

## Human Dimensions of Ecological Restoration

Special thanks to Matt Bruce

Why the chainsaw?

## Ecological Restoration is...

The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.

-Society of Ecological Restoration

Restoration vs Reclamation vs Recovery



## Ecological Restoration includes...

- Prescribed Fire
- Seed Collection
- Willow Planting
- Fence Removal



## Restoration Includes

- Fencing
- Planting
- Fertilizing
- Tilling
- Weeding
- Succession
- Bioremediation
- Reforestation
- Aforestation
- Fire control
- Proscribed burning
- Crowd control
- Biological control
- Reintroduction
- Mitigation
- and much more

(Jazen, 1998)

## Restoration is a human endeavor


We make the decision to alter ecosystems, to exploit ecosystems, to destroy ecosystems,

and

We make the decision to attempt to restore them!



## Planting



## Thinning



Removing fence

Installing fence

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Fire Suppression

Prescribed Fire

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Species Reintroduction

Species Removal

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Why Should You Care?

- Restoration is the career of the future

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Bernhardt et al., 2005

Ecological Complexity

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Restoring Ecosystem Function

[Dam Removal](#)


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### Restoring Ecosystem Structure

Wildlife Reintroduction



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High

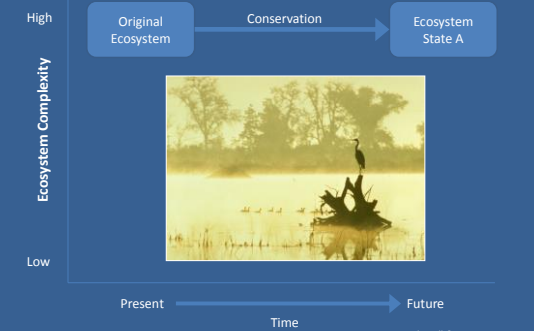
Original Ecosystem

Ecosystem Complexity

Low

Present Time Future

Clewell & Aronson 2007



High

Original Ecosystem

Conservation

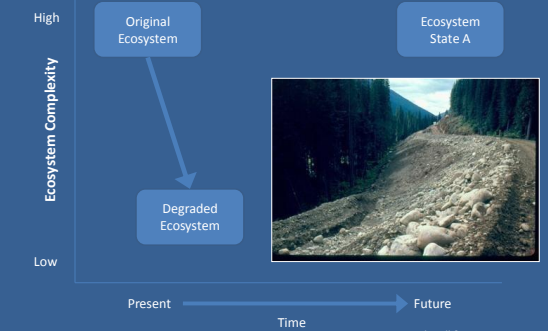
Ecosystem State A

Ecosystem Complexity

Low

Present Time Future

Clewell & Aronson 2007



High

Original Ecosystem

Degraded Ecosystem

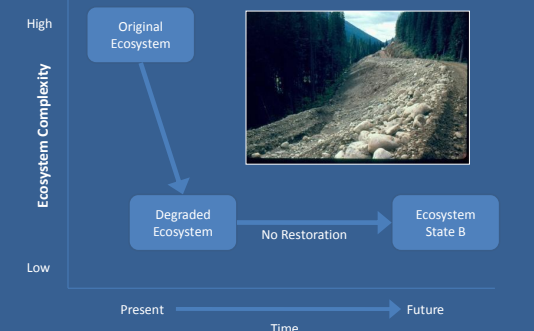
Ecosystem State A

Ecosystem Complexity

Low

Present Time Future

Clewell & Aronson 2007



High

Original Ecosystem

Degraded Ecosystem

No Restoration

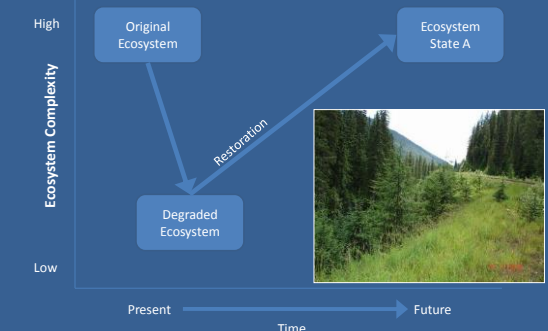
Ecosystem State B

Ecosystem Complexity

Low

Present Time Future

Clewell & Aronson 2007



High

Original Ecosystem

Degraded Ecosystem

Restoration

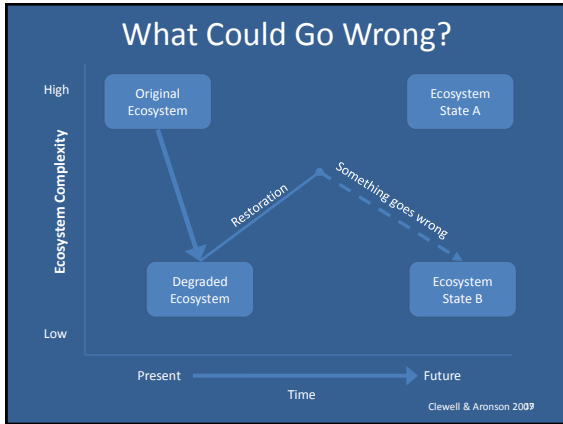
Ecosystem State A

Ecosystem Complexity

Low

Present Time Future

Clewell & Aronson 2007



### What Could Go Wrong?

**Biological: Restoration is fragile and unpredictable**

- Consumers/Predators
- Lack of rain
- Low germination
- Weeds
- Wind
- Floods

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### What Could Go Wrong?

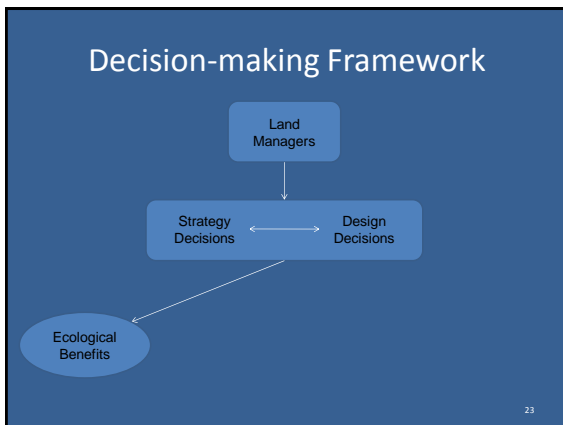
But its the Social Consequences that will broadside you

- No one will mind

### RESTORATION DESIGN

Why the chainsaw?

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### Restoration by Design?

“In the most sophisticated restoration projects, we do more than arrange material objects; our concern is with communication, appearance, function, organization (both ecological and social) and experience”

Eric Higgs  
Nature By Design, p. 279

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## Knowledge & Values

- Who determines what is correct and what is valuable?



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## Aesthetics

- Who determines what is beautiful?



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## Which do you prefer?



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## Technology

- Is efficiency better?



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## Labor

- Who should accomplish restoration tasks?
- Professionals, or
- Volunteers?



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## Social Benefits Gained by Using Volunteers in Restoration

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## Ecosystem Services

- For whom are we restoring?



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## Human Artifacts

- Are we trying to erase our past mistakes?



## Human Artifact



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## Human Culture

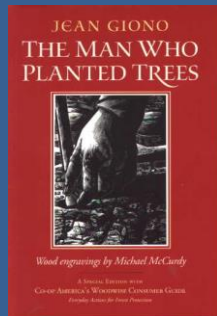
- What if a culture is directly tied to the function of a landscape?



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## Human Hubris

- Are we really in control of nature?



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## Or are we faking nature?



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## What are some negative consequences of faking nature?



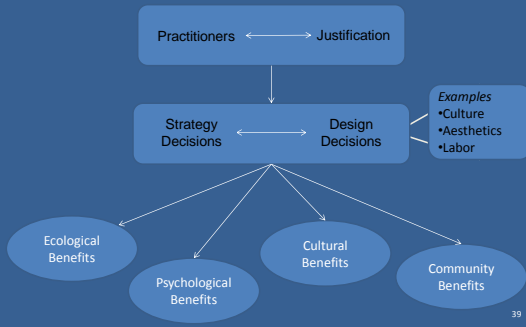
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## Design Decisions Involve:

- Knowledge
- Attitudes
- Ecosystem services
- Aesthetics
- Artifacts
- Culture
- Labor
- Hubris

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## Expanded Decision-making Framework



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## Restoration is a Powerful Tool



Without careful attention, restoration can do as much damage as benefit!

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## What have we learned

1. The practice of ecological restoration is growing quickly
2. Restoration success or failure can depend on design decisions such as knowledge, aesthetics, and culture
3. The design decisions we make influence how humans benefit from restoration

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## Marmot Dam removal on the Sandy River, Oregon



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