

SELECTED TOPICS IN CONSERVATION BIOLOGY

NRES 775



Urban Ecology Center, Milwaukee, WI



Himalayan ginger in Hawaii Volcanoes National Park is an aggressive invasive alien plant that negatively impacts native plant biodiversity.

Students will be able to:

1. Articulate how cultural values shape your relationship to the environment and natural resources.
2. Discuss Equity, Diversity, and Inclusion, and Justice in natural resources professions.
3. Investigate citizen science programs in your area and how they contribute to science literacy as well as provide data on biodiversity or community health.
4. Compare regional and cultural attitudes towards biosecurity and invasive species control.
5. Generate summary tables and figures from large datasets.

Men argue.
Nature Acts.

Voltaire

Course Description and Objectives

Welcome to NRES 775, Selected Topics in Conservation Biology. Conservation Biology is a relatively young discipline. From its roots, conservation biology was developed as a deeply collaborative discipline and as such the approaches used and the tools needed are widely varied. However, if there is a central theme that unifies conservation biology, it is the preservation of biological diversity and ecosystem function. To accomplish this, many stakeholders including scientists, corporations, governmental agencies, private land-owners, and others are invited to participate in the design and success of the various programs and studies.

Wisconsin was home to some of the founders of the field as we know it today. In fact, we are about an hour's drive from both the homestead of John Muir near Portage and the famous shack of Aldo Leopold near Baraboo. In addition to these western pioneers of the preservationist and conservationist ethics, the Native Americans in Wisconsin had already been practicing sustainable development through the principles of honorable harvest, which teaches to take only one you need, never more than half, and always leave a gift in return. Concepts from Traditional Ecological Knowledge (TEK) are vital in how we understand sustainable use of natural resources.

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**ASYNCHRONOUS ZOOM
LECTURES WITH WEEKLY
CHALLENGES, REFLECTIONS,
DISCUSSIONS, AND PROJECT**

**VIRTUAL OFFICE HOURS
BY APPOINTMENT**

THERE IS ONLY ONE WAY TO LOOK AT THINGS UNTIL SOMEONE SHOWS US HOW TO LOOK AT THEM WITH DIFFERENT EYES.

Pablo Picasso

Assessment

During the pandemic I was forced to reevaluate how I teach, both because we were all required to pivot to online learning but also the realization that all my students were now learning in different situations. I had students dialing in from a cell phone in rural Minnesota, another dealing with the record cold winter in Texas, and another on a beach in San Diego where her partner was stationed in the Navy. I had single mothers with children on their laps, working students that could not make the live lectures, etc. It was eye opening and one of the most challenging and rewarding periods I've had as a teacher. The single biggest effect it had on me was how I assess my class. I read a wonderful book called Equity in Grading and am now reading another book called Ungrading. Basically, how I gave exams and quizzes and homework all changed. I no longer punished late assignments and I reassessed the value of each task I assigned. Also, the 100 point scale punishes bad days and tends to demotivate students and impede learning.

In the workplace, you are not graded on a 100 points scale. Rather, you are given feedback on how to improve on a project or report and the final product is only accepted when your supervisor approves it. I will be using a 4 point scale in this class that I feel is more in line with what I've experienced in professional settings. For anything less than a 4 I will provide feedback and you can resubmit the activity.

4 – Great job, no revisions expected

3 – Good job, minor revisions

2 – Satisfactory – revisions suggested

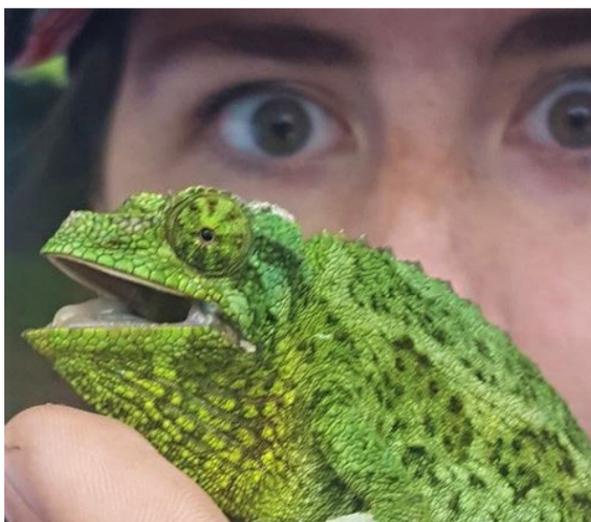
1 – Not satisfactory – try something different



Snapshot Wisconsin: There are more than 1000 trail cameras throughout the state hosted by citizen volunteers. The data is used by the WDNR for species management plans. This buck was captured by the camera in Schmeckle Reserve in 2019.



UWSP students work in a taro patch in the Waipio Valley during a field course to Hawaii in 2017. Your effectiveness as a natural resource professional will be improved if you are willing to work together with the stakeholders. Sometimes that means getting in the muck.



UWSP student holds a Jackson's chameleon, an invasive species in Hawaii. Biosecurity is a priority in delicate island ecosystems.

Inclusivity

DIVERSITY IS A FACT. EQUITY IS A CHOICE. INCLUSION IS AN ACTION. BELONGING IS AN OUTCOME.

ARTHUR CHAN

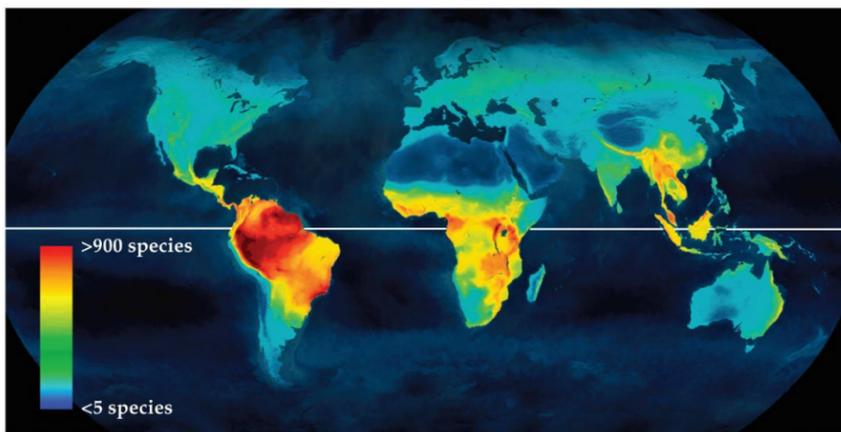
Science Communication

Communication is key in conservation science as well as in moving the public or an administration to action. The traditional way we communicate science is through formal papers and reports, oral presentations, and posters. However, communication can also take the form of outreach through lesson studies, case studies, podcasts, or blogs. Finally, conservation science can be communicated through stories using artwork, poetry, music, photography, and creative writing.

Consider how you are most comfortable communicating and develop and communicate a conservation issue that interests you and/or that you want to learn more about. This can be in the form of a report, an oral presentation you record and submit, a poster, a photo or multimedia journal, a lesson plan for use in schools or a case study for use by university students and professionals. It could be a blog or a podcast. The topic could be local, regional, national, and/or global. I will include benchmarks in the syllabus.

SYLLABUS SPRING 2022

Week	Topic	Activity
1 March 27 th	Welcome What is a Species?	Red wolf Challenge Consider topics
2 April 3 rd	The Value of Biodiversity	Discussion and Reflection Choose topic and format
3 April 10 th	Extinction	C*Science Challenge
4 April 17 th	Habitat Loss and Fragmentation	EJScreen Challenge Outline of project
5 April 24 th	Overexploitation	Sustainable Harvest Challenge
6 May 1 st	Invasive Alien Species	Biosecurity Reflection Draft of project
7 May 8 th	Climate Change	SAVS Challenge
8 March 15 th	Justice Equity Diversity Inclusion in NR	Case Study Discussion Final project due



Based on P. D. Mammion et al. 2014. *Trends Ecol Evol* 29:42-50, with data from C. N. Jenkins et al. 2013. *Proc Natl Acad Sci USA* 110: E2602-E2610.

CONSERVATION BIOLOGY 2e, Figure 2.19
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Figure 4.8 in the popular Conservation Biology textbook by Cardinale et al. perfectly illustrates the implication of Rapoport's Rule known to many conservation biologists. With smaller species ranges near the equator, more species can coexist and therefore you find higher biodiversity as you move from higher latitudes to lower latitudes.

SCIENCE

EDUARDO RAPOPORT: HE SHOULD BE IN TEXTBOOKS

Eduardo Rapoport (1927-2017) was an Argentinian ecologist known widely for his work in soil biology, invasive species ecology, urban ecology, and biogeography, and is best known for Rapoport's Rule. Rapoport's Rule states that latitudinal ranges of plants and animals are generally smaller at lower latitudes (i.e. near the equator) than at higher latitudes (i.e. closer to the poles). As a professional you may have the opportunity to attend national and international meetings and listen to a variety of presentations and speakers in your field. In my professional career, two of these among the hundreds stand out as truly special. In 1995, at the Annual Meetings of the American Society of Mammalogist in Burlington, Vermont, I heard Ernst Mayr (he was 91 at the time), one of the greatest evolutionary biologists of the 20th century, give an intimate talk on his career. In 2007, at the International Mammalogical Congress in Mendoza, Argentina, I heard Eduardo Rapoport (he was 80 at the time) give a talk in Spanish on his career as an ecologist, much of it living in exile in Venezuela. In both cases you could hear a pin drop. In both cases the audience hung on every word and understood that this was a once in a lifetime moment. I hope each of you have those moments in your careers.

JOBS

Top 10 Skills Employers Want in College Graduates

NATIONAL ASSOCIATION OF COLLEGES AND EMPLOYERS

Career services practitioners should advise their college students seeking full-time employment after graduation to craft a well-written resume. Why? In part, because employers responding to NACE’s Job Outlook 2019 survey said they will seek evidence of solid written communication skills on their candidates’ resumes.

When NACE asked employers participating in its *Job Outlook 2019* survey which skills and qualities—beyond a strong GPA—they most want to see on students’ resumes, more than four out of five indicated written communication skills, making it the most sought-after attribute this year. (See Figure 1.)

Problem-solving skills and an ability to work as part of a team are also highly desired.

Attributes showing more significant movement this year are initiative and leadership. Initiative, which was eighth on the list last year, has rocketed to fourth. Nearly three-quarters of respondents are seeking it on resumes this year.

Leadership, on the other hand, has dropped from the fourth most sought-after attribute last year to the seventh this year (tied with verbal communication skills). Other highly valued attributes that employers want to see evidence of on resumes this year include analytical/quantitative skills and a strong work ethic.

