

## Dr. Andreas F. Kautt

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### RESEARCH & TEACHING INTERESTS

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Evolutionary biologist interested in the proximate and ultimate mechanisms underlying biological variation, from morphology to behavior. Expertise in genomics, population genetics, speciation, and molecular ecology. Trained in wet-lab techniques, large-scale data analysis, and behavioral experiments. Study systems include fish (Neotropical cichlids) and mammals (North American deer mice).

### RESEARCH EXPERIENCE

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- 2018-**      **Postdoctoral Fellow in Evolutionary Genomics**, Department of Organismic and Evolutionary Biology, Department of Molecular and Cellular Biology, Harvard University, Cambridge, MA  
Project: The genetic and neural bases underlying predator aversion behavior in deer mice  
Funding: EMBO (European Molecular Biology Organization) long-term fellowship and DFG (German Science Foundation) research fellowship  
Faculty Advisor: Hopi Hoekstra, Ph.D.
- 2016-18**    **Postdoctoral Fellow in Evolutionary Genomics**, Department of Biology, University of Konstanz, Konstanz, Germany  
Project: Signatures of genomic divergence in Neotropical crater lake cichlid fishes  
Faculty Advisor: Axel Meyer, Ph.D.

### EDUCATION

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- 2016**      **Dr. rer. nat. (Ph.D. equivalent) in Evolutionary Biology**, International Max Planck Research School (IMPRS) for Organismal Biology, University of Konstanz, Germany  
Thesis: Genome-wide Patterns of Adaptation and Speciation and Demographic Histories of Young Radiations of Cichlids  
Faculty Advisor: Axel Meyer, Ph.D.
- 2010**      **M.Sc. in Biological Sciences**, University of Konstanz, Germany
- 2008**      **B.Sc. in Biological Sciences**, University of Konstanz, Germany

### PUBLICATIONS

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\*shared first authorship

#### Selected

1. **Kautt AF\***, Kratochwil CF\*, Nater A\*, Machado-Schiaffino G, Olave M, Henning F, Torres-Dowdall J, Härer A, Hulsey CD, Franchini P, Pippel M, Myers EW, Meyer A (2020). Contrasting signatures of genomic divergence during sympatric speciation. *Nature*. 588: 106-111

2. **Kautt AF**, Machado-Schiaffino G, Meyer A (2018). Lessons from a natural experiment: Allopatric morphological divergence and sympatric diversification in the Midas cichlid species complex are largely influenced by ecology in a deterministic way. *Evolution Letters*. 2(4): 323-340
3. **Kautt AF**, Machado-Schiaffino G, Meyer A (2016). Multispecies Outcomes of Sympatric Speciation after Admixture with the Source Population in Two Radiations of Nicaraguan Crater Lake Cichlids. *PLoS Genetics* 12(6): e1006157

### Additional Published Research

4. Xiong P, Hulsey CD, Fruciano C, Wong WY, Nater A, **Kautt AF**, Simakov O, Pippel M, Kuraku S, Meyer A., Franchini P. (2021), The comparative genomic landscape of adaptive radiation in crater lake cichlid fishes. *Molecular Ecology*. <https://doi.org/10.1111/mec.15774>
5. Franchini P, **Kautt AF**, Nater A, Antonini G, Castiglia R, Meyer A, Solano E. (2020). Reconstructing the evolutionary history of chromosomal races on islands: a genome-wide analysis of natural house mouse populations. *Molecular Biology and Evolution*. 37:2825–2837
6. Torres-Dowdall J, Rometsch S, **Kautt AF**, Aguilera G, Meyer A (2020). The direction of genital asymmetry is expressed stochastically in internally fertilizing anablepid fishes. *Proceedings of the Royal Society Series B*. 375: 20190535
7. Raffini F\*, Schneider RF\*, Franchini P, **Kautt AF**, Meyer A (2020). Diving into divergence: Differentiation in swimming performances, physiology and gene expression between locally-adapted sympatric cichlid fishes. *Molecular Ecology*. 29:1219-1234
8. Franchini P, Monné Parera D, **Kautt AF**, Meyer A (2017). quaddRAD: A new high-multiplexing and PCR duplicate removal ddRAD protocol produces novel evolutionary insights in a non-radiating cichlid lineage. *Molecular Ecology*. 26(10): 2783-2795
9. Machado-Schiaffino G, **Kautt AF**, Torres-Dowdall J, Baumgarten L, Henning F, Meyer A (2017). Incipient speciation driven by hypertrophied lips in Midas cichlids fish? *Molecular Ecology*. 26(8): 2348-2362
10. **Kautt AF\***, Machado-Schiaffino G\*, Torres-Dowdall J, Meyer A (2016). Incipient sympatric speciation in Midas cichlid fish from the youngest and one of the smallest crater lakes in Nicaragua due to differential use of the benthic and limnetic habitats? *Ecology and Evolution*. 6(15): 5342–5357
11. Kavembe GD\*, **Kautt AF\***, Machado-Schiaffino G, Meyer A (2016). Eco-morphological differentiation in Lake Magadi tilapia, an extremophile cichlid fish living in hot, alkaline and hypersaline lakes in East Africa. *Molecular Ecology*. 25:1610–1625
12. Machado-Schiaffino G, **Kautt AF**, Kusche H, Meyer A (2015). Parallel evolution in Ugandan crater lakes: repeated evolution of limnetic body shapes in haplochromine cichlid fish. *BMC Evolutionary Biology*. 15:9
13. Meyer A\* and **Kautt AF\***. "Sympatric speciation". Oxford Bibliographies in Evolutionary Biology. Ed. Jonathan Losos. New York: Oxford University Press, Aug 2014.
14. Torres-Dowdall J, Machado-Schiaffino G, **Kautt AF**, Kusche H, Meyer A (2014). Differential predation on the two colour morphs of Nicaraguan Crater lake Midas cichlid fish: implications for the maintenance of its gold-dark polymorphism. *Biological Journal of the Linnean Society*. 112:123-131
15. Elmer KR, Fan S, Kusche H, Spreitzer ML, **Kautt AF**, Franchini P, Meyer A (2014). Parallel evolution of Nicaraguan crater lake cichlid fishes via non-parallel routes. *Nature Communications*. 5:5168
16. **Kautt AF**, Elmer KR, Meyer A (2012). Genomic signatures of divergent selection and speciation patterns in a 'natural experiment', the young parallel radiations of Nicaraguan crater lake cichlid fishes. *Molecular Ecology*. 21:4770-4786
17. Elmer KR, Lehtonen TK, **Kautt AF**, Harrod C, Meyer A (2010). Rapid sympatric ecological differentiation of crater lake cichlid fishes within historic times. *BMC Biology*. 8:60

## PRESENTATIONS

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### Invited Lectures

- Genomics of adaptation and speciation in Neotropical crater lake cichlid fishes. Stonehill College, Easton, MA. 2019

### Conference Talks

- The evolution of gene regulation in the brain of *Peromyscus* mice. Annual *Evolution* society meeting (SSE, ASN, SSB), Providence, RI. 2019
- Genomics of adaptation and speciation in crater lake cichlids. Museum of Comparative Zoology, Harvard University, Cambridge, MA. 2018
- Genomics of adaptation and sympatric divergence in Neotropical crater lake cichlids. Annual Boston Evolutionary Genomics Supergroup Retreat, Broad Institute, Cambridge, MA. 2018
- Genomic signatures of adaptation and speciation during sympatric divergence in Neotropical crater lake cichlid fishes. Congress of the European Society for Evolutionary Biology (ESEB), Groningen, Netherlands. 2016
- Multispecies Outcomes of Sympatric Speciation after Admixture with the Source Population in Two Radiations of Nicaraguan Crater Lake Cichlids. Annual *Evolution* society meeting (SSE, ASN, SSB), Austin, TX. 2016
- Heterogeneous genomic differentiation during sympatric ecological speciation in Midas cichlid fishes. Satellite symposium on Biological adaptation of the Society for Molecular Biology and Evolution (SMBEBA), Montpellier, France. 2014
- The genomic landscape of speciation in the repeated radiations of Nicaraguan crater lake cichlid fishes. Congress of the European Society for Evolutionary Biology (ESEB), Lisbon, Portugal. 2013
- Genome-wide patterns of adaptation and speciation in repeated radiations of Midas cichlid fishes. Annual meeting of the German Zoological Society (DZG), Konstanz, Germany. 2012

### Poster Presentations

- Speciation genomics in sympatrically diverging Midas cichlids from Nicaragua. Gordon Research Conference (GRC) on Speciation, Tuscany, Italy. 2016
- Sympatric speciation in Nicaraguan crater lake cichlids evaluated in the genomic era. Workshop on the Genomics of the Speciation Continuum, Fribourg, Switzerland. 2014
- Isolation after colonization: Midas cichlid fishes in Nicaraguan crater lakes. Congress of the European Society for Evolutionary Biology (ESEB), Tübingen, Germany. 2011

## TEACHING & ADVISING EXPERIENCE

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### Seminars

Responsibilities included organizing syllabus, leading class discussions, grading all assignments, and meeting with students individually

- Eco-evolutionary dynamics 2017, University of Konstanz, 12 undergraduate and graduate students

### Teaching Assistant

Responsibilities included developing new class materials, leading class discussions, grading all assignments, and meeting with students individually

- Evolution and Behavior 2010, 2011, 2013, University of Konstanz, 90 undergraduate students
- Zoology, 2010, 2011, University of Konstanz, 125 undergraduate students

### **Guest Lecturer**

- Speciation and Population Genomics in Molecular Evolutionary Biology, 2013-2017, University of Konstanz, 10 graduate students
- Genetics: Origin of variation and Population Genetics in Evolution and Behavior, 2014-2017, University of Konstanz, 90 undergraduate students

### **Advising Experience**

Responsibilities included designing a research project and one-on-one supervision for six plus weeks during laboratory experiments and feedback on final written report or Bachelor's / Master's thesis

- One undergraduate student at the University of Konstanz, 2014
- Four graduate (Master's) students at the University of Konstanz, 2012-2016

## **FELLOWSHIPS & AWARDS**

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### **Fellowships**

- Postdoctoral fellowship, German Science Foundation (DFG), 2019 (2 years)
- Postdoctoral fellowship, European Molecular Biology Organization (EMBO), 2018 (2 years)
- Ph.D. scholarship, Landesgraduiertenförderung of the state of Baden-Württemberg, 2015 (6 months)
- Ph.D. scholarship, Max Planck Society, 2011 (1 year), 2015 (6 months)

### **Academic Recognition**

Prize for outstanding Master's degree, Alumni Association of the University of Konstanz, 2011

### **Research Grants and Awards**

Putnam Expedition Grant, Museum of Comparative Zoology, Harvard University, 2020, ~\$7000  
Guy N. Cameron Rodent Research Award, American Society of Mammalogists, 2020, ~\$3500  
Zukunftskolleg of the University of Konstanz, 2017, €3000

### **Travel Awards**

Boehringer Ingelheim Fonds, 2011, €1300

## **PROFESSIONAL SERVICES**

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### **Reviewer Services**

*American Naturalist, BMC Genetics, Ecology and Evolution, Evolution Letters, Heredity, Journal of Evolutionary Biology, Genome, Genome Biology and Evolution, Molecular Ecology, Molecular Ecology Resources, Molecular Biology and Evolution, Nature Communications, PLoS Genetics, PLoS One, Royal Society Open Science*

### **Professional Memberships**

- American Society of Mammalogists (ASM), 2020-
- Society for the Study of Evolution (SSE), 2012-
- European Society for Evolutionary Biology (ESEB), 2011-