

# Bret Alexander Beheim

Group Leader, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

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## Employment

- 2020-pres. · Group Leader, Data Provenance Research Group, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
- 2016-2020 · Senior Researcher, Department of Human Behavior, Ecology, and Culture, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
- 2012-2016 · Post-doctoral Researcher, Department of Anthropology, University of New Mexico, USA

## Education

- 2007-2012 · Ph.D. in Evolutionary Ecology, University of California at Davis, USA
- 2005-2006 · M.A. in Social Sciences, University of Chicago, Illinois, USA
- 2000-2004 · B.A. in History and Anthropology. University of California at Santa Barbara, USA *with honors/Phi Beta Kappa*

## Research

### *Publications in Print*

- 2023
  1. Kaplan, H.K., *et al.* (2023) Brain volume, energy balance and cardiovascular health in two non-industrial South American populations *Proceedings of the National Academy of Sciences*, 120(13). DOI: 10.1073/pnas.2205448120
  2. Ross, C.T., Hooper, P., Smith, J.E., Jaeggi, A.V., Smith, E.A., Gavrillets, S., *et al.* (2023) Reproductive inequality in humans and other mammals. *Proceedings of the National Academy of Sciences*, in press
- 2022
  3. Fedorova, N., McElreath, R., Beheim, B. (2022) The complex life course of mobility: Quantitative description of 300,000 residential moves in 1850-1950 Netherlands. *Evolutionary Human Sciences*, 4, E39. DOI: 10.1017/ehs.2022.33
  4. Kraft, T.S., Cummings, D., Venkataraman, V., Alami, S., Beheim, B., Hooper, P., Seabright, E., Trumble, B., Stieglitz, J., Kaplan, H., Endicott, K.L., Endicott, K.M., Gurven, M. (2022) Female cooperative labor networks in hunter-gatherers and horticulturalists. *Philosophical Transactions of the Royal Society B*, in press. DOI: 10.1098/rstb.2021.0431
- 2021
  5. Minocher, R., Atmaca, S., Bavero, C., McElreath, R., Beheim, B. (2021) Estimating the reproducibility of social learning research published between 1955 and 2018. *Royal Society Open Science*, 8:210450. DOI: 10.1098/rsos.210450
  6. Garcia, A.R., *et al.* (2021) APOE4 is associated with elevated blood lipids and lower levels of innate immune biomarkers in a tropical Amerindian subsistence population. *eLife*, 10:e68231. DOI: 0.7554/eLife.68231

7. Tran, N.H., Kucharský, S., Waring, T., Atmaca, S., Beheim, B. Limited scope for group coordination for stylistic variations in kolam art. *Frontiers in Psychology* 12, p.4770. DOI: 10.3389/fpsyg.2021.742577
  8. Beheim, B., *et al.* (2021) Treatment of missing data determines conclusions regarding moralizing gods. *Nature*, 595. DOI: 10.1038/s41586-021-03655-4
  9. Jaeggi, A.V., *et al.* (2021) Relative wealth and inequality associate with health in a small-scale subsistence society. *eLife*, 10:e59437. DOI: 10.7554/eLife.59437
  10. Rowan, C., *et al.* (2021) Very Low Prevalence and Incidence of Atrial Fibrillation among Bolivian Forager-Farmers. *Annals of Global Health*, 87(1), p.18. DOI: 10.5334/aogh.3252
  11. Tran, N.H., Waring, T., Atmaca, S., & Beheim, B. (2021) Entropy trade-offs in artistic design: A case study of Tamil kolam. *Evolutionary Human Sciences*, 3(E23). DOI: 10.1017/ehs.2021.14
- 2020
1. Broesch, T., *et al.* (2020) Navigating cross-cultural research: methodological and ethical considerations. *Proc. R. Soc. B.* 287:20201245. DOI: 10.1098/rspb.2020.1245
  2. Gurven, *et al.* (2020) Rapidly declining body temperature in a tropical human population *Science Advances* Vol. 6, no. 44, eabc6599. DOI: 10.1126/sciadv.abc6599 (*credited for data curation*)
  3. Wood, *et al.* (2020) Step Counts From Satellites: Methods for Integrating Accelerometer and GPS Data for More Accurate Measures of Pedestrian Travel. *Journal for the Measurement of Physical Behaviour*. 3(1), pp. 58-66.10. DOI: 1123/jmpb.2019-0016
- 2019
1. Borgerhoff Mulder, *et al.* (2019) Differences between sons and daughters in the intergenerational transmission of wealth. *Philosophical Transactions of the Royal Society B.* 374:20180076. DOI: 10.1098/rstb.2018.0076
- 2018
1. Ross, C. T., *et al.* (2018) Greater wealth inequality, less polygyny: Rethinking the polygyny threshold model. *Journal of The Royal Society Interface*. 15(144). DOI:10.1098/rsif.2018.0035
  2. Trumble, Benjamin C., *et al.* (2018) Parental hormones are associated with crop loss and family sickness following catastrophic flooding in lowland Bolivia. *Physiology & Behavior*. 193(A), pp. 101-107. DOI: 10.1016/j.physbeh.2018.02.028
  3. Schniter, Eric, *et al.* (2018) Information transmission and the oral tradition: Evidence of a late-life service niche for Tsimane Amerindians. *Evolution and Human Behavior*. 39.1: 94-105. DOI: 10.1016/j.evolhumbehav.2017.10.006
- 2017
1. Kaplan, H., Thompson, R.C., Trumble, B.C., Wann, L.S., Allam, A.H., Beheim, B., Frohlich, B., Sutherland, M.L., Sutherland, J.D., Steiglitz, J. *et al.* (2017) Coronary atherosclerosis in indigenous South American Tsimane: a cross-sectional cohort study. *The Lancet*. 389(10080), pp. 1730-1739. DOI: 10.1016/S0140-6736(17)30752-3
  2. Gurven, M., Fuerstenberg, E., Trumble, B., Steiglitz, J., Beheim, B., Davis, H., Kaplan, H. (2017) Cognitive performance across the life course of Bolivian forager-farmers with limited schooling. *Developmental Psychology*. 53(1), pp. 160-176. DOI: 10.1037/dev0000175
  3. Blackwell, A.D., Urlacher, S., Beheim, B., von Rueden, C., Jaeggi, A., Stieglitz, J., Trumble, B.C., Gurven, M., Kaplan, H. (2017) Growth references for Tsimane forager-horticulturalists of the Bolivian Amazon. *American Journal of Physical Anthropology*. 162(3), pp. 441-461. DOI: 10.1002/ajpa.23128

4. Gurven, M., Stieglitz, J., Trumble, B., Blackwell, A.D., Beheim, B., Davis, H., Hooper, P., Kaplan, H. (2017) The tsimane health and life history project: Integrating anthropology and biomedicine. *Evolutionary Anthropology*. 26(2) pp. 54-73. DOI: 10.1002/evan.21515
  5. Trumble, B. C., Stieglitz, J., Blackwell, A. D., Allayee, H., Beheim, B., Finch, C. E., Gurven, M., and Kaplan, H. *et al.* (2017) "Apolipoprotein E4 is associated with improved cognitive function in Amazonian forager-horticulturalists with a high parasite burden." *The FASEB Journal*. 31.4, pp. 1508-1515. DOI: 10.1096/fj.201601084R
- 2016
1. Gurven, M., Costa, M., Eid Rodriguez, D., Stieglitz, J., Beheim, B., Trumble, B., & Kaplan, H. (2016). Health costs of reproduction are minimal despite high fertility, mortality and subsistence lifestyle. *Nature Scientific Reports*. 6(30056). DOI: 10.1038/srep30056
  2. Jaeggi, A.V., Hooper, P.L., Beheim, B., Kaplan, H., Gurven, M. (2016) Reciprocal exchange patterned by market forces helps explain cooperation in a small-scale society. *Current Biology*. 26(16), pp. 2180-2187. DOI: 10.1016/j.cub.2016.06.019
  3. Gurven, M., Trumble, B.C., Stieglitz, J., Yetish, G., Cummings, D., Blackwell, A.D., Beheim, B., Kaplan, H., Pontzer, H. (2016) High resting metabolic rate among Amazonian forager-horticulturalists experiencing high pathogen burden. *American Journal of Physical Anthropology*. 161(3), pp. 414-425. DOI: 10.1002/ajpa.23040
  4. Blackwell, A., Trumble, B.C., Maldonado Suarez, I., Stieglitz, J., Beheim, B., Snodgrass, J., Kaplan, H., Gurven, M. (2016) Immune Function in Amazonian Horticulturalists. *Annals of Human Biology*. 43(4), pp. 382-396. DOI: 10.1080/03014460.2016.1189963
  5. Mattison, S.M., *et al.* (2016) The evolution of inequality. *Evolutionary Anthropology: Issues, News, and Reviews*. 25(4), pp. 184-199. (acknowledged as data analyst, figure author) DOI: 10.1002/evan.21491
  6. Mattison, S.M., Beheim, B., Chak, B., Buston, P. (2016) Offspring sex preferences among patrilineal and matrilineal Mosuo in Southwest China revealed by differences in parity progression. *Royal Society Open Science*. 3(9), 160526. DOI: 10.1098/rsos.160526
- 2015
1. Stieglitz, J., Beheim, B., Trumble, B.C., Madiemenos, F.C., Kaplan, H. & Gurven, M. (2015) Low Mineral Density of a Weight-Bearing Bone Among Adult Women in a High Fertility Population. *American Journal of Physical Anthropology*. 156(4), pp.637-648. DOI: 10.1002/ajpa.22681
  2. Blackwell, A.D., Tamayo, M.A., Beheim, B., Trumble, B.C., Stieglitz, J., Hooper, P.L., Martin, M., Kaplan, H., Gurven, M. (2015) Helminth infection, fecundity, and age of first pregnancy in women. *Science*. 350(6263) pp. 970-972. DOI: 10.1126/science.aac7902
- 2014
1. Beheim, B., Thigpen, C. & McElreath, R. (2014) Strategic social learning and the population dynamics of human behavior: the game of Go. *Evolution and Human Behavior*. 35(5), pp. 351-357. DOI: 10.1016/j.evolhumbehav.2014.04.001
- 2012
1. Beheim, B. & Baldini, R. (2012) Evolutionary decomposition and the mechanisms of cultural change. *Cliodynamics*. 3(2). DOI: 10.21237/C7clio3212123
- 2011
1. Beheim, B. & Bell, A.V. (2011) Inheritance, ecology and the evolution of the canoes of East Oceania. *Proc. R. Soc. B*. 278(1721), pp. 3089-3095. DOI: 10.1098/rspb.2011.0060
  2. Borgerhoff Mulder, M. & Beheim, B. (2011) Understanding the nature of wealth and its effects on human fitness. *Phil. Trans. R. Soc. B*. 366, pp. 344-35. DOI: 10.1098/rstb.2010.0231

- 2009
1. Borgerhoff Mulder, Monique, *et al.* (2009) Intergenerational wealth transmission and the dynamics of inequality in small-scale societies. *Science*. 326.5953 (2009): pp. 682-688. (*as data analyst*) DOI: 10.1126/science.1178336

### *Grants, Fellowships, Awards*

- 2016 · MPI-EVA Senior Researcher Funding Line. \$56,754 startup, \$56,754 annual budget over five years.
- 2015 · “The Human Life Course and the Biodemography of Aging”, Co-Investigator, National Institutes of Health / National Institute on Aging. \$590,659.
- 2014 · Administrative Supplement to “The Human Life Course and the Biodemography of Aging”, Co-Investigator National Institutes of Health / National Institute on Aging. \$15,000.
- “Surviving the Flood: Vulnerability, Risk Management, and Resilience among Tsimane Forager-Farmers of Bolivia”, Co-Investigator, National Science Foundation. \$126,000.
- 2009 · Graduate Fellowship Block Grant, The University of California. \$10,800.
- 2007 · Graduate Scholars Fellowship in Ecology, The University of California. \$34,022.
- 2004 · Phi Beta Kappa Honors Society

### *Paper Presentations*

- 2022 · “Strategic Social Learning in the Era of Superhuman Artificial Intelligence: A Large-Scale, Longitudinal Case Study using the Game of Go”, Cultural Evolution Society Meeting
- 2020 · “Improving Reproducibility in Evolutionary Anthropology”, Santa Fe Institute ENDOW workshop
- 2019 · “Open Science in the Field”, Open Science and Reproducibility workshop, Interacting Minds Centre, Aarhus University
- “The Adaptive Logic of False Beliefs”, Human Behavior and Evolution Society Meeting
- 2018 · Beheim, B. “Milk consumption is globally widespread and increasing: Time to rewrite the textbooks?” Cultural Evolution Society Meeting.
- Beheim, B., Takezawa, M. “Japanese Milk Consumption: Asymptomatic Lactose Intolerance Following a Recent Cultural Diffusion.” Human Behavior and Evolution Society Meeting.
- Beheim, B. “Atherosclerosis as a Culturally-Transmitted Disease among Acculturating Horticulturalists.” European Human Behavior and Evolution Association Meeting.
- 2017 · Beheim, B., Baldini, R. “What evolutionary mechanisms drive cultural change?” Poster presented at the European Human Behavior and Evolution Association Meeting.
- Beheim, B. “Beyond conformity in cultural diffusion: Knowledge, opportunity and motivation.” Cultural Evolution Society Meeting.
- Beheim, B. “Advances in studying cultural diffusions”, Department of Behavioral Sciences, Hokkaido University.
- 2015 · Beheim, B., Ross, C., Thigpen, C., McElreath, R. “Cultural Evolution in Games of Chess and Go.” American Anthropological Association Meeting.
- Rowan, C., Sangodkar, S., Achrekar, A., Tolstrup, K., Beheim, B., Stieglitz, J., Trumble, B., Gurven, M., Kaplan, & H. “Left Ventricular Systolic and Diastolic Dysfunction is an Uncommon Finding in a Pre-Industrial Society with High Inflammation and Low Atherosclerotic Risk Factors.” American Heart Association Meeting.

- Blackwell, A.D., Tamayo, M., Beheim, B., Trumble, B.C., Stieglitz, J., Hooper, P., Kaplan, H. & Gurven, M. "Different parasites, different human life histories: Roundworm increases human fecundity and leads to earlier reproduction, while hookworm entails costs to reproduction." Human Behavior and Evolution Society Meeting.
- 2014 · Beheim, B., Gurven, M. & Kaplan, H. "What evolutionary processes drive cultural change?", Evolutionary Demography Society Meeting.
- Gurven, M., Costa, M., Eid Rodriguez, D., Stieglitz, J., Beheim, B., Trumble, B., Kaplan, H. "Costs of reproduction and maternal depletion in a high mortality and fertility population." Population Association of America Meeting.
- Trumble, B.C, Cummings, D., Beheim, B., Stieglitz, J., Yetish, G. Pontzer, H., Kaplan, H., & Gurven, M. "Energetic costs of testosterone: higher testosterone is associated with greater lean muscle mass and total energetic expenditure among Tsimane forager-horticulturalists." American Association of Physical Anthropologists Meeting.
- Kaplan, H., Gurven, M., Cortez, E., Eid, D., Beheim, B., Stieglitz, J., Rowan, C., Tolstrup, K., & Achrekar, A. "Slow cardiovascular aging and rare infarcts among Tsimane forager-horticulturalists." American Association of Physical Anthropologists Meeting.
- 2013 · Thompson, M.E, Beheim, B., Blackwell, A.D., Stieglitz, J., Trumble, B.C., Gurven, M. & Kaplan, H. "Immunosenescence in Tsimane forager-horticulturalists." American Association of Physical Anthropologists Meeting.
- Beheim, B., Thigpen, C., & McElreath, R. "Evolutionary dynamics in the Game of Go." Institute for Pure and Applied Mathematics, University of California at Los Angeles.
- 2009 · Beheim, B.A., Bell, A.V. "Inheritance and Ecology: Canoe Evolution in Fiji and Polynesia." 3UC Evolutionary Anthropology Conference.
- 2008 · Beheim, B. "Japan's Cultural Inoculation: The Radiation and Retreat of Firearms and Christianity." Human Behavior and Evolution Society Meeting.

#### *Fieldwork*

- 2018 · Tsimane' Near-river Communities, Bolivia (6 weeks)
- 2017 · Tsimane' Near-river Communities, Bolivia (5 weeks)
- Hokkaido Dairy Communities, Japan (11 weeks)
- 2014 · Tsimane' Near-river Communities, Bolivia (2 months)
- 2013 · Tsimane' Upriver Communities, Bolivia (2 months)

## Teaching

### *Primary Instructor*

1. *The Human Life Course* (ANTH 160), taught 2013, 2014, 2015
2. *Human Behavioral Ecology* (ANTH 360), taught 2014
3. *Research Computing in Evolutionary Anthropology* (ANTH 560), taught 2014
4. *Workshop on Statistical Rethinking*, taught at UNM in 2016
5. *Evolution and Human Nature* (ANT 50), taught 2011
6. *Applied Research Methods* (ESP 178), taught 2011, 2012
7. *Cultural Ecology* (ANT 102), taught 2010

### *Teaching Assistant*

1. *Ecology and Evolution* (BIS 2B), taught 2010, 2011, 2012
2. *Physical Anthropology* (ANT 1), taught 2011
3. *Ecology and Politics* (ANT 131), taught 2009
4. *Current Issues in the Environment* (ESP 10), taught 2009

## Service to the Profession

### *Supervision, Training, Mentorship*

- Dr. Silke Atmaca, Research Coordinator starting December 2016, MPI-EVA
- Dr. Daniel Redhead, Postdoctoral Researcher starting September 2018, MPI-EVA
- Natalia Federova, Doctoral Candidate starting Aug. 2017, University of Leipzig / MPI-EVA
- Riana Minocher, Doctoral Candidate starting Jan. 2018, University of Leipzig / MPI-EVA
- Han Tran, Doctoral Candidate starting Oct. 2018, University of Leipzig / MPI-EVA
- Anja Becker, Bachelor's Thesis completed Nov. 2018, University of Leipzig
- Daniel Cummings, Doctoral Candidate, University of New Mexico

### *Service Positions Held*

- Data Director, Tsimane Health and Life History Project, 2012-2016
- Data Operations Supervisor, Department of Human Behavior, Ecology and Culture, MPI-EVA
- MPI-EVA Worker's Council (*Betriebsrat*) reserve member, elected Nov. 2018
- MPI-EVA Seminar Selection Committee
- Webmaster, Evolutionary Anthropology Society, [evanthsoc.org](http://evanthsoc.org)

### *Public White Papers & Tutorials*

- Beheim, B. (2017) Text Mining the Human Behavioral Ecology Bibliography, <http://babeheim.com/2017/06/15/text-mining-the-HBEB.html>
- Beheim, B. (2017) Generating Ties to Explore Social Network Connectivity, <http://babeheim.com/2017/06/02/modeling-network-tie-counts.html>
- Lubell, M., Beheim, B., Hillis, V. & Handy, S. (2009) Achieving Sustainability in California's Central Valley. UC Davis Sustainable Transportation Center
- Beheim, B. & Reis, M. (2003) A Theory of Social Formalism: The Four Horsemen and the New Deal. *Law and Society Review at the University of California, Santa Barbara* II, pp. 85-94.

### *Symposium & Seminar Participation*

- 2018
  - “The Evolutionary Anthropology Reproducibility Study, Phase I”, MPI-EVA departmental workshop
  - “The Future of Fieldsite Management”, MPI-EVA departmental workshop
- 2017
  - “The Social Diffusion of Gasoline Motors in the Bolivian Amazon”, MPI-EVA departmental workshop
  - “The Nine Circles of Database Hell”, MPI-EVA departmental workshop
- 2016
  - “Transparency and reproducibility in observational research: lessons from anthropology”, Yale’s Day of Data, co-presented with Melanie Martin
  - “Anthropological Research as Software Development” Yale Department of Anthropology
  - “Insights from other anthropologists: Social diffusion of gasoline motors in the Bolivian Amazon”, American Anthropological Association Conference
- 2015
  - “Estimating Heritability of Reaction Norms” Dynamics of Wealth Inequality and Family Structure, Santa Fe Institute
- 2012
  - “Strategic Social Learning and Evolutionary Arms Races in the Game of Go” Invited talk, Santa Fe Institute, Santa Fe, New Mexico
  - “Inferring General Mechanisms of Cultural Evolution in Observational Settings” Dissertation Exit Seminar, UC Davis, Davis, California
  - “Evolutionary Decomposition and the Dynamics of Inequality”. Santa Fe Institute, Santa Fe, New Mexico
- 2011
  - “Developing Measures of Cultural Variation and Dynamics in Hokkaido, Japan”. Radcliffe Institute, Harvard University, Cambridge, Massachusetts

### *Article Reviews*

- Journal of Theoretical Biology
- Advances in Complex Systems
- Human Nature
- Science Advances
- Cliodynamics
- Plos ONE
- Evolution and Human Behavior

### *Professional Memberships*

- Software Carpentry / Data Carpentry certification, expected December 2018
- American Anthropological Association (since 2015)
- Human Behavior and Evolution Society (since 2018)
- European Human Behavior and Evolution Association (since 2017)
- American Association of Physical Anthropologists (since 2015)
- California Undergraduate Anthropology Conference (Principle Organizer), May 2004
- Anthropology Student Union President (2003-2004)



### *Recent Collaborators*

Jeremy Koster (U. of Cincinnati/MPI-EVA) · Masanori Takezawa (Hokudai) · Cody Ross (MPI-EVA) · Daniel Redhead (MPI-EVA) · Tom Kraft (UCSB) · Paul Hooper (SFI) · Herman Pontzer (Duke) · Michael Gurven (UCSB) · Adrian Jaeggi (UCSB/Emory) · Aaron Blackwell (UCSB) · Anne Pisor (UCSB) · Sam Bowles (SFI) · Paul Smaldino (UC Merced) · Ryan Baldini · Eric Schniter (Chapman) · Jonathan Stieglitz (IAST-Toulouse) · Richard McElreath (UCD) · Ben Trumble (UCSB) · Siobhan Mattison (UNM) · Martin Muller (UNM) · Melissa Emery Thompson (UNM) · Chris Rowan (UNM Cardiology) · Monique Borgerhoff Mulder (UCD)

### **Language & Technical Proficiency**

- Japanese, intermediate
- Spanish, intermediate
- German, basic
- Tsimane', basic
- Markup Languages: TeX, HTML, Markdown, JSON, YAML
- Computing Environments: R, ArcGIS, Stata, MATLAB, UNIX shell
- Mathematics through Calculus and Linear Algebra