Advanced Principles and Practice in Ecological Restoration
ES 471/ER 412[1]

Summer Term 2017
Semi-distance format: Field intensive on Galiano Island, May 5-14

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Introduction
Galiano Island, and the Millard Learning Centre, are almost perfect locations to try out emerging ideas in ecological restoration. Like so many places, they witness a legacy of development, incautious and sometimes destructive human activity, and now the multiple challenges of a rapidly shifting climate and invasive species. In the last two decades, volunteers with the Galiano Conservancy Association have tackled the damage with creativity, ingenuity, and hard work. The results are starting to show with ecosystems that are more diverse and beginning to resemble those less damaged. At the recently established Millard Learning Centre, a 76 hectare property along the west coast of Galiano, the Conservancy has restored a former saw milling site, dismantled old buildings on sensitive sites, replanted native species in the cove area, developed a food forest, and more. It is a kind of large-scale laboratory for studying how we effectively heal damaged places.

There are two features to the work on Galiano that fascinate me, and add layers of complexity to how we think about and practice ecological restoration. First, the work of restoration is hitched to other projects that have not traditionally been considered restoration. For example, the creation of a food forest is intended to provide a perennial polyculture system for local harvesting *and* contribute to greater functional complexity (i.e., it's not a restored forest, but it begins to act like one). Restoration and food production are inextricably linked. But these connections extend outward to links between restoration and learning—not just UVic students but learners of all ages from all walks of life—and to decisions to design

[1] These numbers replace the former ES 441/ER411 numbering; nothing has changed except the numbers.

facilities (off-grid solar being a good example) that regenerate rather the degenerate. Thus, restoration becomes a wider practice not just of restoring ecosystems but addressing conditions that allow for healthy ecosystems. The second feature is a heads-up approach to rapid change. There is an awareness of and attentiveness to the characteristics of rapid change, in the way Conservancy members address rather than avoid oncoming challenges. A reason for protecting and restoring land is partly about providing a greater potential for resistance to change (via greater ecological integrity) and resilience in the face of unavoidable changes—movement corridors, diverse habitats, and so on. One example, is the approach to the recent and rapid increase in the number of black-tailed deer. A native species, in the absence of predation (wolves and cougars as well as hunting by people), deer set of a cascade of ecological consequences: intensive grazing on shrubs that in turns decrease songbird diversity. There is willingness to tackle the challenge of too-many deer, but not before carefully assessing their impact, engaging a wider group in sorting through the issues, and taking measured steps. We will contribute to this deeper understanding.

We will spend much of our time at the Millard Learning Centre, alternating between intensive conversations about emerging concepts and practices in ecological restoration—what I'm increasingly calling *regenerative and restorative designs for ecological and social resilience*—and hands-on field projects. This course is being offered in partnership with the Galiano Conservancy Association, which means we will be working on projects of direct value for the community.

You will be *camping* in a beautiful grove near the classroom building. No matter what the conditions, you'll be warm (or cool) and dry in the nearby classroom, where we'll meet up for seminars in the morning, all of our meals (cooked by the remarkable sister team of Elanor and Esther-Ruth Teel), and guest events in the evenings. As with students before you, memories and friendships will be created, and you'll face the unexpected. This is, after all, a *field experience*: dress appropriately, be cautious, and pace yourself.

For the latest information and background materials, please consult the CourseSpaces website as well as the ongoing public-facing website and blog I've developed for the course es441.weebly.com.

Learning Objectives

- Develop field-specific skills in rapid restoration appraisal;
- Become familiar with integrated restoration design that incorporates an understanding of ecological drivers, landscape legacies, policies, local and wider cultural values, economic factors, political realities;
- Understand the dynamics of community-based restoration, including broader commitments of restoration to vitality of community, local economy and food security;
- Form a deeper understanding of emerging issues (e.g., invasive species, climate change) that are forcing the evolution of ecological restoration.

A note about your experience in a semi-distance course

For those of you who are new to this kind of course format, here are a few hints at how to make this a rewarding experience.

- **Workload.** The combined workload for this course is equivalent to a regular 1.5 unit course. What with advance preparation, the field component (>40 hours contact time), the course website, and a follow-up assignment, you will find lots to keep you occupied. Semi-distance or compressed courses are just as demanding as regular courses, and they take discipline to do the necessary preparatory and follow-up work.
- **Free up your obligations.** You'll find the field intensive a demanding experience. You will not have much time (or energy) to catch up in the evenings. Try as much as possible to keep your calendar clear during this time. As with all courses, the more you contribute the more you will benefit.
- **Enjoy the intensity!** I enjoy the intensity of the compressed format especially for conceptual conversations and project work. As a group it gives us an opportunity to become a temporary community, to progress with our thinking without regular interruptions, and to delve into topics deeply.
- **Preparation**. Please prepare as much as you are able to before the field intensive. If you do the readings ahead of time, then you will have a much better ability to converse and develop your thinking about restoration. This course builds in lots of time for discussion.

Readings

You won't have much time *during* the field experience to read, which means reading *ahead* is the best approach.

For those who are relatively new to ecological restoration, or need a refresher, there are two quick sources available through CourseSpaces:

- The IUCN Ecological Restoration in Protected Areas (2012), is my go-to guide for restoration best practice.
- The newly-minted International Standards for the Practice of Ecological Restoration by the Society for Ecological Restoration.

For those already comfortable with restoration ideas and practices, please proceed directly to the two books that I'd like all of you to read for the course:

- Emma Marris', *Rambunctious Garden: Saving Nature in Post-Wild World*;
- J.B. McKinnon's, *Once and Future World: Nature As It Was, As It Is, As It Could Be*.

I've ordered copies from the UVic Bookstore, but deliveries are sometimes slow. There are also copies available at other local bookstores, on-line, and as e-books. Both are "trade" books, meaning that they are likely to be more widely available than course texts or scholarly books.

To push further, I've listed some articles on CourseSpaces that pick up on key ideas in the course.

Finally, I've provided on CourseSpaces a few Galiano resources that will help your understanding. Please do check out the website for the Galiano Conservancy Association.

Field Preparations

You will be camping and spending many hours outside. I'll have a detailed gear list for you separately, but count on having gear that will allow you to be comfortable in all likely weather conditions for early May on the coast: rain/sun/cold/hot: solid boots, rubber boots (may not be needed; depends on weather and whether you enjoy playing around wetlands and shorelines), raingear, field pants (tights are fine for around camp, but not for dealing with thorns, burrs, and so on) & etc. If you camp regularly, then please bring along your own camping gear. People usually prefer their own gear (tent, sleeping pad, pillow) to borrowed stuff. However, there are tents and sleeping pads available for rent from the Galiano Conservancy Association (additional charge).

You will travel to and from Galiano Island by ferry, and information about schedules are available separately in the Logistics documents (available through CourseSpaces).

Assignments

1. **Preparatory readings and in-class interview.** To gauge your preparation and knowledge of the background readings and allow me to understand your preparation, background and interests better, a series of ½ hour one-on-one interviews will be set up during the second and third days of the course. 10%
2. **Orienteering and Field Safety.** A workshop on orienteering and field safety will be conducted on day two. Pass/Fail.
3. **Repeat Photography.** Working in pairs, and following a carefully specified protocol, you will use an historical image from Galiano, find the location, and repeat. Some image processing is needed, and these images will be uploaded to a website as part of an ongoing documentation of the Island. If you have a camera that outperforms a smartphone, please bring it along. Due **Thursday May 11th**. 20%.
4. **Deer Browsing Assignment.** Separate description to follow. Due **Saturday May 13th**. 20%
5. **Design Project.** This is a major course project that has both an individual component and a team component. According to interests, each person in the class will focus on one of several restoration designs for the Learning Centre or one of the other priority restoration sites being managed by the GCA. Potential projects run the gamut from stream restoration to agroecological restoration to invasive species management to restoration education. Working in small teams, you will act as consultants to the Galiano Conservancy Association to deliver a restoration

design effectively and efficiently. Thus, the learning objectives are split between process issues (how to do a restoration/regeneration design) and content (what specific elements become part of a design and how these are to be carried out). Time will be made each day of the field intensive for team meetings and work on the designs. To the greatest extent practicable, each team will divide the work into discrete components that will be assigned to individuals (in some cases, group efforts are encouraged but not required). Fieldwork should be planned and conducted as much as possible during the field component (follow-up visits may not be feasible). The final reports are submitted in two stages. A first complete draft is due on **Friday May 26th**. A final edited version of the report suitable for distribution to the Galiano Conservancy Association is due on **Friday June 9th**. This allows time for me to review your reports, offer comments and suggested edits, and for you to address any edits and concerns. Each person will be graded (35%) individually on their contribution, but will also receive a group mark out of 10% for the overall quality and integration of their team's effort. Total: 45%

6. **Design Project Presentation.** A brief presentation of your initial team's work will be made to a community event organized for the afternoon/evening of **Saturday May 13th**. Your team presentations should be no longer than 10 minutes (please ensure that everyone on the team plays a role in the presentation), and make use of visual materials (e.g., Powerpoint). 5%.

Important Information

Academic Integrity

Academic integrity is intellectual honesty and responsibility for academic work that you submit, whether individual or group work. It involves commitment to the values of honesty, trust, and responsibility. It is expected that students will respect these ethical values in all activities related to learning, teaching, research, and service. Therefore, plagiarism and other acts against academic integrity are serious academic offences. UVic's policy on Academic Integrity is available here: http://web.uvic.ca/calendar2012/FACS/UnIn/UARe/PoAcI.html. Depending on the severity of the case, penalties include a warning, a failing grade, a record on the student's transcript, or a suspension.

The responsibility of the institution: Instructors and academic units have the responsibility to ensure that standards of academic honesty are met. By doing so, the institution recognizes students for their hard work and assures them that other students do not have an unfair advantage through cheating on essays, exams, and projects.

The responsibility of the student: Plagiarism sometimes occurs due to a misunderstanding regarding the rules of academic integrity, but it is the responsibility of the student to know them. If you are unsure about the standards for citations or for referencing your sources, talk to your instructor or take advantage of the following resources: http://ltc.uvic.ca/initiatives/integrity/student.php or http://www.uvic.ca/library/research/citation/plagiarism/index.php .

Grading Policy

The following correlation of letter grade and numerical score will be used in the class. Final grades will be recorded as percentages.

Grades	Percentage *	Description
A+ A A-	90 – 100 85 – 89 80 – 84	An A+, A, or A- is earned by work which is technically superior, shows mastery of the subject matter, and in the case of an A+ offers original insight and/or goes beyond course expectations. Normally achieved by a minority of students.
B+ B B-	77 – 79 73 – 76 70 – 72	A B+, B, or B- is earned by work that indicates a good comprehension of the course material, a good command of the skills needed to work with the course material, and the student's full engagement with the course requirements and activities. A B+ represents a more complex understanding and/or application of the course material. Normally achieved by the largest number of students.

C+ C	65 – 69 60 – 64	A C+ or C is earned by work that indicates an adequate comprehension of the course material and the skills needed to work with the course material and that indicates the student has met the basic requirements for completing assigned work and/or participating in class activities.
D	50 – 59	A D is earned by work that indicates minimal command of the course materials and/ or minimal participation in class activities that is worthy of course credit toward the degree.
F	0 – 49	F is earned by work, which after the completion of course requirements, is inadequate and unworthy of course credit towards the degree.
N	0 – 49	Did not write examination or complete course requirements by the end of term or session; no supplemental.

Course Evaluations

I value your feedback on this course, and each year I spend significant time figuring out how to incorporate class comments to improve my teaching. Towards the end of term, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (called the Course Experience Summary: CES). The survey provides vital feedback to me regarding the course and my teaching, as well as helping the School of Environmental Studies improve the overall program for students in the future. When it is time for you to complete the survey you will receive an email inviting you to do so. Please ensure that your current email address is listed in MyPage (http://uvic.ca/mypage) . If you do not receive an email invitation, you can go directly to http://ces.uvic.ca. You will need to use your UVic netlink ID to access the survey, which can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more detailed information nearer the time but please keep your ideas for constructive feedback in mind throughout the course.

Accessibility Statement

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may requireaccommodations, please feel free to approach me and/or the Resource Centre for Students with a Disability (RCSD) as soon as possible. The RCSD staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations http://rcsd.uvic.ca/. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course. Please let me know and I will do my best to work with you on this.

NOTE: *The University of Victoria is committed to promoting, providing and protecting a positive and safe learning and working environment for all its members. Student evaluation forms now include questions on the respect shown by the instructor for students, particularly those of diverse origins, orientation and physical abilities.*