

# Jonah M. Duckles

1833 Summit Drive  
West Lafayette, IN 47906  
**Email:** jonahd@gmail.com  
**Phone:** (765) 532-1126

---

## PROFILE

---

- Geospatial scientist with expertise in the development of data-driven decision support systems.
  - Long-term strategic planning consultant with planning experience in higher-education, government, defense and industry.
  - Technologist and entrepreneur with a passion for applying scientific tools to address real-world problems.
- 

## EDUCATION

---

- **M.S., Purdue University**, West Lafayette, Indiana., **Expected Spring 2008.**
  - **B.S. Physics, Purdue University**, West Lafayette, Indiana. **May 2001.**
  - July 1999 to July 2000 in Sydney, Australia on study abroad at The University of New South Wales.
- 

## EXPERIENCE

---

### **Purdue University, Forestry and Natural Resources**

West Lafayette, IN

*Graduate Research Assistant*

*Aug. 2005 to Present*

Perform research developing spatially-explicit ecological models projecting future land use change scenarios, and their subsequent impacts at local and regional scale. Projections are subsequently coupled to ecological response models in the domains of: surface and groundwater hydrology; habitat; and vegetation. Ecological response models are used to develop a decision support system quantifying the ecological implications of projected land use changes. This research draws heavily on landscape ecology, advanced GIS, remote sensing, exploratory data analysis and programming.

### **Purdue University, Office of the VP for IT**

West Lafayette, IN

*Technology Analyst*

*Jul. 2004 to Aug. 2005*

Worked to: develop high-level metrics and data-driven reports for use in operations and planning; managed and pursued grants; helped groups to communicate technology projects to diverse audiences while assisting with project oversight for start-up projects.

### **International Technology Strategy Partners**

Lafayette, IN

*Owner/Partner*

*Nov. 2002 to Present*

Developed ITSP as a consulting partnership which seeks to implement pervasive cultures of strategic technology planning by using the techniques of Technology Roadmapping (TRM). Delivered strategic planning services assisting organizations in several industries to adapt and thrive in constantly changing technology environments.

### **Purdue University, Center for Technology Roadmapping**

West Lafayette, IN

*Center Coordinator*

*May 2001 to Dec. 2006*

Managed all center activities, acting at various times as: industrial partnership coordinator, presentation developer, training material developer, trainer, roadmapping consultant, grant writer and system administrator.

### **Purdue University, Office of the Provost**

West Lafayette, IN

*Roadmapping Consultant*

*Apr. 2003 to Aug. 2005*

Served as internal consultant for deans who were interested in the techniques of Technology Roadmapping. Assisted in grant development, serving to coherently communicate large and complex proposals through technology roadmaps.

---

## AWARDS AND GRANTS

---

- Winner of Purdue University College of Agriculture's, D. Woods Thomas Memorial Award to Support International Studies, to be used to support land use change research work in the country of Moldova, March 2006.
- Co-Principle Investigator on a grant from the Purdue University e-Enterprise Center for the creation of educational modules on the topics of science and technology policy and planning.

---

## PUBLICATIONS

---

- **Using backcast land-use change and groundwater travel-time models to generate land-use legacy maps for watershed management.** Pijanowski, B., D. K. Ray, A. D. Kendall, J. M. Duckles, and D. W. Hyndman. 2007. *Ecology and Society* 12(2): 25.
- **Purdue Center for Technology Roadmapping: A Resource for Research and Education in Technology Roadmapping,** Proceedings of the IEEE IEMC-2002, Cambridge, England, August 18-20, 2002.

---

## TECHNCAL SKILLS

---

### Administrator Knowledge

Windows 2000/2003/XP  
Linux (Ubuntu, Debian)  
Mac OS X  
Open & FreeBSD  
MS-SQL/ MySQL/Oracle  
/ MS-Access  
Apache/IIS

### Major Software

Microsoft Office  
ArcGIS/SDE/Server  
Erdas Imagine/ENVI  
R, SPlus, SAS, SPSS  
LaTeX

### Programming

Python  
PHP  
C/C++  
Visual Basic  
Java  
HTML

---

## CONFERENCE ORAL SESSIONS

---

- **“Coupled model ensembles to assist land-use decision making at the regional and local level “,** Jonah M. Duckles and Brian C. Pijanowski, 5<sup>th</sup> International Conference on Ecological Informatics, December 4-6, 2006, Santa Barbara, CA, USA.

---

## PROJECTS

---

- **“Carbon Neutrality at Purdue”**, Group project by 30 students detailing the carbon footprint of Purdue University. June 2007.
- **“River Vision: Community Forum on the Future of the Wabash River Corridor in Tippecanoe County, Indiana”** Group project by 11 students, organizing and facilitating a community input session regarding the future of the Wabash River in Tippecanoe County, Indiana. November 2006.

---

## SERVICE

---

- Treasurer, Department of Forestry and Natural Resources Graduate Student Council August 2006-May 2007.
- Founder, Department of Forestry and Natural Resources Scientific Computing Lunch. September 2007.

---

## LANGUAGE

---

Proficient in Spanish.

---

## INVITED TALKS

---

- **“Developing Shared Visions of the Future,”** Invited lecture to R&D staff at Dow Agrosciences, Indianapolis, IN. October 14, 2004.
- **“Technology Roadmapping Past and Present,”** Course for Japanese masters students in the Management of Technology (MOT) Program at JAIST (Japan Advanced Institute of Science and Technology), Tokyo, Japan, January 19-24, 2003.
- **“Technology Roadmapping: New Tools and Processes for Adapting to and Exploiting Rapidly Changing Technology”**, Conference Paper, Harnessing the Power of Technology for the Warfighter: ASNE Southern Indiana Section, Bloomington, IN, September 16-18, 2003.
- **“A Resource for Research and Education in Technology Roadmapping,”** Conference Paper, SSGRR, L'Aquila, Italy, July 30, 2002.
- **“Technology Roadmapping: An Overview of Research,”** Distinguished Lecture Series, Naval Surface Warfare Center, Crane, IN, July 25, 2002.
- **“Using Bayesian Networks to Assist in Decision Making with Roadmaps,”** Talk at The Learning Trust's Innovation Roadmapping Workshop, Las Vegas, NV, April 25, 2002.
- **“Purdue Center for Technology Roadmapping,”** Invited SHARE Session Talk, Lockheed Martin Aeronautics Company, Ft. Worth, TX, April 18, 2002.

## Graduate Coursework

### Fall 2005

- **FNR 558 GIS and Remote Sensing (3cr)** - This course covered the fundamentals of remote sensing sensors and analyzing raw data from them. Topics and laboratory work in ERDAS Imagine included geometric correction, principal components analysis, georeferencing, supervised and unsupervised classification and many others.
- **FNR 598M Ecological Modeling (2cr)** - In this course we explored the fundamentals of ecological modeling and implemented many of the models in Visual Basic .NET. Models such as lotka-volterra, diffusion, and cellular automata were introduced in lectures and then coded in VB.

### Spring 2006

- **FNR 598 Landscape Ecology (3cr)** - This course covered the basics of Landscape Ecology and how to use GIS to explore many aspects of Landscape Ecology (LE). It provided an introduction to the key concepts in the area of LE and an opportunity to use many of the tools used in LE, such as: FragStats, QRule, and LTM.
- **STAT 695 Data Visualization (3cr)** - This course was taught by Prof. William S. Cleveland well known in data visualization for his lattice/trellis framework for exploring data. The course covered many interesting topics in using data visualization to show facets of the data that aren't readily apparent from statistical tests and data reduction techniques. Performed a course project on Breeding Bird Survey data where data visualization made apparent a data anomaly where some duplication of data was seen.

### Fall 2006

- **FNR 598 Community Involvement in Natural Resource Planning (3cr)** - This course involved reading about how to run a successful community involvement session related to natural resource planning. We undertook all of the planning and logistical coordination of an event called "Wabash River Vision" where we solicited input from the community as to their views on how development of the river corridor should progress. This was followed by the compilation of a report of their outputs to be shared back to the community. Later, conflict resolution and negotiation roleplays were engaged in.
- **ECET 581 Wireless Sensor Networks (3cr)** - This course provided a broad introduction to concepts in wireless sensor networks and their applications to scientific problems. Surveys were made of current papers and conference proceedings exploring the techniques of addressing limited power on sensor devices and other various aspects of these systems. A semester project exploring the possibilities for applying wireless sensor networks to ecological acoustic monitoring problems was also explored.
- **STAT 695 Learning From Data (3cr)** - This course provided an overview of data learning techniques, focusing much of the time on frequency domain time series analysis and autoregressive models. A class project related to classification problems in ecological acoustics was undertaken.

### Spring 2007

- **AGRY 598F Carbon Neutrality at Purdue (3cr)** - In this course the class developed a Carbon Neutrality plan for the Purdue University West Lafayette campus. This carbon footprint was presented to the Purdue community for review in report form.
- **FNR 598 Habitat Modeling (3cr)** - In this independent study course I reviewed animal movement papers each week while developing a GIS-based spatially explicit habitat suitability for use in investigating the impact of land use change on animal habitat.

### Summer 2007

- **Advanced topics in Hydrology and GIS (3cr)** - Independent study course studying hydrological modeling methods and applications in the Muskegon River Watershed area of Michigan.
- **GIS Servers (3cr)** - Investigated the state of the art in GIS Server technology. Installed and deployed an ArcGIS Server 9.2 system, while exploring open source alternatives such as GeoServer.

## References

Nancy Bulger  
Assistant Provost  
Purdue University  
West Lafayette, IN 47907  
+1(765)494-7929  
bulger@purdue.edu

Bryan Pijanowski  
Associate Professor  
Forestry and Natural Resources  
Purdue University  
West Lafayette, IN 47907  
+1(765)496-2215  
bpijanow@purdue.edu

Ed Coyle  
Professor  
Electrical and Computer Engineering  
Purdue University  
West Lafayette, IN 47907  
+1(765)494-3470  
coyle@purdue.edu