

# Management Alternatives for New Brunswick's Public Forest

## *Report of the NB Task Force on Forest Diversity and Wood Supply*



Thom Erdle  
Public Information Sessions  
13-19 September-2008

# Objectives

Help you feel **comfortable** with report  
& use it to draw your **own conclusions**

- How & why the issue was framed and addressed
- What the report provides
- Address questions



## Management Alternatives for New Brunswick's Public Forest

Report of the New Brunswick Task Force  
on Forest Diversity and Wood Supply



## Overarching Question

*How should we manage  
New Brunswick's Public Forest?*



# ❖ Overarching Question

*How should we manage  
New Brunswick's Public Forest?*

❖ Tenure

❖ Allocation

❖ Industrial Infrastructure

Task Force  
Effort

❖ Management of the Forest

What happens on-the-ground?

What kind of forest do we get?

What does the forest provide?

# ❖ Overarching Question

*How should we manage  
New Brunswick's Public Forest?*

- ❖ **Alternatives**      Many ways to manage the forest  
                                 No one “right” way
- ❖ **Outcomes**        Complex economic, social, environmental dimensions  
                                 Valued differently by different parties
- ❖ **Tradeoffs**        Gain in one outcome at expense of another

**Tough decision-making**

## ❖ Overarching Question

*How should we manage  
New Brunswick's Public Forest?*

### ❖ Task Force Asked to...

Design a full set of forest management alternatives

Express outcomes in comprehensive terms

Reveal and quantify tradeoffs

Provide information for decision-making





- ❖ Task Force **NOT** asked to make recommendations regarding how to manage the forest.

# Outline

- **Mandate & Background**
- **Basic Underpinnings**
- **Management Alternatives & Outcomes**

# Task Force Mandate




## History

-  Jaakko Poyry report
-  Legislative Select Committee on Wood Supply
-  Public hearings & Report
-  Task Force on Forest Diversity & Wood Supply formed



## Task Force Mandate

Define **broad set** of realistic forest management **alternatives** that...

-  generate **increasing yields** of a **wider variety** of tree species & products
-  maintain **diversity** & important **ecological features** of the Acadian forest
-  are characterized in terms of **diversity, wood supply** and **socio-economic** consequences

# Task Force Mandate

## Membership

-  Broad representation of views

**Environmental community**

**Forest industry**

**Woodlot sector**

**Government**

**Universities**

# Background

## Key in Mandate

-  **Wood Supply**

-  **Acadian Forest**

-  **Forest Today**

# Background

*From mandate...*

## Wood Supply

generate **increasing yields** of a **wider variety** of tree species & products

### • *Future Economic Environment Uncertain*

- markets/prices
- competitiveness
- values

### • *Diverse Supply*

- suited to a variety of potential products
- hedge against uncertainty

### • *Increasing Yields*

- opportunity for economic growth
- potential for choice about how to use forest

*From mandate...*

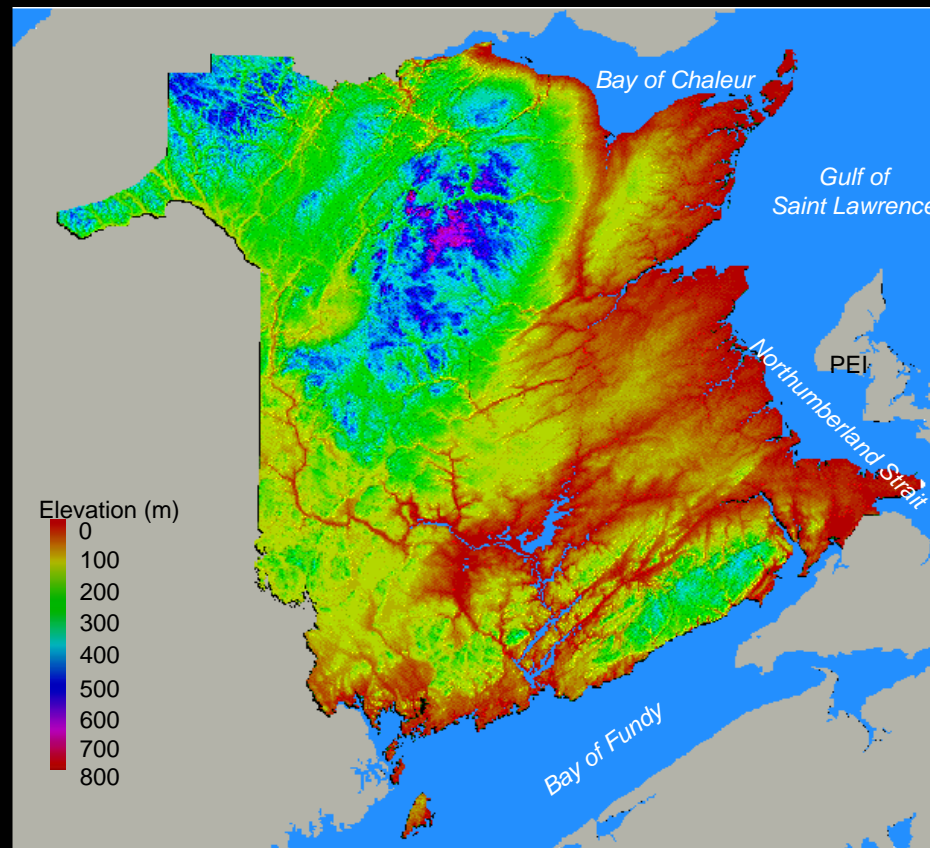
## Background

### Acadian Forest

recognize & ***maintain diversity*** & important ***ecological features*** of the Acadian forest

● ***Highly diverse***

### Geophysical features



# Background

## Acadian Forest

● *Highly diverse*

**Geophysical features**

**Natural disturbances**





# Background

## Acadian Forest

● *Highly diverse*

**Geophysical features**

**Natural disturbances**

**Forest**

- species
- species mixtures
- stand structures





# Background

## Acadian Forest

### Threat of Simplification via Management



Reduced abundance of certain species

Fewer old & large trees

Fewer multi-aged stands

Less complex stand structures





## ❖ Background

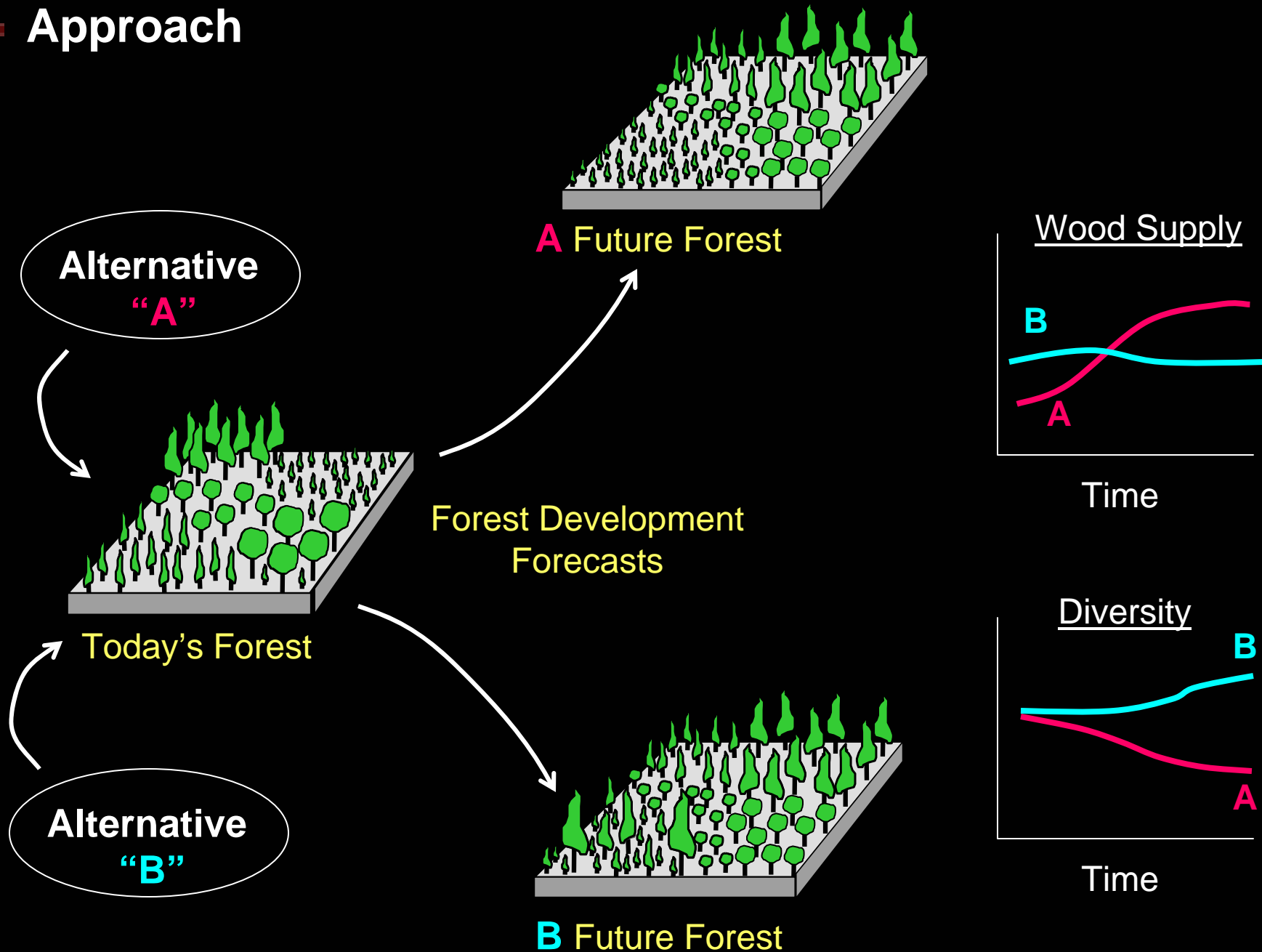
### Challenge

- ❖ Manage forest for sustainable and *diverse* supply of *high quality* raw material
- ❖ Maintaining *key features* of the Acadian forest

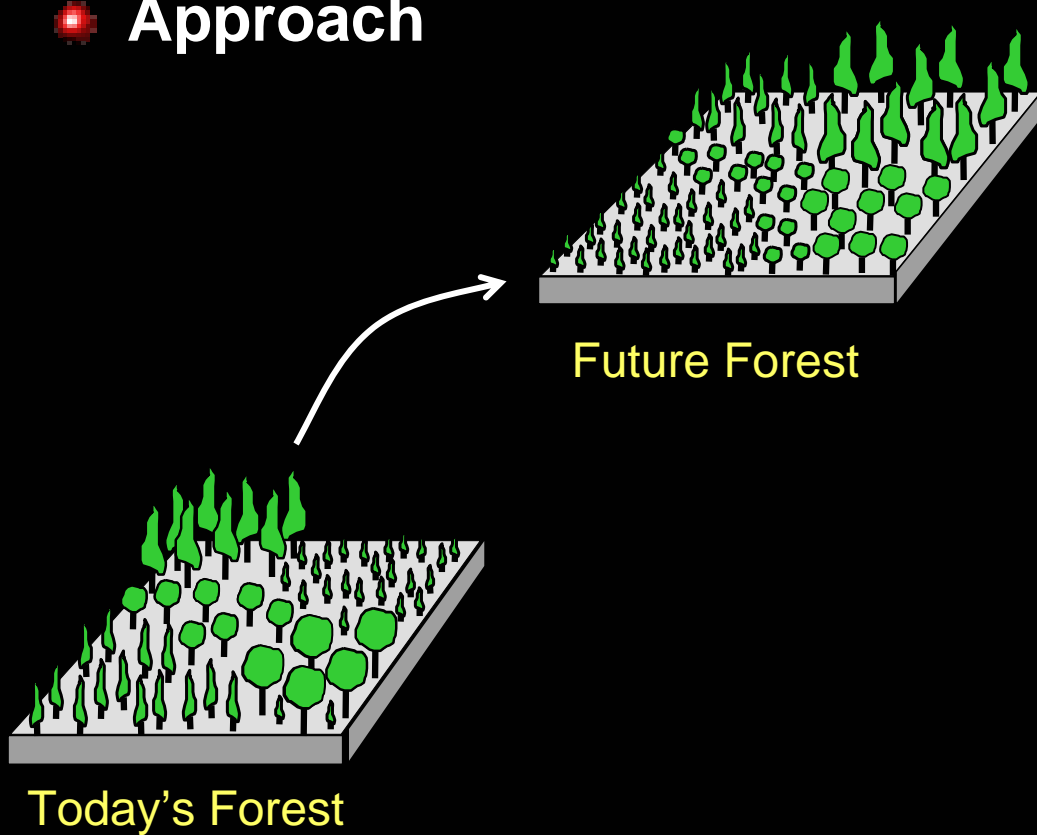
# Outline

- **Mandate & Background**
- ***Basic Underpinnings***
- **Management Alternatives & Outcomes**
- **Fit with Other Information**

# 🔴 Approach



# Approach



Future Forest

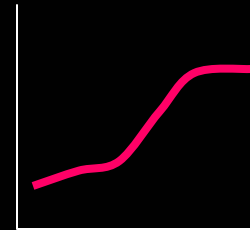
Today's Forest

What *alternatives* to examine?

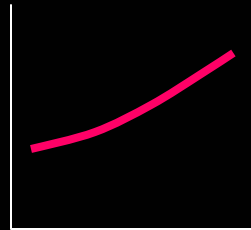
Mgmt  
Alternative

## Outcomes

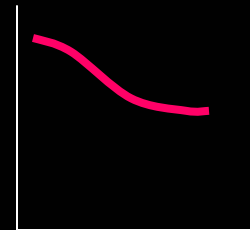
Wood Supply



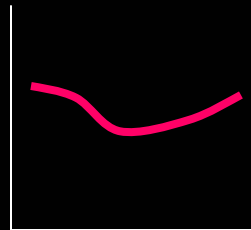
Wood Cost



Old Forest



Habitat



What *outcomes* to measure?

## ❖ Outcome Measures

3 key areas (*from mandate*)

- ❖ forest diversity
- ❖ socio-economic impacts of forest mgmt for timber
- ❖ wood-related business opportunity

# Outcome Measures

19 measures defined

## Diversity indicators

area of **old** forest

location and extent of **protected natural areas**

abundance of **habitat** and **stand types**

## Wood-business opportunities

harvested volume by **species & product**

delivered **wood costs**

## Socio-economic impacts

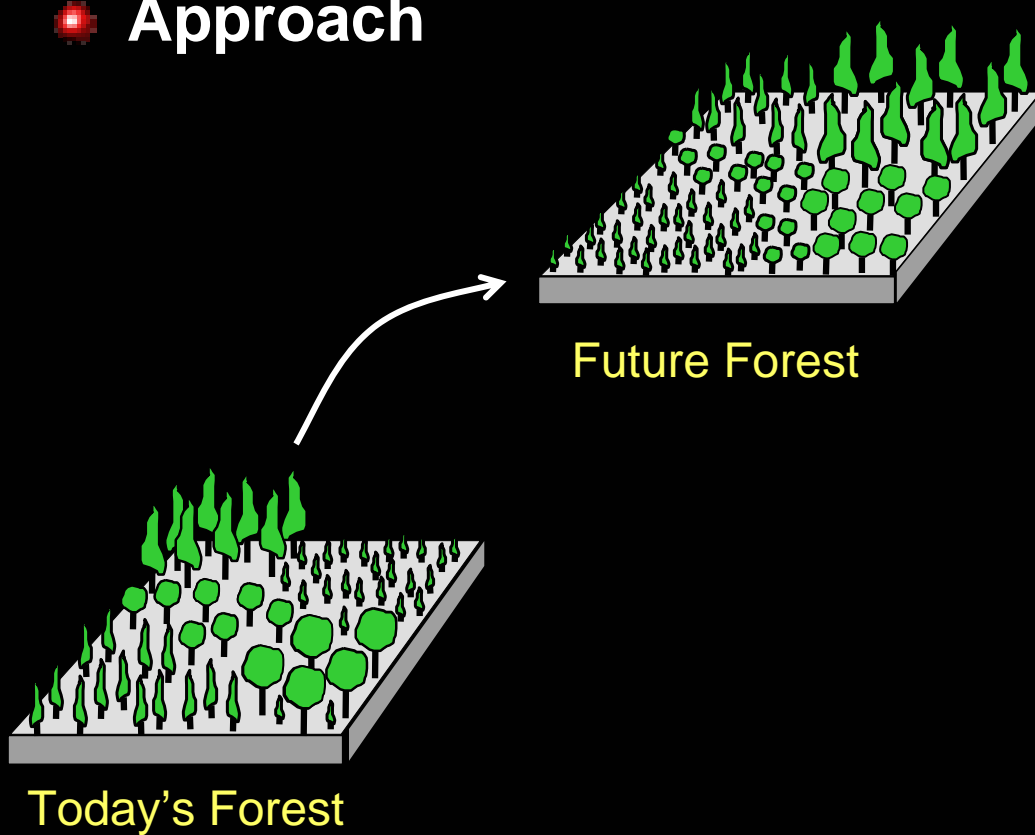
levels and type of **employment** opportunities

value **shipments, GDP**

percent of harvesting by **clearcutting**



# Approach



Future Forest

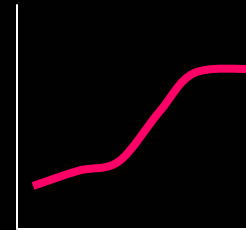
Today's Forest

What *alternatives* to examine?

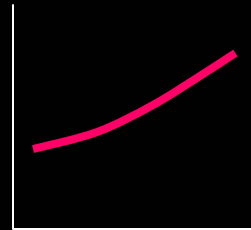
Mgmt  
Alternative

## Outcomes

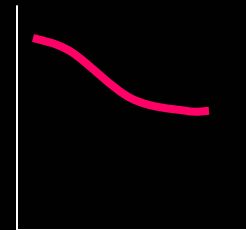
Wood Supply



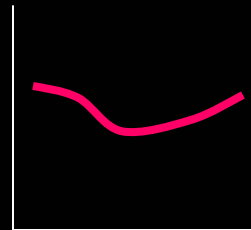
Wood Cost



Old Forest



Habitat




What *outcomes* to measure?

# Management Alternatives

## 7 Cornerstone Issues

Two key elements  
in mandate



- highly **influential** on forest condition & production
- highly **contentious** & focal points of debate
- alternatives **defined** in terms of these issues



# ❖ Cornerstone Issues

## 7 Corner Issues & Questions

❖ Wood supply priorities	Which species & products?
❖ Protected areas	How much area?
❖ Old forest	
❖ Conservation forest	
❖ Plantations	
❖ Harvest treatments	How much clearcutting?
❖ Forest composition	How much of various species?

What are the possible answers?

## Cornerstone Issues

Range of options specified for each cornerstone issue



Alternatives defined by option chosen for each issue

# Cornerstone Issues

What are these options?

Wood supply priorities



Protected areas



Conservation forest



Old forest



Plantations



Harvest treatments



Forest composition



# ❖ Cornerstone Issues

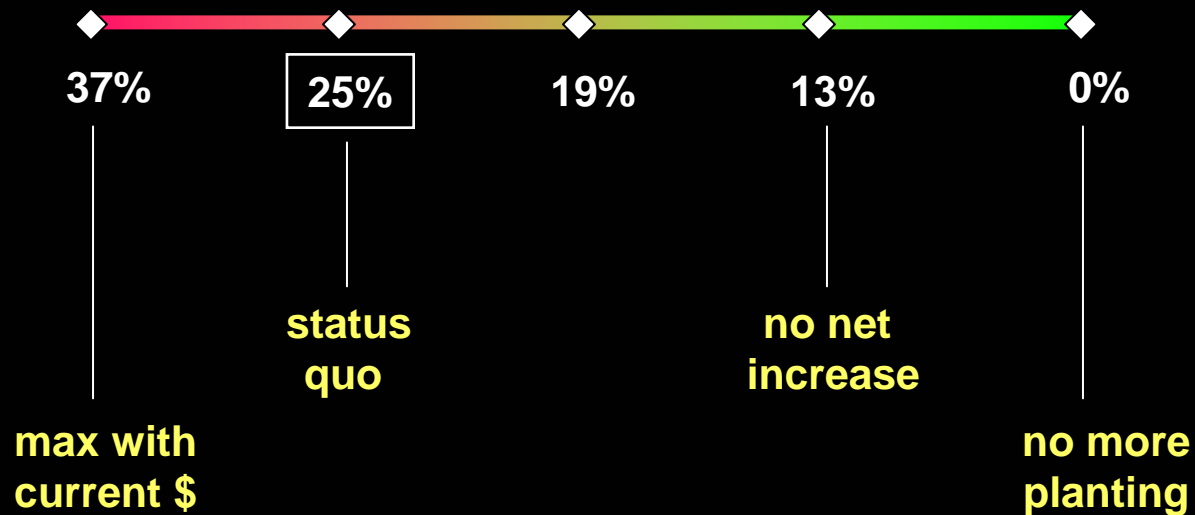
## Plantations

- ❖ High timber yields (2 – 3 times unmanaged stands)
- ❖ Expensive (\$1000/ha)
- ❖ Socially or Environmentally “Undesirable”

# Cornerstone Issues

## Plantations

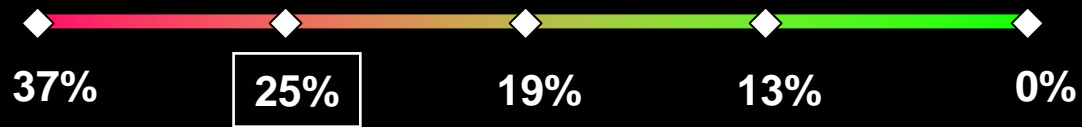
### % Forest Area in Plantations (in 50 years)



# Cornerstone Issues

## Plantations

### % Forest Area in Plantations (in 50 years)



————— Diversity of forest increases —————→

←———— Long-term spruce/fir wood supply increases —————

# ❖ Cornerstone Issues

## Conservation Forest

- ❖ Primary goals to meet **conservation** objectives

- ❖ Conditions

  - special wildlife habitats**

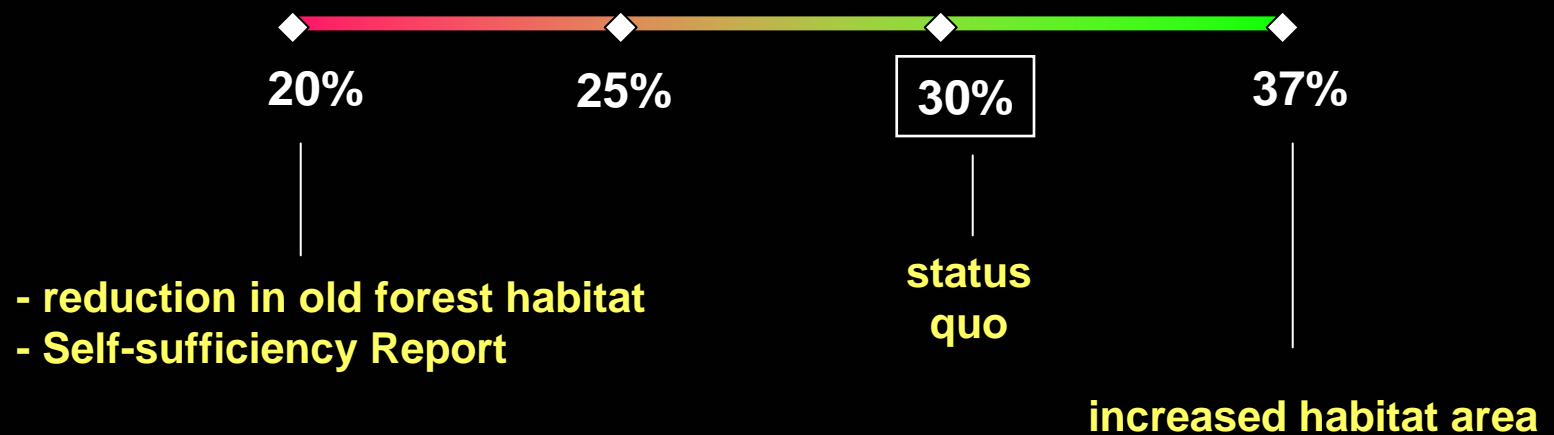
  - watercourse & wetland buffers**

- ❖ Much **reduced timber** availability

# Cornerstone Issues

## Conservation Forest

### % Area in Conservation Forest





# Cornerstone Issues

## Conservation Forest

### % Area in Conservation Forest



————— Diversity of forest increases —————→

←————— Wood supply increases —————

# Management Alternatives

Wood Supply		Forest Diversity
Spruce/fir		Other Species
↑ Protected Areas	↓	↑
↑ Conservation Forest	↓	↑
↑ Old Forest	↓	↑
↑ Use of Clearcutting	↑	↓
↑ Plantations	↑	↓

# Outline

- **Mandate & Background**
- **Basic Underpinnings**
- ***Management Alternatives & Outcomes***
- **Fit with Other Information**

# Management Alternatives

## Issues

## Options

Wood supply priorities (3)

Protected areas (5)

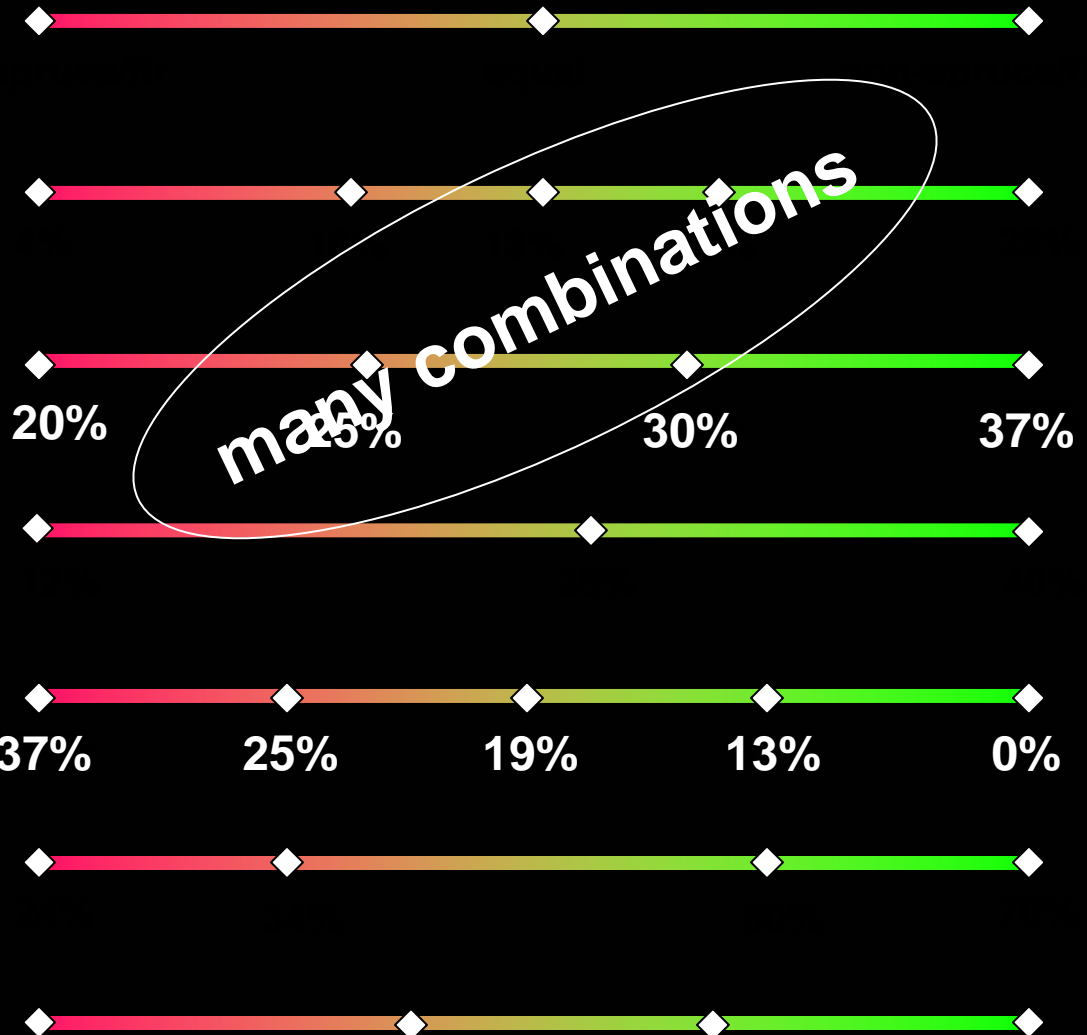
Conservation forest (4)

Old forest (3)

Plantations (5)

Harvest treatments (4)

Forest composition (4)



# ❖ Management Alternatives

## 8 Selected for Full Analysis

- ❖ Ensure all interested parties see an alternative *consistent with their view*
- ❖ But *not exclusive* set
- ❖ Others can be analyzed with *modified option* choices

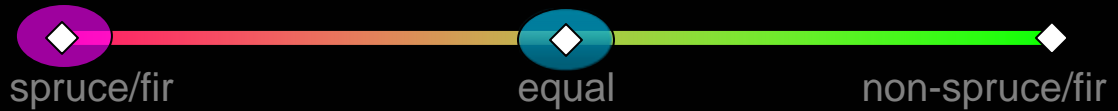
# Management Alternatives

Wood supply emphasis ← → Diversity emphasis

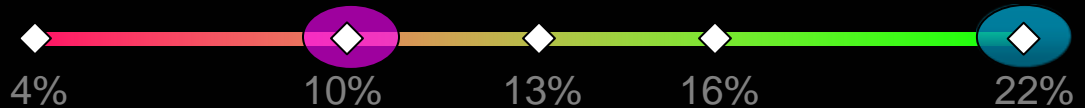
**Alternative E**

**Alternative A**

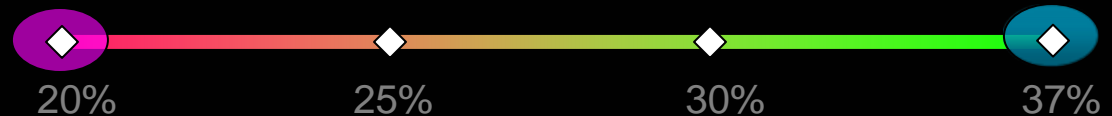
Wood supply priorities



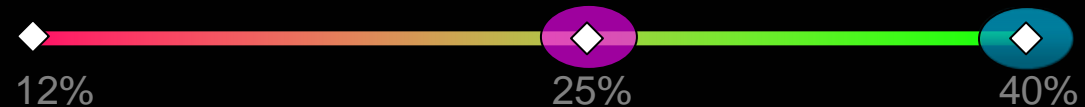
Protected areas



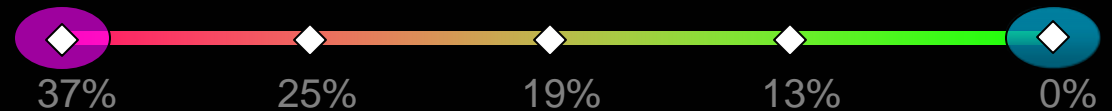
Conservation forest



Old forest



Plantations



Harvest treatments



Forest composition



# Management Alternatives



# Management Outcomes

## Outcomes

Wood supply

Volume

Old forest

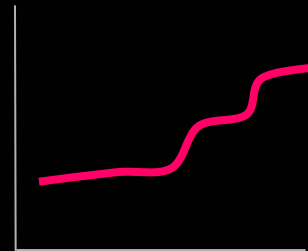
Area

Plantations

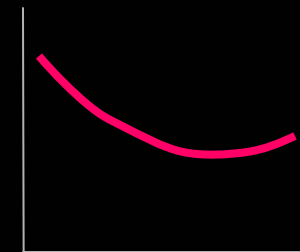
Area

## Alternatives

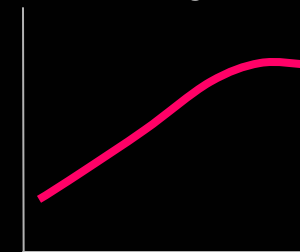
A



Time



Time



Time





# Management Outcomes

## Part 5 – Management Alternatives and Outcomes

### Alternative 'A'

#### Description

This alternative has conservation as the over-riding objective, which it achieves primarily through increased allocation of forest to conservation zones and implementation of low-intensity management regimes on the portion of the forest managed for timber production.

- The wood supply objective places equal priority on all species groups.
- Conservation objectives are met through increasing the conservation land base to 50% of the forest area, and increasing representation of all species groups in the forest area managed for timber production.
- Conservation objectives are further met by increasing old forest area and eliminating plantations over time. No new area is planted and once plantations are harvested, the area is left to regenerate naturally.
- On the forest area managed for timber production, treatments are employed to maintain some of the characteristics likely to result from natural disturbance. This varies by stand type, but includes managing for complex stand structures by creating multiple age classes within stands and permanently retaining significant amounts of unharvested interior patches to provide large live trees, snags, and coarse woody debris over time.

- The abundance of under-represented stand types is gradually increased to estimated 1940 levels by year 60.

#### Outcomes

- Because of the large area assigned to conservation forest, the wood supply of all species drops relative to the status quo. The drop is most pronounced (almost 40%) in spruce/fir and tolerant hardwood (Figs 5-7 and 5-8).
- For the same reason, the wood supply of all species remains unmet (Fig. 5-9).
- Because of the large area assigned to conservation forest, the wood supply of all species drops relative to the status quo. The drop is most pronounced (almost 40%) in spruce/fir and tolerant hardwood (Figs 5-7 and 5-8).
- Because of the large area assigned to conservation forest, the wood supply of all species drops relative to the status quo. The drop is most pronounced (almost 40%) in spruce/fir and tolerant hardwood (Figs 5-7 and 5-8).
- Forest composition is affected in two ways. Restriction on planting increases fir and decreases spruce/fir and intolerant mixedwood types. Increased use of non-clearcut harvesting maintains the tolerant stand types in generally constant abundance (Fig. 5-11).
- The forest allocation to conservation zones and cessation of planting creates a forest structure dominated by unplanted, even-aged stands less than 50 years old and unmanipulated stands greater than 150 years old. Each makes up nearly one-third of the forest (Fig. 5-12).

#### Summary of Alternative 'A' Management

Wood Supply  
Protected Area  
Conservation Forest  
Minimum Forest  
Management  
Simulate natural disturbance  
restore under-represented types

### Option Settings

### Discussion

## Part 5 – Management Alternatives and Outcomes

Fig. 5-7 – Spruce/fir wood supply vs status quo ('A')

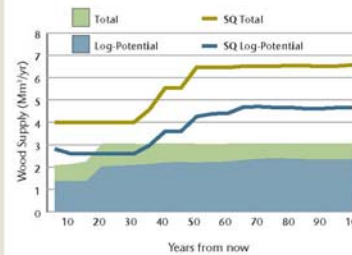


Fig. 5-8 – Log potential wood supply ('A')

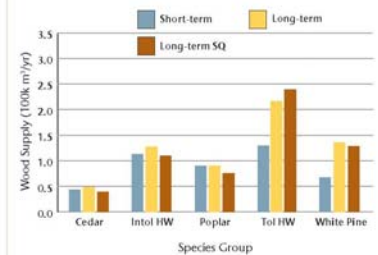


Fig. 5-9 – Area by management history at forecast year 50 ('A')

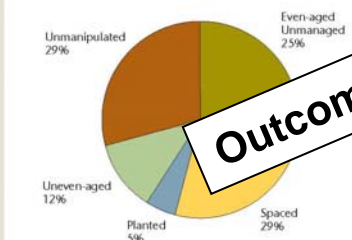


Fig. 5-10 – Old forest abundance over time ('A')

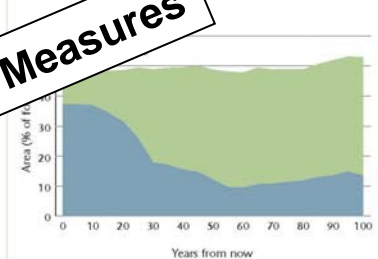


Fig. 5-11 – Forest stand type abundance ('A')

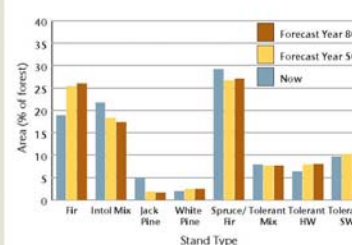
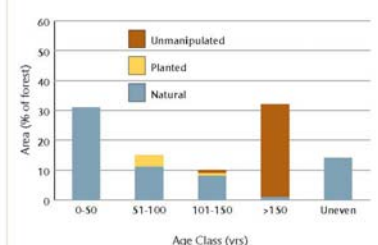


Fig. 5-12 – Age class structure at forecast year 100 ('A')



# ❖ Management Outcomes

## Alternatives & Outcomes

- ❖ Examples of findings
- ❖ Key messages

## Mandate

- ❖ generate **increasing yields** of a **wider variety** of tree species & products
- ❖ recognize & **maintain diversity** & important **ecological features** of the Acadian forest

# ❖ Management Outcomes

## Key Messages

- ❖ *Large range* of possibilities
- ❖ *Trade-offs* exist; consider all outcomes
- ❖ *Long* vs *short*-term outcomes

# Land Allocation



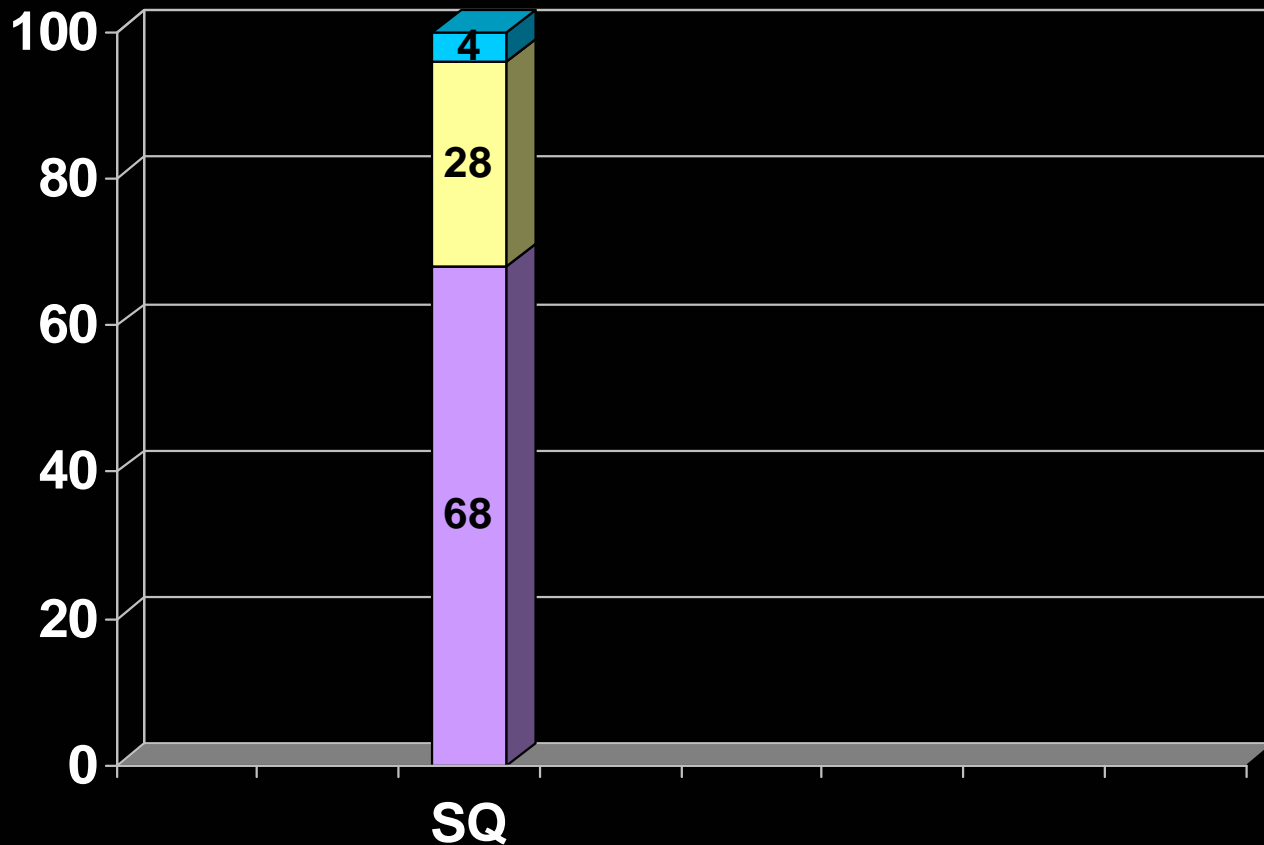
General Forest  
(timber emphasized)



Old Habitat+Buffers  
(conservation emphasized)



Protected  
(no timber harvested)



# Land Allocation



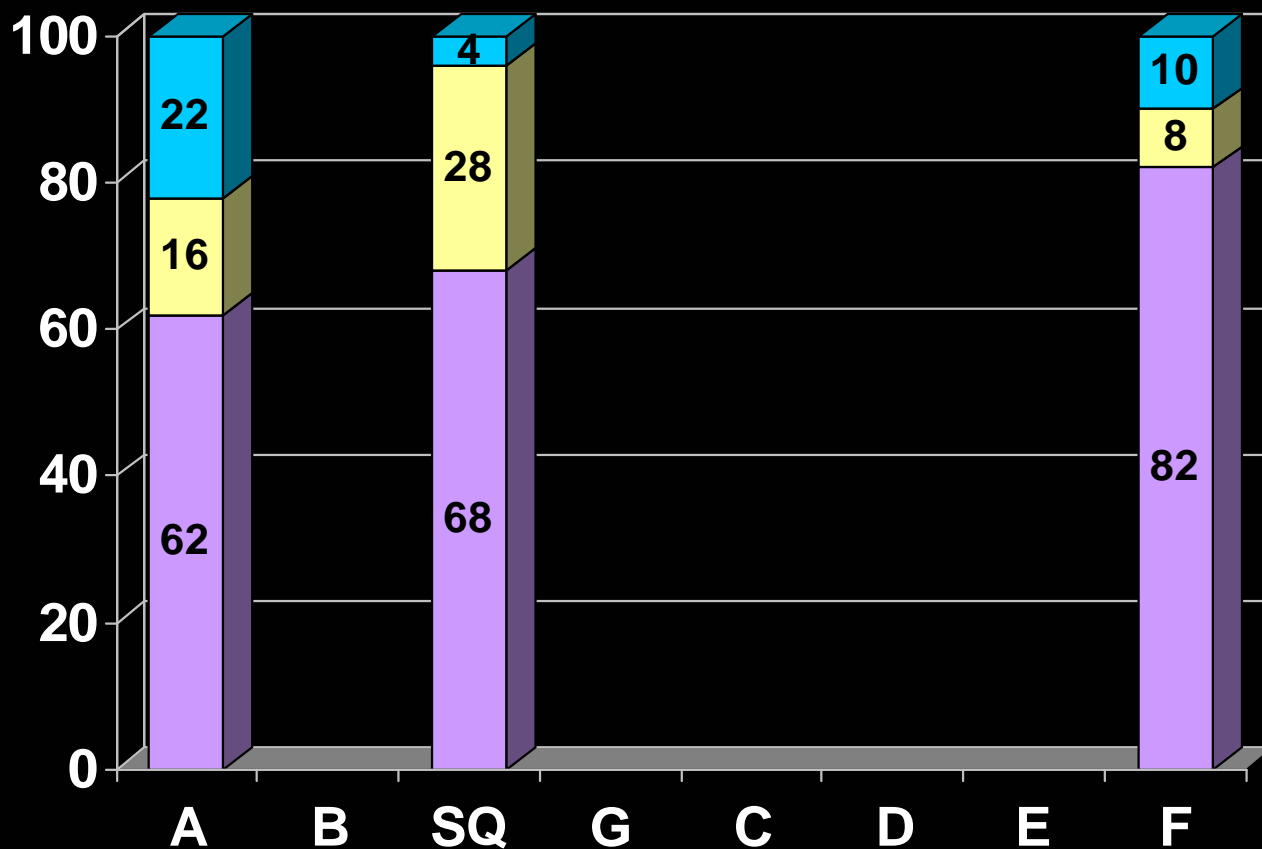
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# Land Allocation



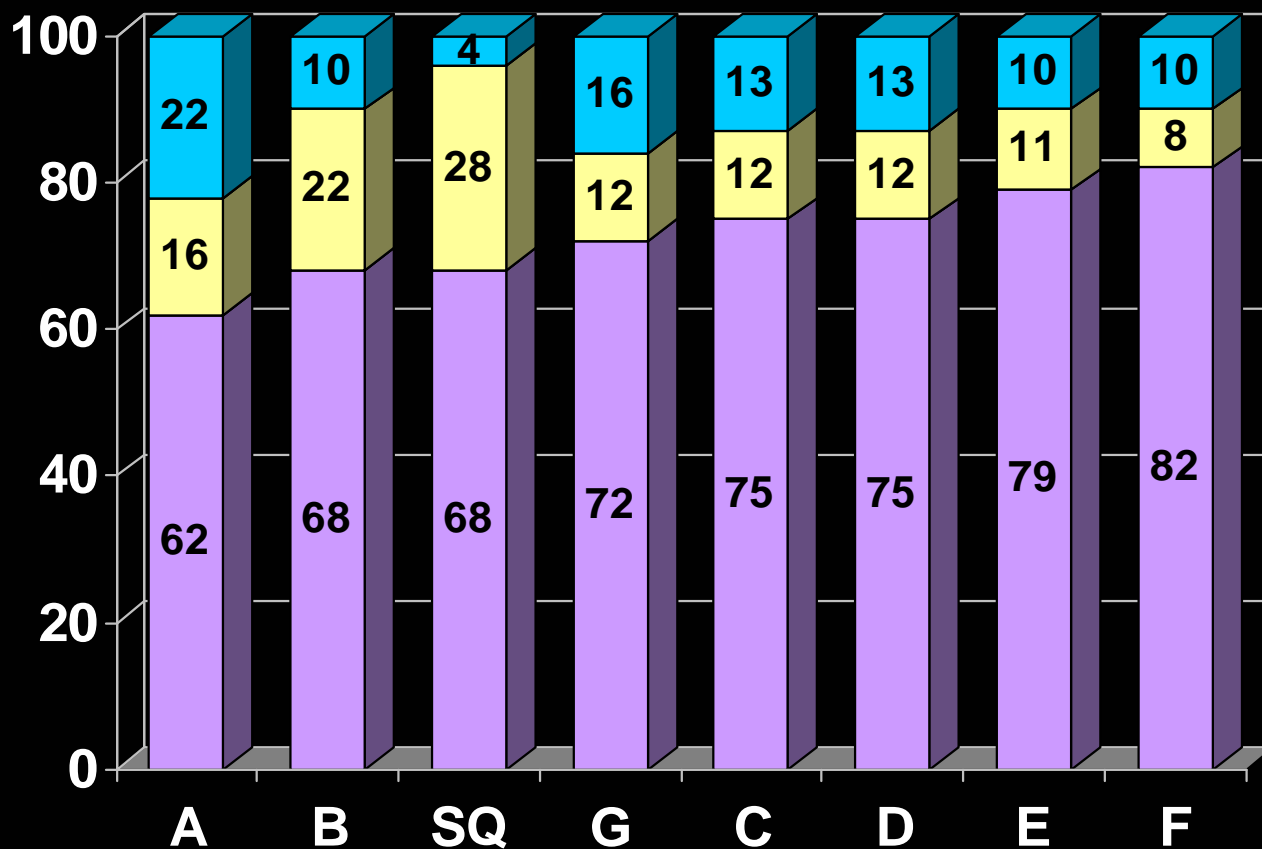
General Forest  
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Protected  
(no timber harvested)



% Forest  
Area

# ❖ Management Outcomes

## Key Messages

- ❖ *Large range of possibilities*
- ❖ Trade-offs exist
- ❖ Long vs short-term outcomes



# Management Outcomes

% Area Harvested by Clearcut



Total Wood Supply (next 25 yrs)



Amount of Protected Natural Area



Area of Unevenaged Management

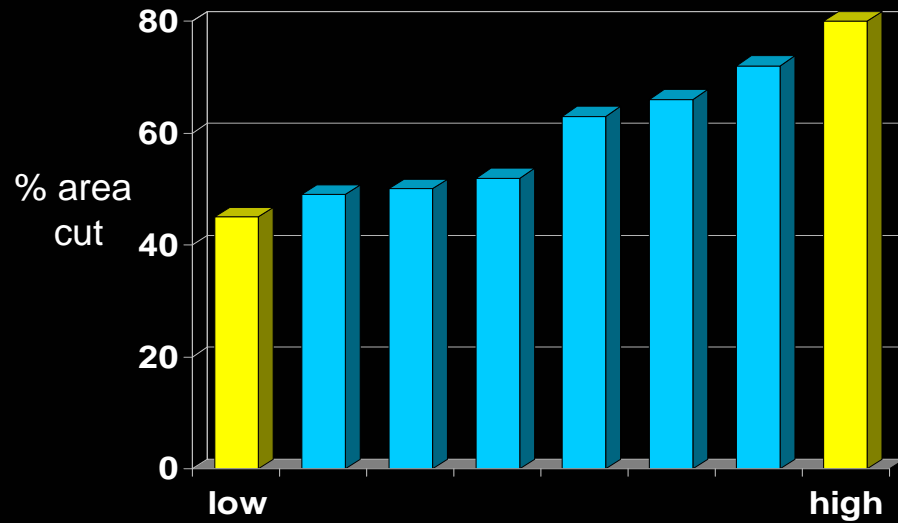




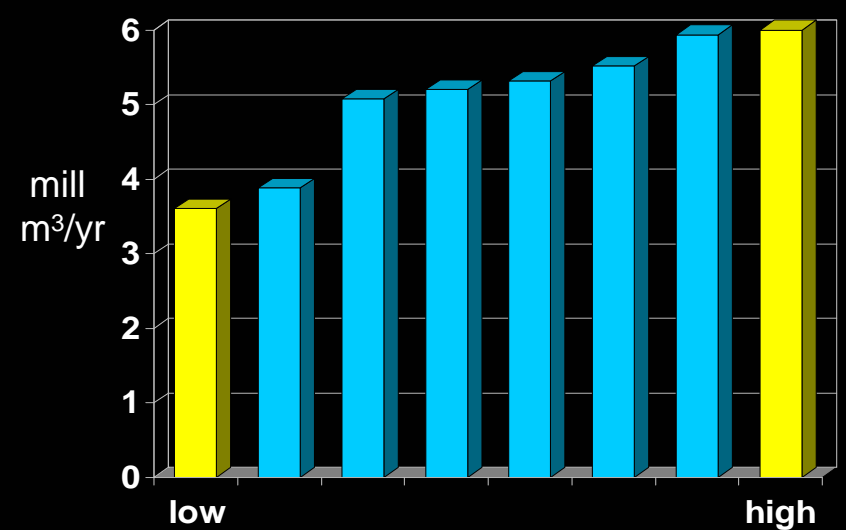


# Management Outcomes

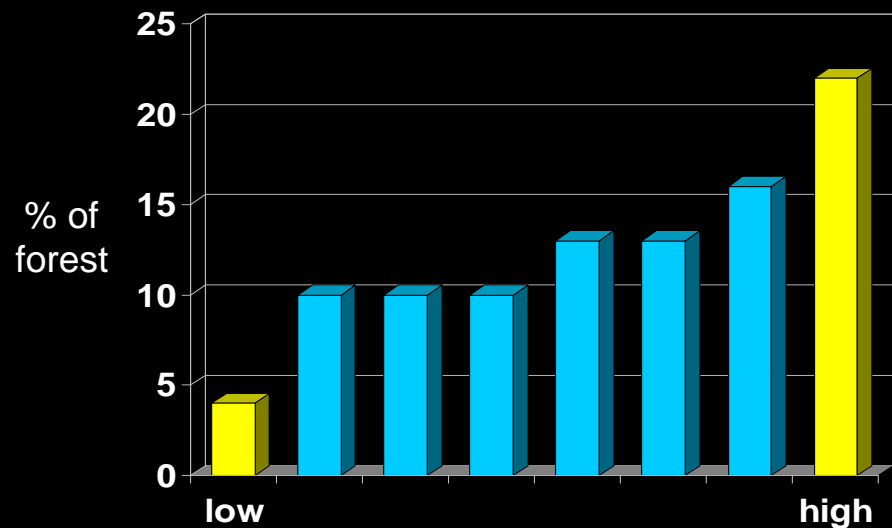
% Area Harvested by Clearcut



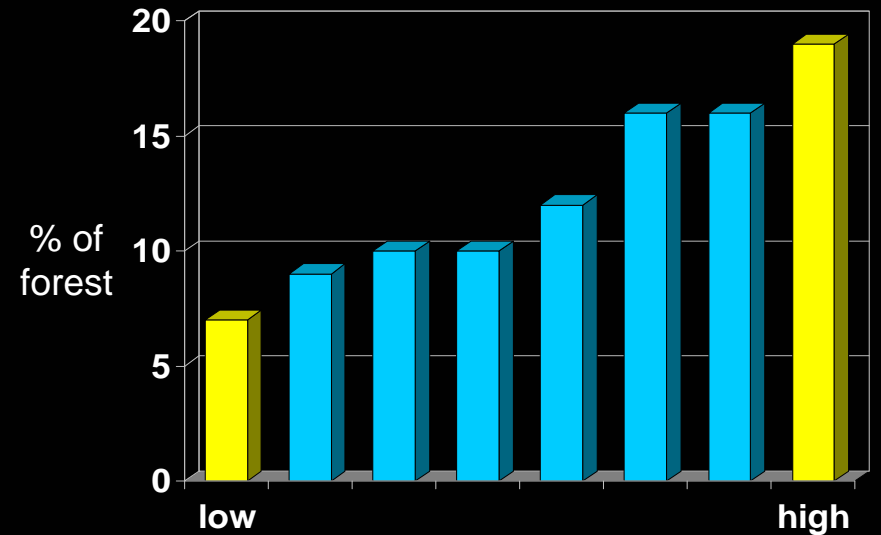
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# ❖ Management Outcomes

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# Management Outcomes

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Total Wood Supply (next 25 yrs)



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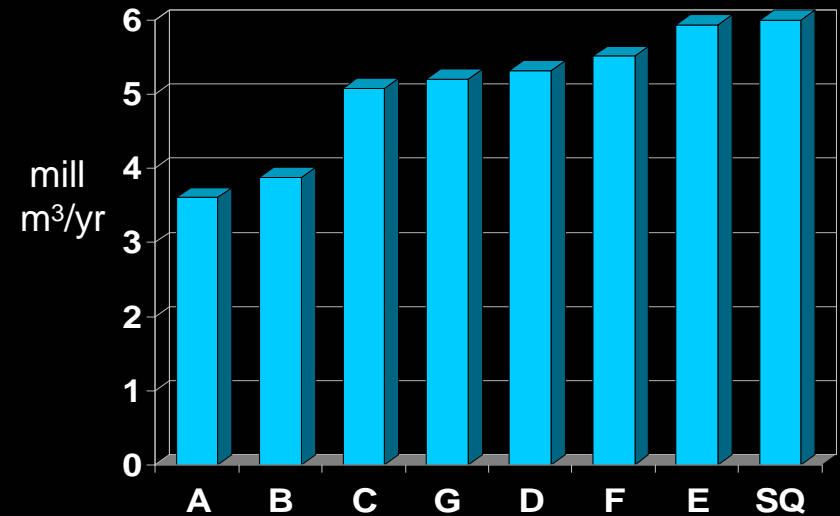


# Management Outcomes

% Area Harvested by Clearcut

Amount of Protected Natural Area

Total Wood Supply (next 25 yrs)



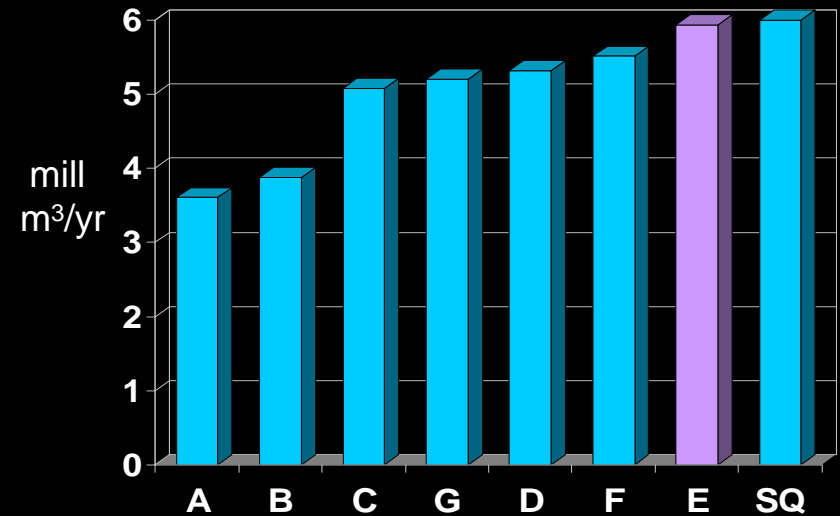
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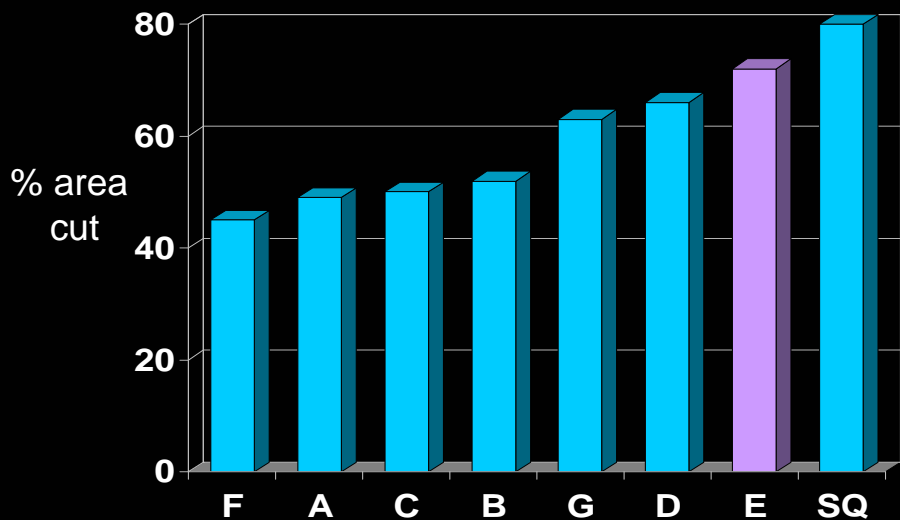
Total Wood Supply (next 25 yrs)



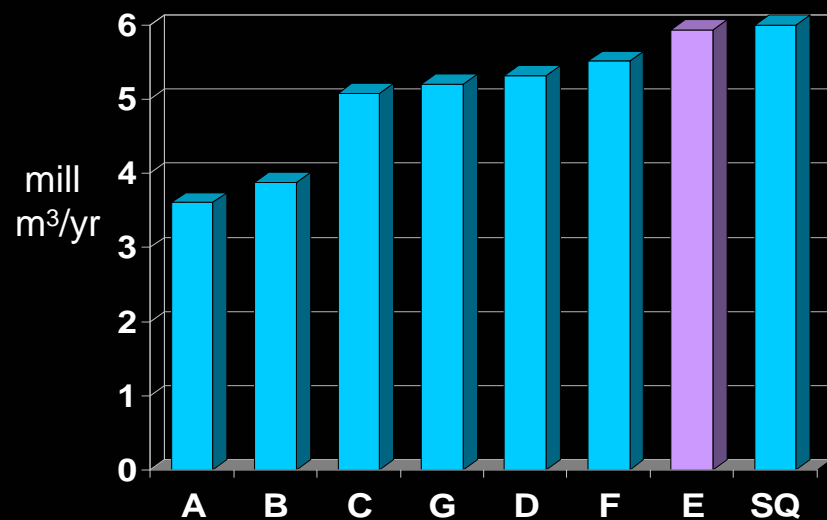
Area of Unevenaged Management

# Management Outcomes

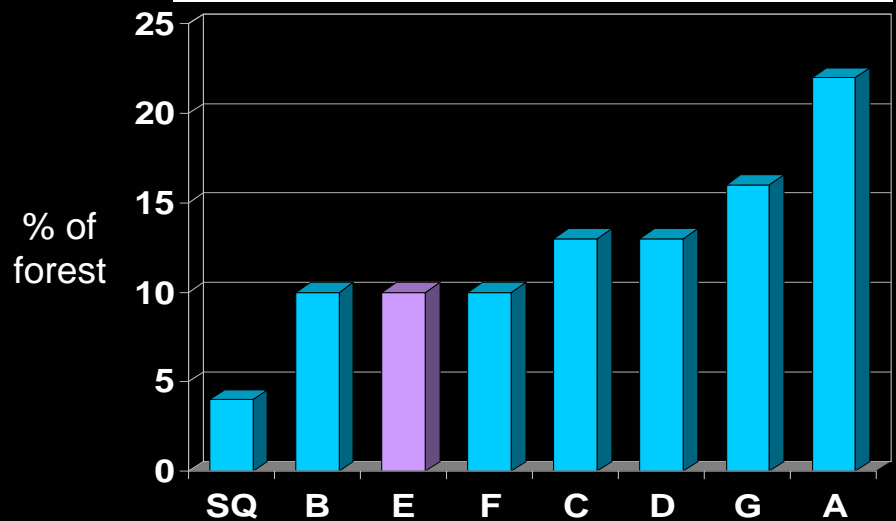
## % Area Harvested by Clearcut



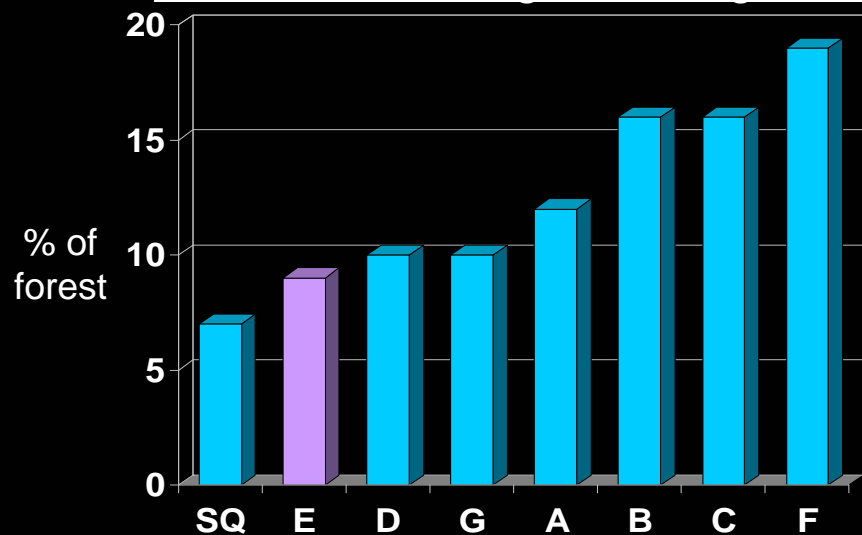
## Total Wood Supply (next 25 yrs)



## Amount of Protected Natural Area



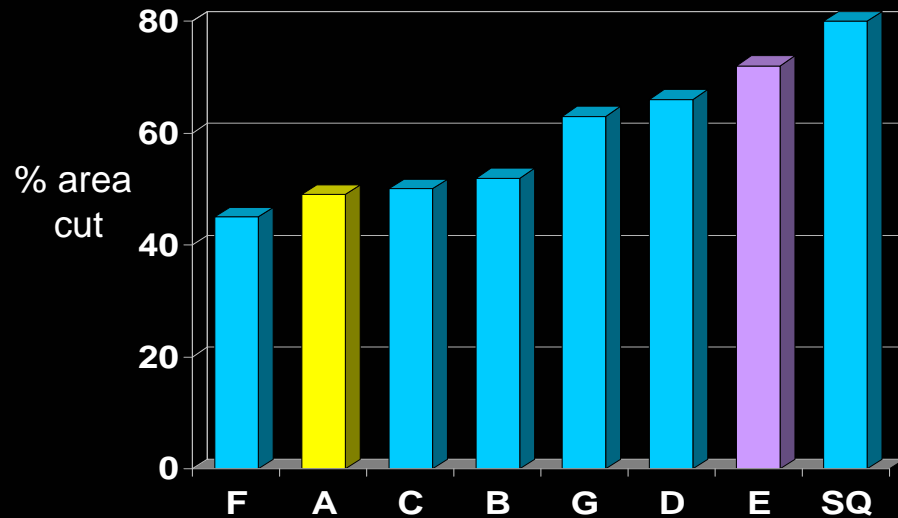
## Area of Unevenaged Management



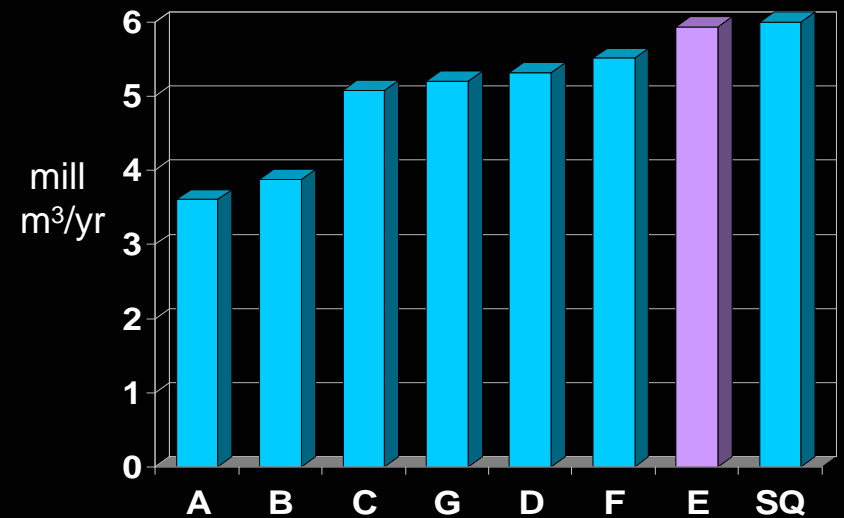


# Management Outcomes

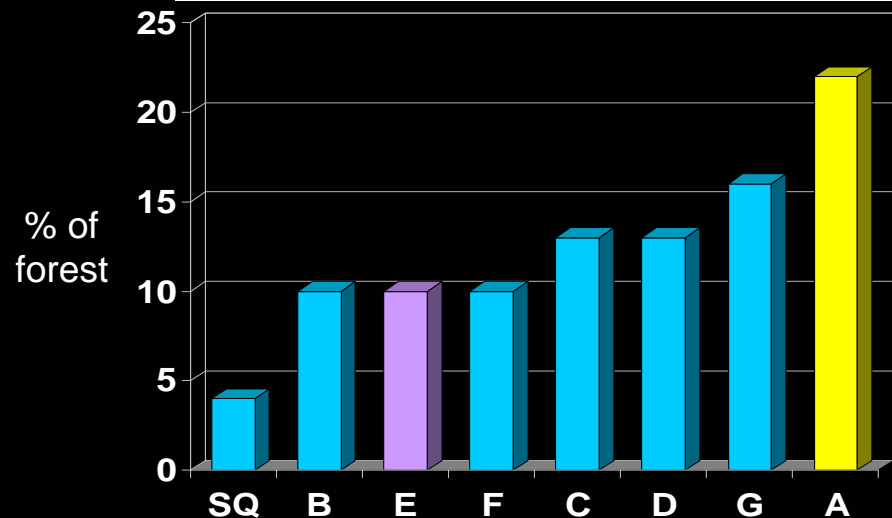
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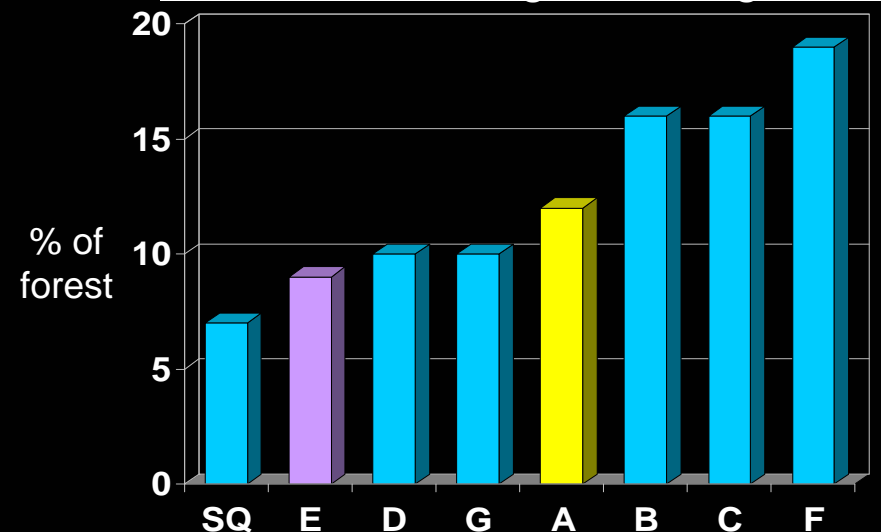
Total Wood Supply (next 25 yrs)



Amount of Protected Natural Area



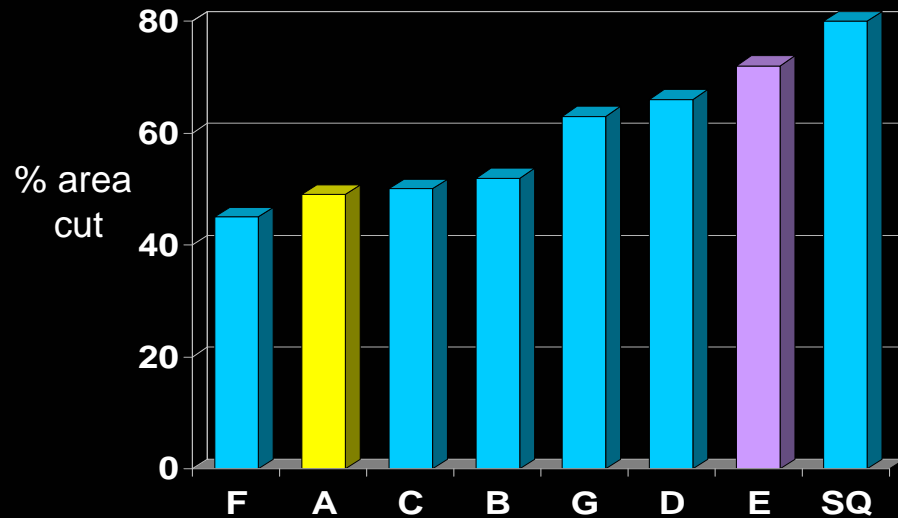
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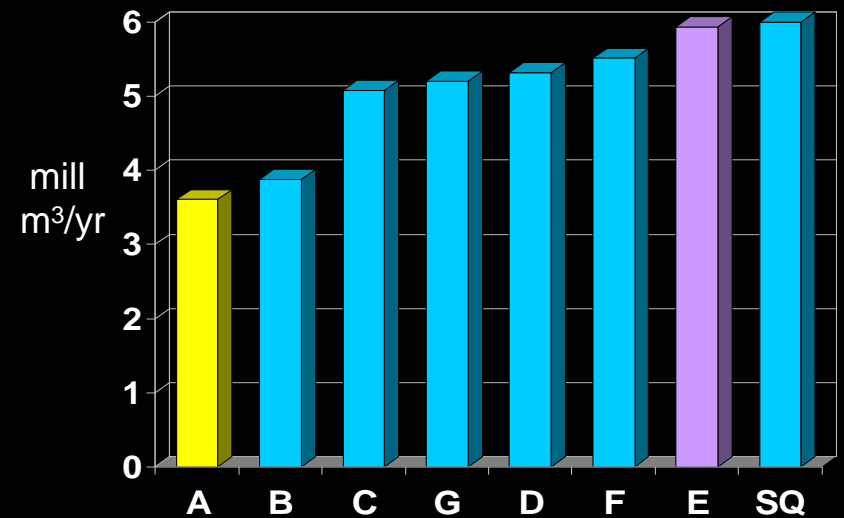


# Management Outcomes

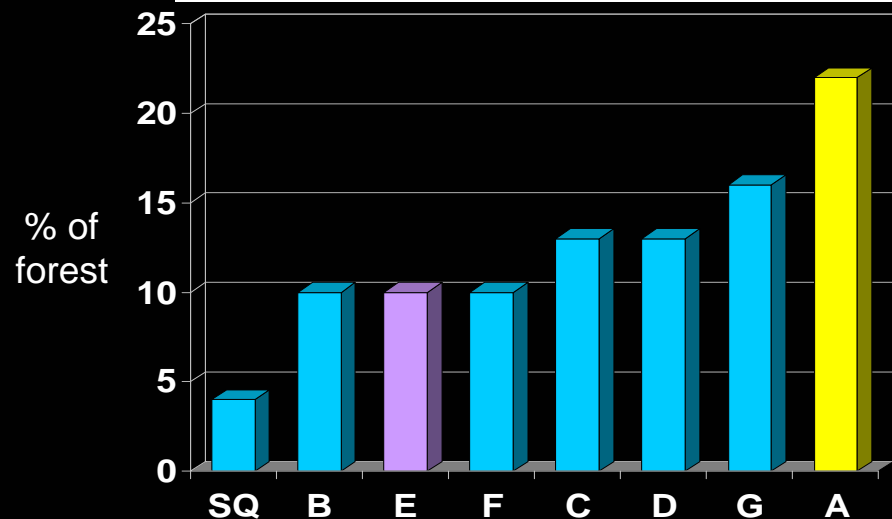
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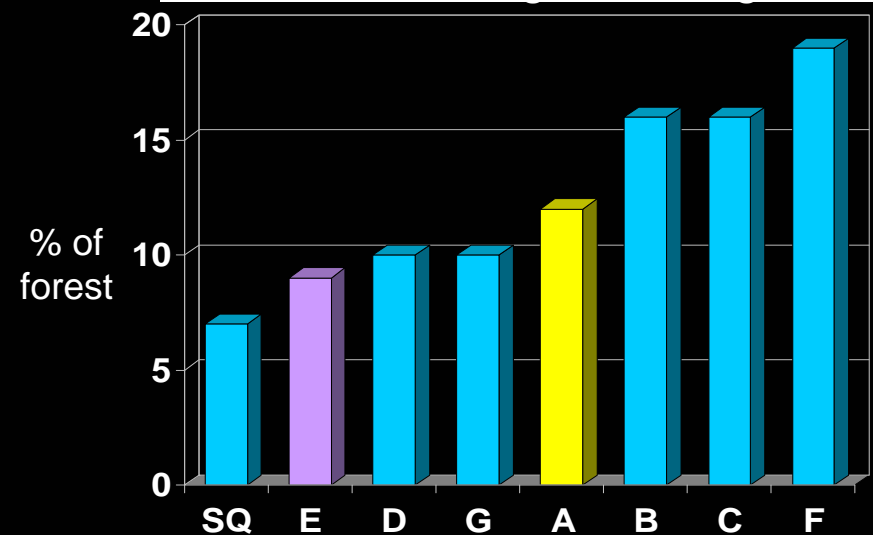
Total Wood Supply (next 25 yrs)



Amount of Protected Natural Area



Area of Unevenaged Management





# ❖ Management Outcomes

## Key Messages

- ❖ Large range of possibilities
- ❖ Trade-offs exist; consider all outcomes
- ❖ *Long vs short-term outcomes*

## ❗ Finally

### Short-term Wood Supply

- Rate at which we **cut** the forest we have **today**

### Long-term Wood Supply

- Rate at which we **grow** the forest for **tomorrow**

**Controlled by different things**

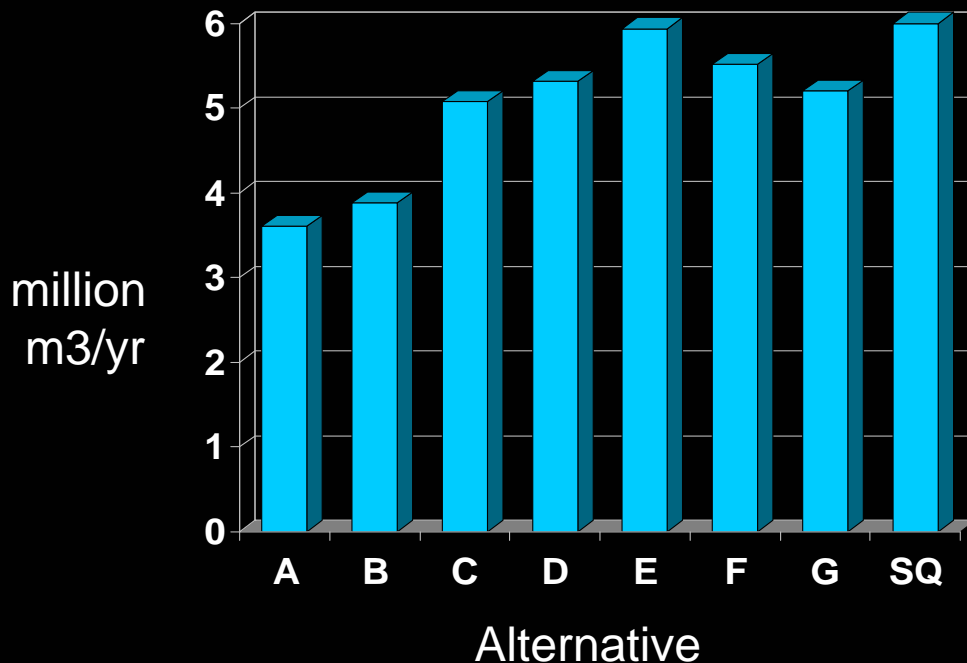
# Finally

## Short-term Wood Supply

- Rate at which we **cut** the forest we have **today**
- Strongly affected by:

- Old forest
- Protected area
- Conservation forest
- Type of harvest

Wood Supply  
Next 25 Years



# Finally

## Long-term Wood Supply

- Rate at which we **grow** the forest for **tomorrow**
- Strongly affected by:
  - Amount and type of silviculture
  - Type of harvest



# ❖ Management Outcomes

## Remember

- ❖ Stated consequences are *forecasts*
- ❖ *Environmental, social, economic* consequences
- ❖ Not all important matters can be *readily measured*
- ❖ Economic focus on *wood-related* enterprises

# Management Outcomes

## Overall

- Rich body of outcomes
- Quantitatively defined
- Tradeoffs explicit
- All parties see same set of alternatives & outcomes
- Interpretation of “desirability” a value-judgment



Management Alternatives for  
New Brunswick's Public Forest

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# ❖ Finally

**We've tried to be**

- ❖ **Thorough**
- ❖ **Balanced**
- ❖ **Thoughtful**

**We hope our effort helps answer....**

***How should we manage  
New Brunswick's Public Forest?***

***Thanks...***