# JACOB WITTMAN

## PROJECTS

2021 | 2018

### Estimating the range of attraction of a sex-pheromone used in traps to detect emerald ash borer

University of Minnesota — Saint Paul, MN

- Applied a novel trapping arrangement in conjunction with a non-linear Bayesian regression to elucidate the range of attraction of a sex-pheromone used to trap emerald ash borer.
- Determined that the sex-pheromone is likely attractive at a range of 90 feet.
- The range of attraction is used by managers internationally to develop efficient early-detection trap networks.

2021 | 2019

### Evaluating anisotropy in the spread of emerald ash borer

University of Minnesota — Saint Paul, MN

- Used generalized additive models and simultaneous autoregressive models to model the spread of emerald ash borer across North America.
- Model predictions will be used by managers in North America to assess when emerald ash borer will spread to their communities and plan management tactics accordingly.

2020 | 2018

### Forecasting overwintering mortality of a biological control agent in North America

University of Minnesota — Saint Paul, MN

- Designed experiments to assess the cold tolerance of a parasitic wasp used to control populations of emerald ash borer.
- Forecast overwintering survival of this parasitic wasp across the USA and Canada using generalized estimating equations.

2018 | 2016

### Determining the efficacy of regulatory requirements on limiting the spread of *Lymantria dispar*

University of Minnesota — Saint Paul, MN

- Developed experiments to determine the efficacy of regulatory requirements in lumber yards designed to reduce the spread of the invasive moth *Lymantria dispar*.
- Using generalized linear models and Monte Carlo simulation, showed that current regulatory requirements were likely sufficient to reduce inadvertent movement of this insect.

## EDUCATION

Current | 2018

### PhD., Entomology (graduate minor Biostatistics)

University of Minnesota — Saint Paul, MN

2018 | 2016

### M.S., Entomology

University of Minnesota — Saint Paul, MN

2012 | 2008

### B.S., Biology, Environmental Studies (minor Secondary Education)

Luther College — Decorah, IA

I am a quantiative invasion entomologist specializing in biostatistics/data science, invasion biology, and teaching. I am seeking to leverage my experience managing complex ecological projects, analyzing data, and communicating results to a wide variety of collaborators to find a role as a data scientist.

## CONTACT


- (319)-214-3317
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- linkedin.com/in/wittja01
- wittja01.github.io/website
- wittja01


## SKILLS

- Supervised and unsupervised machine learning
- Statistics and inference
- Communicating technical material to non-technical audiences
- R and R Studio
- Data Visualization (R and Shiny)
- git & GitHub
- HPC with R
- Relational Databases
- Basic Python and SQL


*Made with the R packages **pagedown** and **datadrivencv**.*

*Last updated on 2021-11-23.*

## PUBLICATIONS

2021

**Forecasting overwintering mortality of *Spathius galinae* in North America**

*Biological Control* 160: 104694

**J. Wittman**, B. Aukema, J. Duan, and R. Venette

2021

**Optimizing early detection strategies: defining the effective attraction radius of attractants for emerald ash borer *Agrilus planipennis* Fairmaire**

*Agricultural and Forest Entomology* 23(4): 527 – 535.

**J. Wittman**, P. Silk, K. Parker, and B. Aukema

2020

**A guide and toolbox to replicability and open science in entomology.**

*Journal of Insect Science* 20(3): 1 – 9.

**J. Wittman** and B. Aukema

2019

**Foliage type and deprivation alters the movement behavior of late instar European gypsy moth *Lymantria dispar* (Lepidoptera: Erebidae)**

*Journal of Insect Behavior* 32(1): 25 – 37.

**J. Wittman** and B. Aukema

2019

**Characterizing and simulating the movement of late-instar gypsy moth (Lepidoptera: Erebidae) to evaluate the effectiveness of regulatory practices**

*Environmental Entomology* 48(3): 496 - 606.

**J. Wittman**, R. Nicoll, S. Myers, P. Chaloux, and B. Aukema

These are a selection of first-authored publications. For a complete list of publications, presentations, and posters please visit my full CV at my website.

## SELECTED TEACHING EXPERIENCE

Current | 2019

**Private R and Statistics Tutor**

Online — Wyzant Tutoring

2020

**Spatial and Temporal Analyses (ENT 5126)**

University of Minnesota — Saint Paul, MN

2018

**Insect Biology (ENT 1005)**

University of Minnesota — Saint Paul, MN

2016 | 2014

**Science Teacher (7 - 12 grade)**

DREAM Technical Academy — Willmar, MN

Both learning and teaching are life-long skills that can be employed in any position. I look forward to learning from and teaching others throughout my career.