JACOB WITTMAN

PROJECTS

Current | 2019

Evaluating anisotropy in the spread of emerald ash borer (PhD)
University of Minnesota — Saint Paul, MN

- Modeled the spread of emerald ash boerer across North America using generalized additive models and simultaneous autoregressive models.
- 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.

2021 | 2018

Estimating the range of attraction of a sex-pheromone used in traps to detect emerald ash borer (PhD)
University of Minnesota — Saint Paul, MN

- Designed experiments using novel trapping arrangement and analyzed data with non-linear Bayesian regression to determine the attraction radius of a sex pheromone was 90 feet.
- Communicated results at two international conferences, one of which was awarded a President's Prize for best graduate student presentation, and in a peer-reviewed journal article.
- Results are used by invasive species managers to deploy efficient trapping networks in ports and cities globally.

2020 | 2018

Forecasting overwintering mortality of a biological control agent in North America (PhD)
University of Minnesota — Saint Paul, MN

- Assessed the cold tolerance of a parasitic wasp used via laboratory and field experiments.
- Forecasts of overwintering mortality of this wasp across the USA and Canada using generalized estimating equations will be used for targeting effective release locations.

2018 | 2016

Determining the efficacy of regulatory requirements on limiting the spread of *Lymantria dispar* (MSc)
University of Minnesota — Saint Paul, MN

- Evaluated the efficacy of regulatory requirements in lumber yards designed to reduce the spread of the invasive moth *Lymantria dispar* through careful experimentation.
- Demonstrated evidence from generalized linear regression and Monte Carlo simulations to regulatory bodies that current requirements were 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

PUBLICATIONS

These are a selection of first-

I am a quantiative invasion entomologist specializing in experimental design, statistical inference, communication, and teaching. I am seeking a data scientist role which makes use of my experience managing complex ecological projects, collaborating across disciplines with varied stakeholders, and connecting my analysis to practical management outcomes.

CONTACT

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wittja01.github.io/website
wittja01

SKILLS

- Supervised and unsupervised machine learning
- Experimental design and inference
- Bayesian and Frequentist statistical methods
- R Programming
- R Shiny Dashboards
- git & GitHub
- High Performance Computing with R
- Basic Python
- Basic SQL

Made with the R packages pagedown and datadrivencv.

Last updated on 2021-12-03.

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

SELECTED TEACHING EXPERIENCE

Current | 2019 **Private R and Statistics Tutor**
Online — Wyzant Tutoring

2016 | 2014 **Science Teacher (7 - 12 grade)**
DREAM Technical Academy — Willmar, MN

Being a teacher made me a better communicator. I learned effective strategies for delivering technical material to non-technical audiences. Working with diverse groups of students over my teaching career helped me understand the importance of empathy to build constructive learning communities.