

An Introduction to the Multiple Perspectives on Ecological Restoration

An exploration of human-nature relationship through the particular practice of ecological restoration

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I. Synopsis

The proposed teaching program—“An introduction to the multiple perspectives on ecological restoration: An exploration of human-nature relationship through the particular practice of ecological restoration” is designed as a three-week teaching activity. From the official definition of ecological restoration to the exploration of multiple perspectives on ecological restoration, the proposed program integrates lectures, group discussion, and case study to guide students to expand the scope of ecological restoration and think about how to compromise among these diverse perspectives and propose a commonly accepted solution to a hypothetical scenario.

II. The issue and the goals

The Society for Ecological Restoration defines ecological restoration as “the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed” (SER 2004: 3). From the onset, ecological restoration has long been a terrain where ecologists and practitioners can test their ecological knowledge and learn more about ecological functions and processes through the act of restoration.

At the same time, ecological restoration is also at the forefront of the practice of constructing nature. Ecological restoration brings together humans and the physical environment and hence provides the opportunity to explore the human-nature relationship. Specifically, humans take an active role in restoring nature; therefore how their perception of nature would influence their responses to the environment.

The idea that “ecological restoration as social reconstruction” opens up the opportunity to explore the multiple perspectives on the human-nature relationship through the particular practice of ecological restoration. In the proposed activity, the goals are threefold:

- (1) an introduction to the idea of ecological restoration,
- (2) an exploration of the multiple perspectives on ecological restoration, and
- (3) a practice of how to negotiate diverse perspectives among stakeholders and propose compromised solutions for a particular case under a particular context.

The proposed teaching activity is designed for a three-week period with each week targeting on one of the goals listed above—from the narrow definition ecological definition gradually expanding the scope to a wider variety of perspectives. The overall objective of this proposed teaching activity is to familiarize the students with the idea of “ecological restoration as social reconstruction” and to appreciate the multiple aspects of ecological restoration.

III. Key concepts

1. An introduction to the idea of ecological restoration

Introduce the idea of ecological restoration to students, using “The SER International Primer on Ecological Restoration” as the key reference.

2. An exploration of the multiple perspectives on ecological restoration

Expand the scope of ecological restoration beyond the official definition, drawing articles on debating the definition of restoration which integrate multiple aspects such as social value, aesthetics, economic factors, psychological/spiritual aspects, and many others.

3. A practice of how to negotiate diverse perspectives among stakeholders and propose compromised solutions for a particular case under a particular context

Learn how to negotiate among diverse perspectives and how to evaluate the trade-offs and propose compromised solutions that are commonly acceptable among stakeholders.

IV. Audience

The proposed teaching program is designed for senior high students and college freshmen or sophomores. Students need to have basic knowledge in ecology and some understanding of the social context of ecological restoration.

V. Description of the activity

1. Phase 1

a. Objectives:

- i. Introduce the idea of ecological restoration to the students
- ii. Familiarize the students with the key concepts in ecological restoration:
 - Definition and comparison with other types of ecosystem management (e.g. preservation, rehabilitation, reclamations, mitigation)
 - Attributes of restored ecosystems
 - Procedures for ecological restoration
 - Reference ecosystem (how to define and what are the criteria)
- iii. Learn about (local) ecological restoration projects

b. Timeline:

Week 1, two class meeting periods (75 minutes each)

- i. 1st class meeting: lecture, covering goals i. and ii.
- ii. 2nd class meeting: video watching (or sharing news clips) and group discussion, covering goal iii.

c. Setting:

Classroom setting with video facilities

d. Method / Activity:

- i. 1st class meeting: lecture, covering goals i. and ii.
Introduce the idea of and key concepts in ecological restoration to students, using “The SER International Primer on Ecological Restoration” as the key reference.
- ii. 2nd class meeting: video watching (or news clips) and group discussion, covering goal iii.
Show video (or news clips) of (local) restoration projects and ask the students to make connections between the theories learned in the first class meeting and the actual restoration work. Identify the goals and the reference ecosystem(s) in the particular restoration project shown and discuss the merits of the project.

e. Assignment:

- Reading: “The SER International Primer on Ecological Restoration”
Society for Ecological Restoration International website

- Collecting news clips: search local restoration projects and collect news clips or online information that can share with other students

f. Materials / Resources:

Major references

SER (2004). *The SER International Primer on Ecological Restoration*. Society for Ecological Restoration International, Science and Policy Working Group. Available online:

http://www.ser.org/content/ecological_restoration_primer.asp

Society for Ecological Restoration International website: <http://www.ser.org/default.asp>

SER Current restoration project showcase:

http://www.ser.org/project_showcase.asp#ShowcaseListing

Supplementary references

Allison, S. K. (2004). "What Do We Mean When We Talk About Ecological Restoration?" *Ecological Restoration*, **22**: 281-286.

Egan, D. (2002). "Standards for Good Ecological Restoration." *Ecological Restoration*, **20**: 159.

Higgs, E. S. (1997). "What is good ecological restoration?" *Conservation Biology*, **11**(2): 338-348.

2. Phase 2

a. Objectives:

- i. Introduce other aspects of the idea of ecological restoration to the students, such as social value, aesthetics, economic factors, psychological/spiritual aspects, and many others; broaden their understanding of ecological restoration beyond the official definition
- ii. Learn about ecological restoration projects (student presentation)
- iii. Develop students' ability to analyze the multiple aspects of ecological restoration based on the case they collected for the assignment

b. Timeline:

Week 2, two class meeting periods (75 minutes each)

- i. 1st class meeting: student presentation of ecological restoration case studies and discussion of the social, cultural and other values involved, covering goals ii. and iii.
- ii. 2nd class meeting: lecture, using published articles (book chapters) that debate the multiple aspects of ecological restoration, covering goal i.

c. Setting:

Classroom setting with presentation equipment (overhead projector, laser projector)

Prepare poster paper and markers

Outside participation

d. Method / activity:

- i. 1st class meeting: student presentation and learn about case studies, covering goals ii. and iii.
- Students present their search results of the ecological restoration case studies (can be designed as a group project).

- After the presentation, students are asked to think about what aspects of ecological restoration outlined in “The SER International Primer on Ecological Restoration” can be identified in their case studies.
 - Then, students are asked to brainstorm and think beyond the official definition about ecological restoration. What are the other aspects of ecological restoration that are covered and/or should be considered in their project?
 - Finally, mapping the multiple aspects of ecological restoration. Ask the students to draw tree-maps of the multiple aspects of ecological restoration (in a hierarchical manner) that they have thought about.
- ii. 2nd class meeting: lecture, summarizing the multiple aspects of ecological restoration
- Introduce other aspects of the idea of ecological restoration to students, such as social value, aesthetics, economic factors, psychological/spiritual aspects, and many others; broaden their understanding of ecological restoration beyond the official discourses.
 - Based on the readings assigned, summarize the major categories of the multiple aspects of ecological restoration.
 - Integrate any new information gain from the readings into the students’ categorical maps of the multiple aspects of ecological restoration.
- iii. Outside class meeting time
- Participation in (local) volunteer ecological restoration activities and write a reflective journal

e. Assignment:

- Preparation for case study presentation
- Reading assignment listed below
- Participation in volunteer restoration activities and write a reflective journal

f. Materials / Resources:

Major references

- *Topic: Science and values*

Davis, M. A. and L. B. Slobodkin (2004). "The Science and Values of Restoration Ecology." *Restoration Ecology*, **12**(1): 1-3.

Higgs, E. S. (1994). "Expanding the Scope of Restoration Ecology." *Restoration Ecology*, **2**(3): 137-146.

Turner, R. E. (2005). "On the cusp of restoration: Science and society." *Restoration Ecology*, **13**(1): 165-173.

- *Topic: The politics of restoration*

Higgs, E. S. (1994). "The Politics of Restoration: Introduction." *Restoration and Management Notes*, **12**(2): 138-139.

Light, A. (1994). "Hegemony and Democracy: How Politics in Restoration Informs the Politics of Restoration." *Restoration and Management Notes*, **12**(2): 140-144.

Westfall, B. (1994). "Personal Politics: Ecological Restoration as Human-scale and Community-based." *Restoration and Management Notes*, **12**(2): 148-151.

- *Topic: Public participation and volunteerism*

- Grese, R. E., R. Kaplan, R. L. Ryan and J. Buxton (2000). Psychological benefits of volunteering in stewardship programs. *Restoring Nature: Perspectives from the Social Sciences and Humanities*. P. H. Gobster and R. B. Hull. Washington, D.C., Island Press: 265-280.
- Light, A. (2000b). Restoration, the Value of Participation, and the Risks of Professionalization. *Restoring Nature: Perspectives from the Social Sciences and Humanities*. P. H. Gobster and R. B. Hull. Washington, D.C., Island Press: 163-181.

Supplementary references

- Bradshaw, A. D. (1993). "Restoration Ecology as a Science." *Restoration Ecology*, **1**(2): 71-73.
- Bradshaw, A. D. (1994). "The Need for Good Science-Beware of Straw Men: Some Answers to Comments by Eric Higgs." *Restoration Ecology*, **2**(3): 147-148.
- Perry, J. (1994). "Greening Corporate Environments: Authorship and Politics in Restoration." *Restoration and Management Notes*, **12**(2): 145-147.
- Shore, D. (1997). "The Chicago Wilderness and its Critics: II. Controversy Erupts Over Restoration in Chicago Area." *Restoration & Management Notes*, **15**(1): 25-31.
- van Diggelen, R., A. P. Grootjans and J. A. Harris (2001). "Ecological Restoration: State of the Art or State of the Science?" *Restoration Ecology*, **9**(2): 115-118.
- Winterhalder, K., A. F. Clewell and J. Aronson (2004). "Values and Science in Ecological Restoration A Response to Davis and Slobodkin." *Restoration Ecology*, **12**(1): 4-7.

3. Phase 3

a. Objectives:

- i. Practice how to negotiate diverse perspectives among stakeholders and propose compromised solutions for a hypothetical scenario (adapted from a case study)
- ii. Practice how to consider the multiple aspects of ecological restoration (discussed in Phase 2 activities) in a specific case scenario
- iii. Learn the skills and arts of negotiation and compromise among trade-offs
- iv. Section summary and conclusion

b. Timeline:

Week 3, two class meeting periods (75 minutes each)

- i. 1st class meeting: role play and town hall meeting, discussing and negotiating for the final solutions for the hypothetical scenario
- ii. 2nd class meeting: students sharing their experience in participating in volunteer restoration work; the instructor summarize the key topics and main lessons learned in this section

c. Setting:

Classroom setting, desks and chairs arranged in a meeting layout

d. Method / Activity

- i. 1st class meeting: role play and town hall meeting
 - The hypothetical scenario: based on the case studies the students have prepared for their presentation, the instructor designs a hypothetical scenario that has multiple stakeholders with their diverse interests in conflict with each other (c.f. Vining et al., 2000).
 - Debate and discussion: group the students into groups based on their different foci for ecological restoration; generate a debate and discussion among groups to expose the conflicting interests

- Negotiation and proposal for solutions: students need to learn how to negotiate, listen to others' opinions, and compromise the trade-offs. The goal is to come up with a commonly acceptable solution for the particular case.
- ii. 2nd class meeting: students sharing their experience and the instructor summarize the section
 - Student presentation sharing their experience in volunteering in ecological restoration work.
 - The instructor summarizes the key topic and the main lessons learned in this section.

e. Assignment:

Familiarize with the multiple aspects in ecological restoration and prepare for the town hall meeting discussion.

f. Materials / Resources:

Topic: The Chicago Wilderness conflict as a case study

*Gobster, P. H. (1997). "The Chicago Wilderness and its Critics: III. The Other Side: A Survey of the Arguments." *Restoration & Management Notes*, 15(1): 32-37.*

*Helford, R. M. (2000). "Constructing Nature as Constructing Science: Expertise, Activist Science, and Public Conflict in the Chicago Wilderness." In Gobster, P. and R. Hull (eds) *Restoring Nature: Perspectives from the Social Sciences and Humanities*. Washington, D.C., Island Press: 119-142.*

*Ross, L. M. (1997). "The Chicago Wilderness and its Critics: I. The Chicago Wilderness: A Coalition for Urban Conservation." *Restoration & Management Notes*, 15(1): 17-24.*

*Shore, D. (1997). "The Chicago Wilderness and its Critics: II. Controversy Erupts Over Restoration in Chicago Area." *Restoration & Management Notes*, 15(1): 25-31.*

*Vining, J., E. Tyler and B.-S. Kweon (2000) "Public values, opinions and emotions in restoration controversies." In Gobster, P. and R. Hull (eds) *Restoring Nature: Perspectives from the Social Sciences and Humanities*. Washington, D.C., Island Press: 143-161.*

VI. Course structure

C O U R S E S T R U C T U R E

W E E K O N E	Phase 1. An introduction to the idea of ecological restoration	
	i. Introduce the idea of ecological restoration ii. Familiarize the students with the key concepts in ecological restoration	Lecture
	iii. Learn about (local) ecological restoration projects	Video / News clips Group discussion
W E E K T W O	Phase 2. An exploration of the multiple perspectives on ecological restoration	
	ii. Learn about ecological restoration projects restoration iii. Develop students' ability to analyze the multiple aspect of ecological restoration	Student presentation of the case studies Group discussion
	i. Introduce other aspects of ecological restoration to the students	Lecture
W E E K T H R E E	Phase 3. A practice of how to negotiate diverse perspectives among stakeholders and propose compromised solutions for a particular case	
	i. Practice how to negotiate diverse perspective among stakeholders ii. Practice how to consider the multiple aspects of ecological restoration in a specific scenario iii. Learn the skills of negotiation and compromise among trade-offs	Role play and town hall meeting Group discussion
	iv. Section summary and conclusion	Lecture

VII. Faculty notes

a. A list of the diverse stakeholders and their perspectives in ecological restoration:

- i. hard-core ecologists arguing for scientific authority
- ii. ecologists recognizing the dynamic nature of the ecosystem and integrating more of the social aspects into their study
- iii. professional practitioners wanting to establish restoration as a recognized profession
- iv. restoration organizations relying on public supports
- v. ecological engineers viewing restoration as technological problems
- vi. corporations and businesses using restoration to establish green image
- vii. social critics arguing for more public participation and democratizing the restoration discourse
- viii. restoration volunteers identifying themselves with the restoration activities
- ix. environmental philosophers arguing restoration as creating artifacts and as justification for environmental damage
- x. animal right activists and deep ecologists fighting against the human manipulation of the ecosystem
- xi. local lay people linking restoration with other social values such as recreational uses, property values, risk and health issues, and psychological effects
- xii. (others)

b. An example of the role-play and town hall meeting activity:

- i. **The set-up:** To make it more manageable, start with only five roles. Students are grouped into small groups with one role, as one particular actor in the ecological restoration debate. For each role, couple of short articles are assigned, summarizing the main arguments to the group. The choices are explained here:
 - Hard-core ecologists arguing for scientific authority
Bradshaw, A. D. (1993). "Restoration Ecology as a Science." *Restoration Ecology*, **1**(2): 71-73.
Bradshaw, A. D. (1994). "The Need for Good Science-Beware of Straw Men: Some Answers to Comments by Eric Higgs." *Restoration Ecology*, **2**(3): 147-148.
Winterhalder, K., A. F. Clewell and J. Aronson (2004). "Values and Science in Ecological Restoration A Response to Davis and Slobodkin." *Restoration Ecology*, **12**(1): 4-7.
 - Ecologists and social critics arguing for restoration as a value-laden practice and as art
Higgs, E. S. (1994). "Expanding the Scope of Restoration Ecology." *Restoration Ecology*, **2**(3): 137-146.
Davis, M. A. and L. B. Slobodkin (2004). "The Science and Values of Restoration Ecology." *Restoration Ecology*, **12**(1): 1-3.
 - Professional practitioners wanting to establish restoration as a recognized profession
Bowers, K. (2004). Certifying Restorationists-Another Look. *Ecological Restoration*. **22**: 169.
Clewell, A., J. P. Rieger and J. Munro (2005). Guidelines for Developing and Managing Ecological Restoration Projects. Tuscon, AZ, Society for Ecological Restoration International.

- Social critics and the general public arguing for more public participation and democratizing the restoration discourses (with a case)
 Light, A. (2000b). Restoration, the Value of Participation, and the Risks of Professionalization. *Restoring Nature: Perspectives from the Social Sciences and Humanities*. P. H. Gobster and R. B. Hull. Washington, D.C., Island Press: 163-181.
 Shore, D. (1997). "The Chicago Wilderness and its Critics: II. Controversy Erupts Over Restoration in Chicago Area." *Restoration & Management Notes*, **15**(1): 25-31.
- Restoration volunteers identifying themselves with the volunteer activities (with a case)
 Shore, D. (1997). "The Chicago Wilderness and its Critics: II. Controversy Erupts Over Restoration in Chicago Area." *Restoration & Management Notes*, **15**(1): 25-31.
 Grese, R. E., R. Kaplan, R. L. Ryan and J. Buxton (2000). Psychological benefits of volunteering in stewardship programs. *Restoring Nature: Perspectives from the Social Sciences and Humanities*. P. H. Gobster and R. B. Hull. Washington, D.C., Island Press: 265-280.

ii. **The hypothetical scenario**

The instructor design his/her own hypothetical scenario based on the students' case study presentation. The article by Vining et al. (2000) can be an example. Reference: Vining et al. (2000) "Public values, opinions and emotions in restoration controversies." In Gobster, P. and R. Hull (eds) *Restoring Nature: Perspectives from the Social Sciences and Humanities*. Pp. 143-161.

iii. **Themes and topics**

Theme 1: Restoration as human intervention?

- How do you think about the current state of the environment?
- What is ecological restoration? What is the goal of restoration?
- Discuss the concept of "pristine" nature and "created" nature. How do you see restoration fit in?
- Discuss the analogy of restoration as "gardenification of nature", as "ecological architecture", as "ecological engineering", and as "regeneration".

Theme 2: Restoration as a democratic practice?

- Discuss the science and art of restoration. Is there a hierarchy? How to integrate both?
- Discuss the idea of restoration as "public ecology". Express your arguments for and against the democratization of restoration practices.
- At what stages of the restoration process do you think public participation best fit in? Professionalism vs. the use of volunteers.

Theme 3: Relate to the hypothetical scenario

- What would you propose for the management of the site?

- (1) Stopping the restoration efforts permanently
- (2) Continuing the restoration efforts as currently conducted
- (3) Placing a moratorium on the restoration efforts until a thorough study of the issues can be conducted
- (4) Expanding the restoration efforts to encourage further recovery of savanna and prairie environments
- (5) Other compromise solutions (explain)

iv. **The mechanism**

Students should read the assigned articles before class. In class, students start intra-group discussion first to discuss the themes and topics listed above (about 15 minutes), then open up for the inter-group discussion (50 minutes). Ask the students to draw arguments from the articles assigned but encourage them to add their own opinions. However, each group should consider their “role” in making their arguments. The final goal is to come up with a solution for this particular scenario.

VIII. Assessment

Total points: 250

- a. Week 1:
 - i. Quiz on the key terms listed in the SER Primer (30 points)
- b. Week 2:
 - i. Case study presentation (50 points):
 - clarity of the presentation
 - identify of the key concepts and make linkages to the SER definition
 - ii. Group discussion participation (30 points)
 - identify and may the other aspects of ecological restoration
- c. Week 3:
 - i. Group discussion participation (100 points)
 - understand their role in the role play scenario
 - clarity in expression their own arguments
 - negotiation skills in evaluating and integrating others’ and their own arguments
 - evaluation of the final proposed solution
- d. Others:
 - i. Reflective journal (40 points)