

# JONI DOWNS FIRAT

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## I. EDUCATION

- 2008            Ph.D. Geography, Florida State University  
                  Dissertation: Network analysis of fish and wildlife space-use patterns
- 2004            M.S. Natural Resources, The Ohio State University  
                  Thesis: Population status and habitat utilization of breeding greater sandhill cranes in Ohio
- 2001            B.S. Natural Resources (Honors), The Ohio State University  
                  Thesis: Vertical migration of the freshwater mussel *Pyganodon grandis grandis* during late summer and autumn

## II. PROFESSIONAL APPOINTMENTS

- 2016—            Associate Chair, School of Geosciences, University of South Florida
- 2013—            Associate Professor, School of Geosciences, University of South Florida
- 2008—2013      Assistant Professor, Department of Geography, University of South Florida
- 2004—2008      Teaching Assistant, Geography, Florida State University
- 2001—2004      Research Associate, Terrestrial Wildlife Ecology Laboratory, The Ohio State University

## III. RESEARCH

### A. Interests

My research aims to develop new methods of spatial analysis and modelling that can be broadly applied within GIScience and related fields. Specific statistical and mathematical approaches of interest include: computational movement analysis, agent-based modelling, spatial optimization, and point pattern analysis. Application areas of interest encompass a variety of topics, including wildlife ecology, public health and safety, crime science, and transportation. I am also interested in geovisualization, particularly in how it facilitates spatial analysis and modelling.

### B. Grants and Awards

#### External Grants

### **Internal Grants**

- [3] Research & Development Grant, 2012, USF College of Arts & Sciences (\$4500).
- [2] Faculty International Travel Grant, 2010, USF Division of Sponsored Research (\$2500).
- [1] New Researcher Grant, 2009, USF Division of Sponsored Research (\$7691).

### **Awards**

- [3] Best Full Paper, 2010, 6th International Conference on Geographic Information Science.
- [2] Dewey Stowers Research Award, 2009, USF Department of Geography (1 course release).
- [1] Best Paper, 2007, Ph.D. Honors Competition, SouthEastern Division of the Association of American Geographers Annual Meeting, Charleston, SC (\$1000)

### **C. Refereed Journal Articles and Book Chapters**

- [39] Rebecca Loraamm, Joni Downs, Robert Alonso Bair, and Daniel Yeh. 2017. Towards food service sustainability in suburban environments by optimally locating shared anaerobic digester units. **Suburban Sustainability** 5 (1): 2.
- [38] Joni Downs

- [29] Kelsey Roberts, Jennifer Collins, Charles Paxton, Robert Hardy, and Joni Downs. 2014. Weather patterns associated with green turtle hypothermic stunning events in St. Joseph Bay and Mosquito Lagoon, Florida. **Physical Geography** 35:134-150.
- [28] Patrick T. Vander Kelen, Joni Downs, Thomas R. Unnasch, and Lillian M. Stark. 2014. A risk index model for predicting eastern equine encephalitis virus transmission to horses in Florida. **Applied Geography** 48: 79-86.
- [27] Joni Downs, Mark W. Horner, Garrett Hyzer, David Lamb, and Rebecca W. Loraamm. 2014. Voxel-based probabilistic space-time prisms for analysing animal movements and habitat use. **International Journal of Geographical Information Science** 28: 875-890.
- [26] Mark W. Horner and Joni Downs. 2014. Integrating people and place: A density-based measure for assessing accessibility to opportunities. **Journal of Transportation and Land Use** 7: 23-40.
- [25] Joni Downs, Mark W. Horner, James H. Anderson, Rebecca W. Loraamm, Hyun Kim, and Dave Onorato. 2014. Strategically locating wildlife crossing structures for florida panthers using maximal covering approaches. **Transactions in GIS** 18: 46-65.
- [24] Jonathon K. Parker and Joni Downs. 2013. Footprint generation using fuzzy-neighborhood clustering. **GeoInformatica** 17: 285-299.
- [23] Patrick T. Vander Kelen, Joni Downs, Lillian M. Stark, Rebecca W. Loraamm, James H. Anderson and Thomas R. Unnasch. 2012. Spatial epidemiology of eastern equine encephalitis in Florida. **International Journal of Health Geographics** 11: 47.
- [22] Mark W. Horner, Brandon Zook, and Joni Downs. 2012. Where woer

- [15] Joni Downs and Mark W. Horner. 2012. Enhancing habitat connectivity in fragmented landscapes: spatial modelling of wildlife crossing structures in transportation networks. **Annals of the Association of American Geographers** 102: 17-34.
- [14] Joni Downs, Mark W. Horner, and Anton D. Tucker. 2011. Time-geographic density estimation for home range analysis. **Annals of GIS**, 17: 163-

#### D. Refereed Conference Proceedings

- [14] Joni Downs, David Lamb, Garrett Hyzer, Rebecca W. Loraamm., Zachary J. Smith, and Blaire O'Neal. 2014. A Time-Geographic Framework for Computing Spatio-Temporal Interaction Probabilities. Proceedings, GIScience 2014, Vienna, Austria.
- [13] Joni Downs, Mark W. Horner, James Anderson, Rebecca Loraamm, Hyun Kim, and Dave Onorato. 2014. GIS Models for Strategically Locating Wildlife Crossing Structures in Road Networks. Transportation Research Board 2014 Annual Meeting.
- [12] Mark W. Horner and Joni Downs. 2012. A density based accessibility measure for mobile objects. Proceedings, GIScience 2012, Columbus, Ohio.
- [11] Joni Downs, Mark W. Horner, and Garrett Hyzer. 2012. Incorporating uncertainty into time-geographic density estimates. Proceedings, GIScience 2012, Columbus, Ohio. 1.8c3as
- [10] Joni Downs and Mark W. Horner. 2011. An adaptive-velocity time-geographic density estimator. Proceedings of the 11th International Conference on GeoComputation, London, UK.
- [9] Mark W. Horner and Joni Downs. 2011. Where were you? A time-geographic approach to activity destination re-construction. Proceedings of the 11th International Conference on GeoComputation, London, UK.
- [8] James D. Downs, Roger A. Williams, and Joni Downs. 2010. The effects of shelterwood harvesting on oak regeneration one and two years after harvest in southern Ohio. Proceedings of the 17th Central Hardwoods Forest Conference, Lexington, Kea58(o)H(o)-0.7(c)-3.6(2)E(3)(y).B5127(t)z4.18,0BefCom(133)6

## **E. Other Papers Presented at Professional Meetings**

[16] Joni Downs. 2014. Spatial uncertainty in animal tracking data: are we throwing away useful

[1] Joni Downs and Robert J. Gates. 2003. Population status and habitat use by breeding greater Sandhill cranes in Ohio. Ohio Avian Ecology and Conservation Conference, Columbus, Ohio.

David Lamb, Ph.D. (Chair) Geography & Environmental Science and Policy, 2017.  
Stephanie Powers, Ph.D. (Chair) Geography & Environmental Science and Policy, 2017.  
Rebecca Loraamm, Ph.D. (Chair) Geog



### Non-Thesis Examining Committees

Meagan Endozo, M.S. (Chair) Environmental Science and Policy, 2017.

Jared Thompson (Chair) M.S. Environmental Science and Policy, 2014.

David Eilers (Chair) M.S. Environmental Science and Policy, 2014.

Lance Knowlton (Chair) M.A. Geography, 2014.

Faye Bronson (Chair) M.A. Geography, 2014.

Juanita Ferrer (Chair) M.S. Environmental Science and Policy, 2014.

Kevin Hug (Chair) M.A. Geography, 2014.

Amanda Harvey (Chair) M.S. Environmental Science and Policy, 2014.

Elizabeth Ciesla (Chair) M.S. Environmental Science and Policy, 2014.

Cuthbert Hutton (Chair) M.S. Environmental Science and Policy, 2014.

Jessica Bullock (Chair) M.S. Environmental Science and Policy, 2014.

Todd Bogner, M.S. Environmental Science and Policy, 2013.

Christopher Cochran, S

#### **D. Service to Discipline**

Organizing Committee, NSF Advancing Mobility Analytics Workshops, Austin, TX, and Columbus, OH (2016—2017).

Program Committee, GIScience Workshop on Analysis of Movement Data, Montreal, Canada (2016).

Board Member, Spatial Modeling and Analysis Specialty of the AAG (2009—2010; 2011—2014)

Program Committee, SouthEastern Division of the Association of American Geographers (2009—2010)

Reviewer for Refereed Journals: Disasters; Spatial Networks & Econometrics; Journal of Field Ornithology; Southeastern Geographer; International Journal of Geographic Information Science; Computers, Environment, and Urban Systems; Internat( ) 10.5(S)-4(p) 1.7(e) 1.6[417 0.9(ap) 56(c)]Trurap(