

00000000Ecological Restoration and Management (NR459/659 - 3 credits)

Instructor: Dr. Demchik (CNR 246; mdemchik@uwsp.edu): TBA; open door policy

Your Text Book

- This is free. Download it, if you are in the field, you really should have this anyway.
- International Standards for the Practice of Ecological Restoration
- [International Standards for the Practice of Ecological Restoration - Society for Ecological Restoration \(ser.org\)](http://www.ser.org)

Required Preliminary Materials

- Within the first two weeks, I want for you to complete the e-learning course below from SER. Here is the deal, if you never intend to become a Certified Ecological Restoration Practitioner-In Training, then just watch the video. If you intend to get certified in the future and are an SER member, take it through the Intuto website.
- [SER E-Learning Course: Overview of the Practice of Ecological Restoration - Society for Ecological Restoration](http://www.ser.org)

Rationale: Ecosystem restoration is still a relatively new field. I want students to come out of here with a collection of skills that will allow them a “foot in the door”. During this class, you will develop and IMPLEMENT a restoration/habitat plan for a university owned property. I want you to be proud of your work on this site. Upon completion of this class, you will have a full-blown restoration and management plan developed for a property and will have photo documentation of the progress on that property. This will provide you:

- An example of your involvement in a team
- An example of professional writing
- An example of field implementation of a restoration project

These items will be of use to many of you in future job placement.

Learning Outcomes: The student will:

1. Discuss the principles underlying restoration
2. Contrast the differences between restoration and habitat management and bridge the gap between the two fields
3. Plan a restoration/habitat project
4. Assist in implementation of a restoration project
5. Present the plan and site to stakeholders

Course Design: Welcome to my first time teaching the NRES 459 class. This class has two main components:

- A Tuesday lecture that will discuss the basic principles and standards of ecological restoration and its interface with habitat management and will also be used for discussion, planning and other activities

- A three-hour lab that is composed of the Friday lecture time and then the Friday lab time. This will be in the field often (i.e. outside in the cold). Please make sure to have appropriate clothing for this. We will be in the field on Friday much of the day, dress for it, this is a cold state.

Our Laboratory: I am in the middle of a number of restoration projects on both public and private lands. Most of you in this class already know me, so, you know that this is one of my favorite activities to do, both for the university and in my free time. Said another way, the majority of my waking hours focus on forestry and restoration activities. I am going to try to get you all addicted to this kind of work, so, you get to help fix a property for this class. See specifics below.

The Overall Story for the NRES 457, NRES 459 and For 434 Sec 3 Class

I thought that I would put this note in all three of these classes. These three classes are being designed to work together. This is the first year for that, so, I do not expect for it to play out perfectly this year.

For this year, we are going to be doing restoration work on the Burdette and Sarah Eagon Nature Education Preserve. This is owned by the UWSP Foundation and I am the property manager for all CNR properties.

This property is located along Flume Creek in Alban Township. Flume Creek is a Class 1 trout stream and is the channel is being restored by the WDNR (partially done and will be completed in 2022).

This property has quite an amazing history. The history of this site includes:

- A sawmill that ran in the late 1800's with a boarding house
- In 1893-1903, the Alban Post Office was located there

Maintaining the remnants of this history (the remains of the dam and foundations for the structures in an important element of this restoration plan.

In addition to the above, I have some funding from the Ruffed Grouse Society to develop this site as a Woodcock Habitat Demonstration Area. This funding is purchasing a brushsaw, some fuel, some trees and seeds and signage. I am hoping that this unit will be included as part of a large neotropical migratory bird demonstration project that I am hoping to get funded at a statewide level.

- The NRES 457 class will be doing the overall monitoring plan for this property.
- The NRES 459 class will be doing the restoration plan for this property.
- All three classes will be doing the restoration for the property.

Some Constraints for This Property

The work in the area around the stream needs to be completed, legally, prior to March 15th to protect an NHI species. I will not say anything broader than that, but, the work we are doing will be beneficial or neutral (depending on the activity) for this species; however, to avoid incidental take, we will have to be done before one of two things happens (either March 15th or whenever the remaining snow cover melts, whichever is later). For this reason, much of the tree cutting and brush cutting in the riparian area will happen prior to the due date for the plan. Please recognize that, while the timing is not ideal, this is in

service to a Rare, Threatened or Endangered species, so, that is what we are going to do. The work in the uplands can continue until the end of the semester.

Site Goals

- Maintain the cultural remnants of cultural history for this site
- Favor woodcock and ruffed grouse habitat elements
- Favor early successional neotropical migrant birds
- Favor or remain neutral to amphibians
- Either favor or remain neutral for trout with all activities
- Increase structural diversity
- Develop a primitive camping site for use by Central Wisconsin Environmental Station
- Reduce both invasive woody plants and poison ivy
- Develop a trail to the standards of USFS Class 2 <https://www.fs.usda.gov/managing-land/trails/trail-management-tools/trail-fundamentals>

Birds

The following birds are of special interest on this site:

- Riparian
 - Woodcock
 - Yellow warbler
 - American Redstart
 - Veery
- Upland
 - Common yellowthroat
 - Eastern wood-peewee
 - Towhee
 - Rose breasted grosbeak

Frogs

The following are the main frogs that can be heard in spring that are likely to be present in the area:

- Boreal Chorus Frog
- Spring Peeper
- Wood frog

Teams

Project Coordination Team

Need to be in BOTH NRES 459 and 457 (does not need to be, and, likely should not be, the in the coordination team for the other class).

This team needs to pull everything together and set timelines. You will meet with me at least every 2 weeks during the first part of the semester.

Suggestion: come up with a template for what people should turn in to you. It should include everything from fonts to margins to headings. This makes life a lot easier (i.e. I have done this repeatedly, and hate dealing with problems created by poor formatting or people that “cannot” live within the rules of the format. They make life hard.

Upland (Focus- plants and neotropical migrant birds)

You are going to need to plan for restoration and habitat management that does the following:

- Increases structural diversity
- Improves species composition of the grassland area and the forest areas
- Favor the following bird species (meaning that you are going to need to know what these critters need): grouse, common yellowthroat, eastern wood-peewee, towhee and rose breasted grosbeak

Historic/Cultural (Focus- Mill history, trails and environmental ed curriculum)

- You are going to need to work with CWES and this same team in the NRES 457 class (ideally, the same people for this topic in both classes, because this is kind of specialized)
- This needs to be mapped and standards of practice (SOP's) put in place that will reduce damage to the historic elements in this site. Maintenance of human created historic elements within a restoration site is often of extreme value with stakeholders.

Wetland/Riparian (Focus- Woodcock, warblers and trout)

You are going to need to plan for restoration and habitat management that does the following:

- Increases structural diversity
- Maintains or improves habitat for herps
- Favor the following bird species (these birds have quite competing needs, so, you will need to balance them): Woodcock, Yellow warbler, American Redstart, Veery

Monitoring Liaison with NRES 457 class-1 person

- Focus- Making sure both documents interface. This person has to be in BOTH NRES 459 and 457. Their goal is to make sure that both the Monitoring and Restoration Plans work together. This is likely the single hardest job.
- The direct contacts for this person are the Project Coordination Team for the Monitoring Class and the Restoration Class and you will interface extensively with the

Implementation Liaison. This person has to be a very organized person who can “see the big picture”.

Implementation Liaison with For 434 Sec 3- 1 person

- Focus- This student needs to be in the For 434 Sec 3 class. Making sure that the work done on the site during the weekend For 434 Sec 3 class match with the desired goals for both the Monitoring and Restoration Plan.
- You will need to attend most/all of the site activities that are being hosted on the Eagon property for the For 434 Sec 3 class.
- The direct contacts for this person are the Project Coordination Team for the Monitoring Class and the Restoration Class and you will interface extensively with the Implementation Liaison.

The Restoration and Habitat Management Plan

Executive Summary (responsible party is the Project Coordination Team)

This is a single page that summarizes the whole things. This is kind of like an abstract.

Project Background (responsible party is the Project Coordination Team)

The Scope- What are the main thematic elements of this project

Restoration Plan Team (responsible party is the Project Coordination Team)

This will be all of you. This will be written like this:

Wildlife Team

Bob Bobson- Ecosystem Restoration and Management student at University of Wisconsin-Stevens Point. Responsible for developing the woodcock and wood duck monitoring protocols.

Restoration and Habitat Goals, Objectives and Indicators (responsible party is the Project Coordination Team)

For each team, there will be one or more of these, written appropriately, for each group. Reference section for each

Documented Time (responsible party is the Project Coordination Team)

Presented in a table organized by team and person in team

This needs to be legally defensible, in the past people many people have been fired or jailed for billing in excess of hours expended...track these well).

Maps

This section will include overall maps and will be doing in collaboration with the Geospatial Team in the NRES 457 class.

Team Related Sections

Upland (Focus- plants and neotropical migrant birds)

- The Vision- What do you hope to accomplish on this site in the short and long term
- Current Condition- Describe the current condition relative to the restoration/habitat targets
- Desired Future Condition- Describe how the site is hoped to be in the future relative the restoration/habitat targets
- The Targets- What elements are you focusing on (examples could include areas of young aspen/alder, soft mast, reduced invasives etc.)
- Actions needed to reach those targets
- Timeline

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Appendix (responsible party is the Project Coordination Team)

This plan will be presented towards the end of the semester in a public zoom meeting that will include:

- WDNR Fisheries (who has been and will continue to do stream channel restoration work)
- Director of the Ruffed Grouse Society (who funded some of the work)
- Director of Central Wisconsin Environmental Station
- Members of the UWSP Foundation Board
- Several administrators for the campus (likely, the Dean, Associate Dean and maybe main campus administration)
- Local politicians
- Any interested university member (for previous plans, we have had over 50 attendees)

Regarding the overall plan, I recommend keeping this as a portfolio item, because, you ARE on the team for this plan. You will track all of your time assigned to any feature of this project (time budgeting and managing billable versus non-billable hours is one of the most important skills a person can learn in restoration work). Most of these monitoring plans are done in teams, because very few people (read that NO ONE) has all of the skills needed to do a good job on these for everything that needs to be assessed. We will divide up into teams during the first lab period. These are CONTENT SPECIALIST teams, so, you are going with your skillset, in part. You are allowed to have assistance from people outside of the class; however, this needs to be documented in the plan. Remember, NOTHING in this is done seat-of-the-pants, everything is DOCUMENTED in the plan.

Grades:

- 40% of grade class-wide restoration and habitat plan
- 20% consistent attendance/participation
- 20% Lab Writeups for Focus on a Habitat Site Visits
- 10% final career reflection
- 10% skills assessment

Yes, that is right, 40% of your grade in this class is based on the composite of everyone’s work. When the rest of them screw up, it is a problem. That previous sentence just described the rest of your life in natural resource management. You need to figure out how to make this happen in spite of personalities. If you hate “group work”, that means that you generally hate the majority of natural resources field work. The entire field is basically a giant group project. Learn to work within that.

You will be expected to do an evaluation of each of your group members and that will be taken out of the participation/attendance grade.

INITIAL CLASS TIMELINE AND PLAN

Week	Reading	Tuesday Lecture	Friday Lecture/Lab
1	SER Standards of Practice Sec 1 and 2	8 Principles of Restoration	Discuss goals for site and identify stakeholders that need to be involved
2	SER Standards of Practice Sec 3	Scope of Plan and Planning Document needs	First site visit Assign groups and planning for writing the plan
3	Ideals and Pragmatics in Justification of Ecological Restoration	Restoration vs. Habitat management vs. Conservation Biology	Focus on Planning Document
4	SER Standards of Practice Sec 4	Habitat Goals for this Site: Meshing Restoration with Woodcock, Trout and Historical Interpretation Goals	By today, you will have a first draft of your portion of the plan together, today will be spent discussing this and coming up with paths forward.
5	Birders Dozer Lorimer Bird Pub	Focus on a Habitat: Neotropical Migrant Birds	Dewey Marsh Site Visit- Review Neotropical Bird Habitat Characteristics
6	Restoring and Maintaining Grasslands for Wildlife	Focus on a Habitat: Grasslands	Buena Vista Quarry Prairie
7	Restoring of Midwest Oak Barrens: Structural Manipulation of Process-Only?	Focus on a Habitat: Savannas/Barrens	Emmons Creek Site Visit with DNR Ecologist or KBB Restoration Program Manager

8	Contemporary Forest Restoration: A review Emphasizing Function	Focus on a Habitat: Dry Mesic Forests for Structural Diversity	Minister Lake Restoration Forestry Unit
9	Achieving Restoration Success: Myths in Bottomland Hardwood Forests	Focus on a Habitat: Riparian Forests	Island in the WI River
10		Restoration Plan Discussion	Restoration Plan Presentation (Draft 1)
11		Restoration Plan Presentation (Draft 2)	Real Deal (done with the NRES 457 class)
12		Buffer	Implementation (maybe tree planting)
13	Intervention Ecology: Applying Ecological Science in the Twenty-first Century	Article Discussion	Implementation
14		Pollinators	Implementation
15	Ecological restoration should be redefined for the twenty-first century	Article Discussion	Final Site Visit with Site Tour for CNR Administration, RGS and DNR Fisheries

Forestry Anti-harassment Statement

Introduction

In adopting this statement, the forestry discipline within the College of Natural Resources (CNR), at the University of Wisconsin-Stevens Point (UWSP) has expectations for professional behavior of its students, staff, faculty, and other associated parties. Anyone who has a reasonable belief that they, or another student, staff, faculty or guest, have been the victim of harassment, bullying, or discrimination, or any other violation in the statement herein, are encouraged and expected to report the conduct. See reporting options and guidelines at the end of this document.

The forestry discipline within the College of Natural Resources is committed to creating a safe, inclusive, and professional environment. The forestry discipline operates under the UWSP harassment, discrimination, and retaliation prevention guidelines, copied here:

“The University of Wisconsin-Stevens Point (UWSP) is committed to fostering an environment that is safe, respectful, and inclusive to all and to educate all employees on these important issues. In addition, we are obligated, under Regent policy and federal regulations, to ensure our employees are informed on the issues of unlawful discrimination, harassment, and sexual violence.”

Statement

The forestry discipline, following the lead of the Society of American Foresters which accredits the B.S. forestry degree, believes we all have a responsibility in creating a safe, inclusive, professional environment in all forestry-related activities and events. All forms of discrimination, harassment, and bullying are prohibited. This applies to all participants in all settings (online and in-person) and locations (on- and off-campus) where forestry classes and associated activities are conducted, including student organization events and activities, committee meetings, workshops, conferences, and other work and social functions where employees, volunteers, sponsors, vendors, or guests are present.

Discrimination is prejudicial treatment of individuals or groups of people based on their race, color, creed, religion, age, sex, sexual orientation, gender identity or expression, national origin, ethnicity, ancestry, disability, pregnancy, marital or parental status, veteran status, or any other category protected by law.

Sexual harassment is unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature that creates an intimidating, hostile, or offensive environment. Sexual harassment constitutes discrimination and is illegal under federal, state, and local laws.

Bullying is unwelcome, aggressive behavior involving the use of influence, threat, intimidation, ridicule, hazing or coercion to dominate others in the professional environment. Bullying behavior may go beyond characteristics protected by applicable laws, including but not limited to, political views, dress, or other outward physical appearances.

Other types of harassment include any verbal or physical conduct directed at individuals or groups of people because of their race, ethnicity, color, national origin, sex, sexual orientation, gender identity, age, religion, disability, veteran status, or any other characteristic protected by applicable laws, that creates an intimidating, hostile, or offensive environment.

The following list, while not exhaustive, includes examples of unacceptable behavior: slurs, jokes, threats, or derogatory comments relating to the characteristics noted above. Examples of inappropriate physical harassment that violate this statement include, but are not limited to: assault, unwanted touching, or impeding or blocking movement. In addition, no individual may be denied admission to, or participation in or the benefits of, any UWSP-associated events. Similarly, the display or circulation of derogatory or demeaning posters, cards, cartoons, emails, texts, videos, and graffiti which relate to characteristics noted above violate this statement.

Reporting

Students, staff, faculty, or guests associated with Forestry-related programming who experience or witness incidents of harassment are strongly encouraged to report the incident. The Forestry discipline strongly urges the prompt reporting of complaints or concerns so that rapid and constructive action can be taken.

Reporting can be done online or in person, to a faculty or staff member, and/or the UWSP Dean of Students. Anonymous reporting is available.

The UWSP Title IX Website is the home for all information related to harassment and discrimination, including reporting options, student and employee resources, and information about what happens after a report is submitted:

<https://www.uwsp.edu/titleix/Pages/default.aspx>

The College of Natural Resources at the University of Wisconsin – Stevens Point prepares students for success as professionals in many fields. As a professional, there are expectations of attainment of several personal characteristics. These include:

Integrity

Integrity refers to adherence to consistent moral and ethical principles. A person with integrity is honest and treats others fairly.

Collegiality

Collegiality is a cooperative relationship. By being collegial you are respecting our shared commitment to student education through cooperative interaction. This applies to all involved in the process: students, staff, faculty, administration and involved community members. You take collective responsibility for the work performed together, helping the group attain its goals.

Civility

Civility refers to politeness and courtesy in your interactions with others. Being civil requires that you consider the thoughts and conclusions of others and engage in thoughtful, constructive discussion to express your own thoughts and opinions.

Inclusivity

Inclusivity requires you to be aware that perspective and culture will control how communication is understood by others. While many values are shared, some are quite different. These differences in values should be both considered and respected.

Timeliness

Timeliness is the habit of performance of tasks and activities, planned in a way that allows you to meet deadlines. This increases workplace efficiency and demonstrates respect for others' time.

Respect for Property

Respect for property is the appreciation of the economic or personal value an item maintains. Maintaining this respect can both reduce costs (increase the operable life of supplies and equipment) as well as demonstrate respect for others rights.

Communication

Professional norms in communication require that you demonstrate the value of your colleagues, students, professors or others. The use of appropriate tone and vocabulary is expected across all forms of communication, whether that communication takes place face to face, in writing or electronically.

Commitment to Quality

Quality is the ability to meet or exceed expectations. By having a commitment to quality, we intend to provide a learning environment that is conducive to learning. Intrinsic to this commitment to quality is defining expectation (committed to in a syllabus through learning outcomes), implementation (with quality control in place) and assessment (where meeting of learning outcomes is determined).

Commitment to Learning

Learning is a lifelong process. By being committed to learning you are providing a model for all to follow. This model is not only professor to student but involves all combinations of people within our university and broader community

Adherence to this compact is required of the faculty and staff of the College of Natural Resources and of all students enrolled in College of Natural Resources courses.