

Brian J. Smith

PhD Candidate – Utah State University
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Education

Doctor of Philosophy in Ecology **August 2019 – present**
Utah State University, Logan, UT
Co-Advisors: Dr. Dan MacNulty and Dr. Tal Avgar

Master of Science in Wildlife Ecology and Conservation **August 2014 – December 2016**
University of Florida, Gainesville, FL
Advisor: Dr. Christina Romagosa
Thesis Title: *Spatial Ecology of Invasive Burmese Pythons in the Florida Everglades*

Bachelor of Science in Wildlife Ecology and Conservation **August 2005 – May 2009**
University of Florida, Gainesville, FL
Graduated *Cum Laude*

Selected Employment

Scientist III **May 2017 – August 2019**
CNT, contracted to USGS
Davie, FL
Quantitative and Field Ecology
Researcher responsible for data management, analysis, and co-authoring of scientific papers related to Burmese pythons, marine turtles, crocodylians, and other projects, in addition to field work.

Wildlife Research Technician **September 2011 – August 2014**
Jacobs/CNTS, contracted to USGS
Davie, FL
Quantitative and Field Ecology
Technician mostly responsible for field research related to Burmese python spatial ecology.

Teaching

Curricular Courses

Teaching Assistant **Spring 2020 & Spring 2021**
Utah State University
Logan, UT
Space-use Ecology
Graduate course. Designed and taught R labs.

Adjunct Faculty **Fall 2018**
Broward College
Davie, FL
Wildlife Ecology
Instructor of record. Undergraduate course. Designed lectures, assignments, and examinations.

Teaching Assistant **Fall 2014**
University of Florida

Gainesville, FL

Wildlife Techniques

Undergraduate course. Responsible for supervising the field-based labs, assisting with classroom portion, and designing some lectures and labs.

Workshops

Analysis of Animal Movement Data in R

March 13–17, 2023

Physalia Courses

Instructors: Signer, J. & Smith, B.J.

Online

Analysis of Animal Movement Data in R

November 14–18, 2022

BioMove RTG, University of Potsdam

Instructors: Signer, J. & Smith, B.J.

Online

Advances in Quantifying Space-use and Habitat-selection of Animals

June 26, 2022

International Statistical Ecology Conference

Instructors: Fieberg, J., Signer, J., Smith, B.J., & Muff, S.

Cape Town, South Africa

Statistical Methods Seminar Series: Integrated Step-selection Analysis

March 7, 2022

ESA Ecological Forecasting Initiative

Instructors: Smith, B.J. & Avgar, T.

Online

Movement Ecology in R

January 24–28, 2022

Physalia Courses

Instructors: Signer, J. & Smith, B.J.

Online

Advances in Habitat-Selection Modeling: Models, Methods, and Software

September 29, 2019

The Wildlife Society Annual Conference

Instructors: Fieberg, J., Signer, J., Smith, B.J., & Avgar, T.

Reno, NV

Selected Publications

[Google Scholar](#)

Total published papers: 32

Guzy, J.C., Falk, B.G., **Smith, B.J.**, Willson, J.D., Reed, R.N., Aumen, N.G., Avery, M.L., Bartoszek, I.A., Campbell, E., Cherkiss, M.S., Claunch, N.M., Currylow, A.F., Dean, T., Dixon, J., Engeman, R., Funck, S., Gibble, R., Hengstebeck, K.C., Humphrey, J.S., Hunter, M.E., Josimovich, J.M., Ketterlin, J., Kirkland, M., Mazzotti, F.J., McCleery, R., Miller, M.A., McCollister, M., Parker, M.R., Pittman, S.E., Rochford, M., Romagosa, C., Roybal, A., Snow, R.W., Spencer, M.M., Waddle, J.H., Yackel Adams, A.A., & Hart, K.M. 2023. Burmese pythons in Florida: A synthesis of biology, impacts, and management tools. *NeoBiota* 80: 1-119. DOI: [10.3897/neo-biota.80.90439](https://doi.org/10.3897/neo-biota.80.90439)

Smith, B.J., MacNulty, D.R., Stahler, D.R., Smith, D.W., & Avgar, T. 2022. Density-dependent habitat selection alters drivers of population distribution in northern Yellowstone elk. *Ecology Letters* 26 (2): 245-256. DOI: [10.1111/ele.14155](https://doi.org/10.1111/ele.14155)

Fieberg, J., Signer, J., **Smith, B.J.**, & Avgar, T. 2021. A 'how-to' guide for interpreting parameters in habitat-selection analyses. *Journal of Animal Ecology* 90: 1027-1043. DOI: [10.1111/1365-2656.13441](https://doi.org/10.1111/1365-2656.13441)

- Roberts, K.E., **Smith, B.J.**, Burkholder, D., & Hart, K.M. 2021. Evaluating the use of marine protected areas by endangered species: A habitat selection approach. *Ecological Solutions and Evidence* 2: e12035. DOI: [10.1002/2688-8319.12035](https://doi.org/10.1002/2688-8319.12035)
- Picardi, S., **Smith, B.J.**, Boone, M.E., Frederick, P.C., Cecere, J.G., Rubolini, D., Serra, L., Pirrello, S., Borkhataria, R.R., & Basille, M. 2020. Analysis of movement recursions to detect reproductive events and estimate their fate in central place foragers. *Movement Ecology* 8: 24. DOI: [10.1186/s40462-020-00201-1](https://doi.org/10.1186/s40462-020-00201-1)
- Smith, B.J.**, Selby, T.H., Cherkiss, M.S., Crowder, A.G., Hillis-Starr, Z., Pollock, C.G., & Hart, K.M. 2019. Acoustic tag retention rate varies between juvenile green and hawksbill sea turtles. *Animal Biotelemetry* 7: 15. DOI: [10.1186/s40317-019-0177-3](https://doi.org/10.1186/s40317-019-0177-3)
- Mazzotti, F.J., **Smith, B.J.**, Squires, M.A., Cherkiss, M.S., Farris, S.C., Hackett, C., Hart, K.M., Briggs-Gonzalez, V., & Brandt, L.A. 2019. Influence of salinity on relative density of American crocodiles (*Crocodylus acutus*) in Everglades National Park: Implications for restoration of Everglades ecosystems. *Ecological Indicators* 102 (July): 608-616. DOI: [10.1016/j.ecolind.2019.03.002](https://doi.org/10.1016/j.ecolind.2019.03.002)
- Smith, B.J.**, Hart, K.M., Mazzotti, F.J., Basille, M., & Romagosa, C.M. 2018. Evaluating GPS biologging technology for studying spatial ecology of large constricting snakes. *Animal Biotelemetry* 6: 1. DOI: [10.1186/s40317-018-0145-3](https://doi.org/10.1186/s40317-018-0145-3)
- Bonneau, M., Johnson, F.A., **Smith, B.J.**, Romagosa, C.M., Martin, J., & Mazzotti, F.J. 2017. Optimal control of an invasive species using a reaction-diffusion model and linear programming. *Ecosphere* 8 (10): e01979. DOI: [10.1002/ecs2.1979](https://doi.org/10.1002/ecs2.1979)
- Johnson, F.A., **Smith, B.J.**, Bonneau, M., Martin, J., Romagosa, C., Mazzotti, F., Waddle, H., Reed, R.N., Ketterlin Eckles, J., & Vitt, L.J. 2017. Expert elicitation, uncertainty, and the value of information in controlling invasive species. *Ecological Economics* 137: 83-90. DOI: [10.1016/j.ecolecon.2017.03.004](https://doi.org/10.1016/j.ecolecon.2017.03.004)
- Smith, B.J.**, Cherkiss, M. S., Hart, K.M., Rochford, M.R., Selby, T. H., Snow, R. W. & Mazzotti, F.J. 2016. Betrayal: radio-tagged Burmese pythons reveal locations of conspecifics in Everglades National Park. *Biological Invasions* 18 (11): 3239-3250. DOI: [10.1007/s10530-016-1211-5](https://doi.org/10.1007/s10530-016-1211-5)
- Hunter, M.E., Oyler-McCance, S.J., Dorazio, R.M., Fike, J., **Smith, B.J.**, Hunter, C.T., III, Reed, R.N., & Hart, K.M. 2015. Environmental DNA (eDNA) sampling improves occurrence and detection estimates of invasive Burmese Pythons. *PLOS ONE* 10 (4): e0121655. DOI: [10.1371/journal.pone.0121655](https://doi.org/10.1371/journal.pone.0121655)

Selected Software

GitHub

snowdl

R package version 0.1.0

author, creator

Allows downloading and processing of snow data (e.g., depth, density, snow-water equivalent) from various sources (e.g., Daymet, SNODAS).

<https://github.com/bsmity13/snowdl>

amt

R package version 0.1.7

contributor

Manage and analyze animal movement data. The functionality of 'amt' includes methods to calculate home ranges, track statistics (e.g. step lengths, speed, or turning angles), prepare data for fitting habitat selection analyses, and simulation of space-use from fitted step-selection functions.

<https://github.com/jmsigner/amt>

nestR

R package version 1.1.0

author

A package to locate nests and estimate avian reproductive outcome from GPS-tracking data. It includes functions to identify nest sites along bird movement trajectories based on patterns of location revisitation, dynam-

cally explore results, estimate the outcome of identified nesting attempts, and plot and summarize outputs.

<https://github.com/picardis/nestR>

ADePTR

R package version 0.0.0.9000

author, creator

A package developed to streamline processing and visualization of animal movement data from a passive acoustic array.

<https://github.com/bsmity13/ADePTR>

Selected Presentations

* = advised student

Smith, B.J., MacNulty, D.R. Stahler, D.R., Smith, D.W., & Avgar, T. "Density-dependent habitat selection alters drivers of population distribution in northern Yellowstone elk." The Wildlife Society Annual Conference. Oral Presentation. Spokane, WA. November 2022.

Smith, B.J. "Density-dependent habitat selection alters drivers of population distribution in northern Yellowstone elk." 2022 MacArthur Academy Meeting. Oral Presentation. Logan, UT. September 2022.

Smith, B.J., Signer, J., Fieberg, J., & Avgar, T. "A goodness-of-fit metric for integrated step-selection analysis." International Statistical Ecology Conference. Poster Presentation. Cape Town, South Africa. June 2022.

Smith, B.J., Selby, T.H., Pollock, C., Hillis-Starr, Z., & Hart, K.M. "Optimizing Sea Turtle Monitoring: Analyzing Three Decades of Saturation Tagging to Make Decisions about Mark-Recapture Effort" The Wildlife Society Annual Conference. Oral Presentation. Reno, NV. October 2019.

Smith, B.J. "Linking individual movement behavior with demographic patterns in a multi-prey, multi-predator system" 2019 MacArthur Academy Meeting. Oral Presentation. Logan, UT. September 2019.

Smith, B.J., Selby, T.H., Pollock, C., Hillis-Starr, Z., & Hart, K.M. "Optimizing monitoring: Analyzing three decades of saturation tagging to make decisions about mark-recapture effort" International Sea Turtle Symposium. Oral Presentation. Charleston, SC. February 2019.

Smith, B.J., Hart, K.M., Demopoulos, A.W.J., & Romagosa, C.M. "Stable Isotopes Reveal Niche Plasticity of Invasive Burmese Pythons" Ecological Society of America Annual Meeting. Oral Presentation. New Orleans, LA. August 2018.

Smith, B.J. "Pythons and Beyond: Invasive Herps in Florida" The Everglades Foundation's Everglades Teacher Symposium. Oral Presentation. Davie, FL. July 2018.

Smith, B.J. & Hart, K.M. "Pythons in Space: Spatial Ecology of Burmese Pythons in Everglades National Park and Beyond" South Florida Natural Resources Center Seminar. Oral Presentation. Homestead, FL. May 2018.

Smith, B.J. "Burmese Pythons: The Problem and the Science" Zoo Miami Seminar Series. Oral Presentation. Miami, FL. December 2017.

*Quintiliani, M., **Smith, B.J.**, Romagosa, C.M., Carthy, R., Bishop, N. "Effects of Man-made Oyster Reefs on Sediment Composition in Estuaries." Ecological Society of America Annual Meeting. Poster Presentation. Fort Lauderdale, FL. August 2016.

*Brisbane, J., *Pedrozo, C., Romagosa, C.M., Bishop, N., Carthy, R., **Smith, B.J.** "Environmental Factors Influencing the Detection of Frog Species in Three Habitat Types of Everglades National Park." Ecological Society of America Annual Meeting. Poster Presentation. Fort Lauderdale, FL. August 2016.

*Pedrozo, C., *Brisbane, J., Romagosa, C.M., Bishop, N., Carthy, R., **Smith, B.J.** "Predicting Patterns of Native Snake Occurrence along Main Park Road in Everglades National Park, Florida." Ecological Society of America Annual Meeting. Poster Presentation. Fort Lauderdale, FL. August 2016.

*Ely, M., Romagosa, C.M., **Smith, B.J.**, Carthy, R., Bishop, N. "Monitoring Changes in Sea Turtle Nesting Beaches in St. Johns County, Florida." Ecological Society of America Annual Meeting. Poster Presentation. Fort Lauderdale, FL. August 2016.

*Siddiqui, S., **Smith, B.J.**, Romagosa, C.M., Carthy, R., Bishop, N. "Nutrient Influxes from *Caretta caretta* (Loggerhead Sea Turtle) Nesting." Ecological Society of America Annual Meeting. Poster Presentation. Fort Lauderdale, FL. August 2016.

Smith, B.J., Romagosa, C.M., Mazzotti, F.J., Basille, M., Hart, K.M. "Does GPS Technology Help Refine Our Understanding of Invasive Burmese Python Spatial Ecology?" Ecological Society of America Annual Meeting. Oral Presentation. Fort Lauderdale, FL. August 2016.

Smith, B.J., Romagosa, C.M., Mazzotti, F.J., Basille, M., Hart, K.M. "Does GPS Technology Help Refine Our Understanding of Invasive Burmese Python Spatial Ecology?" Joint Meeting of Ichthyologists and Herpetologists. Oral Presentation. New Orleans, LA. July 2016.

Hart, K.M. and **Smith, B.J.** "Python Research." Aquatic Nuisance Species Task Force Meeting. Oral Presentation. Fort Lauderdale, FL. May 2015.

Smith, B.J., Hart, K.M., Cherkiss, M.S., Selby, T.H., Mazzotti, F.J., Rochford, M.R., Snow, R.W. "Betrayal: Judas Burmese Pythons Give Away Locations of Conspecifics in Everglades National Park." The 21st Annual Wildlife Society Conference. Oral Presentation. Pittsburgh, PA. October 2014.

Professional Memberships

The Wildlife Society
Ecological Society of America
Society for the Study of Amphibians and Reptiles

Journal Referee

Biological Invasions

Ecography

Ecological Applications

Herpetological Bulletin

Herpetological Review

Integrative Zoology

Journal of Animal Ecology

Journal of Applied Ecology

Journal of Environmental Management

Journal of Herpetology

Neobiota

Oecologia

Perspectives in Ecology and Conservation

Population Ecology

Scientific Reports

Southeastern Naturalist

The Journal of Wildlife Management Book Reviews

Axios Review

USGS Manuscript Internal Review Process
