



**Plum Creek**

*Growing Value from Exceptional Resources*

# Vested in Carbon: Perspectives of a Large US Forest owner on Bioenergy and Carbon

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8/16/12



# About Plum Creek

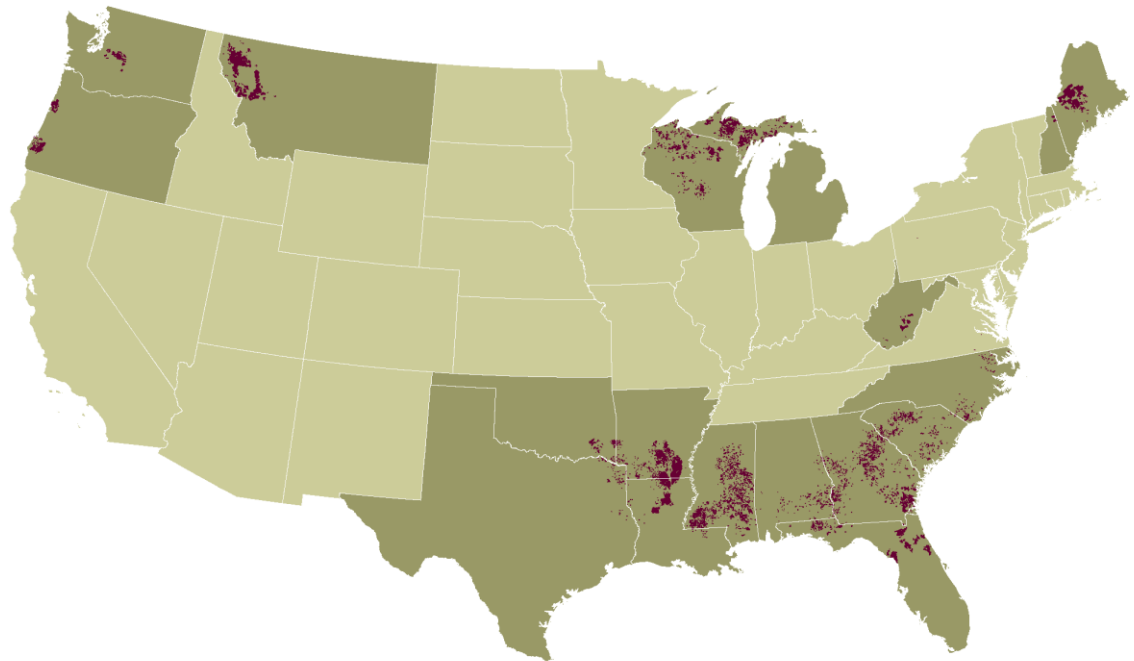


## ➤ Largest owner of private land in US

- Forestry and timberlands
- Largest seller of wood fiber
- Diverse geography and forestry markets

## ➤ Growing wood, investing in carbon

- Half billion dollars in the last decade
- Managing for sustainability
- Bioenergy



**6.6 million acres in 19 states**



# Points for discussion



- **Why forest owners are interested in bioenergy.**
- Forestry and carbon
- The role of forest productivity investment
- Sustainability: public value from private forests



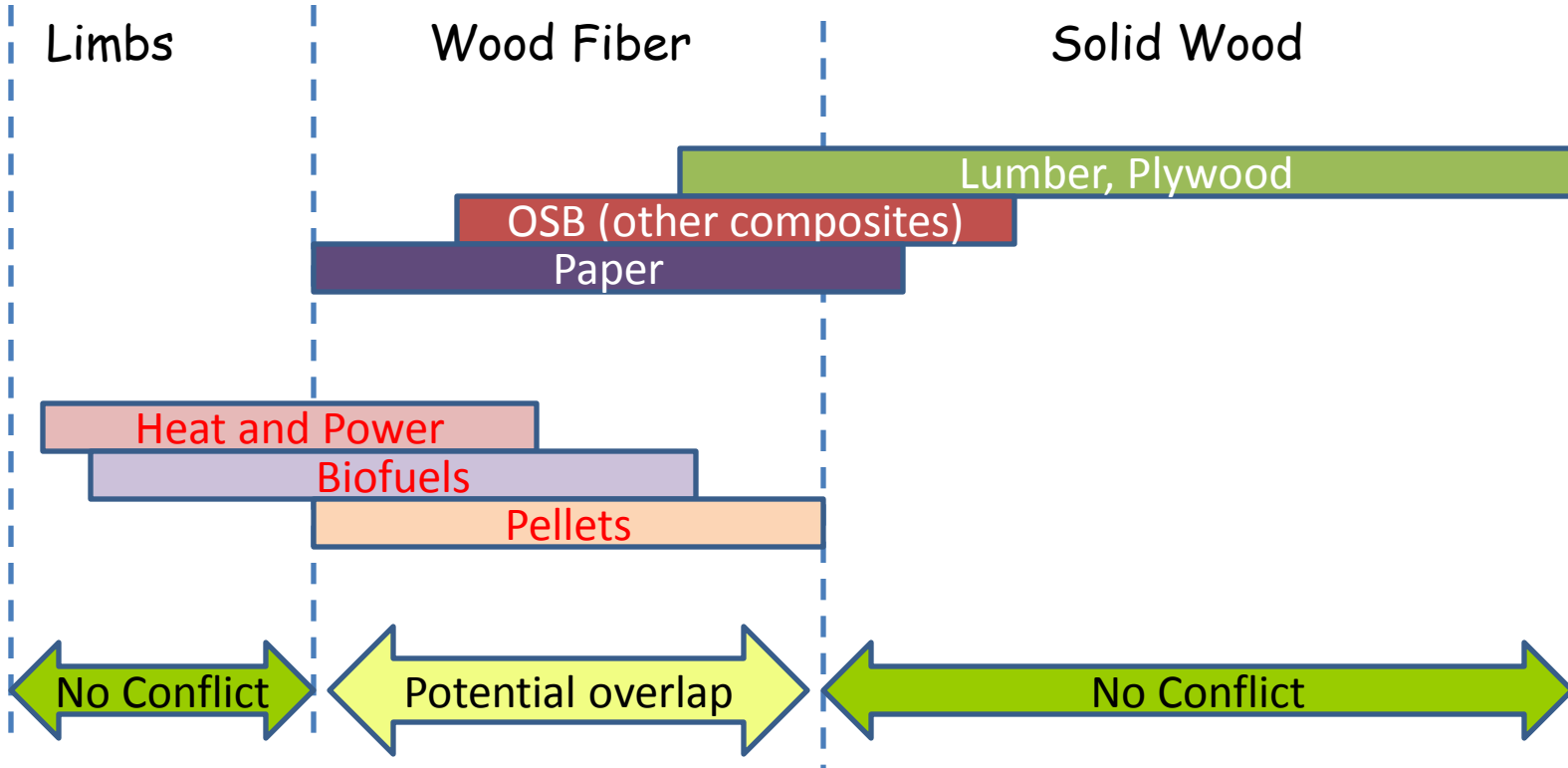
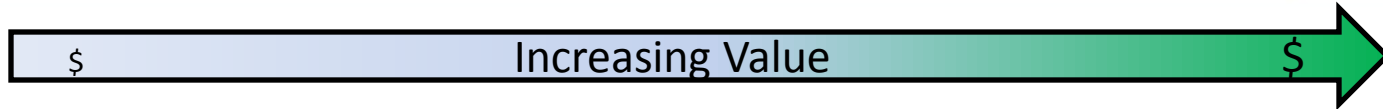
# Wood for energy?

## Why Plum Creek is Interested



- **Greater use of every tree harvested**
  - Logging residuals (tops and limbs)
  - Cull trees
  - Incidental thin
- **Diversification of markets**
  - Housing continues to be cyclical
  - Pulpwood demand is in long-term decline
  - A new sector will balance portfolio of products
- **More forestry opportunities**
  - Thinning for productivity and health
  - More optimal harvest regimes

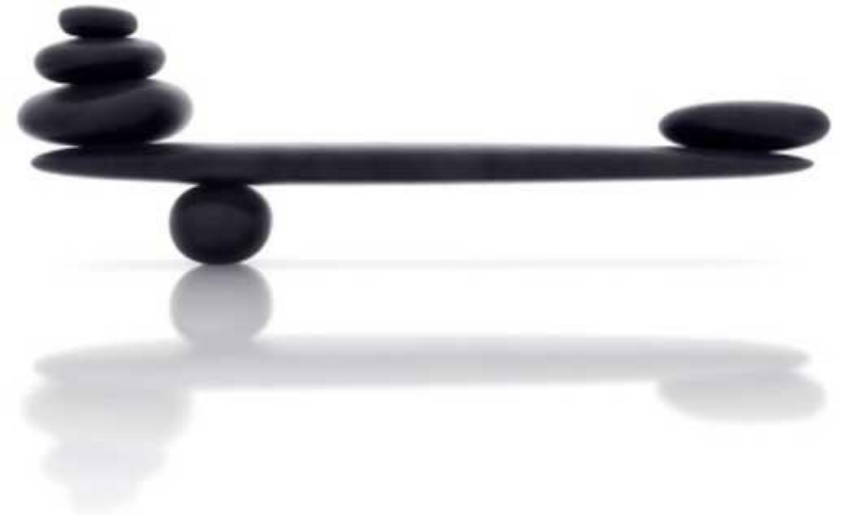
# Forestry Biomass



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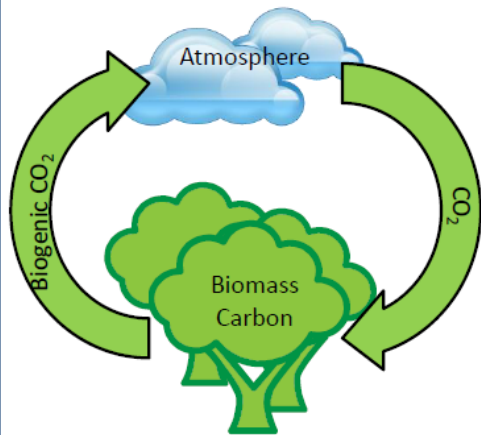
# Managed Forests and Carbon: “Better than Carbon Neutral”



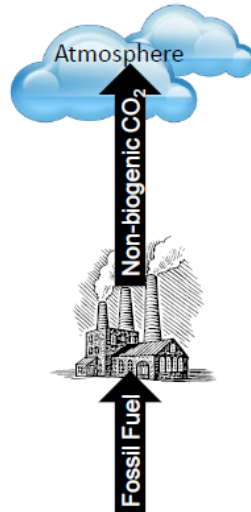
## The “neutral” biomass carbon cycle

vs

## Carbon transfers from geological reserves



**Biogenic carbon** is part of a relatively rapid natural cycle that impacts atmospheric CO<sub>2</sub> only if the cycle is out of balance



Fossil fuel combustion transfers geologic carbon into the atmosphere. It is a one-way process

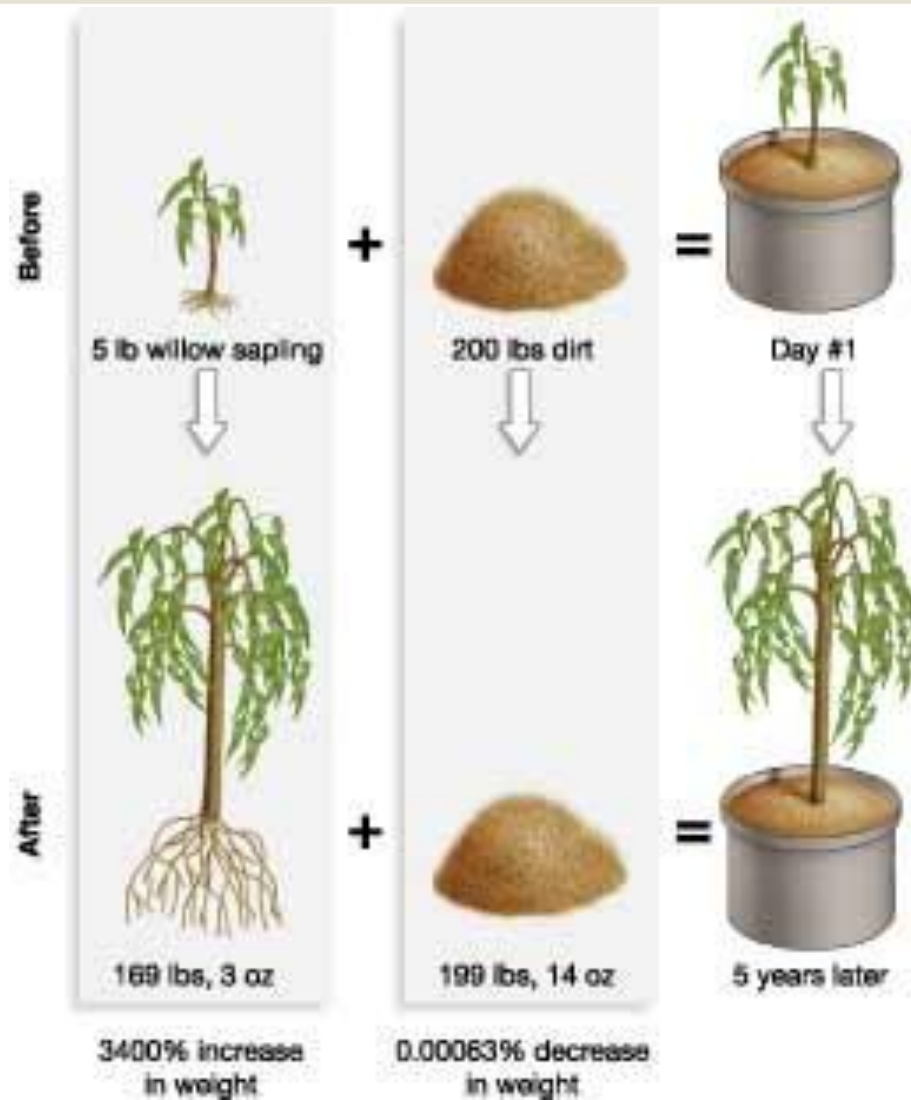
The Forest  
Carbon Cycle

The Fossil  
Carbon Cycle

## The Forest Carbon “Triple Play”

- **Forests** absorb carbon from the atmosphere, and can be managed on sustainable cycles.
- **Wood products** store carbon and are energy efficient
- **Bioenergy** displaces fossil fuel, and prevents release of carbon from permanent storage

# Van Helmont's Tree



Experiment by Jan Baptista van Helmont in 1648

→ Trees:  
the natural CCS



# Points for discussion



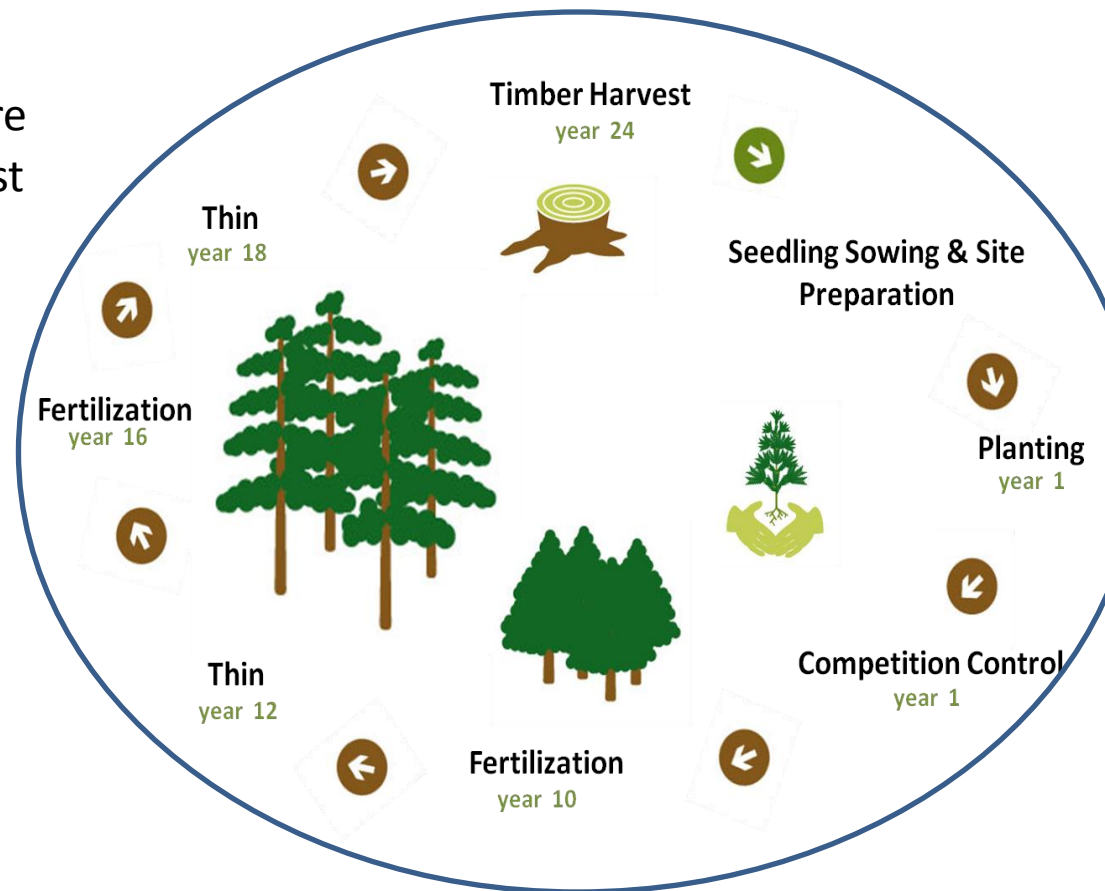
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# Investing in Forest Productivity



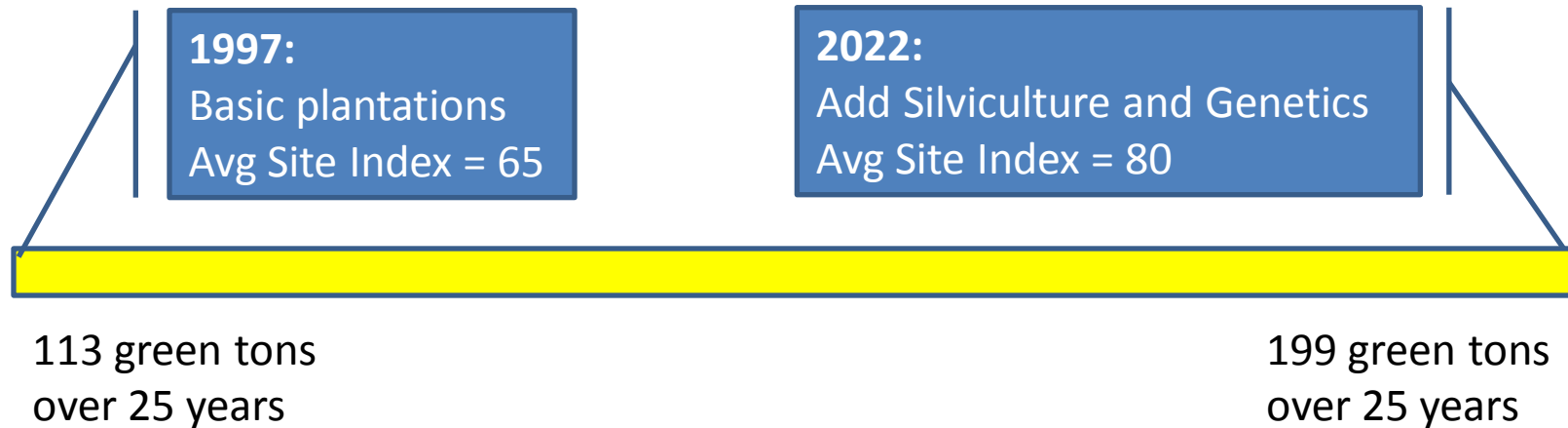
- **Plum Creek investment:** more than half a billion dollars over the past decade
- **Today's productivity:** the result of past investments.
- **Future markets:** incentivize current investments
- **Increasing productivity :** relies on confidence in future markets.



# Forestry Investment Case Study



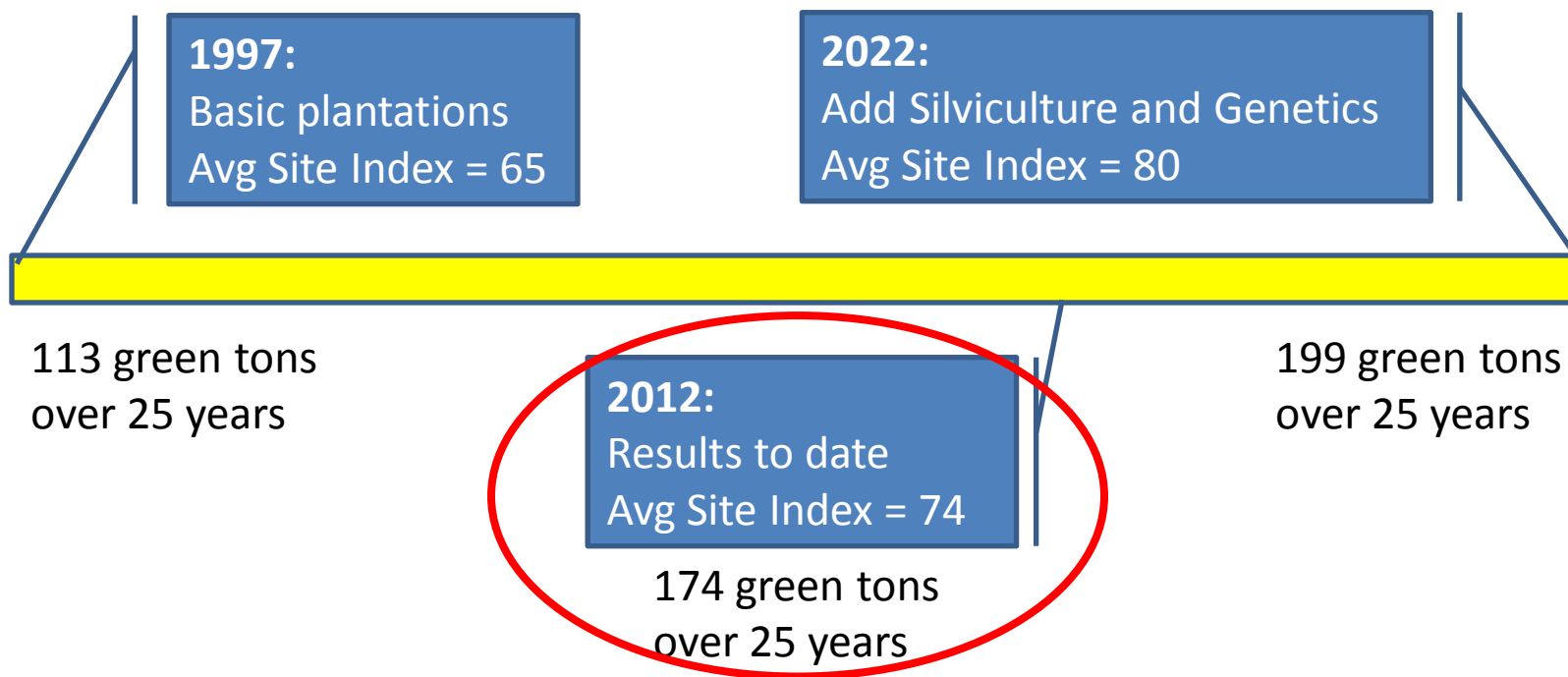
- **Plum Creek:** 2.4 million acres southern pine plantation
- **Project:** Increase productivity over a 25 year rotation



# Forestry Investment Case Study



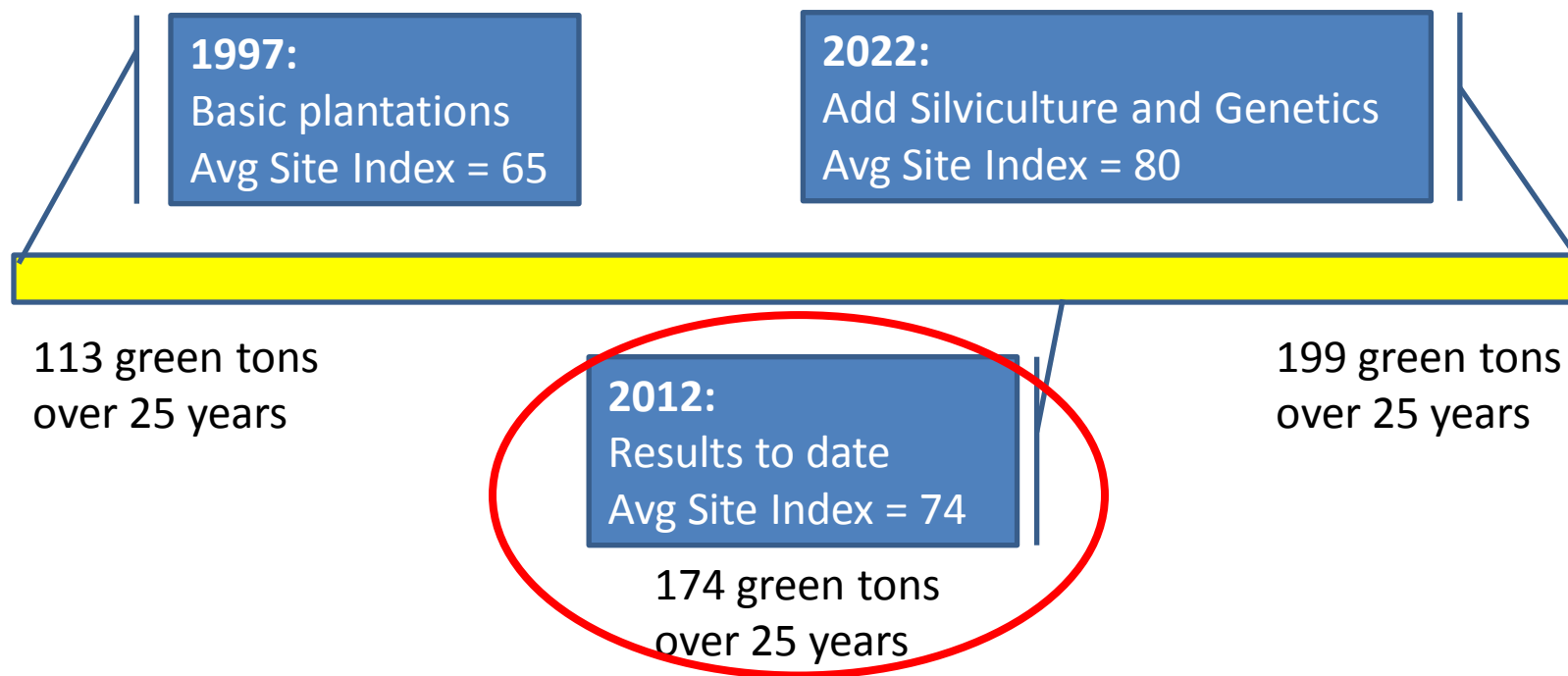
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# Forestry Investment Case Study



- **Plum Creek:** 2.4 million acres southern pine plantation
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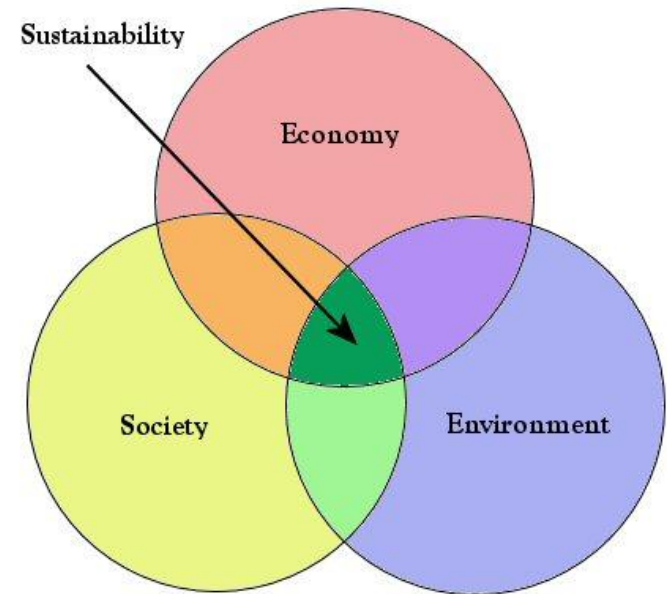


- **Interim result:** 4.9 million tons additional annual CO2 capture (not counting tops and roots)

# Points for discussion



- Why forest owners are interested in bioenergy.
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- **Sustainability: public value from private forests**





# Will energy markets affect forest sustainability?



- **The US is a world leader in forest sustainability.**
  - US Forest inventory has increased by 50% in 50 years
  - Total forested area has remained stable for 100 years
- **Plum Creek is committed to sustainability**
  - First to be certified nationwide
  - Certified under SFI
- **Robust and diverse markets are a key for sustainability**
  - Keeps forests as forests
  - Supports forestry investments

# Sustainability questions to consider



- Will landowners liquidate their long term investment to serve a low value energy market?
- Is bioenergy harvesting so unique that it requires separate sustainability measures, compared to growing trees for other forest products?
- Will forest owners change their management regime because of energy markets for wood?
- Is a longer term cycle really less sustainable than a short term cycle?

# Public Value from Private Forests



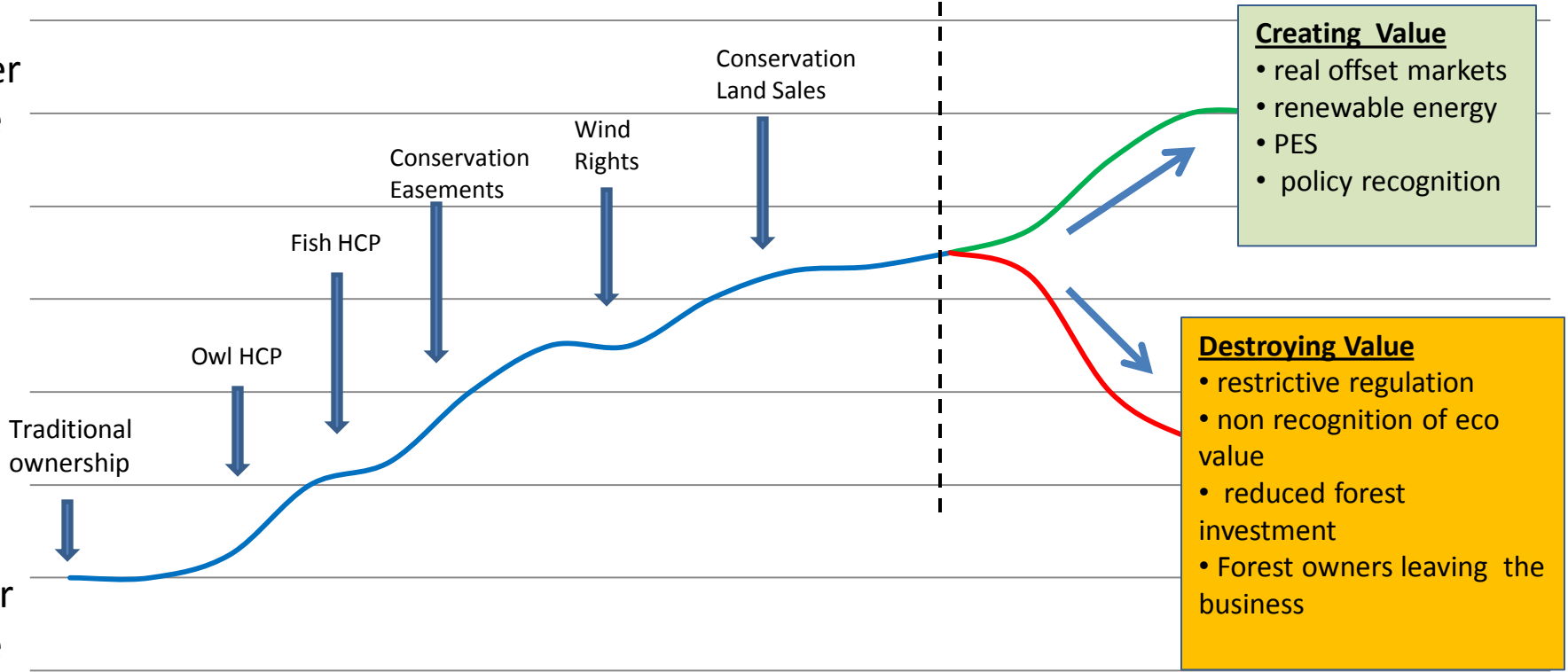
2020

1990

2012

Higher Value

Lower Value



Restrictive Regulation

Creative Regulation

Recognition of Green Assets

Development of Green Markets



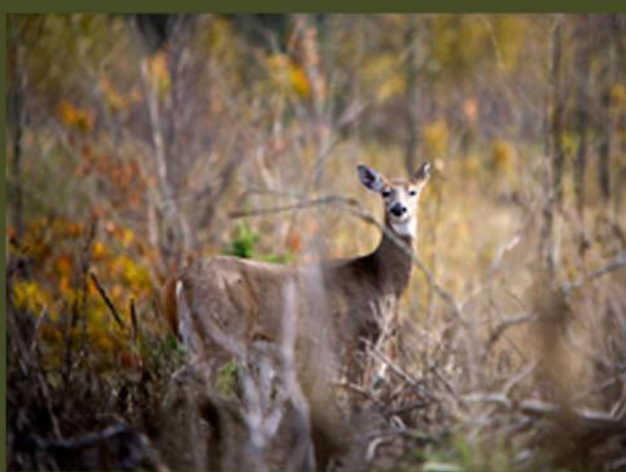
Sustainable carbon mitigation in six words:

***Grow More Trees, Use More Wood***

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