

# Julie Weckworth

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## Education

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### University of Montana

PhD Candidate,  
Wildlife Biology & Montana Ecology of  
Infectious Disease Programs  
Advisor: L. Scott Mills

Missoula, MT

September 2009-present

### University of Cincinnati

B.S. degree; Biology

Cincinnati, OH

June 2000

#### Assistantships:

Research

Chiang Mai, Thailand

June - August 1997

Teaching (Ecology and Evolution Lab)

Cincinnati, OH

March - June, 1997 & 1998

## Honors/Affiliations

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- NSF GRFP (Predoc) Fellow; September 2011 - 2014
- NSF IGERT Fellow - Montana Ecology of Infectious Disease Program; September 2009 - 2011
- NSF EAPSI East Asia & Pacific Summer Institutes Fellow; June – July 2010
- Bhutan Ecological Society, Society for Conservation Biology, Wildlife Disease Association

## Research and Work Experience

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### PhD Candidate

*University of Montana*

September 2009 - present

*Missoula, MT*

Dissertation: Investigating ecological and evolutionary dynamics of *Canine distemper virus* in Serengeti carnivores to improve disease surveillance and management

Canine distemper virus (CDV) emergence is a serious threat to the health and persistence of wild felid populations, however the mechanisms driving lethal CDV spillover events are poorly understood. My research investigates the ecological role of host reservoir dynamics and the evolutionary role of viral genetic diversity in driving patterns of CDV disease emergence in African lions. The results will be used to improve efforts to predict and prevent clinical distemper infection in an iconic felid population of high conservation value – the Serengeti lion.

### Research Fellow - NSF East Asia and Pacific Summer Institute

*Peking University*

June – July 2010

*Beijing, China*

Internship in conservation genetic methods. Extracted & amplified DNA from skin, bone, tooth and fecal samples to identify origin of confiscated tiger products & to assess gender ratio in a free-ranging Asiatic black bear population. Optimized primers & PCR conditions for gender assignment of noninvasively collected Asiatic black bear scats

*Research and Work Experience (cont.)*

**Volunteer Board Member**

August 2011 – December 2012

*Montana Chapter Society for Conservation Biology*

*Missoula, MT*

Co-designed / executed state research symposium. Duties: Networking, fund-raising, event planning

**GIS Analyst**

April 2008-June 2009

*American Wildlands; Community GIS Program*

*Bozeman, MT*

Compiled and managed data, performed spatial analyses, and generated maps and reports. Identified and prioritized animal-vehicle collision hotspots and their coincidence with wildlife corridors and state transportation improvement planning in western Montana to improve inter-agency mitigation efforts.

**Dog Handler – Supervisor**

November 2005-May 2006 & October 2006-January 2008

*University of Washington; Center for Conservation Biology*

*Seattle, WA*

*Field:* Co-supervised the collection of over 1000 scat samples and associated data to monitor the impacts of oil extraction on caribou, moose, and wolf in Northeastern Alberta. Trained scat-detection dogs, dog-handlers, and orienteers to locate target scat on conservation projects in Washington, California, Alberta, and Brazil. *Lab:* Performed DNA extraction & purification from scat, prey species ID from hair microstructure, GIS cartography

**Supervisor (GS-07)**

May 2006-October 2006

*USFS; SNFPA Carnivore Monitoring Project*

*Springville, CA*

Supervised surveys to monitor the abundance of local carnivore populations. Trained and managed 10 federal employees. Assessed quality of data and sample collection by crews.

**Supervisor**

May 2005-October 2005

*University of Georgia; Middle Georgia Black Bear Study*

*Athens, GA*

Managed field operations for a study comparing methods to census a black bear population. Coordinated with Department of Natural Resources to process captured bears

**Research technician - Supervisor (GS-05)**

June 2004- September 2004

*USDA Forest Service; NCDE Grizzly Bear DNA Project*

*Hungry Horse, MT*

Planned and executed 8-9 day backcountry sampling sessions to collect grizzly bear hair.

**Meetings, Workshops & Training**

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- “Vaccines for Conservation” working group to assess feasibility of CDV vaccine for wild felids. (January 2015)
- Virus Evolution and Molecular Epidemiology Bioinformatics Workshop. Rome, Italy (2014)
- Internship; Virology Section of the Animal Health Diagnostic Center at Cornell University, New York (November 2013-July 2014)
- Virus Evolution and Molecular Epidemiology Bioinformatics Workshop. Gainesville, Florida (2013)
- Introduction to Virological Diagnostic Methods, independent study at the Virology Section Diagnostic Center, Cornell University, New York (2012)
- Tanzanian Veterinary Association Conference. Arusha, Tanzania (2012)
- *Science: Becoming the Messenger* Workshop (2012) (NSF hosted)
- 11<sup>th</sup> AHEAD- Greater Limpopo Transfrontier Conservation Area Working Group Meeting. Kruger National Park, South Africa. (2011)
- Asia-Pacific Conference on Wildlife Borne Diseases, Beijing, China (2010)
- Workshop on Wildlife Research Techniques in Rugged Mountainous Environments in Asia. Ugyen Wangchuck Institute for Conservation and the Environment (UWICE), Bumthang, Bhutan. (2010)
- Pathways to Scientific Teaching (2009), (NSF hosted)
- 23<sup>rd</sup> Annual Meeting of the Society for Conservation Biology. Beijing, China (2009)

## Grants received

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- *Established Investigator Award (Co-PI)*- Morris Animal Foundation March 2013
- *Fellowship*, NSF GRFP “Predoc”. 2011 - 2016
- *Student Enrichment Opportunity Fund*, Offices of the President & Provost. June 2011
- *Fellowship*, NSF East Asia and Pacific Summer Institutes. June-July 2010
- *Yamaguchi Opportunity Fund*, Mansfield Center. June 2010
- *Travel Assistance*, UM-International Programs (Bhutan). May 2010
- *Fellowship*, NSF IGERT. 2009 – 2011
- *Research & travel awards – over three years received ten independent, competitive grants from Montana Ecology of Infectious Disease Program (MEID) – NSF IGERT*

## Publications

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- Sollmann, R., **Betsch, J.**, Furtado, M., Hofer, H., Jácomo, A. A., Palomares, F., Roques, S., et al. (2013). Note on the diet of the jaguar in central Brazil. *European Journal of Wildlife Research*, 1–4. doi:10.1007/s10344-013-0708-9
- Kelly, M., Wultsch, C., **Betsch, J.**, Mesa, B., Mills, L.S. (2012). Noninvasive Sampling for Carnivores. In L. Boitani & R. Powell (Eds.), *Carnivore Ecology and Conservation: A Handbook of Techniques*
- Betsch, J.** (2010). *Techniques for diet analysis of carnivore scats*. In T. Tshering, & L.S. Mills (Eds.), *Wildlife Research Techniques in Rugged Mountainous Environments in Asia*. (In Prep)
- Taylor, D., Williamson, E., **Betsch, J.**, Olimb, S. “A Summary of the Wildlife Linkage and Highway Safety Assessment: A prioritization and planning tool for western Montana”. In *Proceedings of the 2009 International Conference on Ecology and Transportation*, edited by Paul J. Wagner, Debra Nelson, and Eugene Murray. Raleigh, NC: Center for Transportation and the Environment, North Carolina State University, (2010).
- Williamson, E., **Betsch, J.**, Mieklejohn, K., Olimb, S., and D. Taylor. (2009). Western Montana Wildlife Linkage and Highway Safety Assessment, American Wildlands, Bozeman MT 97 pp.

## Presentations

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- Betsch, J.B., Roelke-Parker, M., Dubovi, E., Packer, C., Cleaveland, S., Mills, L.S. August 2013. Understanding the emergence of *Canine distemper virus* in Serengeti lions. Poster session presented at: Viral Evolution and Molecular Epidemiology Bioinformatics Workshop. Gainesville, FL
- Betsch, J.B. May 2013. Understanding the emergence of a deadly virus in Serengeti lions. Invited seminar. Peking University, Beijing, China
- Betsch, J.B. July 2013. A Career in Wildlife Biology. Invited community talk for advanced highschool students. Bishop, CA
- Betsch, J.B. July 2012. What drives Canine distemper virus emergence in Serengeti lions and when does it matter? Brown bag talk, Animal Health and Diagnostic Center, Cornell University. Ithaca, NY
- Betsch, J.B. March 2012. Time, space and spillover: Interpreting patterns of emergence to predict disease dynamics at the domestic-wild carnivore interface. Departmental seminar/ Dissertation defense. University of Montana, MT
- Betsch, J.B. July 2010. Scent-detection dogs, research & conservation. Invited seminar. Peking University, Beijing, China
- Betsch, J.B. June 2010. Scat-detection dogs, research & conservation. Workshop on Wildlife Research Techniques in Rugged Mountainous Environments in Asia. Ugyen Wangchuck Institute for Conservation and the Environment (UWICE), Bumthang, Bhutan.
- Betsch, J.B. June 2010. Macro- and microscopic techniques for diet analysis from carnivore scat. Training module developed and led at Workshop on Wildlife Research Techniques in Rugged Mountainous Environments in Asia. Ugyen Wangchuck Institute for Conservation and the Environment (UWICE), Bumthang, Bhutan.
- Betsch, J., Vynne, C., Silveira, L., Wasser, S. July 2009. Do trophic interactions of jaguar & puma differ within Emas National Park, Brazil, from that in the surrounding agricultural matrix? Poster session presented at: 23<sup>rd</sup> Annual Meeting of the Society for Conservation Biology. Beijing, China