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!
Installing fence

Removing fence

Fire Suppression

Prescribed Fire

Species Reintroduction

Species Removal

Why Should You Care?
• Restoration is the career of the future

Ecological Complexity

Restoring Ecosystem Function

Dam Removal

Bernhardt et al., 2005
Restoring Ecosystem Structure
Wildlife Reintroduction

Original Ecosystem

Ecosystem Complexity
High
Low

Present
Future
Time

Clewell & Aronson 2007

Conservation
Ecosystem State A

Degraded Ecosystem

Ecosystem State B

No Restoration

Conservation

Ecosystem State A

Degraded Ecosystem

Restoration

Ecosystem State A

Conservation

Ecosystem State A

Restoration

Ecosystem State A
What Could Go Wrong?

**Biological:** Restoration is fragile and unpredictable
- Consumers/Predators
- Lack of rain
- Low germination
- Weeds
- Wind
- Floods

What Could Go Wrong?

But its the **Social Consequences** that will broadside you
- No one will mind
- Public outcry
- The public is stupid
- Education campaign
- Public input avoided
- Lack of community trust and support
- Political fallout
- Dwindling finances

RESTORATION DESIGN

**Why the chainsaw?**

Decision-making Framework

- Land Managers
- Strategy Decisions
- Design Decisions

Ecological Benefits

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
Knowledge & Values

- Who determines what is correct and what is valuable?

Aesthetics

- Who determines what is beautiful?

Which do you prefer?

Technology

- Is efficiency better?

Labor

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

Social Benefits Gained by Using Volunteers in Restoration

- Community
- Psychological
- Educational
Ecosystem Services
- For whom are we restoring?

Human Artifacts
- Are we trying to erase our past mistakes?

Human Artifact

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

Human Hubris
- Are we really in control of nature?

Or are we faking nature?
What are some negative consequences of faking nature?

Design Decisions Involve:
- Knowledge
- Attitudes
- Ecosystem services
- Aesthetics
- Artifacts
- Culture
- Labor
- Hubris

Expanded Decision-making Framework

Restoration is a Powerful Tool

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

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

Marmot Dam removal on the Sandy River, Oregon