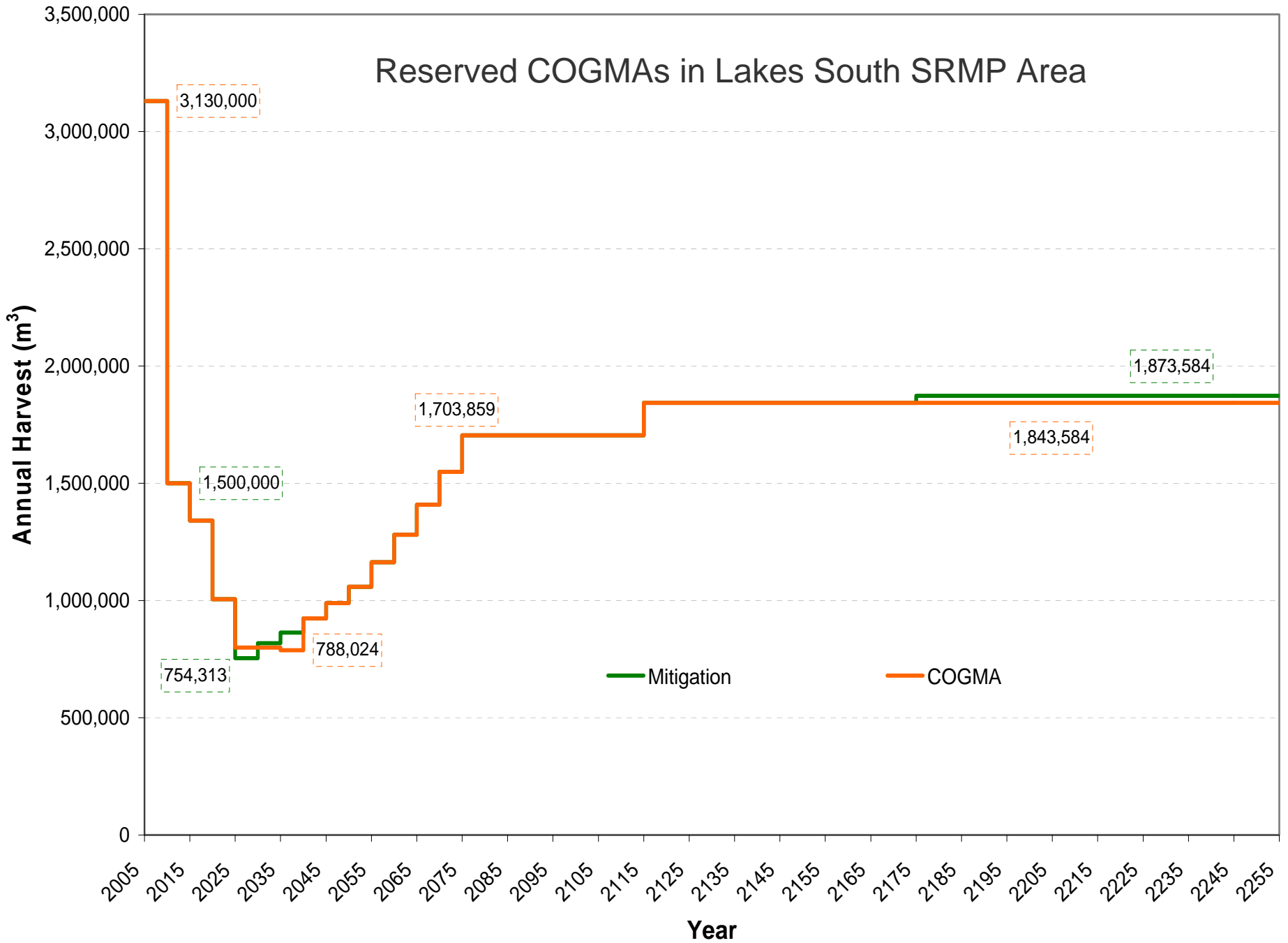
- Harvest was prevented in those areas.
- Heavily impacted stands were not induced onto VDYP recovery curves (unlike areas outside OGMAs)
- Instead they were allowed to age until the end of the planning horizon in their depleted state.

RESULT

- 1% lower long term harvest level
- 2% lower between 2023 and 2037



Reserved COGMAs in Lakes South SRMP Area



Beetle Mitigation Scenario Sensitivity Analyses

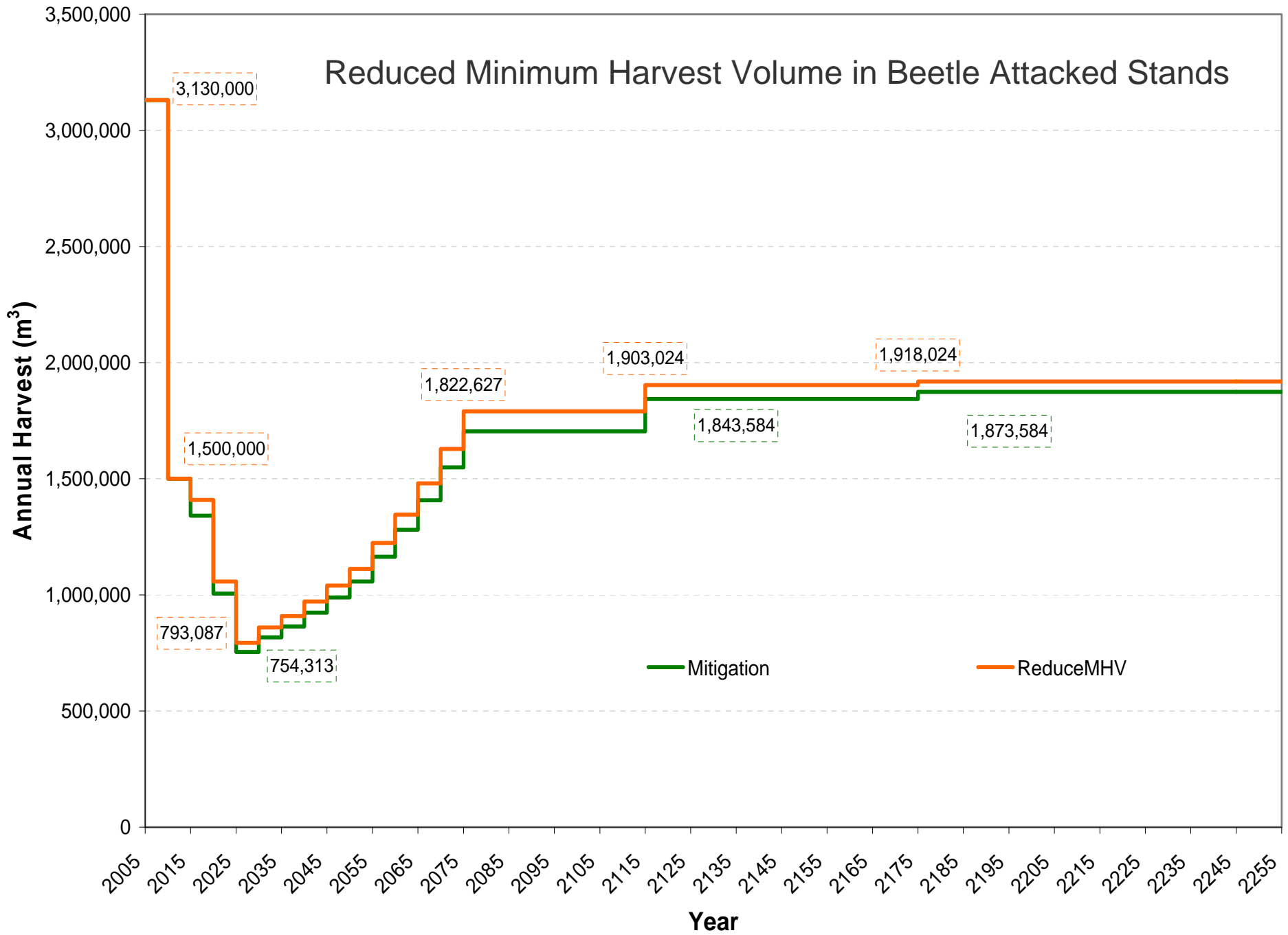
Reduced Minimum Harvest Volume in Beetle Attacked Stands

Examine the effect of harvesting in MPB impacted stands with lower levels of merchantable timber remaining

- A lower MHV of 100 m³/ha was applied to all MPB attacked stands.
- The volume matches and recovery assumptions arranged for the Beetle Mitigation Scenario were still applied
- But, were waived for stands depleted to levels below 140 m³/ha, but not as low as 100 m³/ha.
- This extended the harvest eligibility of these stands through the planning horizon



Reduced Minimum Harvest Volume in Beetle Attacked Stands



RESULTS - Reduced Minimum Harvest Volume in Beetle Attacked Stands

- Significant impact on harvest availability within TSM.
- Minimum harvest between 2023 and 2027 was 5.1% higher.
- 1.7% higher averaged short term harvest level
- Mid term average harvest levels were also 5.1% higher.
- The average of long term timber availability was 2.9% higher.
- Reduced MHV was not selected as a component of the Mitigation Composite Scenario.
- The expectation being that stands with volume densities less than 140 m³/ha will continue to be assessed as uneconomic to harvest.



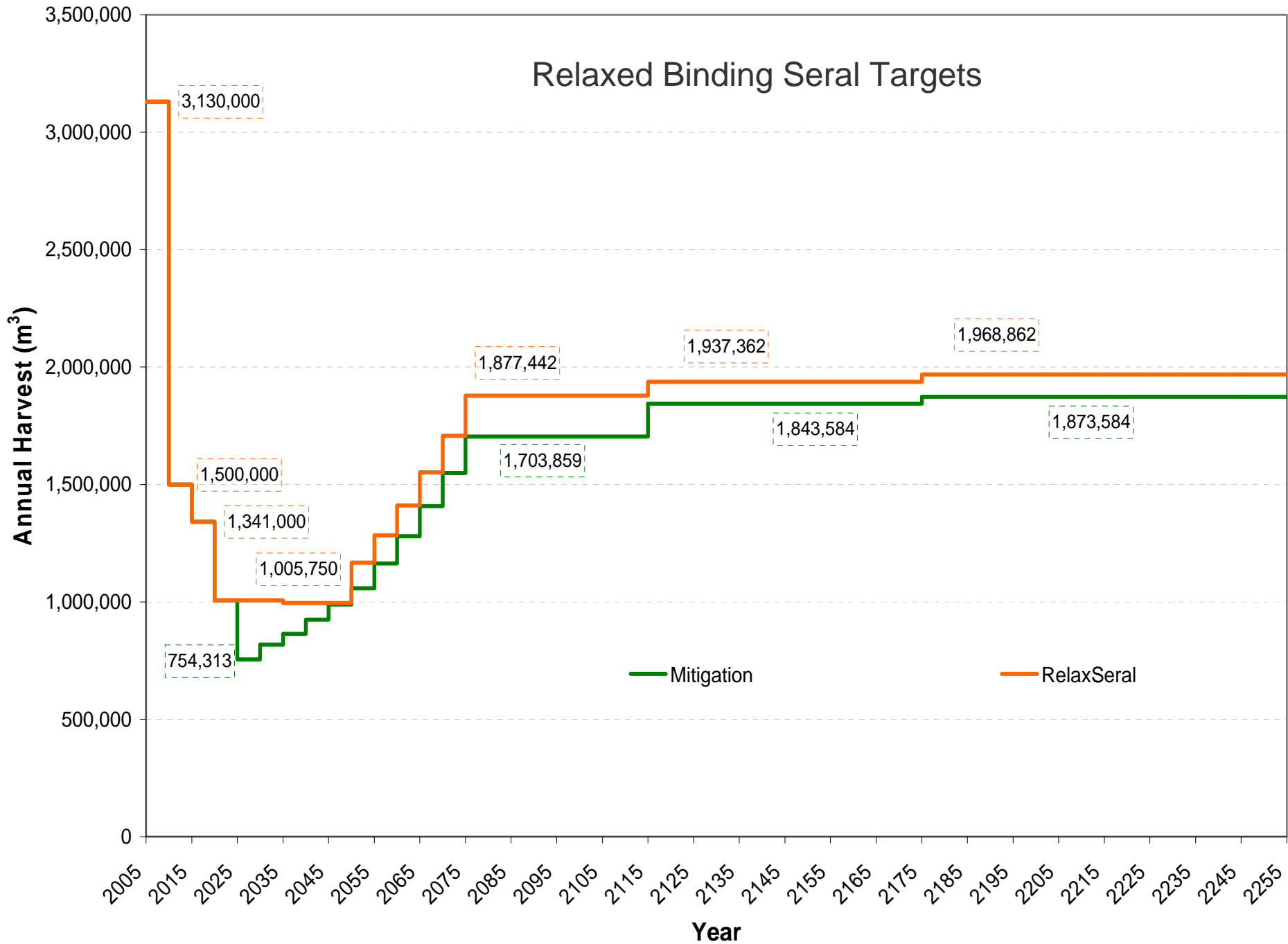
Beetle Mitigation Scenario Sensitivity Analyses

Relaxed Binding Seral Targets

- ***Identified which seral targets were binding***
- ***Examined TSM outputs for and identified 162 of 367 seral targets as binding.***
- ***Only 2% were early seral targets***
- ***Relaxed target level by 20%***

For example if the requirement in the Beetle Mitigation Scenario was to maintain a minimum of 40% in high value caribou migration corridor over 140 years of age, for this sensitivity the minimum requirement was reduced to 32%.

Relaxed Binding Seral Targets



RESULTS – Relaxed Binding Seral Targets

- The most significant mitigating effect on the MPB induced harvest trough of the Beetle Mitigation Scenario Sensitivities
- No short term response
- Average mid-term harvest level was 146,943 m³/yr higher or 11.2% higher
- Minimum harvest level increased by 240,638 m³/yr or 31.9%.
- Approximately 100,000 m³/yr or 5.4% higher long term harvest level



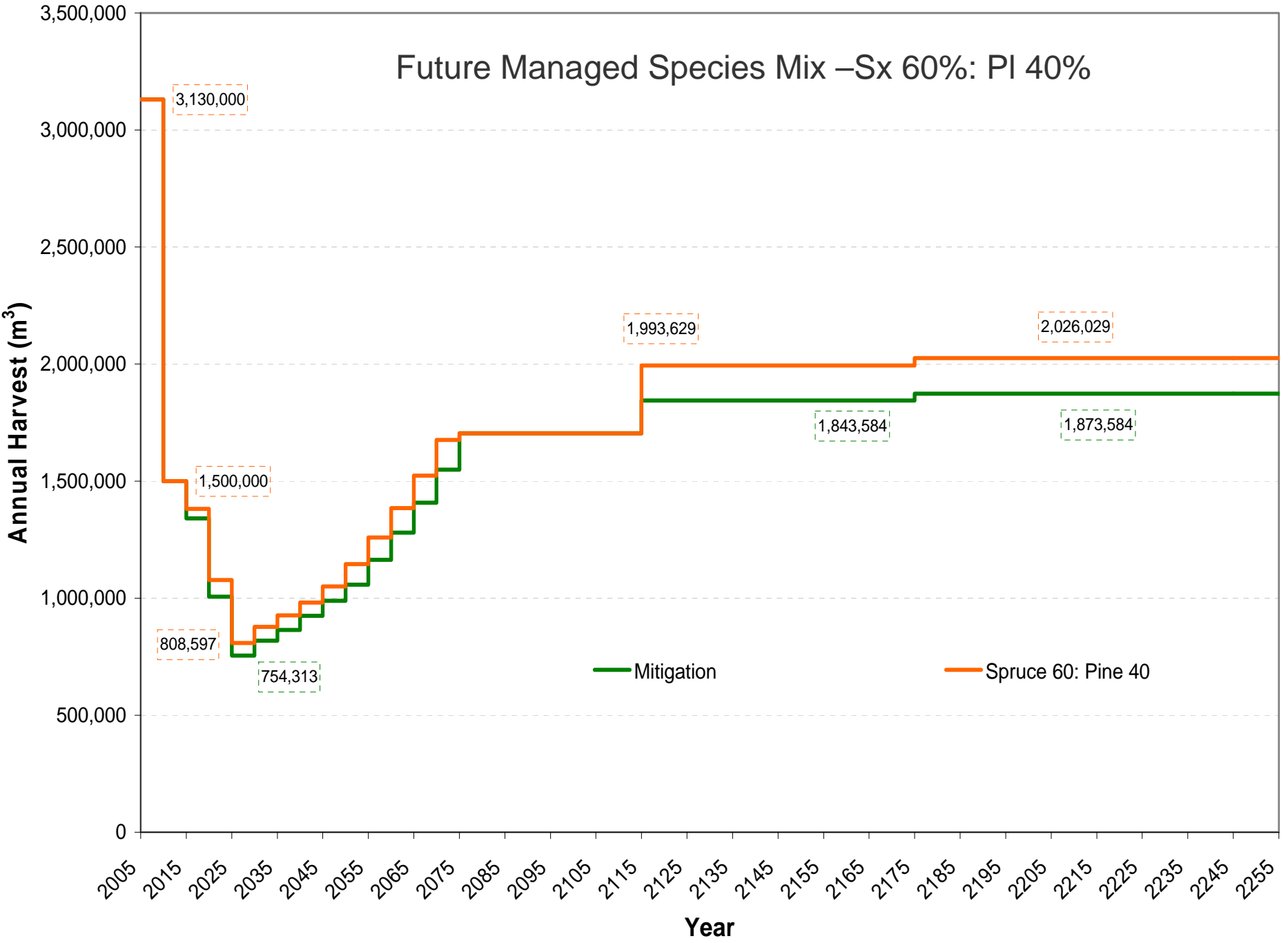
Beetle Mitigation Scenario Sensitivity Analyses

1. Future Managed Species Mix –Sx 60%: PI 40%

2. Future Managed Species Mix –Sx 80%: PI 20%

- Applied in SBS mc2, and SBS dk on mesic and subhygric site series (01, 06, 07, and 08)
 - Increasing the spruce component and decreasing the pine component of managed stands
 - Slower initial growth rates
 - Greater volume as the stand approached maximum mean annual increment.

Future Managed Species Mix –Sx 60%: PI 40%



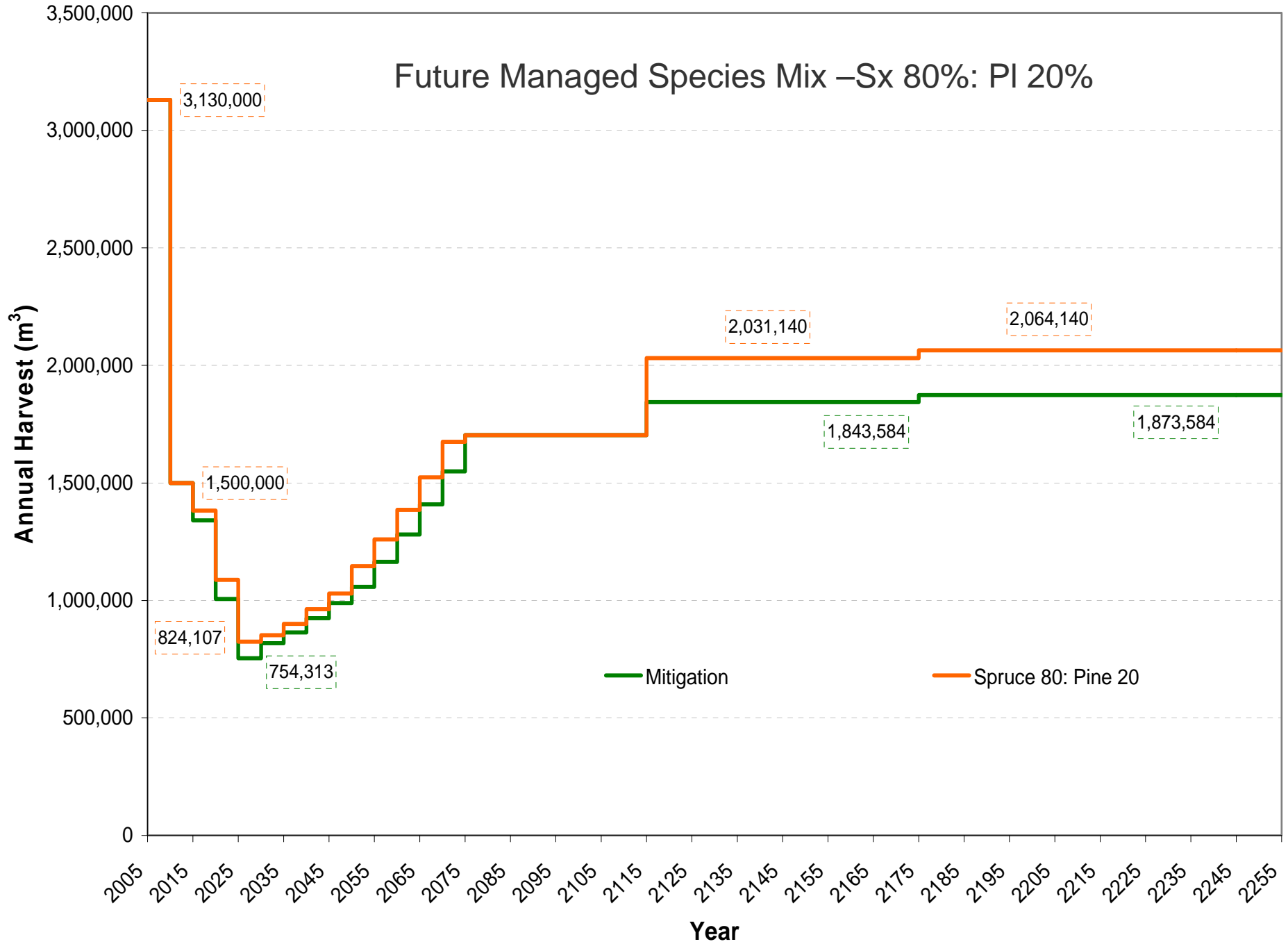
RESULTS - Future Managed Species Mix –Sx 60%: PI 40%

- Improved harvest levels throughout the planning horizon.
- Short term average harvest levels increase by 28,188 m³/yr or 1.6%.
- The bottom of the harvest trough was raised by 54,284 m³/yr or 7.2%.
- The average mid-term harvest level was 3.9% higher.
- The average long-term harvest level was 7.2% higher.

The assumptions applied in this sensitivity were carried forward with refinements and used in the Mitigation Composite and FRPA Implementation scenarios. The effectiveness of this practice was expected to be attractive to forest managers and implementable.



Future Managed Species Mix –Sx 80%: PI 20%



RESULTS - Future Managed Species Mix –Sx 80%: PI 20%

- Improved harvest levels throughout the planning horizon.
- Short term average harvest levels increase by 30,755 m³/yr or 1.8%.
- The bottom of the harvest trough was raised by 69,794 m³/yr or 9.3%.
- The average mid-term harvest level was 3.6% higher.
- The average long-term harvest level was 9.3% higher.


The assumptions applied in this sensitivity were not carried forward into the Mitigation Composite and FRPA Implementation scenarios. The Spruce 60, Pine 40 mix was preferred since it was a less extreme departure from current management practice and still had a significant projected effect.



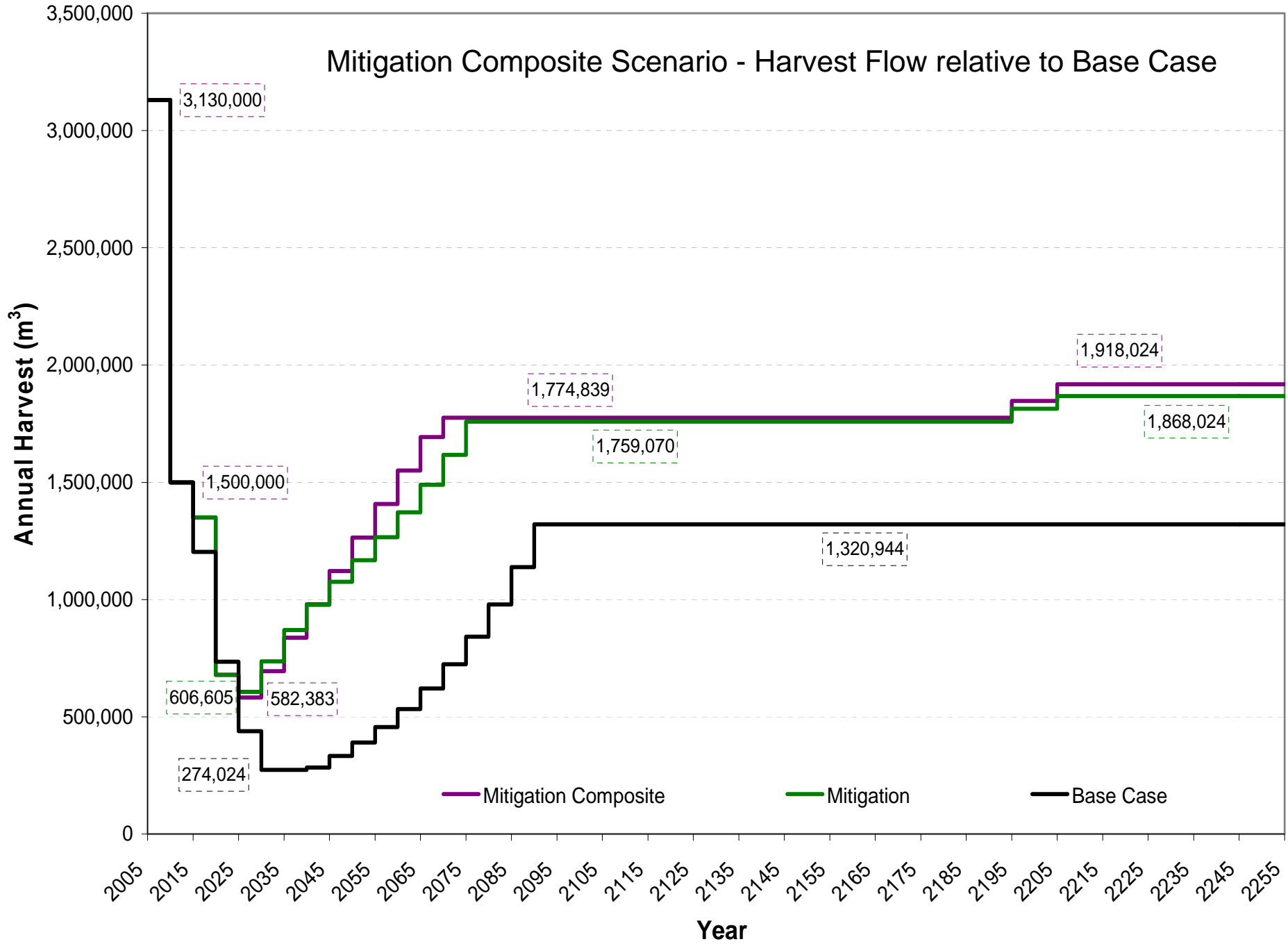
Beetle Mitigation Composite Scenario Inputs and Assumptions

- Identical to Beetle Mitigation Scenario except that the future managed species mix was adjusted based on sensitivity analyses.
- Refinements to the 60% spruce and 40% pine assumptions incorporating information from free growing survey summaries.

RESULTS

- No short term response
 - 4% lower minimum harvest level between 2023 and 2027
 - 4% higher average mid term harvest level
 - 1.5% average long term harvest level
- 

Mitigation Composite Scenario - Harvest Flow relative to Base Case



FRPA Implementation Scenario Inputs and Assumptions

Policies and practices associated with the full implementation of the FRPA were explored

The intent of this scenario was to mitigate the negative effects of the current MPB epidemic to the Forest Industry while fully implementing the FRPA


The data and assumptions of this scenario have much in common with those of the Beetle Mitigation Scenario.

In addition, any legally required management constraints absent in the Base Case or Beetle Mitigation Scenarios were also applied.




FRPA Implementation Scenario Inputs and Assumptions

Mitigation driven modeling assumptions that differ from Base Case

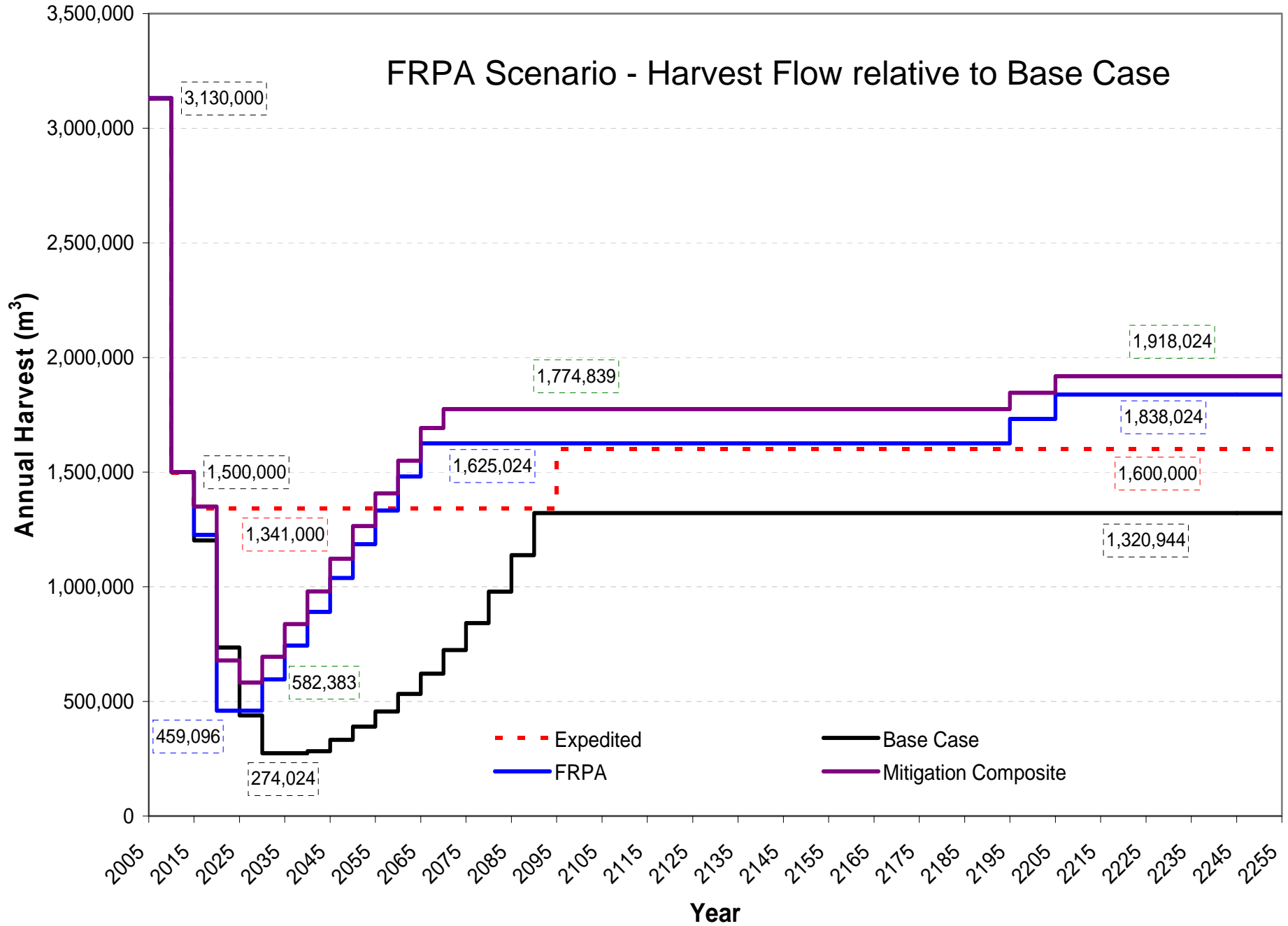
- Best of the worst first harvest priorities
 - Volume matching approach to recovery curves for MPB depleted stands
 - Plan to perspective ratio adjustments to allowable depletion levels within visually sensitive areas
 - Forest productivity curves for future managed stands
 - Higher spruce component and lower pine component in future managed stands
 - No area reductions for future landings
- 

FRPA Implementation Scenario Inputs and Assumptions

Policy based modeling assumptions that differ from those in Base Case and Beetle Mitigation Scenarios

- Lakes South SRMP OGMAs
 - Lakes South SRMP wildlife connectivity corridors
 - Dropping green-up adjacency requirements (These were also dropped in the Beetle Mitigation Scenario)
 - Applying patch size distribution targets
 - Adjustments to wildlife tree retention requirements
 - Including community forests in crown forested areas and conducting compartmental harvests within community forests
- 

FRPA Scenario - Harvest Flow relative to Base Case




RESULTS – FRPA Implementation Scenario

- The average short term harvest level was 63,130 m³/yr lower or 3.8% lower than Base Case
- The minimum harvest level occurs between 2018 and 2027 and was 459,096 m³/yr, 67.5% higher than Base Case
- The average mid term harvest level was 592,428 m³/yr higher or 84% higher than Base Case.
- The average of the long term harvest level was 1.70 million m³/yr or 28.9% higher than Base Case.

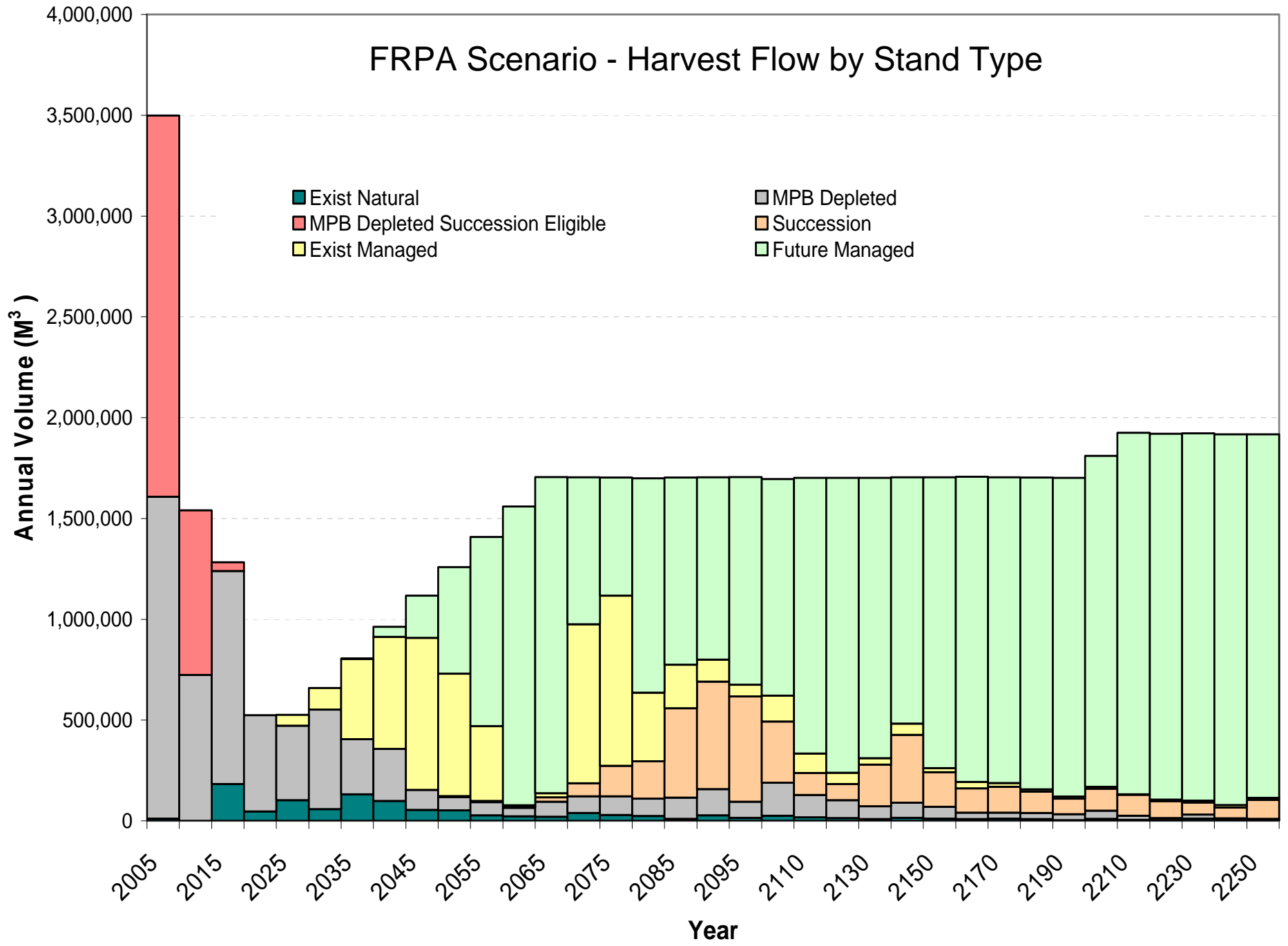
RESULTS – FRPA Implementation Scenario

- The average short term harvest level was 85,924 m³/yr lower or 5.2% lower than Mitigation Composite
- The minimum harvest level occurs between 2018 and 2027 and was 123,287 m³/yr, 21.2% lower than Mitigation Composite
- The average mid term harvest level was 144,221 m³/yr lower or 8.1% lower than Mitigation Composite.
- The average of the long term harvest level was 124,216 million m³/yr or 6.8% lower than Mitigation Composite

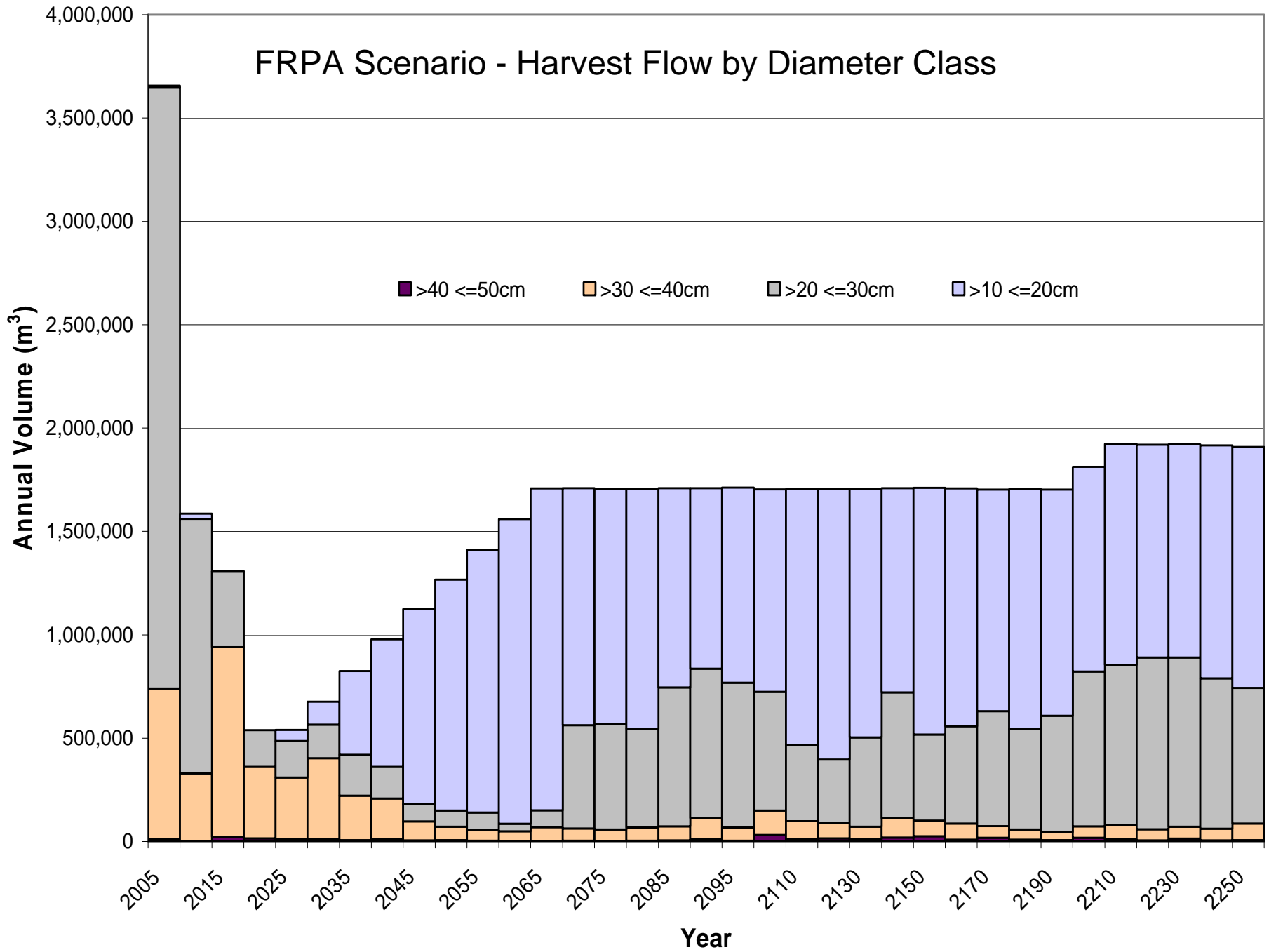
Discussion of FRPA Implementation Scenario Results

- Application of desired patch size distribution targets
 - Additional land base targets for Lakes South SRMP wildlife connectivity corridors
 - THLB reduction due to incorporating Lakes South SRMP OGMAs
 - THLB reduction due to increasing wildlife tree retention
 - Including the Burns Lake Community Forest and the Cheslatta Community Forest in the THLB for the purpose of including those areas in land base target assessment areas
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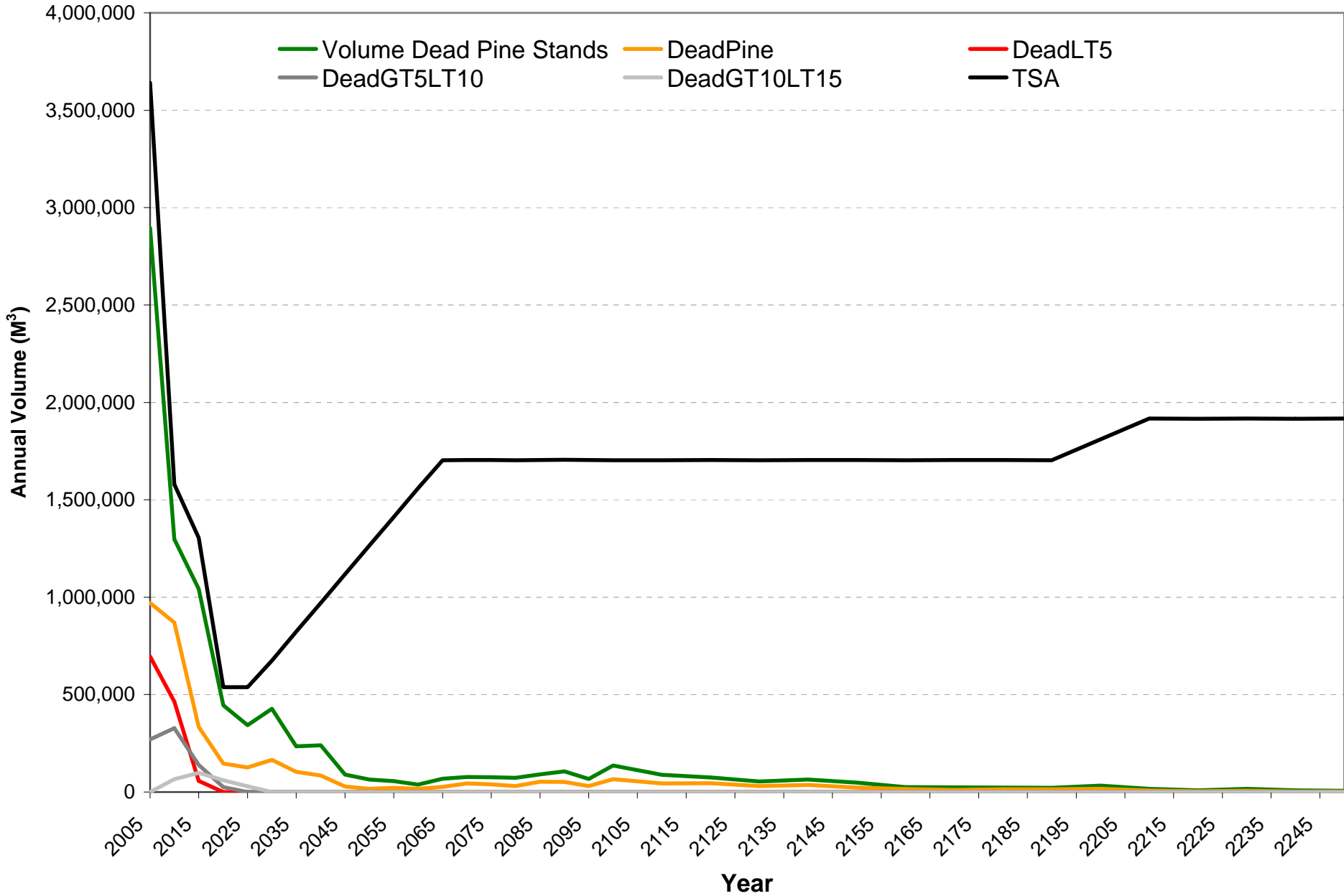
FRPA Scenario - Harvest Flow by Stand Type



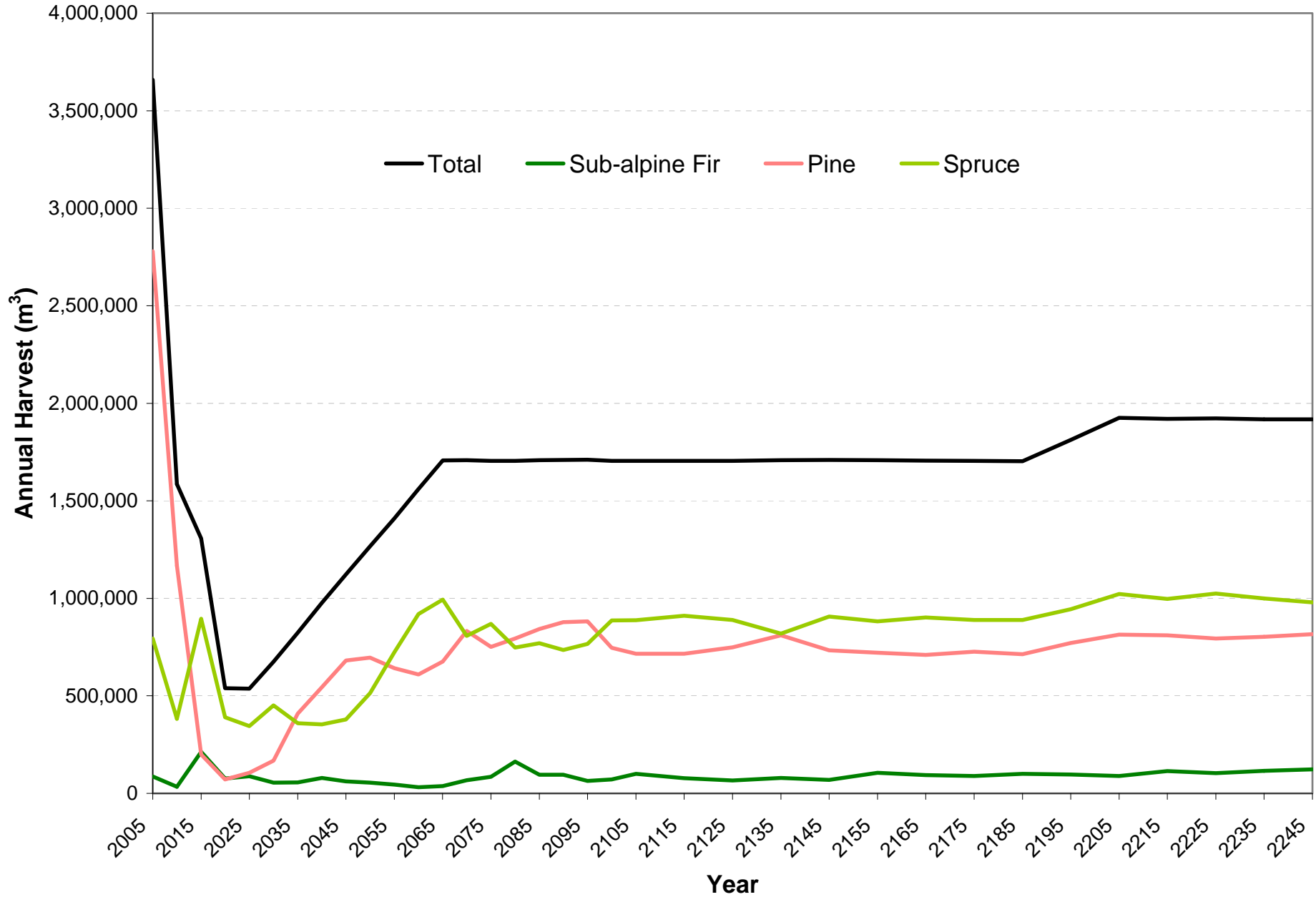
FRPA Scenario - Harvest Flow by Diameter Class



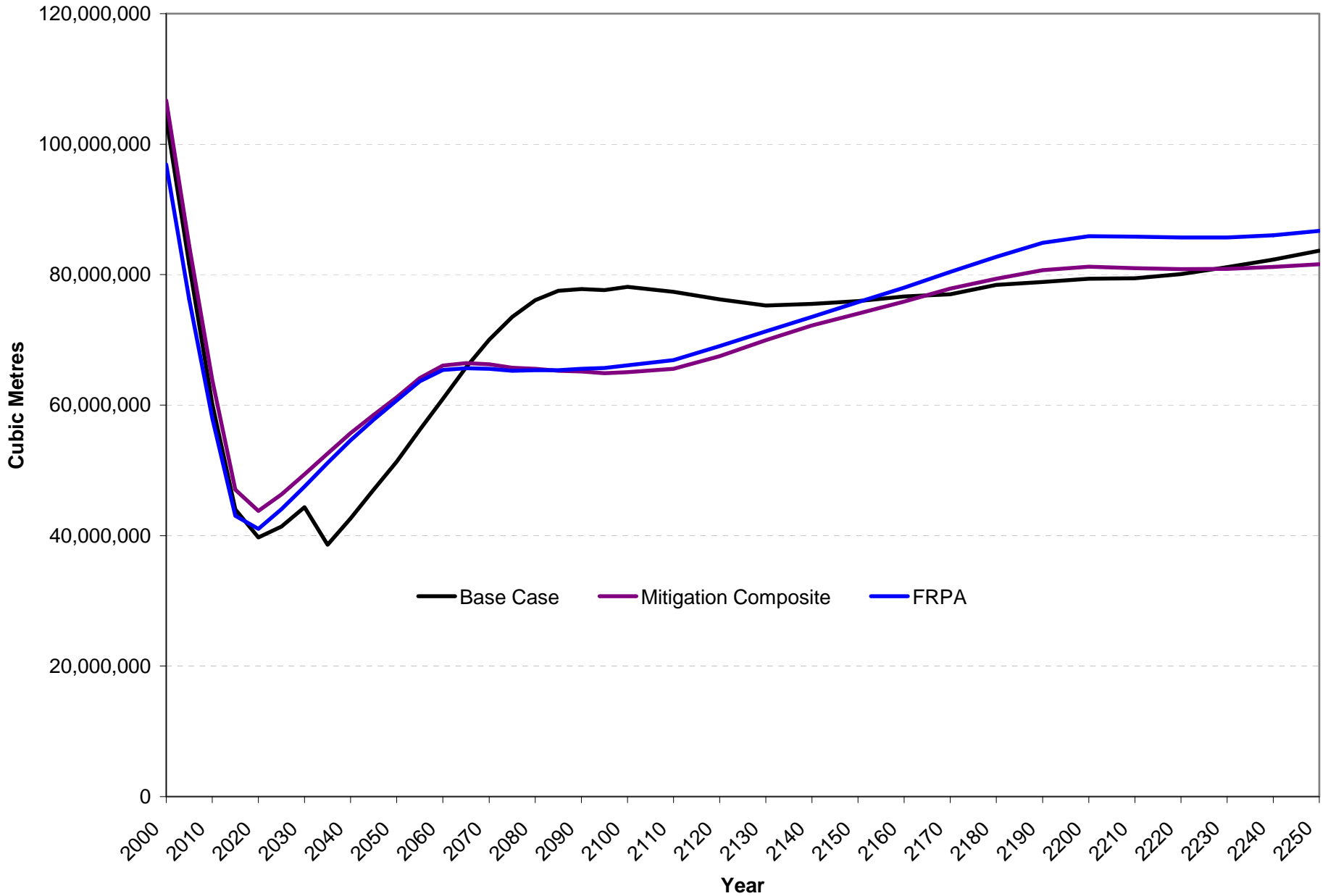
FRPA Scenario - Dead Wood in Harvest



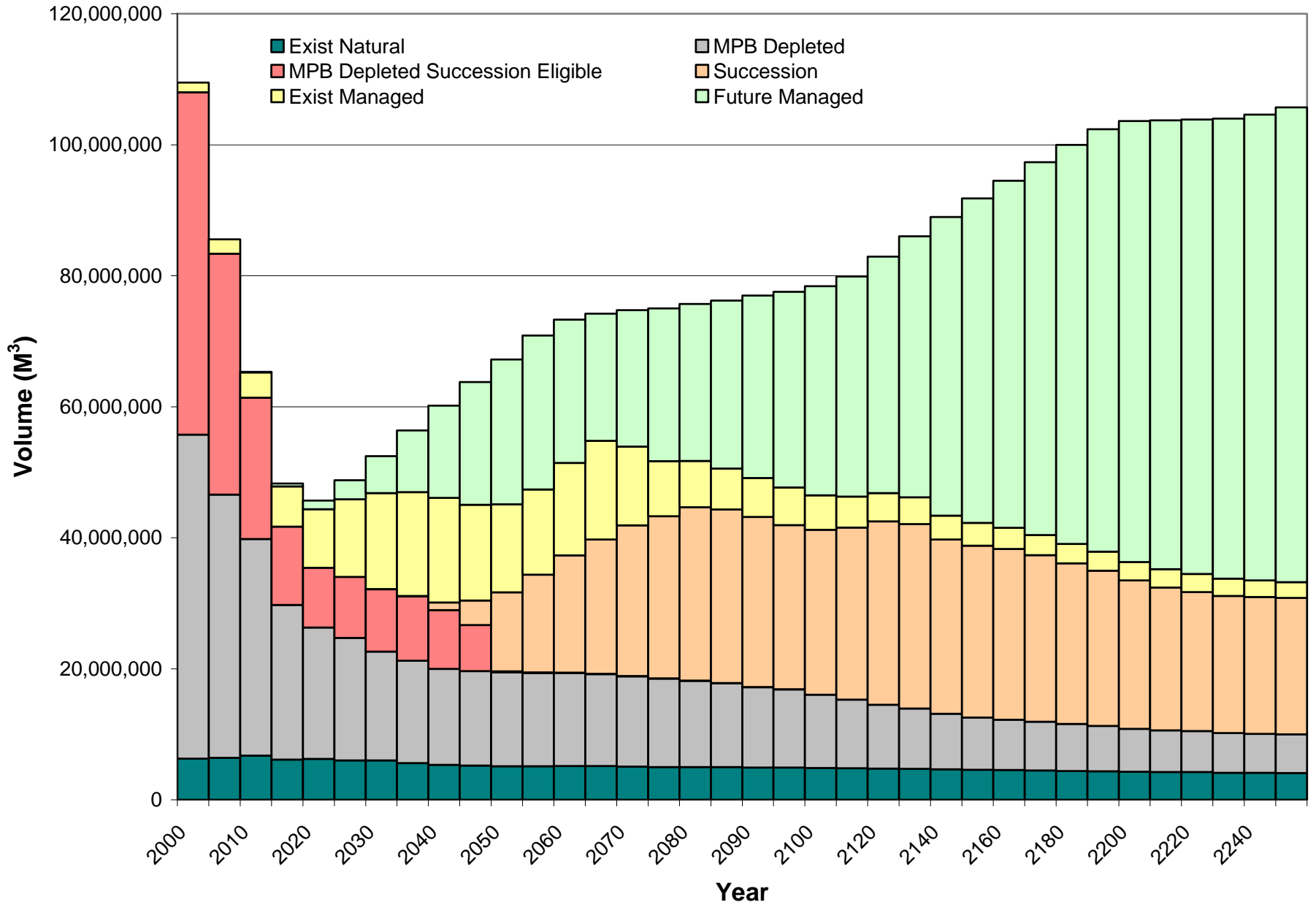
FRPA Scenario - Species Composition of Harvest



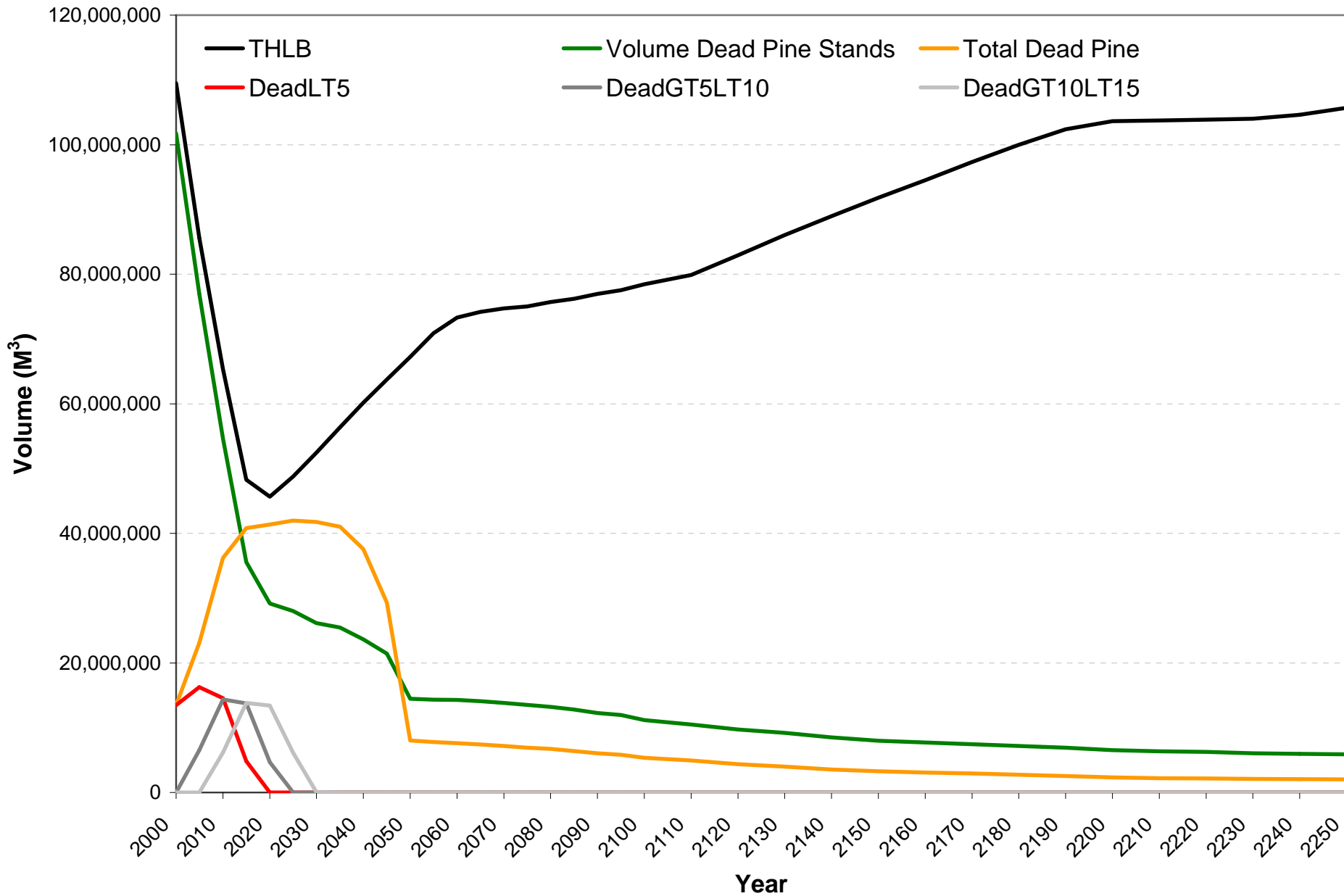
THLB Growing Stock Results



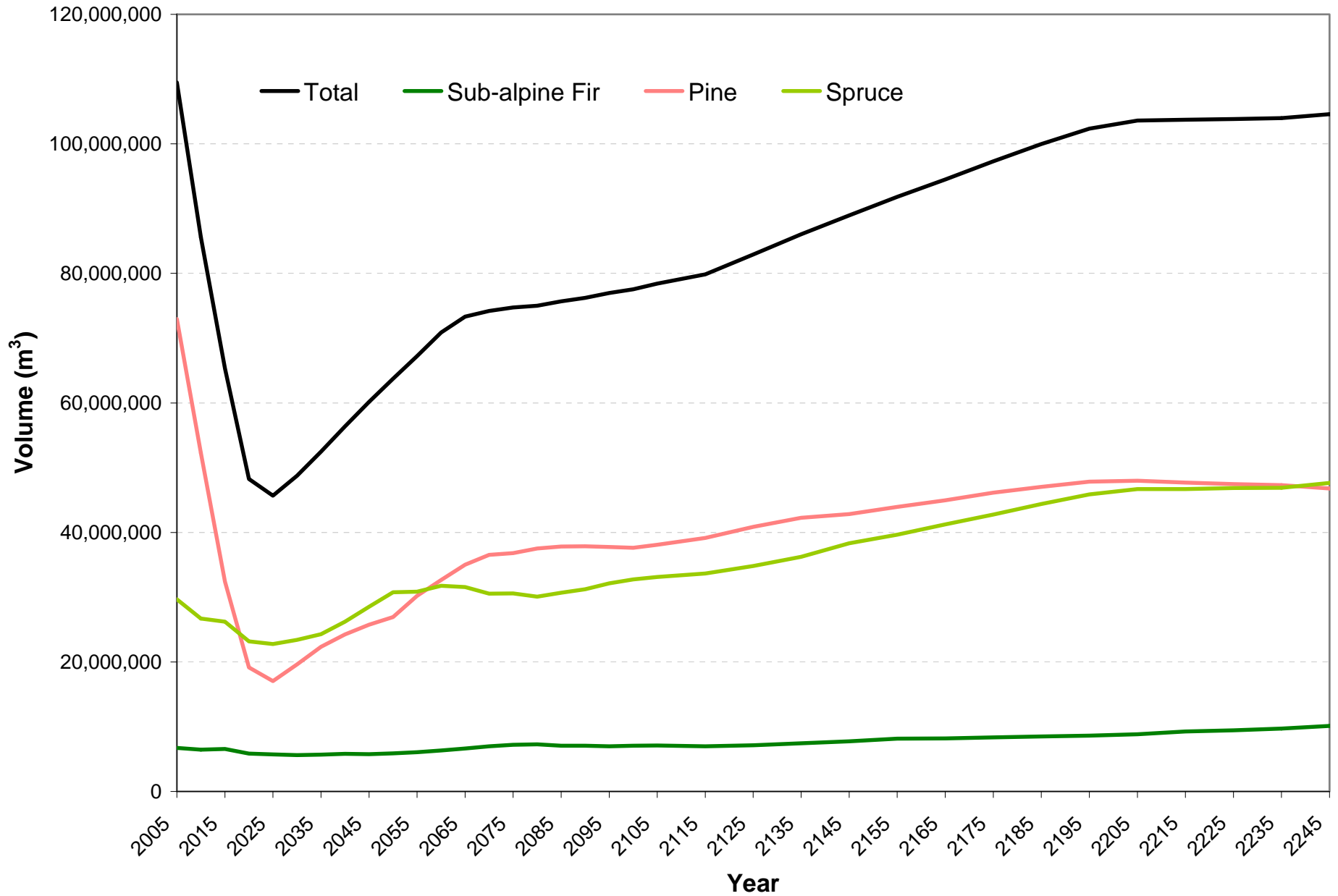
FRPA Scenario - THLB Growing Stock by Stand Type



FRPA Scenario - Dead Wood in THLB Growing Stock



FRPA Scenario - Species Composition of THLB Growing Stock



FRPA Implementation Scenario Sensitivity Analyses Inputs and Assumptions

FRPA Implementation Scenario sensitivities were designed to further test and strengthen the operational strategies identified in the FRPA Implementation Scenario.

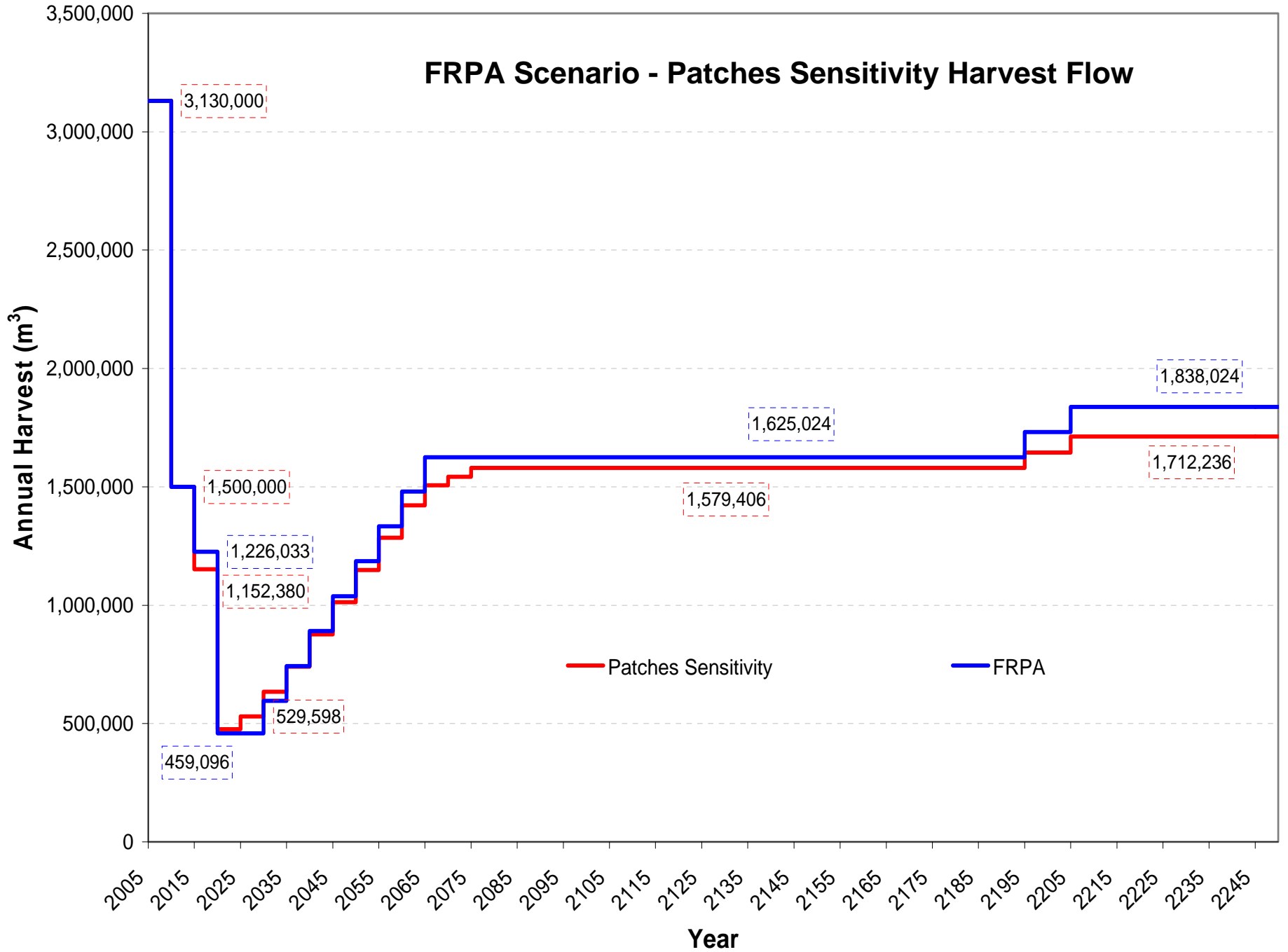
Adjusted Desired Patch Distribution

- Patch targets based on amount of early seral only
- This amount of area changes with changes in harvest levels
- To work around this the maximum area in the early seral stage in the Beetle Mitigation Scenario was chosen as the basis
- Small, medium and large early seral targets were then developed

Desired Patch Distribution from Lakes South SRMP; Percent of forested area by NDT

Natural Disturbance Type	BEC Subzone	Small Patch	Medium Patch	Large Patch
2	ESSF mc	<40 ha	40 – 80 ha	>80 ha
		30 – 40%	30 – 40%	20 – 40%
3	SBS dk	<40 ha	40 – 250 ha	>250 ha
	SBS mc	10 – 30%	10 – 30%	40 – 80%

FRPA Scenario - Patches Sensitivity Harvest Flow



FRPA Implementation Scenario Sensitivities

RESULTS - Adjusted Desired Patch Distribution

- The minimum harvest level was 16,802 m³/yr higher or 3.7
- The average short term harvest level was 14,213 m³/yr or 0.9% lower
- The mid term average harvest level was 34,399 m³/yr or 2.7% lower
- The long term the average harvest level was 75,101 m³/yr or 4.4% lower

This sensitivity had the largest downward pressure on long term harvest levels of any sensitivity conducted in either the Mitigation or FRPA Implementation Scenarios.

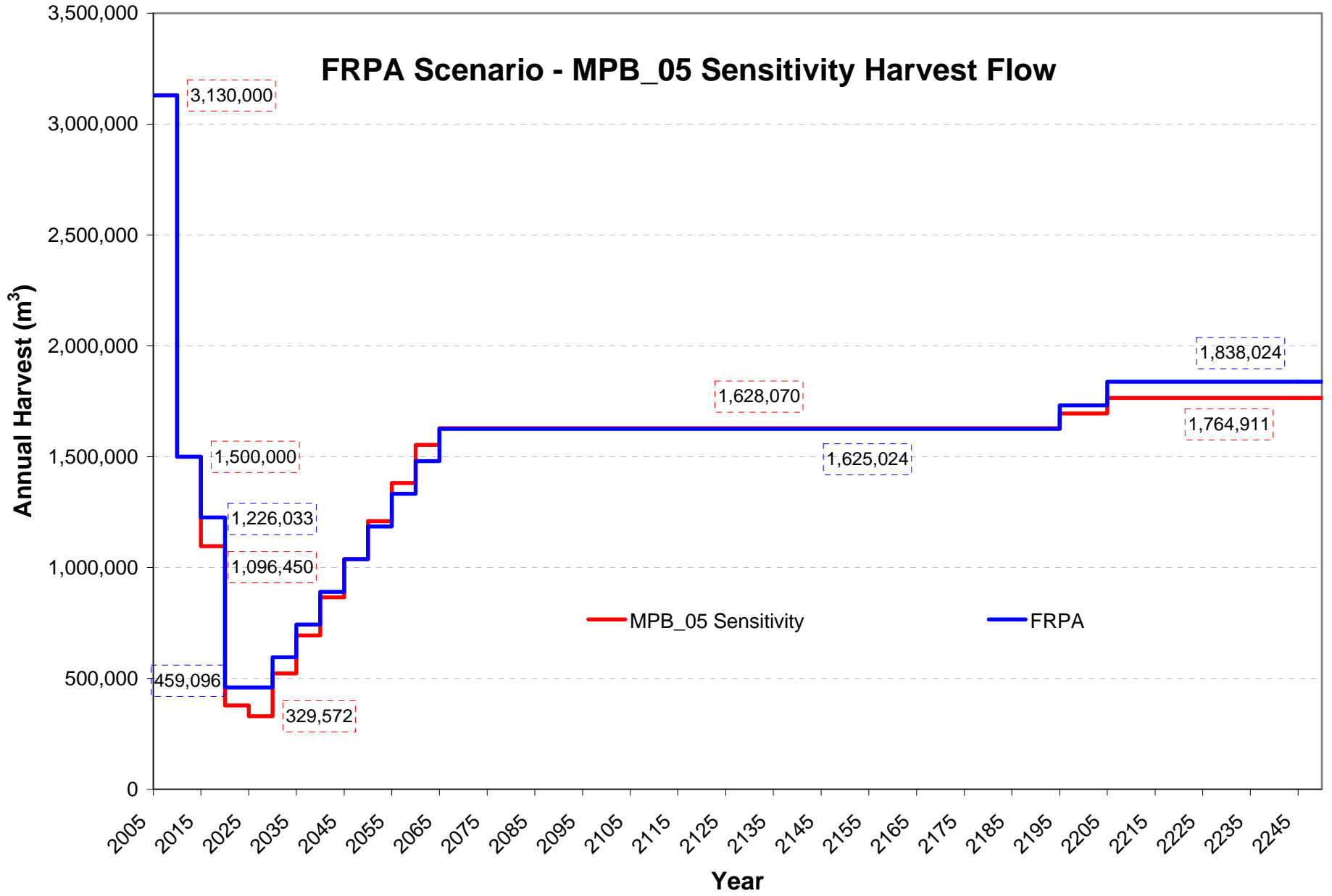


FRPA Implementation Scenario Sensitivity Analyses Inputs and Assumptions

Adjusted MPB Mortality Projections

- More recent (2005) BCMPB spread and mortality projections were applied
- MPB mortality applied to stands as young as 40 years of age
- Instead of 60 year old minimum for the remainder of the analysis

FRPA Scenario - MPB_05 Sensitivity Harvest Flow



FRPA Implementation Scenario Sensitivities

RESULTS - Adjusted MPB Mortality Projections

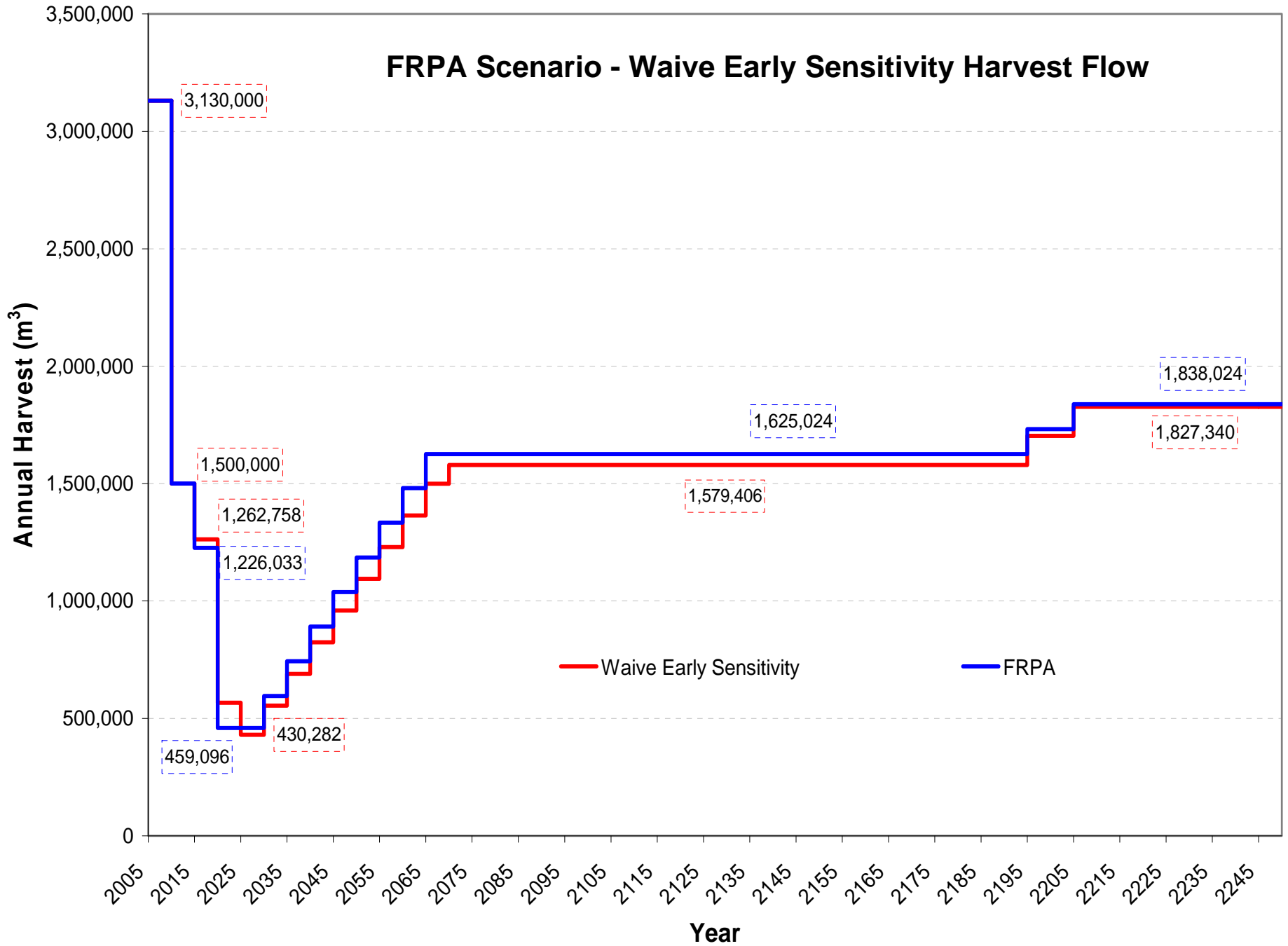
- The minimum harvest level was 129,524 m³/yr or 28.2%
- The average short term harvest level was 52,620 m³/yr or 3.3% lower
- The mid term average harvest level was 6,912 m³/yr or 0.5% lower
- Over the long term the average harvest level was 24,969 m³/yr or 1.5% lower

FRPA Implementation Scenario Sensitivity Analyses Inputs and Assumptions

Waive Early Seral Targets


- Early seral targets were waived for 80 years.
- Secondly, rather than using the volume matching approach used in the Beetle Mitigation and FRPA Implementation scenarios, decimated stands were instead set to recover on VDYP curves after a 5 year regeneration delay.
- In order to avoid binding seral targets the switch to the new curve was delayed until MHA on the recovery curve was achieved.

FRPA Scenario - Waive Early Sensitivity Harvest Flow




FRPA Implementation Scenario Sensitivities

RESULTS – Waive Early Seral Targets

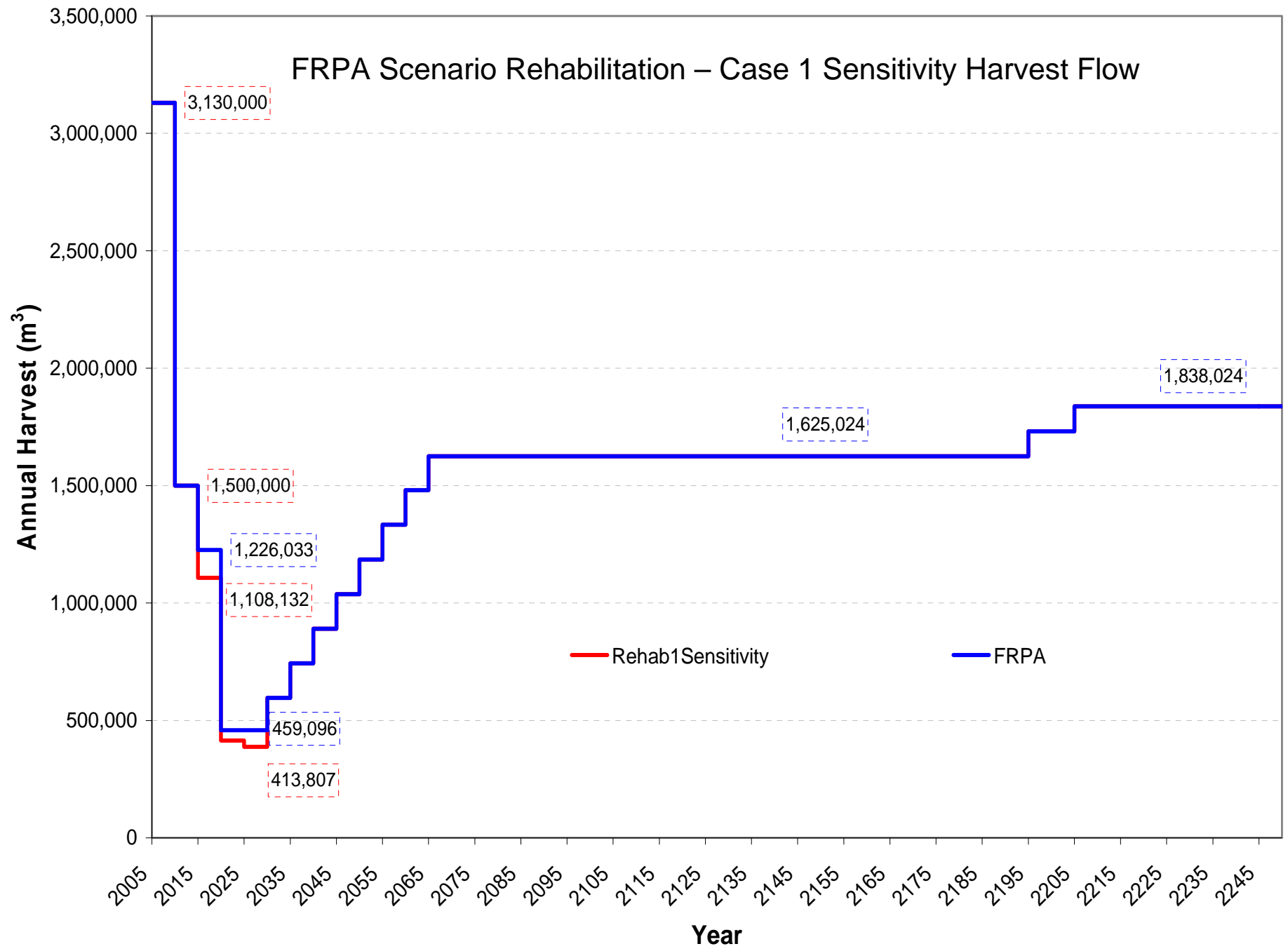
- The minimum harvest level was 28,815 m³/yr or 6.3% lower
 - The average short term harvest level was 36,097 m³/yr or 2.3% higher
 - The mid term average harvest level was 64,027 m³/yr or 4.9% lower
 - The long term the average harvest level was 32,809 m³/yr 1.93% lower
- 

FRPA Implementation Scenario Sensitivity Analyses Inputs and Assumptions

Rehabilitate MPB Affected Stands – Case 1

- Stands severely impacted by the MPB epidemic were set onto their future managed yield curves at a rate of 10% of the annual area harvested through the first 20 years
 - Stands that were harvested during that period in the FRPA Implementation Scenario were exempted
- 

FRPA Scenario Rehabilitation – Case 1 Sensitivity Harvest Flow



FRPA Implementation Scenario Sensitivities

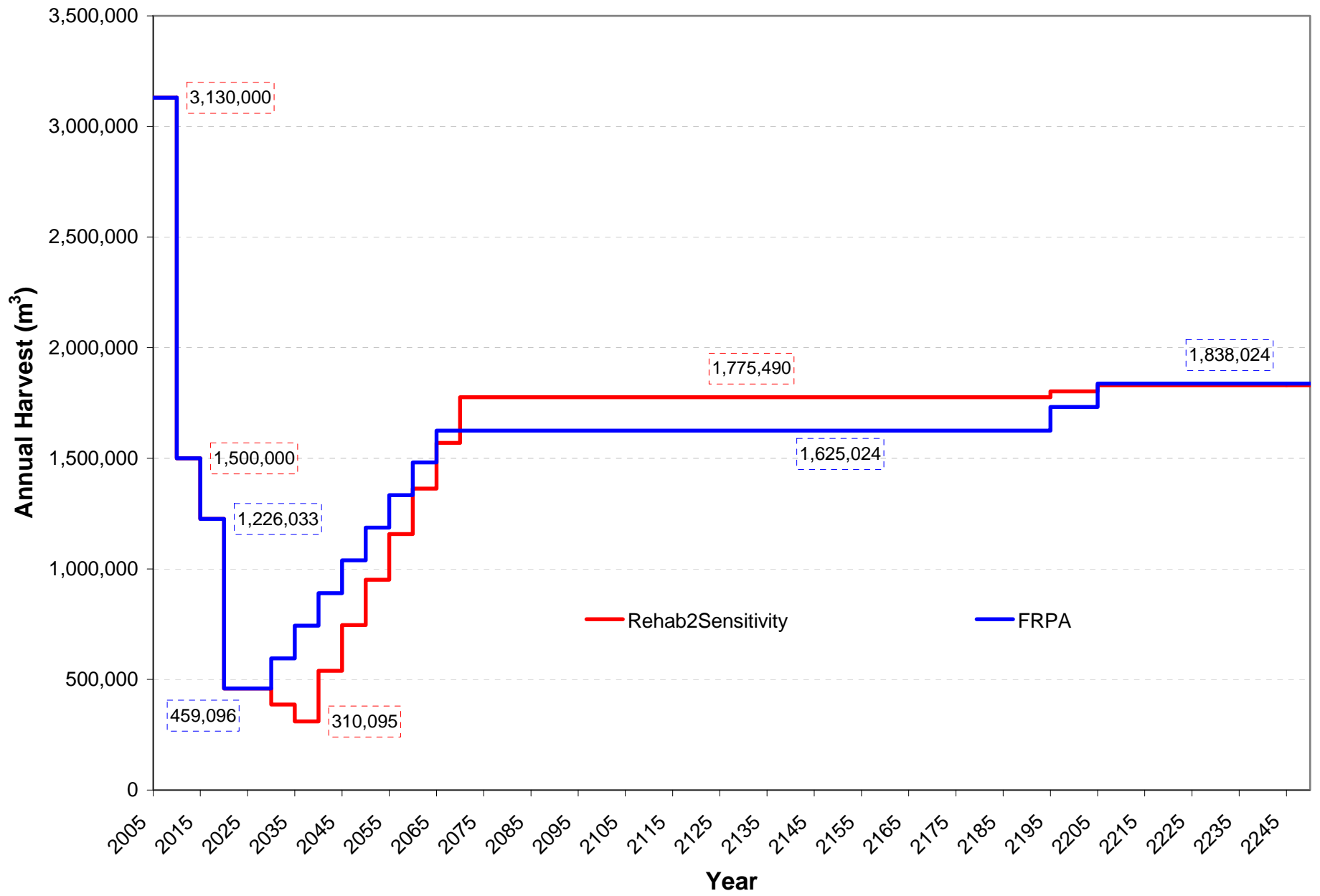
RESULTS – Rehabilitate MPB Affected Stands – Case 1

- The minimum harvest level was 71,023 m³/yr or 15.5% lower
- The average short term harvest level was 40,798 m³/yr or 2.6% lower
- The mid term average harvest level was 4,439 m³/yr or 0.3% lower the
- The average long term harvest level in this rehabilitation sensitivity was the same.

FRPA Implementation Scenario Sensitivity Analyses Inputs and Assumptions

Rehabilitate MPB Affected Stands – Case 2

- 178,726 hectares of THLB severely impacted by the MPB epidemic were set onto their future managed yield curves over the next 20 years of the planning horizon.
- This was calculated to cost roughly \$536 million. Those stands harvested in the FRPA Implementation Scenario were not eligible for this treatment.



FRPA Implementation Scenario Sensitivities

RESULTS – Rehabilitate MPB Affected Stands – Case 2

- The minimum harvest level was 149,002 m³/yr or 32.5% lower
 - This occurs 15 years later
- The average short term harvest level showed no response due to forced harvesting in the model
- The mid term average harvest level was 51,017 m³/yr or 3.9% lower
- The average long term harvest level was 92,249 m³/yr or 5.4% higher

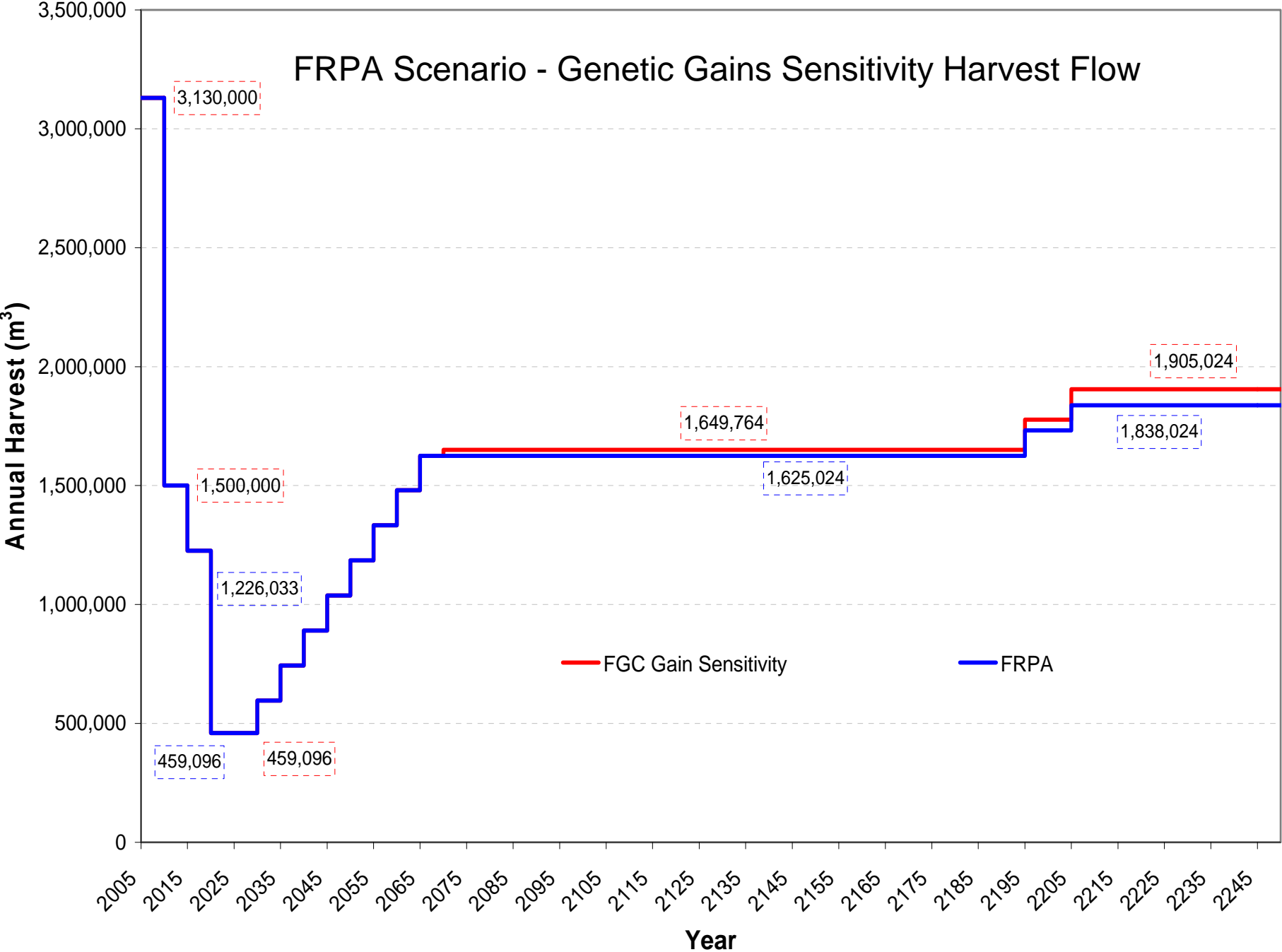
FRPA Implementation Scenario Sensitivity Analyses Inputs and Assumptions

Forest Genetics Council Genetic Gains

SPU code	Lakes TSA area (Hectares)	SPU #	2003	2008	2013	2018
			Seedling Production / Volume Gain			
PI BV low	872,800	17	25% / 9%	54% / 10%	100% / 11%	100% / 13%
Sx BV low	178,300	35	91% / 13%	80% / 16%	99% / 18%	100% / 23%
Sx PG high / Sx BVP high	75,600	42	100% / 15%	100% / 19%	100% / 19%	100% / 20%
Sx PG low / Sx BVP	825,700	14	86% / 24%	87% / 28%	100% / 28%	100% / 31%


- Genetic Worth assumptions were applied according to available species plans as summarized in the table above

FRPA Scenario - Genetic Gains Sensitivity Harvest Flow



FRPA Implementation Scenario Sensitivities

RESULTS – Forest Genetics Council Genetic Gains

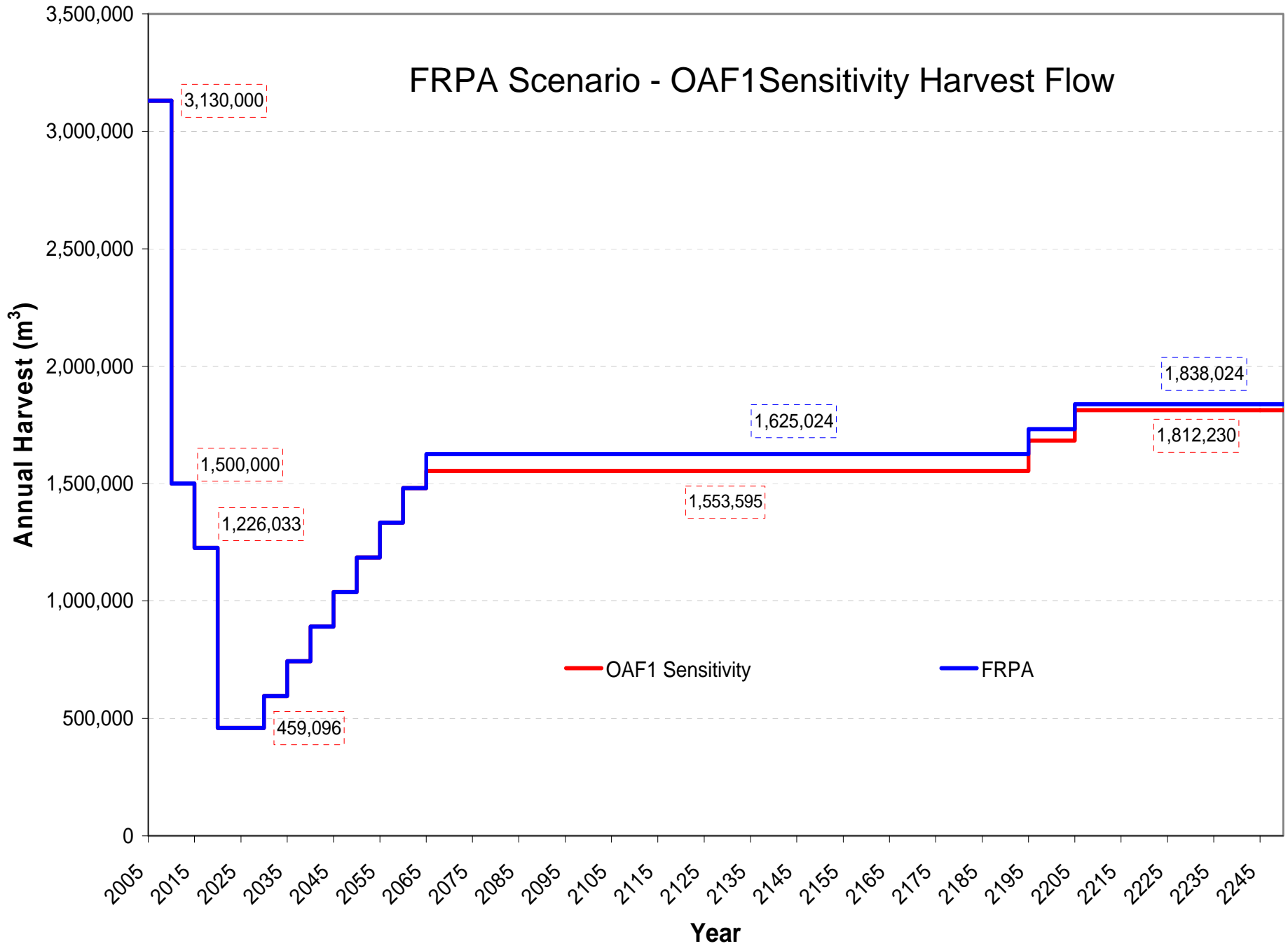
- The minimum harvest level was unaffected
 - The average short term harvest level showed no response
 - The mid term average harvest level was 10,824 m³/yr or 0.84% higher
 - The average long term harvest level was 40,235 m³/yr or 2.4% higher
- 

FRPA Implementation Scenario Sensitivity Analyses Inputs and Assumptions

Adjusted Operational Adjustment Factor


- The curves used in the Beetle Mitigation and FRPA Implementation scenarios used an OAF 1 of 12% for pine leading stands and 7% for other conifer leading stands. These numbers came from the Babine EFMPP study
- In order to test the sensitivity of the FRPA Implementation Scenario harvest flow to changes in OAF 1 values, managed stand yield curves were generated with TSR2 OAF 1 inputs of 20% for pine leading stands and 15% for other conifer leading stands.

FRPA Scenario - OAF1 Sensitivity Harvest Flow



FRPA Implementation Scenario Sensitivities

RESULTS – Increased OAF1

- The minimum harvest level was unaffected
 - The average short term harvest level showed no response
 - The mid term average harvest level was 35,714 m³/yr or 2.7% lower
 - The average long term harvest level was 1,648,428 m³/yr or 3.2% lower
- 

thank-you

