



Making the World a Better Place:

Training students in ecosystem restoration from planning through implementation





Ecosystem Restoration and Management

Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.”

SER

UN Decade on Restoration

Society for
Ecological
Restoration
(ser.org)



INTERNATIONAL STANDARDS FOR THE PRACTICE OF
ECOLOGICAL RESTORATION – INCLUDING PRINCIPLES
AND KEY CONCEPTS

FIRST EDITION: December 2016

Tein McDonald, George D. Gann, Justin Jonson,
Kingsley W. Dixon



SER in collaboration with SER Australasia

The Eight Principles

1. Ecological restoration engages stakeholders
2. Ecological restoration draws on many types of knowledge
3. Ecological restoration practice is informed by native reference ecosystems, while considering environmental change
4. Ecological restoration supports ecosystem recovery processes
5. Ecosystem recovery is assessed against clear goals and objectives, using measurable indicators
6. Ecological restoration seeks the highest level of recovery attainable
7. Ecological restoration gains cumulative value when applied at large scales
8. Ecological restoration is part of a continuum of restorative activities

Ecosystem Restoration and Management

- Redesigned in 2021 to meet the changing needs of the industry
- Topics
 - **Challenges of meeting multiple professional certification standards**
 - Integration of student orgs
 - Challenges of implementation
 - How to meet increasing demands
 - Use of student feedback (student reflection papers and after-action reviews)





Challenges of meeting multiple professional certification standards

- SAF Accredited Forestry Degree
- SER Certified Ecological Restoration Practitioner- In Training
- AFE Certification
- USFS Forester Series and Ecologist Series jobs
- [What it looks like to make this happen](#)

Two Tracks

- Ecosystem Ecology
- Fire Science

Ability to Add Minors and Certification

- Fire Science Certificate
- Timber Marking Certificate
- Soils Minor
- Forest Ecology and Health Minor



Basic Required Early Career Certifications

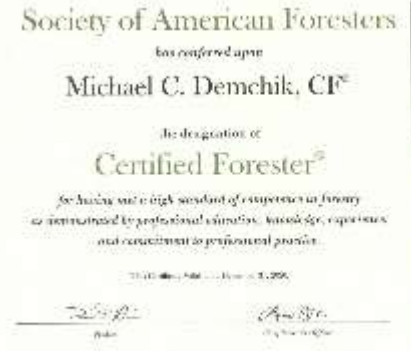
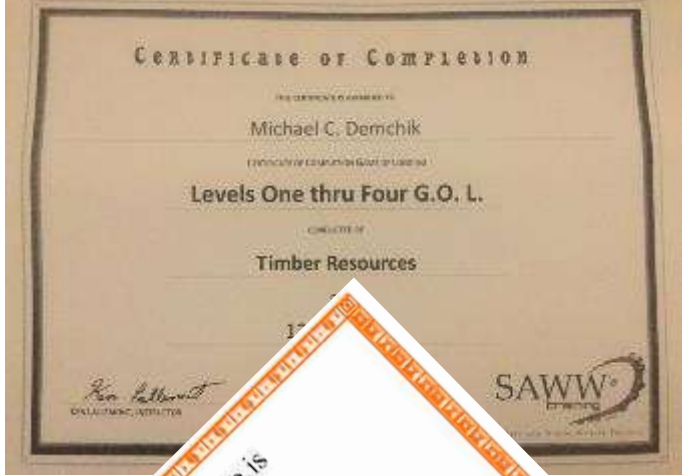
- Wildland Firefighter- Type 2
- Chainsaw certification- S212 or comparable
- WDATCP Pesticide Applicator Certification
- Brushsaw and chipper training
- Basic timber marking



Timber Marking Capstone- Student Evaluation Comments

- “...really help to gain the fundamental skills and practices that are needed by students who are trying to become some of the best in the field and will help them to surpass their counterparts that are going to be their competition when they graduate.”
- “...having the hands on experience really helps to drive home the things that I am learning and helps me to better grasp the concepts that are being taught.”

Within Natural Resources, skills-based certifications backed by a professional entity are a significant driving influence in the field



Management Institute



FEMA

This Certificate of Achievement is to acknowledge that

MICHAEL C. DEMCHIK has reaffirmed a dedication to serve in times of crisis through continued professional development and completion of the independent study course.

15-00700 is

Department of Agriculture, Trade and Consumer Protection
2811 Agriculture Drive
PO Box 8911
Madison, WI 53708-8911

Applicator Name: MICHAEL C DEMCHIK

Certification Number: 106670

Expiration Date: 10/31/2023

Categories: 002.0



COMPLETION

Demchik, 2011

III TRAINING

2011 MEDIA SITE PREPARATION



Ecosystem Restoration and Management

- Redesigned in 2021 to meet the changing needs of the industry
- Topics
 - Challenges of meeting multiple professional certification standards
 - **Integration of student orgs**
 - Challenges of implementation
 - How to meet increasing demands
 - Use of student feedback (student reflection papers and after-action reviews)



Student Orgs Associated with the Major

- Society for Ecological Restoration
- UWSP Fire Crew



SER

- Site Stewards Program
- Restoration Celebration
- National org for this major





Fire Crew

- Prescribed burns
- Basic fire certs
- Winterim and spring trips
- Certifications

Available Federal Certifications

- S-211- Portable Pumps and Water Use- Biennial
- S-219- Firing Operations- Biennial
- S-131- Fire Fighter Type 1- Biennial
- S-290- Intermediate Wildland Fire Behavior- Biennial
- L-280- Followership to Leadership- Biennial
- RT-130- Wildland Fire Safety Training Annual Refresher- Annual

- S-390- Introduction to Wildland Fire Behavior Calculations (this is the first year)

Ecosystem Restoration and Management

- Redesigned in 2021 to meet the changing needs of the industry
- Topics
 - Challenges of meeting multiple professional certification standards
 - Integration of student orgs
 - **Challenges of implementation**
 - How to meet increasing demands
 - Use of student feedback (student reflection papers and after-action reviews)



Senior Capstone Experience

- Combination of NRES 457 Ecological Restoration Monitoring and NRES 459 Ecological Restoration and Management
- What is included:
 - Planning
 - Public presentation
 - Implementation
 - Field tours

Planning- The two classes develop a restoration and monitoring plan for a property

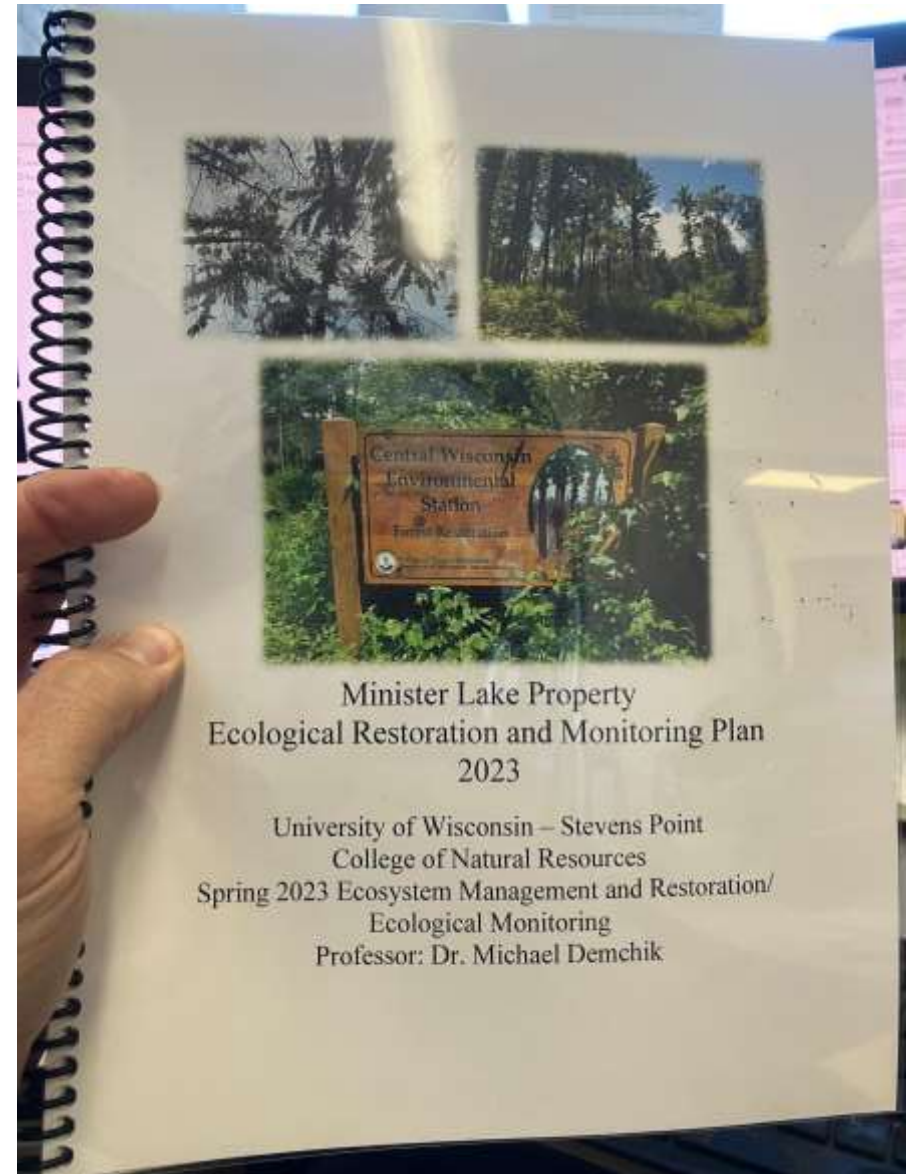
Service Teams

- Project coordination
- Implementation liaison
- Public information
- Geospatial and data archiving

Implementation Teams

- Wildlife teams
- Plant team
- Historic team
- Team for each management zone

Students
develop a full
restoration and
monitoring plan



CAPSTONE EXPERIENCE FOR ECOSYSTEM
RESTORATION AND MONITORING
NRES 457/459

Village of Plover
Conservancy Forest
Habitat Restoration
Presentation

April 5th
10 am
TNR 120



College of Natural Resources
University of Wisconsin-Stevens Point

Public Presentation



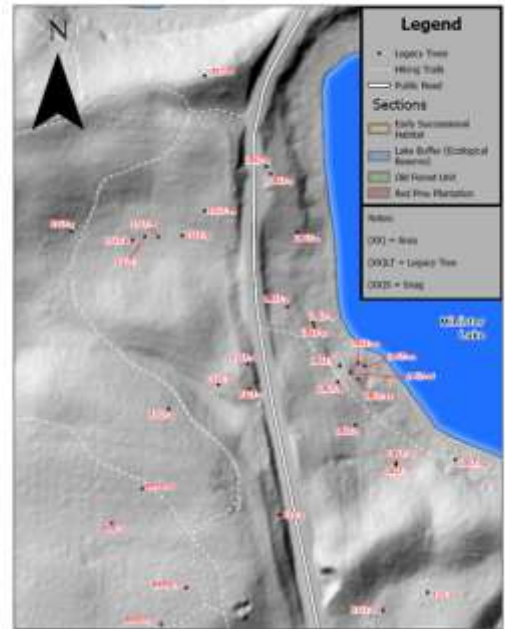
Carry out all of the work



Carry out all of the work



Minister Lake Legacy Trees NW Map



Monitor the results

Village of Plover Conservation Forest Habitat Restoration Site

Capstone Experience of Ecosystem Restoration
and Monitoring NRES 457/459

Open to students, faculty, and members of the public

Tour One: May 10 at 10:30 a.m.

Tour Two: May 10 at 11:00 a.m.



Coordinates: 44.4751880, -89.4887990

Lead field tours

- Stakeholder
- Community members
- School groups



College of Natural Resources
University of Wisconsin-Stevens Point

Ecosystem Restoration and Management

- Redesigned in 2021 to meet the changing needs of the industry
- Topics
 - Challenges of meeting multiple professional certification standards
 - Integration of student orgs
 - Challenges of implementation
 - How to meet increasing demands
 - Use of student feedback (student reflection papers and after-action reviews)



After Action Reviews

- Discussion of:
 - What happened
 - Why it happened
 - Strengths and weaknesses
- Method to get feedback and reflect
- Improves team function and cohesion

Course reflection

- Written and oral

Example improvements

- Added public information team
- Added implementation liaison

Increasing Demand

- 2021 total of 53 students in the option
- 2024 total of 151 students in the option

Career Placement (since change)

- WDNR Senior Forester or other permanent- at least 6
- USFS- many (fire and other)
- USF&W
- NRCS
- RC&D
- MN DNR- at least 2
- Consulting and Private Forestry- at least 4
- Horticulturist Botanical Garden
- Urban Forestry
- Commercial restoration companies
- TNC

Summary of the Design

- The program was rebuilt to meet:
 - Certification/accreditation requirements
 - Employer demands both early and mid-career
 - Integration of the science, art and practice
- Student professional organization support
- Capstone experience
- Career placement

