

## **Sarah Mathew**

Assistant Professor  
School of Human Evolution and Social Change  
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### **Education**

- 2011 University of California, Los Angeles  
Ph.D. in Anthropology
- 2003 Princeton University  
A.B. (with Honors) in Ecology and Evolutionary Biology

### **Academic Appointments**

- 2013 – now Assistant Professor, School of Human Evolution and Social Change,  
Arizona State University
- 2012 – 2013 Assistant Professor, Department of Anthropology, Stony Brook University
- 2011 – 2012 Postdoctoral Fellow, Center for the Study of Cultural Evolution  
Stockholm University

### Additional Institutional Affiliations

Research faculty, *Institute of Human Origins* (IHO)  
Core faculty, *Adaptation, Behavior, Culture and Society Research Group* (ABCS)  
Faculty affiliate, *Center for Evolution and Medicine* (CEM)  
Faculty affiliate, *Global Biosocial Complexity Initiative* (GBCI)  
Arizona State University—Santa Fe Institute Fellow

### **Research Area**

#### **Field site:**

Turkana pastoralists (Kwatela and Ngiyapakuno territorial sections)

#### **Topics:**

*Evolutionary social sciences*

1. Why do humans cooperate more than other animals? 2. How does the capacity for culture enable cooperation? 3. How does cooperation enable warfare?

*East African pastoralism*

1. How does social control occur in politically uncentralized pastoralist societies? 2. What are the cultural and genetic relationships among East African pastoralist populations? 3. What is the etiology of combat-related Post-traumatic Stress Disorder in Turkana warriors?

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## I. RESEARCH

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### Honors and Awards

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2015      *Andrew Carnegie Fellowship*. One among 32 scholars nationally to receive an award of \$200,000 for outstanding scholars in the social sciences and humanities addressing “current and future challenges to U.S. democracy and international order”

### Grant Activity

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#### Tenure-track at ASU

##### External

2014-17      Investigator on “Evolutionary Foundations of Human Uniqueness: Recovering Patterns of Cognition, Cumulative Culture and Cooperation” (PI: William Kimbel) from *John F. Templeton Foundation*. Grant total: \$4, 934,107; percent allocation: 11% [completed]

2014-15      Collaborator Investigator on “The Emergence of Prosocial Religions” (PI: Ara Norenzayan)” from *John F. Templeton Foundation* to University of British Columbia. Amount to ASU for subproject conducted by S. Mathew: CAD 16,675 [completed]

##### Internal

2015-21      Principal Investigator on "The evolution of human cooperation: field studies among Turkana pastoralists in Kenya", *President's Strategic Initiative Funds*; \$495,385 [active]

#### Doctoral

2010      Harry Frank Guggenheim Dissertation Fellowship  
2009      NSF Doctoral Dissertation Improvement Grant  
2009      Leakey Foundation Dissertation Research Grant  
2007      Owen Aldis Award, International Society for Human Ethology  
2004 - 07      NSF Graduate Research Fellowship

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## Publications

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### Authorship explanation:

- \* Postdoctoral trainees
- \*\* Graduate students
- † Joint first authorship with both authors contributing equally.
- <sup>a</sup> First author took lead. All other authors contributed equally with authorship order determined alphabetically.

IF 5-year journal impact factor in 2019 from Journal Citation Reports

First authorship indicates major contribution in data collection/developing of model, data analysis and manuscript preparation. On papers with postdocs or students, last authorship indicates leadership in conceiving of and designing the study, and mentoring of postdocs or students in conducting the study and writing the paper.

### Peer-reviewed journal articles

1. Handley, C.\* and **Mathew, S.** Human large-scale cooperation as a product of competition between cultural groups. *Nature Communications Nat Commun* **11**, 702 (2020).  
<https://doi.org/10.1038/s41467-020-14416-8>. IF = 13.8
2. Lang, M., Purzycki, B., Apicella, C., Atkinson, Q., Bolyanatz, A., Colleran, H., Curtis, R., Handley, C\*., Klocova, E., Lesorogol, C., **Mathew, S.**, Moya, C., Placek, C., Soler, M., Stagnaro, N., Vardy, T., Weigel, J., Xygalatas, D., Norenzayan, A. and Henrich, J. 2019. Moralizing gods, impartiality and religious parochialism across 15 societies. *Proceedings of the Royal Society, Series B* 286 (1898): 20190202 IF = 5.6
3. Ghrear S. E., Chudek M.\*, Flung K., **Mathew, S.**, and Birch, S. A. J. 2019. Cultural Variations in the Curse of Knowledge: the Curse of Knowledge Bias in Children from a Nomadic Pastoralist Culture. *Journal of Cognition and Culture* 9 (3-4), 366-384 IF = NA
4. **Mathew, S.** 2017. How the second-order free rider problem is solved in a small-scale society. *American Economic Review: Papers & Proceedings* 107 (5) 578-81. IF = 6.5
5. **Mathew, S.**<sup>†</sup> and Perreault, C.<sup>†</sup> 2016. Cultural history, not ecological environment, is the main determinant of human behavior. *Proceedings of the Royal Society, Series B* 283 (1826): 20160177 IF = 5.6
6. <sup>a</sup> Richerson, P., Baldini, R., Bell, A., Demps, K., Frost, K., Hillis, V., **Mathew, S.**, Newton, E., Narr, N., Newson, L., Ross, C., Smaldino, P., Waring, T., Zefferman, M. 2016. Cultural group selection follows Darwin's classic syllogism for the operation of selection. *Behavioral and Brain Sciences* 39, e58. IF = 21.2

7. Richerson, P., Baldini, R., Bell, A., Demps, K., Frost, K., Hillis, V., **Mathew, S.**, Newton, E., Narr, N., Newson, L., Ross, C., Smaldino, P., Waring, T., Zefferman, M. Cultural Group Selection Plays an Essential Role in Explaining Human Cooperation. A Sketch of the Evidence. 2016. *Behavioral and Brain Sciences* 39, e30. IF = 21.2
8. **Mathew, S.**<sup>†</sup> and Perreault, C.<sup>†</sup>. 2015. Behavioral variation in 172 small-scale societies indicates social learning to be the main mode of human adaptation. *Proceedings of the Royal Society, Series B* 282(1810): 20150061 IF = 5.6
9. Boyd, R. and **Mathew S.** 2015. Third-party monitoring and sanctions aid the evolution of language. *Evolution and Human Behavior* 36(6): 475-479. IF = 3.6
10. Zefferman, M. and **Mathew, S.** 2015. An Evolutionary Theory of Large-scale Human Warfare: Group-structured Cultural Selection. *Evolutionary Anthropology: Issues, News and Reviews* 24(2): 50-61. IF = 4.8
11. **Mathew, S.** and Boyd, R. 2014. The cost of cowardice: third-party punitive sentiments towards free riders in Turkana raids. *Evolution and Human Behavior* 35: 58-64. IF = 3.6
12. Perreault, C.<sup>†</sup> and **Mathew, S.**<sup>†</sup> 2012. Dating the origin of language using phonemic diversity. *PLoS ONE* 7(4): e35289. IF = 3.4
13. **Mathew, S.** and Boyd, R. 2011. Punishment sustains large-scale cooperation in prestate warfare. *Proceedings of the National Academy of Sciences* 108 (28): 11375 – 11380. IF = 10.3
14. **Mathew, S.** and Boyd, R. 2009. When does optional participation allow the evolution of cooperation? *Proceedings of the Royal Society, Series B* 276: 1167 – 1174. IF = 5.6

### Book Chapters

1. **Mathew, S.**, Boyd, R. and van Veelen, M. 2013. Human cooperation among kin and close associates may require enforcement of norms by third parties. In: *Cultural Evolution*, ed. P. J. Richerson and M. Christiansen. *Strüngmann Forum Report 12*, series editor J. Lupp. Cambridge, MA: MIT Press.
2. <sup>a</sup> Jordan, F. M., C. van Schaik, P. François, H. Gintis, D. B. M. Haun, D. J. Hruschka, M. A. Janssen, J. A. Kitts, L. Lehmann, **S. Mathew**, P. J. Richerson, P. Turchin, and P. Wiessner. 2013. Cultural evolution of the structure of human groups. In: *Cultural Evolution*, ed. P. J. Richerson and M. Christiansen. *Strüngmann Forum Report 12*, series editor J. Lupp. Cambridge, MA: MIT Press.

### Comments and Invited Articles

1. Zefferman M., Baldini R. and **Mathew, S.** 2015. Solving the puzzle of human warfare requires an explanation of battle raids and cultural institutions. *Proceedings of the National Academy of Sciences* 112(20): E2557. IF = 10.3
2. Panchanathan, K., **Mathew, S.** and Perreault, C. 2014. Explaining group-level traits requires distinguishing process from product. *Behavioral and Brain Sciences* 37(3): 269-270. IF = 21.2
3. Bowles, S., Boyd, R. **Mathew, S.** and Richerson, P. J. 2012. The punishment that sustains cooperation is often coordinated and costly. *Behavioral and Brain Sciences* 35(1): 20-21. IF = 21.2
4. **Mathew, S.** and Boyd, R. 2011. Mechanistic accounts need to specify why reputation systems yield cooperative outcomes on observed scales. *Proceedings of the National Academy of Sciences* 108(39): E754. IF = 10.3
5. Boyd, R. and **Mathew, S.** 2007. A Narrow Road to Cooperation, *Science*, 316: 1858 – 1859. IF 40.6

### Encyclopedia Articles

1. **Mathew, S.** 2015. The evolution of human cooperation. *International Encyclopedia of the Social and Behavioral Sciences 2nd edition* 11: 259-266.

### Book Reviews

1. **Mathew, S.** 2015. Are Cultural and Evolutionary Views of Human Warfare Converging? A Review of “War, Peace and Human Nature: The Convergence of Evolutionary and Cultural Views, edited by Douglas P. Fry (Oxford University Press, 2015)”. *Cliodynamics: The Journal of Quantitative History and Cultural Evolution* 6 (1). <https://escholarship.org/uc/item/4125090f>

### Unpublished Manuscripts

#### Under review

1. **Mathew, S.**, and Boyd, R. Arbitration supports reciprocity when there are frequent perception errors. (revise and resubmit, *Nature Human Behavior*)

#### In prep

#### *Manuscript drafts available*

1. **Mathew, S.** Morality around the hearth: cooperation among kith and kin in humans requires third-party moral behavior.

2. Zefferman M.\*, and **Mathew, S.** Post-traumatic stress in Turkana warriors engaged in interethnic cattle raiding.
3. Zefferman M.\*, and **Mathew, S.** An evolutionary theory of moral injury with insight from Turkana warriors

*Data analysis completed*

1. Gleason, L\*\*. and **Mathew, S.** Reputation information acquired through gossip influences high-stakes cooperative decisions among Turkana warriors.
2. Yan, M.\*\*, **Mathew, S.** and Boyd, R. Continuous social norms keep shifting under external forces—selection and migration in an infinitely large unstructured population.
3. Perreault, C. and **Mathew, S.** Frequency-dependent traits evolved more slowly among small-scale societies of Western North America.

*Data collection completed*

1. With Taravella, A.\*\*, Handley, C.\*, Wilson M. A., and Stone, A. E. The role of cultural and genetic relatedness in explaining large-scale cooperation: a cross-cultural study among the Borana, Rendille, Samburu and Turkana pastoralists of Kenya. (*DNA sequencing completed*)
2. With Handley, C\* The nature of other-regarding preferences: equitable versus group functional allocation decisions among Turkana pastoralists.
3. With Lenfesty, H.\*, Fikes, T., Ross, C., and Boyd, R. Third-party adjudication can solve the perception error problem in cooperation.
4. With Zefferman, M.\*, and Trumble, B. Cortisol profile of Turkana warriors with post-traumatic stress from combat. (*laboratory analysis completed*)

## Invited Talks

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### External

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| 2020 | Canadian Institute for Advanced Research Interdisciplinary Workshop on Culture and Preference Formation. University of California Los Angeles. (Feb 6-7, 2020)<br>The cultural evolution of cooperative norms: insights from pastoral Kenya. |
| 2019 | Human Behavior and Evolution Society Preconference on “Integrated Approaches to Research on Culture: Professional and Practical Considerations”. Boston, MA<br>Three recent projects, three unique challenges.                               |
| 2019 | Mind, Technology and Society Series, <i>University of California Merced</i><br>Is the cultural boundary also the moral boundary? An empirical test of cultural group selection   |

- 2017 Center for Behavior, Evolution and Culture, *University of California Los Angeles*  
Peer sanctioning and cultural group selection promotes large-scale cooperation: Evidence from Kenyan pastoralists
- 2017 Anthropology Department, *University of Missouri*  
Conflict and Cooperation In A Pastoral Society Shows That Cultural Transmission Enabled The Evolution Of Human Prosociality
- 2017 Descent of Moral Sentiments Symposium, *Utrecht University*, Netherlands  
(Key speaker) Is the cultural boundary also the moral boundary?
- 2016 Workshop on African History and Economics: Towards a Deeper Understanding of African Culture and Society, *Hutchins Center for African and African American Research, Harvard University*  
Conflict and Cooperation in A Pastoral Society Shows That Selection Among Cultural Groups Enabled the Evolution of Human Cooperation
- 2016 Toulouse Economics and Biology Workshop, *Toulouse School of Economics & Institute for Advanced Study in Toulouse*, Toulouse, France  
Altruistic Warriors and Moral Citizens: Conflict and Cooperation In A Pastoral Society Shows That Cultural Transmission Enabled The Evolution Of Human Prosociality
- 2016 Center for Philosophy, Arts and Literature (PAL) and the Franklin Humanities Institute (FHI), *Duke University*  
How Turkana pastoralists cooperate, and what it means for the origins of human prosociality
- 2014 Anthropology Colloquium, *University of California, Davis*  
The evolution of large-scale cooperation in humans: insights from Turkana warfare
- 2014 Collective Intentionality Conference, *Indiana University*, Bloomington  
Group-functional design in informal institutions: Cooperation & punishment among acephalous Turkana herder
- 2013 *International Max Planck Research School on Retaliation, Mediation and Punishment*, Winter University 2013. Heppenheim, Germany  
Punitive sentiments towards free riders in Turkana raids
- 2012 The Research Group for Evolutionary Theory, *Max Planck Institute for Evolutionary Biology*, Plön, Germany  
Evolution of cooperation via enforcement of cultural norms:cattle-raiding among acephalous Turkana pastoralists
- 2012 Modeling Social Complexity Workshop, National Institute for Mathematical and Biological Synthesis & National Evolutionary Synthesis Center, Knoxville  
Has cultural group selection enabled human ultrasociality?

- 2011 *California Polytechnic University, San Luis Obispo*  
Warfare, collective action and the scale of human cooperation
- 2010 Workshop: Evolutionary Perspectives of Human Behavior, San Luis Obispo  
Warfare and collective action: cattle raiding among Turkana pastoralists
- 2010 Workshop: Coevolution of Behaviors and Institutions, *Santa Fe Institute*  
Collective action in pre-state warfare: cooperative cattle-raiding among Turkana pastoralists
- 2009 *Leakey Foundation Board Meeting, San Francisco*  
Altruistic warriors: cooperative cattle-raiding among Turkana pastoralists

### **Internal**

- 2017 *Faculty Cross-Talks on Health in the Social Sciences: Mental Health, College of Liberal Arts and Sciences, ASU*  
Finding the roots of PTSD and Moral Injury in warriors of small-scale societies
- 2016 *Institute of Human Origins Board Meeting, ASU*  
How Turkana pastoralists cooperate, and what it means for the origins of human prosociality
- 2014 *Center for the Study of Institutional Diversity, ASU*  
Informal sanctions solve the collective action problem in acephalous warfare

### **Conferences**

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#### **Sessions Chaired**

- 2014 Empathy, conformity, and (im)moral killing: anthropology at the limits of knowledge. Co-chaired session with Carolyn R. Nordstrom.  
*American Anthropological Association, Washington D. C.*

#### **Presentations**

- 2019 Is the cultural boundary also the moral boundary? An empirical test of cultural group selection among pastoral populations in Kenya.  
*Human Behavior and Evolution Society Conference, Boston, MA (May 31-Jun 2, 2019)*
- 2017 Is the cultural boundary also the moral boundary? A cross-cultural test of cultural group selection.  
*Cultural Evolution Society Inaugural Meeting, Jena, Germany (Sep 12-15, 2017)*



- 2017 Conflict and cooperation in a pastoral society shows that selection among cultural groups enabled the evolution of human cooperation  
*American Economic Association Annual Meeting* Chicago IL (Jan 6-8 2017)
- 2014 Mechanisms of self-regulation in moral norms and psychology: a study of meta-norms governing punishment in Turkana society  
*American Anthropological Association Conference*, Washington D. C.
- 2010 A causal understanding of warfare, based on the origins of human cooperation: case study of cattle raiding among Turkana pastoralists in East Africa  
*American Anthropological Association Conference*, New Orleans, LA
- 2010 The collective action problem in warfare: data from cattle raiding among Turkana pastoralists  
*Human Behavior and Evolution Society Conference*, Eugene, OR
- 2009 Cooperation and human warfare: case study of cattle raiding among Turkana pastoralists  
*American Anthropological Association Conference*, Philadelphia, PA
- 2008 The empirical details of cooperation are key to its origins: some types of cooperative interactions evolve more easily than others, if participation is optional. [Poster]  
*American Anthropological Association Conference*, San Francisco, CA
- 2008 When does optional participation allow the evolution of cooperation?  
*European Human Behavior and Evolution Society*, Montpellier, France
- 2007 Does optional participation favor large-scale cooperation?  
*Human Behavior and Evolution Society Conference*, Williamsburg, VA
- 2007 Modeling the role of solitary strategies, resource excludability and resource exhaustibility on the evolution of altruistic behavior  
*South. Calif. Animal Behavior Society Conference*, Santa Barbara, CA
- 2006 The effect of excludability in stabilizing cooperation in an n-person public goods game.  
*Human Behavior and Evolution Society Conference*, Philadelphia, PA

## Workshops

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### Organized

- 2018 Co-organized an international, interdisciplinary workshop “Understanding the origins of combat stress and moral injury through cross-cultural research” hosted by *Center for Evolution and Medicine, ASU* (Mar 1-2, 2018).

## Attended

- 2017 *National Science Foundation* workshop, “Enhancing robustness and generalizability in the social and behavioral sciences”, Washington D. C. (Mar 2017)
- 2014 The origin of violence: from brain to world war, *The Origins Project*, ASU, Tempe, AZ
- 2014 The Evolution of Institutions, *National Institute for Mathematical and Biological Synthesis (NIMBioS)*, Knoxville, TN
- 2012 *Ernst Strüngmann Forum* on Cultural Evolution, Frankfurt, Germany
- 2012 Modeling Social Complexity, *National Institute for Mathematical and Biological Synthesis (NIMBioS) & National Evolutionary Synthesis Center (NESCent)* Investigative Workshop, Knoxville, TN
- 2012 Cooperation in multi-partner settings: biological markets & social dilemmas, *Lorentz Center*, Leiden, The Netherlands
- 2010 Coevolution of Behaviors and Institutions, *Santa Fe Institute*, NM

## II. TEACHING

### Recognition

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- 2020 Nominee, College of Liberal Arts and Sciences *Zebulon Pearce Distinguished Teaching Award*
- 2018 Nominee, College of Liberal Arts and Sciences *Zebulon Pearce Distinguished Teaching Award*
- 2018 Nominee, Graduate & Professional Student Association *Centennial Professorship Award*
- 2018 Nominee, Graduate College *Outstanding Faculty Mentor Award* (Outstanding Master’s Mentor Category)

### Courses

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#### Arizona State University

- ASM 394 Special Topics: War and Peace—The Evolution of Conflict and Cooperation
- Spring 2015, Fall 2016, Fall 2019

- ASM 342 Evolution and Human Behavior
- Spring 2014, Fall 2014, Spring 2016, Spring 2019, Spring 2020
- ASM 300 Anthropological Sciences
- Fall 2018
- ASB 210 Human Sexuality (online).
- Spring 2017, Fall 2017
- ASM 590 Reading and Conference Graduate Course
- Spring 2014, 2015, 2017; Fall 2017, 2018, 2019

### **Stony Brook University**

- ANP 403 Seminar in Biological Anthropology: The evolution of cooperation (Fall 2012)
- ANP 200 Evolution of Human Behavior (Spring 2013)
- ANP 391 Behavioral ecology (Spring 2013)

## **Mentoring**

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### **Undergraduate Research Apprenticeship**

1. Abhishek Tomar Supervising data coding of Turkana field data (Spring 2020)
2. Liam Gleason Supervised a research internship resulting in a successful *NSF GRFP* proposal (Fall 2016)

### **Undergraduate Honors Thesis**

Sarah Long Supervising Barrett Honor's Thesis based on coding and analysis of data previously collected at the Turkana fieldsite.

### **Master's committee member**

1. Kelly Reina Committee member (2015 – 16)
2. Leonid Tiokhin Committee member (2015 – 16)
3. Scott Collins Committee member (2018 – 19)

### **Doctoral supervision**

1. Liam Gleason Advisor (Fall 2017 – now)  
Completed MA requirement in Spring 2019
2. Minhua Yan Co-advisor (Fall 2016 – now)  
Completed MA requirement in Spring 2018

### Doctoral committee

1. Angela Taravella                      Committee member (Spring 2017 – now)

### Post-doctoral supervision

1. Matthew Zefferman                      Post Traumatic Stress and Moral Injury in Turkana warriors (Nov 2015-Aug 2017)  
*Current position:* Assistant Professor at the Naval Postgraduate School (NPS), Monterey, CA.
2. Carla Handley                              Cooperation and population structure among Borana, Rendille, Samburu and Turkana pastoralists (Dec 2014-Aug 2017)  
*Current position:* Research consultant, Indica Consulting, Washington D.C.
3. Hillary Lenfesty                              Economic experiments assessing the role of arbitration on reciprocal cooperation when errors are common (Aug 2015- Aug 2017).  
*Current position:* Assistant Research Professor, School of Human Evolution and Social Change.

### Field site supervision

\* postdocs    \*\* graduate students

1. Carla Handley\*                              Conducted study of cooperation among Turkana, Borana, Rendille and Samburu pastoralists in Kenya (4 visits of 2-3 months each between Dec 2014-Aug 2017).
2. Matthew Zefferman\*                      Conducted study of post-traumatic stress disorder and moral injury among warriors at the Turkana fieldsite (3 visits of 2 months each between Nov 2015-Aug 2017).
3. Bailey House\*                              Conducted study of the development of prosocial sentiments at the Turkana field site to pilot field methods to use in a larger cross cultural study (Apr-May 2016)
4. Matthew Chudek\*                              Conducted study of indirect reciprocity assessing how goodness is determined among Turkana and Canadian subjects (Jun-Jul 2014)
5. Liam Gleason\*\*                              Conducted six-week study of the role of gossip and reputation in sustaining cooperation among Turkana warriors (Jul-Sep 2018)

6. Angela Taravella\*\* Conducted two-week science outreach and dissemination effort to communicate lab DNA methods and preliminary results to communities who contributed DNA samples for genetic analysis (Jul – Aug 2018).

### **Mentoring of community members at field site:**

Conducted these activities at the fieldsite to improve education access in the Turkana host community (Sep 2014 - Aug 17)

1. Implemented online learning via Khan Academy Lite at the local primary school
2. Established a scholarship and mentoring program for the six top-scoring secondary school students from the community.
3. Hosted a teacher who teaches kindergarten through second grade students in the community who are not attending the main primary school.
4. Implemented an adult literacy initiative for the host community led by the Turkana field research assistants.
5. Provided non-financial logistic support for the Turkana field research assistants to continue their education via online distance learning programs.

## III. SERVICE

### **Professional Service**

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#### **Editorial Service**

2015-2016 Consulting Editor, *Evolution and Human Behavior*

#### **Journal Referee**

1. Adaptive Behavior,
2. Behavioral Ecology and Sociobiology
3. Biology Letters
4. Biological Reviews
5. Current Biology
6. Evolution and Human Behavior
7. Human Nature
8. Journal of the Commons
9. Journal of the Royal Society Interface
10. Journal of Theoretical Biology
11. PLoS Computational Biology
12. PLoS ONE
13. Philosophical Transactions of the Royal Society B



## Public Outreach

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### Blog contributions

“The Paradox of Human Warfare Explained” Social Evolution Forum Blog, The Evolution Institute: <https://evolution-institute.org/blog/the-paradox-of-human-warfare-explained/> (2016)

### Public presentations

“Is the cultural boundary also the moral boundary?” Project presentation for the “Evolution of Human Uniqueness” *Templeton Research Symposium* hosted by *Institute of Human Origins* at Tempe Center for the Arts (Apr 2017). <https://iho.asu.edu/2017-symposium-video>

Panelist, *Origins Project Great Debates “Transcending Our Origins: Violence, Humanity and the Future”* hosted by Steven Pinker, Grady Gammage Memorial Auditorium, Tempe (Apr 2014). <https://youtu.be/vxMP4IAkqpU>

### Selected Media Coverage

“The Evolution of Shaming”, Ed Yong, *The Atlantic*, Feb 2016

“Why Its Brave To Think Like A Coward”, Chris Walsh, *Aeon*, Feb 2015

“Friends, not foes, boost warriors’ success”, Elizabeth Wade, *Science*, Nov 2014

“Transformers”, Colin Barras, *New Scientist*, Oct 2014

“It Is Human Nature to Cooperate With Strangers”, Michael Marshall, *New Scientist*, Jun 2011