

ETHICAL ISSUES IN ECOLOGICAL RESTORATION

EVST 570_01, Fall 2019

TR 3:30—4:50 pm; DHC 120

CRN: 72831

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“The real future of environmentalism is in rehabilitation and restoration. Environmentalists have told the story of the Garden of Eden and the fall from grace over and over again. But we haven’t yet told the story of redemption. Now we need to tell that story.” • Steven Pyne

Course Description

With the increasing ability to use science and technology to manage and restore damaged ecosystems comes a host of ethical and philosophical issues. A central theme in this class is integrating the restoration of ecosystems with the restoration of human communities to create sustainable bioregions and landscapes. We will be looking at developing a “restoration ethic” as a philosophical and moral grounding for this work, with the premise that restoring the earth requires restoring ourselves to the earth in the process. Yet, just because increasingly we can restore ecosystems does not necessarily mean that we *should* do so in all contexts. Hence the first section of the course reviews central concepts and practices in ecological restoration while introducing class group projects built around collaboration with the Clark Fork Coalition and other restorationists carrying out restoration projects in the Upper Clark Fork River watershed and western Montana. As a class we will examine community dimensions of the restoration process of the Upper Clark Fork watershed in the Deer Lodge Valley under way as part of the Superfund clean up of the Clark Fork River.

The second section of the course examines the ethical dimensions of several current case studies concerning restoration in wilderness to explore the question of whether active restoration in wilderness is ever ethically merited. The final section of the class is an extended philosophical exploration of what counts as “good” restoration, and why. Within this discussion we will look at emerging issues around restoration in the context of novel ecosystems and climate change. Over the course of the semester students will have the opportunity to develop a framework for what counts as good restoration in our changing, dynamic 21st century context.

Objectives & Learning Outcomes:

Upon completion of this course, students should be able to:

1. Analyze, critically evaluate, and correctly apply basic ethical concepts and forms of moral reasoning from the field of environmental ethics to contemporary issues and practices in the field of ecological restoration.
2. Think critically about the moral, social and environmental effects of the practices of ecological restoration in diverse social and ecological contexts.
3. Apply moral analysis to a contemporary case study in restoration in the Upper Clark Fork River watershed.
4. Incorporate information literacy into the moral analysis of restoration issues and writing assignments by finding, evaluating, analyzing, and synthesizing information from diverse sources.

- Write more clearly and effectively about complex ethical issues related to ecological restoration and be able to communicate these issues and multiple perspectives fairly and clearly to diverse audiences.

REQUIRED TEXTS

Nature By Design. Eric Higgs (MIT Press: 2003; ISBN: 0-262-58226-0)

Saving Tarboo Creek: One Family's Quest to Heal the Land. Scott Freeman (Timber Press: 2018; ISBN: 978-1-60469-794-0)

Ethical Adaptation to Climate Change: Human Virtues of the Future. Allen Thompson and Jeremy Bendik-Keymer, eds. (MIT Press: 2012; ISBN: 978-0-262-51765-2)

Readings on Moodle

Recommended: *Ecological Restoration: Principles, Values, and Structure of an Emerging Profession [Second Edition]*. Andre Clewell and James Aronson (Island Press: 2013; ISBN: 978-1-61091-168-7)

Course Schedule

Date	Class Topic and Assigned Readings	Reading Location
Introduction: Key Concepts in Ecological Restoration and Ethics		
8/27 TU 1	Introduction to the course	
8/29 TH 2	What is Ecological Restoration? The SER International Primer on Ecological Restoration Ch 1: "Overview: Basic Terms and Concepts" Ch 2: "Values and Ecological Restoration"	Moodle 1 Clewell & Aronson, Moodle 2 Clewell & Aronson, Moodle 3
9/3 TU 3	Key Concepts in Ecological Restoration Ch 3: "Disturbance and Impairment" Jim Harris & Rudy van Diggelen: "Ecological Restoration as a project for global society" Jelte van Andel and Ab P. Grootjans: "Concepts in Restoration Ecology"	Clewell & Aronson, Moodle 11 Moodle 12 Moodle 13
<i>Speaker: Dr. Cara Nelson</i>		

I. Restoration in the Upper Clark Fork Watershed

9/5 TH 4 **Restoring the Upper Clark Fork: The Work of the Clark Fork Coalition and the Watershed Restoration Coalition**

Read: [Halfway to Healing](#) And: [Federal Superfund Site](#)

Listen to Nora Saks's prize-winning podcasts on Butte, Richest Hill, especially Episode 5, "Out of the Frying Pan, Into The Fire," available at: [Out of the Frying Pan](#)

Recommended: Cassandra Hemphill: “History of Upper Clark Fork Basin Litigation: Background, Status, and Opportunities to Restore the Basin” **Moodle 6**

Start Reading *Saving Tarboo Creek* (recommend: at least pp. 11-82)

Speaker: Will McDowell, Clark Fork Coalition

9/6 Fri Upper Clark Fork Field Trip: Restoration Project on the Thomas Ranch

9/7 Sat Superfund Sites Field Trip in the Upper Clark Fork Watershed
[Leave Friday 1 pm; return Saturday 6 pm; overnight at Thomas Ranch]

9/10 TU 5 Volunteer and Community-Based Restoration: The Case of Tarboo Creek

Read: *Saving Tarboo Creek: One Family’s Quest to Heal the Land* (whole book)

9/12 TH 6 Overview of Ethical Issues in Ecological Restoration

Dan Spencer: “Ethics and Restoration: A Fascinating and Vexing Time” **Moodle 8**

Marion Hourdequin: “Ecological Restoration” **Moodle 9**

Eric Higgs: “What is Good Ecological Restoration?” **Moodle 10**

Spectrum Exercises on Ecological Restoration

9/14 Sat Restoration field day with Pedro Marques in the Anaconda Highlands

9/17 TU 7 Pedro Marques: Putting Together A Restoration Project

II. Restoration in Wilderness & Indigenous Perspectives

9/19 TH 8 Ethical Dilemmas in Restoration in Wilderness

Peter Landres et al: “Naturalness and Wildness: The Dilemma and Irony of Ecological Restoration in Wilderness” **Moodle 20**

Peter Landres: “Let It Be: A Hands-Off Approach to Preserving Wildness in Protected Areas” **Moodle 21**

Gregory Aplet & David Cole: “The Trouble with Naturalness: Rethinking Park and Wilderness Goals” **Moodle 22**

The Wilderness Act of 1964 **Moodle 22A**

Speaker: Peter Landres, Emeritus Scientist, Aldo Leopold Wilderness Research Institute

9/24 TU 9 Wilderness Management and Restoration

Beth Hahn, Peter Landres, Eric Biber, Dan Spencer “Asking the Right Questions: Integrating Law, Science, and Ethics to Support Decisions about Ecological Intervention In Wilderness” [Draft] **Moodle 23**

Michael Soulé: Should Wilderness Be Managed? **Moodle 24**

Recommended: John Hendee et al: “Wilderness Management: Philosophical Directions”

Sign up for Restoration in Wilderness Case Studies

9/26 TH 10 Restoration of the Confluence of the Blackfoot & Clark Fork Rivers Field Trip

to Milltown Dam Overview Site: Leave UM 3:30 pm; return 6:00 pm

YouTube video: Breaching the Dam: [Breaching the Dam](#)

Opportunity, MT: “Toxic Turmoil”: [People of Opportunity](#)

Speaker: Mike Kustudia, Manager, Milltown State Park

10/1 TU 11 **Holistic and Reciprocal Restoration: TEK and Indigenous Ways of Knowing**

Robin Kimmerer: “Restoration and Reciprocity: The Contributions of Traditional Ecological Knowledge” **Moodle 26**

Robin Kimmerer: Selections from *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*. **Moodle 27**

10/3 TH 12 **Cultural and Ecological Restoration on the Flathead Reservation**

Selections from *Explore the River: Bull Trout, Tribal People, and The Jocko River* **Moodle 28**

Speakers: Germaine White, Information and Education, and Rusty Sydnor, Wetland/Riparian Restoration Specialist, Confederated Salish and Kootenai Tribes

Field Trip to Jocko River: Leave UM at 3:30 pm; return by 6:30 pm

10/8 TU 13 **What We Restore in Ecological Restoration**

Ch 4: “Recovery” **Clewell & Aronson, Moodle 14**

Ch 5: “Ecological Attributes of Restored Ecosystems” **Clewell & Aronson, Moodle 15**

Ch 6: “Semicultural Landscapes and Ecosystems” **Clewell & Aronson, Moodle 16**

10/10 TH 14 Restoration and Wilderness: Case Study I in Managing for Wildness and

Naturalness in Wilderness: Fisheries restoration in the Stephen Mather

Wilderness, North Cascades National Park, WA

Readings: On Moodle

Facilitators:

(Paper due: 10/17)

***10/15 TU 15 Restoration and Wilderness: Case Study II in Managing for Wildness and Naturalness in Wilderness: Whitebark Pine Restoration in Wilderness**

Readings: On Moodle

Facilitators:

(Paper due: 10/22)

***10/17 TH 16 Restoration and Wilderness: Case Study III in Managing for Wildness and Naturalness in Wilderness: Herbicide application on non-native plants in Saguaro National Park, AZ**

Readings: On Moodle

Facilitators:

(Paper due: 10/24)

Essay on the Ethics of Restoration in Wilderness due in class for 10/10 Facilitators

III. Ethical Issues & Debates in Ecological Restoration

***10/22 TU 17 Early Critics: Restoration as Faking Nature?**

Robert Elliot: “Faking Nature” **Moodle 33**

Eric Katz: “The Big Lie: Human Restoration of Nature” **Moodle 34**

Eric Katz: “Another Look at Restoration: Technology and Artificial Nature”	Moodle 35
Andrew Light: “Ecological Restoration and the Culture of Nature: A Pragmatic Perspective”	Moodle 36
<i>Essay on the Ethics of Restoration in Wilderness due in class for 10/15 Facilitators</i>	
*10/24 TH 18 Early Debates on Restoration vs. Preservation	
<u>Read articles in this order:</u>	
William Jordan: “Sunflower Forest”: Ecological Restoration as the Basis for a New Environmental Paradigm”	Moodle 38
G. Stanley Kane: “Restoration or Preservation? Reflections on a Clash of Environmental Philosophies”	Moodle 39
William Jordan: “Weeding Key Biscayne”	Moodle 40
<i>Essay on the Ethics of Restoration in Wilderness due in class for 10/17 Facilitators</i>	
10/29 TU 19 What is Good Restoration? Introduction to Higgs’ Nature by Design	
Introduction to <i>Nature By Design</i> (pp. 1-14)	Higgs, NBD
Ch. 1: A Tale of Two Wildernesses: Jasper National Park, Meet Disney World	Higgs, NBD
Ch. 2: Boundary Conditions (skim 59-75)	Higgs, NBD
10/31 TH 20 Defining Ecological Restoration and The Question of History in Restoration	
Ch. 3: What is Ecological Restoration?	Higgs, NBD
Ch. 4: Historicity and Reference in Ecological Restoration	Higgs, NBD
11/5 TU 21 The Risks of Commodification & Professionalization	
Ch. 5: Denaturing Restoration	Higgs, NBD
11/7 TH 22 Community Participation in Restoration: Focal Restoration and Wild Design	
Ch. 6: Focal Restoration & Ch. 7: Nature by Design	Higgs, NBD
K. Suding et al., “Committing to Ecological Restoration”	Moodle 41
<u>Recommended:</u> Borgmann, “Focal Practices”	Moodle 42
<i>Critical Response essay on “Ethical Issues and Debates in Ecological Restoration” due in class</i>	
11/12 TU 23 Restoration, Politics & Justice II: Urban Restoration & Justice	
Colette Palamar: “From the Ground up: Why Urban Ecological Restoration Needs Environmental Justice”	Moodle 46
Michelle Garvey: “Novel Ecosystems, Familiar Injustices: The Promise of Justice-Oriented Ecological Restoration”	Moodle 47
Colette Palamar: “Restorashyn: Ecofeminist Restoration”	Moodle 48
IV. Restoration in an Age of Novel Ecosystems & Climate Change	
11/14 TH 24 Restoration in an Age of Novel Ecosystems?	
Lauren Hallett, et al. Towards a Conceptual Framework	Moodle 29

for Novel Ecosystems.

Brian Starzomski: Novel ecosystems and climate change **Moodle 30**

Andrew Light, Allen Thompson, Eric Higgs: Valuing novel ecosystems

Rachel Standish, et al.: Concerns about novel ecosystems **Moodle 31**

Richard Hobbs, Eric Higgs, Carol Hall: What do we know about, **Moodle 32**
and what do we do about, novel ecosystems?

See also the Student Companion Site: [Wiley Hobbs Student Companion](#)

Reflection Papers on Group Restoration Projects due in class

***11/19 TU 25 Restoration in an Age of Climate Change: I**

Allen Thompson and Jeremy Bendik-Keymer: Introduction:
Adapting Humanity

Intro, EACC

Ned Hettinger: Nature Restoration as a Paradigm for the Human
Relationship with Nature

Ch. 1, EACC

Class Facilitators:

***11/21 TH 26 Restoration in an Age of Climate Change: II**

William Throop: Environmental Virtues and the
Aims of Restoration

Ch. 2, EACC

Ronald Sandler: Global Warming and Virtues of Ecological
Restoration

Ch. 3, EACC

Class Facilitators:

***11/26 TU 27 Restoration in an Age of Climate Change: III**

Eric Higgs: History, Novelty, and Virtue in Ecological Restoration **Ch. 4, EACC**

Andrew Light: The Death of Restoration? **Ch. 5, EACC**

Class Facilitators:

Due in class: Higgs Critical Response Essay

11/28 TH **Thanksgiving Break: No Classes**

***12/3 TU 28 Restoration in an Age of Climate Change: IV**

Breana Holland: Environment as Meta-capability:
Why a Dignified Human Life Requires a
Stable Climate System

Ch. 7, EACC

David Schlossberg: Justice, Ecological Integrity, and
Climate Change

Ch. 8, EACC

Recommended: Josef Keulartz & Jac. A. A. Swart: “Animal Flourishing and
Capabilities in an Era of Global Change”

Ch. 6, EACC

Class Facilitators:

12/5 TH 29 **Wrap up & Discussion: What Makes an Ethic of Good Restoration?**

Paul Hirsch & Bryan Norton: Thinking Like a Planet

Ch. 16, EACC

Final Exam Period: Monday, December 9, 3:20—5:20 pm

Due: Final Take Home Exam Essay

Weight and Timeline of Assignments

The total number of points available for class assignments is 500 points.

In order of due dates, the assignments are:

	points	%	due date
1. Wilderness Restoration Case Study Essay	100	20%	Oct 17, 19, 24
2. Critical Response Essay	100	20%	Nov 7
3. Higgs Critical Response Essay	125	25%	Nov 26
4. Group Projects on Restoration at Dry Cottonwood Creek & Thomas Ranches & Individual Reflection Papers	50	10%	Nov 14
5. Take-Home Final Exam Essay	125	25%	Dec 15

Note: final grades will use pluses and minuses.

1. Ethical Analysis of a Case Study in Restoration in Wilderness: Class Facilitation and Reflective Essay. Each class member will have the opportunity to work in a small group to facilitate class discussion on a case study involving restoration in wilderness, using a framework by Peter Landres of the Aldo Leopold Wilderness Research Institute. The case studies and instructions for the class facilitation will be given in class. The dates for the case studies are Thursday, October 10, Tuesday, October 15, and Thursday, October 17. Each student will then write up a 6-8 page reflective essay on her/his case, reflecting on and analyzing the ethical dimensions of the case, and making a recommendation for how best to resolve it. Specific instructions will be given in class. **Essay due in class on Tuesday, October 17, Thursday, October 19, or Tuesday, October 24.**

2. Critical Response Essay: Each student will have the opportunity to write a critical response essay to one set of article(s) assigned for Section III of the class: “Ethical Issues and Debates in Ecological Restoration.” Dan will organize a class discussion of the texts. You will then choose one set of essays from class on either October 22 (Elliott, Katz, Light) or October 24 (Jordan and Kane) and write a critical response paper to the articles discussed in that class. Your paper should contain (a) a clear summary exposition of the main points of the readings (3-4 pages) as well as (b) your thoughtful assessment of and response to the arguments and ideas presented in the text (3-4 pages). With which author(s) do you agree most, and why? (Total Length: 7-8 pages, double-spaced), **Due in class Thursday, November 7.**

3. Critical Response Essay Eric Higgs’ Nature By Design: An 8-10 page critical response essay to the primary course text, Eric Higgs’ book, *Nature by Design: People, Natural Process, and Ecological Restoration*. The first part of this essay should be a thoughtful exposition (i.e. summary and explanation) of the overall argument and main themes from the book with 1-2 paragraphs dedicated to each chapter (Note: this should be a well-written, flowing essay, not a compilation of chapter summaries. *Develop* Higgs’s argument to reflect how he does this in the book). The second section should be your response to the issues Higgs raises and argues about what counts as

good restoration, and *why*: where do you agree with Higgs, disagree, and why? Does Higgs provide a helpful framework for assessing the ethical dimensions of ecological restoration? Where is his framework most helpful, least helpful, and where could it or should it be developed further or differently? **Due in class, Tuesday, November 26.**

NOTE: Your **audience** for the papers in 1, 2, & 3 is someone who has *not* read these texts. This means your exposition section must be clear and sufficiently well-developed so that the position and arguments of the author(s) would be clear to someone who has not read them, and would satisfy the author of a fair representation of his or her arguments.

4. **Small Group Projects:** The entire class will partner with several local restoration projects taking place in the Bitterroot and Upper Clark Fork River Watersheds. We will get an overview of the project options early in the semester. Small group teams will then be expected to carry out an individual project on one of the additional field days scheduled for Fri-Sat [Dates TBD] in October and early November. More information about the structure of the projects will be given in class.

Following your field experience(s) write a short (3-4 page) reflection essay where you do three things: (1) Describe briefly what you did for your project(s); (2) Discuss any insights about Restoration you gained from the project; (3) Reflect on the quality of the Restoration (ecological, social, cultural) being done there in light of our conversations to this point of the semester about what counts for *good* restoration and why. To what extent can we see the work being done in these projects be seen as an example of *good* restoration, and why? **Due in class Thursday, Nov 14** (flexible deadline depending on when projects are finished).

5. **Class Facilitation of readings from *Ethical Adaptation to Climate Change*:** These four classes will each focus on a different section of the text, *Ethical Adaptation to Climate Change*. Student teams will facilitate each class. In preparing for class, assume that everyone has read the chapters carefully, so you do not need to present on the content of the chapters. Rather, briefly summarize some of the central issues, and then facilitate a critical conversation on the key themes and concepts, and what contributions, if any, they make to the discussion of what counts as *good* ecological restoration and why. Plan to have a structured facilitation for the first 20-25 minutes, and then open discussion of the readings from there.

6. **TAKE-HOME FINAL EXAM ESSAY:**

Option A: Throughout the semester, we have considered ethical issues in ecological restoration through two primary lenses: (1) the philosophical question, “What is *good* ecological restoration?” posed most acutely by philosopher Eric Higgs (and posed by others as “*Can* restoration even be good?”); (2) the on-the-ground restoration planning and projects, both in Wilderness, and in the Clark Fork watershed being stimulated by the Superfund cleanup of the Clark Fork River and the community planning being spearheaded by the Clark Fork Coalition and other organizations involved in restoration.

In light of this semester-long conversation, write an 8-10 page essay (double-spaced) addressing these three questions:

- (1) “What kind of restoration ethic is needed to guide ecological restoration efforts, and why?”
- (2) “What difference, if any, do emerging factors of climate change and novel ecosystems make for developing a restoration ethic, and why?”
- (3) “Is the restoration and clean up process ongoing in the Clark Fork watershed an example of *good* restoration? Why or why not?”

In your essay, please draw on several of the assigned readings as “conversation partners” in developing your response, as well as insights gained from class discussions, field trips, speakers and any additional reading you have done. In your answer, please consider and integrate responses to these questions:

- Which authors have been most helpful to you in formulating your ethic, which most problematic, and why?
- What are the strengths and weaknesses, problems and potential, of ongoing restoration in the Clark Fork watershed, such as the Superfund clean up of the Clark Fork River in the Deer Lodge valley and the work of the Clark Fork Coalition and other organizations in the watershed?
- What are the most important insights you have gained about restoration from this semester-long immersion?

Option B: Throughout the semester, we have considered the philosophical question, “What is *good* ecological restoration?” We have looked at this question through several lenses, especially through Eric Higgs’s text, *Nature By Design*. For this essay, use Higgs’s text as a departure point to investigate and analyze in greater depth *an issue* you believe is central to the question of *good* ecological restoration, but that Higgs either does not address, or addresses inadequately. Your paper should *not* be a rehashing of the issues in Higgs or your response paper to Higgs, but rather a new and more in-depth examination of *other* dimensions you believe need to be factored into the question of what counts for good ecological restoration, and why. Draw on other authors (including those we read in class or others you bring in), to help develop your analysis. What I am looking for in this essay is your ability to take the conversations and readings we have engaged this semester about good ecological restoration as a *starting point* that you move beyond and address a new or additional issue(s) in greater depth. Your final essay should be 8-10 pages, double-spaced. Please clear your topic with me prior to writing it.

Bring your completed essay to our classroom during the final exam period, **Monday, December 9, 3:20—5:20 pm**, where each of you will have the opportunity to share a synopsis of what you have written. Baked goodies to share with your classmates are also appropriate at this time. ☺

CLASS POLICIES:

Note Re Papers: Papers are due in class **on or before** the date listed in the syllabus. Unless you have made a prior agreement with me, I will take off one grade level (A becomes A-) for each class day an assignment is late. Papers with an undue number of errors of punctuation, spelling, or grammar will be marked down and may be returned ungraded for correction. Written work will be evaluated in terms of your depth of critical analysis, thoughtfulness of reflection, clarity of writing, and ability to address issues raised in the text and in class on the topic at hand. Grades given reflect the following criteria of judgment:

- F: Failure to meet minimum requirements
- D: Unsatisfactory, but some effort to meet minimum requirements
- C: Satisfactory; meets minimum requirements of assignment but not much more
- B: Good to Very Good: thoughtful reflection, good analysis, clear writing style
- A: Excellent depth of critical analysis, thoughtfulness of reflection, and writing style; demonstrate creativity and mature analytical skills in going beyond the primary requirements of the assignment

Attendance: Regular attendance and participation in the class is expected. More than **three** (3) absences will result in losing any benefit of the doubt on your final grade. More than **four** (4) absences will result in one grade reduction. More than **five** (5) absences will result in a failing course grade. Late arrivals in class will count as an absence. (**Note:** If you have a valid reason for missing several classes, such as illness or other conflicting commitments, you still **must** speak with the instructor).

Academic Dishonesty and Plagiarism: All work submitted is expected to be the student's own. Any acts of plagiarism or academic dishonesty will result in automatic failure of the course, and may result in further academic punishment. If you have any doubts about definitions of plagiarism or academic dishonesty, please review the relevant sections of the University Catalog.

Students with Disabilities: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommason Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification. I am in the process of converting all of the materials in the class to an accessible format. If you find any course materials are not in an accessible format for you, please let me know and I will work with DSS to change the format.

Important University Policies, Dates and Deadlines

For Important Dates and University policies, check Cyberbear at <http://cyberbear.umt.edu/>

Incomplete Grade: Please see the criteria that must be met for an Incomplete in the University Catalog. No exceptions will be made for these criteria.

Moodle: Course assignments and readings are also posted on Moodle, which may be accessed at [Moodle](#)

Readings on Moodle, ENST 570_01, Fall 2019

Ethical Issues in Ecological Restoration

1. The SER International Primer on Ecological Restoration (www.ser.org/docs/default-document-library/english.pdf).
2. Andre F. Clewell and James Aronson. 2013. "Values and Ecological Restoration" in *Ecological Restoration: Principles, Values, and Structure of an Emerging Profession* (Second Edition). Washington DC: Island Press, pp. 15-31.
3. Andre F. Clewell and James Aronson. 2013. "Overview: Basic Terms and Concepts" in *Ecological Restoration: Principles, Values, and Structure of an Emerging Profession* (Second Edition). Washington DC: Island Press, pp. 3-13.
5. 2005 State of the Clark Fork: Understanding Our Watershed www.clarkfork.org/publications/state_of_clark_fork/index.html
6. Cassandra Hemphill. 2007. History of Upper Clark Fork River Basin Litigation: Background, Status, and Opportunities to Restore the Basin. Unpublished paper, The University of Montana.
7. Sarah Carvill. 2009. The Focal Politics of the WRC in *On This Piece of Ground: Landowner Perceptions of Restoration in the Deer Lodge Valley*. Unpublished Master's Thesis, The University of Montana.
8. Dan Spencer. 2016. "Ethics and Restoration: A Fascinating and Vexing Time." *SER News*, Vol. 30, Issue 4, August 2016.
9. Marion Hourdequin. 2015. "Ecological Restoration" in *Environmental Ethics: From Theory to Practice*. London and New York: Bloomsbury, pp. 169-193.

10. Eric Higgs. 1997. What is Good Ecological Restoration? *Conservation Biology*, Vol. 11, No. 2, April 1997, 338-348.
11. Andre F. Clewell and James Aronson. 2013. "Disturbance and Impairment" in *Ecological Restoration: Principles, Values, and Structure of an Emerging Profession* (Second Edition). Washington DC: Island Press, pp. 33-51.
12. Jim A. Harris and Rudy van Diggelen. Ecological restoration as a project for global society. In Jelte van Andel and James Aronson, eds. *Restoration Ecology: The New Frontier*. Malden, MA: Blackwell, 2006, 3-15.
13. Jelte van Andel and Ab P. Grootjans. Concepts in restoration ecology. In Jelte van Andel and James Aronson, eds. *Restoration Ecology: The New Frontier*. Malden, MA: Blackwell, 2006, 16-28.
14. Andre F. Clewell and James Aronson. 2013. "Recovery" in *Ecological Restoration: Principles, Values, and Structure of an Emerging Profession* (Second Edition). Washington DC: Island Press, pp. 73-87.
15. Andre F. Clewell and James Aronson. 2013. "Ecological Attributes of Restored Ecosystems" in *Ecological Restoration: Principles, Values, and Structure of an Emerging Profession* (Second Edition). Washington DC: Island Press, pp. 89-112.
16. Andre F. Clewell and James Aronson. 2013. "Semicultural Landscapes and Ecosystems" in *Ecological Restoration: Principles, Values, and Structure of an Emerging Profession* (Second Edition). Washington DC: Island Press, pp. 113-124.
17. Milltown Dam News Overview January 2010 ([Milltown Dam News Overview 2010](#))
18. The Three R's of the Milltown Reservoir Superfund Project ([Three R's of the Milltown Superfund Site](#))
19. The Other End of the Dam Project ([The Other End of the Milltown Dam](#))
20. Peter Landres, Mark Brunson, and Linda Merigliano. Naturalness and Wildness: The Dilemma and Irony of Ecological Restoration in Wilderness. *Wild Earth*, Winter 2000/2001, Publication #417, 77-82.
21. Peter Landres. Let it Be: A Hands-Off Approach to Preserving Wildness and Naturalness in Wilderness. In David N. Cole and Laurie Yung, eds. *Beyond Naturalness: Rethinking Park and Wilderness Stewardship in an Era of Rapid Change*. Washington, D.C.: Island Press, 2010, 88-105.
22. Gregory Aplet & David Cole. The Trouble with Naturalness: Rethinking Park and Wilderness Goals. In *Beyond Naturalness: Rethinking Park and Wilderness Stewardship in an Era of Rapid Change*. David Cole and Laurie Yung, eds. Washington D.C.: Island Press, 2010, 12-29.

23. Beth Hahn, Peter Landres, Eric Biber, Dan Spencer. 2017. "Asking the Right Questions: Integrating Law, Science, and Ethics to Support Decisions about Ecological Intervention in Wilderness." *Unpublished Draft*.
24. Michael Soule. 2001. Should Wilderness Be Managed? In Ted Kerasote, ed. *Return of the Wild: The Future of Our Natural Lands*. Washington DC: Island Press, 2001: pp. 136-152.
25. John Hendee, George Stankey, and Robert Lucas. 1990. Wilderness Management: Philosophical Directions. In John Hendee, George Stankey, and Robert Lucas, eds. *Wilderness Management*. Golden, CO: North American Press, 1990; pp. 3-25.
26. Robin Kimmerer. Restoration and Reciprocity: The Contributions of Traditional Ecological Knowledge. In *Human Dimensions of Ecological Restoration: Integrating Science, Nature, and Culture*. Dave Egan, Evan Hjerpe, and Jesse Abrams, eds. Washington D.C.: Island Press, 2011, 257-276.
27. Robin Kimmerer. Selections from *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*. Minneapolis: Milkweed, 2013.
28. Selections from *Explore the River: Bull Trout, Tribal People, and The Jocko River*. Confederated Salish and Kootenai Tribes, I&E, FRWC, Natural Resource Department, CSKT, PO Box 278, Pablo, MT, 59855.
29. Lauren Hallett, et al. Towards a Conceptual Framework for Novel Ecosystems. In *Novel Ecosystems: Intervening in the New Ecological World Order*. Richard Hobbs, Eric Higgs, and Carol Hall, eds. Hoboken, NJ: Wiley-Blackwell, 2013, pp. 16-28.
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