

# Jessica L. Burnett

Computational Ecology | Macroecology | Regime Shifts

## Education

2019 *expected* Ph.D., Natural Resource Sciences and Applied Ecology, University of Nebraska-Lincoln  
2015 M.Sc., Wildlife Ecology and Conservation, University of Florida  
2013 B.Sc., Wildlife Ecology and Conservation, University of Florida  
2010 A.A., Valencia Community College

## Professional Appointments

2015- Graduate Research Assistant, University of Nebraska-Lincoln  
2013-15 Graduate Teaching and Research Assistant, University of Florida  
2013 Geospatial Analyst, Florida Fish and Wildlife Research Institute  
2011-13 Research Assistant, Sieving Lab of Avian Ecology and Conservation, University of Florida  
2011-13 Smithsonian Fellow, Neighborhood Nestwatch Crew Leader, Smithsonian Migratory Bird Center

## Peer-reviewed publications

1. **Burnett, J.L.**, K.L. Pope, A. Wong, C.R. Allen, D.M. Haak, B.J. Stephen, and D.R. Uden. 2018. Thermal tolerance limits of the invasive Chinese mysterysnail *Bellamya chinensis* and implications for management“. *American Malacological Bulletin* 36(1): 140-144 DOI:10.4003/006.036.0106
2. Donovan, V.M., **J.L. Burnett**, C.H. Bielski, H.E. Birge, R. Bevans, D. Twidwell, and C.R. Allen. (2018) Social-ecological landscape patterns predict woody encroachment from native tree plantings in a temperate grassland *Ecology and Evolution* 8(19): 9624-9632 DOI:10.1002/ece3.4340
3. La Sorte, F.A., C.A. Lepczyk, **J.L. Burnett**, A. Hurlbert, M. Tingley, and B. Zuckerberg. 2018. Opportunities and challenges for big data ornithology. *The Condor* 120(2): 414-426 DOI:0.1650/CONDOR-17-206.1
4. Roberts, C.P., D. Twidwell, **J.L. Burnett**, V.M. Donovan, C. Wonkka, C.H. Bielski, A.S. Garmestani, D.G. Angeler, T. Eason, B.W. Allred, M.O. Jones, D.E. Naugle, S. Sundstrom, C.R. Allen, (2018) Early warnings for state transitions. *Rangeland Ecology and Management* DOI:10.1016/j.rama.2018.04.012
5. Chuang, W.C., A.S. Garmestani, T. Eason, T.L. Spanbauer, H.B. Fried-Peterson, C. Roberts, S. Sundstrom, **J.L. Burnett**, D. G. Angeler, B. Chaffin, L. Gunderson, D. Twidwell, C.R. Allen. 2018. Enhancing quantitative approaches for assessing ecological and community resilience. *Journal of Environmental Management* 213: 353-362 DOI:10.1016/j.jenvman.2018.01.083
6. **Burnett, J.L.**, C.R. Allen, C.P. Roberts, M.Bomberger Brown, and M.P. Moulton. 2017. Eurasian Tree Sparrow (*Passer montanus*) range expansion in North America. *Biological Invasions* 19(1): 5-9 DOI:10.1007/s10530-016-1273-4
7. **Burnett, J.L.** and K.E. Sieving. 2016. Songbird distress call as a detection enhancement method and application to Red-shouldered Hawks (*Buteo lineatus*). *Florida Field Naturalist* 44(4):157-168
8. C.R. Allen, H.E. Birge, S.L. Bartlett-Hunt, R.A. Bevans, **J.L. Burnett**, B.A. Cosens, X. Cai, A.S. Garmestani, I. Linkov, E.A. Scott, M.D. Solomon, and D.R. Uden. 2016. Avoiding decline: Fostering resilience and sustainability in midsize cities. *Sustainability* 8(9):844-868 DOI:10.3390/su8090844

9. **Burnett, J.L.** and M.P. Moulton. 2015. Recent trends in House Sparrow (*Passer domesticus*) distribution and abundance in Gainesville, Alachua County, Florida. *Florida Field Naturalist* 43(4):167-172

## First-authored manuscripts under review

1. **Burnett, J.L.**, R. Wilcox, B. Stephen, D. Haak, D. Uden, C.R. Allen, and K. Pope. Shell strength does not limit predation of an invasive snail species (*Bellamya chinensis*) by native fish. *under review at Journal of Freshwater Ecology*

## First-authored manuscripts in preparation (available upon request)

1. **Burnett, J.L.**, N.B. Price, A.J. Tyre, T.J. Hefley, T. Eason, C.R. Allen, and D. Twidwell. A guide to Fisher Information for ecologists.
2. **Burnett, J.L.**, N.B. Price, C.R. Allen, B.D. Fath, E. Rovenskaya, D. Twidwell, A.J. Tyre, P. Zebrowski. Distance travelled: using Pythagorean's theorem to track ecosystem trajectory and abrupt change.
3. **Burnett, J.L.**, Z. Warren, M. Podebrovska, B. Dueker, K. Lamke, B. Seguin, D. Twidwell, and C.R. Allen. Sexual size dimorphism in mammalian communities of mediterranean Australian regions.
4. **Burnett, J.L.**, L. Wszola, N. Mirochnitchenko, E. Stuber, M. Bomberger Brown, C.R. Allen, D. Twidwell, and J. Carroll. Large-sacle crop patterns influence Gray Partridge (*Perdix perdix*) site occupancy in North America.

## Select Honors & Awards

2017-18	Fling Fellowship, University of Nebraska-Lincoln	<b>\$20,000</b>
2016-18	University of Nebraska Center for Great Plains Studies Graduate Fellow	
2016-	AAAS/Science Program for Excellence in Science Award 2016	2nd place, School of Natural Resources Elevator Speech Competition
2016-18	Resilience Alliance Young Scholar, The Resilience Alliance	<b>\$300</b>
2015-18	Othmer Fellowship, University of Nebraska-Lincoln	<b>\$24,000</b>

## Grants

### *for research*

2013	IFAS Extension Internship for Undergraduate Research, University of Florida	<b>\$2,200</b>
2013	Ordway-Swisher Biological Station Undergraduate Research, University of Florida	<b>\$550</b>

### *for travel*

2017	Nelson Memorial Fellowship, Univeristy of Nebraska-Lincoln	<b>\$695</b>
2017	Kellogg Biological Station, Michigan State University and Big Ten Academic Alliance	<b>\$500</b>
2016	Nelson Memorial Fellowship, Univeristy of Nebraska-Lincoln	<b>\$900</b>
2016	Center for Great Plains Studies, Univeristy of Nebraska-Lincoln	<b>\$750</b>
2016	American Ornithologists' Union	<b>\$250</b>
2015	NSF Diversity Award, Southeastern Ecology and Evolution Conference	<b>\$650</b>
2015	Department of Wildlife Ecology and Conservation, University of Florida	<b>\$250</b>
2015	Graduate Student Council, University of Florida	<b>\$350</b>

2015 Office of Research University of Florida **\$500**  
 2014 Department of Wildlife Ecology and Conservation, University of Florida **\$250**  
 2013 Office of the Dean, Institute of Food and Agricultural Sciences, University of Florida **\$750**

*for community outreach*

2015 Outdoor Education Program, Reichert House, Gainesville Police Department, FL **\$1,200**

**Recent Service**

*at the University of Nebraska-Lincoln*

2018- Natural Resources Diversity Initiative committee, University of Nebraska-Lincoln  
 2017 Key player in achieving institutional membership to the Association for Women in Science  
 2016- Student Representative, Faculty Advisory Committee, School of Natural Resources  
 2016- Student Representative, Digital Team, School of Natural Resources  
 2016 Organizer, Association for Women in Science Mentor Workshop  
 2016 Seminar Coordinator, School of Natural Resources  
 2015-16 Founder & President, Natural Resources Diversity Initiative student group  
 2015-16 Department Representative Representative, Graduate Student Association  
 2015 Founder, Affiliate Chapter of the Association for Women in Science

*to the profession*

2016 Contributor to founding documents, Committee for Inclusive Ecology Section, ESA  
 2016- Reviewer, Wilson Journal of Ornithology  
 2015-16 Liaison, Urban Ecosystem Ecology Section, ESA

**Grants & Fellowships Submitted (since 2016)**

1. Principal investigator and author. USGS Powell Center Synthesis Working Group , “Scale mismatches in ecological research and management: consequences and solutions through data management.” Co-PIs: Hao Ye, Craig R. Allen, George Sugihara. Submitted January 2018.
2. Young Scientists Summer Program, International Institute for Applied Systems Analysis. Submitted January 2018.
3. Mozilla Science Fellowship. 2016. Not awarded.

**Teaching Experience**

**Co-instructor** 2017

*Introduction to Applied Ecological Statistics, Kearney, NE*

- Week-long workshop for employees of the Nebraska Game and Parks Commission employees

**Instructor** 2017

*Introduction to Program R*

- Designed and taught a series of half-day workshops for graduate students
- Basics of data management and analysis using Program R

**Guest Lecturer** 2016

*Module: using citizen science data to understand ecological invasions; Course: Avian Invasions*

- Designed and taught series of lectures on citizen science data

#### Teaching Assistant

2015

*Wildlife Population Ecology, Department of Wildlife Ecology & Conservation, University of Florida*

- Lead quantitative laboratory sessions, grading

#### Teaching Assistant

2015

*Ecological Statistics (online-only course), Department of Wildlife Ecology & Conservation, University of Florida*

- Lead and moderate discussions, grading

#### Guest Lecturer

2013

*Wetland birds module, Florida Master Naturalist*

- Designed and taught lecture on wetland bird identification and ecology

### Agency Reports

1. **Burnett, J.L.**, Roberts, C.P., Allen, C.R., Angeler, D.G., Twidwell, D. 2017. White Paper: Regime Shift Detection Using Fisher Information. Strategic Environmental Research and Development Program (SERDP), Department of Defense.
2. Allen, C.R., Angeler, D.G., Twidwell, D., **Burnett, J.L.**, Roberts, C.P. 2017. Interim Report (RC 25-10): Global Change, Vulnerability, and Resilience: Management Options for an Uncertain Future. Strategic Environmental Research and Development Program (SERDP), Department of Defense.
3. Twidwell D., Bielski, C.H., **Burnett, J.L.**, Donovan, V.M., Wonkka, C.L. 2017. Review of LANDFIRE Biophysical Settings Models (BpS) in the Great Plains. LANDFIRE Project.

### Presentations

1. **Burnett, J.L.**, N.B. Price, A.J. Tyre, T.J. Hefley, C.R. Allen, T. A. Eason, D.G. Angeler, and D. Twidwell. System trajectory and Fisher information as early-warning indicators of ecological regime shifts. *Resilience 2017: Resilience Frontiers for Global Sustainability*, Poster presentation. Stockholm, Sweden, 2017
2. **Burnett, J.L.**, N.B. Price, A.J. Tyre, T.J. Hefley, C.R. Allen, T. A. Eason, D.G. Angeler, and D. Twidwell. System trajectory and Fisher information as early-warning indicators of ecological regime shifts. *Ecological Society of America*, Poster presentation. Portland, OR, 2017
3. **Burnett, J.L.**, Roberts, C.P., Allen, C.R., Angeler, D.G., Twidwell, D., and Tyre, A.J. Ecological Regime Shifts in the Central Great Plains. *Great Plains Symposium*, Oral presentation. Nebraska Innovation Campus, Lincoln, NE, 2017.
4. **Burnett, J.L.**, Roberts, C.P., Allen, C.R., Angeler, D.G., Twidwell, D., and Tyre, A.J. Using Big Data to Detect Regime Shifts in Space and Time. *North American Ornithological Conference VI*, Poster presentation. Smithsonian Migratory Bird Institute, Washington, D.C., 2016
5. **Burnett, J.L.**, Moulton, M. P., Sieving, K.E., Avery, M., and Robinson, S.K. Are House Sparrow declines a byproduct of urban greening? Southeastern Ecology and Evolution Conference, Oral presentation. University of Georgia, Athens, GA, 2015
6. **Burnett, J.L.**, Moulton, M. P., Sieving, K.E., Avery, M.L., and Robinson, S.K. Are House Sparrow declines a byproduct of urban greening? *American Ornithologists' Union and Cooper Ornithological Society Annual Meeting*, Poster presentation. Norman, OK, 2015.

7. **Burnett, J.L.**, Moulton, M.P., and Sieving, K.E. House sparrow: the decline of a once ubiquitous, invasive species. *Florida Chapter of The Wildlife Society Annual Conference*, Poster presentation. Safety Harbor, FL, 2014.
8. **Burnett, J.L.** and Sieving, K.E. Detecting birds of prey using tufted titmouse distress calls. *USGS Florida Cooperative Fish and Wildlife Research Unit Committee Meeting*, Poster presentation. Gainesville, FL, 2013.
9. **Burnett, J.L.** and Sieving, K.E. Do actual and perceived risks of small forest birds align? *Florida Ornithological Society Conference, Oral presentation*, St. Petersburg, FL, 2013.
10. **Burnett, J.L.** and Sieving, K.E. Perceived predation risks of small forest birds. *Association of Field Ornithologists Annual Conference*, Poster presentation. Venus, FL, 2013.

## Invited Talks

1. Invited talk. Decline of the Once-Ubiquitous House Sparrow in North America. *Nebraska Invasive Species Council*, Lincoln, N.E., 2015.
2. Guest lecture. *Using Citizen Science Data in Avian Invasion Ecology*, in undergraduate course, *Ecology of Avian Invasions*, 2013. Interactive discussion and lecture on finding and utilizing open-sourced data online to understand the dynamics and ecology of avian invasions.

## Grants

### *for research*

- |      |   |                |
|------|---|----------------|
| 2013 | IFAS Extension Internship for Undergraduate Research, University of Florida     | <b>\$2,200</b> |
| 2013 | Ordway-Swisher Biological Station Undergraduate Research, University of Florida | <b>\$550</b>   |

### *for travel*

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|------|--|--------------|
| 2017 | Nelson Memorial Fellowship, University of Nebraska-Lincoln                             | <b>\$695</b> |
| 2017 | Kellogg Biological Station, Michigan State University and Big Ten Academic Alliance    | <b>\$500</b> |
| 2016 | Nelson Memorial Fellowship, University of Nebraska-Lincoln                             | <b>\$900</b> |
| 2016 | Center for Great Plains Studies, University of Nebraska-Lincoln                        | <b>\$750</b> |
| 2016 | American Ornithologists' Union   | <b>\$250</b> |
| 2015 | NSF Diversity Award, Southeastern Ecology and Evolution Conference                     | <b>\$650</b> |
| 2015 | Department of Wildlife Ecology and Conservation, University of Florida                 | <b>\$250</b> |
| 2015 | Graduate Student Council, University of Florida  | <b>\$350</b> |
| 2015 | Office of Research University of Florida   | <b>\$500</b> |
| 2014 | Department of Wildlife Ecology and Conservation, University of Florida                 | <b>\$250</b> |
| 2013 | Office of the Dean, Institute of Food and Agricultural Sciences, University of Florida | <b>\$750</b> |

### *for membership*

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|------|---|
| 2013 | American Ornithologists' Union Undergraduate Student Membership Award |
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## Honors & Awards

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|---------|--|-----------------|
| 2017-18 | Fling Fellowship, University of Nebraska-Lincoln                       | <b>\$20,000</b> |
| 2017-18 | Big Ten Academic Alliance Traveling Scholar                            |                 |
| 2016-18 | University of Nebraska Center for Great Plains Studies Graduate Fellow |                 |
| 2016-   | AAAS/Science Program for Excellence in Science Award                   |                 |

2016	2nd place, School of Natural Resources Elevator Speech Competition	<b>\$300</b>
2015-	Resilience Alliance Young Scholar	
2015-18	Othmer Fellowship, University of Nebraska-Lincoln	<b>\$24,000</b>

## Outreach

### Blog Posts (links active)

#### *for envirobites*

- Connecting to nature and understanding ecosystem services: the urban perspective

#### *for the Resilience Alliance*

- Big data, big problems
- Panarchy in the Anthropocene
- Regime shifts, traps and how to deal with them
- Connecting to nature and understanding ecosystem services: the urban perspective
- Leadership resilience and your workplace

### Radio/podcasts

- Interviewee, House Sparrow declines, Urban Wildlife Podcast

## Relevant Skills

### Quantitative ecological methods

- Time series analysis
- Information theory
- Structural equation modeling
- Occupancy analyses
- Model based inference

### Statistical program proficiencies

- Program R (advanced)
- SAS (novice)
- MatLab (novice)

### Other

- Local and remote research and writing collaborations
- Field and laboratory experimental design
- Data management

## Service

### *at the University of Nebraska-Lincoln*

2018	Student representative, Natural Resources Diversity Initiative committee, School of Natural Resources, University of Nebraska-Lincoln
2017	Key player in achieving institutional membership to the Association for Women in Science
2016-	Student Representative, Faculty Advisory Committee, School of Natural Resources
2016-	Student Representative, Digital Team, School of Natural Resources
2016	Organizer, Association for Women in Science Mentor Workshop
2016	Seminar Coordinator, School of Natural Resources
2015-16	Founder & President, Natural Resources Diversity Initiative student group
2015-16	Department Representative Representative, Graduate Student Association
2015	Founder, Affiliate Chapter of the Association for Women in Science

### *to the profession*

2015-16	Student liaison, Urban Ecosystem Ecology Section, Ecological Society of America
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## Peer-reviews conducted

Ecological Modelling (2) Wilson Journal of Ornithology (3)