**TAYLOR M WILCOX**

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**EDUCATION**

Ph.D. Wildlife Biology, University of Montana, USA, 2017

B.S. Wildlife Biology (High Honors), University of Montana, USA, 2012

**RESEARCH AND TECHNICAL EXPERIENCE**

2017 – Present Scientist, National Genomics Center for Wildlife & Fish Conservation

2015 – 2016 Divisional Visitor, Australian National University

2013 – 2017 Graduate Student Researcher,University of Montana

2012 – 2013 Research Assistant,National Genomics Center for Wildlife & Fish Conservation

2012 Laboratory Technician, University of Montana

2011 Biological Aide, USGS & US FWS (Bozeman Fish Technology Center)

2010 – 2012 Undergraduate Researcher, University of Montana

2010 Data Technician, Idaho Dept. of Fish and Game

2009 Biological Aide, Idaho Dept. of Fish and Game

**TEACHING EXPERIENCE**

2016 Course Instructor (Readings in Evolution & Wildlife Mgmt), University of Montana

2013 Teaching Assistant (Principles of Living Systems), University of Montana

2011 – 2012 Educator (K-12 science education), Clark Fork Watershed Education Network

2008 Field Intern (K-12 science education), Watershed Education Network

**PEER-REVIEWED PUBLICATIONS** *(> 1,000 citations)*

2020 **Wilcox TM**, KS McKelvey, MK Young, C Engkjer, RF Lance, A Lahr, LA Eby, MK

Schwartz. 2020. Parallel, targeted analysis of environmental samples via high‐throughput

quantitative PCR. Environmental DNA. <https://doi.org/10.1002/edn3.80>

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2019 Franklin TW, **TM Wilcox**, KS McKelvey, MK Young, JC Dysthe, and M K Schwartz.

Accepted. Repurposing environmental DNA samples to verify the range limits of tailed frogs

in the Warm Springs basin, Montana. Northwest Science.

2018 **Wilcox TM,** MK Young, KS McKelvey, DJ Isaak, DL Horan, MK Schwartz. 2018.

Fine-scale environmental DNA sampling reveals climate mediated interactions between

native and invasive trout species. Ecosphere 9(11):e02500. DOI: 10.1002/ecs2.2500

**Wilcox TM,** Zarn KE, Piggott MP, Young MK, McKelvey KS, Schwartz MK. 2018.

Capture enrichment of aquatic environmental DNA: A first proof of concept. Molecular

Ecology Resources. DOI: 10.1111/1755-0998.12928

**Wilcox TM**, Schwartz MK, Lowe WH. 2018. Evolutionary community ecology: Time to think outside the (taxonomic) box. Trends in Ecology and Evolution. 33(4):240-50.

DOI: 10.1016/j.tree.2018.01.014

**Wilcox TM,** Carim CJ, Young MK, McKelvey KS, Franklin T. In press. The importance of sound methodology in environmental DNA sampling. North American Journal of Fisheries Management. DOI: 10.1002/nafm.10055

2017 Young MK, Isaak DJ, McKelvey KS, **Wilcox TM**, Campbell M, Corsi M, Horan D, Schwartz

M. 2017. Ecological Segregation Moderates a Climatic Conclusion to Trout Hybridization. Global

Change Biology. 32(12):5021-3. DOI: 10.1111/gcb.13828

2016 Young MK, Isaak DJ, McKelvey KS, **Wilcox TM,** Bingham DM, Pilgrim KL, Carim KJ, Campbell MR, Corsi MP, Horan D, Nagel DE, Schwartz MK (2016) Climate, Demography, and Zoogeography Predict Introgression Thresholds in Salmonid Hybrid Zones in Rocky Mountain Streams. PLoS ONE. 11(12):e0163563. DOI: 10.1371/journal.pone.0163563

Carim KJ, **Wilcox TM**, Anderson M, Lawrence JD, Young MK, McKelvey KS, Schwartz MK (2016) An environmental DNA marker for detecting nonnative brown trout (*Salmo trutta*). Conservation Genetics Resources. 8(3):259-261. DOI: 10.1007/s12686-016-0548-5

**Wilcox TM**, McKelvey KS, Young MK, Sepulveda AJ, Shepard BB, Jane SF, Whiteley AR, Lowe WH, Schwartz MK (2016) Understanding environmental DNA detection probabilities: a case study using a stream-dwelling char *Salvelinus fontinalis*. Biological Conservation.194:209-216. DOI: 10.1016/j.biocon.2015.12.023

\*Padgett-Steward TM, **Wilcox TM**, Carim KJ, McKelvey KS, Young MK, Schwartz MK (2016) An eDNA assay for river otter detection: a tool for surveying a semi-aquatic mammal. Conservation Genetics Resources 8:5-7. DOI: 10.1007/s12686-015-0511

*\*(1st author co-advised student)*

McKelvey KS,Young MK, **Wilcox TM**, Bingham DM, Pilgrim KL, Schwartz MK. (2016) Patterns of hybridization among cutthroat trout and rainbow trout in northern Rocky Mountain streams. Ecology and Evolution. 6(3):688-706. DOI: 10.1002/ece3.1887

McKelvey KS, Young MK,Knotek WL, Carim KJ, **Wilcox TM**, Padgett-Steward TM, Schwartz MK (2016) Sampling large geographic areas for rare species using eDNA: a preliminary study of bull trout occupancy in western Montana. Journal of Fish Biology. 88:1215-1222. DOI: 10.1111/jfb.12863

2015 **Wilcox TM**, Carim KJ, McKelvey KS, Young MK, Schwartz MK (2015) The Dual Challenges of Generality and Specificity When Developing Environmental DNA Markers for Species and Subspecies of Oncorhynchus. PLoS ONE. 10(11): e0142008. DOI: 10.1371/journal.pone.0142008

**Wilcox TM**, Lowe WH, McKelvey KS, Young MK, Schwartz MK (2015) Environmental DNA particle size distribution from Brook Trout (*Salvelinus fontinalis*). Conservation Genetics Resources. 7:639-641. DOI: 10.1007/s12686-015-0465-z

Jane SF, **Wilcox TM**, McKelvey KS, Young MK , Schwartz MK, Lowe WH, Letcher BH, Whiteley AR (2015) Distance, flow, and PCR inhibition: eDNA dynamics in two headwater steams. Molecular Ecology Resources. 15(1):216-227. DOI: 10.1111/1755-0998.12285

2014 **Wilcox TM,** McKelvey KS, Young MK, Schwartz MK (2014) A blocking primer increases specificity in environmental DNA detection of bull trout (*Salvelinus confluentus*). Conservation Genetics Resources 6(2):283-284. DOI: 10.1007/s12686-013-0113-4

2013 **Wilcox TM**, McKelvey KS, Young MK, Jane SF, Lowe WH, Whiteley AR, Schwartz MK (2013) Robust detection of rare species using environment DNA: the importance of primer specificity. PLoS ONE. 8(3): e59520. DOI: 10.1371/journal.pone.0059520

**Wilcox TM** and MAH Webb. (2013) Cannibalism of embryos and larvae by adult woundfin: Application to conservation propagation of an endangered species. Journal of Fish and Wildlife Management. 4(1):124-128. DOI: [10.3996/042012-JFWM-029](http://dx.doi.org/10.3996/042012-JFWM-029)

**OTHER PUBLICATIONS AND TECHNICAL RESOURCES**

2017 Schwartz MK, **Wilcox TM**, Penaluna B. 2017. eDNA sampling: Not just for fish biologists anymore. The Wildlife Professional (November/December issue)

 Young MK, Isaak DJ, McKelvey KS, Schwartz MK, Carim KJ, Fredenberg W, **Wilcox TM**, Franklin T, Chandler GL, Nagel DE, Parkes-Payne SL, Horan DL, Wollrab SP. 2017. Species occurrence data from the Range-Wide Bull Trout eDNA Project. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2017-0038>

2016 Carim KJ, McKelvey KS, Young MK, **Wilcox TM**, Schwartz MK. 2016. A protocol for

collecting environmental DNA samples from streams. Gen. Tech. Rep. RMRS-GTR-355.

Fort Collins, CO: U.S. Dept. of Agriculture, Forest Service, Rocky Mountain Research

Station. 18 p.

**PRESENTATIONS**

2019 3rd Environmental DNA Technical Exchange Workshop, December 2020, St. Petersburg,

FL, USA. Wilcox TM et al. The Environmental DNAtlas. *(Invited speaker)*

15th Biennial Conference of Science and Management on the Colorado Plateau and Southwest

Region, September 2019, Flagstaff, AZ, USA. The Environmental DNAtlas. *(Invited speaker)*

2018 Mainstreaming molecular approaches in national environmental monitoring programs of aquatic

ecosystems and biodiversity, December 2018, Porto, Portugal. **Wilcox TM** et al. Feeding the atlas

of everything: Environmental DNA sample and data archiving for the future. *(Invited speaker)*

CIBIO Seminars in Biodiversity and Evolution, December 2018, Porto, Portugal. **Wilcox TM** et

al. An inclusive view of community ecology made possible by eDNA sampling.

Pathway to Increase Standards and Competency of eDNA Surveys, October 2018, Guelph, ON,

CAN. **Wilcox TM** et al. Standardization in data and sample archiving to unlock the long-term potential of eDNA samples. *(Invited keynote speaker)*

2017 Montana Chapter of the Society for Conservation Biology, November 2017, Missoula, MT, USA.

**Wilcox TM** et al.Bull trout, brook trout, and climate change: High-resolution environmental DNA sampling reveals the climatic and biotic drivers of a Threatened species’ distribution.

American Fisheries Society, Western Division, May 2017, Missoula, MT, USA. **Wilcox TM** et al. Environmental DNA 2.0: What is eDNA doing for fisheries today? *(Symposium organizer)*

2016 Annual Symposium of the Fisheries Society of the British Ilse, July 2016, Bangor, Wales, UK. **Wilcox TM** et al.Understanding environmental DNA detection probabilities: A case study using a stream-dwelling char. *(AFS Genetics Section Student Fellow)*

USGS Webinar Series, May 2016, Fort Collins, CO, USA. **Wilcox TM et al.** eDNA is a weak tool for studying animal populations, but powerful for inferring species absence.

*(Invited presentation)*

2015 American Fisheries Society, August 2015, Portland, OR, USA. **Wilcox TM** et al. Understanding environmental DNA detection probabilities: a case study using a stream-dwelling char.

*(Best student paper finalist)*

2014 Society of Conservation Biology, July 2014, Missoula, MT, USA. **Wilcox TM** et al. Environmental DNA for Conservation Biology. *(Symposium organizer)*

American Fisheries Society, August 2014, Quebec City, QC, Canada. **Wilcox TM** et al. Finding an Environmental DNA Target in a Haystack of Congenerics and PCR Inhibitors.

*(Invited speaker)*

**AWARDS AND GRANTS** *(~ $ 200,000 in research grants and merit-based scholarships)*

2018 MSCA Individual Fellowship Seal of Excellence\* (European Commission)

 *\*proposal deemed to deserve funding but did not receive it due to budget limits - $ 200,000 USD\**

2017 George & Mildred Cirica Graduate Student Support Fund University of Montana) – $ 5,000 USD

2016 Wesley M. Dixon Graduate Fellowship (University of Montana) – $ 30,000 USD

2016 Bertha Morton Scholarship (University of Montana) – $ 3,000 USD

2015 Graduate Research Opportunities Worldwide (National Science Foundation) – $ 15,900 USD

2015 OnXmaps Graduate Research Grant (University of Montana) – $ 2,500 USD

2015 Student Fellowship (Montana Water Center) – $ 967 USD

2014 Student Grant Award (Northwest Scientific Association) – $ 1,366 USD

2014 Thomas H. Leik, Sr. Wildlife Biology Scholarship (University of Montana) – $ 2,000 USD

2014 Bertha Morton Scholarship (University of Montana) – $ 3,000 USD

2013 Graduate Research Fellowship (National Science Foundation) – $ 136,000 USD

2012 President’s Recognition Award of Outstanding Senior (University of Montana)

2010 University of Montana MILES Undergraduate Fellowship – $ 1,500 USD

**REVIEWED FOR:** *Biological Conservation,* *Molecular Ecology Resources, Environmental Science and Technology, PLoS ONE, Conservation Genetics Resources, BMC Bioinformatics, Northwest Science, Diversity and Distributions, Genome (2016 Outstanding Reviewer), Methods Ecology and Evolution, Environmental Biology of Fishes, Wildlife Research, Metabarcoding & Metagenomics, PeerJ, Molecular Ecology, Communications Biology, Conservation Biology, Minnesota Aquatic Invasive Species Research Center, Hydrobiologia, Aquatic Conservation: Marine and Freshwater Ecosystems, GigaScience,*

**ASSOCIATE EDITOR:** Environmental DNA *(Wiley journal with 2019 release date)*