



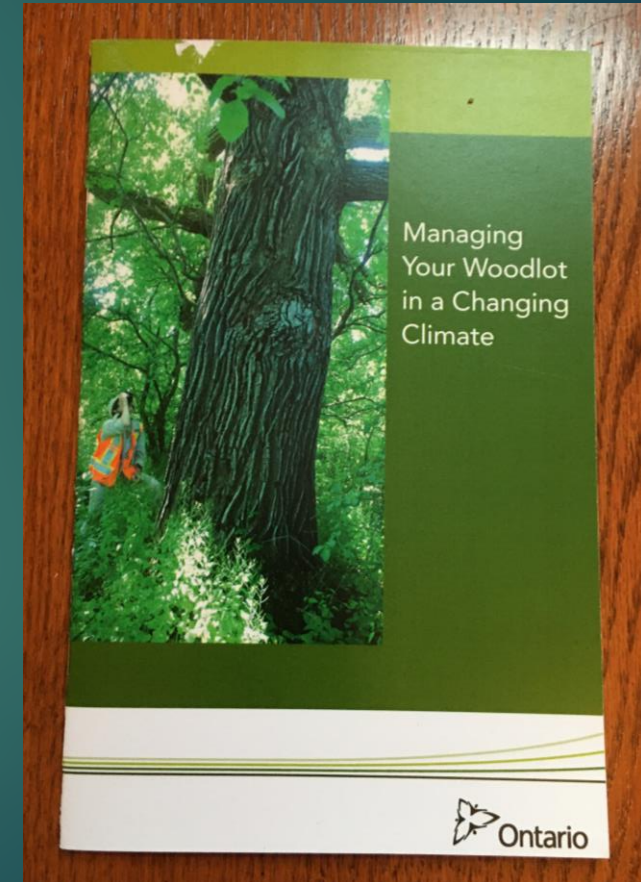
# Sustainable Forestry and Climate Change

MARTIN STREIT, FORESTER

SOUTH NATION CA, UPPER CANADA FORESTRY SERVICE

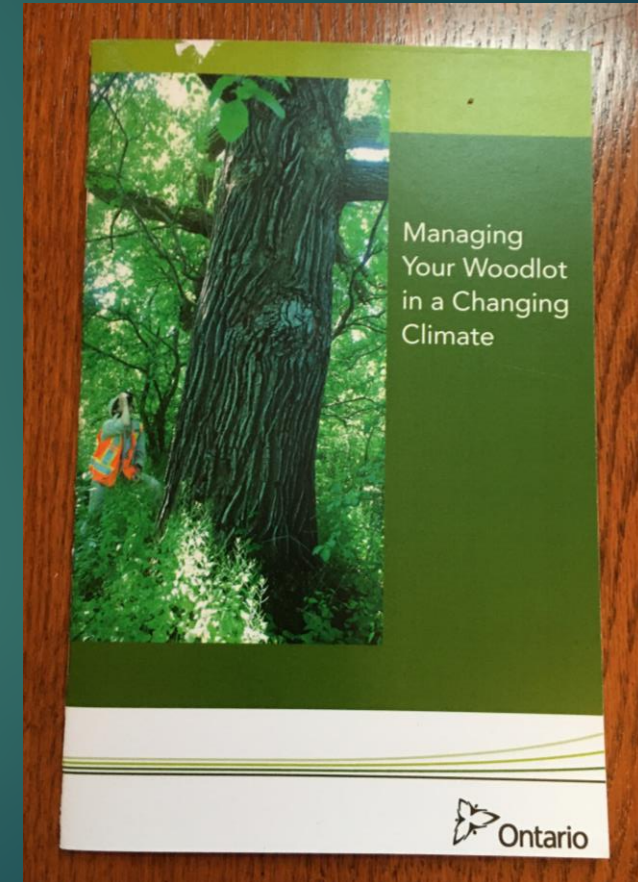
# Challenges of Climate Change

- ▶ Temperatures are increasing
- ▶ Rainfall patterns are changing
- ▶ Extreme weather events are more frequent
- ▶ Impacts of invasive species are intensified



# The Role of Sustainable Forestry

- ▶ **Healthy forests store carbon as biomass and in the soil**
- ▶ **Sustainable forestry builds resilience**



# Sustainable Forestry

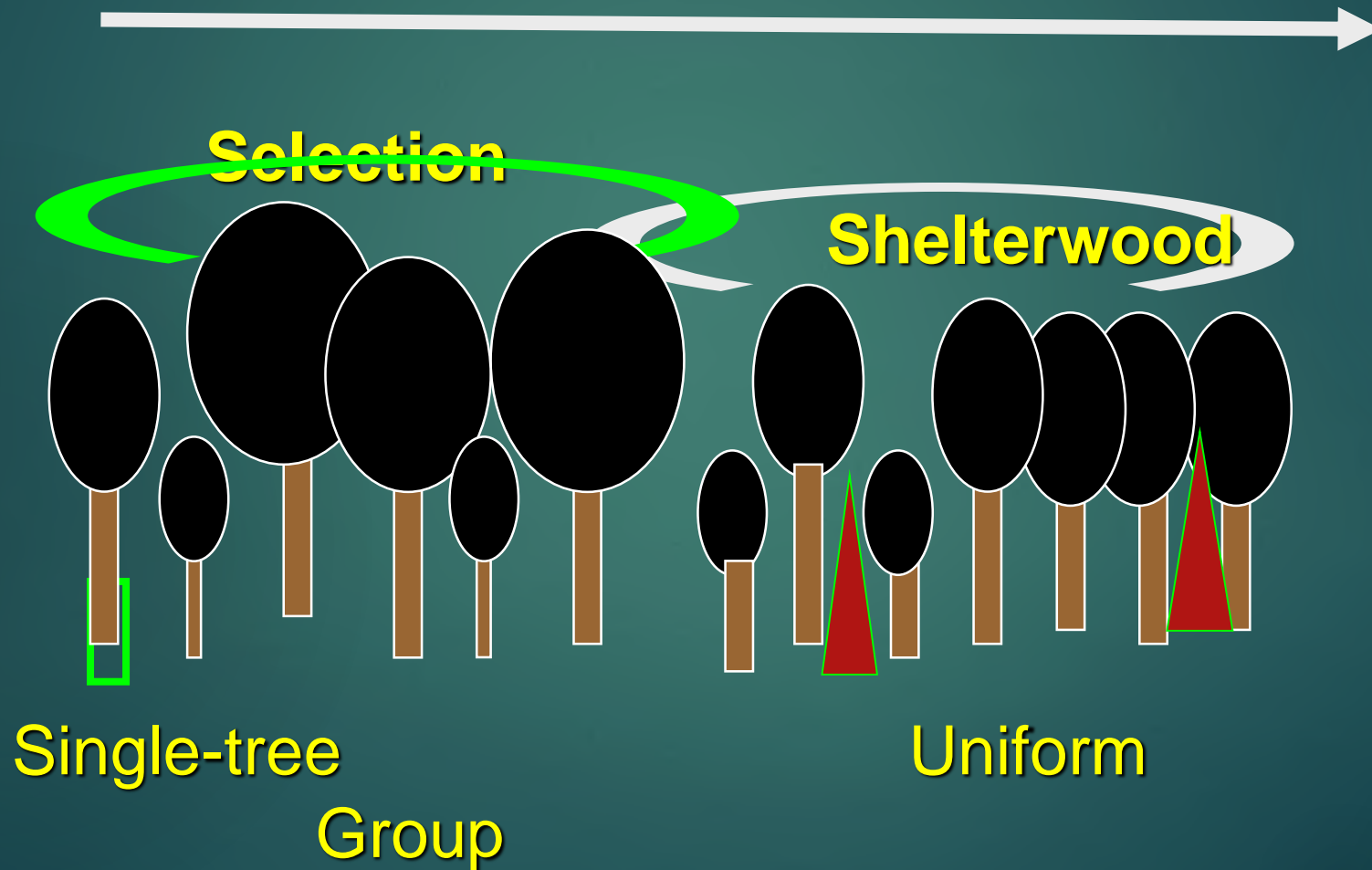
- ▶ **Emulates Natural Disturbances**
- ▶ Maintains Species Diversity
- ▶ Enhances Forest Health
- ▶ Conserves Water
- ▶ Strengthens Communities

# Emulates Natural Disturbances



# Disturbance Intensity Continuum

Increasing Light Intensity and Duration



# Emulates Natural Disturbances



# Emulates Natural Disturbances





# Emulates Natural Disturbances



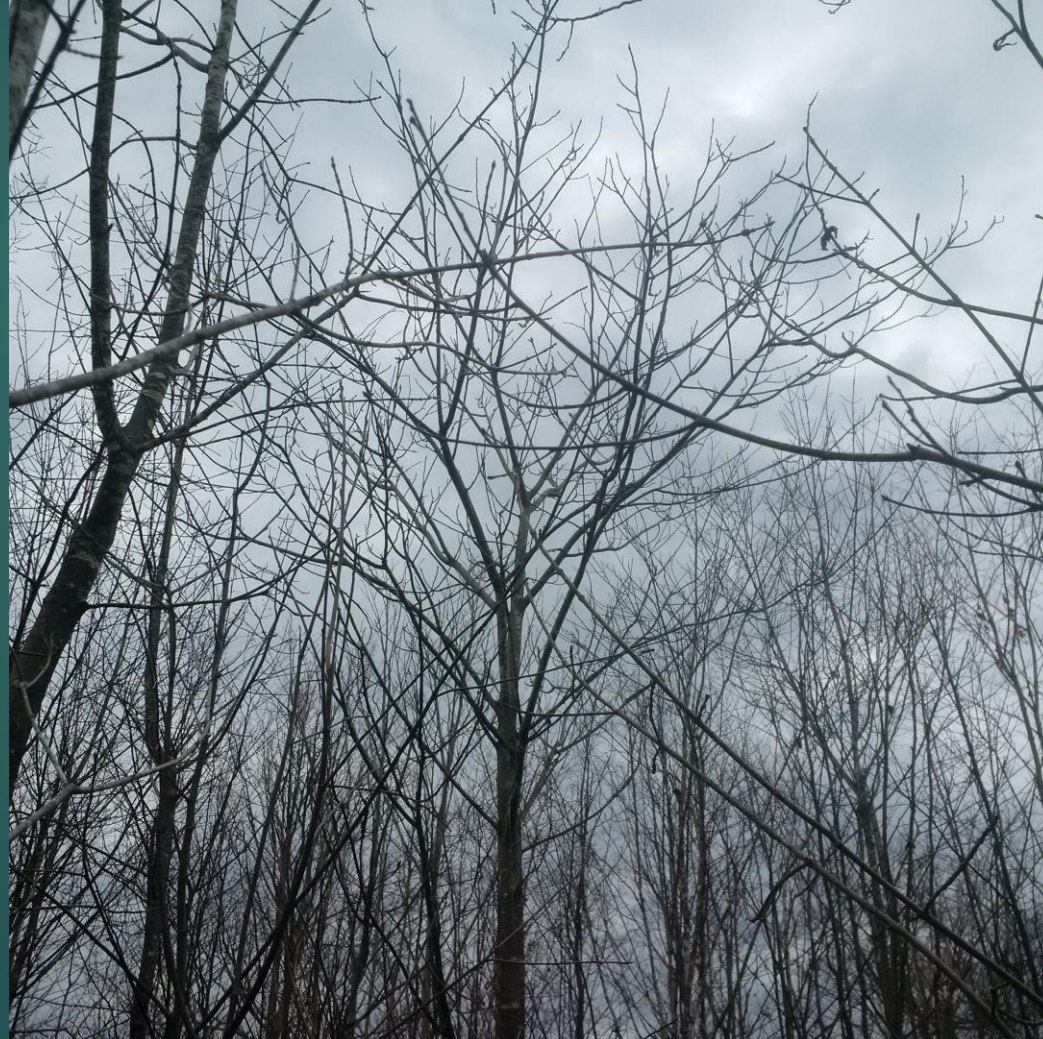
# Emulates Natural Disturbances



# Emulates Natural Disturbances



# Emulates Natural Disturbances



# Sustainable Forestry

- ▶ Emulates Natural Disturbances
- ▶ **Maintains Species Diversity**
- ▶ Enhances Forest Health
- ▶ Conserves Water
- ▶ Strengthens Communities

# Aldo Leopold

- ▶ *“To keep every cog and wheel is the first precaution of intelligent tinkering”*



Might some tree species be more adaptable to a changing climate ?



# Climate Change Adapters?

1) Adapted to a wide range of site conditions

**Or**

Adapted to an extreme environment

**And**

2) Not overly sensitive to disturbance or a current threat

## Top Ten Tough Trees



# Site Generalists: Conifers

- ▶ White pine
- ▶ White spruce
- ▶ White cedar



# Site Generalists: Hardwoods

- ▶ Bur oak
- ▶ Red oak
- ▶ Shagbark hickory
- ▶ Eastern cottonwood
- ▶ Red maple



# Site Specialists: Wet Sites

- ▶ Silver maple



# Site Specialists: Dry sites

- ▶ Red pine



# Sustainable Forestry

- ▶ Emulates Natural Disturbances
- ▶ Maintains Species Diversity
- ▶ **Enhances Forest Health**
- ▶ Conserves Water
- ▶ Strengthens Communities

# Enhances Forest Health

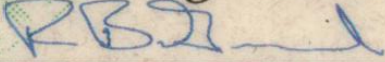
PROVINCE OF ONTARIO

*Ministry of Natural Resources*

*This will certify that*  
Martin Streit

*is competent to mark trees for harvest in*  
Hardwood & Conifer Forests

*on Crown Land in the Province of Ontario.*

No. TM-00131-L3 Signature 

Valid from January 1, 2008 to December 31, 2012

# Enhances Forest Health



# Enhances Forest Health

- ▶ Removing diseased and defective trees





# Enhances Forest Health

- ▶ Retaining tolerant/ resistant trees



# Enhances Forest Health

- ▶ Thinning to enhance growing conditions



# Sustainable Forestry

- ▶ Emulates Natural Disturbances
- ▶ Maintains Species Diversity
- ▶ Enhances Forest Health
- ▶ **Conserves Water**
- ▶ Strengthens Communities

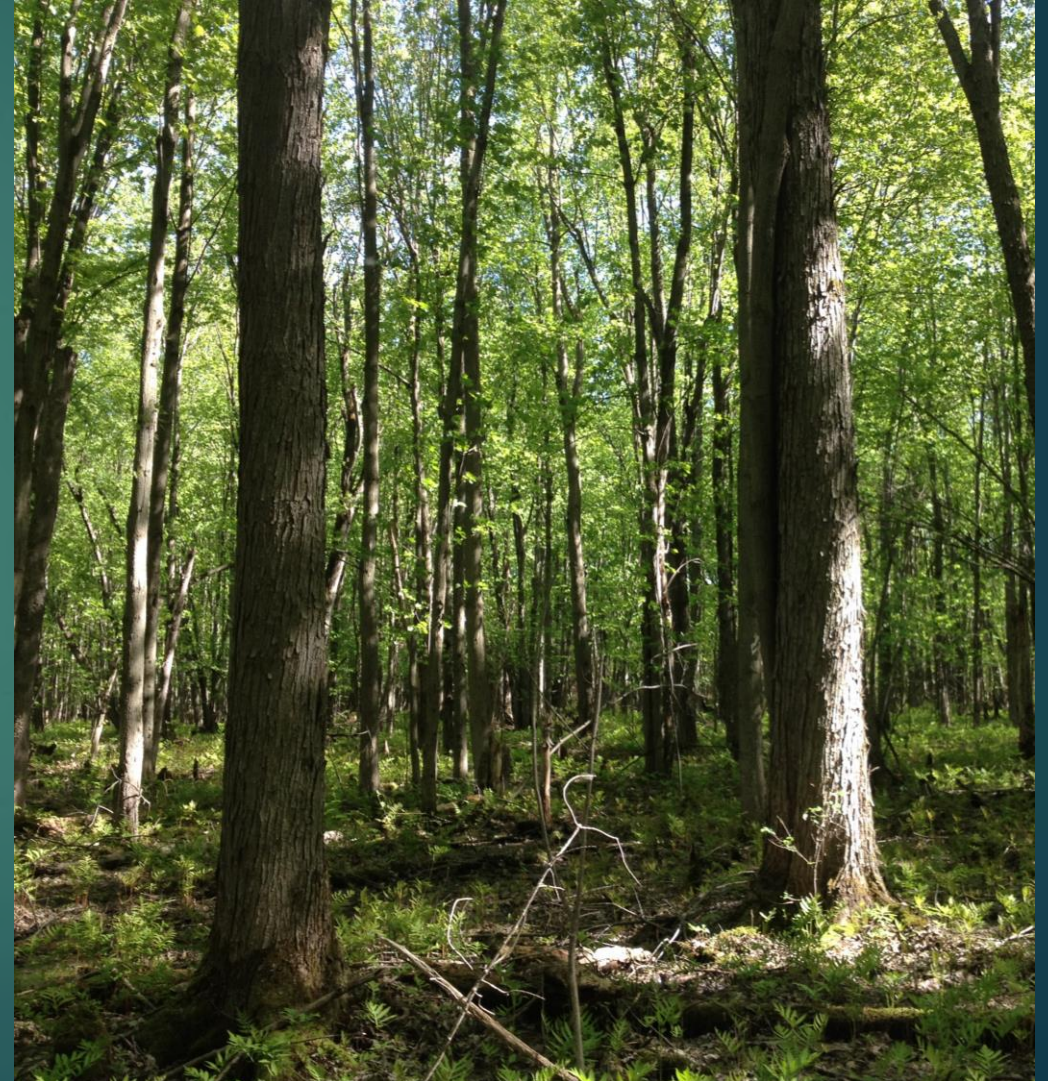
# Conserves Water

- ▶ Flood mitigation
- ▶ Erosion control
- ▶ Wildlife habitat (Riparian habitat is critical for 40% of wildlife species)



# Conserves Water

- ▶ Swamp forests moderate water levels, reducing flood risk.



# Conserves Water

- ▶ Forest cover adjacent to seasonal pools/creeks increases water retention.



# Conserves Water

- ▶ Riparian buffers help control soil erosion



# Conserves Water

- ▶ Careful logging minimizes rutting and erosion





# Conserves Water

- ▶ Water crossings are designed to handle unplanned events



# Sustainable Forestry

- ▶ Emulates Natural Disturbances
- ▶ Maintains Species Diversity
- ▶ Enhances Forest Health
- ▶ Conserves Water
- ▶ **Strengthens Communities**

# Strengthens Communities



# Strengthens Communities

▶ First Nations



# Strengthens Communities

- ▶ Family businesses



**PROTECTED AREA**  
**"THE SHAW WOODS"**  
120 ACRES OF ORIGINAL OTTAWA VALLEY FOREST.  
PRESERVED FOR SCIENTIFIC STUDY AND OUTDOOR EDUCATION.  
DO NOT DISTURB FOREST COVER OR DAMAGE TREES OR  
INTERFERE WITH WILDLIFE IN ANY WAY.  
FIRES, TRAILBIKING OR SNOWMOBILING PROHIBITED!  
A JOINT PROJECT OF:  
THE NATIONAL MUSEUM      THE NATURE  
OF NATURAL SCIENCES.      CONSERVANCY OF CANADA

# Strengthens Communities

- ▶ Family businesses



# Strengthens Communities

## ▶ Community Forests



# Strengthens Communities

► SFLs





# Strengthens Communities

► Landowners



# Strengthens Communities

▶ Education



Wood products  
help fight  
**climate change.**

**#ItTakesAForest**  
ITTAKESAFOREST.CA



# Aldo Leopold

- ▶ “We shall never achieve harmony with the land, any more than we shall achieve absolute justice or liberty for people. In these higher aspirations, **the important thing is not to achieve but to strive.**”

