

Adaptation Strategies for Drought



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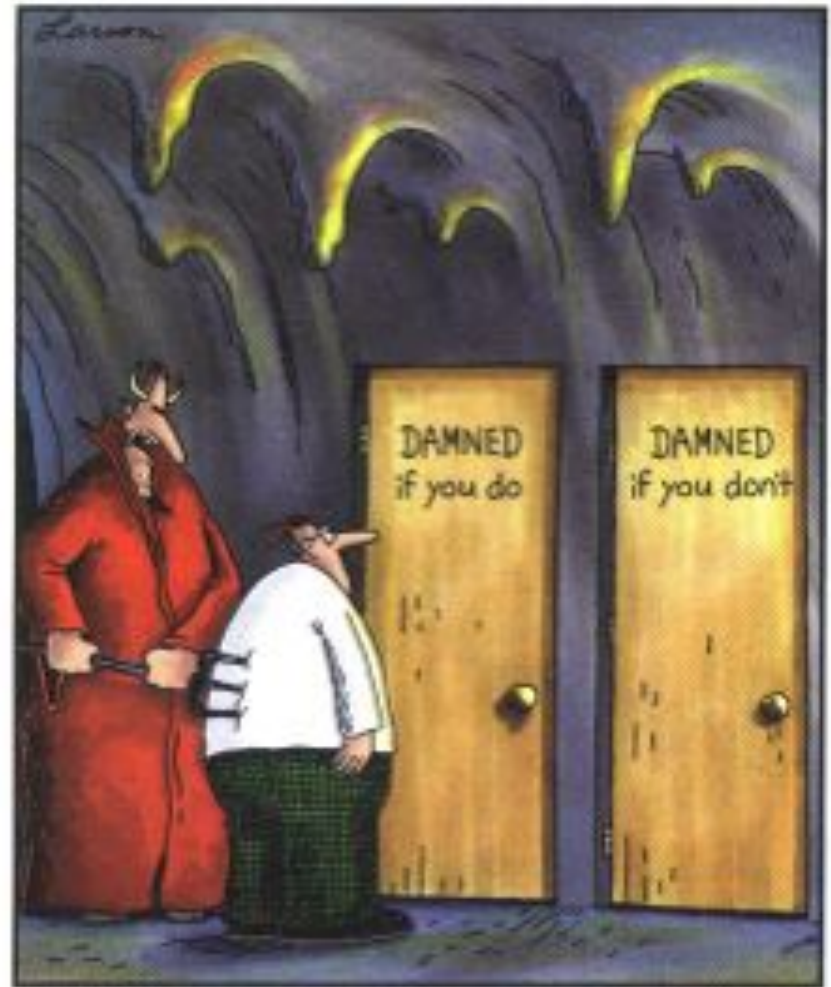
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Adaptation – working definition

An effort to lower the potentially negative consequences of drought

AND transition ecosystems and natural resources to changing climatic conditions

= building resilience?



"C'mon, c'mon – it's either one or the other."

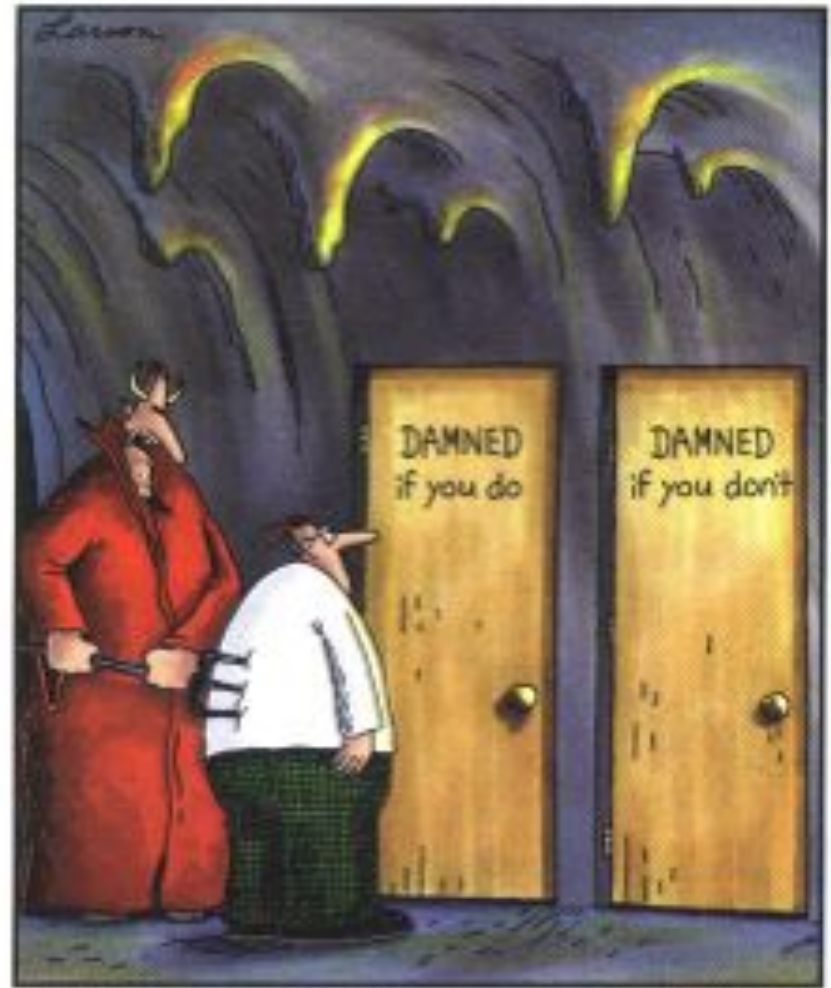
Adaptation – national forest context

Fine tuning and prioritizing current planning and management

Component of *sustainable resource management*

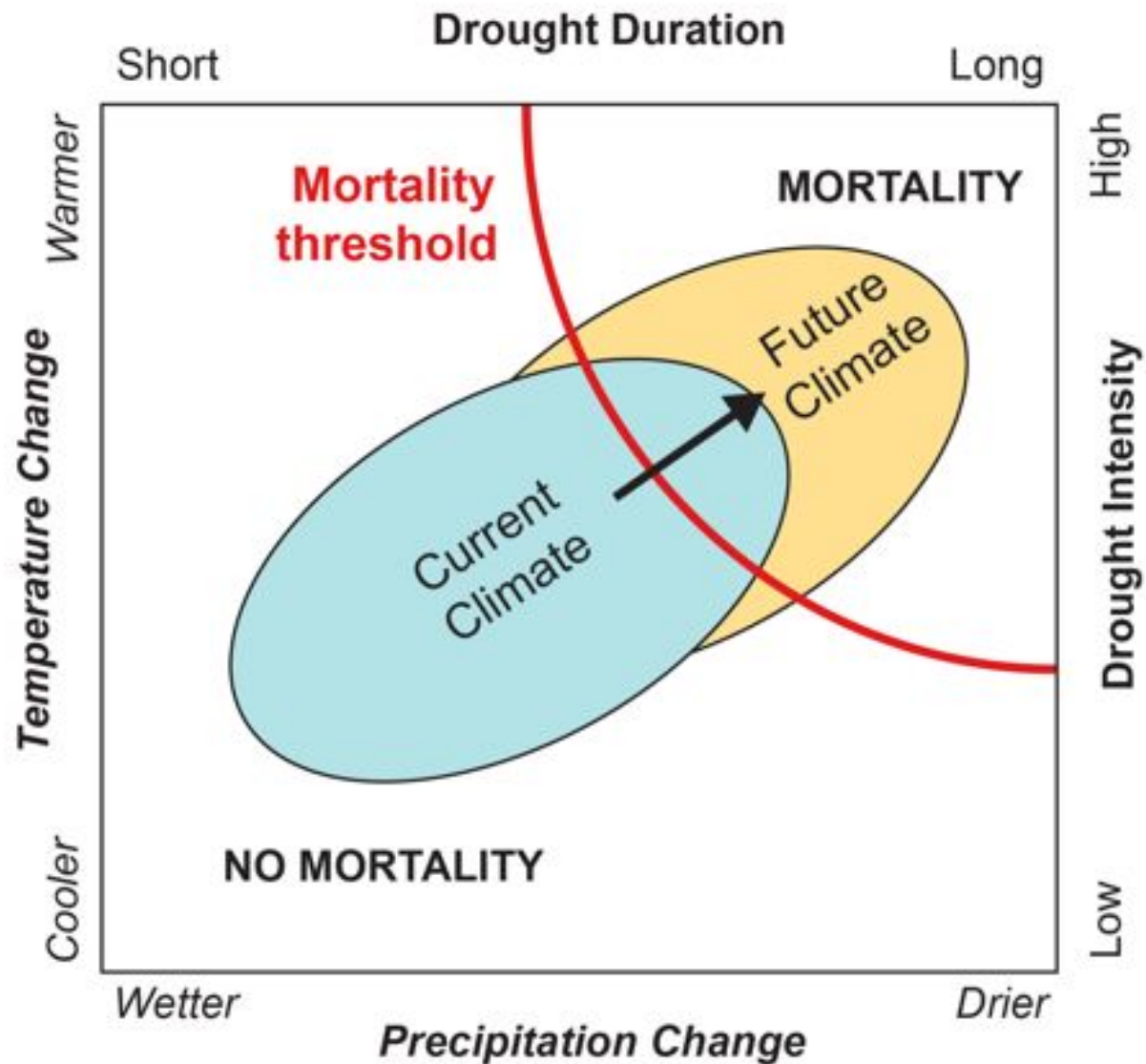
A form of *risk management*

Required by *federal planning regulations*



"C'mon, c'mon – it's either one or the other."

Forest Vulnerability to Changing Climate



Climate Change Adaptation Library

<http://adaptationpartners.org/library.php>

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ADAPTATION PARTNERS

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ON CLIMATE CHANGE ADAPTATION IN THE
WESTERN UNITED STATES

Vulnerabilities and adaptation WATER and FISHERIES

Vulnerabilities and adaptation

WATER and FISHERIES

Vulnerability

- Decrease in low flows during the summer



Vulnerabilities and adaptation

WATER and FISHERIES

Vulnerability

- Decrease in low flows during the summer

Adaptation strategy

- Increase habitat resilience by restoring structure and function of streams, riparian areas, and wetlands



Vulnerabilities and adaptation

WATER and FISHERIES

Vulnerability

- Decrease in low flows during the summer

Adaptation tactics

- Manage livestock grazing
- Maintain large wood
- Reconnect floodplains and side channels



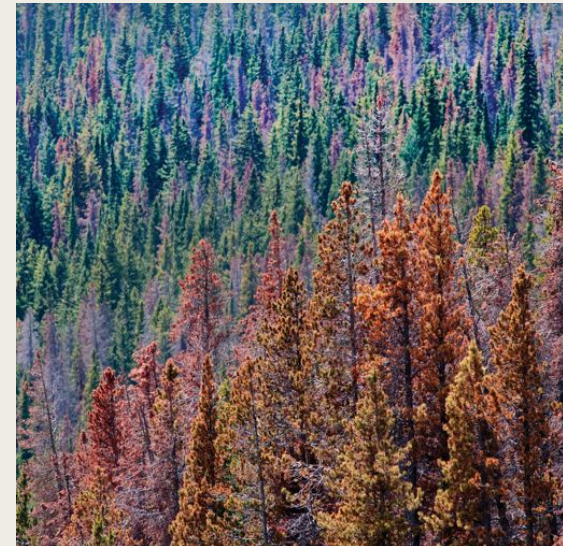
Vulnerabilities and adaptation VEGETATION

Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Increased drought stress will decrease forest productivity at lower elevations.



Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Increased drought stress will decrease forest productivity at lower elevations.



Adaptation strategy

- Increase resilience of forests to drought



Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Increased drought stress will decrease forest productivity at lower elevations.



Adaptation tactics

- Decrease forest stand density
- Plant drought-tolerant species and genotypes
- Protect trees that exhibit adaptation to water stress



Vulnerabilities and adaptation VEGETATION

Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Wildfire will burn more area and over a longer fire season.



Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Wildfire will burn more area and over a longer fire season.



Adaptation strategy

- Increase resilience of forest ecosystems to more frequent fire



Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Wildfire will burn more area and over a longer fire season.



Adaptation tactics

- Reduce stand densities
- Accelerate hazardous fuel treatments
- Manage for diversity



Vulnerabilities and adaptation VEGETATION

Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Areas with limited species and genetic diversity will likely be more susceptible to drought.



Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Areas with limited species and genetic diversity will likely be more susceptible to drought.



Adaptation strategy

- Promote species and genetic diversity



Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Areas with limited species and genetic diversity will likely be more susceptible to drought.



Adaptation tactics

- Plant potential microsites with mix of species
- Interplant to supplement natural regeneration and genetic diversity



Vulnerabilities and adaptation VEGETATION

Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Increased disturbance will negatively affect whitebark pine



Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Increased disturbance will negatively affect whitebark pine



Adaptation strategy

- Increase competitive ability and resilience of whitebark pine to more frequent disturbance



Vulnerabilities and adaptation

VEGETATION

Vulnerability

- Increased disturbance will negatively affect whitebark pine



Adaptation tactics

- Control beetles
- Create fuelbreaks
- Plant disease-resistant genotypes



Vulnerabilities and adaptation

SUMMER RECREATION

Vulnerabilities and adaptation

SUMMER RECREATION

Vulnerability

- Decrease in suitable sites for water-based recreation with increasing demands.



Vulnerabilities and adaptation

SUMMER RECREATION

Vulnerability

- Decrease in suitable sites for water-based recreation with increasing demands.

Adaptation strategy

- Increase flexibility in water-based recreation site management and facility design.



Vulnerabilities and adaptation

SUMMER RECREATION

Vulnerability

- Decrease in suitable sites for water-based recreation with increasing demands.

Adaptation tactics

- Increase length of boat ramps.
- Manage lake and river access capacity.
- Manage public expectations.





Adaptation is a marathon, not a sprint

<http://adaptationpartners.org/>