

# Eli D. Strauss

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## Research Interests

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Social complexity, inequality, dominance, competition, socioecology, behavioral ecology, quantitative methods in evolution and ecology, social network analysis

## Education and Employment

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- 2021 – Humboldt Postdoctoral Fellow, Max Planck Institute of Animal Behavior.  
Host: Damien Farine
- 2020 – 2021 BEACON Postdoctoral Fellow, Michigan State University
- 2019 – 2020 POE Postdoctoral Fellow, University of Nebraska, Lincoln, NE.  
Advisor: Dai Shizuka
- 2019 – 2020 BEACON Postdoctoral Fellow, Michigan State University.
- 2012 – 2019 **Dual PhD** at Michigan State University  
Integrative Biology (IBIO) and Ecology, Evolution, & Behavior (EEBB)  
Advisor: Kay E. Holekamp
- 2007 – 2011 **B.A. cum laude** at University of California, Berkeley, CA. Advisor: Steve Palmer

## Awards and Honors

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- 2019 Alexander von Humboldt Postdoctoral Research Fellowship (€64,080)
- 2019 Journal of Animal Ecology Elton Prize Finalist
- 2019 Animal Behavior Society Walter Clyde Allee Competition Finalist
- 2019 University of Nebraska Lincoln School of Biological Sciences Population Biology  
Postdoc of Excellence (\$45,000)
- 2019 Competitive award from NSF-funded BEACON Center for the Study of Evolution in  
Action. “Evolutionary perspectives on social inequality” (\$88,609)
- 2019 MSU EEBB Distinguished Student Speaker (\$500)
- 2017 Best Graduate Student Talk at *Göttinger Freilandtage*, Germany (\$180)
- 2012 NSF Graduate Research Fellowship (\$138,000)
- 2012 Graduate School University Distinguished Fellowship (\$80,000)
- 2011 Undergraduate Thesis in Cognitive Science with Highest Honors

## Publications

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### Peer-Reviewed (underline denotes mentee co-author)

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- Strauss ED**, Shizuka D. The ecology of inequality in animal societies (in review).  
*Proceedings of the Royal Society, B*. <https://ecoevorxiv.org/m4st9/>
- Strauss ED**, DeCasien AR, Galindo G, Hobson EA, Shizuka D, Curley JP (in review).  
DomArchive: a century of published dominance data. *Philosophical Transactions  
of the Royal Society, B*.
- Strauss ED**, Shizuka D (in review). The dynamics of dominance: open questions,  
challenges, and solutions. *Philosophical Transactions of the Royal Society, B*.  
<https://ecoevorxiv.org/xpnyw/>

- Brown A, Pioon M, Holekamp KE, **Strauss ED** (in press). Infanticide by females is a leading source of juvenile mortality in a large social carnivore. *The American Naturalist*.
- Holekamp KE, **Strauss ED** (2020) Reproduction within a hierarchical society from a female's perspective. *Integrative and Comparative Biology*. 60: 753–764. <https://doi.org/10.1093/icb/icaa068>.
- Strauss ED**, Shizuka D, Holekamp KE. (2020) Juvenile rank acquisition influences fitness independent of adult rank. *Proceedings of the Royal Society, B*. 287: 20192969. <http://dx.doi.org/10.1098/rspb.2019.2969>.
- Green DS, Farr M, Holekamp KE, **Strauss ED**, Zipkin E. (2019) Can hyena behavior predict abundances of sympatric carnivores? *Philosophical Transactions of the Royal Society, B*. 374: Article Number: 20180065. <http://dx.doi.org/10.1098/rstb.2018.0065>.
- Strauss ED**, Holekamp KE. (2019) Social alliances improve rank and fitness in convention-based societies. *Proceedings of the National Academy of Sciences of the United States of America* 116 (18): 8919–8924. On the cover of the 30 April, 2019 issue. <https://doi.org/10.1073/pnas.1810384116>.
- Strauss ED**, Holekamp KE. (2019) Inferring longitudinal hierarchies: Framework and methods for studying the dynamics of dominance. *Journal of Animal Ecology*. 88 (3) 521–536. DOI: 10.1111/1365-2656.12951.
- Smith JE, Lehmann KDS, Montgomery TM, **Strauss ED**, Holekamp KE. (2017) Insights from long-term field studies of mammalian carnivores. *Journal of Mammalogy*, 98:631–641. doi:10.1093/jmammal/gyw194.
- Holekamp KE, **Strauss ED**. (2016) Aggression and dominance: An interdisciplinary overview. *Current Opinion in Behavioral Sciences*, 12:44–51.
- Jones SC, **Strauss ED**, Holekamp KE. (2015) Ecology of African Carrion. Pp. 459–489 in *Carrion Ecology, Evolution, and Their Applications*. Benbow ME, Tomberlin JK, Tarone AM (Eds). CRC Press. Boca Raton, FL.
- Johnson AE, **Strauss ED**, Pickett R, Adami C, Dworkin I, Goldsby HJ. (2014) More bang for your buck: Quorum-sensing capabilities improve the efficacy of suicidal altruism. *ALIFE 14: Proceedings of the Fourteenth International Conference on the Synthesis and Simulation of Living Systems*, New York, NY.
- Strauss ED**, Schloss KB, Palmer SE. (2013) Color preferences change after experience with liked/disliked colored objects. *Psychonomic Bulletin & Review*, 20:935–943.
- Schloss KB, **Strauss ED**, Palmer SE. (2013) Object color preferences. *Color Research & Application*, 38:393–411.

## Software

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2019. **Strauss ED**. DynaRankR: Inferring Longitudinal Dominance Hierarchies. R package version 1.0.0. <https://CRAN.R-project.org/package=DynaRankR>

## Invited Seminars and Workshops

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2020. **Invited talk**. Long-term Animal Research Seminar Series, organized by Duke University, Durham NC.
2020. **Invited talk**. Department of Biological Sciences, University of Cincinnati, Cincinnati OH.
2020. **Invited talk**. Program in Evolution and Behaviour, University of Lethbridge, Lethbridge AB, Canada.
2019. **Invited talk**. Program in Ecology, Evolution, & Behavior, Michigan State University, Lansing MI.

2019. **Invited member** of Reorganizing Social Organization Workshop at Max Planck Institute of Evolutionary Anthropology, Leipzig, Germany.
2019. **Invited talk.** Department of Migration, Max Planck Institute of Animal Behavior, Radolfzell, Germany.
2019. **Invited talk.** Warder Clyde Allee Competition, Animal Behavior Society, Chicago IL.
2017. **Invited talk.** School of Biological Sciences, University of Nebraska, Lincoln NE.

#### **Conference Posters and Presentations** (underline denote mentee co-author)

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2020. Brown AK, Holekamp KE, **Strauss ED**. Infanticide by females is a leading source of juvenile mortality in a large social carnivore. Poster presented at *Ecological Society of America*.
2019. Brown AK, **Strauss ED**, Holekamp KE. The function of infanticide by females in a large social carnivore. Poster presented at *University Undergraduate Research and Arts Forum* (Awarded First Place, \$100).
2018. **Strauss ED**, Shizuka D, Holekamp KE. Early life dominance interactions predict longevity in spotted hyenas. Talk presented at *BEACON Center for Evolution in Action*, Lansing, MI.
2018. O'Toole A, **Strauss ED**, Holekamp KE. Mechanisms underlying variation in maternal rank inheritance during development of spotted hyenas. Poster presented at *University Undergraduate Research and Arts Forum* (Awarded First Place, \$100).
2018. Rivers CJ, Montgomery TM, **Strauss ED**, Holekamp KE. Does social rank affect play behavior in juvenile spotted hyenas (*Crocuta crocuta*)? Poster presented at *Mid-Michigan Symposium for Undergraduate Research Experiences*, East Lansing, MI.
2018. **Strauss ED**, Shizuka D, Holekamp KE. Early life dominance interactions predict longevity in spotted hyenas. Talk presented at the *International Society for Behavioral Ecology Conference*, Minneapolis, MN.
2018. Redgate G, Chojnacki A, Gutwein K, Woloszyk Z, Laubach ZM, Montgomery TM, **Strauss ED**. Detection of leopards by prey in relation to habitat. Poster presented at *University Undergraduate Research and Arts Forum*, East Lansing, MI.
2017. Sawdy MA, **Strauss ED**, Rojas CA, Montgomery TM, Melvin TA, Bahlai CA, Bond AL. Environmental drivers of egg size variation in northern rockhopper penguins (*Eudyptes moseleyi*). *Ecology, Evolutionary Biology, and Behavior Research Symposium*, Lansing, MI. *Ecological Society of America Annual Meeting*, Portland, OR.
2017. **Strauss ED**, Holekamp KE. Social bonds predict dynamics of dominance status in societies of spotted hyenas. Talk presented at *Göttinger Freilandtage*, Gottingen, Germany (Awarded "Best student talk," \$180).
2017. **Strauss ED**, Holekamp KE. Social rank reversals in a long-term study of spotted hyenas. Talk presented at the *Animal Behavior Society Conference*, Toronto, ON.
2017. **Strauss ED**, Holekamp KE. The structure of nepotistic dominance hierarchies: The role of kinship and dominance. Talk presented at *BEACON Center for Evolution in Action*, Lansing, MI.
2016. **Strauss ED**, Holekamp KE. Social rank reversals in a long-term study of spotted hyenas. Talk presented at *MSU's Annual EEBB Research Symposium*, Lansing, MI.
2015. Glover A, **Strauss ED**, Holekamp KE. The Relationship Between Aggression and Submission in Spotted Hyenas. Talk presented at *Emerging Researchers National Conference*, Washington DC.
2014. Claiborne D, **Strauss ED**, Holekamp KE. Social Hierarchy of the Spotted Hyena (*Crocuta crocuta*). Poster presented at *Annual Biomedical Research Conference for Minority Students*, San Antonio, TX.

2014. **Strauss ED**, Holekamp KE. Intraspecific variation in the society of a social carnivore. Poster presented at the *Animal Behavior Society Conference*, Princeton, NJ.
2014. Mirmomeni M, Hintze A, **Strauss ED**, Adami C. The collective hunting game: A new game to model social behavior in animals. Talk presented at the *Society for the Study of Evolution Conference*, Raleigh, NC.
2011. **Strauss ED**, Schloss KB, Palmer SE. The effects of imagined experiences of objects on preferences for colors. Talk presented at the *Vision Science Society Conference*, Naples, FL.
2010. **Strauss ED**, Schloss KB, Palmer SE. The good, the bad, and the ugly: Effects of object exposure on color preferences. Poster presented at the *Vision Science Society Conference*, Naples, FL.
2010. Schloss KB, Fortenbaugh FC, **Strauss ED**, Palmer SE. CSI Berkeley Episode II: Perceptual organization and selective attention. Talk presented at the *Vision Science Society Conference*, Naples, FL.
2009. Schloss KB, Fortenbaugh FC, **Strauss ED**, Palmer SE. CSI Berkeley Episode II: Perceptual organization and selective attention. Talk presented at the *Configural Processing Consortium*, Boston, MA.

### Research Grants and Fellowships

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- 2019 Dissertation Completion Fellowship (\$7,500)
- 2018 Dissertation Continuation Fellowship (\$7,500)
- 2017 BEACON Travel Fellowship (\$1,000)
- 2017 EEBB Travel Fellowship (\$600)
- 2016 IBIO John R. Shaver Award (\$1,125)
- 2016 EEBB Summer Fellowship (\$1,800)
- 2014 EEBB Summer Fellowship (\$1,800)
- 2013 EEBB Travel Fellowship (\$400)
- 2012 BEACON Top-up Fellowship (\$3,000)
- 2010 UC Berkeley Undergraduate Research Apprenticeship Summer Award
- 2009 UC Berkeley Undergraduate Research Apprenticeship Summer Award

### Mentoring

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- 2020 – 2021 Mentored masters student Heidi Rogers on her capstone project (ongoing).
- 2019 – 2021 Mentored undergraduate Ally K Brown on a research project culminating in her first-authored paper and a prize-winning poster.
- 2015 – 2019 Mentored seven undergraduate students Candice Rivers, Ashley O'Toole, Siera Tyl, Taryn Withers, Antonia Langfeldt, Kecil John, Nicole Seman conducting behavioral data extraction and analysis, culminating in the presentation of a prize-winning poster by Ashley O'Toole.
- 2014 – 2015 Mentored four students Genevieve Redgate, Allie Chojnacki, Katelyn Gutwein, Zack Woloszyk in field methods for behavior through NSF IRES program, culminating in a poster presentation.
- 2013 – 2014 Mentored Aliyah Glover, Daniel Claiborne, two students from underrepresented minorities through REU SROP program, culminating in multiple poster presentations.

### Teaching

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- 2018 (fall) IBIO 830 Statistical Methods in Evolution and Ecology (teaching assistant for graduate-level course)

2018 (sum) IBIO 341 Fundamentals of Genetics (teaching assistant)  
2016 (spring) IBIO 445 Evolution (discussion Instructor)  
2015 – 2017 IBIO 490 Behavioral Ecology of African Mammals (lead Instructor)

### Service and Outreach

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2020 – 2021 Guest Editor for *Philosophical Transactions of the Royal Society, B*  
2021 Mara Hyena Project Reproducibility Workshop Organizer  
2020 – 2021 Contributor to Open Data Science Workshop, Ecology of Animal Societies  
Department, Max Planck Institute of Animal Behavior  
2017 – 2018 Graduate student representative to IBIO faculty meeting  
2017 – 2018 MSU Hacky Hour founder & organizer (coding group for graduate students)  
2017 – 2018 EEBC Recruitment Liaison  
2017 – 2018 MSU Science Festival volunteer  
2016 – 2019 Biology on Tap founder & organizer (public outreach event for adults)  
2016 – 2018 EEBC Quantitative Methods Committee (revamping stats curriculum)  
2015 – 2016 IBIO Seminar Committee  
2014 – 2015 Weekly public presentations about spotted hyenas at Mara Serena Lodge, Kenya  
2014 – 2015 Mara Hyena Research Project field blog  
2013 – 2014 MSU Museum Darwin Day volunteer

### Media Coverage

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2020. "Great expectations? Falling short of status no laughing matter for hyenas" *Nebraska Today*  
2020. "Female hyenas kill off cubs in their own clans" *ScienceNews*.  
2019. "Hyena Society Stability has Last Laugh" *Scientific American 60-Second-Science*.  
2019. "For hyenas, climbing the social ladder is easier with friends" *PBS NOVA*.

### Peer Review

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Reviewer for *Scientific Reports, Methods in Evolution and Ecology, International Journal of Primatology, Proceedings of the Royal Society B, Behavioral Ecology, Functional Ecology, Animal Behaviour, Behavioral Ecology and Sociobiology, Behavior Research Methods, Evolution and Ecology, Primates, SIAM Review Research Spotlights, Philosophical Transactions of the Royal Society B, Royal Society Open Science*.