

# Sam C. Levin

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## Education

*Martin Luther University Halle-Wittenberg*

PhD Biology 2018-Present

*Martin Luther University Halle-Wittenberg*

MSc Biology 2016-2017

*Wake Forest University*

BA Biology 2008-2012

## Work Experience

*Martin Luther University Halle-Wittenberg*

Research Officer 2018-Present

*Helmholtz-Zentrum für Umweltforschung*

Student Research Assistant 2017

*German Centre for Integrative Biodiversity*

Student Research Assistant 2016 - 2018

*University of Missouri-St. Louis*

Field Research Technician 2015 - 2016

*Washington University in St. Louis*

Field Research Technician 2014 - 2015

*Student Conservation Association*

National Park Service Southeast EPMT Intern 2013 - 2014

## Research Interests

**Invasions:** understanding how demography, phylogeny, and functional traits interact to determine who becomes invasive and who remains benign.

**Software Development:** creating open source tools for researchers to efficiently analyze, publish, and share their data.

## Publications

### Journal Articles

\* denotes mentee

**Levin SC**, Evers S, Pena-Guerrero M, Compagnoni AC, Childs DZ, Knight TM & Salguero-Gomez R (*in prep*). Padrino: An open access database of Integral Projection Models.

**Levin SC**, Compagnoni AC, Salguero-Gomez R, Childs DZ, Evers S & Knight TM (*in prep*). ipmr: Flexibly implement Integral Projection Models in R.

Bogdan A\*, **Levin SC**, Salguero-Gomez R & Knight TM. (*in prep*). Demographic analysis of Israeli *Carpobrotus* populations: management strategies and future directions.

Compagnoni AC, **Levin SC**, Childs DZ, Harpole S, Paniw M, Romer G, *et al.* (*in review*). Short-lived plants have stronger demographic responses to climate. *Nature Communications*. bioRxiv DOI: 10.1101/2020.06.18.160135

**Levin SC**, Crandall RM, Pokoski TC\*, Stein C & Knight TM (2020). Phylogenetic and functional distinctiveness explain alien plant population responses to competition. *Proceedings of the Royal Society B*. 287: 20201070. DOI: 10.1098/rspb.2020.1070

Paniw M, James T, Archer CR, Romer G, **Levin SC**, Compagnoni AC, *et al.* (*in review*). Global analysis reveals complex demographic responses of mammals to climate change. *Journal of Animal Ecology*. bioRxiv DOI: 10.1101/2019.12.16.878348

Sandel B, Weigelt P, Kreft H, Keppel G, van der Sande MT, **Levin SC**, Smith S, Craven DC & Knight TM (2019). Current climate, isolation, and history drive global patterns of tree phylogenetic endemism. *Global Ecology and Biogeography*. DOI: 10.1111/geb.13001

Compagnoni A, Bibian BJ, Ochocki BM, **Levin SC**, Zhu K & Miller TEX (2019). popler: an R package for extraction and synthesis of population time series from the long-term ecological research (LTER) network. *Methods in Ecology and Evolution*. DOI: 10.1111/2041-210X.13319

**Levin SC**, Crandall RM, Knight TM (2019) Population projection models for 14 alien plant species in the presence and absence of above-ground competition. *Ecology*. DOI: 10.1002/ecy.2681

Carl G, **Levin SC**, Kühn I. (2018) spind: an R Package to Account for Spatial Autocorrelation in the Analysis of Lattice Data. *Biodiversity Data Journal*. 6: e20760. DOI: 10.3897/BDJ.6.e20760

### Workshops & Invited Talks

**Levin SC**. Invasive plants: research, control, and what you can do to help! Point Reyes National Park, May 2020. (Cancelled due to COVID-19 pandemic).

**Levin SC** & Salguero-Gomez R. Effective, efficient, and safe data collection with UAVs. Oxford University, January 2020.

Salguero-Gomez R, Jones OR, *et al.* A gentle introduction to the COMADRE & COMPADRE databases for demographic analyses. British Ecological Society, Belfast, December 2019.

## Presentations

\* denotes mentee; # denotes poster presentations, otherwise oral

### 2018

**Levin SC**, RM Crandall, TC Pokoski, Stein C, Knight TM. Mechanisms underlying the differential success of alien plant species. Ecological Society of America – New Orleans, USA

### 2016

**Levin SC**, Stein C, Knight TM. Phylogenetic novelty alters the strength of biotic interactions for exotic plant species. NeoBiota 2016 – Vianden, Luxembourg

**Levin SC**, Stein C, Knight TM. Phylogenetic novelty alters the strength of biotic interactions for exotic plant species. iDiv Conference – Leipzig, Germany

### 2015

Poor E\*, Thompson AH\*, **Levin SC**, Knight TM. Novel functional traits aid the success of the invasive biennial *Carduus nutans*. Washington University in St. Louis Undergraduate Research Symposium – St. Louis, MO #

Workman M\*, Thompson AH\*, **Levin SC**, Knight TM. Competitive release may increase the fitness of exotic plants in their novel range. Washington University in St. Louis Undergraduate Research Symposium – St. Louis, MO #

### 2014

Patterson A\*, Galluppi CG, **Levin SC**, Maynard EE, Knight TM. How plant species become common: examining the success strategies of native and invasive plants. Washington University in St. Louis Undergraduate Research Symposium – St. Louis, MO #

Van Horn T\*, Galluppi CG, **Levin SC**, Knight TM. Examining the enemy release hypothesis in Ozark woody species. Washington University in St. Louis Undergraduate Research Symposium – St. Louis, MO #

## Software

Maintainer (current) and developer (> v2.0.0) of *spind*. [CRAN](#) and [Github](#)

Maintainer and developer of *ipmr*. [Project page](#)

Maintainer and developer of the *Padrino IPM Database* and *Rpadrino*. [Project page](#)

Contributed to development of [popler](#), [popdemo](#), [Rcompadre](#), and [Rage](#).

## Languages

Fluent in English and R, proficient with Stan, Git, and C++, and familiar with Python and German.

## Certifications

United States FAA Part 107 UAV Pilot License

United States NPS S212 A Faller

## **Mentoring**

Ana Bogdan	Babeş-Bolyai University, Cluj-Napoca, Romania
Tyler Pokoski	University of Iowa 2017
Tom Collins	Missouri S&T 2017
Amy Patterson	Washington University in St. Louis 2015
Amibeth Thompson	Illinois College 2014
Sami Hunkler	University of California, Berkeley 2017
Thomas Van Horn	Washington University in St. Louis 2018
Sarah Link	Eureka High School 2015
Brenda Alvarado	Francis Howell North 2015
Matilda Workman	Kirkwood High School 2017
Elizabeth Poor	Clayton High School 2017

## **Service**

Reviewer for rOpenSci, BMC Ecology, Annals of Botany, and Plant Ecology

## **Referees**

### **Dr. Tiffany Knight**

Martin Luther University, Helmholtz-Zentrum für Umweltforschung, German Centre for Integrative Biodiversity

[tiffany.knight@idiv.de](mailto:tiffany.knight@idiv.de)

### **Dr. Roberto Salguero-Gomez**

Oxford University Department of Zoology

[rob.salguero@zoo.ox.ac.uk](mailto:rob.salguero@zoo.ox.ac.uk)