

# JILLIAN K. FARKAS

University of South Dakota | Department of Biology  
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## EDUCATION

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- May 2015–Present    University of South Dakota: Master of Science in Biology  
Advisor: Dr. Jacob L. Kerby  
Title: Effects of Agricultural Runoff on Fish, Invertebrates, and Water Quality in Prairie Pothole Wetlands
- 2009–2013            Hope College: Bachelor of Arts in Biology, minor in Environmental Science

## RELEVANT EXPERIENCE

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### *Summer 2017 Directorate Fellowship Program: U.S. Fish and Wildlife Service*

- Identified regulatory, funding, and wildlife agencies and personnel that influenced landowners and Oregon spotted frog recovery in Northern Washington.
- Coordinated, organized, and lead meetings with partners and other agencies to discuss agency priorities, directives, and rules/regulations.
- Identified county, state, and federal laws that hindered or assisted in habitat protection and restoration of Oregon spotted frogs.
- Promoted communication and interactions with diverse stakeholders, including state, local, and federal agencies, as well as tribes, local organizations, and private landowners to encourage beneficial land management practices on private land via phone calls, emails, in-person meetings, and conference calls.
- Prepared meeting summaries that outlined the priorities, directives, and rules/regulations of any areas of agreement/disagreement among agencies.

### *2015–present Master's Student: Department of Biology, University of South Dakota*

- Researching the effects of agricultural effluent (i.e., neonicotinoids, heavy metals, excess sediment) on water quality, fish diversity, and invertebrate diversity in Prairie Pothole Wetlands.
- Trapped and seined fish; collected, sorted, and identified invertebrates; assessed wetland vegetation composition; conducted amphibian visual encounter surveys in the 2015 and 2016 field seasons.
- Trained and supervised three technicians in the field.
- Collected, measured, and analyzed water quality variables including pH, turbidity, conductivity, temperature, and dissolved oxygen.
- Used R, JMP, Microsoft Excel, Microsoft Access, and ArcGIS to analyze data collected in the field and from experiments.
- Created fish data sheets to be used in the field. Wrote annual report updates for the grant.
- Gained All-Terrain Vehicle training. Drove a 4-wheel drive truck and trailer throughout the field seasons.
- Currently facilitating communication between farmers and researchers to encourage partnership, cooperation, and transparency. Conducted interviews to gather information on farming practices, such as management, ecological value, and pesticide use and compiled the information into a database.
- Conducted a lab experiment examining the effects of atrazine on fish in an aquaculture system. Presently conducting laboratory experiments in partnership

with USGS in Yankton, SD to determine the effects of a clothianidin and selenium-exposed diet on survival and behavior in an aquaculture system.

- Additional skills include conducting quantitative PCR analysis to determine presence and quantitation of amphibian chytrid fungus and ranaviruses.

**2013–2015**     **Student Assistant: Michigan Department of Natural Resources**

- Member of Michigan's Wildlife Action Plan (WAP) revision team. Updated the previous plan to receive funding for the State Wildlife Grant program through the United States Fish and Wildlife Service (USFWS).
- Co-lead the development of a State Wildlife Grant-Competitive (SWG-C) on eastern massasauga conservation: through refined modeling, habitat management, & snake fungal disease detection. Developed an understanding of the Endangered Species Act, the National Environmental Policy Act, Candidate Conservation Agreements with Assurances, Habitat Conservation Plans, and other environmental regulations.
- Coordinated with diverse stakeholders and partners including other state DNR employees, USFWS offices, universities, private land owners, NGOs, local partners, and other organizations on projects and grants.
- Developed numerous natural resource documents, reports, and other outreach materials while gaining critical thinking skills in wildlife planning.
- Assisted with Microsoft Access database maintenance, verified accuracy of datasets and resolved inconsistencies. Used ArcGIS to update GIS layers and shapefiles while updating the Michigan Wildlife Action Plan to create range and locality maps for Species of Greatest Conservation Need (SGCN).
- Conducted thorough reviews of scientific literature and recent agency reports to compile conservation measures and synthesize information to assist with the update of the WAP. Used existing recovery and species status documents to assess needs of SGCN.
- Participated in wildlife surveys and monitoring activities, including: rare fish sampling using backpack electrofishing and seines, deer aging, Mitchell's satyr and Poweshiek skipperling meander surveys, visual encounter surveys of eastern massasaugas, and surveys of rare mussels with an aquascope.

**2014**     **Volunteer Eastern Box Turtle Research Assistant: Michigan State University**

- Assisted with data collection through radio telemetry to: determine the population status of eastern box turtles at the study site; evaluate habitat use and movement patterns; identify overwintering and nesting locations; and evaluate the effects of prescribed fire on the box turtle population.
- Used radio telemetry to track turtles; marked turtle and nest locations with a waypoint on GPS units.
- Used a Kestrel Meter to obtain humidity, temperature, and wind speed measurements.
- Weighed, measured, and sexed turtles.
- Assisted with removal and placement of radio transmitters.
- Notched shells of new individuals.
- Conducted rapid vegetation assessments.
- Trained additional volunteers.

**2013**     **Research Assistant: Michigan Colleges Foundation Third 90 Network**

- Worked with urban high school students in west Michigan to provide hands-on field and lab experience.

- Investigated bird communities in the context of bird migration, and compared characteristics, including stress level, of migrant and resident birds.
- Assembled and tore down mist nets.
- Identified, weighed, measured, and banded captured birds.
- Collected blood using the wing vein technique and created blood smears. Later identified leukocytes in laboratory.
- Worked with students to create a Microsoft PowerPoint presentation on collected data to present at a local symposium.

**2012****Costa Rica Semester Abroad: Council on International Education Exchange**

- Studied tropical ecology and conservation while exploring issues of tropical diversity, community ecology, and human impact in the tropics.
- Performed independent research on the effect of ethanol intoxication in the butterfly *Morpho peleides* on its ability to escape predators.
- Identified, marked, and captured wild and captive butterflies in Monteverde, Costa Rica.
- Measured anti-predator responses (time perched on a branch, flight time, distance traveled, and flight speed).
- Performed data entry using Microsoft Excel.
- Analyzed data using statistical program R.

**2011****Undergraduate Field Researcher: Hope College, Department of Biology**

- Studied the effect of predation on the life history strategies of a nestbox-using population of eastern bluebirds (*Sialia sialis*).
- Performed daily nest checks; recorded nest material and approximate amount, number of eggs and their color, egg temperature relative to the air temperature, number of chicks and their approximate stage of development, presence of parasites on the nestlings, adult presence in the nest box, and any signs of predation.
- Weighed and measured all individuals. Checked for brood patch when appropriate.
- Banded birds with United States Geological Survey bands and unique color bands.
- Assembled and removed mist nets throughout the season field. Identified captured birds; used a field guide when necessary.
- Communicated scientific findings via presentation and written report.

**2010****Undergraduate Field Researcher: Hope College, Department of Biology**

- Identified *Lepomis* and *Micropterus* species.
- Captured fish with a pole and anchor-tagged individuals to determine recapture rates.
- Obtained weight, snout–vent measurements, and tail length measurements.
- Performed data entry using Microsoft Excel.
- Analyzed dataset in SYSTAT to determine variations in species composition at sites, effects of predation on *Lepomis* size, and other variables using SYSTAT for data analysis.

**2009–2012****Biology Lab Technician: Hope College, Department of Biology**

- Performed advanced maintenance of biology labs and various other tasks as requested by the department.
- Trained other employees on proper lab techniques.

- Organized lab equipment, created chemical solutions, provided required technical support to enable the lab to function effectively while adhering to correct procedures, and health and safety guidelines.

## TEACHING EXPERIENCE

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### *Teaching Assistant: University of South Dakota, Department of Biology*

Fall 2016      Biology 104L: Foundations of Biology Lab for Educators  
 Biology 419L: Plant Biology Lab

Fall 2015      Biology 151L: General Biology I Lab for Majors

### *Instructing Assistant: Hope College, Department of Biology*

Fall 2012      Biology 104: Organisms and Environments; Professor Anna Bonnema

Fall 2011      General Education Math and Science 204: Regional Flora and Fauna;  
 Dr. Kathy Winnett-Murray

## GRANTS RECEIVED

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- Survival and behavior of fathead minnows (*Pimephales promeleas*) exposed to selenium and imidacloprid. University of South Dakota: Research and Creative Activity Grant (\$750); November 2016.
- Investigating the effect of genotoxicity of fathead minnows (*Pimephales promeleas*) exposed to the neonicotinoid, Imidacloprid. University of South Dakota: Research and Creative Activity Grant (\$500); February 2016.
- Eastern massasauga conservation: through refined modeling, habitat management and snake fungal disease detection. USFWS State Wildlife Grant-Competitive (\$743,253); July 2014. *Michigan Department of Natural Resources – Wildlife Division, co-author.*

## PUBLICATIONS

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Smith, S.N., J.L. Watters, E.C. Marhanka, S.L. McMillin, D.R. Davis, **J.K. Farkas**, and C.D. Siler. (Submitted). Investigating seasonal variation of ranavirus in central Oklahoma amphibians. *Herpetological Review*.

Davis, D.R., **J.K. Farkas**, T.R. Kruisselbrink, J.L. Watters, E.D. Ellsworth, J.L. Kerby, and C.D. Siler. Submitted. Prevalence and distribution of ranavirus in amphibians from southeastern Oklahoma, USA. *Herpetological Conservation and Biology*.

McMillin, S.L., J.L. Watters, E.C. Marhanka, D.R. Davis, **J.K. Farkas**, J.L. Kerby, and C.D. Siler. Submitted. Seasonality in *Batrachochytrium dendrobatidis* detection in amphibians in central Oklahoma. *The Southwestern Naturalist*.

**Farkas, J.K.** and D.R. Davis. 2017. Geographic distribution: USA, South Dakota, Yankton Co.: *Aplone spinifera* (Spiny Softshell). *Herpetological Review*, 48:122.

Davis, D.R., R.E. Johannsen, **J.K. Farkas**, G.A. Maltaverne, and C.A. Dieter. 2017. Historic amphibian and reptile county records from South Dakota, USA. *Herpetological Review*, 48:394–406.

Davis, D.R., **J.K. Farkas**, M.W. Dahlhoff, and J.L. Kerby. 2017. *Coluber constrictor* (North American Racer) Predation. *Herpetological Review*, 48:446–447.

Davis, D.R., **J.K. Farkas**, R.E. Johannsen, K.M. Leonard, and J.L. Kerby. 2017. Distributional records of amphibians and reptiles from South Dakota, USA. *Herpetological Review*, 48:133–137.

**Farkas, J.K.** and D.R. Davis. 2017. Geographic distribution: USA, Michigan, Mecosta Co.: *Ambystoma laterale* (Blue-spotted salamander). *Herpetological Review*, 48:117.

- Marhanka E.C., J.L. Watters, N.A. Huron, S.L. Mcmillin, C.C. Winfrey, D.J. Curtis, D.R. Davis, **J.K. Farkas**, J.L. Kerby, and C.D. Siler. 2017. Detection of high prevalence of *Batrachochytrium dendrobatidis* in amphibians from southern Oklahoma, USA. *Herpetological Review* 48:70–74.
- Watters, J.L., R.L. Flanagan, D.R. Davis, **J.K. Farkas**, J.L. Kerby, M.J. Labonte, M.L. Penrod, and C.D. Siler. 2016. Screening natural history collections for historical presence of *Batrachochytrium dendrobatidis* in anurans from Oklahoma, USA. *Herpetological Review*, 47:214–220.
- Derosier, A.L., S. Hanshue, K.E. Wehrly, **J.K. Farkas**, and M.J. Nichols. 2015. Michigan's Wildlife Action Plan. Michigan Department of Natural Resources, Lansing, MI.  
[http://www.michigan.gov/dnr/0,1607,7-153-10370\\_30909---,00.html](http://www.michigan.gov/dnr/0,1607,7-153-10370_30909---,00.html)
- Farkas, J.K.** 2014. Threatened and Endangered Species Feature: The Cautious Copperbelly Water Snake. Wildlife Viewing Bulletin. Michigan Department of Natural Resources, Lansing, Michigan. <http://content.govdelivery.com/accounts/MIDNR/bulletins/cd9101>
- Frawley, B. J. and **J.K. Farkas**. 2014. 2013 Michigan Wolf Hunter Survey. Wildlife Division Report 3590. Michigan Department of Natural Resources, Lansing, Michigan.  
[http://www.michigan.gov/documents/dnr/2013\\_wolf\\_hunter\\_survey\\_471015\\_7.pdf](http://www.michigan.gov/documents/dnr/2013_wolf_hunter_survey_471015_7.pdf)
- Derosier, A.L. and **J.K. Farkas**. 2014. Michigan's Wildlife Action Plan – State Wildlife Grants Funding in Action Project Summaries 2011–2012. Michigan Department of Natural Resources. Lansing, Michigan.  
[http://www.michigan.gov/documents/dnr/wap\\_biannual\\_report\\_491465\\_7.pdf](http://www.michigan.gov/documents/dnr/wap_biannual_report_491465_7.pdf)

## INVITED PRESENTATIONS

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- Farkas, J.K.**, D.R. Davis, B.L. Henry, J.S. Wesner, and J.L. Kerby. The Effects of Agriculture on Wetlands in the Prairie Pothole Region. Sierra Club - Living River Group; Vermillion, SD; October 18, 2016

## PRESENTATIONS

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- J.K. Farkas** and F.T. Waterstrat. Oregon Spotted Frogs Natural History, Threats, and Recovery. Washington State Department of Ecology; Lacey, WA; July 27, 2017.
- Waterstrat, F.T. and **J.K. Farkas**. Washington State Amphibian Identification. Washington State Department of Transportation Wetland Monitoring Program; Olympia, WA; June 26, 2017
- Farkas, J.K.**, D.R. Davis, B.L. Henry, J.S. Wesner, and J.L. Kerby. The Effect of Agricultural Runoff on Fish in the Prairie Pothole Region. North American Congress of Conservation Biology; Madison, WI; July 20, 2016
- Farkas, J.K.**, D.R. Davis, B.L. Henry, J.S. Wesner, and J.L. Kerby. The Effect of Agricultural Runoff on Fish in the Prairie Pothole Region., Joint Meeting of Ichthyologists and Herpetologists; New Orleans, LA; July 8, 2016
- Farkas, J.K.**, D.R. Davis, B.L. Henry, J.S. Wesner, and J.L. Kerby. The Effect of Agricultural Runoff on Fish in the Prairie Pothole Region. University of South Dakota IdeaFest; Vermillion, SD; April 13, 2016
- Farkas, J.K.**, D.R. Davis, B.L. Henry, J.S. Wesner, and J.L. Kerby. The Effect of Agricultural Runoff on Fish in the Prairie Pothole Region. Missouri River Institute Symposium; Vermillion, SD; April 7, 2016.
- Farkas, J.K.** Effects of Dietary Exposure of Neonicotinoids on Genotoxicity and Behavior of Fathead Minnows. Department Seminar, Department of Biology, University of South Dakota, Vermillion, SD; February 22, 2016.

**Farkas, J.K.** Modeling Biological Diseases. University of South Dakota, Department of Biology, BIOL 424/524: Disease Ecology; Vermillion, SD; March 29, 2016.

**Farkas, J.K.** Wetlands: An Introduction and Review of Current Issues. University of South Dakota, Department of Biology, BIOL 412/512: Freshwater Ecology; Vermillion, SD; December 2015.

**Farkas, J.K.**, N. Erber, E. Heinz, and I. Slette. 2011. Analysis of Green Roof Runoff: Implications for Design and Construction. Macatawa Area Coordinating Council (MACC), Herrick District Library; Holland, MI; December 6, 2011.

## **COAUTHORED PRESENTATIONS**

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Ellsworth, E.D., J.L. Watters, D.R. Davis, **J.K. Farkas**, and C.D. Siler. Ranavirus detection in southeastern Oklahoma. Southwestern Association of Naturalists 64th Annual Meeting; Lawton, OK; April 2017

Pollema, C.D., **J.K. Farkas**, D.R. Davis, and J.L. Kerby. The effect of agricultural runoff on invertebrates and fish in the Prairie Pothole Region. University of South Dakota IdeaFest; Vermillion, SD; April 2017

J.L. Kerby, D.R. Davis, **J.K. Farkas**, M.E. Jarchow, M.S. Schwarz, and J.S. Wesner. Evaluation of agricultural tile drain exposure and effects on wetland communities. Missouri River Institute Symposium; Vermillion, SD; March 2017

Davis, D.R., B.L. Henry, **J.K. Farkas**, J.W. Warmbold, M.S. Schwarz, J.S. Wesner, J.L. Kerby. Evaluation of agricultural tile drain exposure and effects on wetland communities. South Dakota Game, Fish and Parks Region 3 Meeting; Brookings, SD; December 2015.

Flanagan, R.L., J.L. Watters, D.R. Davis, **J.K. Farkas**, M.L. Penrod, M.J. Labonte, C.D. Siler. Preliminary screening of natural history collections for historical presence of amphibian infectious disease in Oklahoma. Society for the Study of Amphibians and Reptiles Meeting; Lawrence, KS; July 2015.

## **LEADERSHIP**

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### ***2016–present Vice President of Women in Science Technology Engineering and Math (WiSTEM); University of South Dakota***

- Provide resources, networking, support, and encouragement for women in STEM to combat negative stereotypes and discrimination.
- Initiated University of South Dakota's first WiSTEM mentoring program.
- Facilitate, coordinate, and lead meetings throughout the school year.
- Work with local schools and local events to provide hands-on STEM experience and materials.

### ***2016–present Co-lead, Communications and Outreach Subcommittee, Bsal National Task Force***

- Collaborating with U.S. State and Federal agencies, non-governmental organizations, research institutions, zoos, and the pet industry to focus on emerging management, policy and research implications of *Batrachochytrium salamandrivorans* infection of amphibians.
- Created Bsal-related outreach communication materials that includes web presence, fact sheets, press releases and briefs.
- Created an annual report for the Bsal National Task Force accomplishments: [http://www.salamanderfungus.org/wp-content/uploads/2016/11/Bsal-Report\\_1610\\_4-0v.pdf](http://www.salamanderfungus.org/wp-content/uploads/2016/11/Bsal-Report_1610_4-0v.pdf)
- Manage social media accounts, including Twitter and the salamander fungus Facebook page.

- Facilitate and lead Communications and Outreach subcommittee meetings.
- Update the National Task Force on metrics that have been met by the Communications and Outreach subcommittee.

### **2015–2016 FrogWatch USA Lead, Great Plains Chapter**

- Lead Great Plains Chapter FrogWatch, a citizen science program, designed to provide frog and toad locality data.
- Engaged, educated, and trained volunteers to identify South Dakota frog and toad specimens and their calls.
- Developed a presentation with natural history information and identification techniques of local amphibians.
- Advertised FrogWatch trainings through radio advertisements, flyers, contacting local groups, and being a part of local events.

## **OUTREACH**

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June 2017	Wolf Haven International Bioblitz Event, USFWS; Olympia, WA
December 2016	Elevator Pitch Workshop, Women in STEM; Vermillion, SD
October 2016	Acorn Academy Co-op Outreach: Insect Metamorphosis; Vermillion, SD
April 2016	FrogWatch USA Outreach Event, Earth Week Festival; Vermillion, SD
June 2015	FrogWatch USA Volunteer Training; Oglala Lakota College; Kyle, SD
August 2013	Saginaw Bay Waterfowl Festival, Michigan Department of Natural Resources; Bay City, MI

## **SERVICE**

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January 2017	Volunteer: Alternative Week of Off-Campus Learning (AWOL) service day; Vermillion, SD
October 2016	Volunteer: Vermillion Area Robotics Club; Vermillion, SD
2016–present	Student Travel Award Coordinator for American Society of Ichthyologists and Herpetologists
2015–present	Manuscript Review: <i>Herpetological Review</i> (2016–2017), <i>Biology Letters</i> (2015)

## **UNDERGRADUATES SUPERVISED**

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October 2015–present	<i>Christian D. Pollema</i> : The Impact of Selenium Exposed Prey on Fathead Minnow ( <i>Pimephales promelas</i> ) Behavior and Reproduction. University of South Dakota (U. Discover Scholar).
June 2015–present	<i>Taylor A. Kruisselbrink</i> : Mentee in the Women in STEM mentoring program. Provide her with support and encouragement, discuss long-term career planning and direction, and provide help with clarifying career goals and course of action.

## **HONORS, AWARDS, AND SCHOLARSHIPS**

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2016	Raymond D. Dillon Travel Award, Department of Biology, University of South Dakota
2013	Sigma Xi Researcher Award
2015–Present	University of South Dakota: Academic Honors
2011–2013	Hope College: Academic Honors

## **MEMBERSHIPS IN PROFESSIONAL SOCIETIES**

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- 2015–present Society for the Study of Amphibians and Reptiles (SSAR)  
2016–present American Society of Ichthyologists and Herpetologists (ASIH)  
2016–present Society of Conservation Biology (SCB)  
2015–present Midwest Partners in Amphibian and Reptile Conservation (MWPARC)

## **REFERENCES**

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Dr. Jacob Kerby  
*Associate Professor*  
*University of South Dakota*  
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Amy Derosier  
*Wildlife Action Plan Coordinator*  
*Michigan Department of Natural Resources*  
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