

ARMIN PHILIPP MOCZEK

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[[Google Scholars](http://scholar.google.com/citations?user=Br-hcngAAAAJ&hl=en): <http://scholar.google.com/citations?user=Br-hcngAAAAJ&hl=en>]

DEGREES

1992 B.A., Biology, Julius-Maximilians Universität Würzburg, Germany
1996 M.S., Zoology, Julius-Maximilians Universität Würzburg, Germany
2002 Ph.D., Biology, Duke University, Durham NC

APPOINTMENTS

2002- 2004 NIH Postdoctoral Excellence in Research and Teaching (PERT) Fellow
University of Arizona, Center for Insect Science
2004- 2009 Assistant Professor, Indiana University, Bloomington, IN,
Department of Biology
2004- present Fellow, Indiana Molecular Biology Institute (IMBI),
Bloomington, IN
2004- present Adjunct Faculty, Center for Integrative Study of Animal Behavior
(CISAB), Bloomington, IN
2006- present Adjunct Faculty, Programs in *Cognitive Sciences* and *Neurosciences*
2009- 2014 Associate Professor, Indiana University, Bloomington, IN,
Department of Biology
2014- present Professor, Indiana University, Bloomington, IN, Department of Biology

FELLOWSHIPS AND AWARDS

1994 German Academic Exchange Service (DAAD) Scholar
2002 NIH Postdoctoral Excellence in Research and Teaching Fellow
2004 American Society of Naturalists (ASN) Young Investigator Prize
2007&08 Indiana University Trustees' Teaching Award
2008&11 National Academy of Sciences, Kavli Frontiers of Science Invited Participant
2010-11 Sabbatical Fellow, National Evolutionary Synthesis Center (NESCent)
2014&16 Senior Class Award for Teaching Excellence in Biology and
Dedication to Undergraduates
2015 Fellow, American Association for the Advancement of Science (AAAS)
2016 BioArt Award by the Federation of American Societies for Experimental
Biology (FASEB)
2017 Fulbright Distinguished Chair in Science, Technology and Innovation
Award (with support from the Commonwealth Scient. Research Org. (CSIRO))
2017 Fellow, John Simon Guggenheim Memorial Foundation

PUBLICATIONS

(i) PRIMARY RESEARCH PUBLICATIONS

* = peer reviewed, † = at Indiana University, ^U = undergraduate co-author):

- *prior to joining IU-*

Moczek AP (1998)*. Horn polyphenism in the beetle *Onthophagus taurus*: diet quality and plasticity in parental investment determine adult body size and male horn morphology. **Behavioral Ecology** 9: 636-641.

Moczek AP (1999)*. Facultative paternal investment in the polyphenic beetle *Onthophagus taurus*: the role of male morphology and social context. **Behavioral Ecology** 10: 641-647.

Moczek AP, Emlen DJ (1999)*. Proximate determination of male horn dimorphism in the beetle *Onthophagus taurus* (Coleoptera: Scarabaeidae). **Journal of Evolutionary Biology** 12: 27-37.

Moczek AP, Emlen DJ (2000)*. Male horn dimorphism in the scarab beetle *Onthophagus taurus*: do alternative reproductive tactics favor alternative phenotypes? **Animal Behaviour** 59: 459-466.

Shafiei M^U, Moczek AP, Nijhout HF (2001)*. Food availability controls onset of metamorphosis in the dung beetle *Onthophagus taurus* (Coleoptera: Scarabaeidae). **Physiological Entomology** 26: 173-180.

Moczek AP, Nijhout HF (2002)*. Developmental mechanisms of threshold evolution in a polyphenic beetle. **Evolution & Development** 4: 252-264.

Moczek AP, Hunt J, Emlen DJ, Simmons LW (2002)*. Evolution of a developmental threshold in exotic populations of a polyphenic beetle. **Evolutionary Ecology Research** 4: 587-601.

Moczek AP (2002)*. Allometric plasticity in a polyphenic beetle. **Ecological Entomology** 27: 58-67.

Moczek AP, Nijhout HF (2002)*. A method for sexing third instar larvae of the genus *Onthophagus* Latreille (Coleoptera: Scarabaeidae). **Coleopterist Bulletin** 56: 279-84

Moczek AP (2003)*. The behavioral ecology of threshold evolution in a polyphenic beetle. **Behavioral Ecology** 14: 841-854.

Moczek AP, Nijhout HF (2003)*. Rapid evolution of a polyphenic threshold. **Evolution & Development** 5: 259-268.

Moczek AP, Nijhout HF (2004)*. Tradeoffs during the development of primary and secondary sexual traits in a dimorphic beetle. **The American Naturalist** 163: 184-191.

Moczek AP, Krell FT, Bruehl C (2004)*. Gradual and threshold-dependent expression of secondary sexual traits in the same individual: insights from a horned beetle. **Biological Journal of the Linnean Society** 83: 473-480.

- since joining IU Fall 2004-

- 2005/06-

Moczek AP, Nagy LM (2005)*. Diverse developmental mechanisms contribute to different levels of diversity in horned beetles. **Evolution and Development** 7: 175-85

Moczek AP (2006)*†. A matter of measurements: challenges and approaches in the comparative analysis of static allometries. **The American Naturalist** 167: 606-611.

Moczek AP, Cochrane J *† (2006). Intraspecific female brood parasitism in the dung beetle *Onthophagus taurus*. **Ecological Entomology** 31:1-6.

Madewell R^U, Moczek AP *† (2006). Horn possession reduces maneuverability in a horn-polyphenic beetle. **Journal of Insect Science** 6.21.

Moczek AP, *†Rose D, Sewell W, Kesselring BR (2006). Conservation, innovation, and the evolution of horned beetle diversity. **Development Genes and Evolution**. 216: 655-665. (featured on the journal cover)

Moczek AP (2006) *†. Pupal remodeling and the development and evolution of sexual dimorphism in horned beetles. **The American Naturalist** 168: 711-729. (feature article of the month, most downloaded paper in Dec. 06; featured in NATURE Research Highlights, Discover News, and over 25 science websites)

Moczek AP, Cruickshank TE, Shelby JA^U (2006) *†. When ontogeny reveals what phylogeny hides: gain and loss of horns during development and evolution of horned beetles. **Evolution** 60: 2329–2341. (featured in NATURE Research Highlights, Discover News, and over 25 science websites)

- 2007-

Shelby JA^U, Madewell R^U, Moczek AP, (2007) *†. Juvenile hormone mediates sexual dimorphism in horned beetles. **Journal of Experimental Zoology B, Molecular and Developmental Evolution** 308B: 417-427.

Moczek AP (2007) *†. Pupal remodeling and the development and evolution of alternative male morphologies in horned beetles. **BMC Evolutionary Biology** 7:151.

Moczek AP (2007) *†. Developmental capacitance, genetic accommodation, and adaptive evolution. **Evolution and Development** 9: 299-305.

- 2008-

Moczek AP (2008) *†. On the origin of novelty in development and evolution. **Bioessays** 5: 432-447. (featured on the journal cover)

Pizzo A, Roggero A, Palestrini C, Moczek AP, Rolando A (2008) *†. Rapid shape divergences between natural and introduced populations of a horned beetle partly mirror divergences between species. **Evolution and Development** 10: 166-175.

Shepherd BL^U, Prange HD, Moczek AP (2008) *[†]. Some like it hot: body and weapon size affect thermoregulation in horned beetles. **Journal of Insect Physiology** 54: 604-611.

Parzer HF, Moczek AP (2008) *[†]. Rapid antagonistic coevolution between primary and secondary sexual characters in horned beetles. **Evolution** 62: 2423-2428.

--in rank of Associate Professor;

- 2009- ¹ denotes corresponding author this point forward--

Tomkins J, Moczek AP (2009) *[†]. Patterns of threshold evolution in polyphenic insects under different developmental models. **Evolution** 62: 459-468.

Moczek AP¹, Rose, DJ (2009) *[†]. Differential recruitment of limb patterning genes during development and diversification of beetle horns. **Proceedings of the National Academy of Sciences** 106: 8992-8997. (featured on the journal cover)

Kijimoto T, Costello J, Tang Z, Moczek AP, Andrews J (2009) *[†]. EST and microarray analysis of horn development in *Onthophagus* beetles. **BMC Genomics** 10: 504.

- 2010-

Wasik B, Rose DJ, Moczek AP¹ (2010) *[†]. Beetle horns are regulated by the Hox gene, *Sex combs reduced*, in a species- and sex-specific manner. **Evolution & Development** 12: 353-362.

Kijimoto T, Andrews J, Moczek AP¹ 2010*[†]. Programmed cell death shapes the expression of horns within and between species of horned beetles. **Evolution & Development** 12: 449-458.

Choi J-H, Kijimoto T, Snell-Rood EC, Tae H, Yang Y-I, Moczek AP, Andrews J. (2010) *[†]. Gene discovery in the horned beetle *Onthophagus taurus*. **BMC Genomics** 11:703.

Snell-Rood EC, Cash A, Kijimoto T, Andrews J, Moczek AP¹ (2010) *[†]. Developmental reprogramming and alternative phenotypes: insights from the transcriptomes of horn-polyphenic beetles. **Evolution** 65: 231-245.

Snell-Rood EC, VanDyken JD, Cruickshank TE, Wade MJ, Moczek AP¹(2010) *[†]. Toward a population genetic framework of developmental evolution: the costs, limits, and consequences of phenotypic plasticity. **BioEssays** 32: 71-81.

Pfennig D, Wund MA, Snell-Rood EC, Cruickshank T, Schlichting CD, Moczek AP (2010). Phenotypic plasticity's impacts on diversification and speciation. **Trends in Ecology and Evolution** 25: 459-467. (highly accessed)

- 2011-

- Moczek AP¹, Sultan S, Foster S, Ledon-Rettig C, Dworkin I, Nijhout HF, Abouheif E, Pfennig D (2011) *†. The role of developmental plasticity in evolutionary innovation. **Proceedings of the Royal Society of London** 278: 2705-2713.
- Simonnet F, Moczek AP¹ (2011) *†. Conservation and diversification of gene function during mouthpart development in *Onthophagus* beetles. **Evolution & Development** 13: 280-289.
- Wasik B, Moczek AP¹ (2011) *†. *decapentaplegic* (dpp) regulates the growth of a morphological novelty, beetle horns. **Development, Genes and Evolution** 221: 17-27. (featured on the journal cover)
- Macagno, AM, Pizzo A, Palestini C, Rolando A, Moczek AP¹ (2011) *†. Shape - but not size - codivergence between male and female copulatory structures in *Onthophagus* beetles. **PLoS ONE** 6(12): e28893.

- 2012-

- Wasik B, Moczek AP¹ (2012) *†. *pangolin* expression influences the development of a morphological novelty: beetle horns. **Genesis** 50: 404-14. (featured on the journal cover)
- Snell-Rood EC, Moczek AP (2012) *†. Insulin signaling as a mechanism underlying developmental plasticity and trait integration: the role of FOXO in a nutritional polyphenism. **PLoS ONE**. 7(4): e34857.
- Kijimoto T, Moczek AP¹, Andrews J (2012) *†. Diversification of *doublesex* function underlies morph-, sex-, and species-specific expression of beetle horns. **Proceedings of the National Academy of Sciences** 109: 20526-31. (featured as NSF *Research Highlight*)
- Moczek AP (2012) *†. The nature of nurture and the future of evodevo: toward a comprehensive theory of developmental evolution. **Integrative & Comparative Biology** 52: 108-119.

- 2013-

- *Snell-Rood EC, Troth A, Moczek AP (2013) *†. DNA Methylation as a mechanism of nutritional plasticity: insights from horned beetles. **Journal of Experimental Zoology** 320: 22–34. *(previous CV's had this listed under 2012 by accident)
- Estes AM, Hearn DJ, Snell-Rood EC, Feindler M, Feeser K, Abebe T, Dunning JC Hotopp, Moczek AP (2013)*†. Brood ball-mediated transmission of microbiome members in the dung beetle, *Onthophagus taurus* (Coleoptera: Scarabaeidae). **PLoS ONE** 8(11): e79061.

- 2014-

Stansbury M, Moczek AP (2014) *†. The function of Hox and appendage patterning genes in the development of a novel organ, the *Photuris* firefly lantern. **Proceedings of the Royal Society of London, Series B** 281: 1471-2954.

Kijimoto T, Snell-Rood EC, Rocha G, Pespeni M, Kafadar K, Moczek AP¹ (2014) *†. The nutritionally responsive transcriptome of the polyphenic beetle *Onthophagus taurus* and the importance of sex and body region. **Proceedings of the Royal Society of London, Series B**. 281: 2014-2084.

Schwab DB, Moczek AP (2014) *†. Resource allocation during ontogeny is influenced by genetic, developmental, and ecological factors in the horned beetle *Onthophagus taurus*. **Proceedings of the Royal Society of London, Series B**. 281: 1625.

Laland K, Tobias U, Feldman M, Sterelny K, Müller G, Moczek AP, Jablonka E, Odling-Smee J. (2014) *†. Does evolutionary theory need a rethink? **Nature** 514: 161-164.

- 2015-

Beckers OM, Anderson W^U, Moczek AP (2015) *†. A combination of developmental plasticity, parental effects, and genetic differentiation mediates divergences in life history traits between dung beetle populations. **Evolution & Development** 17: 148–159.

Macagno ALM, Moczek AP (2015) *†. Appendage-patterning genes regulate male and female copulatory structures in horned beetles. **Evolution & Development** 17: 148–159.

Macagno ALM, Beckers M, Moczek AP (2015) *†. Differentiation of early ovarian development and the evolution of fecundity in rapidly diverging exotic beetle populations. **Journal of Experimental Zoology Part A**. 323: 679-688.

- 2016-

Ledon-Rettig CC, Moczek AP 2016*†. The transcriptomic basis of tissue- and nutrition-dependent sexual dimorphism in the beetle *Onthophagus taurus*. **Ecology and Evolution** 12:1601-1613.

Snell-Rood EC, Burger M^U, Hutton Q^U, Moczek AP 2016*†. Effects of parental care on the accumulation and release of cryptic genetic variation: review of mechanisms and a case study of dung beetles. **Evolutionary Ecology** 30: 251–265.

Macagno ALM, Moczek AP, Pizzo A 2016*†. Concerted differentiation of nesting depth and digging appendages among tunneling dung beetle populations and species. **American Naturalist** 187: E143-151.

Silva DP, Vilela B, Buzatto BA, Moczek AP, Hortal J 2016*†. Conservatism and diversification of niche breath: contextualized niche shift upon rapid and repeated invasion by the dung beetle *Onthophagus taurus*. **Biological Invasions** *in press*.

- Kijimoto T, Moczek AP 2016*[†]. Hedgehog signaling enables nutrition-responsive inhibition of an alternative morph in a polyphenic beetle. **Proceedings of the National Academy of Sciences** 13: 5982-5987.
- Busey HA^U, Zattara EE, Moczek AP 2016 *[†]. Conservation, innovation, and bias: embryonic segment boundaries position posterior, but not anterior, head horns in adult beetles. **Journal of Experimental Zoology B: Molecular and Developmental Evolution** 326: 271-279.
- Zattara, E, Busey HA^U, Linz D, Tomoyasu Y, Moczek AP 2016*[†]. Neofunctionalization of embryonic head patterning genes facilitates the positioning of novel traits on the dorsal head of adult beetles. **Proceedings of the Royal Society of London B** 283: 20160824.
- Schwab DB, Riggs HE, Newton ILG, Moczek AP 2016 *[†]. Developmental and ecological benefits of the maternally transmitted microbiota in a dung beetle. **American Naturalist** 188: 679-692.
- Schwab DB, Moczek AP 2016*[†]. Nutrient stress during ontogeny alters patterns of resource allocation in two species of horned beetles. **Journal of Experimental Zoology Part A: Ecological Genetics and Physiology** 325: 481-490.
- McKenna DD, Scully ED, Pauchet Y...Moczek AP (+65 co-autors) 2016*[†]. Genome of the Asian longhorned beetle (*Anoplophora glabripennis*), a globally significant invasive species, reveals key functional and evolutionary innovations at the beetle-plant interface. **Genome Biology** *in press*.

- 2017-

- Ledon-Rettig CC, Zattara EE, Moczek AP 2017*[†]. Asymmetric interactions between *doublesex* and sex- and tissue-specific target genes mediate sexual dimorphism in beetles. **Nature Communications** *in press*.
- Pespeni MH, Ladner JT, Moczek AP 2017*[†]. Signals of selection in conditionally expressed genes in the diversification of three horned beetles species. **Journal of Evolutionary Biology** *in press*.
- Beckers O, Kijimoto T, Moczek AP 2017*[†]. The transcription factor *doublesex* alters aggressiveness as a function of social context and sex in *Onthophagus taurus*. **Animal Behavior** *in press*.

(ii) RESEARCH MANUSCRIPTS SUBMITTED, IN REVIEW OR IN REVISION

* = peer reviewed, † = at Indiana University, ^U = undergraduate co-author):

Parzer H, Polly D, Moczek AP (in revision) *[†]. The evolution of size and shape: insights from the genitalia of dung beetles. **Development, Genes and Evolution.**

Schwab DB, Casasa A, Moczek AP (in review) *[†]. Developmental niche construction differentially affects growth, scaling, and sexual dimorphism in three species of dung beetles. **Ecology Letters.**

Macagno ALM, Zattara EE, Ezeakudo O, Moczek AP, Ledon-Rettig CC (in review) *[†]. Adaptive maternal behavioral plasticity and developmental programming mitigate the transgenerational effects of temperature in dung beetles. **Oikos.**

Zattara EE, Macagno ALM, Busey H, Moczek AP (in review) *[†]. Development of functional ectopic compound eyes in beetles by knockdown of *orthodenticle*. **Nature.**

Casasa S, Moczek AP (in review) *[†]. The role of ancestral phenotypic plasticity in evolutionary diversification: population density effects in the horned beetle *Onthophagus taurus*. **Proceedings of the Royal Society of London, Series B.**

(iii) REVIEWS

- Moczek AP (2005)*[†]. The evolution and development of novel traits, or how beetles got their horns. **BioScience** 11: 935-951. (featured on the journal cover)
- Moczek AP (2006)*[†]. Integrating micro- and macroevolution of development through the study of horned beetles. **Heredity** 97: 168-178.
- Moczek AP, Andrews J, Kijimoto T, Yerushalmi Y, Rose D (2007)*[†]. Emerging model systems in evo-devo: horned beetles and the origins of diversity. **Evolution and Development** 9: 323-328.
- Moczek AP (2009). The origin and diversification of complex traits through micro- and macro-evolution of development: Insights from horned beetles. **Current Topics in Developmental Biology (CTDB)** 86: pp 135-162.
- Moczek AP (2010)*[†]. Phenotypic plasticity and diversity in insects. **Philosophical Transactions of the Royal Society of London, Series B**. 365: 593-603.
- Valena S, Moczek AP¹ (2012)*[†]. Epigenetic mechanisms underlying developmental plasticity in horned beetles. In: *The Epigenetics of Emerging and Nonmodel Organisms*. **Genetics Research International**. 2012: 576303.
- Kijimoto T, Pespeni M, Beckers O, Moczek AP¹ (2012)*[†]. Beetle horns and horned beetles: emerging models in developmental evolution and ecology. **WIREs Interdisciplinary Reviews in Developmental Biology**: 10.1002/wdev.81 .
- Moczek AP, Kijimoto T (2014)*[†]. Development and evolution of insect polyphenisms: novel insights through the study of sex determination mechanisms. **Current Opinion in Insect Science** 1: 52-58.
- Moczek AP (2015)*[†]. Re-evaluating the environment in developmental evolution **Frontiers in Ecology and Evolution** 3: 7.
- Moczek AP (2015)*[†]. Developmental plasticity and evolution - *quo vadis?* **Heredity** 115, 302-305.
- Moczek AP, Sears, KE, Stollewerk A, Wittkopp PJ, Diggle P, Dworkin I, Ledon-Rettig C, Matus DQ, Roth S, Abouheif E, Brown FD, Chiu C, Cohen CS, De Tomaso AW, Gilbert SF, Hall B, Love A, Lyons DC, Sanger T, Smith J, Specht C, Vallejo-Marin M, Extavour CG (2015)*[†]. The significance and scope of evolutionary developmental biology: a vision for the 21st century. **Evolution & Development** 17: 198-219.
- Laland KN, Uller T, Feldman M, Sterelny K, Müller GB, Moczek AP, Jablonka E, Odling-Smee J (2015)*[†]. *Darwin Review*: The extended evolutionary synthesis: its structure, assumptions, and predictions. **Proceedings of the Royal Society of London, Series B**. 282: 20151019.
- Casasa S, Schwab DB, Moczek AP 2017*[†]. Developmental regulation and evolution of scaling: novel insights through the study of *Onthophagus* beetles. **Current Opinion in Insect Science** 19: 52–60.

(iv) BOOK CHAPTERS

Moczek AP (2009)*[†]. Developmental plasticity and the origins of diversity: a case study on horned beetles. In: *Insects and phenotypic plasticity: mechanisms and consequences*. Ed. by: TN Ananthakrishnan & D Whitman. Science Publishers, Inc. Plymouth,UK, pp 81-134.

Moczek AP (2009)*[†]. On the origins of novelty and diversity in development and evolution: a case study on beetle horns. In: *Cold Spring Harbor Annual Symposium Volume 74, Evolution: The Molecular Landscape*. Cold Spring Harbor Lab. Press. 74: 289-296

Moczek AP (2011)*[†]. Evolution and development: *Onthophagus* beetles and the evolutionary developmental genetics of innovation, allometry, and plasticity. In: *Dung Beetle Ecology and Evolution*, edited by Leigh W. Simmons & James Ridsdill-Smith; Wiley-Blackwell, pp. 126-151.

Stansbury M, Moczek AP (2013)*[†]. The evolvability of arthropods. In: *Arthropod Biology and Evolution: Molecules, Development, Morphology*; edited by A. Minelli, G Boxshall and G Fusco. Springer Verlag, Berlin, pp. 479-493.

Snell-Rood EC, Moczek AP (2013)*[†]. Horns and the role of development in the evolution of beetle contests. In: *Animal Contests*. Ed. by: ICW Hardy & M Briffa. Cambridge University Press, UK.

Moczek AP, KijimotoT, Snell-Rood EC, Rocha G, Pespeni M, Kafadar K (2014)*[†]. Evolutionary and ecological genomics of plasticity: novel approaches and first insights from the study of horned beetles. In: *Ecological Genomics, Advances in Experimental Medicine and Biology*; edited by C. Landry and N. Aubin-Horth. Springer Verlag, Berlin.

Moczek AP (2014)*[†]. Toward a theory of development through a theory of developmental evolution. In: *Toward a Theory of Development*; edited by A. Minelli & T. Pradeu, Oxford University Press; pp. 218-226.

Moczek AP (2017)*[†]. The shape of things to come: *evo devo* perspectives on causes and consequences in evolution. In: *Evolutionary Causation: Biological and Philosophical Reflections*; edited by T. Uller and K. Laland. Vienna Series in Theoretical Biology, MIT Press; *in press*.

Schwab DB, Moczek AP (2017)*[†]. *Evo devo* and niche construction. In: *Evolutionary Developmental Biology - A Reference Guide*, edited by Laura Nuño de la Rosa and Gerd B. Müller. Springer, *in press*.

(v) REVIEWS AND BOOK CHAPTERS IN REVIEW

- none -

(vi) COMMENTARIES

Moczek AP 2011. The origins of novelty. **Nature** 473: 34-35

Moczek AP, Snell-Rood EC (2008). The basis of bee-ing different: the role of gene silencing in plasticity. **Evolution & Development** 10: 511-513.

(vii) BOOK REVIEWS

Moczek AP 2002. - BOOK REVIEW- How complexity pervades biology. A review of *Signs of Life: How Complexity Pervades Biology*, by Ricard Sole and Brian Goodwin, Basic Books Publishers, **Complexity** 7: 16-17

Moczek AP 2006. - BOOK REVIEW- The origins of diversity: A review of *Evolution of the Insects*, by David Grimaldi and Michael S. Engel. **Evolution & Development** 8: 111-112.

Moczek AP 2009. - BOOK REVIEW - Endless forms most strange: A review of *The superorganism: the beauty, elegance, and strangeness of insect societies*. **Evolution & Development** 11: 754-756.

Moczek AP 2010. - BOOK REVIEW - *In the Light of Evolution, vol. 1: Adaptation and Complex Design*, edited by John C. Avise and Francisco Ayala. **National Center for Science Education** 30: 40-42.

Moczek AP, Valena S 2012. - BOOK REVIEW - *Epigenetics: Linking Genotype and Phenotype in Development and Evolution*, edited by B Hallgrímsson and BK Hall. University of California Press. **Quarterly Review of Biology**.

Moczek AP 2012. - BOOK REVIEW - Endless brains most beautiful: A review of *Arthropod Brains: Evolution, Functional Elegance and Historical Significance*, by Nicholas Strausfeld. Harvard University Press. **Evolution & Development**.

Moczek AP and Ledón Rettig C 2015. -BOOK REVIEW- *Advances in Evolutionary Developmental Biology*, edited by J. Todd Streebman; Wiley-Blackwell. **Quarterly Review of Biology** 90: 340-341.

Sofia Casasa, Moczek AP 2016. -BOOK REVIEW- *Ecological Developmental Biology: the Environmental Regulation of Development, Health, and Evolution*, 2nd edition, by Scott F. Gilbert and David Epel, Sinauer. **Quarterly Review of Biology** *in press*.

BOOKS AND EDITED BOOKS

- none -

INDEPENDENT PUBLICATIONS FROM LAB MEMBERS

Gilbert SF, Bosch TCG, Ledón-Rettig CC. 2015. Ecological Developmental Evolutionary Biology: Eco-Evo-Devo as a New Worldview. **Nature Reviews Genetics**. 16: 611-622

Marcellini S (...), Zattara EE, Casasa S, *et al.* 2016. *Evolutionary Developmental Biology (Evo-Devo) Research in Latin America*. **Journal of Experimental Zoology B: Molecular and Developmental Evolution** *in press*.

GRANTS

Primary Grants: *Completed*

(1) Funding Agency: National Science Foundation (NSF)

Title: *Development and evolution of beetle horns*

PI: A.P. Moczek

Program: Evolution of Developmental Mechanisms

Total amount: **\$395,000** (direct and indirect); Duration: 01/01/05-12/31/07

(2) Funding Agency: METACyt Initiative Indiana University, MEDB Node

Title: *Evolution and Development of Novelty and Diversity in Horned Beetles*

PI: A.P. Moczek; CoPI: Justen Andrews

Total amount: **\$50,000**; Duration: 01/01/06-12/31/06

(3) Funding Agency: METACyt Initiative Indiana University, MEDB Node

Title: *Evolution and Development of Novelty and Diversity in Horned Beetles*

PI: A.P. Moczek; CoPI: Justen Andrews

Total amount: **\$55,000**; Duration: 01/01/07-12/31/07

(4) Funding Agency: METACyt Initiative Indiana University, MEDB Node

Title: *Developmental Plasticity and Evolution*

PI: A.P. Moczek

Total amount: **\$50,000**; Duration: 09/01/07-08/31/09

(5) Funding Agency: Eli Lilly and Company Foundation

Title: *Holland Summer Enrichment Program: Second Year Experience*

PI: A.P. Moczek; most of the effort involved in securing this grant came from Eva Allen and Jeremy Bennet

Total amount: **\$115,500** (direct only); Duration: 06/01/08-06/31/09

(6) Funding Agency: National Institutes of Health (NIH)

Title: *National Research Postdoctoral Service Award: Modularity of gene expression and tradeoffs in the evolution of plasticity.*

PI: A.P. Moczek (on behalf of EC Snell-Rood, a postdoc in the Moczek-Lab)

Total amount: **\$138,000** (direct only); Duration: 01/01/08-12/31/10

(7) Funding Agency: US-Israel Binational Science Foundation (BSF)

Title: *Proteome Profiling of the Horned Beetle *Onthophagus taurus**

PI: A.P. Moczek, CoPI: Yoram Yerushalmi

Total amount: **\$120,000** (direct and indirect); Duration: 06/01/08-05/31/11

(8) Funding Agency: National Science Foundation (NSF)

Title: *Evolution, Development, and Diversification of Beetle Horns*

PI: A.P. Moczek; Program: Developmental Systems

Total amount: **\$538,111** (direct and indirect); Duration: 01/01/08-06/30/12

(9) Funding Agency: National Science Foundation (NSF)
Phenotypic integration during development and evolution of beetle horns
PI: A.P. Moczek; Program: Physiological and Structural Systems
Total amount: **\$472,914** (direct and indirect); Duration: 07/01/08-12/31/13

(10) Funding Agency: National Science Foundation (NSF)
The Jim Holland Summer Science Research Program
PI: Armin Moczek; Program: Developmental Systems
Total amount: **\$ 17,381**; Duration: 01/01/13 - 12/31/13

(11) Funding Agency: Society for Integrative and Comparative Biology
SICB 2012 Society-Wide Symposium: The Impacts of Developmental Plasticity on Evolutionary Innovation and Diversification
PI: Matthew Wund; CoPI: A.P. Moczek; Program: Developmental Systems;
Total amount: **\$6,037**

(12) Funding Agency: Indiana University Faculty Research Support Program
Developmental plasticity studied through metabolomic profiling
PI: Michael Wade; CoPI: A.P. Moczek, Milos Novotny
Total amount: **\$60,000** (direct only); Duration: 01/01/12-12/31/13

(13) Funding Agency: National Science Foundation (NSF)
National Science Foundation Postdoctoral Fellowship in Biology: Mechanisms of diversification: integrating comparative genomics, transcriptomics, and functional developmental approaches in horned beetles
PI: A.P. Moczek (on behalf of M. Pespeni, a postdoc in the Moczek-Lab)
Total amount: **\$189,000** (direct only); Duration: 10/01/11-09/30/14

(14) Funding Agency: Ostrom Foundation, Indiana University
Development, application, and dissemination of teaching resources to K12 educators in South-Central Indiana
PI: Armin Moczek; Total amount: **\$ 7,500** 01/01/14-12/31/15

Primary Grants: *Current*

- National Science Foundation (NSF) -

(15) Funding Agency: National Science Foundation (NSF)
Integrating evolution and development of novelty and diversity through the study of horned beetles

PI: A.P. Moczek; Program: Developmental Systems

Total amount: **\$617,000** (direct and indirect); Duration: 01/01/12-12/31/16

(16) Funding Agency: National Science Foundation (NSF)
Origin, diversification, and integration of sex- and nutrition-dependent development in horned beetles.

PI: Armin Moczek; Program: Developmental Systems

Total amount: **\$ 750,071** (direct and indirect); Duration: 09/15/13 - 08/30/17

(17) Funding Agency: National Science Foundation (NSF)
BioSim: Developing a Wearable Toolkit for Teaching Complex Science Through Embodied Play

PI: K. Peppler; CoPI: A.P. Moczek; Program: Cyberlearning: Transforming Education

Total amount: **\$ 999,989** (direct and indirect); Duration: 01/01/14-12/31/17

(18) Funding Agency: National Science Foundation (NSF)
Dissertation Research (on behalf of D. Schwab): Investigating the role of the maternally-inherited microbiota in dung beetle development and niche construction

PI: Armin Moczek; Program: Population and Community Ecology

Total amount: \$18,720; Duration: 06/01/17-05/31/19

- OTHER SUPPORT -

(19) Funding Agency: John Templeton Foundation
Putting the Extended Evolutionary Synthesis to the Test

PI: K. Laland, University of St. Andrews, Scotland; IU TeamLeader: A.P. Moczek

Total amount **\$8,718,903** (direct and indirect);

Indiana University Subcontract: **\$ 1,246,651**; Duration: 09/01/16-05/30/19

(20) Funding Agency: Ostrom Foundation, Indiana University
Institutionalizing K-12 Science Outreach in South-Central Indiana and beyond: Resource development, teacher training, and mentoring the next generation of principal investigators; PI: Armin Moczek; Total amount: **\$ 8,000** 01/01/16-12/31/17

(21) Funding Agency: Johnson Center for Innovation and Translational Research
Indoor Positioning System; PI: Kylie Peppler; CoPI: Armin Moczek

Total amount **\$24,882**. Duration: 09/01/16-08/30/17

Additional Grants prior to joining IU Biology in Fall 2004

1999-02: National Science Foundation (NSF) Dissertation Improvement Grant
IBN 9972567; \$10,000

2002-04: National Institutes of Health (NIH) Postdoctoral Excellence in Research and Teaching Grant, Center for Insect Science, University of Arizona (\$138,000)

STUDENTS AND POSTDOCS TRAINED

Past Graduate Students:

Bethany Wasik (Kesselring)	Ph.D (DCMB), 2010
Matthew Stansbury	Ph.D (EEB), 2011
Tami Cruickshank (co-advised by Mike Wade)	Ph.D (EEB), 2011
Matthew Stansbury	Ph.D (EEB), 2011
Sophie Valena	Ph.D (EEB; withdrew from program in 2012)
Harald F. Parzer	Ph.D (EEB), 2013

Current Graduate Students:

Sofia Casasa	Ph.D (EEB)
Daniel Schwab	Ph.D (EEB)
Erik Parker	Ph.D (EEB)
Guillaume Dury	Ph.D (EEB)

Graduate Student Rotations:

Bethany Kesselring	December 2004 - February 2005
Nicole Crown	Spring 2005
Rhea Datta	Summer 2005
Matthew Stansbury	Fall 2006
Wenli Li	Spring 2007
Amy Cash	Fall 2007
LaDonna Jones	Spring 2008
Amy Dapper	Spring 2010
Mikus Abolins-Abols	Spring 2012

Service on Graduate Advisory Committees:

Current Graduate Advisory Committees:

Jamie Kostyun	Ph.D (EEB)
Melissa Horton	Ph.D (Micro)
Xulong Liang	Ph.D (MCDB)
Spencer Hellert	Ph.D (Geology)

Past Graduate Advisory Committees:

Mikus Abolins-Abols	Ph.D (EEB)
Amy Dapper	Ph.D (EEB)
Lauren Young	Ph.D (EEB)
Luke Hoekstra	Ph.D (EEB)
Brandon Cooper	Ph.D (EEB)
Helena Mendes Soares	Ph.D (EEB)
Amy Cash (IGERT Co-advisor)	Ph.D (MCDB)
Benjamin Kerr Blackman	Ph.D (EEB)
Stephan Goodwin	Ph.D (EEB)
Cameron Turner	Ph.D (EEB)
Lelena Avila	Ph.D (EEB)

- *continued* -

Bronwyn Heather Bleakley	Ph.D (EEB)
James David VanDyken	Ph.D (EEB)
Timothy James Greives	Ph.D (EEB)
Jennifer Raff	Ph.D (ANTR & MGB)
Kate Charles	Ph.D (EEB)
Amy McElhinney	Ph.D (MGB)
Douglas Drury	Ph.D (MGB)
Christine Bergeon	Ph.D (EEB)

Past Postdoctoral Researchers:

Emilie Snell-Rood	October 2007 - December 2010
Franck Simonnet	October 2009 - May 2011
Melissa Pespeni	October 2011 - June 2014
Oliver Beckers	January 2012 - July 2014
Teiya Kijimoto	January 2006 - December 2014

Current Postdoctoral Researchers:

Cristina Ledon-Rettig	September 2014 - present
Eduardo Zattara	October 2014 - present
Barbara Vreede	August 2016 – July 2017
David Linz	August 2017 - present

UNDERGRADUATE RESEARCH MENTORED

Undergraduate Research and Creative Activity Partnership

Morgan Peters	Spring 2005
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Undergraduate Research Experience for Introductory Biology Students

Richard Madewell	Fall 2004 - Spring 2005
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L490 Undergraduate Research Experience for Introductory Biology Students

Andrew Shelby	Spring 2005
Richard Madewell	Spring 2006
Melanie O'Day	Summer 2006
John Tyler (JT) Means	Spring 2007
Ashley Troth	Fall 2009 & Spring 2010
Austin Dicken	Spring/Summer 2010
Melissa Burger	Summer/Fall 2010
Becky Rice	Fall 2010
Greg Specht	Spring 2012
Michael Andreas	Spring 2012
Keegan O'Conner	Spring 2012
Alexander Neufeld	Spring 2012
Jacob Weaver	Spring 2013
Melanie Stamper	Summer 2013
Hailey Riggs	Spring 2015

- continued -

HHMI Capstone Undergraduate Research Experience

Andrew Shelby	Spring 2005
Richard Madewell	Spring 2006
John Tyler (JT) Means	Spring 2007

HHMI Undergraduate Summer Research Experience

Andrew Shelby	Summer 2005
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Undergraduate Honors Research (Advisor)

Andrew Shelby	Fall 2005
Brittany Shepperd	Spring-Fall 2006
Ashley Troth	Fall 2010-Spring 2011

Undergraduate Honors Research (Committee member)

Ian Gelarden	Spring 2014
Alexander Neufeld	Fall 2014
Zachary Rokop	Fall 2014

STARS/IFLE Undergraduate Research Mentorship

Hannah Busey	Fall 2014 - present
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OTHER TRAINING

Nov. 2007- May 2008: Corinne Innes; High School Senior Internship; Bloomington High School South; *Mentored Research on the Behavioral Ecology of horned beetles*

Spring 2008: Rita Knox-Larsen (IU Education MS Student); Independent Study: *Collaboration on the development of teaching modules for local Middle Schools focusing on Insect Biology and EvoDevo*

Fall 2013 - Summer '14: Hannah Busey; High School Senior Internship; Bloomington High School North; *Mentored Research on life history trait evolution in horned beetles.*

Fall 2016 - Summer '17: Emma DiLavore; High School Senior Internship; Bloomington High School South; *Mentored Research on evo devo and behavioral ecology of horned beetles*

CLASSROOM TEACHING

<u>Course:</u>	<u>Enrollment:</u>	<u>Semester:</u>	<u>Year:</u>
<i>-- pre-tenure with an expected teaching load (ETL) of 1 course / year--</i>			
Z620 Phenotypic Plasticity	10	Fall	2004
Z373 Entomology	24 (+11 waitlisted)	Fall	2005
Z620 Dev. Plasticity & Evolution	11	Spring	2006
<i>-- pre-tenure with an expected teaching load (ETL) of 1.5 courses / year--</i>			
Z373 Entomology	24 (+3 waitlisted)	Fall	2006
L433 Tropical Biology (Co-Instructor)	16	Spring	2007
Z620 Dev. Plasticity & Evolution	9	Spring	2007
Z373 Entomology	24 (+2 waitlisted)	Fall	2007
L433 Tropical Biology (Co-Instructor)	16	Spring	2008
Z620 Dev. Plasticity & Evolution	8	Spring	2008
Z373 Entomology	24 (+8 waitlisted)	Fall	2009
Z620 Dev. Plasticity & Evolution	5	Spring	2010
Z373 Entomology	24 (+12 waitlisted)	Fall	2011
Z373 Entomology	28 (+11 waitlisted)	Fall	2013
Z373 Entomology	28 (+7 waitlisted)	Fall	2014
Z373 Entomology	30 (+9 waitlisted)	Fall	2015

GUEST LECTURES

<u>Course:</u>	<u>Instructor:</u>	<u>Semester:</u>	<u>Year:</u>
Z620 Hormones & Animal Social Behavior	Ketterson	Fall	2005
L505 Evolution and Development	Raff	Fall	2005
L104 Biology of the Senses	Mojonnier	Spring	2006
ABEH 501 Integr. Study of Animal Behav.	Ketterson	Fall	2006
L104 Biology of the Senses	Mojonnier	Spring	2007
L104 Biology of the Senses	Mojonnier	Fall	2007
L104 Biology of the Senses	Mojonnier	Spring	2008
Z620 Evolution of Novelty	Raff	Fall	2009
L307 Biodiversity	Clay	Fall	2014

UNIVERSITY AND DEPARTMENTAL SERVICE

UNIVERSITY SERVICE:

2012 - present	IU College Academic Fairness Committee
2013 - present	IU Diversity Recruitment Committee
2014 - present	IU College Science Outreach Faculty Advisory Committee
2015 - present	IU School of Education; Center for Research on Learning and Technology Advisory Board
2013 - present	College Graduate Academic Fairness Committee
2015	Chair of Search Committee for Office of Community and School Partnerships (OCSP) Director position; OVP for Diversity, Equity and Multicultural Affairs

DEPARTMENTAL SERVICE:

2006	EEB Graduate Admissions Committee
2006 - 2007	EEB Faculty Search Committee
2006 - 2008	EEB Website Committee
2004 - 2011	IGERT Steering Committee
2007 - present	Indiana Molecular Biology Institute (IMBI) Executive Committee
2007 - present	Library Committee, IU Life Sciences Library
2008 - present	Co-Director and Faculty Representative for Jim Holland Summer Enrichment Program
2008 - present	Co-Director and Faculty Representative for Jim Holland Summer Science Research Program (SSRP)
2009 - 2013	Director, Graduate Program in Evolution, Ecology and Behavior
2010 - 2015	Genetics, Cellular and Molecular Sciences Training Grant Committee
2011	EEB Faculty Search committee
2012 - 2014	Tenure Committee, Andrew Zelhof
2014 - present	Tenure Committee Chair, Eric Ragsdale
2013 - 2014	EEB Faculty Search committee chair
2013 - 2016	Director, Masters of the Arts for Teachers in Biology (MAT) program
2015 - present	Co-Director and Faculty Representative for Jim Holland Research Initiative in STEM Education (RISE) Program
2016 Spring	Interim Associate Chair for Teaching

INVITED SYMPOSIA AND CONFERENCE TALKS

- 2004 ASN Young Investigator Award Symposium, American Society of Naturalists, Fort Collins, CA
- 2004 International Congress of Entomology (ICE), Brisbane, Australia Symposium on Insect Morphometrics
- 2005 European Society for Evolutionary Biology Bi-Annual Conference, Krakow, Poland. Symposium on Functional Evo-Devo
- 2006 National Evolutionary Synthesis Center (NESCent) Catalysis Meeting, *Integrated studies of genetic networks: A new evolutionary synthesis.* Keys, FL
- 2006 International Darwin Day, Eastern Illinois University *-declined-*
- 2006 Symposium Conference on *Animal Behavior and Diversity*, Department of Ethology, Kyoto, Japan
- 2006 IGERT Symposium on the *Evolution of Novel Features*, Department of Biology, Bloomington, IN
- 2007 India Academy of Sciences Annual Meeting, Symposium title: *Phenotypic and Developmental Plasticity*; Trivandrum, Kerala, India, December 16-20 2007 *-declined-*
- 2008 Integrating Evolution, Development, and Genomics (IEDG) bi-annual meeting, UC Berkeley (invitation on behalf of the Graduate Students in Integrative Biology and Molecular and Cell Biology, UC Berkeley)
- 2008 PLENARY speaker, Canadian Society of Zoologists Annual Meeting on Comparative Morphology & Development; Symposium title: *Innovation in Development & Evolution*, Mount St. Vincent University Halifax, Nova Scotia, May 2008
- 2008 Ontario Ecology and Ethology Colloquium; *Geometric Morphometrics: Applications in Ecology and Evolution*. Guelph, April 2008. (due to scheduling conflicts this presentation was co-authored and delivered by graduate student Harald Parzer)
- 2008 International Congress of Entomology, (ICE); Double Invitation:
(i) Reproduction and Development section; Symposium on *Evolution and Development of Integrated Phenotypes*.
(ii) Physiology and Biochemistry section, Symposium on *Juvenile Hormone in Adult Physiology and Behavior: The Roads Less Traveled*. Durban, South Africa, July 2008 (due to scheduling conflicts both presentation were co-authored and delivered by postdoctoral associate Emilie Snell-Rood)
- 2008 European Society for Evolutionary Developmental Biology, Symposium on *From polyphenism to complex life cycles*, Ghent, Belgium, July 2008.
- 2008 Santa Fe Institute Workshop; workshop title: *Principles of repurposing*. Santa Fe, July 2008. *-declined-*

INVITED SYMPOSIA AND CONFERENCE TALKS - *continued* -

- 2008 National Academy of Sciences & Centre National de la Recherche Scientifique; France-U.S. Kavli Frontiers of Science Symposium, Roscoff, France, November 20-22, 2008. *-declined-*
- 2009 74th Cold Spring Harbor Laboratory Symposium on Quantitative Biology - *Evolution: The Molecular Landscape*. Cold Spring Harbor, New York, May-June 2009
- 2009 Symposium on *Advances in Evolution since Darwin*; University of Guelph, Ontario, Canada, May 20-21 2009. *-declined-*
- 2009 Royal Entomological Society 2009, Sheffield, UK, July 15-15 2009 *-declined-*
- 2009 European Society for Evolutionary Biology (ESEB); Symposium on *The origins of novelty in development and evolution*, Turin, Italy, August 24-29 2009; (due to scheduling conflicts this presentation was co-authored and delivered by postdoctoral associate Emilie Snell-Rood)
- 2010 European Society of Evolutionary Developmental Biology (EED); Triple Invitation: Symposia on **(i)** *Segmentation and Head Patterning in Arthropods*; **(ii)** *The Molecular and Developmental Mechanisms Underlying Phenotypic Diversification*; **(iii)** *Adaptation in Real Time* July 6-9; Paris, France.
- 2010 International Union for the Study of Social Insects (IUSI); Keynote speaker for Symposium on *Evolution of morphological novelty in social insects*, August 8-14; Copenhagen, Denmark.
- 2011 International Congress of Systematics and Evolutionary Biology; Symposium on *Tempo and mode of change: Reconstructing morphological evolution in the light of the current debate on evolutionary process*; Feb. 21-27; Berlin Germany.
- 2011 Society for Molecular Biology and Evolution (SMBE); Symposium on *Molecular mechanisms governing morphological divergence of arthropod appendages: insights from case studies*. Kyoto, Japan *- declined -*
- 2011 Entomological Society of America; Symposium titled: *Epigenetics, Phenotypic Plasticity, and Insect Evolution: First Insights from an Emerging Field*, Reno, NV, November 13-16, 2011.
- 2011 National Academy of Sciences Kavli Frontiers of Science Symposium; jointly organized with the Chinese Academy of Sciences, Shenzhen, China, Nov. 5-7, *- declined -*
- 2012 Society for Integrative and Comparative Biology (SICB), society-wide symposium on *The Impacts of Developmental Plasticity on Evolutionary Innovation and Diversification*, January 2012, Charleston, SC.

INVITED SYMPOSIA AND CONFERENCE TALKS - *continued* -

- 2012 PLENARY speaker; European Society of Evolutionary Developmental Biology (EED); July 2012 Lisbon, Portugal.
- 2012 International Conference on Evo-Devo, Weizmann Institute of Science, April 1-3, 2012, Rehovot, Tel Aviv, Israel; invited by the graduate students and postdocs
- 2012 International Congress of Entomology (ICE), Double Invitation: Symposiums titled (i) *Mechanisms of regulation of growth rate and size and shape in insects* and (ii) *Evolution and Development of Integrated Phenotypes* to be held August 19-24, 2012; Daegu, Korea; - *declined* -
- 2012 Society for Systematic Biology (SSB) Symposium on *Origins of Evolutionary Innovations*; joint meeting of the American and Canadian Societies for the Study of Evolution; July 6-10, Ottawa, Canada. - *decl.*-
- 2012 PLENARY speaker; Lund University, Symposium on *Phenotypic Plasticity – Variation, Alteration and Speciation*. November 2012, Lund, Sweden, - *declined* -
- 2012 EcoGenes/European Commission project symposium on *Global Change in the Mediterranean*, November 15-16, 2012, Sevilla, Spain,
- 2013 Society for Integrative and Comparative Biology (SICB), Symposium on *Ecological Epigenetics*, January 2013, San Francisco, CA.
- 2013 KEY NOTE SPEAKER; International Darwin Day, Eastern Illinois University, Charleston, IL.; February 2013
- 2013 KEY NOTE SPEAKER; Dutch Entomological Society 25th Annual Meeting, Leiden University, The Netherlands; December 2013 - *decl.*-
- 2014 PLENARY speaker; Volkswagen Symposium on *Size and Shape - Integration of Morphometrics, Mathematical Modeling, Developmental Biology and Evolution*, Schloss Herrenhausen, Hannover, Germany, April 2-4, 2014.
- 2014 PLENARY speaker; 7th Internal Symposium on Molecular Insects Science, Amsterdam, The Netherlands; July 12-16, 2014
- 2014 PLENARY speaker; Midwest Ecology and Evolution Conference (MEEC), hosted by the University of Dayton (UD)
- 2014 KEY NOTE SPEAKER, 3rd International Congress of Invertebrate Morphology; Berlin, Germany, August 3-7
- 2014 PLENARY SPEAKER, Deutschen Zoologische Gesellschaft; Göttingen, Germany; September 10-13
- 2014 International Symposium on RNAi and Genome Editing Research March 14 - 16, 2014; University of Tokushima, Japan - *decl.*-
- 2014 International Conference on *Frontiers in Niche Construction: From Theory to Application in the Biological and Social sciences*, Santa Fe Institute; Santa Fe NM; November 2014, - *decl.*-

INVITED SYMPOSIA AND CONFERENCE TALKS - *continued* -

- 2014 PLENARY SPEAKER, Symposium on *Molecular Frontiers in Ecology and Evolution*; Max Planck Institute for Developmental Biology, Tuebingen, Germany. May 2014.
- 2015 University of Arizona Center for Insect Science *Hexapodium*, Sonoran Desert Museum, March 2nd 2015
- 2014 University of Minnesota Developmental Biology Center (DBC) Symposium; *The role of environment in development*; October 2014.
- 2015 9th Annual Arthropod Genomics Consortium Symposium, Kansas State University, Manhattan, Kansas, June 2015
- 2015 57th Phylogenetische Symposium, Nov. 2015, Rostock, Germany - *decl.*
- 2015 Entomological Society of America, Entomology 2015; Symposium: *Developmental Synergy between Genome Regulation and Environmental Stimuli: From Phenotypic Plasticity to Disease Response* November 15-18, Minneapolis, MN
- 2015 KEY NOTE speaker; URPP Symposium *Evolution in Action*; invited by the graduate students of the Department of Biology, October 21 2015, Zurich, Switzerland
- 2016 Animal Behavior Conference, Indiana University Bloomington; Symposium: *Changing paradigms*; Spring 2016
- 2016 PLENARY speaker; European Society of Evolutionary Developmental Biology (EED); July 2016 Uppsala, Sweden.
- 2016 PLENARY speaker; Annual Meeting British Ecological Society, Liverpool, December 11-14, *declined*
- 2017 PLENARY speaker; PanAmerican Society for Evolutionary Developmental Biology, Calgary, Canada, August 2017, *declined*
- 2017 KEY NOTE speaker; International Congress on Invertebrate Morphology, Moscow State University, Moscow, Russia, August 18-23
- 2017 KEY NOTE speaker; Genetics Society of Australasia, July 3-5 2017 Dunedin, New Zealand.; *declined*
- 2017 Gordon Research Conference in Ecological and Evolutionary Genomics, Binneford, Maine, July 16-21 2017; *declined*
- 2017 PLENARY speaker; International Joint Conference on Neural Networks Workshop on *Developmental Plasticity and Evolutionary Robotics*, Anchorage, Alaska, May 14–19, *declined*
- 2017 PLENARY speaker , 7th Congress of the Italian Society for Evolutionary Biology (SIBE), which will take place in Rome on 28-31 August 2017, *declined*
- 2018 XI European Congress of Entomology in Napoli (Italy) (2-6 July 2018), Symposium on *Evo-devo perspectives on insect morphology*; *declined*

WORKSHOPS

- 2010 Association of Science and Technology Centers, RAP-workshop ("Roundtables Advancing the Profession"); Invited presentation on *How to develop a successful collaboration between museums and their local universities* (co-presented with Karen Jepson-Innes, Associate Director *WonderLab*-Museum; Muncie, IN; April 17, 2010.
- 2012 National Center for Evolutionary Synthesis. Two-day workshop on the future of the National Evolutionary Synthesis Center titled: *Addressing Fundamental Challenges in Evolutionary Science*. Invited Participant. May 24-25, 2012; Durham, NC.
- 2013 Co-organizer and invited participant of NSF funded workshop on *The future of EvoDevo*; held at the National Evolutionary Synthesis Center, Durham NC, December 11-13.
- 2014 Invited participant; workshop on *The causal factors of robustness and plasticity in living systems*. Cognitive Sciences Program, Indiana University, Bloomington, December 5, 2014.
- 2016 Minnesota Center for Philosophy of Science, workshop on *Integrating genetic and generic explanatory approaches to development, evolutionary novelty, and evolvability*. Outing Lodge, Stillwater MN, April 21-24, 2016
- 2017 KEY NOTE speaker and workshop participant; Workshop on *Phenotypic plasticity and cryptic genetic variation*, University of Münster, Germany; May 2017; *declined*
- 2017 Co-organizer and invited speaker; Workshop on *Cause and Process in Evolution*, Konrad Lorenz Institute, Vienna, Austria, May 2017

OTHER MEETING TALKS

- 1999 Society for the Study of Evolution, Madison, WI.
- 1999 Conference on the Evo-Devo Insect Color Patterns. Madison, WI.
- 2000 International Society for Behavioral Ecology, Zürich.
- 2000 Society for the Study of Evolution, Bloomington, IN.
- 2000 Society for Integrative Biology, Atlanta, GA.
- 2001 Society for the Study of Evolution, Knoxville, TN.
- 2002 IGERT Symposium on the Microevolution of Development, Bloomington, IN.
- 2003 Society for the Study of Evolution, Chico, CA.
- 2004 Society for the Study of Evolution, Fort Collins, CA.
- 2006 Society for the Study of Evolution, Stony Brook, NY.

INVITED SEMINARS

- 2000 University of Würzburg, Department of Tropical Ecology and Sociobiology, Germany
- 2000 University of Leiden, Institute of Evolutionary and Ecological Sciences, Holland
- 2001 University of North Carolina, Department of Biology, Greensboro, NC
- 2001 University of Georgia, Department of Entomology, Athens, GA
- 2001 Western Carolina University, Department of Biology, NC
- 2002 University of Arizona, Department of Entomology, Tucson, AZ
- 2002 University of Arkansas, Dept. of Biological Sciences, Fayetteville, AS
- 2002 University of Arizona, Department of Ecology and Evolutionary Biology, Tucson,
- 2003 University of Puerto Rico, Department of Biology, San Juan, PR
- 2003 University of New Mexico, Department of Biology, Albuquerque, NM
- 2004 Indiana University, Center for Integrative Studies in Animal Behavior, CISAB, IN
- 2004 Indiana University, Department of Biology, MCDB Research Seminar Series, IN
- 2004 ASN Young Investigator Award Symposium, American Society of Naturalists, Fort Collins, CA
- 2004 Indiana University, Department of Biology, Bloomington, IN
- 2004 Rice University, Department of Biology, Houston, TX
- 2004 Lehigh University, Department of Biology, Bethlehem, PA
- 2004 Swarthmore College, Department of Biology, Swarthmore, PA
- 2004 Center for Integrative Studies in Animal Behavior, CISAB,
- 2004 Indiana University, IN
- 2004 MCDB Research Seminar Series, Department of Biology, Indiana University, IN
- 2004 University, IN
- 2005 Jim Holland Lecture Series for High School Minority Students, Indiana University
- 2005 Biocomplexity Seminar Series, Institute for Biocomplexity, Indiana University, IN
- 2005 University of Toronto, Canada; Department of Ecology and Evolutionary Biology (Graduate Student invitation)
- 2006 University of North Carolina, Chapel Hill; Department of Biology
- 2006 University of Colorado, Boulder, Department of Biology
- 2006 Purdue University, Department of Biological Sciences
- 2006 Jim Holland Lecture Series for High School Minority Students, Indiana University
- 2007 University of Oklahoma, Norman; Department of Ecology and Evolutionary Biology (Graduate Student invitation)
- 2007 University of California, Irvine, Department of Ecology and Evolutionary Biology, Irvine, CA (*postponed*)
- 2007 Jim Holland Lecture Series for High School Minority Students, Indiana University
- 2007 Washington University, Department of Biology, St. Louis, MO

INVITED SEMINARS - *continued* -

- 2007 Stanford University, Hopkins Marine Station, Pacific Grove, CA
(Graduate Student invitation)
- 2008 Iowa State University, Department of Ecology, Evolution, and
Organismal Biology, Ames, IA
- 2008 DePauw University, Department of Biology, Greencastle, IN
- 2008 University of Maryland, College Park, joint invitation by (i) Department
of Entomology & (ii) Department of Molecular and Cell Biology;
College Park, MD (*declined*)
- 2008 Jim Holland Lecture Series for High School Minority Students,
Indiana University
- 2008 Biocomplexity Seminar Series, Institute for Biocomplexity, Indiana
University, IN
- 2008 Julius Maximilians University (LMU) Munich, Department of Biology.
Munich, Germany
- 2008 University of Basel, Department of Biology, Switzerland (*declined*)
- 2008 Mountain Lake Biological Station, University of Virginia,
Charlottesville, VA
- 2008 Indiana State University, Department of Biology, Terre Haute, IN
- 2009 University of California, St. Barbara, Department of Ecology, Evolution
and Marine Biology, St. Barbara, CA (*declined*)
- 2009 University of California, Davis, Department of Evolution and Ecology,
Davis, CA (*declined*)
- 2009 University of Illinois at Urbana-Champaign, Program in Ecology,
Evolution and Conservation Biology, Urbana, IL (*postponed*)
- 2010 University of Chicago, Lecture Series on Evolutionary Morphology,
Chicago, IL. (*declined*)
- 2010 University of Illinois at Urbana-Champaign, Department of Entomology,
Biology, Urbana, IL
- 2010 University of Dayton, Department of Biology, Dayton, OH.
- 2010 Indiana State University, Darwin Keynote Speaker, Department of
Biology, Terre Haute, IN.
- 2010 University of Nebraska-Lincoln, School of Biological Sciences,
Lincoln, NE (Graduate Student invitation)
- 2010 University of Connecticut, Department of Ecology and Evolutionary
Biology, Storrs, CT (Graduate Student invitation)
- 2010 University of Florida, Department of Biology, Gainesville, FL
- 2010 Duke University, Department of Biology, Durham, NC
- 2010 National Evolutionary Synthesis Center (NESCent), Durham, NC
- 2011 University of California, Davis, Department of Evolution and Ecology,
Davis, CA
- 2011 Duke University, EvoDevo Seminar Series, Department of Biology,
Durham, NC
- 2011 University of North Carolina, Greensboro, Department of Biology,
Greensboro, NC

INVITED SEMINARS - *continued* -

- 2011 North Carolina State University, *joint invitation*: (i) Department of Biology and (ii) Department of Entomology, Raleigh, NC.
- 2012 Yale University, Department of Ecology and Evolutionary Biology, New Haven, CT. - *postponed* -
- 2012 Wayne State University, Department of Biological Sciences, Detroit, MI - *postponed* -
- 2012 Wesleyan University, Department of Biology, Middleton, CT.
- 2012 Brown University, Department of Ecology and Evolutionary Biology Providence, RI.
- 2012 Indiana University-Perdue University, Indianapolis, Department of Biology, Indianapolis, IN
- 2012 University of Chicago, Lecture Series on Evolutionary Morphology, Chicago, IL.
- 2012 Universität Regensburg, Department of Biology, sponsored by the Universitätsstiftung Regensburg
- 2012 University of Arizona, Tucson, invited by the *Postdoctoral Excellence in Research and Teaching Program (PERT)*
- 2013 Max Planck Institute for Developmental Biology, Tübingen, Germany
- 2014 *Joan Marsden Lecture in Organismal Biology*, McGill University, Department of Biology, Montreal, Canada
- 2014 University of Oklahoma, Norman; Department of Ecology and Evolutionary Biology (invited by the graduate student council; double seminar)
- 2014 University of Minnesota, Department of Ecology, Evolution, and Behavior, St. Paul, MN
- 2015 Syracuse University, Department of Biology, Syracuse NY
- 2015 University of Cincinnati, Department of Biology, Cincinnati, OH
- 2015 Oberlin College, Department of Biology, Oberlin, OH
- 2015 University of Tennessee, Department of Ecology & Evolutionary Biology, Knoxville, TN
- 2016 Department of Biology, University of Western Ontario, London, Canada
- 2016 University of Illinois at Urbana-Champaign, Department of Entomology, Biology, Urbana, IL
- 2016 Indiana University-Perdue University, Indianapolis, Department of Biology, Indianapolis, IN
- 2016 Butler University, Department of Biology, Indianapolis, IN
- 2017 University of Guelph, Department of Biology, Guelph, Canada
- 2017 Earlham College, Department of Biology, Richmond Indiana
- 2018 Australian National University, Research School of Biology, Canberra Australia

CONFERENCE AND CONFERENCE SESSION ORGANIZER

SYMPOSIA and WORKING GROUPS

- 2008 Co-organized by David Pfennig (UNC Chapel Hill) and Armin Moczek (IU Bloomington); Symposium sponsored by the Animal Behavior Society for the 2008 International Meeting, Snowbird, UT. Symposium title: Pathways to novelty and diversity: the causes and consequences of polyphenism
- 2009-2011 Co-organized by David Pfennig (UNC Chapel Hill) and Armin Moczek (IU Bloomington); National Evolutionary Synthesis Center (NESCent) Working-group (15 participants, 4 meetings over 2 years) on: Evolution and development of polyphenism: pathways to innovation and diversification
- 2009 Organized by Armin Moczek and Emilie Snell-Rood; Symposium sponsored by the 12th Congress of the European Society for Evolutionary Biology (ESEB); Symposium title: The origins of novelty in development and evolution, Turin, Italy, August 24-29 2009
- 2012 Co-organized by Armin Moczek and Matthew Wund (College of New Jersey), Symposium sponsored by the Society for Integrative and Comparative Biology (SICB) and selected as the society-wide symposium for the January 2012 meeting in Charleston, SC; Symposium title: The Impacts of Developmental Plasticity on Evolutionary Innovation and Diversification.
- 2013 Co-organized by Cris Ledon-Rettig, Armin Moczek, and others; Society for Integrative and Comparative Biology (SICB), Symposium on Ecological Epigenetics, January 2013, San Francisco, CA.

PROFESSIONAL SERVICE

REVIEWER:

(1) Scientific Journals (past 5 years)

Acta Oecologica, Animal Behavior, American Naturalist, Arthropod Structure and Development, Behavioral Ecology, Bioscience, Biological Journal of the Linnean Society, BMC Evolution, Coleopterists Bulletin, Complexity, Developmental Biology, Ecological Entomology, Ecology, Ecological Entomology, European Journal of Entomology, Evolutionary Ecology, Evolution, Evolution & Development, evo&devo, Evolutionary Ecology Research, Infection, Genetics and Evolution, Genetic Research International, Insect Biochemistry and Molecular Biology, Journal of Molecular Biology, Journal of Bioscience, Journal of Zoology, Journal of Experimental Zoology, Journal of Ethology, J. Visualized Experiments, Journal of Insect Behavior, Journal of Insect Physiology, Journal of Insect Science, Mechanisms of Development, Molecular Ecology, Molecular Phylogenetics & Evolution, Nature, Non-genetic Inheritance, Oecologia, Oikos, PLoS ONE, PLoS Biology, Proceedings of the Royal Society of London, Psyche, Science, Philosophical Transactions of the Royal Society of London, Proceedings of the National Academy of Sciences, Zoology, The Year in Evolutionary Biology, Zoologischer Anzeiger, Zoologia

(2) Funding Agencies (external reviewer, past 5 years):

National Science Foundation, Natural Environment Research Council UK, California Department of Agriculture, Netherlands Organisation for Scientific Research, German Research Foundation, Czech Science Foundation, European Research Council, Antwerp Research Council, Netherlands Organisation for Scientific Research, Portuguese Foundation for Science and Technology, Israel Science Foundation, Austrian Science Foundation

(3) Funding Agencies (panel participant, past 5 years):

National Science Foundation, Developmental Mechanisms Panel
National Science Foundation, Physiological & Structural Systems Panel
Deutsche Forschungsgemeinschaft (DFG; German Science Foundation)
On-site review panel participant and consultant for renewal evaluation of the *iBeetle* consortium (April 17-19, 2013, University of Goettingen)

(4) External reviewer of Tenure Dossiers:

Summer 2011: University of California, Davis, Department of Biology
Summer 2012: University of Arizona, Tucson, Department of Entomology
Summer 2015: University of Minnesota, St. Paul, Department of Ecology, Evolution, & Behavior

(5) External reviewer of Promotion Dossiers:

Fall 2016: University of Utah, Department of Biology
Fall 2016: Wayne State University, Department of Biological Sciences

EDITORIAL SERVICE

- 2008 - 2009 Associate Editor, *Journal of Insect Science*
- 2008 Associate Editor, *Evolution* (onset of editorship postponed due to family medical leave in 2008)
- 2011 - present Editorial Board Member, *Evolution & Development*
- 2012 - 2014 Associate Editor, *Frontiers in Zoology*.
- 2013 Invitation to help lead re-organization of *Journal of Experimental Zoology A: Ecological Genetics & Physiology* as Associate Editor -decl.
- 2013 - present Editorial Board Member, *Journal of Experimental Zoology A: Ecological Genetics & Physiology*
- 2013 - present Editorial Board Member, *Journal of Experimental Zoology B: Molecular and Developmental Evolution*
- 2013 - present Editorial Board Member, *Current Opinion in Insect Science*.
- 2012 - present Associate Editor, *Proceedings of the Royal Society of London, Biological Sciences*.
- 2013 - present Associate Editor, *Frontiers in Ecology and Evolution, Section on Evolutionary Developmental Biology*

COMMUNITY SERVICE
- SCIENCE OUTREACH -

2005

- Participant in the Howard Hughes Summer Research Institute Program; hosted 2 High School teachers for 2 weeks and integrated them into lab research activities
- Participant and Lecturer for the Jim Holland Lecture Series for minority high school students
- One-day teacher workshop taught at *Wonderlab*, Bloomington March 16, 2006 on *Insects all around: Use of Insects as teaching tools in the Classroom*; Participants: 15 local school teachers grade 1-5.

2006

- Consultant and resource for local school teachers on Entomology throughout 2006 including specimens and insect biodiversity, use of basic entomological equipment, and assembly of student collections
- Participant in the Howard Hughes Summer Research Institute Program; hosted 2 High School teachers for 2 weeks and integrated them into lab research activities
- Participant and Lecturer for the Jim Holland Summer Enrichment Program for minority high school students
- One-day teacher workshop taught at *Wonderlab*, Bloomington December 8, 2006 on *Insects all around: Use of Insects as teaching tools in the Classroom*; Participants: 20 local and regional school teachers grade 1-5. (front page feature article in Herald Times Dec. 9th 2006)

2007

- One-day teacher workshop taught at *Wonderlab*, Bloomington June 8, 2007 on *Animals and plants: teaching modules K-3*; Participants: 23 local and regional school teachers grade K-3.
- Participant in the Howard Hughes Summer Research Institute Program; hosted 2 High School teachers for 2 weeks and integrated them into lab research activities
- Participant and Lecturer for the Jim Holland Lecture Series for minority high school students
- Consultant and resource for local school teachers on Entomology throughout 2007 including specimens and insect biodiversity, use of basic entomological equipment, and assembly of student collections
- One-day teacher workshop taught at *Wonderlab*, Bloomington Nov. 9, 2007 on *Insects all around: Use of Insects as teaching tools in the Classroom*; Participants: 25 local school teachers grade K-5.

2008

- Preparing Future Faculty Symposium Speaker on *The RIGHT Job: How to Get It and What to Expect When You Do.*,
- Supervising independent graduate study by Rita Knox-Larsen (Education Ms Student); Collaboration on the development of teaching modules for local Middle Schools focusing on Insect Biology and EvoDevo
- One-day teacher workshop taught at *Wonderlab*, Bloomington June 2, 2008 on *Animals and plants: teaching modules K-3*; Participants: 30

2009

- One-day teacher workshop taught at *Wonderlab* June 9, 2009 as part of *Wonderlab's* Summer Science Institute Bloomington on Insects in the K-6 classroom; Participants: 30
- Lecturer for Indiana University's *MINI University '09 Continuing Education Program* on the Biology of Insects; Participants: 45
- Co-director and participant in the Lilly Scholars Program; hosted two High School minority students for one week and integrated them into lab research activities
- Co-director and Lecturer for the Jim Holland Summer Enrichment Program for minority high school students
- One-day teacher workshop taught in collaboration with Laura Mojonniier and Peggy Schultz on Insect Ecology in the K-6 science classroom; Participants: 6
- Sassafras Audubon Society, Lecturer for Blatchley weekend celebration Oct. 1. 2009
- One-day teacher workshop taught at *Wonderlab*, Bloomington, Nov. 6, 2009 on *Insects all around: Use of Insects as teaching tools in the Classroom*; Participants: 25 local school teachers grade K-8.

2010

- Science immersion for pre-service science teachers: hosted and integrated 12 pre-service science teachers in research activities (one afternoon per student pair) to become familiar with what it means to do science and how scientists work - organized in collaboration with Dr Gayle Buck (IU School of Education)
- Introduction to the Biology of Insects, German School Bloomington; March 27, 2010 (K-8); Participants: 23 students, 4 teachers
- Generated entomological resources (collections, guides, simple equipment) for exploring Indiana insect diversity for Hoosier Courts Nursery School
- Generated skull collection and guide for exploring the morphology of skulls and Indiana vertebrate diversity for Hoosier Courts Nursery school.
- All-day workshop taught at *Wonderlab* June 7, 2010 as part of *Wonderlab's* Summer Science Institute on (a) Insects in the K-6 classroom and (b) the teaching of Evolution in middle and high schools; Participants: 25 local and regional K-12 teachers
- Co-director and participant in the Lilly Scholars Program; hosted two High School minority students for one week and integrated them into lab research activities
- Co-director and Lecturer for the Jim Holland Summer Enrichment Program for minority high school students
- Presentation on *Introduction to the natural history of dung beetles*; Bloomington Learning Center; Participants: 10 children (preschool)
- Presentation on *Introduction to the natural history of dung beetles*; Arlington Elementary School: Science Night. Participants: ~ 150 students, parents and teachers
- Presentation on *Introduction to the natural history of dung beetles*, Summit Elementary School: Summit Science Spectacular. Participants: ~ 300 students, parents and teachers

2011

- Taught three insect-focused teaching modules (one afternoon each) at Carrboro Elementary, NC to 28 K-2 students
- Outreach presentation in the context of an international meeting of the *Association for the Study of Literature and Environment* at IU Bloomington; introduced diverse faculty to morphological and molecular studies with a focus on species concepts and diversity
- Adventures in Animal Behavior, *WonderLab*, Bloomington; hands-on presentation of *research into the behavioral ecology of dung beetles* to children and their parents. Participants: 540 children and parents
- Lecturer for the Jim Holland Summer Enrichment Program for minority high school students
- *Introduction to the Biology of Insects and Plants*, German School Bloomington (K-8); Participants: 20 students, 4 teachers

2012

- Outreach presentation on the biology of insects in general and dung beetles in particular at Templeton Elementary; organized as reward for a class which successfully worked on behavior and discipline challenges over the course of the semester. Participants: 25 students.
- Taught three hands-on modules to groups of 4th grad students from diverse schools interested in science and technology; modules focused on (i) predator-prey interactions, defense and mimicry, (ii) skull development and evolution, and (iii) insect communication.
- One-day workshop taught at *Wonderlab* June 11, 2012 as part of *Wonderlab's* Summer Science Institute, focused on the Indiana Science Teaching Standards for grade 4; Participants: 25 local and regional Elementary School Teachers.
- Lecturer for the Jim Holland SEP for minority high school students
- Collected, sorted, and packaged termites for use in Bloomington and Bedford public schools to introduce the scientific method. Participants: 24 classes (~ 600 students)
- Outreach presentations to two 5th grade classes and one 2st grade class at Childs Elementary focused on *Introduction to the Scientific Method using Trail Following Behavior in Termites*; Participants: 85 students
- Outreach presentation insect biology to the *Arden Place Neighborhood Association*, Bloomington IN; Participants: 24 adults
- Outreach presentations to three 5th grade classes at Clear Creek Elementary focused on the *Natural History of Skulls and Teeth*; Participants: 75 students
- Outreach presentation to 10 in part severely handicapped Special Education Students at Grandview Elementary focused on the *Natural History of Skulls and Teeth*
- Outreach presentations to 16 K-6 students at Highland Park Elementary as part of the After-School-Enhancement-Program for Title 1-schools focused on *The biology of dung beetles*.

2013

- Secured funding for the 2013 installment of the *Jim Holland Summer Science Research Program* (formerly *Lilly Scholars Program*) from the National Science Foundation; see teaching statement for details.
- Participated in *Real Life Science: Anyone Can Be a Scientist*, a Martin Luther King, Jr. Day Event at *Wonderlab*, with a presentation titled *Horned beetle diversity, behavior, and life history*.
- Gave outreach presentations to two 7th grade classes (integrated traditional and special needs students) at Owen Valley Middle School, Spencer IN focused on the *Natural History of Skulls and Teeth*; Participants: 72 students
- Outreach presentations to three 1st grade classes at Clear Creek Elementary focused on *Introduction to the Scientific Method using Trail Following Behavior in Termites*; Participants: 78 students
- Outreach presentations to two 5th grade classes at Childs Elementary on *Mystery Skulls: the Natural History of Skulls and Teeth*; Participants: 54 students
- Outreach presentations to 12 K-6 students at Templeton Elementary as part of the After-School-Enhancement-Program for Title 1-schools focused on *The biology of dung beetles*.
- Outreach presentation to a 2nd grade class at Childs Elementary focused on *Insect life cycles and adaptations*; Participants: 28 students
- Outreach presentations to three 1st grade classes at Clear Creek Elementary focused on *Insect life cycles and metamorphosis*; Participants: 82 students
- Outreach presentations to four 9th and 10th grade classes at Bloomington High School South focused on *Mystery Skulls: the Natural History of Skulls and Teeth*; Participants: 118 students and 6 teachers
- *throughout Spring 2013*: developed and organized mammalian skull collection consisting of 35 diverse skulls; this collection will be housed at *WonderLab* Museum starting Fall 2013, curated by APM, and loanable to regional schools together with lesson plans, online resources, and volunteer assistants; this effort is funded through a grant to APM from the *Ostrom Foundation*; see teaching statement for details.
- presented experimental teaching module to 10 students (grades K-3) integrating (i) continental drift, (ii) basic functional skull morphology, and (iii) convergent evolution of placental and marsupial skull phenotypes.
- participated in *Bug Fest* at the *Hilltop Garden and Nature Center* Bloomington, June 22; organized and presented material on the natural history of dung beetles.
- participated in *Girls Inc.*, a week-long summer camp for low income girls; taught functional morphology of skulls and teeth of farm animals to 15 participants
- participated in *Science Olympiad Residential Camp* for middle schoolers; gave lecture to 48 participants (*Aliens among us - the biology of insects*) and organized two sets of small group activities); July 2013
- participated in *Weird Nature Camp* in collaboration with *WonderLab*; organized and presented material on the natural history of dung beetles twice for 21 students each; June and July 2013.
- participated in *Science Olympiad Residential Camp* for high schoolers; gave lecture to 48 participants (*Aliens among us - the biology of insects*)

2013 - *continued* -

- Outreach presentation *Jim Holland Summer Enrichment Program* for minority high school students; July 2013
- presented module on insect diversity and dung beetle ecology at Harmony School, IN to 13 K-4 students and two 9th grade students (11/4).
- presented module on the functional morphology and evolution of mammal skulls at Harmony School, IN to 13 K-4 students and two 9th grade students (11/18).
- assisted in the development of *Nature's vampires*, an interactive exhibit focused on the biology of blood-sucking creatures (bed bugs, ticks, fleas, lice, etc) at *WonderLab* Museum

2014

- Participated in Martin Luther King, Jr. Day at *Wonderlab*, with a presentation titled *Horned beetle diversity, behavior, and life history*; participants: 465 visitors
- trained four *Science Olympiad* teams in basic Insect Biology and Identification; January 2014; participants: 30 students (8-10 grade); 5 teachers
- throughout Spring 2014; developed new teaching module on human bone structure and function relationships; this module will target both traditional and special needs classrooms
- presented module on the functional morphology and evolution of mammal skulls and human bones for the *Indiana University Saturday Science School*: participants: 28 students (K-2)
- secured funding for the 2014 *Jim Holland Summer Science Research (SSRP)* program from IU's Office for *Diversity, Equity, and Multicultural Affairs (DEMA)*
- throughout Spring 2014: coached *Bloomington Academy Science Olympiad* team in basic Insect Biology and Identification
- Outreach presentation to two special education classes at Grandview Elementary focused on the *Functional Diversity of Human Bones* (March 5) and *Natural History of Skulls and Teeth* (March 12); Participants: 24 students + 2 teachers and 8 therapists for each session
- Outreach presentations to three 5th grade classes and one combined 3rd/4th grade class at Childs Elementary March 25th and 27th on *Mystery Skulls: the Natural History of Skulls and Teeth*; Participants: 122 students
- organized and presented two full-day workshops at *Wonderlab* April 11 & 12 to present and further disseminate teaching modules focused on (i) *Natural History of Skulls and Teeth* and (ii) the *Functional Diversity of Human Bones* in support of Indiana Science Teaching Standards for general and special education classrooms; Participants: 21 Teachers.
- throughout Spring 2014: organized, trained, and coordinated the *Skeleton Crew* consisting on 8 IU Biology graduate students across all three programs ; this effort trains graduate students in effective outreach design, supports current outreach initiatives at local schools, while keeping individual time investment manageable
- Outreach presentation to two 2nd grade classes at Childs Elementary April 22, focused on *Insect life cycles and adaptations*; Participants: 58 students

2014 - *continued* -

- Outreach presentations to four 2nd grade classes at Marlin Elementary April 29th on *Mystery Skulls: the Natural History of Skulls and Teeth*; Participants: 128 students
- Outreach presentations to two special education classes (mixed grades, 15 participants) and two 5th grade classes (68 participants) at Templeton Elementary May 13th on *Mystery Skulls: the Natural History of Skulls and Teeth*
- Outreach presentations to seven high school freshmen classes at Bloomington High School South May 19th on *Mystery Skulls: the Natural History of Skulls and Teeth* (approx. 160 participants)
- organized and coordinated additional presentations at Bloomington High School South May 20 and 21st on the same topic and run by graduate student volunteers as part of a outreach training program for IU Biology graduate students (participants: 6 graduate students and five 9th grade classes)
- taught all day workshop at *Wonderlab* June 6, 2014 as part of *Wonderlab's* Summer Science Institute focused on generating meaningful science education resources for the 5th grade science curriculum; Participants: 25 local and regional K-12 teachers
- Lecturer for Indiana University's *MINI University '14 Continuing Education Program* on *Mystery Skulls: The Natural History of Skulls and Teeth*; Participants: 61 adults.
- participated in *Bug Fest* at the *Hilltop Garden and Nature Center* Bloomington, June 22; organized and presented material on the natural history of dung beetles.
- participated in *Girls Inc.*, a week-long summer camp for low income girls; taught two sessions on (i) *Introduction to the scientific method* and (ii) *Functional morphology of skulls and teeth of farm animals*; 16 participants
- Outreach presentations to four 3rd - 5th grade classes at Summit Elementary Bloomington, August 19 focused on the *Evolutionary morphology of skulls and teeth*; Participants: 118 students
- Outreach presentations to two 2nd grade classes at Parkview Primary School, Bedford, IN, September 24 focused on *Insect life cycles*; Participants: 44 students
- participated in Science Day at IU; organized display and presentation on *Skulls and teeth* and on *Snake Biology*; participants: ~ 370 visitors.
- Assisted in outreach presentation on insect diversity and developmental biology at Bloomington Christian Schoolhouse, Bloomington, IN, Oct. 17, 2014. Participants: 25 1st-8th grade students.
- Assisted in outreach presentation on the functional ecology and morphology of mammal skulls at Bedford Public Library, Bedford, IN, Oct. 23, 2014. Participants: 15-20 1st-5th grade students and their parents.
- Outreach presentations to two 5th grade classes at McCormick Elem. Spencer IN, October 30 focused on *Evolutionary morphology of skulls and teeth*; Participants: 48 students
- throughout Fall 2014: provided termites and additional supplies to approximately 40 classes in Bloomington and Bedford to execute a teaching module designed to illustrate and apply the scientific method.
- Outreach presentations to four classes (5th-8th grade) at St. Vincent de Paul School in Bedford, IN, December 4th focused on *Evolutionary morphology of skulls and teeth*; Participants: 92 students, 4 teachers, 2 postdocs and 1 graduate student

2014 - *continued* -

- throughout Spring and Fall 2014: provided funding to defray participation costs for local and regional classes to visit *WonderLab* and participate in hands on lab sessions (taught by WonderLab personnel as well as Biology graduate students) on *Mystery Skulls: The Natural History of Skulls and Teeth*; Participants: 26 classes as of September '14 (~ 780 students)

2015

- presented at 2015 Summit Science & Technology Spectacular Science Night February 11; dual language (Spanish, English) module on the *Evolutionary morphology of skulls and teeth*; Participants ~ 280 students and their families
- Outreach presentations to three mixed 5/6th grade classes (86 participants) and two special education classes (mixed grades, 15 participants) at Templeton Elementary January 13, 2015 focused on *Evolutionary morphology of skulls and teeth*
- Bedford, IN and Oolitic, IN Elementary School tour (two 5th and two 3rd grade classes, 108 participants total); February 9th, 2015 focused on *Mystery Skulls: The Natural History of Skulls and Teeth*
- organized and presented two full-day workshops at *Wonderlab* April 9 & 10 to present and further disseminate teaching modules focused on in support of Indiana Science Teaching Standards for general education, special education, and *English Language Learners*; Participants: 26 Teachers.
- Panel Participant, Panel Discussion on *Best Practices in Science Outreach*, Midwestern Ecology and Evolution Conference (*MEEC*), March 2015
- presentend at the 2015 (April 22nd) Science Night at the Bloomington Projects School on the *Evolutionary morphology of skulls and teeth*; Participants ~ 110 students and their families
- assisted in presenting a hands-on exhibit on the functional morphology of mammal skulls at Harmony School's Math and Science Expo. Bloomington, IN; Participants ~50 K-12 students.
- assisted in presenting a hands-on exhibit on beetle biology at Harmony School's Math and Science Expo. Bloomington, IN; Participants ~50 K-12 students.
- Outreach presentations to six high school freshmen classes at Bloomington High School South May 13th on the *Evolutionary morphology of skulls and teeth*; (approx. 160 participants)
- organized and coordinated additional presentations at Bloomington High School South May 14 and 15 on the same topic and run by graduate student and postdoc volunteers as part of the Moczek-Lab Science Outreach Initiative (participants: 3 graduate students, 3 postdocs and nine 9th grade classes; total participation approx. 200 students)
- Outreach presentation to three 2nd grade classes at Childs Elementary May 26, focused on *Insect life cycles and adaptations*; Participants: 72 students
- Outreach presentation at Unionville Elementary April 30th on the *Evolutionary morphology of skulls and teeth*; (approx. 30 participants)
- Outreach presentation to two AP Biology classes at Bloomington High School South; *Reconstructing 6 Million years of human evolution using diverse data sets*; September 2015; 64 participants

2015 - *continued* -

- October 2015, two week night classes at Meadowood Retirement Community; 30 participants per class: Class 1: *Evolutionary morphology of skulls and teeth*; Class 2: *Reconstructing 6 Million years of human evolution using diverse data sets*.
- Outreach presentations to three mixed 5/6th grade classes (93 participants) and one special education classes (mixed grades, 6 participants) at Templeton Elementary October 28, 2015 focused on *Exploring the scientific method using trail-following behavior in termites* [Σ34 class visits in 2015]
- assisted in presenting a hands-on exhibit on skulls and teeth for Science Fest at Indiana University; Participants >380 visitors from the Bloomington community.

2016

- Outreach presentation to 5 Biology classes at Columbus High School East on *Reconstructing 6 Million years of human evolution using diverse data sets*; April 2016; 104 participants; also trained 5 teachers in the same module who subsequently taught an additional 10 classes on their own
- Outreach presentation to three 3rd grade classes at Binford Elementary on April 27th on the *Evolutionary morphology of skulls and teeth*; (75 participants)
- Outreach presentations to 5 high school freshmen classes at Bloomington High School South May 16 on the *Evolutionary morphology of skulls and teeth*; (approx. 130 participants); also trained 5 teachers during in the same module who then independently taught an additional 10 classes during the week's remainder.
- Outreach presentation to three 2nd grade classes at Childs Elementary May 20, focused on *Insect life cycles and adaptations*; Participants: 76 students
- Lecturer for Indiana University's *MINI University '16 Continuing Education Program on The Exuberance of Insect Biology in South-Central Indiana*; Participants: 55 adults.
- participated in *Bug Fest* at the *Hilltop Garden and Nature Center* Bloomington, June 25; helped organize and present material on the natural history of dung beetles.
- Outreach presentation to two 8rd grade classes at Columbus Central Middle School September 29 on the *Evolutionary morphology of skulls and teeth*; (62 participants)
- assisted in presenting a hands-on exhibit on evolutionary ecology of mammal skulls for *Science Fest* at Indiana University; Participants >300 visitors from the Bloomington community.
- Represented the IU Biology Department in the annual *Science Slam* competition

2017

- Outreach presentations to 4 high school freshmen classes at Bloomington High School South February 10th on the *Evolutionary morphology of skulls and teeth*; (approx. 120 participants).
- Outreach presentation to 6 Biology classes at Columbus High School East on *Reconstructing 6 Million years of human evolution using diverse data sets*; April 2016; 134 participants; also trained 5 teachers in the same module who subsequently taught an additional 12 classes on their own
- Outreach presentations to all high school freshmen classes at Bloomington High School South May 18-22 *Evolutionary morphology of skulls and teeth*; 4 classes taught by APM, 4 by teachers with help from outreach team members, and 4 by teachers trained in previous years; total participants: 12 classes, ~ 330 students)
- Outreach presentation to three 2nd grade classes at Childs Elementary May 19, focused on *Insect life cycles and adaptations*; Participants: 75 students
- organized and presented a full-day workshop as part of the 2017 Summer Science Institute June 15th 2017 at *Wonderlab*; presented teaching modules in support of Indiana Science Teaching Standards for middle and high school; Participants: 20 Teachers and two postdoctoral researchers.
- Outreach presentation to two groups of chinese middle school students visiting Indiana University as part of the Boy Scout of America International Student Ambassadors Program, focused on the evolutionary ecology of mammal skulls; July 21 2017; Participants: 24 students

COMMUNITY SERVICE
- PUBLIC CONSULTANT -

2004 - present	Identification of insects and spiders for the public; Average 1 inquiry per week by phone or email
2004 - present	Consultant for A MOMENT IN SCIENCE (AMOS) radio show. Helped with the development of scripts on topics related to insect biology, developmental biology and evolution. Average 5 inquiries per year
2004 - present	Consultant for HOTLINE column in HERALD TIMES newspaper for reader inquiries related to insects and spiders. Average 1 inquiry/month
July 2010	Consultant for WFIU-TV <i>The Weekly Special</i> on The biology of fireflies
May 2013	Consultant for BLOOM Magazine for a special issue devoted to <i>Bugs in Bloomington</i>