FALL 2020

BIODIVERSITY AND CONSERVATION BIOLOGY

NRES 458

Urban Ecology Center, Milwaukee, WI

Students will be able to:

1. Discuss concepts in conservation biology as they relate to local, national, and global issues Critique their own and others' writing/oral presentations to provide effective and useful feedback to improve their communication.
2. Analyze problems encountered in the field of conservation biology.
3. Design a hypothetical biosphere reserve, park, or other protected area.
4. Construct a case study on a conservation issue.
5. Critique peer-reviewed articles on biodiversity and conservation.
6. Identify local biodiversity and share results to a citizen science site.

During a Bioblitz scientists work with community and student volunteers to describe the biodiversity of an area. During this Bioblitz in Door County we used iNaturalist to document species occurrences.

Course Description and Objectives

Welcome the NRES 458/658, An Introduction to Biodiversity and Conservation Biology. This course will introduce you to the relatively young science of Conservation Biology and the issues that conservation biologists engage. 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. Although his class will be 100% online, we will have Live Zoom meetings as an attempt to foster an interpersonal dynamic. I do understand that individual students may have obligations that restrict them from attending these meetings.

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LIVE ZOOM MW 8:00-9:15 (RECORDINGS AVAILABLE)

ZOOM-OH BY APPOINTMENT

SPRING 2020

BIODIVERSITY AND CONSERVATION BIOLOGY

I HAVE A FEELING THAT I MAKE A VERY GOOD FRIEND, AND I'M A GOOD MOTHER, AND A GOOD SISTER, AND A GOOD CITIZEN. I AM INVOLVED IN LIFE ITSELF-ALL OF IT. AND I HAVE A LOT OF ENERGY AND A LOT OF NERVE.

Maya Angelou

I beleive the best way to learn about citizen science is to engage with it. Therefore I propose working in teams of five students each. While the entire class will collect data using inaturalist, each team will work together to develop an online oral presentation.

Grading

There will be 400 points in this class. There will a 50-point team oral presentation on a citizen science bioblitz project using iNaturalist. Each week you will be expected to read the portions of the textbook we will be discussing during the Live Zoom meetings. You will write down some notes from the readings and upload these to Canvas. Each of these will be worth 5 points. There will be 20 of these due throughout the semester (100 point). You will get 5 points for turning them in and 0 points for not turning them in. While the point is to complete this prior to the Live Zoom, you can continue to turn these in for full credit until the last day of the semester. There will be weekly midterm exams in this course. Each exam will consist of two essay questions worth 10 points each. There will be a 30-minute time limit for these exams and you will only get one attempt. These exams are designed to evaluate your understanding of the concepts. There will be 10 of these worth a total of 200 points. If you do the math, this is equivalent to having a 100-point midterm and a 100-point final. The other 50 points will consist of a series of challenges for you to complete based on the material we are covering. Assignments are spaced throughout the semester so it is important to get into a rhythm. There are due dates, but I will accept assignments through the last day of the semester on December 11th. Since this is my first semester teaching this course, I will be developing new lectures throughout the semester but will try and have assignments available early for those students who'd like to work ahead.

iNaturalist: Anyone with a smart phone can download this app and begin to share images of flowers, mushrooms, and animals. The gps on the phone provides a georeference tag and the calendar provides a time stamp.

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 Schmeeckle Reserve in 2019.

The Wisconsin Department of Natural Resources was an early adaptor to citizen science. The Snapshot Wisconsin program recruits volunteers from throughout the state to capture image and the world to classify images.

Oral Presentation

Teamwork

ONE MAN ALONE CAN BE PRETTY DUMB SOMETIMES, BUT FOR REAL BONA FIDE STUPIDITY, THERE AIN'T NOTHIN' CAN BEAT TEAMWORK. EDWARD ABBEY

Research Presentation

The team presentation will be a challenge given the online format this semester, but I believe that it is a marketable skill to solve problems exactly like this. I will set up a class Bioblitz for the semester, which should provide the data that you will use for the presentation. This is totally new for me as well, so I'll be learning along with the rest of you. I recently tried this in my summer mammalogy class, and student teams made Zoom recordings that they were able to upload to Canvas, designed a PowerPoint presentation with audio voice overs for each slide, and designed A Google Slides presentation with voice over for each slide using Audacity to record individual mp3 files to link to the presentation. Some were smoother than others, but the point was to figure out how to collaborate in this learning and research environment. Employers will ask what you did during the pandemic. This will be a story to share.

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TENTATIVE SYLLABUS

Week		Topic	Pages in Conservation Biology
1	September 2nd	Welcome "Back???"	
2	September 7th	Defining Conservation Biology	6-19
	September 9th		
3	September 14th	What is Biodiversity I	23-33
	September 16th	What is Biodiversity II	34-52
4	September 21st	The Value of Biodiversity I	55-70
	September 23rd	The Value of Biodiversity II	71-90
5	September 28th	Threats to Biodiversity I	95-111
	September 30th	Threats to Biodiversity II	112-126
6	October 5th	Climate Change I	129-149
	October 7th	Climate Change II	150-164
7	October 12th	Extinction Risk I	167-186
	October 14th	Extinction Risk II	187-202
8	October 19th	Conserving Populations and Species I	205-229
	October 21st	Conserving Populations and Species II	230-243
9	October 26th	Establishing New Populations I	247-258
	October 28th	Establishing New Populations II	259-275
10	November 2nd	Protected Areas I	279-300
	November 4th	Protected Areas II	301-314
11	November 9th	Conservation Outside Protected Areas I	317-333
	November 11th	Conservation Outside Protected Areas II	334-346
12	November 16th	Restoration Ecology I	349-362
	November 18th	Restoration Ecology II	363-371
13	November 23rd	Challenges of Sustainable Development I	375-385
	November 25th	TBD	
14	November 30th	Challenges of Sustainable Development II	386-403
	December 2nd	Agenda for the Future	
15	December 7th	Case Study Presentation I	
	December 9th	Case Study Presentations II	
16	December 14th	Final Exam	

BIODIVERSITY AND CONSERVATION BIOLOGY

UWSP RELEASES COVID-19 CAMPUS GUIDELINES

Face Coverings:

- At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the Disability and Assistive Technology Center to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

Other Guidance:

- Please monitor your own health each day using this screening tool. If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).
    - As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Maintain a minimum of 6 feet of physical distance from others whenever possible.
- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
- Please maintain these same healthy practices outside the classroom.

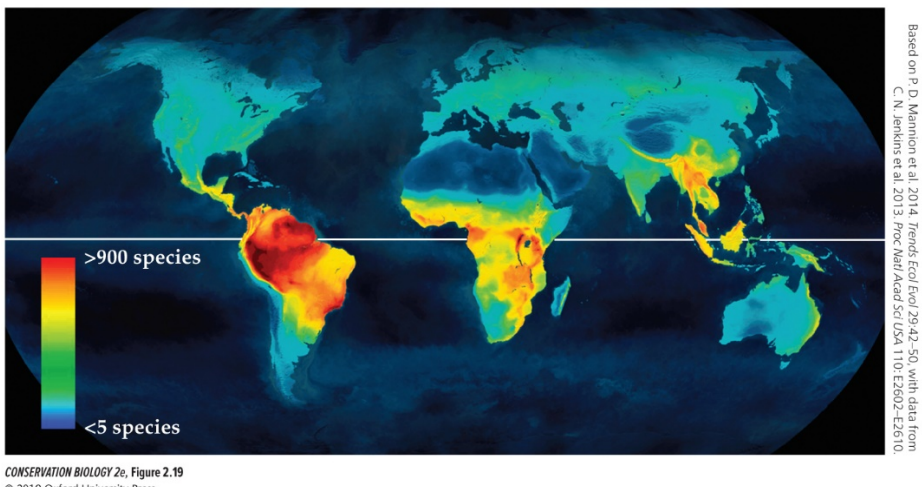

Figure 2.19 in our textbook perfectly illustrates the implication of Rapoport's Rule known to many conservation biologists. With smaller species ranges near the equator, more species can coexist and therefore you find higher biodiversity as you move from higher latitudes to lower latitudes.

SCIENCE

EDUARDO RAPOPORT: HE SHOULD BE IN OUR BOOK

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 latitutes (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 Annul 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 exhile 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 in 2020

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.

Graduation Day: It's weird. You've been in school since you were six and now you have to get a real job. You've been practicing skills the entire time you were in college, but can you communicate those to a potential employer?