Austin M. Smith, Ph.D.
Curriculum Vitae

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EDUCATION

December 2024 **Doctor of Philosophy**, University of South Florida, Tampa, FL
Major: Integrative Biology - Ecology & Evolution
Advisor: Andrew M. Kramer
Dissertation: "Species distribution models with environmental time series data and deep learning"

May 2018 **Master of Science**, University of Florida, Gainesville, FL
Major: Interdisciplinary Ecology – Wildlife Ecology & Conservation
Advisors: Wendell P. Cropper Jr.; Michael Moulton
Thesis: "A comparison of machine learning methods to classify Chukar Partridge (*Alectoris chukar*) establishment patterns in Washington state"

August 2013 **Bachelor of Arts**, University of Florida, Gainesville, FL
Major: Mathematics
Minor: Secondary Education

WORK EXPERIENCE

University of South Florida – Department of Integrative Biology May 2020 – December 2024
Graduate Research Assistant
Supervisor: Dr. Andrew M. Kramer

Contributed projects include:
- Integrating time series analysis into long-term species distribution models (***Lead researcher）*** *
- Correlating environmental factors to the presence of Chronic Wasting Disease (***Lead researcher***) *
- Compare spatial modeling protocols for species conservation practices *
- Nowcast modeling of Covid-19 infections (Collaboration with John Drake, Center of Ecology of Infectious Diseases - University of Georgia)

Indicates ongoing project

Duties included:
- Building and applying deep learning models with time series data Python
- Statistical analysis, data manipulation, data visualization R and Python programming languages
- Geospatial processing of geographic information system (GIS) tasks with R.
- Manage and maintain GitHub repositories for reproducible coding objectives.

- Conduct extensive literature reviews to gather relevant academic sources and synthesize findings.
- Data collection through surveys, lab experiments, and open-source databases.
- Contribute to the writing of research papers, reports, and other academic documents.

University of South Florida – Department of Integrative Biology August 2019 – December 2024
Graduate Research Assistant
Supervisor: Mary Mangiapia; Dr. Andrew M. Kramer

Duties included:
- Preparing course materials, delivering lectures, and facilitating recitation or review sessions.
- Grading/assessing student work, including assignments, exams, and lab reports.
- Demonstrate laboratory and research protocols regarding microscopy, dissections, and biometry.
- Provide academic guidance to students, clarifying course content, and preparing for exams.
- Overseeing course platforms (e.g., Canvas), distributing materials, and addressing student questions.

University of South Florida – Department of Integrative Biology November 2018 – January 2020
Assistant Researcher
Supervisor: Dr. Andrew M. Kramer

Contributed projects include:
- Determining best statistical protocols for modeling invasive species spatial distributions *
Indicates ongoing project

Duties included:
- Statistical analysis, data manipulation, data visualization R and Python programming languages
- Geospatial processing of geographic information system (GIS) tasks with R.
- Manage and maintain GitHub repositories for reproducible coding objectives.
- Conduct extensive literature reviews to gather relevant academic sources and synthesize findings.
- Data collection through surveys, lab experiments, and open-source databases.
- Contribute to the writing of research papers, reports, and other academic documents.

University of Florida – Department of Wildlife Ecology & Conservation August 2015 – May 2018
Graduate Assistant
Supervisor: Michael P. Moulton; Wendell P. Cropper Jr.

Contributed projects include:
- Statistical evaluation of habitat needs for introduced gamebirds (***Lead researcher***)
- Comparison of machine learning techniques for correlating species persistence with site-level factors (***Lead researcher***)*
Indicates ongoing project

Research duties included:
- Statistical analysis, data manipulation, data visualization R and Python programming languages
- Geospatial processing of geographic information system (GIS) tasks with R.
- Building and applying machine learning models with R and Python
- Manage and maintain GitHub repositories for reproducible coding objectives.
- Conduct extensive literature reviews to gather relevant academic sources and synthesize findings.
- Contribute to the writing of research papers, reports, and other academic documents.

Teaching duties included:
- Preparing course materials, delivering lectures, and facilitating recitation or review sessions.
- Grading/assessing student work, including assignments, exams, and lab reports.
- Overseeing course platforms (e.g., Canvas), distributing materials, and addressing student questions.

GRANTS & FELLOWSHIPS

Aug 2023 – Dec 2023   *Dissertation Completion Fellowship*, Office of Graduate Studies,
University of South Florida, Tampa, FL. $9,000 + tuition & fees

June 2023   *Conference Travel Award*, Department of Integrative Biology,
University of South Florida, Tampa, FL, $2236.67

June 2017   *Conference Travel Funding*, Department of Wildlife Ecology and
Conservation, University of Florida, $1300

PEER-REVIEWED PUBLICATIONS

Published:

- **A. M. Smith**, W. P. Cropper Jr., M. P. Moulton. 2021. A quantitative assessment of site-level factors in influencing Chukar (*Alectoris chukar*) introduction outcomes. https://doi.org/10.7717/peerj.11280 000

In review:

- **A.M. Smith**, C. Capinha, A. M. Kramer. Incorporating environmental time series into species distribution models. *In review*
  - **Pre-print available on bioRxiv:** https://doi.org/10.1101/2022.10.26.513922

In preparation:

- **A. M. Smith**, W. P. Cropper Jr., M. P. Moulton. Machine learning as a tool for managing game bird introductions.

- M. P. Moulton, W. P. Cropper Jr., **A. M. Smith**. A comment on Rock Partridge (*Alectoris graeca*) introductions.

- **A.M. Smith**, A. M. Kramer. Assessing deep learning protocols for optimizing time series-based species distribution models

- **A.M. Smith**, A. M. Kramer. Forecasting Species Distributions with Time Series Classification Models

- Anna Thonis, Adam Smith, Toni Lyn Morelli, Nikki Cavalieri, and Uzma Ashraf et. al. (SDM Workflows Project Team including **A.M. Smith).** A collaborative study on structural uncertainty in species distribution modeling.

PRESENTATIONS   *Presenting author*

Contributed:
- **A. M. Smith,** W. P. Cropper Jr.*, M. Moulton. Introductions of chukars (*Alectoris chukar*) in the United States. 85th Annual Meeting of the Association of Southeastern Biologists. March 2024, Chattanooga, TN

- **A. M. Smith***, C. Capinha, A. M. Kramer. Species distribution modeling with time series data and deep learning. (poster). University of South Florida Artificial Intelligence + X Symposium. September 2023, Tampa, FL.

- **A. M. Smith***, A. M. Kramer. Assessing deep learning protocols for optimizing time series-based species distribution models. (poster*).* Ecological Society of America Annual Meeting. August 2023, Portland, OR.

- **A. M. Smith***, C. Capinha, A. M. Kramer. Predicting species distributions with environmental time-series data and deep-learning. Ecological Society of America Annual Meeting. August 2021, Virtual.

- **A. M. Smith*,** W. P. Cropper Jr., M. Moulton. A comparison of machine learning methods to classify Chukar Partridge (*Alectoris chukar*) establishment patterns in Washington State. (poster). Ecological Society of America Annual Meeting. August 2018, New Orleans, LA.

Invited:
- University of South Florida, Department of Integrative Biology seminar series. A comparison of machine learning methods to classify chukar establishment patterns in Washington state. November 2019.

- University of South Florida, USF Math Club speaker series. Mathematics and machine learning: tools for niche theory & species distribution models. October 2019.

COURSE TAUGHT

Primary instructor:
- **Instructor**, BSC2011L – Biodiversity, University of South Florida. Lab. 2 sections, 24 students (each).
    - Semesters taught: Fall 2024; Spring 2023; Fall 2022; Spring 2020; Fall 2019.

- **Instructor**, PCB3043L – Principles of Ecology, University of South Florida. Lab. 2 sections, 23 students (each).
  - Semesters taught: Spring 2022

Secondary instructor
- **Teaching Assistant**, BSC2011 – Biodiversity, University of South Florida. Lecture. 1 section, ~250 students.
  - Semesters taught: Spring 2023

- **Teaching Assistant**, WIS 2040 – Wildlife Issues in a Changing World, University of Florida. 3 section, ~ 150 students (each).
  - Semesters taught: Spring 2018; Fall 2017; Summer 2017; Spring 2017; Fall 2016; Summer 2016; Spring 2016

- **Teaching Assistant**, WIS 2552 – Biodiversity Conservation: Global Perspectives, University of Florida. Online. 1 section, 50 students.
  - Semesters taught: Spring 2018; Fall 2017; Summer 2017; Spring 2017; Fall 2016; Summer 2016; Spring 2016

Guest lecturer:
- PCB 6456C – Biometry (graduate course), University of South Florida. Lecture and lab. Spring 2024

- PCB 6456C – Biometry (graduate course), University of South Florida. Lecture and lab. Spring 2023

MENTORING

Undergraduates:
- Jordan Kaszyk (B.S. Cellular and Molecular Biology, University of South Florida. Spatial modeling of Chronic Wasting Disease. Spring 2020 – Summer 2022

- Raquel Gonzalez (B.S. Integrative Animal Biology), University of South Florida.   Spatial modeling of invasive species. Fall 2019

PROFESSIONAL SERVICES

Journal Reviews:
- General Ecology: Ecosphere (1)

Community Experience:
 2018 – Present   *Lead Caretaker & Community Educator,* Bird of Prey Aviary, Boyd Hill
                    Nature Preserve, St. Petersburg, FL

Professional Affiliations:

American Association for the Advancement of Science (2018-2021); American Ornithological Society (since 2018); British Ecological Society (since 2022); Ecological Society of America (since 2017); The Wildlife Society (since 2018)

PROFESSIONAL REFERENCES

Dr. Andrew M. Kramer
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Department of Integrative Biology
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https://kramera3.github.io

Dr. Michael P. Moulton
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Dr. Wendell P. Cropper Jr.
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Mary Mangiapia
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