

## SANDRA R. SCHACHAT

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### Education

Ph.D.	<b>Geological Sciences</b> , Stanford University	In progress
M.S.	<b>Entomology</b> , Mississippi State University	2016
	<b>Fossilworks Intensive Workshop in Analytical Palaeobiology</b>	2014
B.A.	<b>Art History &amp; Archaeology</b> , University of Maryland, <i>summa cum laude</i> (Honors in Art History & Archaeology, High Honors in Entomology)	2013

### Refereed publications

<b>S.R. Schachat.</b>	Connecting the dots: Spots and bands on the wings of <i>Lichenaula</i> Meyrick, 1890 (Lepidoptera: Xyloryctidae) share a uniform relationship with wing venation. <i>Arthropod Systematics &amp; Phylogeny</i> .	In press
<b>S.R. Schachat</b> and R.L. Brown.	Wing patterns of ditrysian moths (Lepidoptera: Psychidae) include variants and violations of predictive models. <i>Austral Entomology</i> : Early view. DOI: 10.1111/aen.12284	2017
<b>S.R. Schachat.</b>	The wing pattern of <i>Moerarchis</i> Durrant, 1914 (Lepidoptera: Tineidae) clarifies transitions between predictive models. <i>Royal Society Open Science</i> 4(3): 161002. DOI: 10.1098/rsos.161002	2017
<b>S.R. Schachat</b> and G.W. Gibbs.	Variable wing venation in <i>Agathiphaga</i> (Lepidoptera: Agathiphagidae) is key to understanding the evolution of basal moths. <i>Royal Society Open Science</i> 3(10): 160453. DOI: 10.1098/rsos.160453	2016
<b>S.R. Schachat</b> and R.L. Brown.	Forewing color pattern in Micropterigidae (Insecta: Lepidoptera): Homologies between contrast boundaries, and a revised hypothesis for the origin of symmetry systems. <i>BMC Evolutionary Biology</i> 16(116). DOI: 10.1186/s12862-016-0687-z	2016
<b>S.R. Schachat</b> , D.G. Mulcahy, and J.R. Mendelson III.	Conservation threats and the phylogenetic utility of IUCN Red List rankings in <i>Incilius</i> toads. <i>Conservation Biology</i> 30(1): 72-81. DOI: 10.1111/cobi.12567	2016
S. Ho*, <b>S.R. Schachat</b> , W.H. Piel, and A. Monteiro.	Attack risk for butterflies changes with eyespot number and size. <i>Royal Society Open Science</i> 3(1): 150614. DOI: 10.1098/rsos.150614	2016
<b>S.R. Schachat</b> , C.C. Labandeira, and D.S. Chaney.	Insect herbivory from early Permian Mitchell Creek Flats of north-central Texas: Opportunism in a balanced component community. <i>Palaeogeography, Palaeoclimatology, Palaeoecology</i> 440: 830-847. DOI: 10.1016/j.palaeo.2015.10.001	2015
<b>S.R. Schachat.</b>	Insect biodiversity in Meiji and Art Nouveau design. <i>American Entomologist</i> 61(4): 215-222. DOI: 10.1093/ae/tmv071	2015
<b>S.R. Schachat</b> and R.L. Brown.	Color pattern on the forewing of <i>Micropterix</i> (Lepidoptera: Micropterigidae): Insights into the evolution of wing pattern and wing venation in moths. <i>PLoS One</i> 10(10): e0139972. DOI: 10.1371/journal.pone.0139972	2015
<b>S.R. Schachat</b> and C.C. Labandeira.	Evolution of a complex behavior: The origin and initial diversification of foliar galling by Permian insects. <i>The Science of Nature – Naturwissenschaften</i> 102(14): 1-8. DOI: 10.1007/s00114-015-1266-7	2015
<b>S.R. Schachat</b> , J.C. Oliver, and A. Monteiro.	Nymphalid eyespots are co-opted to novel wing locations following a similar pattern in independent lineages. <i>BMC Evolutionary Biology</i> 15(20). DOI: 10.1186/s12862-015-0300-x	2015
<b>S.R. Schachat.</b>	Drawn before <i>Wonderland</i> : Bizarre illustrated insects of the nineteenth century. <i>American Entomologist</i> 60(3): 162-165. DOI: 10.1093/ae/60.3.162	2014

## Refereed publications (cont'd)

- S.R. Schachat**, C.C. Labandeira, J. Gordon\*, D.S. Chaney, S. Levi\*, M.S. Halthore\*, and J. Alvarez\*. Plant-insect interactions from Early Permian (Kungurian) Colwell Creek Pond, north-central Texas: The early spread of herbivory in riparian environments. *International Journal of Plant Sciences* 175(8): 855-890. DOI: 10.1086/677679 2014
- S.R. Schachat**, R.G. Robbins, and J. Goddard. Color patterning in hard ticks (Acari: Ixodidae). *Journal of Medical Entomology*: JME-2017-0087. In revision

(\* denotes undergraduate author)

## Funding and Awards

### Research Grants and Fellowships

Chair's Fellowship Stanford University, Department of Geological Sciences	<b>\$40,360</b>	2017-2018
Graduate Research Fellowship # DGE-1125191 National Science Foundation	<b>\$134,000</b>	2014-2017
Graduate Research Opportunities Worldwide Australian National University and National Science Foundation	<b>\$12,500</b>	2015-2016
Graduate Research Internship Program National Science Foundation	<b>\$5,000</b>	2016
Graduate Student Fellowship Smithsonian Institution	<b>\$7,000</b>	2015
Grant-in-Aid of Research # G201503151194219 Sigma Xi	<b>\$550</b>	2015

### Honors

Snodgrass Memorial Award Entomological Society of America: Systematics and Evolutionary Biology		2017
Graduate Student Hall of Fame Office of the Graduate School, Mississippi State University		2016
M.S. Graduate Research Assistant of the Year Office of the Graduate School, Mississippi State University		2016
Graduate Student Award for Excellence in Research College of Agriculture and Life Sciences, Mississippi State University		2016
Best Student Oral Presentation, <i>first place</i> Australian Entomological Society		2015
President's Prize for best student presentation, <i>second place</i> Entomological Society of America: Systematics and Evolutionary Biology		2014
Harry K. Clench Memorial Award for best student presentation, <i>second place</i> The Lepidopterists' Society		2014
President's Prize for best student presentation, <i>first place</i> Entomological Society of America: Plant-Insect Ecosystems		2013
Harry K. Clench Memorial Award for best student presentation, <i>first place</i> The Lepidopterists' Society		2013
Undergraduate Student Achievement Award Entomological Society of America: Plant-Insect Ecosystems		2013
Judith K. Reed Commencement Award University of Maryland, Department of Art History & Archaeology		2013

## Scholarships and Travel Grants

Shell Fund Award Stanford University, Department of Geological Sciences	2017
Mississippi Entomological Association Scholarship Mississippi Entomological Association	2016
Student Travel Grant Award Entomology & Plant Pathology Club, Mississippi State University	2014, 2015
Pat and Linda Harris Scholarship Mississippi Entomological Association	2014
Student Travel Grant Geological Society of America	2012
Ernest N. Cory Scholarship University of Maryland, Department of Entomology	2012
Judith K. Reed Scholarship University of Maryland, Department of Art History & Archaeology	2012

## Teaching Experience

“Insect evolution in the fossil record” (50-minute lecture) EPP6164: Insect Taxonomy, Mississippi State University	2015
“ <i>Japonisme</i> and biodiversity in <i>fin-de-sicle</i> French art” (75-minute lecture) ART3623: Art in France 1850-1900, Mississippi State University	2015

## Presentations

### Invited presentations

S.R. Schachat. “Insects in Japanese and French art, ca. 1900.” International Congress of Entomology, Orlando FL.	2016
S.R. Schachat. “Reconstructing the evolution of wing pattern in moths.” Lightning Talks, Senate of Scientists, National Museum of Natural History.	2016

### Invited seminars

S.R. Schachat. “Color pattern on the wings of Lepidoptera: Bridging the gap between butterflies and tiny brown moths.” Ad-hoc seminar, Smithsonian Department of Entomology.	2016
S.R. Schachat. “‘Disorder is systematically organized’ : Pre-Darwinian evolutionary theory in the art of J.J. Grandville.” Regular meeting, Washington DC Guild of Natural Science Illustrators.	2016
S.R. Schachat. “The evolving role of natural history in nineteenth-century European art.” Ad-hoc seminar, Smithsonian Department of Paleobiology.	2016
S.R. Schachat. “Drawn before <i>Wonderland</i> : Bizarre insect illustrations of nineteenth-century Europe.” Regular meeting, Entomological Society of Washington.	2013

### Selected published abstracts (last 3 years)

S.R. Schachat. “Unexpected morphology and unprecedented polymorphism: Does <i>Agathiphaga</i> clarify or confuse relationships at the base of the moth tree of life?” Society of Integrative and Comparative Biology Annual Meeting Abstracts, pg. 370.	2017
S.R. Schachat. “The evolutionary morphology of wing pattern in basal moths: Implications for the origin of butterfly symmetry systems” (poster). Society of Integrative and Comparative Biology Annual Meeting Abstracts, pg. 317.	2016
S.R. Schachat and R.L. Brown. “Venation predicts the location, but not the color, of forewing pattern elements in jaw moths (Lepidoptera: Micropterigidae).” 63rd Entomological Society of America Abstracts, pg. 169.	2015

### **Selected published abstracts (last 3 years, cont'd)**

- S.R. Schachat. "Wing pattern evolution in jaw moths (Lepidoptera: Micropterigidae)." 2015  
46th Australian Entomological Society Abstracts, pg. 75.
- S.R. Schachat and R.L. Brown. "The relationship between wing venation and wing patterning in Micropterigidae." 62nd Entomological Society of America Abstracts, 2014  
pg. 137.

### **Selected additional presentations (last 3 years)**

- S.R. Schachat. "The evolution of moth wing patterns: Insights from the Australian National Insect Collection." 7th ANIC Moth Weekend, Australian National Insect Collection, Canberra ACT. 2015
- S.R. Schachat. "Pre-Darwinian visualizations of micro- and macroevolution" (poster). 2015  
Visualizing Biological Data, Broad Institute, Cambridge MA.

### **Professional and Community Service**

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|-------------------------------------------|-------------------------------------|-----------|
| Judge, undergraduate poster competition   | Entomological Society of America    | 2015      |
| Media and Communications Officer          | Entomological Society of Washington | 2012-2013 |
| Committee Member, Written in Leaf exhibit | Smithsonian Institution             | 2011-2013 |
| Mentor, Youth Engagement in Science       | Smithsonian Institution             | 2011      |

*Updated: 23 June 2017*