

# Peter J. Mahoney, Ph.D.

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## Education

**Doctor of Philosophy**, Ecology, May 2017

*Utah State University*, Logan, UT

Department of Wildland Resources and the Ecology Center      **GPA – 4.0**

Dissertation: *Spatial ecology of coyotes and cougars: Understanding the influence of multiple prey on the spatial interactions of two predators*

**Master of Science**, Wildlife Sciences, May 2011

*Auburn University*, Auburn, AL

School of Forestry and Wildlife Sciences      **GPA – 4.0**

Thesis: *The role of behavior in predicting red wolf (*Canis rufus*) persistence potential: an individual-based modeling approach*

**Bachelors of Science**, Biology, May 2001

*New College of Florida*, Sarasota, FL

Division of Natural Sciences      **GPA – 4.0 (equivalent)**

Thesis: *The cytoarchitecture of the telencephalon of a cichlid fish, *Cichlasoma cyanoguttatum**

## Peer-reviewed Publications (7)

**Mahoney, P.J.** and J.K. Young. 2017. Uncovering behavioral states by integrating site fidelity and activity. *Methods in Ecology and Evolution* 8:174-183.

Benson, J.F., **P.J. Mahoney**, J.A. Sikich, L.E.K. Serieys, J.P. Pollinger, H.B. Ernest, and S.P.D. Riley. 2016. Interactions between demography, genetics, and landscape connectivity increase extinction probability for a small population of large carnivores in a major metropolitan area. *Proceedings of the Royal Society of London B* 283:20160957.

Tingley, R., **P.J. Mahoney**, K.H. Beard, A.M. Durso, *et al.* 2016. Extinction and invasion success in reptiles, are they two sides of the same coin? *Global Ecology and Biogeography*.

Benson, J.F., **P.J. Mahoney**, and B. Patterson. 2015. Spatiotemporal variation in selection of roads influences mortality risk for canids in an unprotected landscape. *Oikos* 124:1664-1673.

**Mahoney, P.J.**, K.H. Beard, A.M. Durso, *et al.* 2014. Introduction effort, climate matching and species traits as predictors of global establishment success in non-native reptiles. *Diversity and Distribution* 21:64-74.

Benson, J.F., B. Patterson, and **P.J. Mahoney**. 2014. A protected area influences genotype-specific survival and the structure of a *Canis* hybrid zone. *Ecology* 95:254-264.

**Mahoney, P.J.**, K.D. Meyer, G.M. Zimmerman, and C.E. Cattau. 2010. An aquatic Bal-Chatri for trapping Snail Kites (*Rostrhamus sociabilis*). *Southeastern Naturalist* 9:721-730.

### **Manuscripts in Review**

**Mahoney, P.J.**, G. Liston, S. LaPoint, E. Gurarie, B. Mangipane, A.G. Wells, T. Brinkman, J.U.H. Eitel, M. Hebblewhite, A.W. Nolin, N. Boelman, and L.R. Prugh. *In review*. Navigating snowscapes: scale-dependent responses of mountain sheep to snowpack properties. *Ecological Applications*.

**Mahoney, P.J.**, J.K. Young, D. Stoner, K. Hersey, R.T. Larsen, and B.R. McMillan. *In review*. Spatial processes decouple management from objectives in a heterogeneous landscape: predator control as a case study. *Ecological Applications*.

**Mahoney, P.J.**, D. Stoner, and J.K. Young. *In review*. Risk vs. reward: intraguild killing and dynamic prey resources influence space use of a subordinate predator. *Ecology*.

### **Manuscripts in Preparation**

**Mahoney, P.J.**, D. Stoner, D. Schaible, and J.K. Young. *In prep*. Functional responses in cougar (*Puma concolor*) space use in relation to human hunting pressure. (Drafted, submission ready)

Young, J.K. and **P.J. Mahoney**. *In prep*. Behavioural responses of a subordinate canid to carrion subsidies at felid caches: an experimental approach. *Behavioural Ecology*. (Modeling complete, writing started)

Benson, J.F., **P.J. Mahoney**, *et al.* *In prep*. Viability and inbreeding dynamics of two small puma populations isolated by Urbanization. (Modeling complete, writing started)

Breck, S.W., S. Poessel, **P.J. Mahoney**, and J.K. Young. *In prep*. Dynamic behavioral responses in coyotes (*Canis latrans*) to novel objects along an urban-rural gradient. (Drafted)

Kleuver, B, **P.J. Mahoney**, S.J. Dempsey, and E.M. Gese. *In prep*. The influence of dynamic water sources on coyote (*Canis latrans*) space use in desert environments. (Modeling complete)

### **Miscellaneous Publications**

Murray, D.L., T.D. Steury, and **P.J. Mahoney**. 2012. Viability of the reintroduced red wolf population in North Carolina. Final Report, U.S. Fish and Wildlife Service.

**Mahoney, P.J.**, T.D. Steury, and D. Murray. 2011. The role of behavior in predicting red wolf (*Canis rufus*) persistence potential: an individual-based modeling approach. Auburn University, Master's Thesis.

**Mahoney, P.J.**, T.D. Steury, and D. Murray. 2011. Predictive accuracy in population viability models: the red wolf as a model system. Auburn University, Master's Thesis.

A plate in: Demski, L.S. 2003. In the Fish's Mind's Eye: The Visual Pallium of Teleosts. In: Sensory Processing in Aquatic Environments (Collin, S.P. and Marshall, N.J., eds.), pp. 404 – 419, Springer-Verlag.

**Peter J. Mahoney, C.V.**

**Mahoney, P.** 2001. The cytoarchitecture of the telencephalon of a cichlid fish: *Cichlasoma cyanoguttatum*. New College of Florida, Undergraduate Thesis.

## **Teaching Experience**

### **Workshop Instructor**

- “Assessing resource utilization in program R: from machine learning to multi-level Bayesian GLMs”, Peter Mahoney and Michel Kohl, USU Workshop, Spring 2016
- “Known-fate modeling”, Peter Mahoney and John Benson, TWS - Colorado Chapter, February 2016
- “Intro to Rstan: the basics of Bayesian programming in R”, Peter Mahoney, USU Ecolunch, December 2015
- “Known-fate modeling”, Peter Mahoney and John Benson, National TWS, October 2015
- “AIC model selection and multimodal inference”, Peter Mahoney, USU Workshop, Spring 2013

### **Guest Lecturer / Teaching Assistant**

Jan. 2017 – Present *University of Washington* Seattle, WA

- “Spatial ecology of coyotes and cougars: Understanding the influence of multiple prey on the spatial interactions of two predators”, *Guest Lecturer* for Dr. Laura Prugh, Spring 2016.
- “Invasion ecology”, *Guest Lecturer* for Dr. Laura Prugh, Fall 2017

### **Guest Lecturer / Teaching Assistant**

Sept. 2011 – Dec. 2016 *Utah State University* Logan, UT

- “Evaluating avian movement and home range utilization”, *USU Guest Lecturer* for Dr. Frank Howe, Spring 2016.
- “Program MARK”, *Teaching Assistant* for Dr. Mary Conner, Spring 2015
- “Species diversity and abundance”, *USU Guest Lecturer* for Dr. Dustin Ranglack, Spring 2015
- “Dynamics of predator-prey systems”, *SUU Guest Lecturer* for Dr. Nicki Frey, Spring 2014
- “Population viability analyses”, *USU Guest Lecturer* for Dr. Karen Beard, Spring 2013
- “Base R Programming” for Utah Division of Wildlife Biologists, *Teaching Assistant* for Dr. Tom Edwards, Spring 2012
- “Computer programming and database management for biologists”, *Teaching Assistant* for Dr. Ethan White, Spring 2012

### **Graduate Teaching Assistant**

Jan. 2009 – May 2011 *Auburn University* Auburn, AL

- Taught laboratory extensions for Principles of Wildlife Ecology and Wildlife Management II.
- Guest lecturer:
  - “Red Wolf Recovery : the past and future”
  - “Historical reintroductions in the United States”

### **Secondary Education Science Instructor**

Jan. 2003 – June 2005 *Hardee Senior High School* Wauchula, FL  
Aug. 2001 – Aug. 2002 *Booker High School* Sarasota, FL

### **Undergraduate Teaching Assistant**

Jan. 2001 – May 2001 *Aquarium Science* Sarasota, FL  
Aug. 2000 – Dec. 2000 *Ichthyology*

## Early Career Experience

### **Graduate Research Assistant**

Aug. 2011 – Dec. 2016

*Utah State University*

Logan, UT

- Managed field logistics and data collection for all cougar research in the state of Utah.
- Assist state houndsman with cougar captures via horseback.
- Conduct non-invasive surveys for cougars and coyotes throughout Monroe Mountain, Fishlake National Forest, Utah.
- Conduct small mammal (Sherman trap grids) and lagomorph (spotlight) surveys in order to estimate alternative prey abundance.
- Capture coyotes using Victor 3 soft-catch leg hold traps and cable restraints.
- Monitor study animals year-round using telemetry at elevations between 4,500 – 11,000 feet.
- Assist with deer and elk helicopter captures (200+), which included VIT tagging, radio-collaring, and determining body condition through ultrasounds of rump and loin fat.

### **Field Biologist**

May 2011 – Aug. 2011

*US Forest Service*

Lander, WY

- Managed volunteers for a statewide ferruginous hawk project.
- Assisted with study design.
- Surveyed small mammal abundance near hawk nesting sites.
- Monitored hawk nesting success.

### **Eastern Wolf Den Crew Technician**

May 2010 – June 2010

*Trent University*

Ontario, Canada

- **Volunteered the two prior seasons for a total of three seasons.**
- Aided and advised a Trent University student with field logistics.
- Captured wolf pups and assisted veterinarians in implanting VHF transmitters.
- Monitored transmitted wolves from the ground and air.
- Recovered mortalities and determined cause of death.

### **Avian Field Technician**

March 2006 – Aug. 2008

*Avian Research and Conserv. Inst. (ARCI)*

Gainesville, FL

- Managed field logistics for a large number of avian research projects, including several with an emphasis on endangered and threatened species.
- Assisted in project development, implementation, and data organization.
- Coordinated various field activities with project leaders and non-employee personnel.
- Supervised volunteers and technicians.
- Vehicle maintenance (all types).

## Volunteer and Internship Experience

Eastern Wolf Den Crew Technician, Trent University

Spring '08-'09

Gray Wolf Survey Intern, Audubon Center of the NW

Winter 2000

Pritzker Marine Laboratory Intern, New College of Florida

2000

Assistant Curator, Allyn Museum of Entomology

2000

Assistant Manatee Trainer and Research Technician, Mote Marine Laboratory

1998 – 1999

## Presentations

**Mahoney, P.J.**, G. Liston, S. LaPoint, E. Gurarie, B. Mangipane, J. Jennewein, R.Y. Oliver, E. Palm, J.U.H. Eitel, M. Hebblewhite, N. Boelman, and L.R. Prugh. Navigating snowscapes: Scale-dependent responses of mountain sheep to snowpack properties. Ecological Society of America, *August 2017*, Portland, OR (Oral Presentation).

**Peter J. Mahoney, C.V.**

Young J.K., **P.J. Mahoney**. Foraging behavior of coyotes under intraguild predation risk by cougars: an experimental approach. 12th Mountain Lion Workshop, *June 2017*, Estes Park, CO (Oral Presentation).

Benson, J.F., **P.J. Mahoney**, J.A. Sikich, L.E.K. Serieys, J. P. Pollinger, H. B. Ernest, S.P.D. Riley. Interactions between demography, genetics, and landscape connectivity increase extinction probability for a small mountain lion population in a major metropolitan area. 12th Mountain Lion Workshop, *June 2017*, Estes Park, CO (Oral Presentation).

**P.J. Mahoney**, J.K. Young. Towards improving our understanding of coyote ecology and the implications for mule deer management in Utah. Utah Division of Wildlife Resources Brown Bag, *November 2016*, Salt Lake City, UT (Oral Presentation).

**P.J. Mahoney**, J.K. Young, D.C. Stoner, L.R. McFarlane. Risk versus reward: an evaluation of coyote space use in the context of cougar predation and dynamic prey resources. The Wildlife Society, *October 2016*, Raleigh, NC (Oral Presentation).

Benson, J.F., **P.J. Mahoney**, J.A. Sikich, L.E.K. Serieys, J. P. Pollinger, H. B. Ernest, S.P.D. Riley. Interactions between demography, genetics, and landscape connectivity for a small population of large carnivores in a major metropolitan area. The Wildlife Society, *October 2016*, Raleigh, NC (**Invited** Oral Presentation).

Benson, J.F., **P.J. Mahoney**, J.A. Sikich, L.E.K. Serieys, J. P. Pollinger, H. B. Ernest, S.P.D. Riley. Into the vortex: demography and genetics interact to elevate extinction risk for urban top predators. The Wildlife Society - Colorado Chapter, *January 2015*, Colorado Springs, CO (Oral Presentation).

**Mahoney, P.J.**, J.K. Young, and D.C. Stoner. Evaluating coyote removal risk: Spatial implications for mule deer. The Wildlife Society, *October 2015*, Winnipeg, Manitoba, Canada (Poster).

Benson, J.F., **P.J. Mahoney**, J.A. Sikich, L.E.K. Serieys, J. P. Pollinger, R. K. Wayne, H. B. Ernest, S.P.D. Riley. Modeling population viability and inbreeding dynamics of a small, isolated mountain lion population adjacent to Los Angeles. International Urban Wildlife Conference 2015, Chicago, IL (Oral Presentation).

Benson, J.F., **P.J. Mahoney**, J.A. Sikich, L.E.K. Serieys, J. P. Pollinger, R. K. Wayne H. B. Ernest, S.P.D. Riley. 2015. Synergistic demographic and genetic influences on population viability of mountain lions in a fragmented landscape. The Wildlife Society, *October 2015*, Winnipeg, MB (Oral Presentation).

Benson J.F, **P.J. Mahoney**, J.A. Sikich, L.E.K. Serieys, J.P. Pollinger, R.K. Wayne, H.B. Ernest, and S.P.D. Riley. Modeling population viability and inbreeding dynamics of a small, isolated mountain lion population adjacent to Los Angeles. International Urban Wildlife Conference, *May 2015*, Chicago, Illinois, USA (Oral Presentation).

Beard, K.H., R. Tingley, **P.J. Mahoney**, A.M. Durso, A.G. Tallian, and A. Morán-Ordóñez. Extinction and invasion risk are not two sides of the same coin, at least for reptiles. International Congress for Conservation Biology, *Aug 2015*, Montpellier, France (Oral Presentation).

Benson, J.F., **P.J. Mahoney**, B.R. Patterson. 2014. Are functional responses to human disturbance adaptive? Spatiotemporal variation in selection of roads influences mortality risk of canids in a 3-species hybrid zone. The Wildlife Society, Pittsburgh, PA (Poster).

## Peter J. Mahoney, C.V.

Beard, K.H., **P.J. Mahoney**, A.G. Taillan, A.L. Long, A.M. Durso, R.J. Kindermann, N.E. Nolan, D. Kinka, and H.E. Mohn. Getting to the bottom of reptile establishment success. North American Congress for Conservation Biology, *July 2014*, Missoula, Montana, USA (Oral Presentation).

**Mahoney, P.**, K.H. Beard, A.M. Durso, A. G. Taillan, A. L. Long, R. J. Kindermann, N. E. Nolan, D. Kinka, and H. E. Mohn. Introduction effort, climate matching, and species traits as predictors of global establishment success in non-native reptiles. Joint Meeting of Ichthyologists & Herpetologists, *August 2014*, Chattanooga, Tennessee, USA (Oral Presentation).

**Mahoney, P.J.**, J.K. Young, and J.A. Shivik. Program Cluster: Identifying Predation Events Through Clustered GPS Data. Eleventh Mountain Lion Workshop, *12 – 15 May 2014*, Cedar City, Utah, USA (Oral Presentation).

Young, J.K., **P.J. Mahoney**, and J.A. Shivik. Cougar space use on a landscape with high levels of anthropogenic disturbance in southcentral Utah. Eleventh Mountain Lion Workshop, *12 – 15 May 2014*, Cedar City, Utah, USA (Oral Presentation).

**Mahoney, P.J.** and J.K. Young. Cougar predation of coyotes: Implications for mule management. Gordon Research Conference on Predator-prey Interactions, *5 – 10 January 2014*, Ventura, California, USA (Poster).

**Mahoney, P.J.**, J.K. Young, D.C. Stoner, J.A. Shivik, S.M.C. Cavalcanti, and E.M. Gese. Find that Cache: Identifying Predation Events Through Clustered GPS Data. The Wildlife Society, Utah Chapter, 20 March – 22 March 2013, Bryce City, Utah, USA (Oral Presentation, **see Awards**).

**Mahoney, P.J.**, T.D. Steury, and D. Murray. A re-assessment of Red Wolf (*Canis rufus*) viability using stage-structured, stochastic population models. *Carnivores*, 15 – 18 November 2009, Denver, Colorado, USA (Oral Presentation).

## **Grants, Fellowships, Awards**

Travel Awards	2014-2015
(USU Ecology Center, Dept. of Wildland Resources, USU College of Natural Resources)	
Best Student Paper for The Wildlife Society, Utah Chapter	2013
USU Ecology Center Student Award, \$4,000	2012
Drummond Company Fellowship, \$1,500	2010
Auburn University Outstanding Master's Student of the Year	2010
School of Forestry and Wildlife Science Outstanding Master's Student of the Year	2010
Graduate Research Fellowship, University of Queensland, \$66,000	2003
Alumni representative on the Pritzker Marine Laboratory Advisory Committee	2001-2002
Sarasota County Research Grant, \$5,000	1999

## **Professional Service**

**Regular technical reviewer** (~1-2 per month):

Animal Behaviour, Biological Conservation, Ecosphere, Global Ecology and Biogeography,  
Journal of Applied Ecology, Journal of Herpetology, Landscape Ecology, Movement Ecology,  
Society for Conservation Biology

Wild Felid Association - Utah Student Representative	2013-2015
Pritzker Marine Alumni Representative, New College of Florida	2002-2003
Natural Sciences Student Representative, New College of Florida	1998-1999

## **References**

Dr. Julie Young  
Associate Professor & Supervisory Research Wildlife Biologist  
USDA-NWRC-Predator Research facility  
Department of Wildland Resources  
Quinney College of Natural Resources, Utah State University  
Phone: 1.435.797.1348 | Email: [julie.young@usu.edu](mailto:julie.young@usu.edu)

Dr. John Benson  
Assistant Professor  
School of Natural Resources  
University of Nebraska  
Phone: 1.402.472.8012 | Email: [jbenson22@unl.edu](mailto:jbenson22@unl.edu)

Dr. David Koons  
Associate Professor  
Warner College of Natural Resources  
Colorado State University  
Phone: 1.970.491.6457 | Email: [david.koons@colostate.edu](mailto:david.koons@colostate.edu)

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School of Environmental and Forest Sciences  
University of Washington  
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