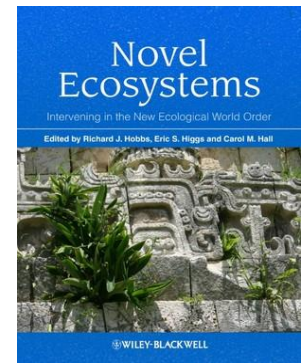
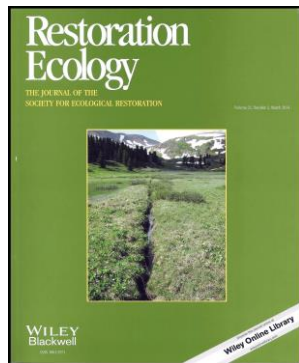




# ERS 335 Restoration Ecology 2017 Syllabus



The professor for the course is [Stephen D. Murphy](#)



Steve has a B.Sc. (Hons.), Ph.D. in Biology & is a Professor & the School Director.  
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Steve is also Editor-in-Chief of Restoration Ecology, Chair of the Centre for Applied Sciences in Ontario Protected Areas, Director of the University of Waterloo Centre for Ecosystem Resilience & Adaptation, Chair of the Western Ontario Stream Monitoring & Research Team. He is also short, voluble, has a family, and, apparently, does not sleep.

ERS 335 has only one required text (@ UW Bookstore or other sellers; used copies are OK). This is a field guide used in 4 other ERS/ENV courses and by professionals - Newcomb L; Morrison. G. 1977/1989. Newcomb's wildflower guide. Little Brown and Company.

All other readings will use sources available on-line at LEARN; no extra cost. You're welcome.

## This is the ERS 335 class, field activities, & assignment schedule

DATE/TOPIC/READING – MWF 0830-0920 (AL 211 OR OUTSIDE - YAY!)	CLASS OR FIELD ACTIVITIES & ASSIGNMENTS	LEARNING OUTCOMES
Se 8: Foundations & Applications of Ecological Restoration	We will discuss the changing nature of what restoration ecology is	Understand the scope & practicalities of restoration ecology
Se 11/13 OUTSIDE: Field skills in Applied Ecological Restoration I Group A: Sept 11 Group B: Sept 13	This is a field activity. <i>You only attend one of these two classes this week.</i> We do Site Assessments this week.	For most, this is advancing your ability to use proper field methods & analyses to interpret field data; some may have more experience
Se 15: Measuring Biodiversity in Restoration Ecology I  <i>Booth et al 2010</i>	We discuss why biodiversity is considered important in restoration ecology & how we measure it	Critically assess whether biodiversity is as important as claimed & if we measure it right
Se 18/20 OUTSIDE: Field skills in Applied Ecological Restoration II Group A: Sept 18 Group B: Sept 20	This is a field activity. <i>You only attend one of these two classes this week.</i> We do Site Assessments this week.	For most, this is advancing your ability to use proper field methods & analyses to interpret field data; some may have more experience
Se 22: Measuring Biodiversity in Restoration Ecology II  <i>Booth et al 2010</i>	We're going to follow through the Booth et al. (2010) reading and review how calculations are done – have that reading handy	This will begin your journey regarding data analysis principles; this is followed up during the next 4 in-class lessons
Se 25/ <del>(27)</del> /29 OUTSIDE: Field skills in Applied Ecological Restoration III Group A: Sept 25 <b>(No class on Sept 27 - A1 due)</b> Group B: Sept 29	This is a field activity. <i>You only attend one of these two classes this week.</i> We do implementation of ecological restoration this week. <b>Assignment 1 due Sept 27 2359h</b>	A chance to do ecological restoration on a scope commensurate with your first real u/g course in this field. <b>Note Group B is on FRIDAY this week.</b>
Oc 2: Data analysis for professional practice in restoration ecology I	We discuss how to design experiments & other studies in restoration ecology projects	This shows how do proper applied ecology experimental designs
Oc 4: Data analysis for professional practice in restoration ecology II	We discuss how to do parametric analyses of data in restoration ecology projects	Regardless of your prior knowledge, everyone will have a better idea of applied statistics after this class

Oc 6: Data analysis for professional practice in restoration ecology III	We learn more advanced techniques of data analyses for Restoration Ecology	We get more ambitious about applied statistics
<i>Oc 9: No class today (Thanksgiving Day)</i>		
<i>Oc 11: No class today (it is part of the fall term study break)</i>		
Oc 13: Data analysis for professional practice in Restoration Ecology IV	We use an Excel file analyzing biodiversity & restoration outcomes; we use that to help learn data analysis	I show you how to do analyses; very important for your Assignment
Oc 16: Data analysis for professional practice in Restoration Ecology IV	We use an Excel file analyzing biodiversity & restoration outcomes; we use that to help learn data analysis	I show you how to do analyses; very important for your Assignment
Oc 18: Ecological indicators in restoration ecology I <i>Dale &amp; Beyler 2001</i> <i>Doren et al 2009</i>	Explores the use and misuse of ecological indicators in restoration	Understand how indicators are chosen & how to use them in measuring effective restoration
Oc 20: Ecological indicators in restoration ecology II <i>D'Amico et al 2004</i>	Explores the use and misuse of ecological indicators in restoration	Understand how indicators are chosen & how to use them in measuring effective restoration
Oc 23: Measuring outcomes of ecological restoration I <i>Wortley et al 2013</i>	We would like to know when restoration succeeds or fails	Synthesize previous weeks' lessons and experiences in terms of fundamental outcome measures
Oc 25: Measuring outcomes of ecological restoration II <i>Allison 2002</i>	We would like to know when restoration succeeds or fails	Synthesize previous weeks' lessons and experiences in terms of fundamental outcome measures
<b>Oc 27: No class today (Assignment 2 is due at 2359; Smurph available for passing out crying towels)</b>		
Oc 30: Professional practice, planning & project management in restoration ecology <i>Pellant et al 2004</i> <i>Murphy 2011</i>	How ecological science, planning, & resource management are interlinked via professions like restoration ecology	Understand the challenges and opportunities presented by cross-disciplinary linkages between professions like planning & ecological restoration

<p>No 1: Standards of Practice in Restoration Ecology</p> <p><i>SER Standards of Practice 2016 (MacDonald et al. 2016)</i></p>	<p>Building on the previous lesson, how does that jibe with the new Society for Ecological Restoration Standards</p>	<p>Learn how to properly &amp; critically evaluate even the most fundamental tenets of a profession or academic discipline</p>
<p>No 3: Restoration ecology at population scales I</p> <p><i>Murphy et al 2017</i></p>	<p>Provides theory behind how population scale restoration works</p>	<p>Use population theories in problem solving for restoration ecology</p>
<p>No 6: Restoration ecology at population scales II</p> <p><i>Larkin et al 2004</i> <i>McKay et al 2005</i></p>	<p>Provides examples of how population scale restoration works</p>	<p>Use population theories in problem solving for restoration ecology</p>
<p>Nov 8: Restoration ecology at community scales I</p> <p><i>Palmer et al 1997</i></p>	<p>Provides theory behind how community scale restoration works</p>	<p>Use community theories in problem solving for restoration ecology</p>
<p>Nov 10: Restoration ecology at community scales II</p> <p><i>Harris 2009</i> <i>Kardol &amp; Wardle 2010</i></p>	<p>Provides examples of how community scale restoration works; focus on Ontario habitats</p>	<p>Use community theories in problem solving for restoration ecology</p>
<p>Nov 13: Restoration ecology at landscape scales I</p> <p><i>Bell et al 1997</i></p>	<p>Explores theory behind spatial processes (landscape ecology) in restoration</p>	<p>Use landscape ecology theories &amp; apply to restoration ecology</p>
<p>Nov 15: Restoration ecology at landscape scales II</p> <p><i>Perring 2017</i></p>	<p>Explores examples of spatial processes (landscape ecology) in restoration</p>	<p>Use landscape ecology theories &amp; apply to restoration ecology</p>
<p>Nov 17: Introduction to Restoration Ecology of Aquatic Ecosystems</p> <p><i>Bain et al 2000</i></p>	<p>Provides an overview of key ideas in the range of aquatic ecosystem restoration</p>	<p>70% of the world is water so we need to know how to restore aquatic ecosystems</p>
<p>Nov 20: Restoration ecology &amp; invasive species</p> <p><i>Dudney et al 2017</i></p>	<p>Examine how invasive species may be a double edged sword in restoration ecology</p>	<p>Learn more sophisticated approaches to determine impacts of invasive species &amp; how to manage them</p>

Nov 22: Governance, law, policy and restoration ecology <i>Cliquet 2017; Mansourian 2017</i>	Natural & physical sciences are important but social science issues may be even more critical to restoration ecology	Examine the legal, governance and government (policy) drivers for and against restoration ecology
Nov 24: Ecological restoration as part of the green economy <i>Murphy 2013a Bowers &amp; Norris 20171</i>	The business and broader economics of restoration ecology are a driver to the green economy	A high level but practical understanding of green economy and restoration ecology by one of the best minds
<b>Nov 27: No class today (Assignment 3 is due at 2359 h)</b>		
No 29: Novel Ecosystems as a controversial interface of natural sciences & policy I <i>Hobbs et al 2009; 2014a; 2014b Murcia et al 2014 Murphy 2013b; 2013c</i>	We'll discuss how controversies erupt, especially when long held ideas are challenged	Novel ecosystems are ones not likely to be restored to a 'historical' condition; we seek to answer if this is defeatist or simply practical
De 1: Novel Ecosystems as a controversial interface of natural sciences & policy II <i>Hobbs et al 2009; 2014a; 2014b Murcia et al 2014 Murphy 2013b; 2013c</i>	We'll discuss even more about how controversies erupt, especially when long held ideas are challenged	Novel ecosystems are ones not likely to be restored to a 'historical' condition; we seek to answer if this is defeatist or simply practical
Dec 4: FML – The final exam looms. Course review and discussion of exam strategies	We will be doing an exam review; might be a good idea to come to class, eh?	Wrapping up the course with a pretty Christmas bow – Ho! Ho! Ho!

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<sup>1</sup> For all the 2017 papers, they are all from this book (if you wish to cite them): Allison SK; Murphy SD. 2017. Routledge Handbook of Ecological and Environmental Restoration. Routledge. New York. 604 p.

### **Experiential Learning: We Have 3 Weeks of Field Skills Practicum:**

**Sept 11 + 13; Sept 18 + 20; Sept 25 + 29 (note this last pair of days is Monday & Friday)**

During these 3 weeks, you attend one of two outdoor classes. ½ the students will be outside with Steve and the TAs and ½ the students will get time to start working on the first assignment.

During the exercises, I go outside with you and we do some data collection on the type of plants found at areas undergoing ecological restoration and we do some actual seeding for the purpose of ecological restoration. This ensures you do some experiential learning during the late summer and early fall. I will be sectioning people off into two Groups - mostly splitting you alphabetically by surname - and sending this information out once the final class rosters for ERS 335 stabilize in 1<sup>st</sup> week.

For the other half of the class on these field days, work on Assignment 1 (described in this syllabus and in more detail on LEARN). The assignments assume you will take advantage of the block of the 3 hours of time not spent in class lessons. Yes, I am that naïve. But if you don't do that, you will have to write them in some bar instead of having fun at night. Unless you're not of legal age; then you have to write them in some bar instead of having fun at night. How much fun you have at night is up to you. No, don't go there. No one needs that image in their brains.

We will all convene as a single group for all other course days.

### **The ERS 335 Course Philosophy - Yes, We Have One**

This is a transdisciplinary course that reflects the essence of ecological integrity and restoration ecology – but there still is a clear emphasis on natural/physical sciences, integration with social sciences & engineering, ecosystem function, and quantitative analysis. The philosophy of my idea of restoration ecology is consistent with a version of a quotation attributed to the Taoist philosopher *Zhuangzi*:

"You have this big tree and you are distressed because it is useless? Why don't you plant it in Not-Even-Anything Village, or in the field of Wide and Boundless, then relax and do nothing by its side, or lie down for a free and easy sleep under it? If there is no use for it, how can it come to grief or pain?"



*Before and After Ecological Restoration – Cape Breton NS (15 Years Apart & \$275,000 Investment)*

## Course learning objectives

By the end of this course, you will be able to:

- Acquire and improve field identification skills of organisms for the purposes of ecological monitoring (and assessment) in a restoration ecology context
- Acquire and improve experimental design and advanced data (quantitative/statistical) analysis skills related to measuring outcomes of ecological restoration; you will be at an intermediate level of skill and competence for experimental design and analysis using parametric and non-parametric statistics
- Perform basic implementation of ecological restoration in a long term project (i.e. an ongoing restoration project implemented and monitored by UW students every year)
- Apply explanatory theories to case studies or examples at various spatial and temporal scales
- Critique & evaluate use of explanatory theories in their application in case studies
- Synthesize lessons from case studies in terms of general practice of restoration ecology and assessment of ecological integrity
- Using the comparative method, apply learning outcomes to your assignments, the final exam, and beyond
- Use all above skills in a consultant style report (professional communication) and in creative design for ecological restoration

### How TAs and I Grade You as Part of ERS 335

(See the 335 Assignment Folders in the Course LEARN Site for More Details)

- Assignment 1: Each student submits a 750-1000 word synthesis that services as a draft of the introduction (to what will be your final report for Assignment 3). We want to ensure you know how to write well and can find and synthesize comparative literature that allows you to begin with a relevant, broader theoretical framework and move to the narrower objectives of a project. It's worth 10% of the final grade. **Due via LEARN: Sept 27 @ 2359 h**
- Assignment 2: Each student will simply input data into templates of tables that reflect the results from the excel file posted on LEARN (these will be used to support more formal reporting of results and a discussion in Assignment 3). You will be showing the TAs that you can follow instructions, not give into fear of the scary Excel files - I am being facetious - and summarize what the Excel based analysis is telling us about responses to ecological restoration. It's worth 10% of the final grade to incent you to do this without making the work stupidly valueless or over-valued. It is designed to help you build confidence and gain experience at doing analyses. We'll be going over this in class. **Due via LEARN: October 27 @ 2359 h.**
- Assignment 3: This is the big one. Each student will write a formal technical report in the format used by consultants. This ensures you have yet another skill set for your life experience and that looks good on a CV/resume. Worth 30% of final grade. Start plotting out this assignment early and start it once Assignment 2 is submitted (you can make any corrections to calculations or formatting per the TA comments as you do a final draft of Assignment 3). Trust me. I've seen too many students in the last 20 years cause themselves grief because of poor time management and a failure to heed this advice. They go down in flames. And I drink their bitter tears. Mmmmm. Bitter tears. **Due via LEARN: Nov 27 @ 2359 h.**

- A final exam is based on our discussions (including all lecture and field days). Worth 50% of final grade. Scheduled in December exam period by Registrar. Do not schedule an early vacation because the Registrar can schedule us for a late exam or there can be a snow day forcing a late reschedule. The exam will focus on point form explanatory style answers to questions largely posed as synthesis or problem solving exercises. Typically, I will have 6-8 questions but there will be some choice in selecting options within the questions given. *If you like to skip the last week on principle - that approach would be a very bad idea.* Despite the scary looking weighting given to the final exam, this is the type of weight and format that professionals must master when becoming professionally certified. Your grade on the final exam is maximized if you go to class diligently, synthesize your own class notes + my slides each week - keep up with the course, discuss any gaps in your understanding with me + TAs + friends, review practice questions that I send out during term, and step back and give the whole course some deep thought. Basically, if you perform as scholars, you will do well.

### Course Process & Other Key Information

- You are expected to review assigned readings before and after each class. I selected peer-reviewed readings (see LEARN Lessons Folder & Class Schedule) for your use as background on the topics we will discuss in class and as sources for your assignments. You can also use these to help you find other relevant references. I follow the readings in class and base my lessons on them; whatever we emphasize in class will be emphasized on the final exam. I do not play Trivial Pursuit on exams.
- **Your assignments will be submitted on line via LEARN to reduce use of paper.** They are due @ 2359 h on the date indicated in this syllabus. They will be graded and commented on using the track changes feature of MS Word. 10 MB limit on file size. Call them surname\_firstname\_335AX where X = 1,2, or 3. Don't take this too literally; swap in your own name please.
- **Read, explore databases, & start work on assignments during the first week of classes – you can do a lot of the work on reports early; if you don't, you will be cursed (and will curse).** Late assignment penalties apply as follows and to all cases except for those few extensions granted for medical reasons or for professional counseling for serious personal problems – extensions can be granted with proper documentation or discussion well in advance. For those actually in their 2A term, take note: This can be a very challenging term. Often, you go through personal changes. I am sympathetic to turmoil but we need to communicate; if you identify a problem of any type, come and see me ASAP. All discussions confidential, we can usually work out a better path, and I have cookies. Yes, cookies. No, there's nothing like THAT in them. I know ERS has a reputation for being home to more potheads per capita than is usual, but I have to maintain some standards. That stuff always just gave me a headache - it made me cranky instead of blissful, dude.
  - Assignments 1 and 2 are either handed in on time or you get a grade of 0. Yes, 0.
  - For assignment 3, if the assignment is up to 72 hours late, a flat 10% is deducted. No exceptions barring the reasons above. This is a relatively small penalty and it means that if you are 6 hours late you might as well take another few days anyway. If the assignment is >72 and < 144 hours late, a flat 20% is deducted. Assignments later than 144 hours past deadline receive a grade of 0.



**The University of Waterloo has a series of specific *academic policies, procedures and guidelines* that students must be aware of and follow; all course syllabi in the Faculty of Environment are required to include the following information:**

◆ **Intellectual Property:**

Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides);
- Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and
- Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights. Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

◆ **Academic Integrity:**

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. The University's guiding principles on academic integrity can be found here: <http://uwaterloo.ca/academicintegrity>. ENV students are strongly encouraged to review the material provided by the university's Academic Integrity office specifically for students: <http://uwaterloo.ca/academicintegrity/Students/index.html>

Students are also expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions. Students who are unsure whether an action constitutes an offense, or who need help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean.

Students may also complete the following tutorial: <https://uwaterloo.ca/library/get-assignment-and-research-help/academic-integrity/academic-integrity-tutorial>

When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline.

For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline:

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71>.

Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy #70, Student Grievance:

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70>

◆ **Note for students with disabilities:** AccessAbility Services, located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

◆ **Mental Health:** The University of Waterloo, the Faculty of Environment and our Departments-Schools consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges - physical and / or emotional. **Please note that help is available.** Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services <http://www.uwaterloo.ca/counselling-services> is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

◆ **Religious Observances:** Students need to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

◆ **Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. See Policy 70 - Student Petitions and Grievances, Section 4, [www.adm.uwaterloo.ca/infosec/Policies/policy70.htm](http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm). When in doubt please contact your Undergraduate Advisor for details.

◆ **Appeals:** A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) [www.adm.uwaterloo.ca/infosec/Policies/policy72.htm](http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm)

◆ **Unclaimed assignments:**

Unclaimed assignments are archived on LEARN as they are all e-assignments; normally, this archive is kept for a minimum of 365 days. Final exams are kept for 365 days, locked in the office of Dr. Murphy (students may see their exam though be advised that exams are simply graded without much written feedback). After that time, any unclaimed student submissions or exams will be destroyed in compliance with UW's [confidential shredding procedures](#).

◆ **Communications with Instructor and Teaching Assistants:**

All communication with students must be through either the student's University of Waterloo email account or via Learn. If a student emails the instructor or TA from a personal account they will be requested to resend the email using their personal University of Waterloo email account.

◆ **Recording lectures<sup>2</sup>:**

- Use of recording devices during lectures is only allowed with explicit permission of the instructor of the course.
- If allowed, video recordings may only include images of the instructor and not fellow classmates.
- Posting of videos or links to the video to any website, including but not limited to social media sites such as: Facebook, twitter, etc., is strictly prohibited.

◆ **Co-op interviews and class attendance:** Co-op students are encouraged to try and choose interview time slots that result in the least amount of disruption to class schedules. When this is challenging, or not possible, a student may miss a portion of a class meeting for an interview. Instructors are asked for leniency in these situations and I certainly grant them within the limits of reasonable accommodation; but, a co-op interview does not relieve the student of any requirements associated with that class meeting.

When a co-op interview conflicts with an in-class evaluation mechanism (e.g., test, quiz, presentation, critique) or exercise (the field studies during September), class attendance takes precedence and the onus is on the student to reschedule the interview. CECA provides an interview conflict procedure to manage these situations

Students will be required to provide copies of their interview schedules (they may be printed from WaterlooWorks) should there be a need to verify class absence due to co-op interviews.

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<sup>2</sup> Yes I know about this: <https://www.facebook.com/stuffuwaterlooprofssay/>; yes, I know I appear a lot. That's OK.

**For those who have read this far: Who is this “Stephen David Murphy” anyway?**

Diverting from music (I was once in love with my guitar; it didn't last due to religious differences), I earned a B.Sc. (Hons.) and a Ph.D. from Queen’s University in Biology, specializing in plant ecology. I completed a post-doctoral fellowship at the University of Guelph in agriculture. I’ve been at UW in SERS since 1996, focusing on management, conservation, restoration and mitigation of invasive species in ecosystems. I am helping write 2 textbooks on restoration ecology. One of our best restoration ecologists, Richard Hobbs, has bestowed on me flattery - and I quote – when he said “You are a seriously deranged individual.”<sup>3</sup>



In terms of restoration ecology, I have been both practitioner (consulting) and an academic. Since I first volunteered as a 14 year old with one of the 1<sup>st</sup> formal landscape-scale ecological restoration projects in 1979 (yes, 1979; *STFU*), I helped or led on over a thousand ecological restoration projects world-wide. This means a lot of field work and a lot of teamwork because I sure as hell didn't do a thousand plus projects all by my little 5'6" self.

I am a past-chair of the Board of the [Ontario Chapter](#) of the governing academic and practitioner organization, the [Society for Ecological Restoration International](#) (if you want opportunities beyond this course, SER Ontario and the local UW Chapter of SER recruits students for networking and educational purposes at a nicely reduced membership fee rate). I am the editor-in-chief of [Restoration Ecology](#), on the Board of the [Restoration Institute](#), and was co-chair of the [2013 25th Anniversary Conference of SER International at Madison WI](#). I am part of the [Centre for Ecosystem Resilience and Adaptation](#) (as Director). I am also Chair of the [Centre for Applied Sciences in Ontario Protected Areas](#). Don't read this line because it is cursed by a one-eyed wizard named 'Poindexter'. *Just checking to see if you were reading this or not.* I was part of the advisory council to Parks Canada that revised the strategic planning and standard for ecological restoration – 10 years old as of 2017! I also am on some teams at “rare” in Cambridge ON, a Reserve that represents one of the largest contiguous ecological restoration and conservation projects in an urban area. I sit on the Boards or advise another two dozen or so organizations that are involved in restoration from municipal to international scales. Essentially, I began to practice “restoration ecology” before it was really codified but I am only part of the 3<sup>rd</sup> or perhaps 4<sup>th</sup> “generation” of restoration ecologists who followed people like Aldo Leopold, Theodore (Ted) Sperry, John Curtis, Tony Bradshaw, Bill Jordan III, George Gann, Keith Winterhalder, John Reiger, Jack Ewel, Keith Bowers, Richard Hobbs, Eric Higgs, and Bob Dorney, among many others. I won't burden you with too many details on the history in the syllabus or in lessons; see [www.ser.org](http://www.ser.org) for more on the history of Restoration Ecology.

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<sup>3</sup> Yes he meant this in jest but you will find out why he said this soon enough – Bwa ha ha ha ha!! He also called me evil when we were in New Orleans at a conference in 2014. And he turned me into a newt! I got better...