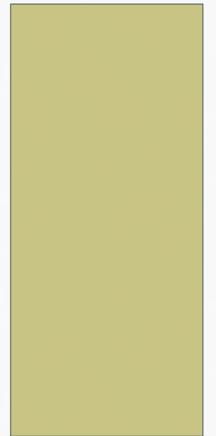


# FOREST ECOSYSTEMS

AND THEIR MANAGEMENT



# FORESTRY IS AN IMPORTANT INDUSTRY IN NORTH CAROLINA

- Second largest industry behind Agriculture
- 18.6 million acres of forest land
- 63% owned by individuals
- Estimates place the annual value of forest products in the US at over \$300 Billion

(All data from NCFS 2013)



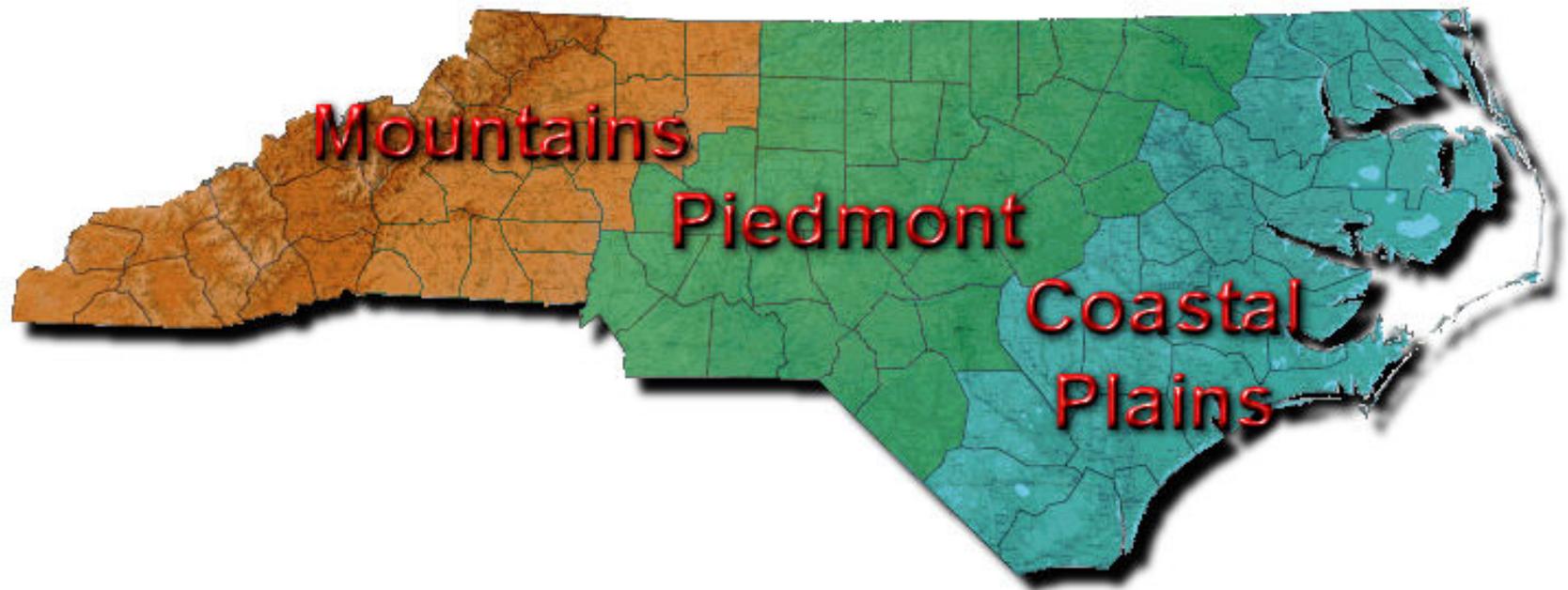
# FORESTS PROVIDE OTHER BENEFITS

- Control runoff
- Prevent erosion
- Build soil
- Retain snowmelt
- Prevent flooding
- Moderate local climate
- Cycle nutrients
- Remove air pollutants
- Provide wildlife habitat
- And the list goes on.....



# HOW DO FORESTS WORK IN NC

# NORTH CAROLINA HAS THREE GEOGRAPHIC REGIONS

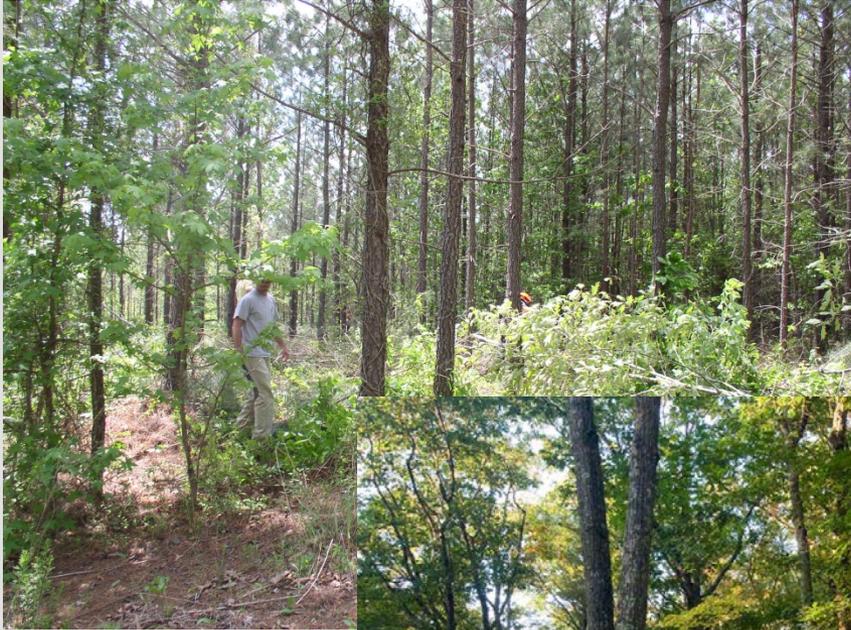


EACH REGION HAS ITS OWN  
FOREST ECOSYSTEM



# COASTAL PLAIN

# PIEDMONT





# MOUNTAINS



# EACH REGION PROVIDES PRODUCTS THAT BENEFIT US



# PRODUCTS FROM COASTAL PLAIN FORESTS

- Naval stores
  - Tar, pitch, turpentine
  - Masts and framing
- Lumber
- Spices



# PIEDMONT FOREST PRODUCTS

- Furniture
- Paper Products
- Adhesives



# MOUNTAIN FOREST PRODUCTS

- Christmas Trees
- Various Foods
- Fuel





ALL OF THESE ECOSYSTEMS

PRODUCE WILDLIFE HABITAT AND OTHER BENEFITS

# SUSTAINABLE FORESTRY

ALLOWS US TO KEEP PRODUCING  
THESE PRODUCTS AND BENEFITS

**SUSTAINABLE  
FORESTRY  
=  
ECOSYSTEM  
MANAGEMENT**



# **ECOSYSTEM MANAGEMENT**

THE USE OF ECOSYSTEM CONCEPTS TO PREDICT THE EFFECTS OF MANAGEMENT ACTIONS ON THE ECOSYSTEM AND TO GUIDE MANAGEMENT, PLANNING, AND ACTIONS

# SUSTAINABLE FORESTRY

Sustainable forest management (SFM) is the management of forests according to the principles of sustainable development. Sustainable forest management has to keep the balance between three main pillars: ecological, economic and socio-cultural.



SUSTAINABLE FORESTRY / ECOSYSTEM MANAGEMENT

IS MORE THAN MANAGING TREES FOR FOREST PRODUCTS

# US FOREST SERVICE DOUBLE MANDATE

- Maintain public forest resources
- Provide an ongoing supply of timber



# NC FOREST SERVICE

- Promotes “Forest Stewardship”
  - Protecting water quality
  - Improve fish and wildlife habitat
  - Enhance soil productivity and reduce erosion
  - Keep forests productive and healthy
  - Enhance natural beauty
  - Support recreational activities



# NORTH CAROLINA FORESTS

- 11.3 million acres owned by individuals
  - 63% of total acres
  - Most own 100 acres or less
- Each owner has different objectives



# ECOSYSTEM MANAGEMENT REQUIRES COORDINATION AND COOPERATION



- Forest owners
- NC Forest Service
- US Forest Service
- USDA
- SWCD's
- Cooperative Ext.
- Private Consulting Foresters



COOPERATION LEADS TO MULTIPLE BENEFITS

# QUESTIONS?

The only dumb question  
is the one you don't ask!

# ECOLOGICAL BENEFITS OF TREES

“The best friend on earth of man is the tree: when we use the tree respectfully and economically we have one of the greatest resources of the earth.”

Frank Lloyd Wright

# DIFFICULT TO MEASURE THE ECOLOGICAL VALUE OF TREES



WHAT NON-ECONOMIC  
BENEFITS DO TREES PROVIDE

# TREES HELP CONTROL RUNOFF

- Intercept rainfall
- Increase infiltration
- Hold soil in place
- Filters contaminants



# TREES HELP REDUCE FLOODING



- Forests absorb and slowly release rainfall
- Helps to regulate year round water flow

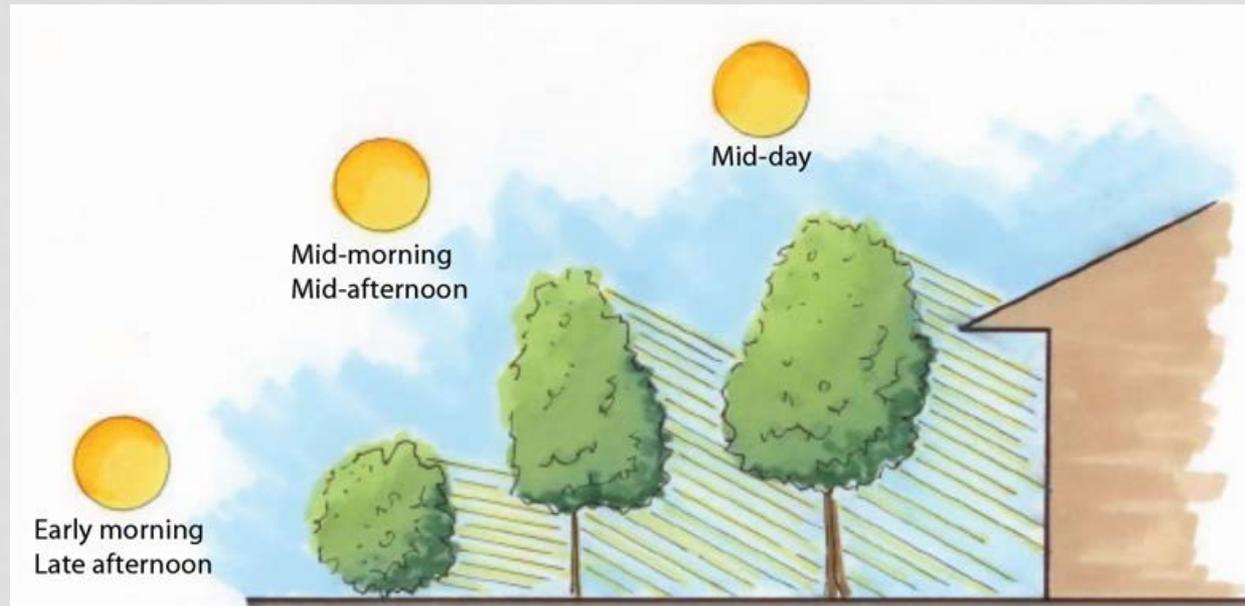
# TREES HELP BUILD SOIL

- Cycle nutrients
- Return stable organic matter
- Create macropores



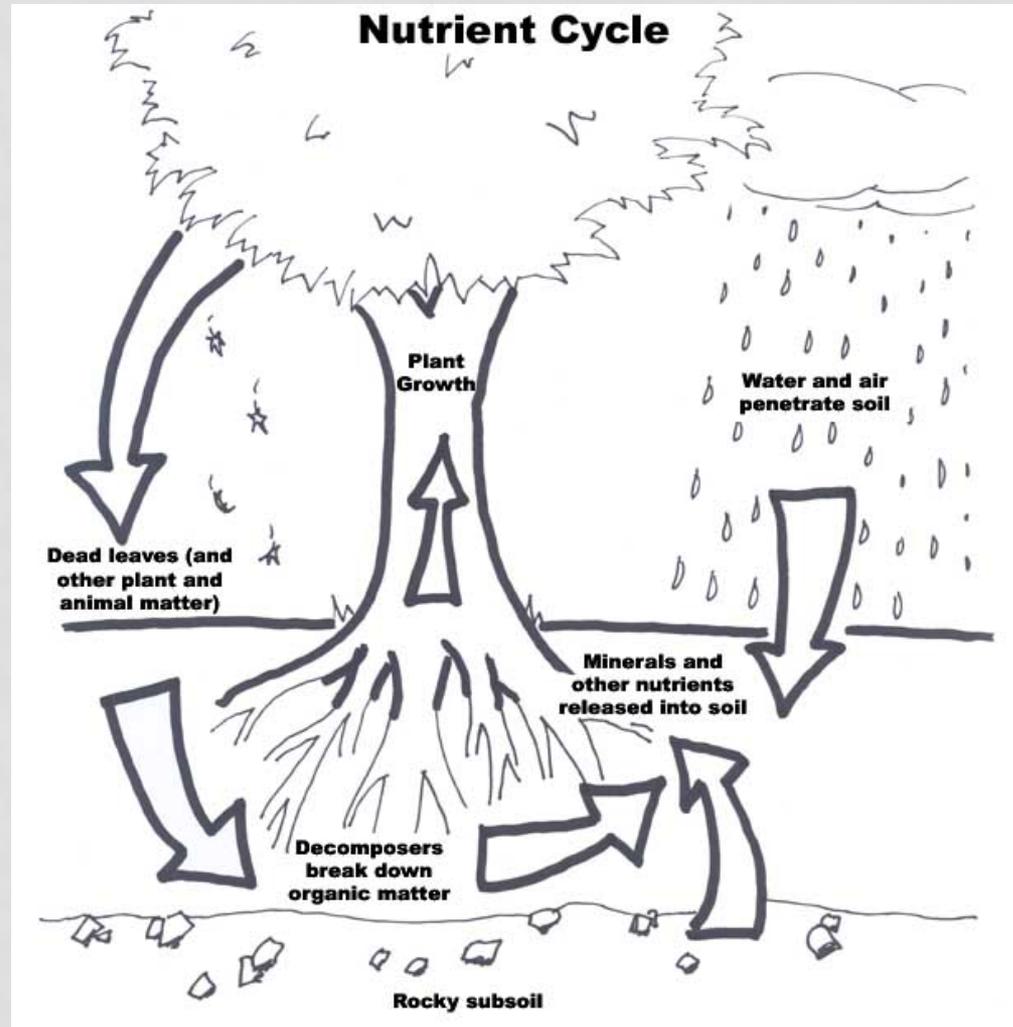
# TREES INFLUENCE LOCAL CLIMATE

- Moderate local temperatures and humidity
- Moderate wind currents
- Reduce heating and cooling costs when properly placed



# TREES RECYCLE NUTRIENTS

- Forests take up approximately 90% of the CO<sub>2</sub> removed from the atmosphere
- Trees store nutrients taken from the soil and then release them as they decompose



# TREES FILTER THE AIR



- Intercept particulate pollution
- By reducing wind speeds they allow some pollutants to settle out of the atmosphere

# TREES PROVIDE WILDLIFE HABITAT

- Food
- Shelter
- Space
- Water



# TREES ABATE NOISE

- Studies have shown a 50% reduction in highway noise
- The sounds created by air movement in trees muffles noises



# TREES IMPROVE AESTHETICS



# FORESTS PROVIDE RECREATION



# TREES IMPROVE WATER QUALITY

- Filter and trap pollutants
- Prevent erosion
- Stabilize streambanks
- Keep water temperature cooler

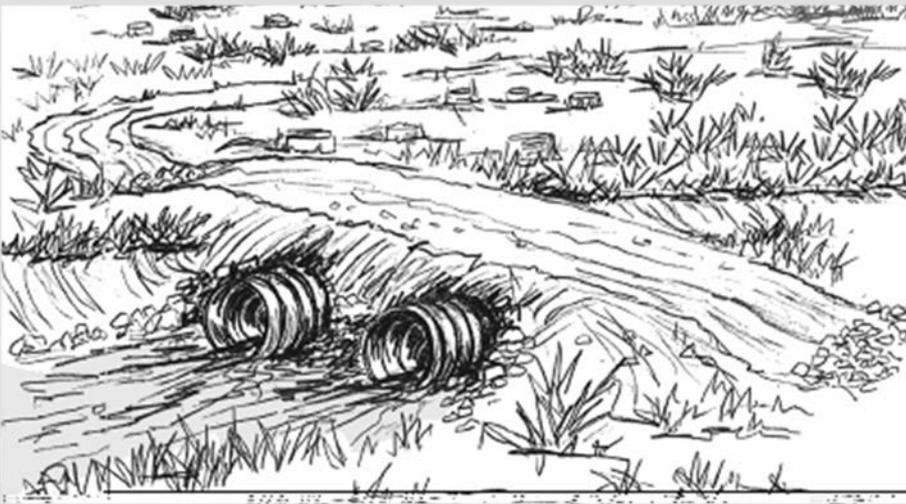


# FOREST BEST MANAGEMENT PRACTICES FOR WATER QUALITY



# STREAMSIDE MANAGEMENT ZONES





## FOREST ROAD

Best Management Practices

# ESTABLISHING VEGETATION IN OPENINGS



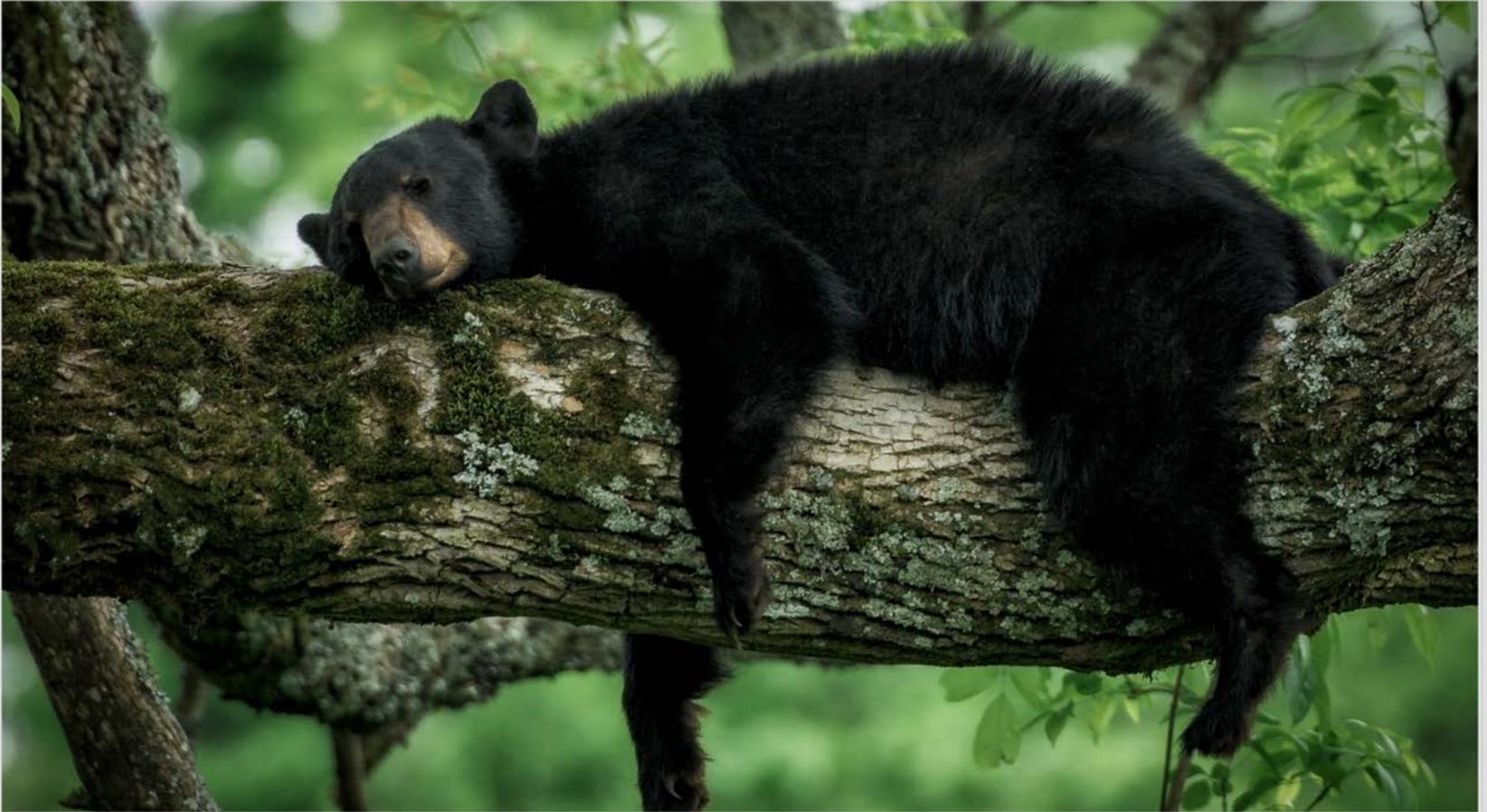
# REFORESTATION

Planting



Coppice Cutting

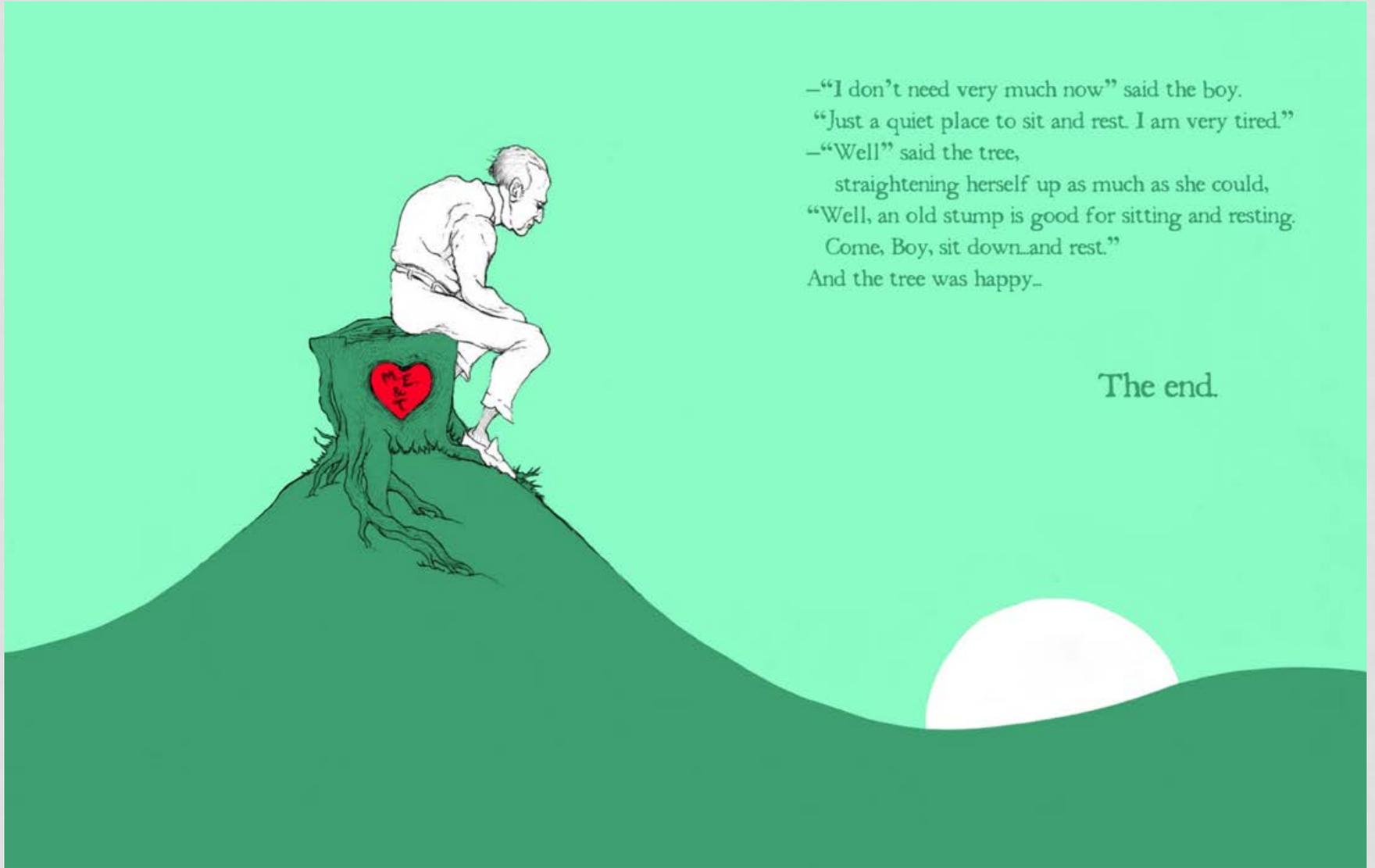




WITH ALL THESE BENEFITS

MANAGING OUR FORESTS IS ESSENTIAL TO OUR WELL BEING

WHEN WE DO OUR PART  
TREES CAN CONTINUE TO  
PROVIDE FOR US



—“I don’t need very much now” said the boy.

“Just a quiet place to sit and rest. I am very tired.”

—“Well” said the tree,

straightening herself up as much as she could,

“Well, an old stump is good for sitting and resting.

Come, Boy, sit down and rest.”

And the tree was happy..

The end.