JACOB WITTMAN

PROJECTS

Current | 2019

Evaluating anisotropy in the spread of emerald ash borer

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

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.
- Demonstrated that the sex-pheromone is attractive at a range of 90 feet.
- Communicated results to managers internationally to develop efficient early-detection trap networks.

2020 | 2018

Forecasting overwintering mortality of a biological control agent in North America

University of Minnesota — Saint Paul, MN

- Assessed the cold tolerance of a parasitic wasp used to control populations of emerald ash borer via laboratory and field experiments.
- 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

- Evaluated the efficacy of regulatory requirements in lumber yards designed to reduce the spread of the invasive moth *Lymantria dispar* through careful experimentation.
- Demonstrated that current regulatory requirements were likely sufficient to reduce inadvertent movement of this insect.
- Supported decisions with results from generalized linear regressions and Monte Carlo simulations.

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 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. References are available upon request.

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
- 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 2021-11-30.

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

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.