Transforming Ecosystems: When, Where, and How to Restore Contaminated Sites

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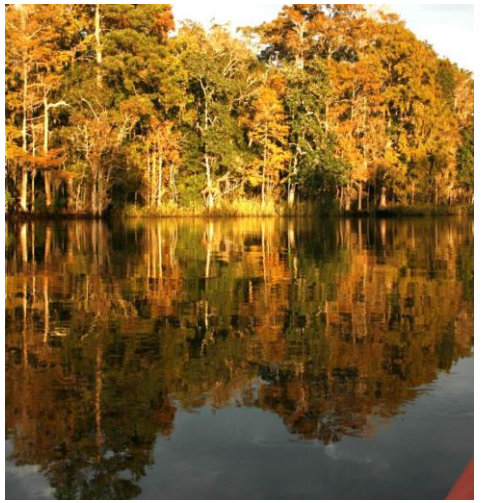
WHEN TO RESTORE?

WHEN TO RESTORE?
Initiation of Restoration

- Recent Environmental Event
- Regulatory Driver
- Political Support
- Funding
- Recent Public Awareness of an Older Environmental Disaster

Passive to Active "Restoration" Continuum

- **Passive Restoration:** Source is eliminated and the system is allowed to recover naturally
- **Active Restoration:** Humans intervene to accelerate the recovery



Key "WHEN" Take Away:

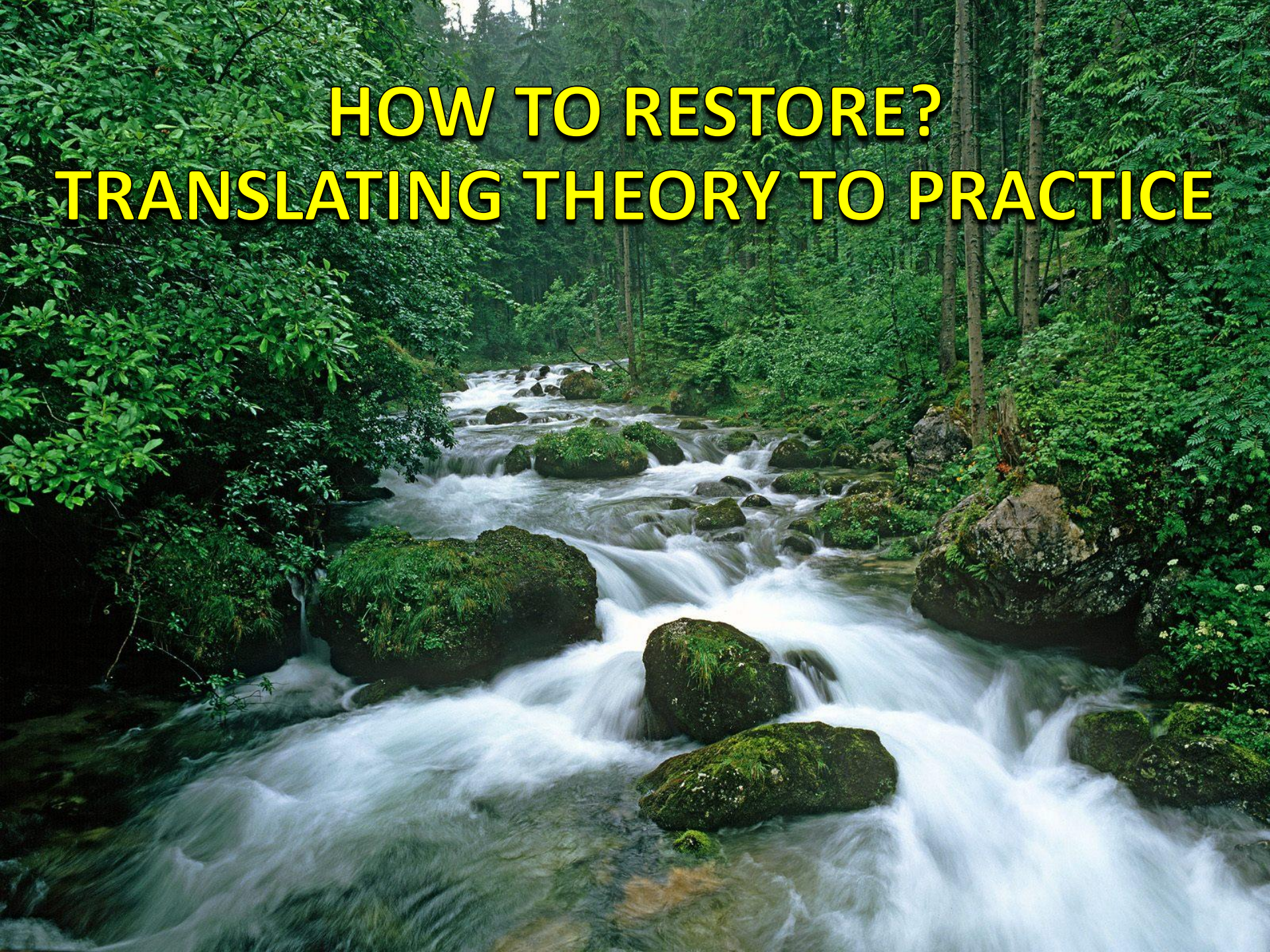
Ecological Restoration should be considered up front and incorporated into the remediation plan

- Ensures sensitive areas are protected
- Can increase rate of recovery
- Cost effective $$ - Equipment and labor already present


WHERE TO RESTORE?

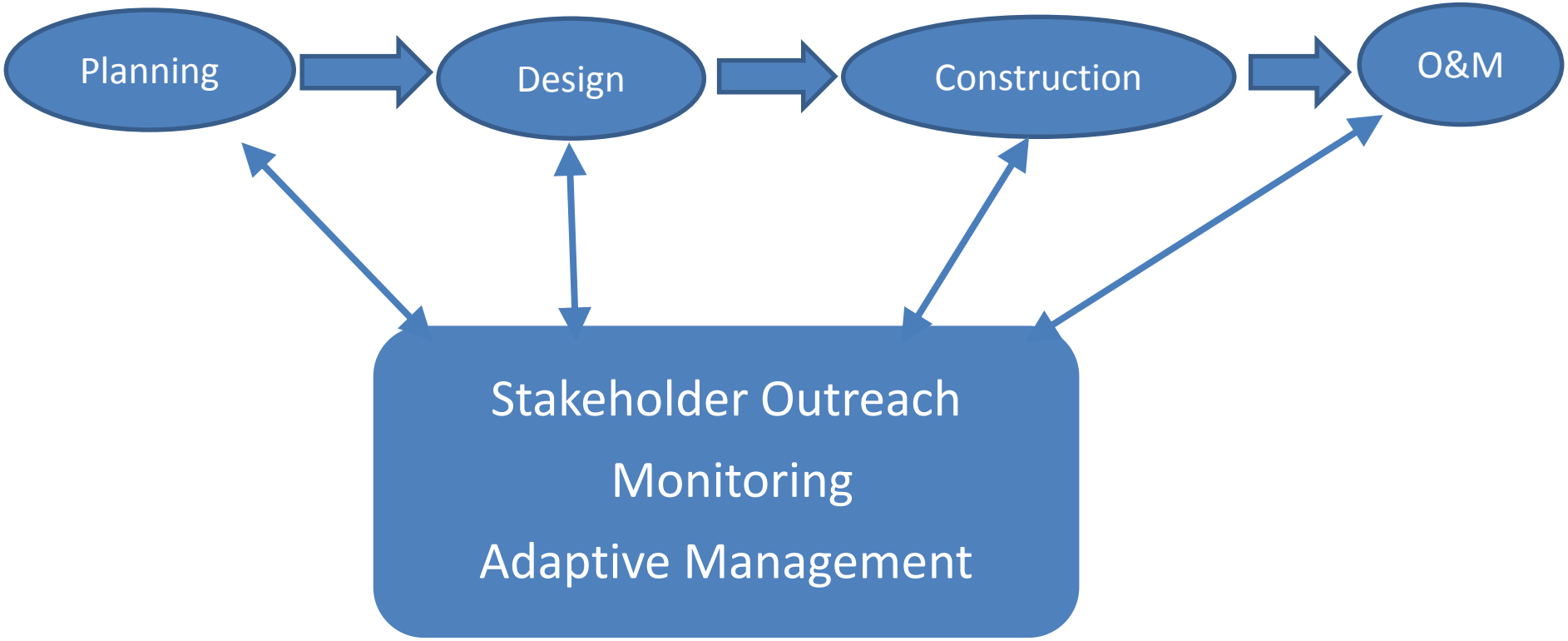
WHERE TO RESTORE?
On-site versus Off-site

- On-site – Often more desirable
- Off-site restoration - Desirable if conditions are expected to change, such as with climate change
- Several occasions where off-site restoration might be desirable or even required
  - where the contamination cannot be removed without causing extensive damage
  - In countries where compensatory restoration is mandated


HOW TO RESTORE?
TRANSLATING THEORY TO PRACTICE

Project Life Cycle

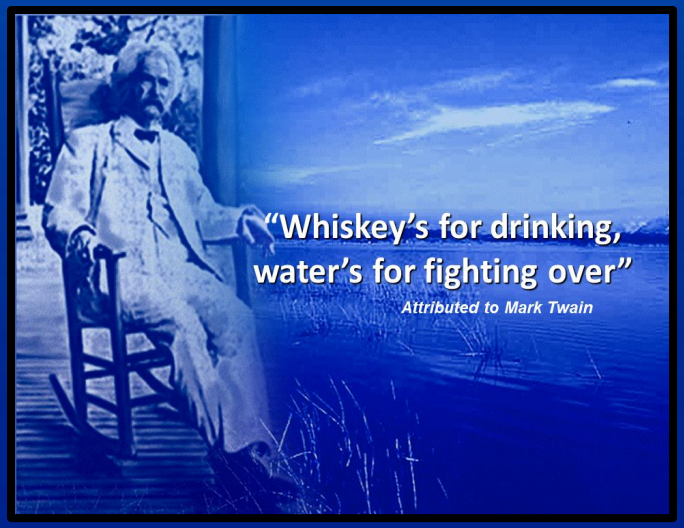
Project Management Plan



The Challenge of Public/Stakeholder Outreach

Challenges

- High stakeholder/public interest
- Technically complex
- High stakes – water supply, land use, restoration, protection
- Unequal level of understanding
- Unequal ability to engage
- Cultural differences



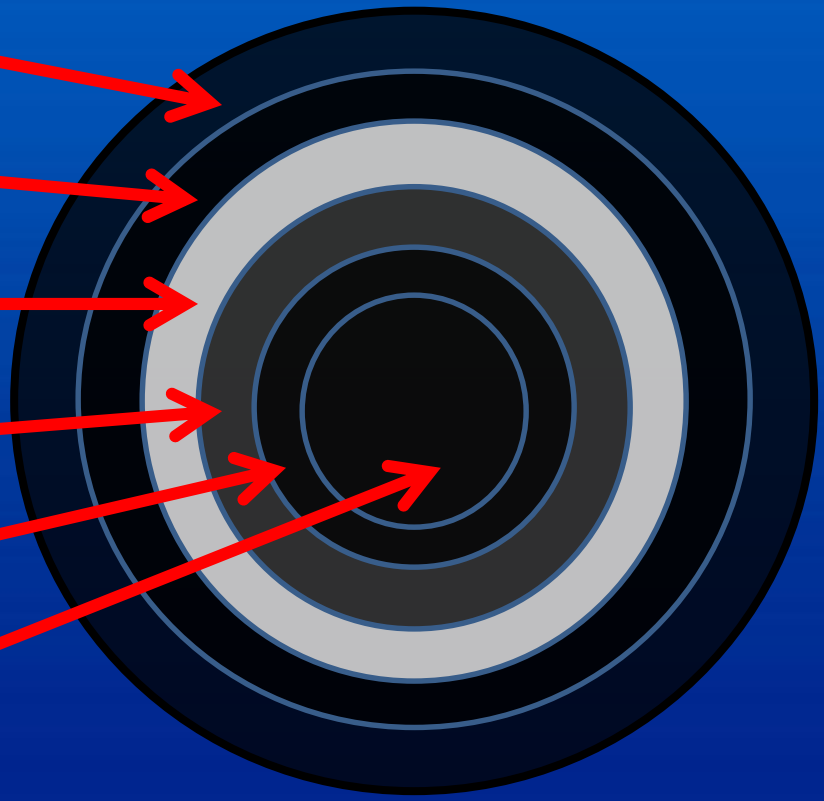
Outreach Fundamental Truths

- Simply informing is not enough – information must go both ways
- Never exclude those who want to be included
- Process is important – when, where, how
- It's better to do it right the first time than to have to do it over again

Who is the public?

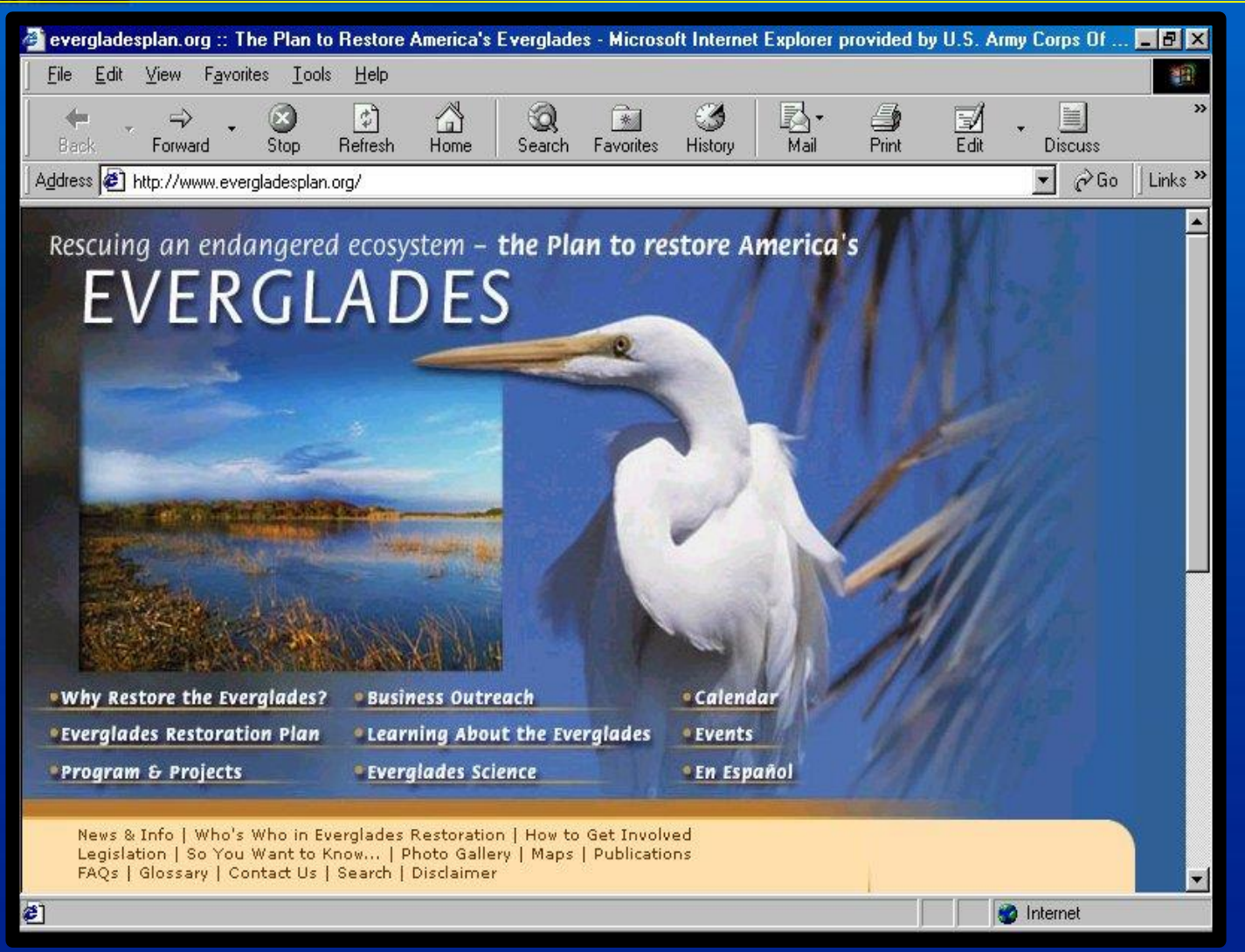
Orbits of participation

- Not interested
- Observers
- Commenters
- Technical reviewers
- Active participants
- Co-decision makers

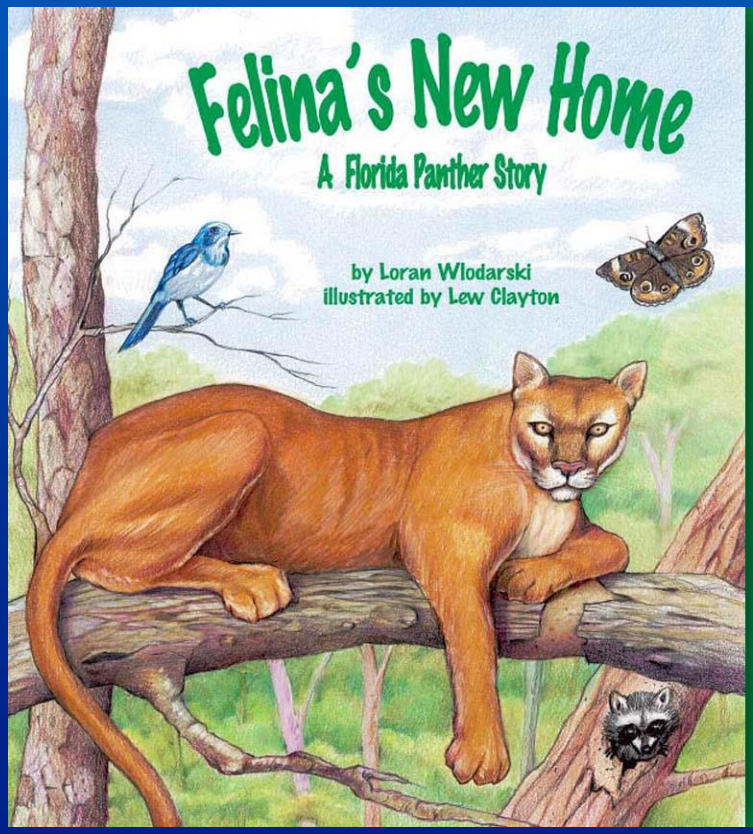


Unaware

Utilizing the web



With funding - Finding new ways to communicate



And others

Role of the media

- Journalists are a major source of scientific information for the public.
- Scientists are a major source of information for journalists.
- Some scientists struggle with communication outside of their peer group.
- Scientists view journalists as “science illiterates.”

Art is communication

EVERGLADES Eco TOUR

U.S. ARMY CORPS OF ENGINEERS, JACKSONVILLE DISTRICT

EVERGLADES NATIONAL PARK

Components of an Ideal Restoration

Conclusion

‘O Wise Ecosystem Engineer says….

Launch the AMAZING POWER of an interdisciplinary team!

Everyone has a gift/strength to bring to the team!

Formal Conclusion: Need more reciprocal transfer of knowledge among theorist and practitioners and academics, industry, government, tribal organizations, NGOs and the public to improve the science of restoration.