

Invasive and Exotic Species – WATR/NRES 324

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Class Lec. M, W, F 11-12. Office hours: anytime

Course objectives

1. Describe the regional, national and world-wide biological, economic and social impacts of invasive and exotic species
2. Describe underlying ecological principles associated with establishment and spread of invasive species
3. Demonstrate an understanding of the impacts of an invasive or exotic species through a verbal presentation and a written exercise

Much of the class material will be lecture/discussion from your text as well as some videos early in the semester. We will have several outside speakers as well as several days of your presentations.

Lecture topics

Introduction to invasion ecology (Chapter 1, pp. 1-23, Lockwood et al.)

Transport vectors and pathways (Chapter 2, pp. 24-49)

Basic ecological principles (PP notes only)

Population growth (PP notes)

Invasive species regulations in WI, NR 40

WIDNR BMPs for disinfection (PP notes only)

Trends in numbers of invaders (Chapter 3, 50-73)

Propagules (Chapter 4, 74-98)

Disturbance (Chapter 5, 99-128)

Establishment Success (Chapter 6, 129-156)

Modeling spread (Chapter 7, 157-188)

Invasive diseases that affect humans/wildlife (PP notes only)

Ecological processes and impacts (Chapter 8 and 9, 189-244)

Evolution of invaders (Chapter 11, 277-298)

Preventing invasions/eradication and control (Chapter 12 and 13, 299-355)

Text

Lockwood J. L., Hoopes, M. F. and M. Marchetti. 2013 Invasion Ecology. 2nd ed. Blackwell Pub. Malden, MA.

A Field Guide to Terrestrial Invasive Plants in WI. WIDNR, online or hard copy

Other selected technical readings and videos will be available online

Grades

Midterms 2 @ 100 points each

Individual presentation 100 points

Research paper 100 points

Submission of study questions from presentations 100 points

Total 500 points - standard grading scale

Guidance for Presentations and Research Papers

An oral presentation and a written paper of the same topical area will be required. Each assignment is worth 100 points out a total of 500 points for the course. The focal point of these assignments will be an invasive species or problems associated with an invasive species of your choosing.

The format for the oral presentation is flexible, but I suggest use of PowerPoint. You will be evaluated on content and delivery. Approach this as a confidence building exercise with regard to delivery to improve your comfort level in front of an audience as well as an informational presentation where you intend to provide insights about this species to the audience. The time frame should be 12 minutes (10-15 minutes acceptable). The audience may ask informational questions of the presenter as you will be considered our expert on your topic.

You will want to provide an overview of general information about the invasive species as well as more specific information from peer-reviewed scientific research studies. You will want to cover all these questions: What is the species? Include enough basic life history information that might be pertinent to its invasive nature. Why is it a problem? Consider potential impacts on native species and humans. Also, consider if the "fluctuating resources hypothesis" described in chapter 5 in the text and notes could explain why this species became established in the first place. When and where was it introduced? Include any information that has documented the extent of its spread. How was it introduced? Sometimes this is just

speculation, but review potential vectors. You may also want to consider any potential control strategies.

You may use photos from the WEB in your oral presentation as well as graphics or tables from peer-reviewed publications. Make sure it is clear you have used and referenced at least two peer-reviewed publications in your oral presentation. Include proper citations at the end of your presentation. An electronic copy of the full presentation is due the day of your presentation in the designated D2L drop box.

The written paper may follow a similar format except it will include more detail and must include citations from at least five peer-reviewed papers in the narrative. Organize your paper into sections with headings. Because this is a review rather than a scientific study I will not suggest any specific headings for sections. The same general heading format used in your oral presentation will work here. All figures and tables must be integrated into the narrative and properly captioned and referenced in the text.

The paper is to be typed 12-point font double spaced with one inch margins. The length of the paper is a minimum of six pages, five pages of text and one page of figures or tabular data referenced from other peer-reviewed studies. You may have more text than five pages and use more graphics if you wish. Use citation format from the references listed at the back of your class text. Although you will find much of your peer-reviewed papers on the internet, I will not accept internet format citations. Use the original papers and cite authors and dates in the text of your narrative and appropriate citations in the literature cited sections. Again, see your text for examples. The due date for the paper is April 8 which will be just prior to beginning classroom presentations.