

# **Effects of Forest Zoning Scenarios on Timber and Non-Timber Values**

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## Objectives/ Topics

- **Zoning**
- **Analysis**
- **Outcomes**
- **Closing Thoughts**

# Forest Zoning

*...different than an **integrated approach**...*

- manage to provide **both timber and non-timber values on most hectares**

*...objective with **zoning** is to...*

- provide both **timber** and **non-timber values**
- **specialized management** in **separate portions** of the forest
- mgmt is exclusive to **one set of values in one place** and for **another set of values elsewhere**

# TRIAD Approach (Seymour and Hunter 1992)

- **increase** area in **reserve**
- **mitigate lost production** with **increased intensity**
- **integrated approach** on remainder



%

%

%



Intensive



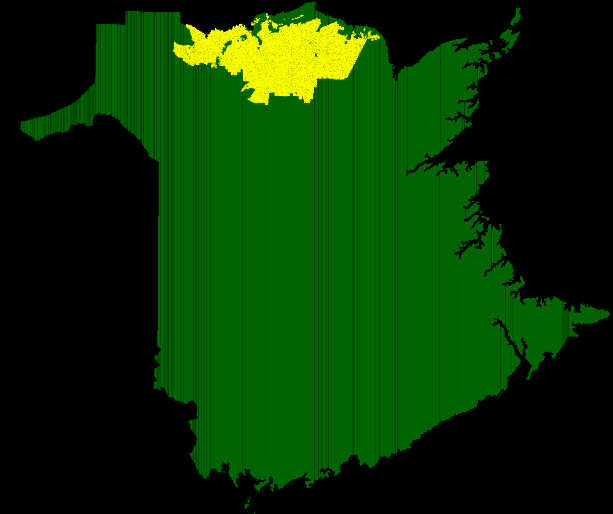
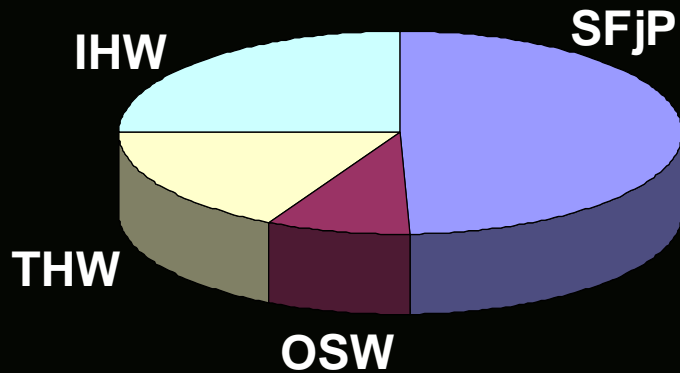
Integrated



Reserve

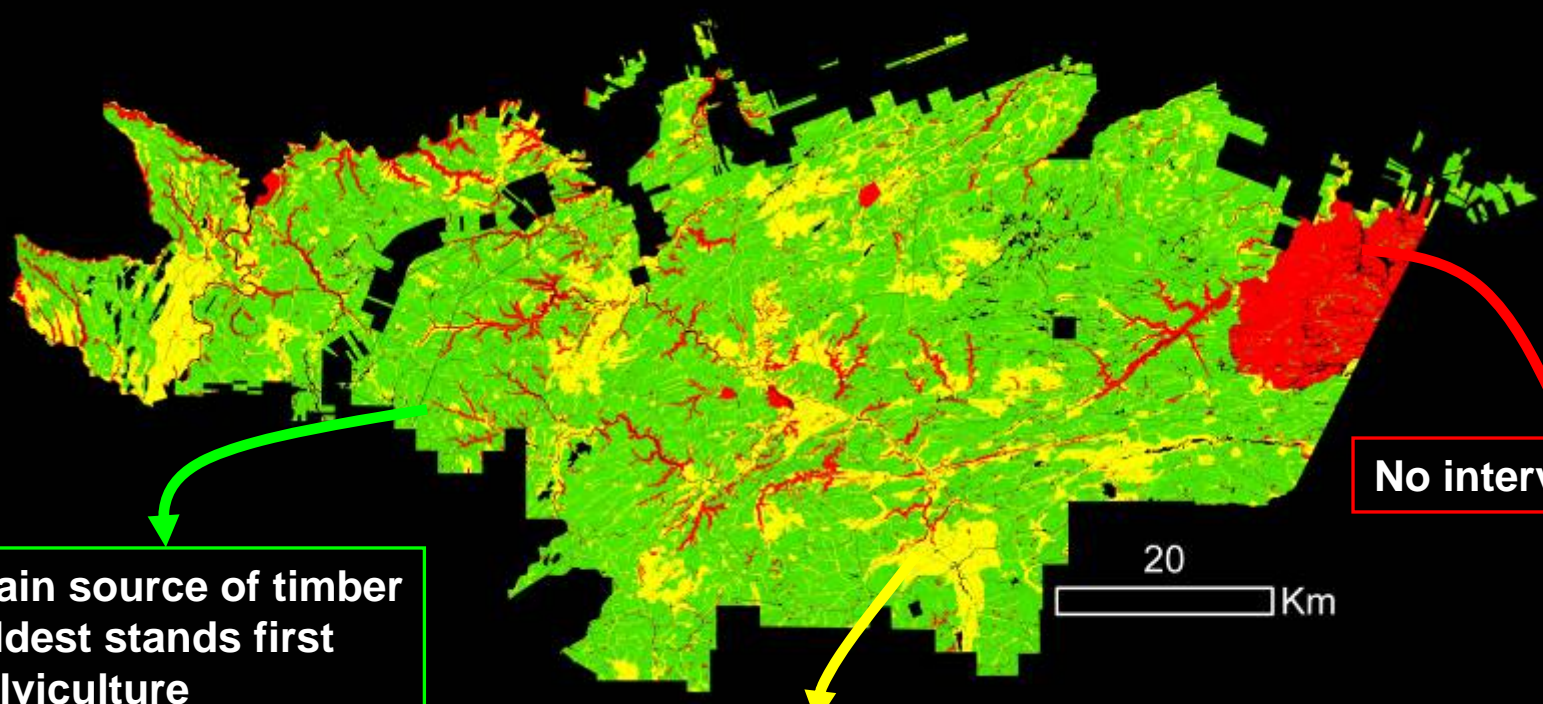
# Forest Description

% Inventory by Species Group



~400,000 ha

Condition	Area (% of forest)			
	SW	MW	HW	Tot
Merch. Forest	26	26	18	70
Untreated Regenerating	2	13	2	17
Plantation	8			8
PCT	3	1	1	5



**Main source of timber  
Oldest stands first  
Silviculture**

**Maintain old conditions  
Maintain water quality  
Viable vertebrate popln's  
Harvest to maintain cond.**

**No intervention**

20 Km

**% of Landbase**

	General Forest	65
	Habitat + Buffer Forest	28
	Protected Natural Area + Inoperable	7

# Analysis

- Varying **3** things

- Area and Configuration in **Reserve**

- **5%, 13%, 22%**

- **Habitat Blocks and WWF Areas**

- Area in **Plantations**

- **Increase from 12% to 17% and 23%**

- **Target rich sites**

- The **harvest treatments** conducted in rest of forest

- **Status Quo**

- **Natural Disturbance-Based**

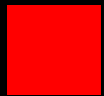
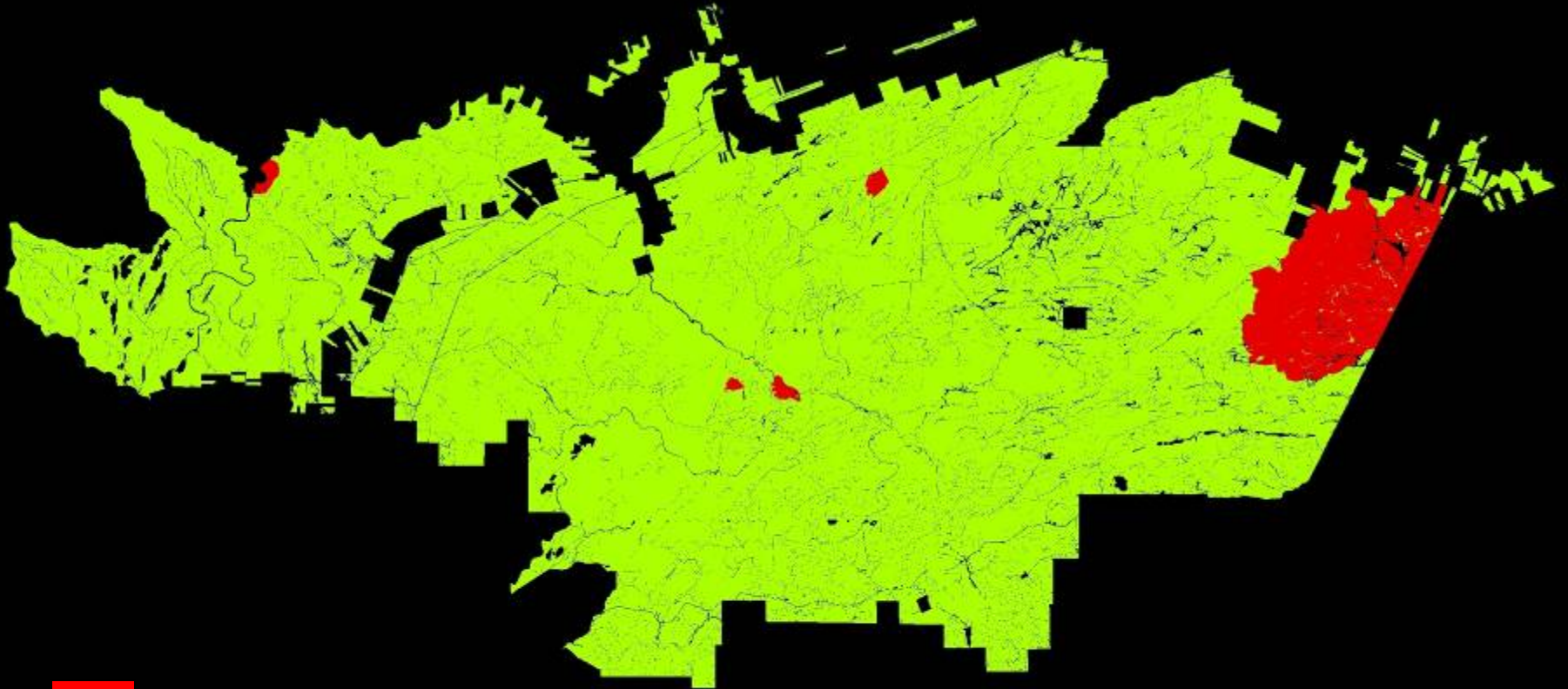
# Analysis

## ➤ Reserves

	<b>Current</b>	<b>SM13</b>	<b>SM22</b>	<b>LG13</b>	<b>LG22</b>
<b>Area (%)</b>	<b>5</b>	<b>13</b>	<b>22</b>	<b>13</b>	<b>22</b>
<b>% From GENF</b>		<b>0</b>	<b>0</b>	<b>66</b>	<b>62</b>
<b>% From HABB</b>		<b>100</b>	<b>100</b>	<b>34</b>	<b>38</b>
<b>Mean Patch Size</b>	<b>902</b>	<b>301</b>	<b>553</b>	<b>9,551</b>	<b>18,798</b>
<b>Number of Patches</b>	<b>22</b>	<b>203</b>	<b>13</b>	<b>8</b>	<b>6</b>

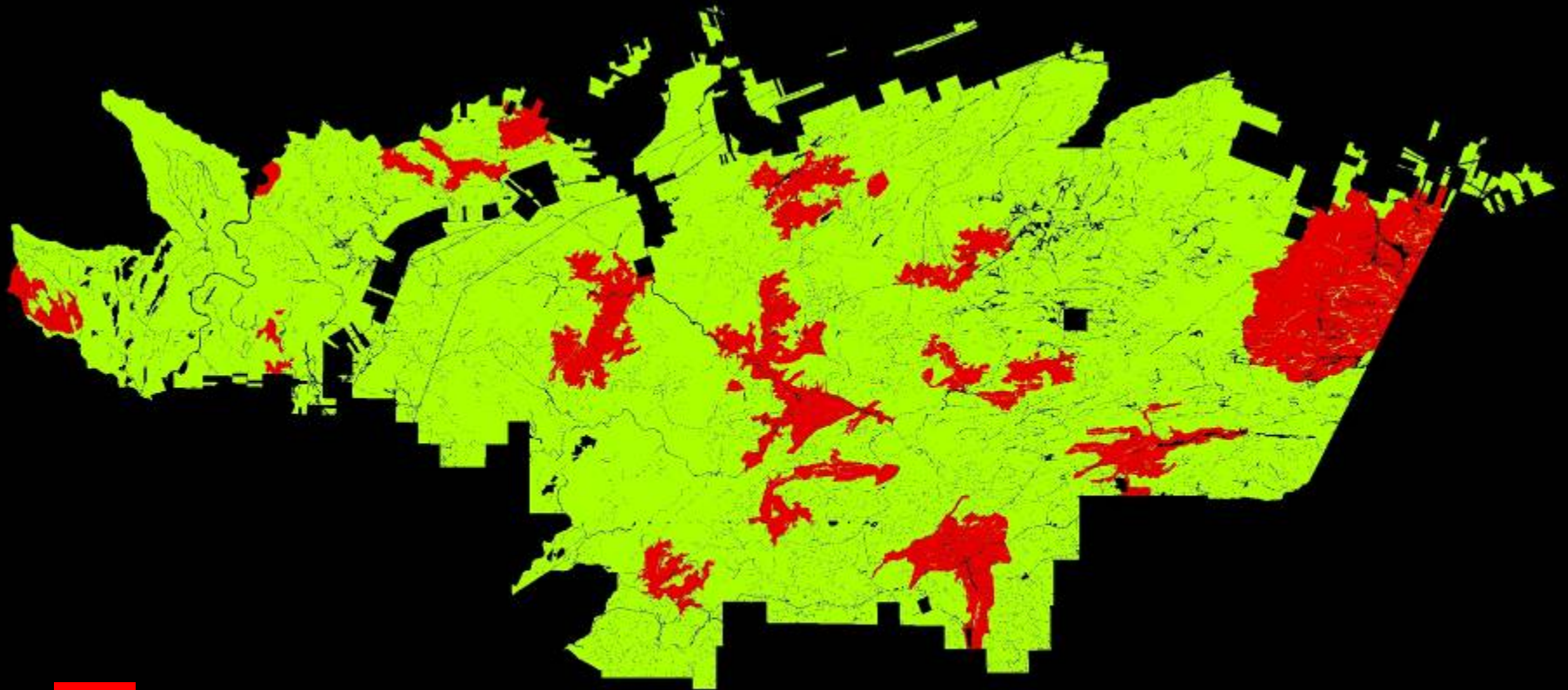


# Current



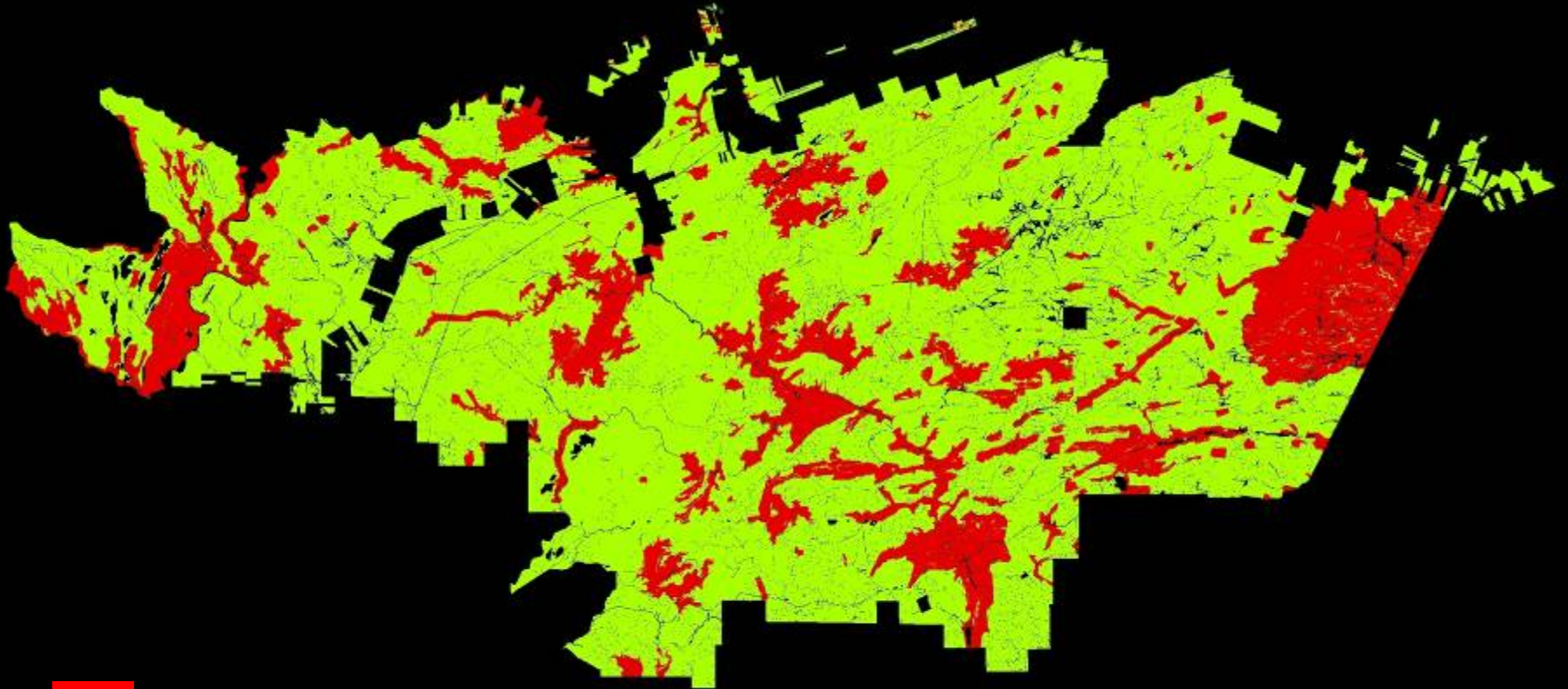
**Reserve**

# Small 13 (Sm13)



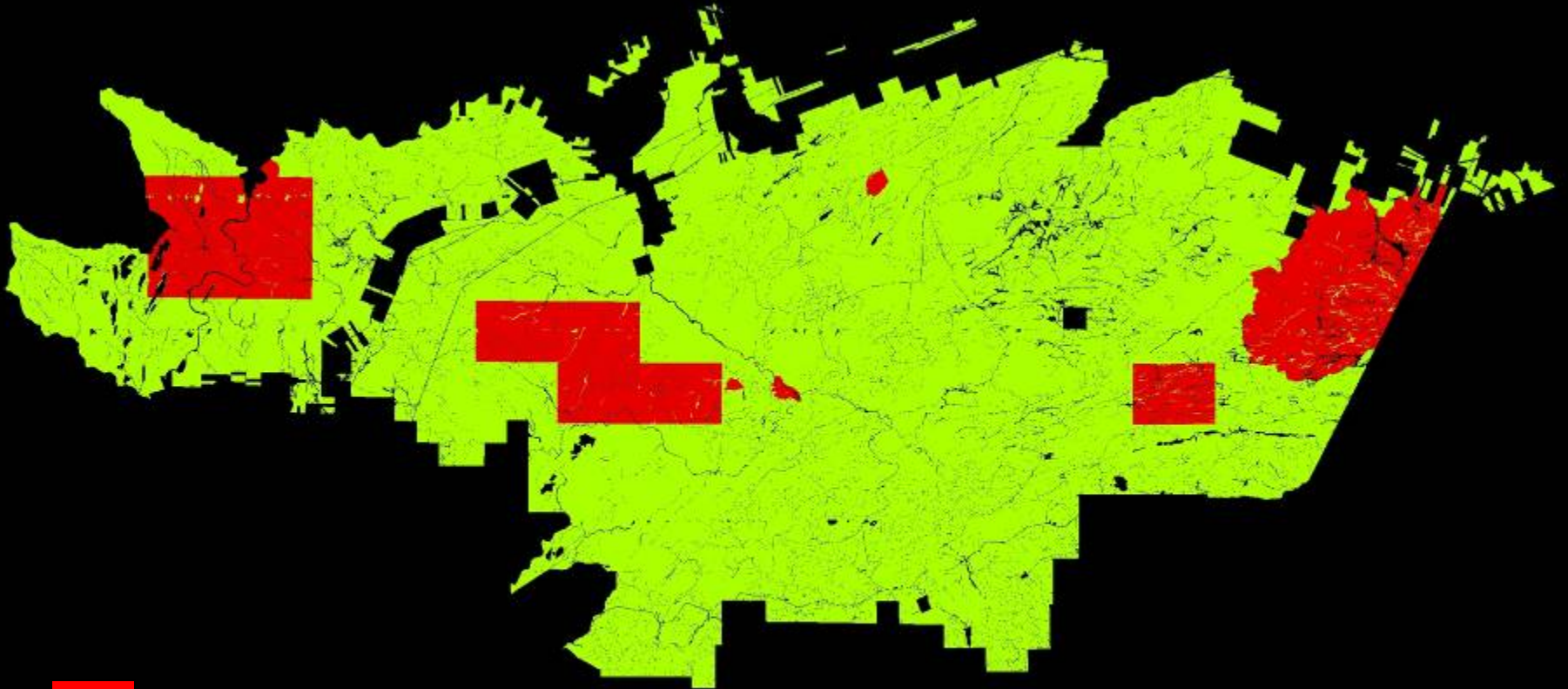
Reserve

# Small 22 (Sm22)



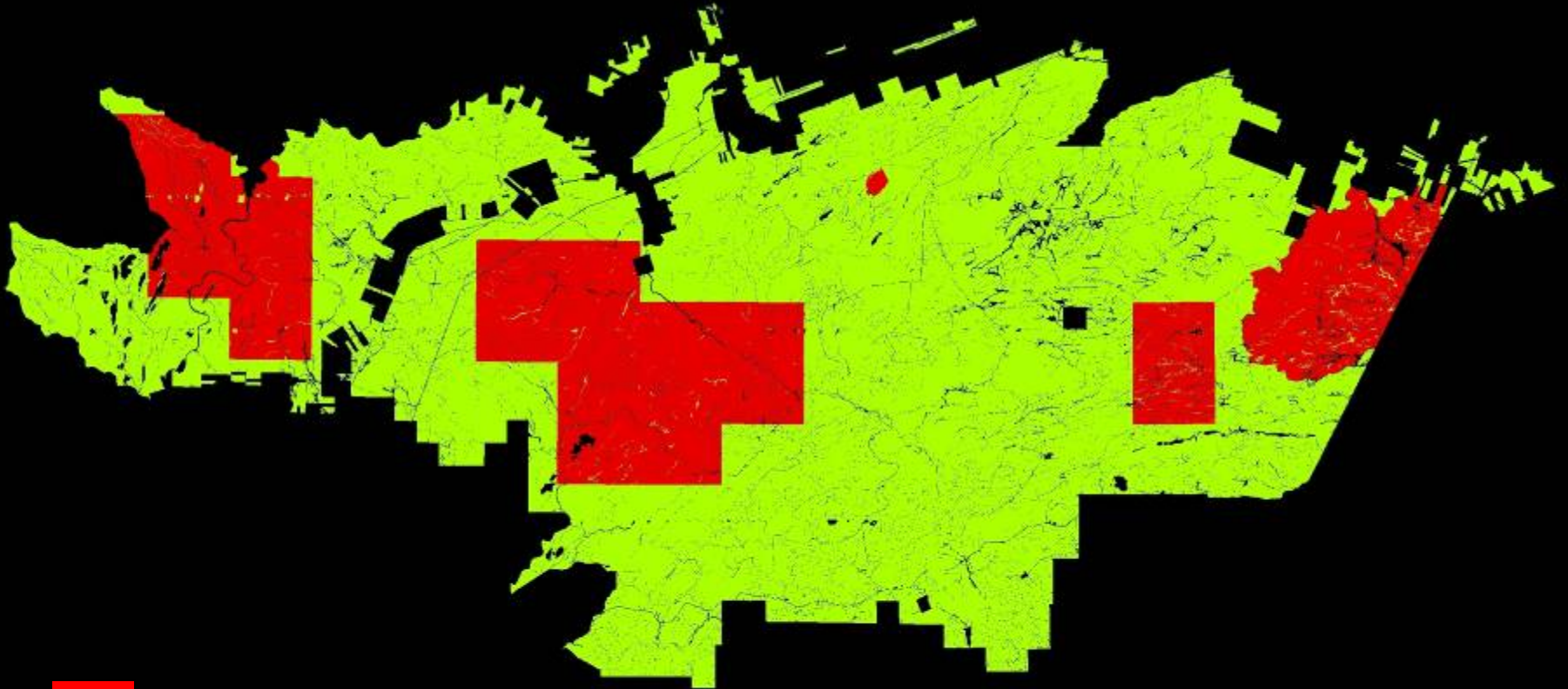
Reserve

# Large 13 (Lg 13)



**Reserve**

# Large 22 (Lg 22)



**Reserve**

# Analysis

## ➤ Plantations

### ➤ Target area at year 50

➤ **17%** (25% increase in annual planting)

➤ Used with **13% Reserve**

➤ **23%** (50% increase in annual planting)

➤ Used with **22% Reserve**

### ➤ Targeted Rich Sites

# Analysis

## ➤ Harvest Treatments

- amount of area non-clearcut

- structural retention

## ➤ **SQ**

- ~20% mature forest non-clearcut, no retention

## ➤ **Natural disturbance-based**

- maintain structure and composition that might exist post disturbance

- ~50% mature forest non-clearcut

- 10-20% permanent retention

# Analysis

## ➤ Scenarios

### **SQ Harvest**

1. *Status Quo Strategy*
2. *SM13 + 17% PLT (SM13)*
3. *SM22 + 23% PLT (SM22)*
4. *LG13 + 17% PLT (LG13)*
5. *LG22 + 23% PLT (LG22)*

### **Nat Dist Harvest**

6. *SM13 + 17% PLT (SM13n)*
7. *SM22 + 23% PLT (SM22n)*
8. *LG13 + 17% PLT (LG13n)*
9. *LG22 + 23% PLT (LG22n)*



## Outcomes

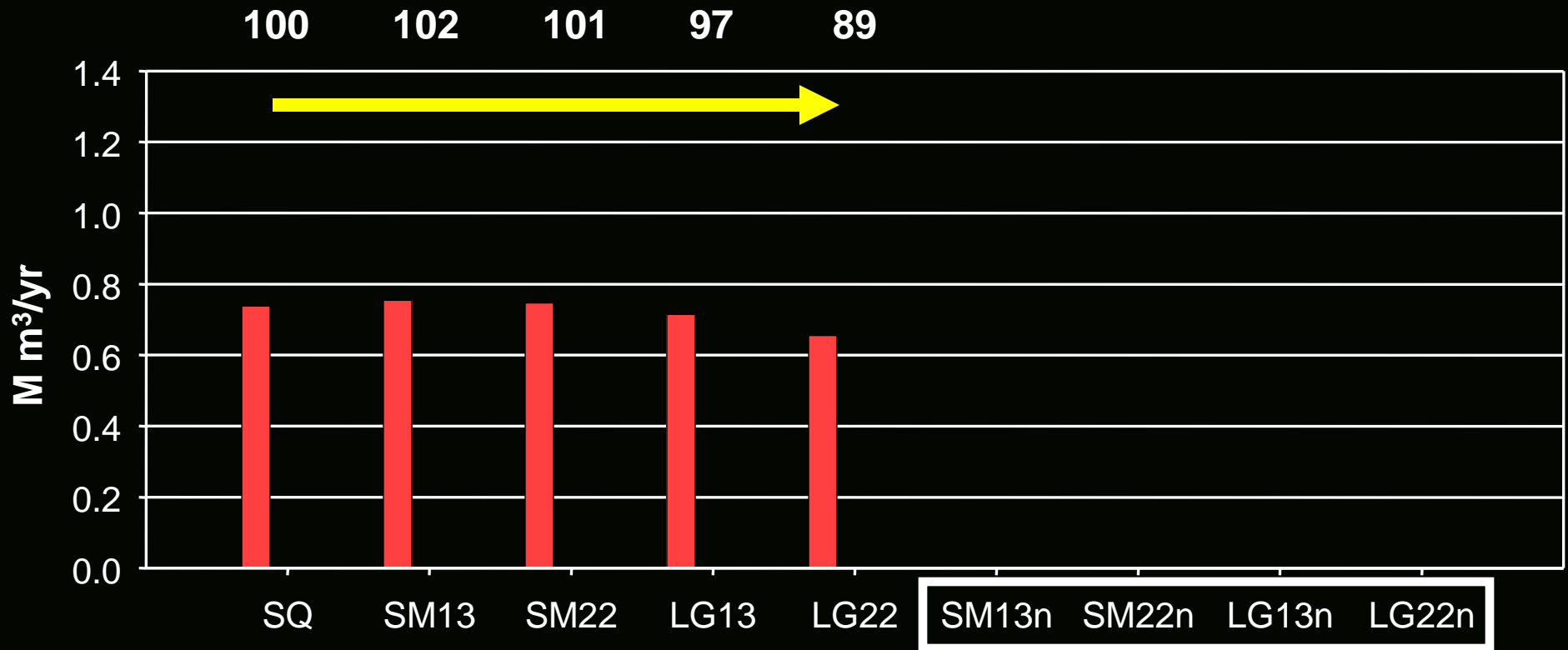
- **SFjP + HW Harvest**
- **Forest Condition- Management History**
- **Mature and Late Successional Forest**
- **Harvest and Silviculture Costs**

# SFjP + HW Harvest

100

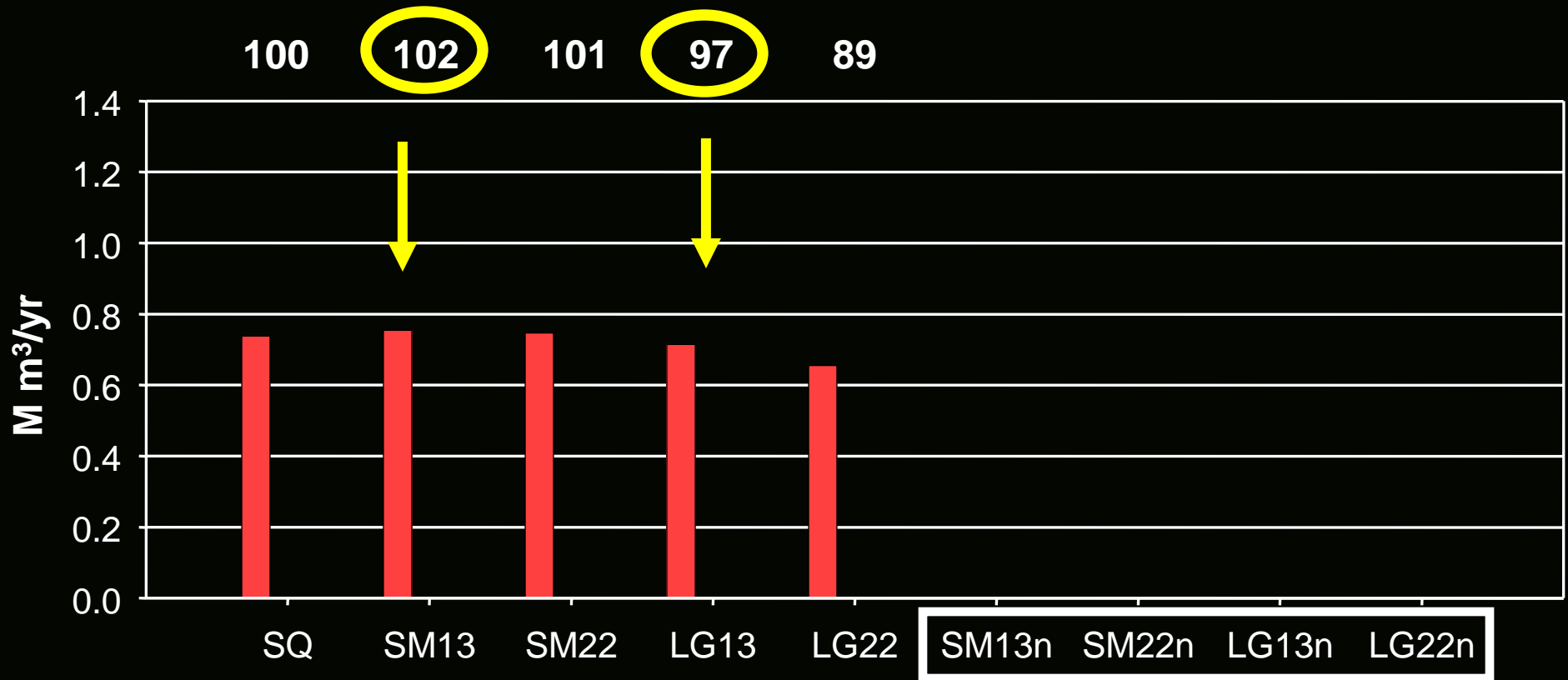


# SFjP + HW Harvest (Average 1-25 yrs)



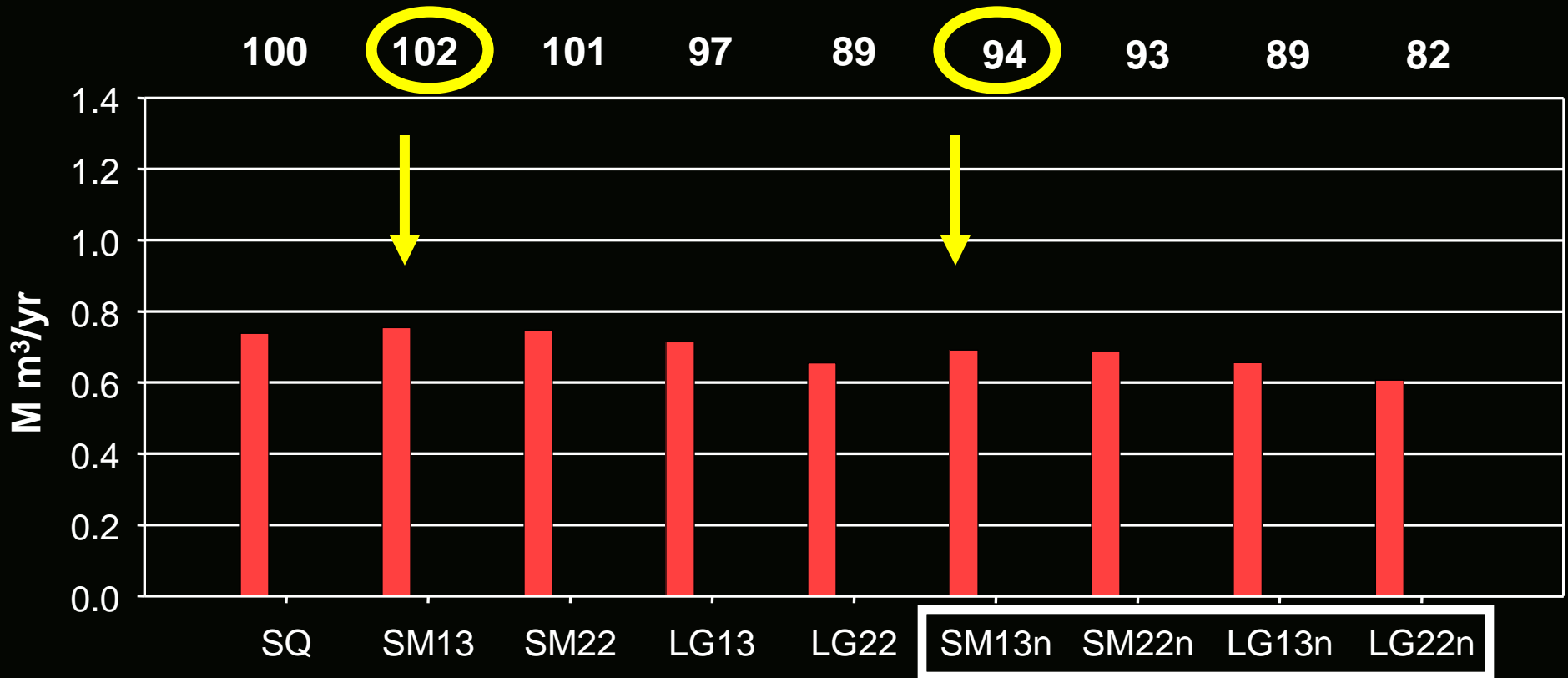
➤ **Greater allocation to reserve, greater short-term reduction**

# SFjP + HW Harvest (Average 1-25 yrs)



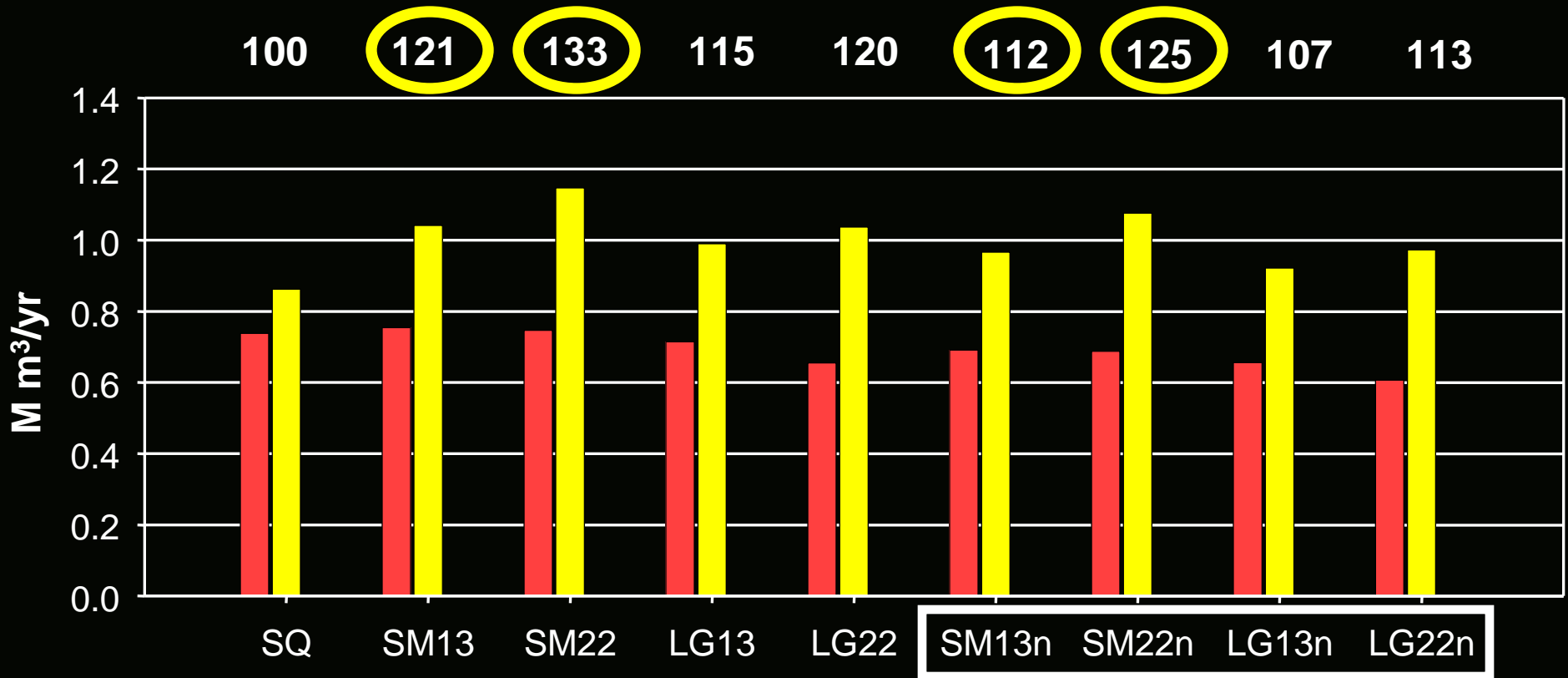
➤ If reserve area taken from **GENF**, greater short-term reduction

# SFjP + HW Harvest (Average 1-25 yrs)



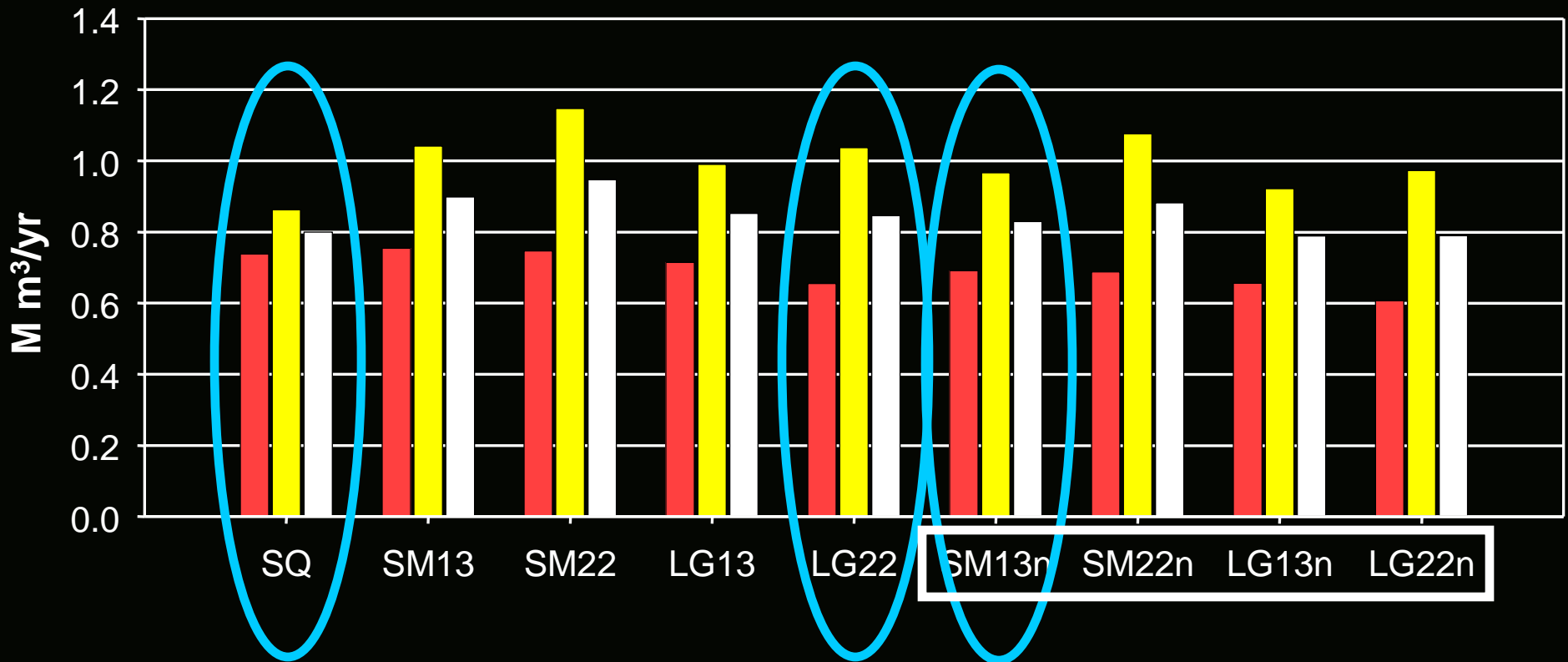
➤ *Nat Dist harvest results in ~8% decrease in short-term harvest*

# SFjP + HW Harvest (Average 26-100 yrs)



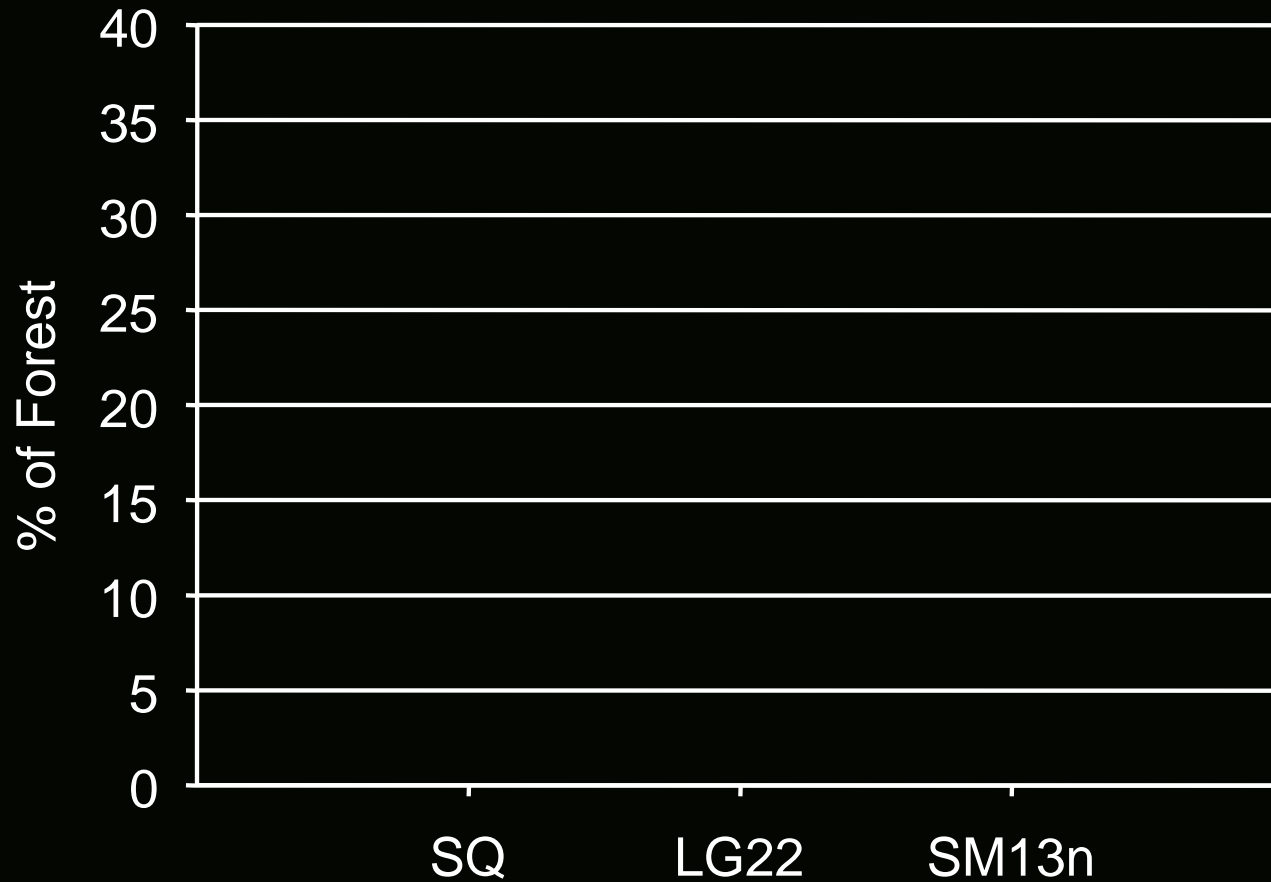
➤ *Greater investment in planting, greater **long-term harvest***

# SFjP + HW Harvest (Average 1-100 yrs)



➤ *Can increase RES **and** maintain average harvest level*

# Forest Condition- Mgmt Hist (yr 50)



**RES %**

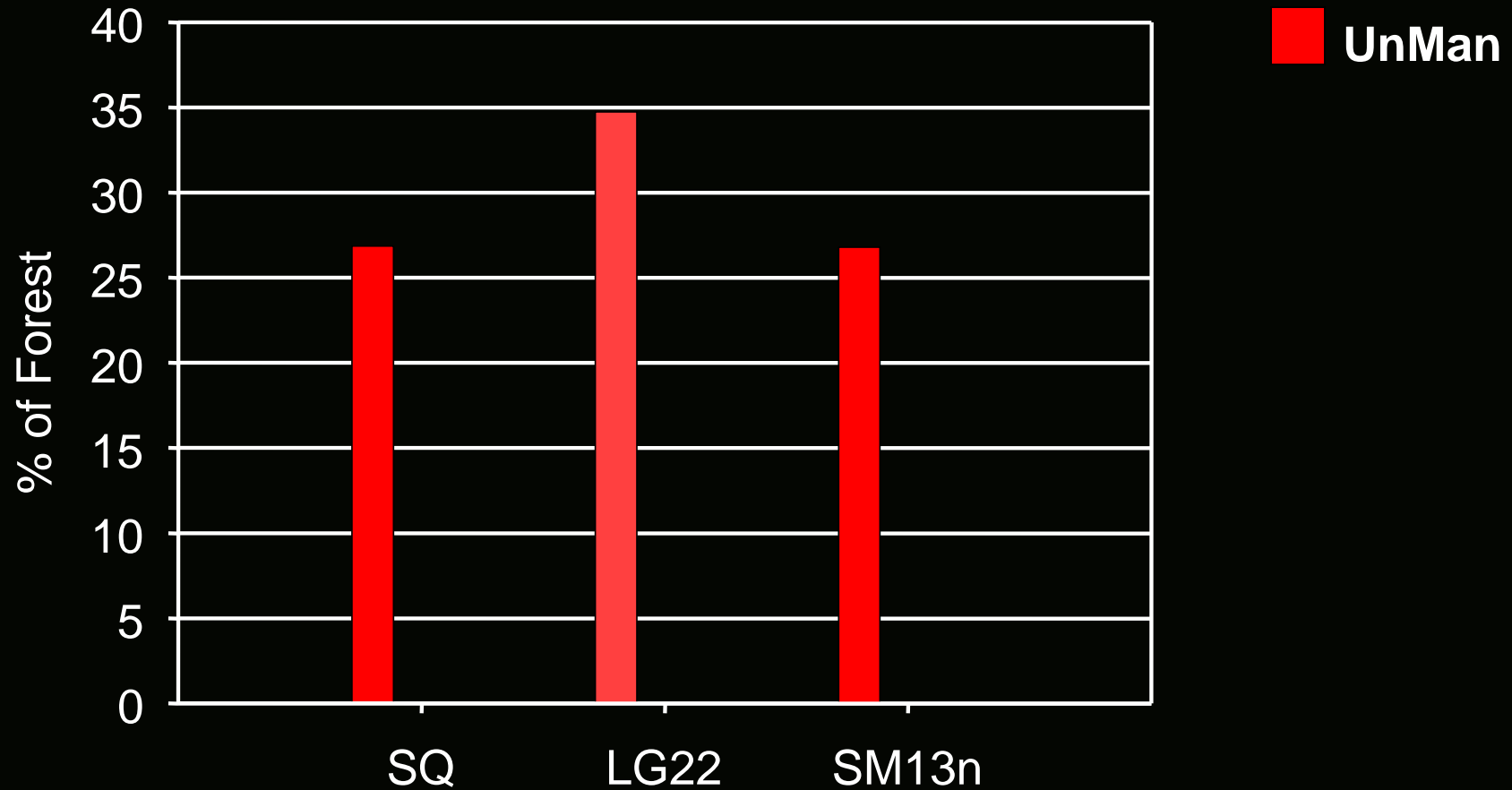
**5%**

**22%**

**13%**



# Forest Condition- Mgmt Hist (yr 50)



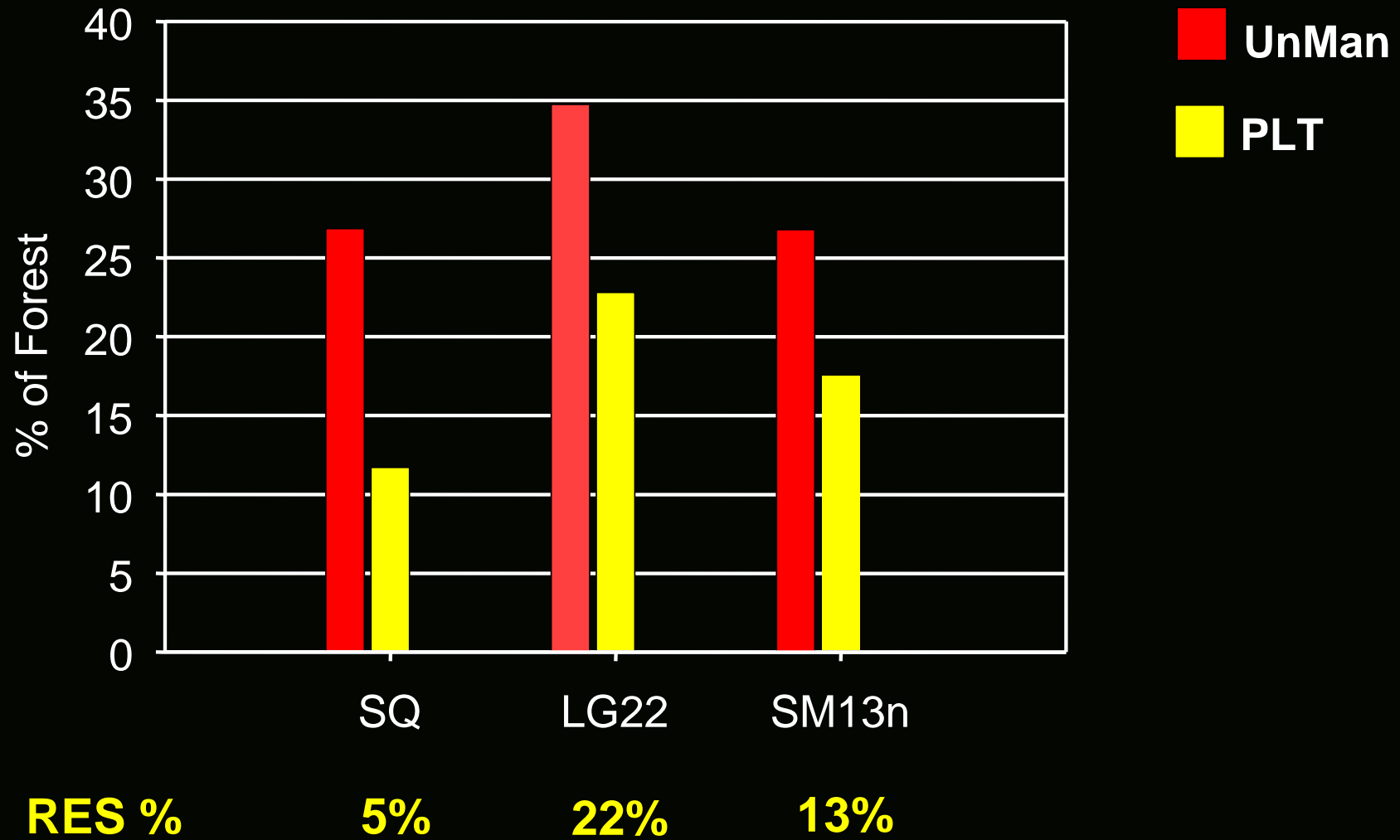
**RES %**

**5%**

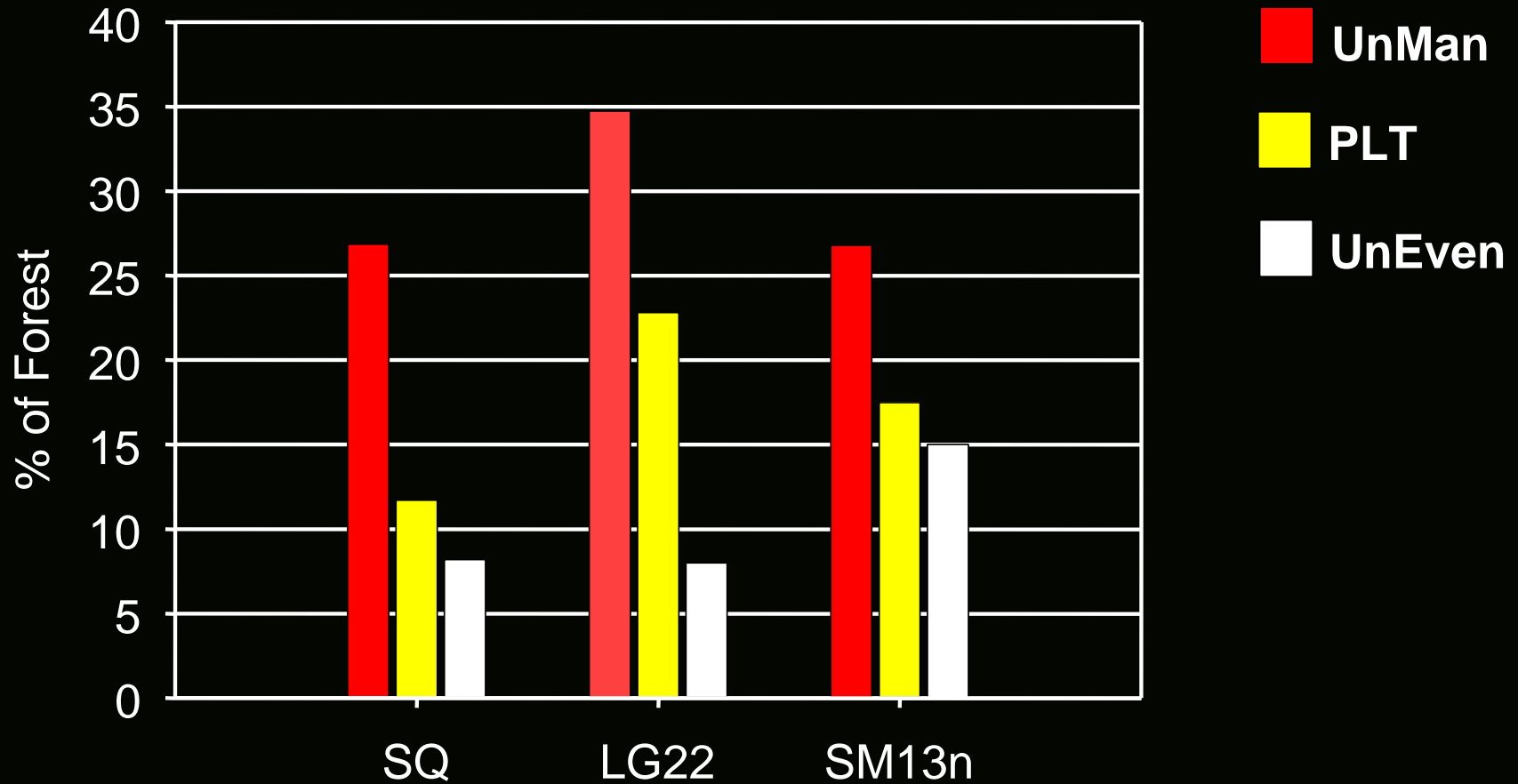
**22%**

**13%**

# Forest Condition- Mgmt Hist (yr 50)



# Forest Condition- Mgmt Hist (yr 50)



**RES %**

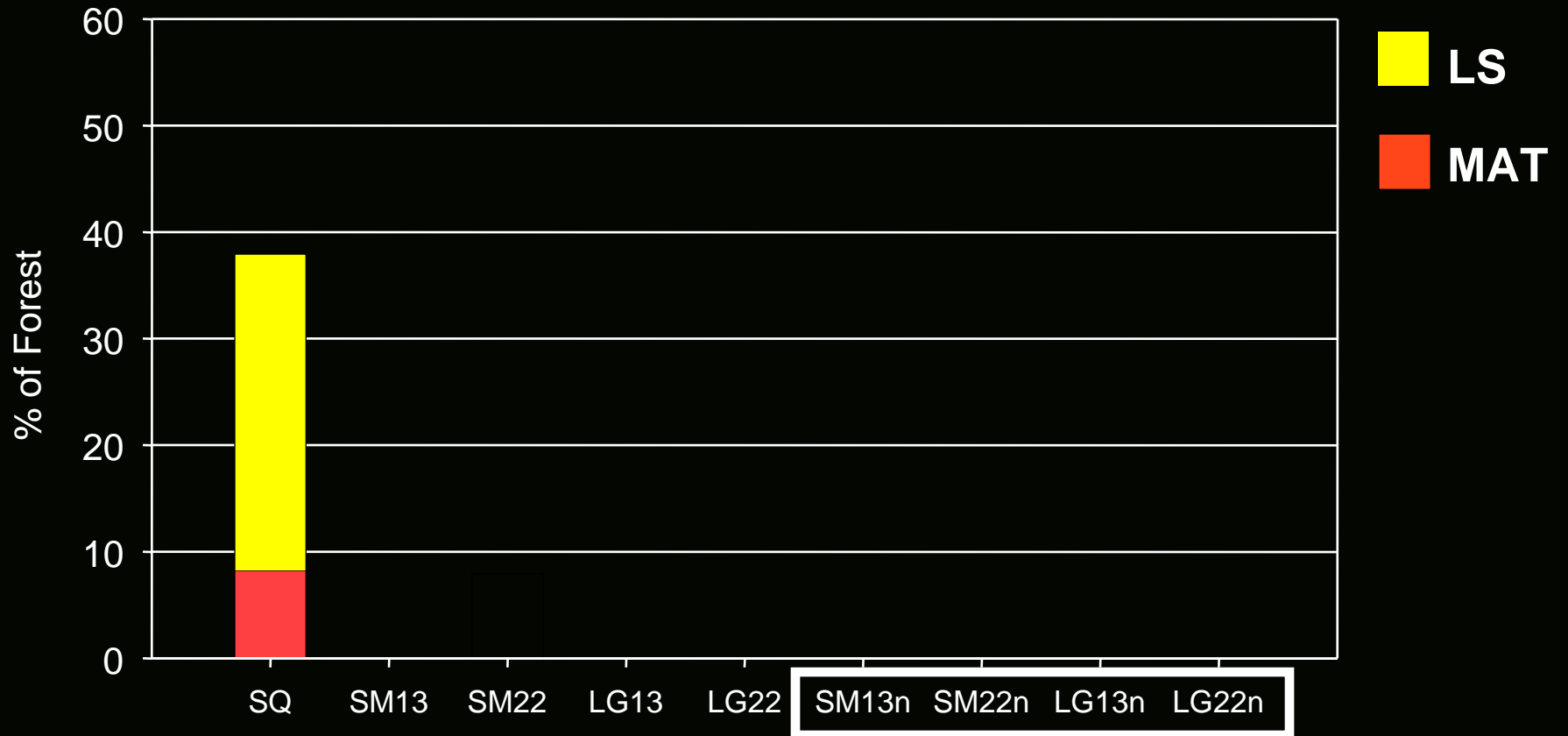
**5%**

**22%**

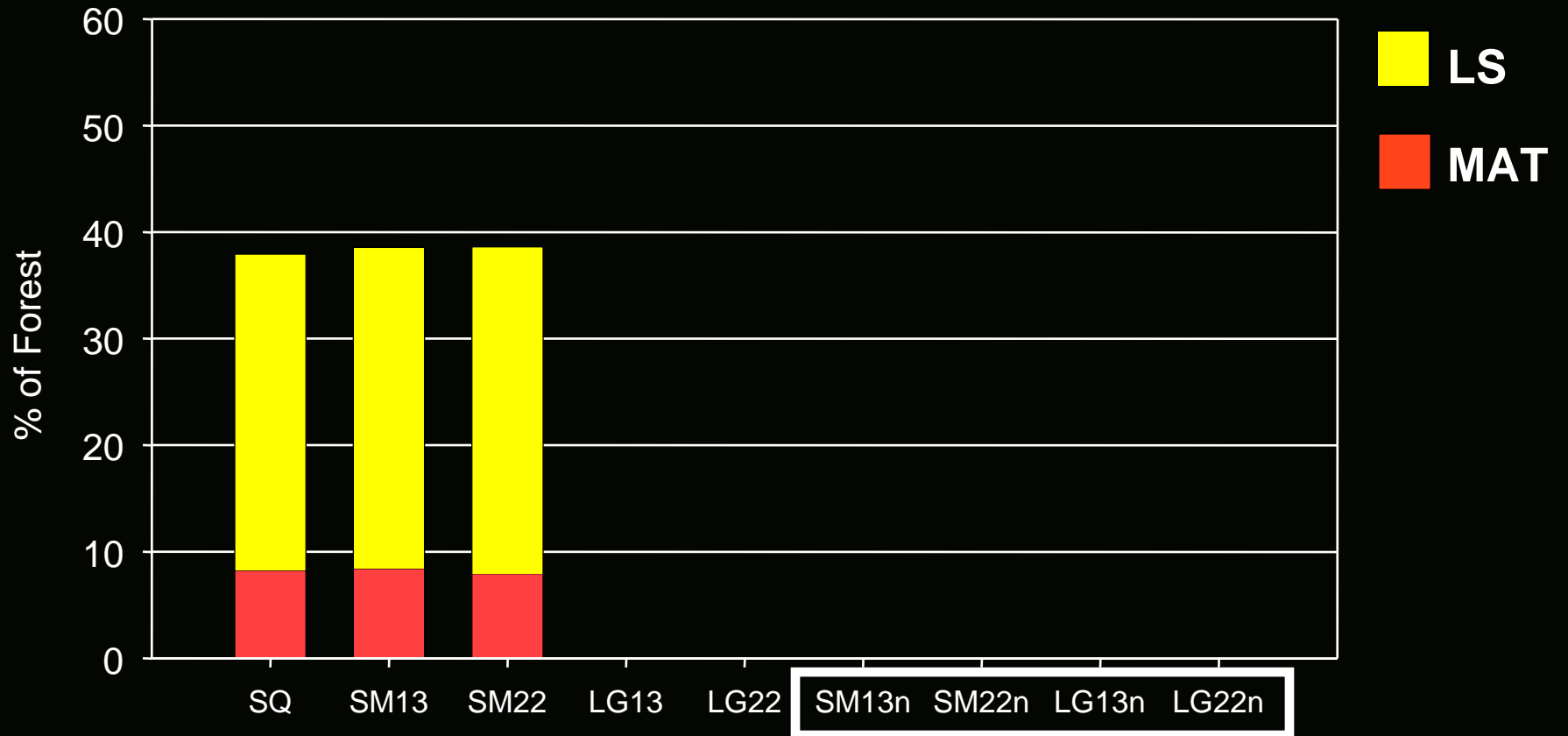
**13%**

➤ *Same total harvest outcome, **very different forests***

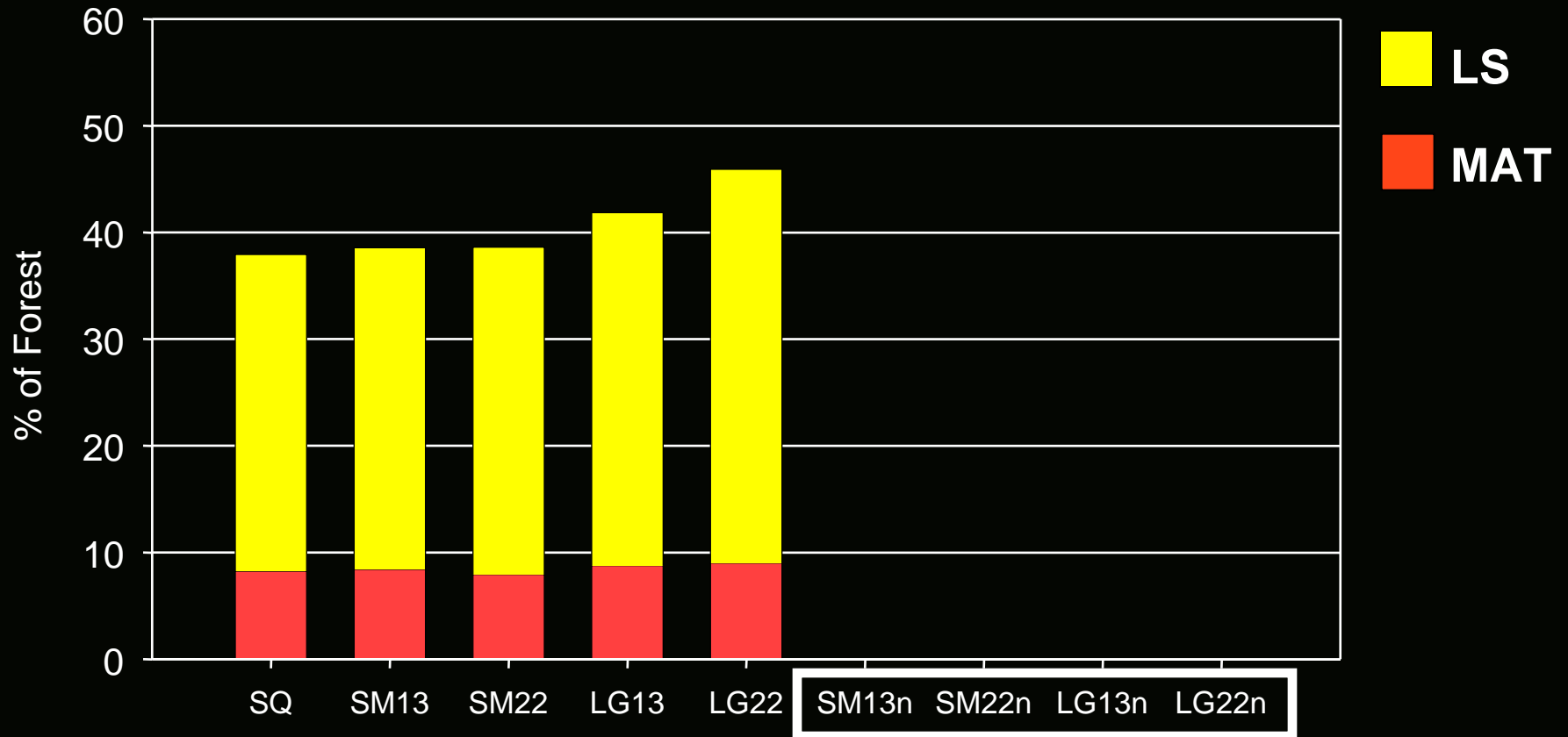
# Mature/Late Successional (yr 50)



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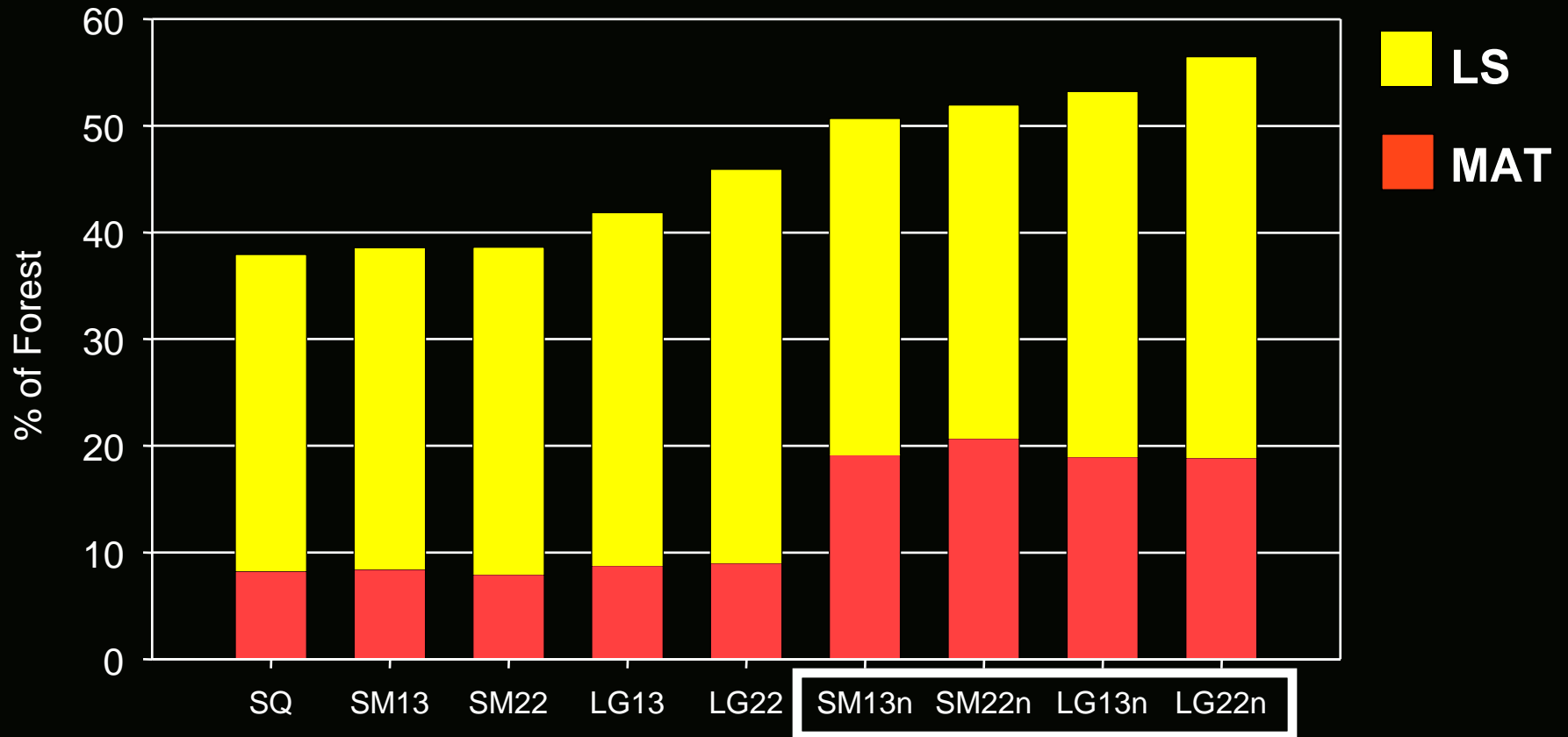


## Mature/Late Successional (yr 50)



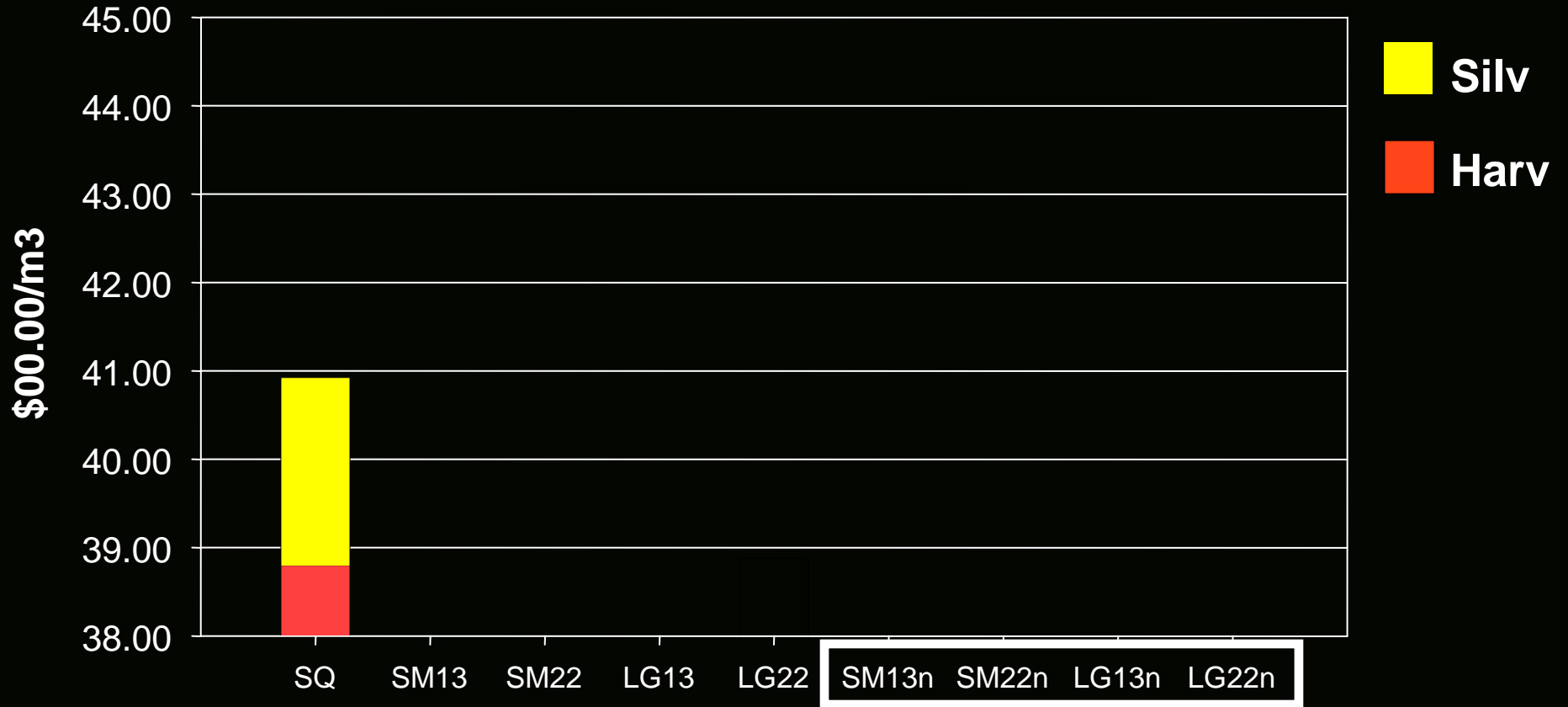
➤ *More area in reserve, more late successional forest*

## Mature/Late Successional (yr 50)



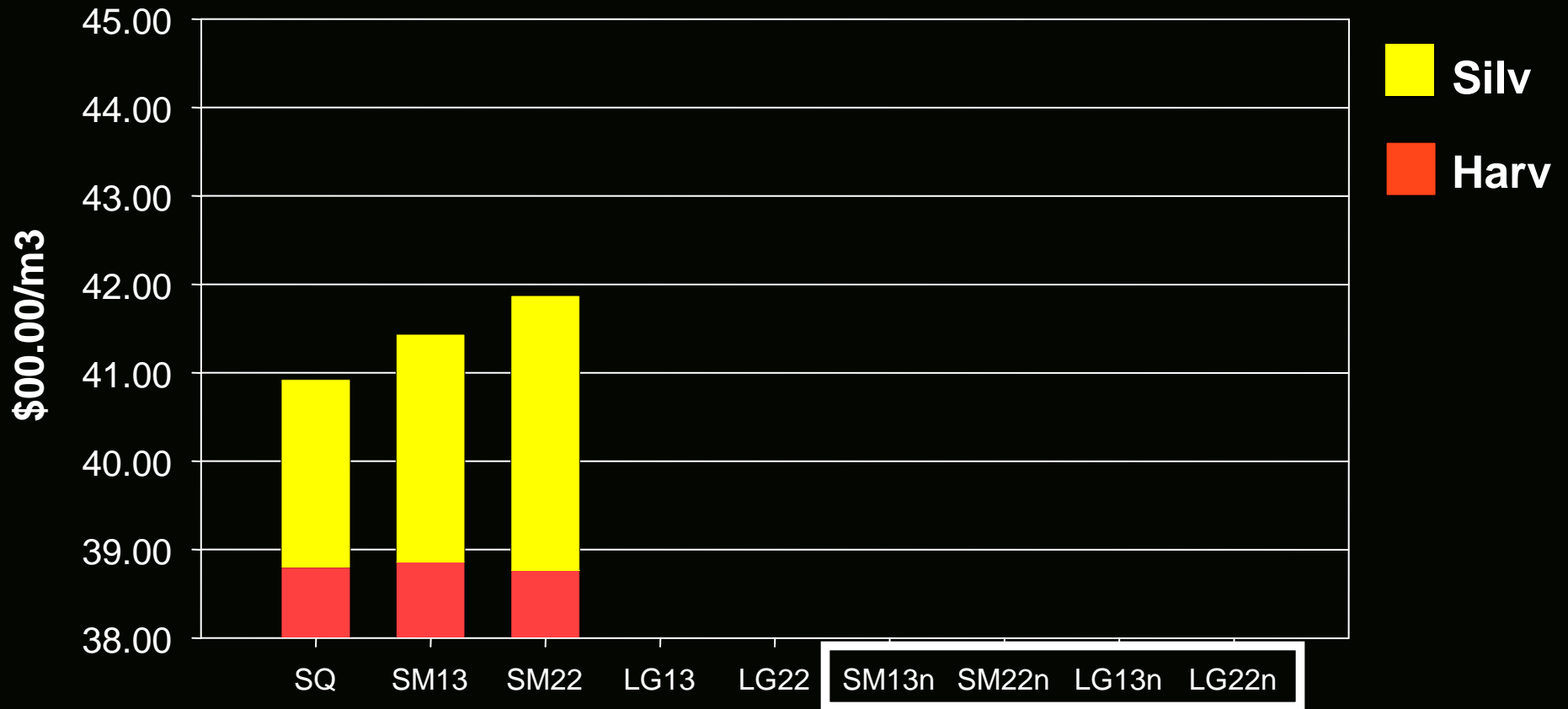
➤ *Nat Dist harvest maintains mature forest; increases by ~10%*

# Harvest/Silviculture Costs (yrs 1-25)



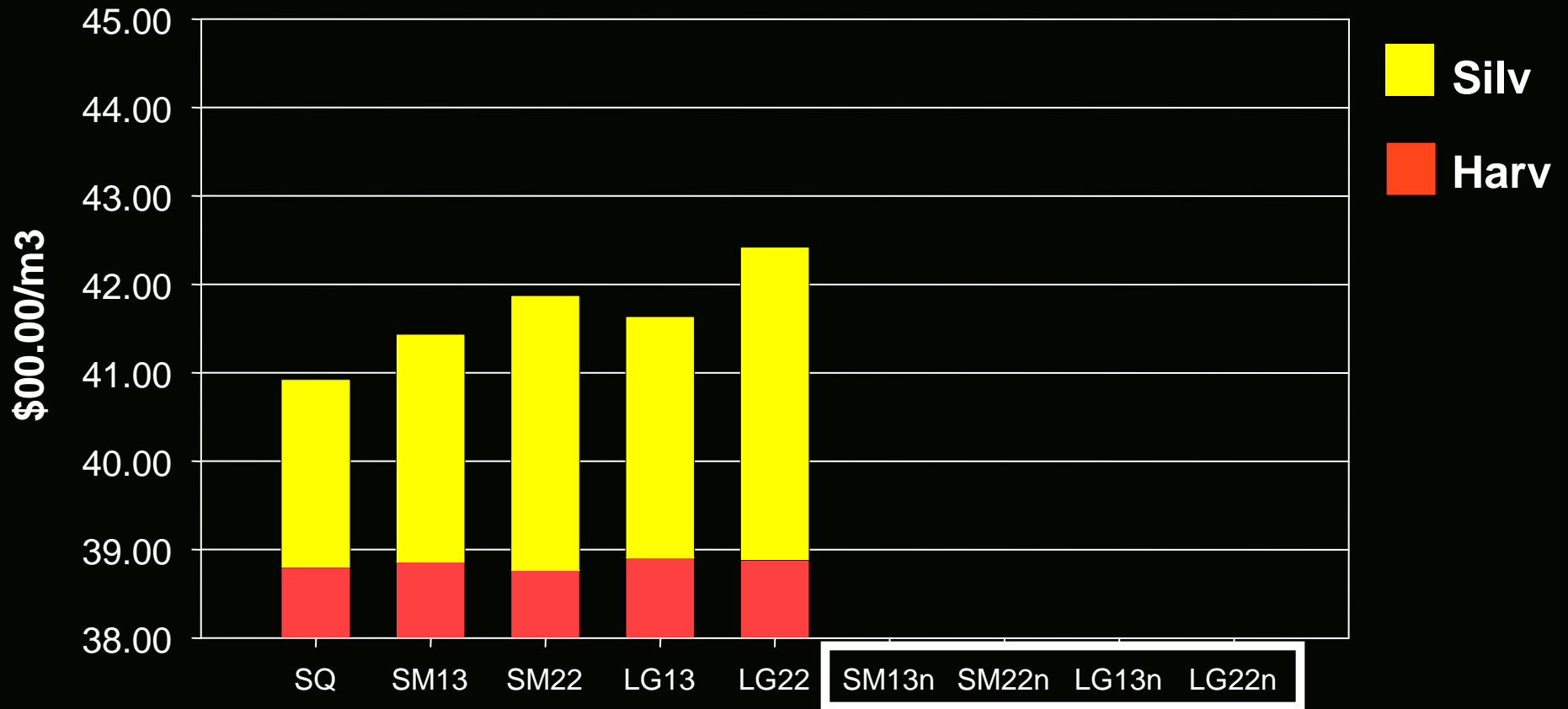


## Harvest/Silviculture Costs (yrs 1-25)



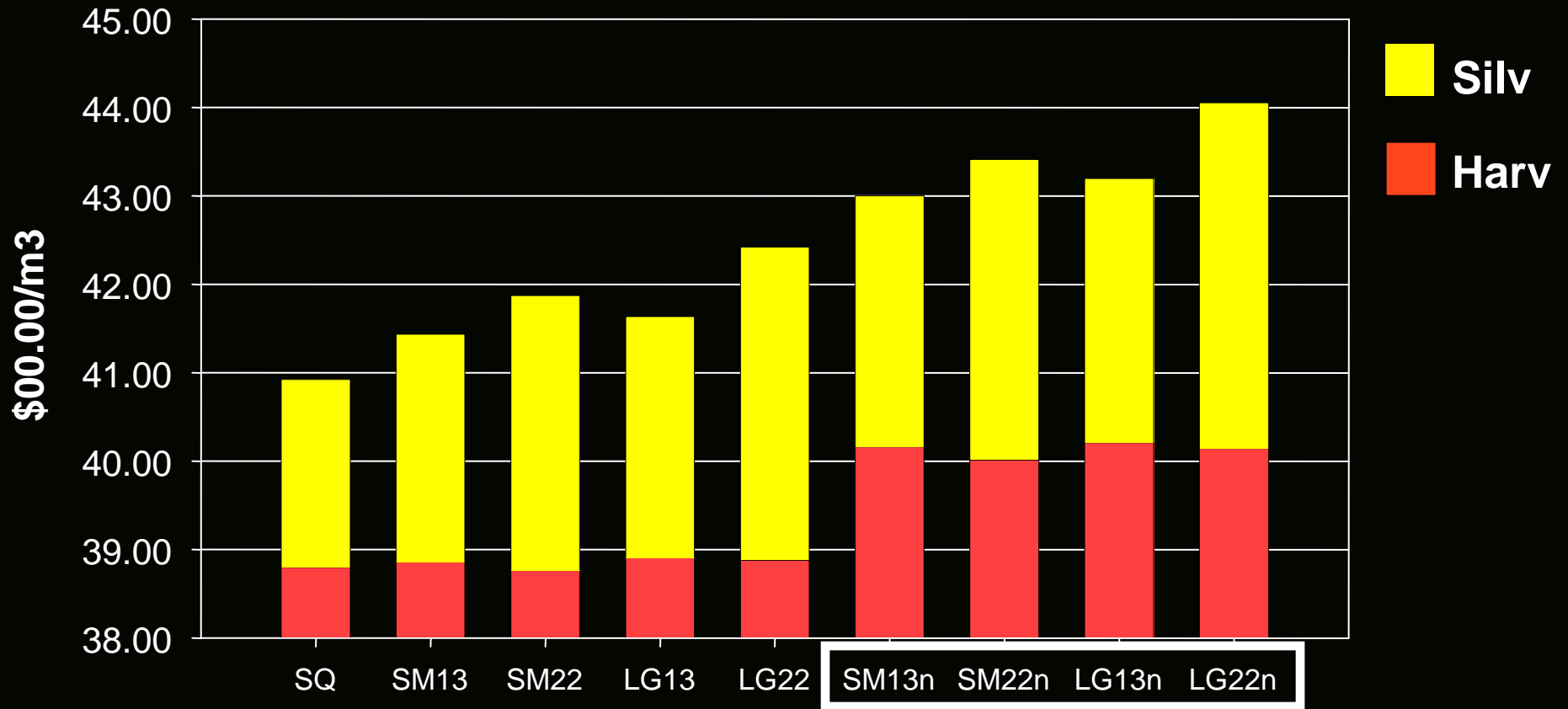
➤ *greater investment in planting, higher silviculture cost/m<sup>3</sup>*

# Harvest/Silviculture Costs (yrs 1-25)



➤ *greater investment in planting, higher silviculture cost/m<sup>3</sup>*

## Harvest/Silviculture Cost/m<sup>3</sup> (yrs 1-25)



➤ *~\$1.00 increase in harvest costs with more non-clearcut harv.*

## In Closing..

- Simultaneous increase of **reserve and plantations** allowed maintenance of **average** SQ harvest level
- **Natural disturbance-based** harvest
  - Assumed maintenance of non-timber values
  - Risky?
  - Costly
  - Need to know more

*A thought..*

*“To simplify complications is the first essential of success” –George Earle Buckle*

**Thank-you**



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