



United States Department of Agriculture  
Northern Forests Climate Hub

# Considering Climate Change Risk in Forestry

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## Threats, Adaptation...and Carbon

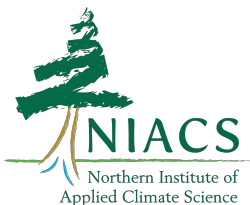
**Chris Swanston**

Northern Institute of Applied Climate Science

USDA Northern Forests Climate Hub

USDA Forest Service

[Christopher.Swanston@usda.gov](mailto:Christopher.Swanston@usda.gov)



# Change brings risk

SHIFTING SEASONS



SHIFTING SPECIES



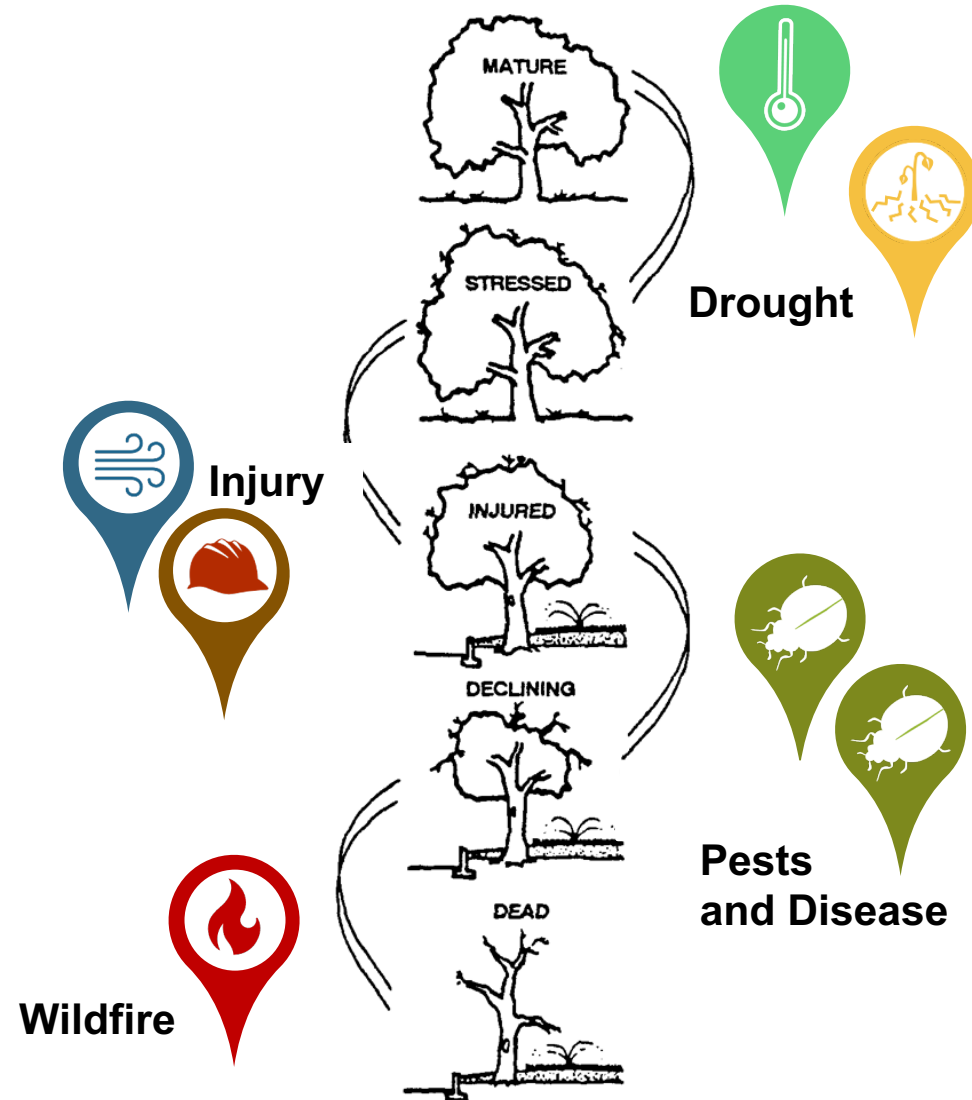
SHIFTING STRESSORS



# Climate change is a “threat multiplier”

- Chronic stress
- Disturbances
- Insect pests
- Forest diseases
- Invasive species
- Wildfire
- Sea level rise

**Interactions make all the difference.**



# Climate-Driven Changes



Desired Future Condition



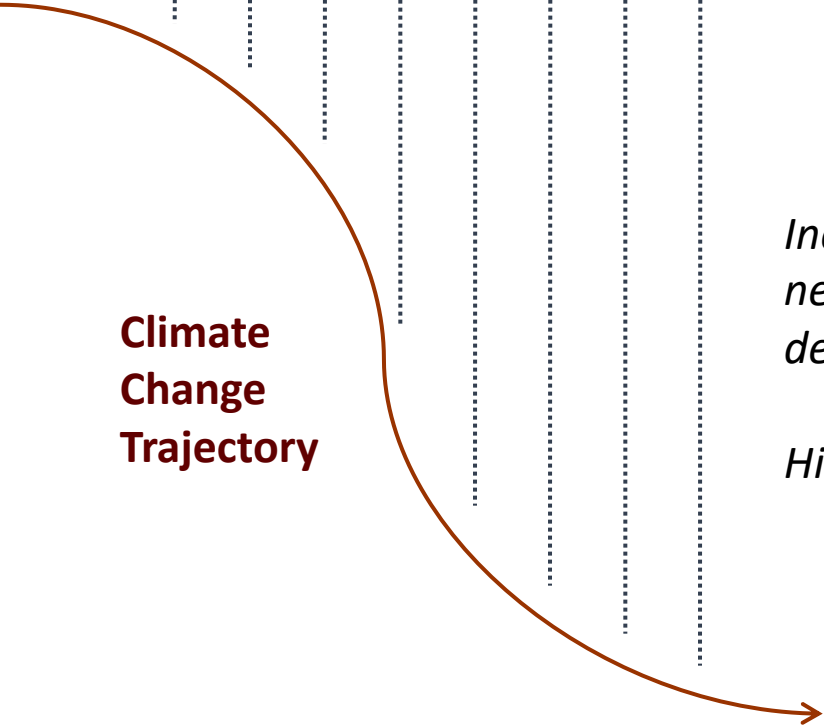
TIME



# Climate-Driven Changes



Desired Future Condition →



**Climate Change Trajectory**

*Increasing resources needed to maintain desired conditions*

*Higher risk*



TIME →

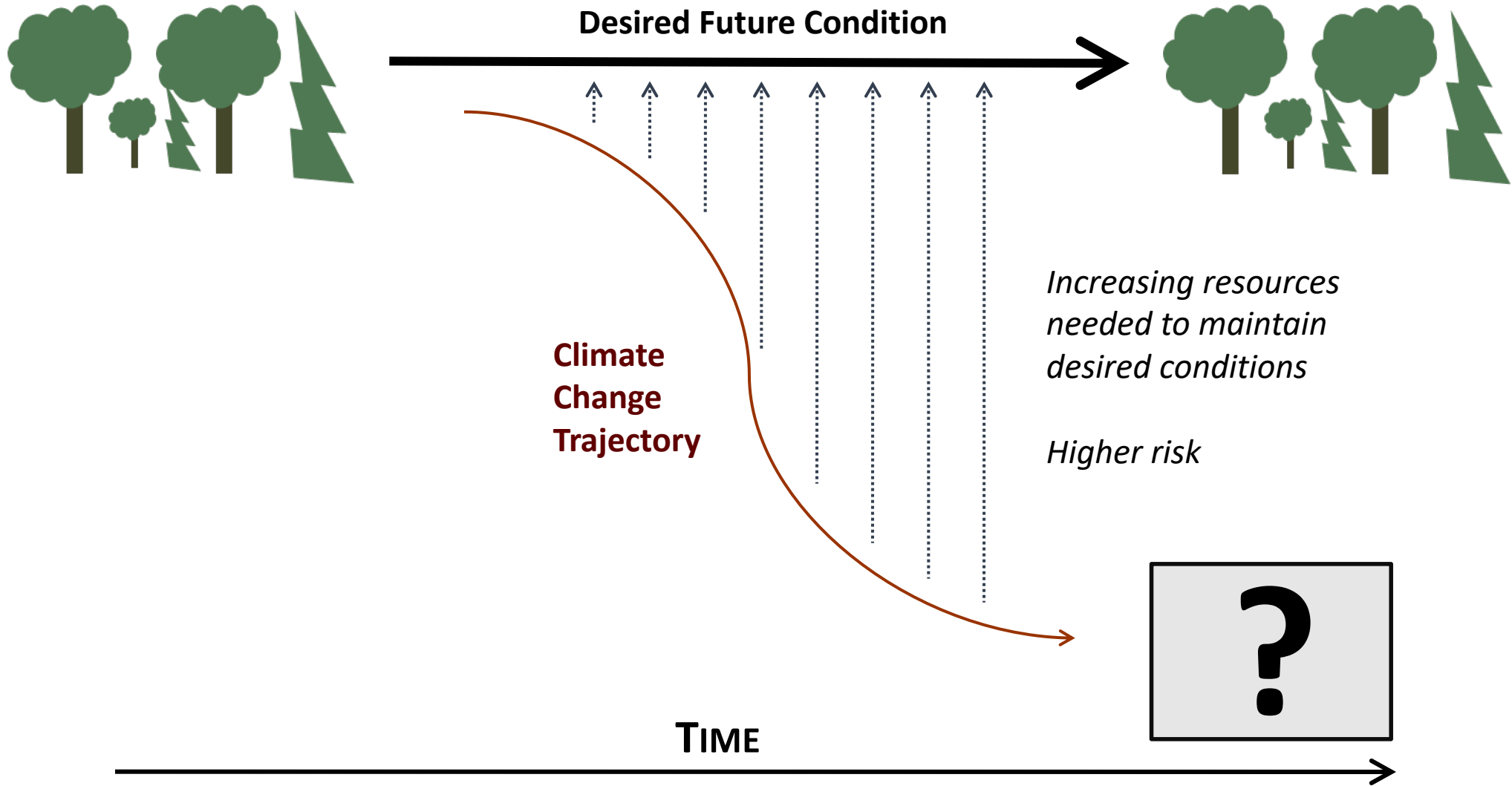
**Adaptation** is the adjustment of systems in response to climate change.



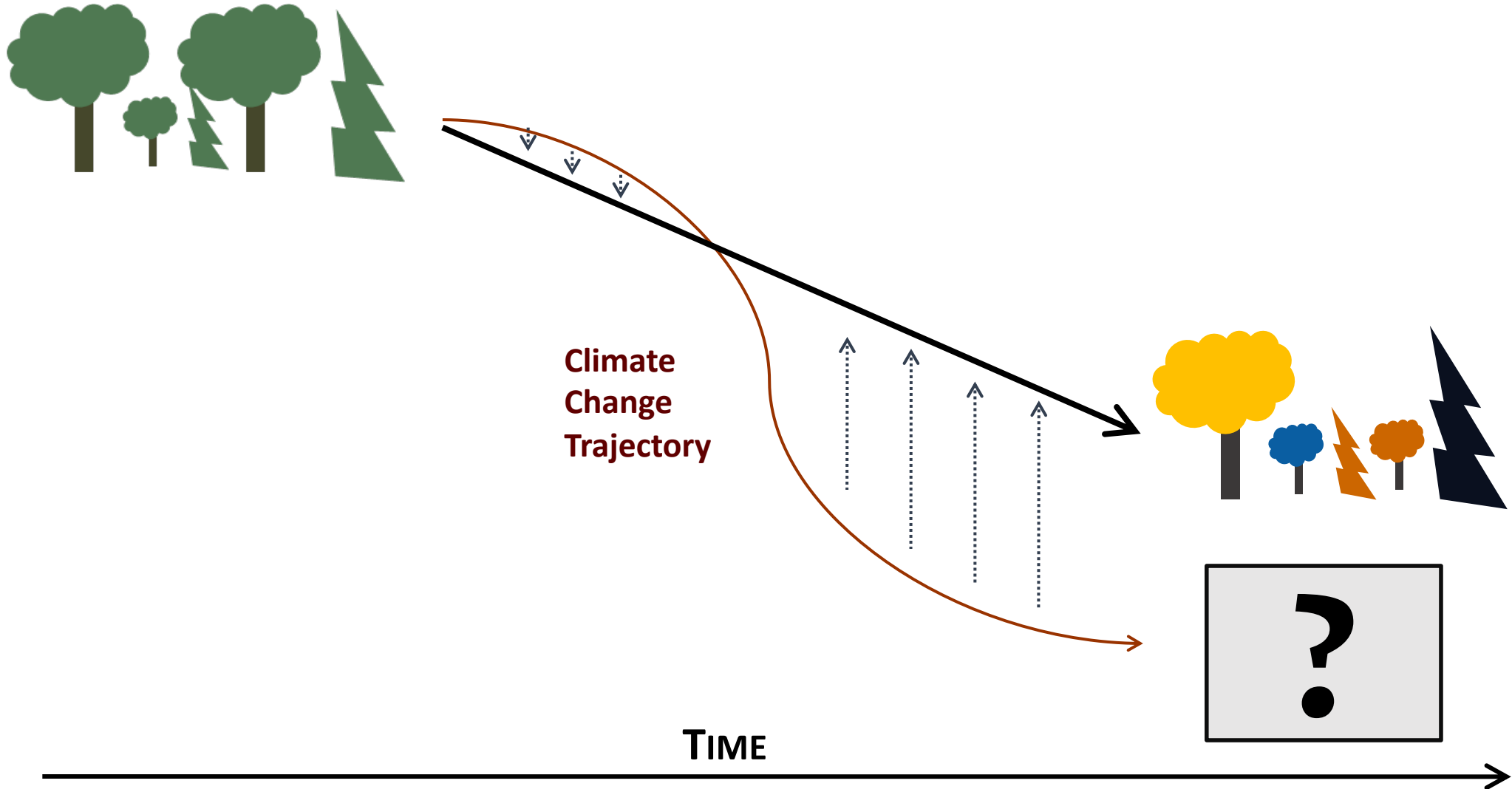
Ecosystem-based adaptation activities build on **sustainable management, conservation, and restoration.**

- What do you **value**?
- How much **risk** are you willing to tolerate?

# Managing Risk



# Managing Risk





# Managing Risk

## RESISTANCE



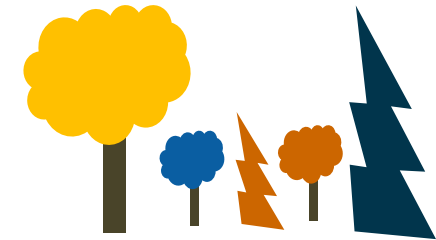
- Improve defenses of forest against change and disturbance
- Maintain relatively unchanged conditions

## RESILIENCE



- Accommodate some degree of change
- Return to prior reference condition following disturbance

## TRANSITION



- Intentionally facilitate change
- Enable ecosystem to respond to changing and new conditions

← Reduce impacts/maintain current conditions

Forward-looking/promote change →

# Concluding Thoughts – Climate Risk in Forestry

- Climate change is a threat multiplier
- Adaptation takes effort but can reduce risk\*
- Better adaptation means better carbon sink
- Values inform risk tolerance

\* Net reduction

Thank you!

**Chris Swanston**  
Christopher.Swanston@usda.gov



# Managing Risk

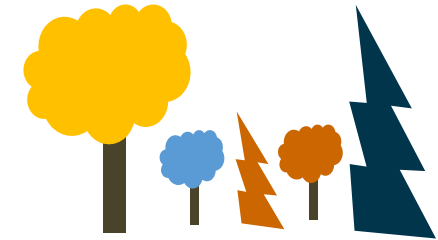
## RESISTANCE



## RESILIENCE



## TRANSITION



Identify and implement actions that are **robust across a range of potential future conditions**