

Sue Anne Zollinger

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Research Interests

Neuroethology, animal communication, vocal learning and development, bioacoustics, mechanisms of vocal production, impact of urbanization on animals

Academic Qualifications

Indiana University, Bloomington, IN (1999-2007)

PhD. Biology (minor certificates in Neural Science and Animal Behavior)

Proposed Thesis Title: “Mechanisms for Vocal Complexity: Peripheral control and constraints on the production of birdsong in northern mockingbirds (*Mimus polyglottos*)”

University of Maryland Baltimore County, Baltimore, MD (1995-1999)

B.S. (Cum Laude), Biological Sciences – May 1999

Honors Thesis Title: “A Novel Method for Monitoring Nocturnal Behavior in a Weakly Electric Fish, *Aperonotus albifrons*”

University of Illinois at Chicago, Chicago, IL (1992-1994)

School of Art and Design, minor focus – Biological Sciences

School of the Art Institute of Chicago, Chicago IL (1987 – 1990)

BFA program. major focus - printmaking and photography, minor focus - film history

Academic Positions

DFG-Funded Postdoctoral Research Fellow, (April- 2010 – present). Max Planck Institute for Ornithology, Seewiesen, Germany.

BBSRC-Funded Postdoctoral Research Fellow, (Jan 2008 – April 2010). University of St Andrews, Department of Biology. St Andrews, Fife, UK.

NIHMH Postdoctoral Research Fellow (2007). University of Indiana, Medical Sciences Department, Bloomington, IN, USA

Associate Instructor, (Fall 1999 -Spring 2000, Spring 2006). Department of Biology, Indiana University.

Grants

Predocotrinal Trainee, Speech Research Laboratory, Indiana University NIH-NIDCD DC00012. 2000 –2004.

CISAB Graduate Scholar Fellowship, Center for the Integrative Study of Animal Behavior, Indiana University. 2004-2005.

Awards

Teaching Excellence Recognition Award 1999-2000. College of Arts and Sciences, Indiana University, Bloomington, IN.

Summer Fellowship 2000, Center for the Integrative Study of Animal Behavior, Indiana University, Bloomington IN.

Best Student Presentation Award. Indiana University Animal Behavior Conference. Center for the Integrative Study of Animal Behavior. April 2002.

Research Poster Award. Women in Science Research Day, Indiana University. Spring 2003

Publications

Zollinger, S.A. and R. A. Suthers. 2003. Motor mechanisms of a vocal mimic: Implications for birdsong production. *Proceedings of the Royal Society London, B*. 271(1538): 483-491.

Suthers, R. A. and S. A. Zollinger. 2004. Producing song: The vocal apparatus. In: *Behavioral Neurobiology of Bird Song*. H.P. Zeigler and P. Marler, Eds. Annals New York Academy of Sciences. 1016:109-129.

Zollinger, S. A., T. Riede and R. A. Suthers. 2008. Two-voice complexity from a single side of the syrinx in northern mockingbird (*Mimus polyglottos*) vocalizations. *Journal of Experimental Biology* 211(12): 1978-1991.

Suthers, R. A. and S. A. Zollinger. 2008. Mechanisms of Song Production in Songbirds. In: *Neuroscience of Birdsong*. H.P. Zeigler and P. Marler, Eds. Cambridge University Press. Pp. 78-98.

Brumm, H., S. A. Zollinger and P. J. B. Slater. 2009. Developmental stress affects song learning but not song complexity and vocal amplitude in zebra finches. *Behavioral Ecology and Sociobiology*. 63:1387-1395

Zollinger, S. A. and H. Brumm. 2011. The Lombard Effect. *Current Biology*. 21(16): R614-R615

Zollinger, S.A., F. Goller and H. Brumm. 2011. Metabolic and respiratory costs of increasing song amplitude in zebra finches. *PLoS ONE* 6(9):e23198. doi:10.1371/journal.pone.0023198

Brumm, H. and S. A. Zollinger. 2011. The evolution of the Lombard effect: 100 years of psychoacoustic research. *Behaviour*. 148:1173-1198

Nemeth, E., Zollinger, S. A. & Brumm, H (2012) Effect sizes and the integrative understanding of urban bird song. *American Naturalist* 180: 146-152.

Zollinger S.A., J. Podos, E. Nemeth, F. Goller and H. Brumm. On the relationship between, and proper measurement of, amplitude and frequency in bird song. *Animal Behaviour* (in press)

Schuster, S., Zollinger, S.A., Lesku, J.A. & Brumm, H. On the evolution of noise-dependent vocal plasticity in birds. *Biology Letters* (accepted, pending revisions)

Public Science Publications and Outreach Projects

Science Journalism - Regular scriptwriter for “A Moment of Science”, a public radio program, produced by WFIU, Indiana University Bloomington. 2006 – 2010

Invited talks

S. Zollinger. *Mechanisms for vocal complexity in songbirds*. The Institute for Theoretical Biology, Humboldt University. Berlin, Germany. August 20, 2003.

S. Zollinger. *Mechanisms for vocal complexity in songbirds*. Cold Spring Harbor Laboratories, Cold Spring Harbor, NY, USA. January 10, 2006.

S. Zollinger. Singing on the Edge: Costs of pushing vocal production to the extremes. Max Planck Institute for Ornithology, Radolfzell, Germany. November 3, 2009.

S. Zollinger. *Impacts of urban noise on song learning and vocal production in birds*. 8th Conference of the European Ornithological Union, Riga, Latvia. August 27, 2011.

Selected papers presented at international scientific meetings

S. Zollinger and R. A. Suthers. *Motor Constraints in Birdsong Production: Evidence from a vocal mimic*. The Behavioral Neurobiology of Bird Song: 16th Annual Symposium of the Center for the Study of Gene Structure & Function at Hunter College, New York, NY . December, 2002.

S. Zollinger, T. Riede and R. A. Suthers. *Nonlinear phenomena in northern mockingbird vocalizations: Acoustics and physiology*. 1st Conference on Acoustic Communication by Animals. College Park, MD. July 27-30, 2003

S. Zollinger, T. Riede and R. A. Suthers. *Production of learned nonlinear phenomena by Northern Mockingbirds*. Society for Neuroscience Annual Meeting. Washington, DC. November 2005.

- S. Zollinger. *Limits on the independence of the two sides of the syrinx during two-voice phenomena in northern mockingbirds (Mimus polyglottos)*. Vocal Communication in Birds and Mammals. University of St Andrews, St Andrews UK, July 2008.
- S. Zollinger. *Limits on the independence of the two sides of the syrinx during two-voice phenomena in northern mockingbirds (Mimus polyglottos)*. Second International Conference of Acoustic Communication By Animals. Corvallis, OR. August 2008.
- S. Zollinger, Goller, F., Brumm, H. The energetics of singing in noise - metabolic and respiratory costs of increasing song amplitude. International Bioacoustics Congress, Lisbon, Portugal. September 2009
- S. Zollinger. *Impacts of noise exposure on song learning and production in great tits, Parus major*. The joint meeting of the Animal Behaviour Society and the International Ethological Congress. Bloomington, IN, USA. August 2011.

Ad-hoc peer reviewer

Journal of Experimental Biology, Behavioural Ecology and Sociobiology, Behaviour, Ethology, Animal Behaviour, Functional Ecology, Biology Letters.