

Sean Samuel Downey

Curriculum Vitae

Associate Professor
Department of Anthropology
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EDUCATION

Ph.D. in Anthropology, University of Arizona, Tucson, AZ, 2009.

M.A. in Anthropology with Distinction, Northern Arizona University, Flagstaff, AZ, 2003.

B.A. in Archaeological Studies, Cum Laude with Distinction, Boston University, Boston, MA.
1994.

PROFESSIONAL POSITIONS

Current Position

2017-present Associate Professor, Dept. of Anthropology, The Ohio State University, Columbus, OH.

Current Affiliations

2017-present The Sustainable Institute. The Ohio State University, Columbus, OH.

Past Positions

2013-2017 Assistant Professor, Dept. of Anthropology, Univ. of Maryland, College Park, MD.

2011-12 Research Associate, Institute of Archaeology, University College London, London, UK.

2010 Research Associate, Department of Anthropology, Stanford University, Palo Alto, CA.

2008-9 Instructor, Department of Anthropology, University of Arizona, Tucson, AZ.

2006-7 Research Consultant, Santa Fe Institute, Santa Fe, NM.

2005-9 Research Associate, Dept. of Anthropology, University of Arizona, Tucson, AZ.

2003-5 Graduate Associate, Institute for the Study of Planet Earth, U. Arizona, Tucson, AZ.

2001-3 Graduate Assistant & Instructor, Department of Anthropology, Northern Arizona University, Flagstaff, AZ.

1999-2001 Owner & Lead Systems Developer, Codex Data Systems, LLC, Flagstaff, AZ.
1999 Software Developer and Surveyor. Boston University Xibun Arch. Project, Belmopan, Belize.
1995-8 Director of Software Development, GreenPages, Inc., Kittery, ME.
1994-5 Director of Computer Operations, Boston University K'axob Project. Orange Walk, Belize.

PUBLICATIONS

Peer Reviewed Journal Articles

- Moritz, M., Behnke, R., Beitzl, C.M., Bird, R.B., Chiaravalloti, R.M., Clark, J.K., Crabtree, S.A., **Downey, S.S.**, Hamilton, I.M., Phang, S.C. and Scholte, P., 2018. Emergent sustainability in open property regimes. *Proceedings of the National Academy of Sciences*, 115(51), pp.12859-12867.
- Henkner, J., Ahlrichs, J., **Downey, S.**, Fuchs, M., James, B., Junge, A. et al. (2018). Archaeopedological analysis of colluvial deposits in favourable and unfavourable areas: Reconstruction of land use dynamics in SW Germany. *Royal Society Open Science*, 5 (5), doi:10.1098/rsos.171624
- Downey, S. S.**, G. Sun, and P. Norquest. (2017) alineR: an R package for optimizing feature-weighted alignments and linguistic distances. *The R Journal* 9(1): 138-152. <https://journal.r-project.org/archive/2017/RJ-2017-005/index.html>
- Lansing, J. S., Abundo, C., Jacobs, G. S., Guillot, E. G., Thurner, S., **Downey, S. S.**, ... & Cox, M. P. (2017). Kinship structures create persistent channels for language transmission. *Proceedings of the National Academy of Sciences*, 114(49), 12910-12915. <http://www.pnas.org/content/114/49/12910.full>
- Hudjashov, G., Karafet, T. M., Lawson, D. J., **Downey, S.**, Savina, O., Sudoyo, H., ... & Cox, M. P. (2017). Complex patterns of admixture across the Indonesian archipelago. *Molecular Biology and Evolution*. <https://doi.org/10.1093/molbev/msx196>
- Henkner, J., J. J. Ahlrichs, **S. S. Downey**, M. Fuchs, B. R. James, T. Knopf, ... & P. Kühn (2017). Archaeopedology and chronostratigraphy of colluvial deposits as a proxy for regional land use history (Baar, southwest Germany). *CATENA*, 155, 93-113. <http://dx.doi.org/10.1016/j.catena.2017.03.005>
- Downey, S. S.**, R. Haas, and S. Shennan. (2016) European Neolithic societies showed early warning signals of population collapse. *PNAS* 113(35):9751-9756. doi/10.1073/pnas.1602504113. <http://www.pnas.org/content/113/35/9751.full>
- Downey, S.S.** (2015). Q'eqchi' Maya Swidden Agriculture, Settlement History, and Colonial Enterprise in Modern Belize. *Ethnohistory* 62(4), 751-779; doi:10.1215/00141801-3135338. <http://ethnohistory.dukejournals.org/content/62/4/751.full.pdf>
- Downey, S. S.**, Bocaege, E., Kerig, T., Edinborough, K., & Shennan, S. (2014). The Neolithic Demographic Transition in Europe: Correlation with Juvenility Index Supports Interpretation

- of the Summed Calibrated Radiocarbon Date Probability Distribution (SCDPD) as a Valid Demographic Proxy. *PLoS ONE*, 9(8), e105730.
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0105730>
- Tumonggor, M. K., T. M., **S. S. Downey**, J. S. Lansing, P. Norquest, H. Sudoyo, ... & M. P. Cox. (2014). Isolation, contact and social behavior shaped genetic diversity in West Timor. *Journal of human genetics* 59, 494-503. doi:10.1038/jhg.2014.62.
<http://www.nature.com/jhg/journal/v59/n9/full/jhg201462a.html>
- Woodbridge, J., R. M. Fyfe, N. Roberts, **S. Downey**, K. Edinborough, S. Shennan. (2014) The impact of the Neolithic agricultural transition in Britain: a comparison of pollen based land-cover and archaeological 14C date-inferred population change. *Journal of Archaeological Science* 51, 216-224. <http://dx.doi.org/10.1016/j.jas.2012.10.025>.
- Shennan, S., **S. S. Downey**, A. Timpson, K. Edinborough, S. Colledge, T. Kerig, K. Manning, & M. G. Thomas. (2013). Regional population collapse followed initial agriculture booms in mid-Holocene Europe. *Nature Communications* 4:2486. doi:10.1038/ncomms3486.
<http://www.nature.com/ncomms/2013/131001/ncomms3486/full/ncomms3486.html>
- Norquest, P. and **S.S. Downey**. (2013). Expanding the PAn Consonant Inventory, *Journal of the South-East Asian Linguistics Society*, 6:99-145. <http://pacling.anu.edu.au/series/SEALS-PDFs/Norquest&Downey2013expanding.pdf>
- Manning, K. M., **S. S. Downey**, S. Colledge, J. Conolly, B. Stopp, K. Dobney, S. Shennan. (2013). The Origins and Spread of Stock-Keeping: The role of cultural and environmental influences on early Neolithic animal exploitation in Europe. *Antiquity* 87(338), 1046-1059.
<http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=9423945&fileId=S0003598X00049851>
- Lansing, J. S., Cox, M. P., Therese, A., **S. S. Downey**, Hallmark, B., & Sudoyo, H. (2011). An ongoing Austronesian expansion in Island Southeast Asia. *Journal of Anthropological Archaeology*, 30(3), 262-272.
<http://www.sciencedirect.com/science/article/pii/S027841651100033X>
- Downey, S. S.** (2010). Can properties of labor exchange networks explain the resilience of swidden agriculture? *Ecology and Society* 15(4):15.
<http://www.ecologyandsociety.org/vol15/iss4/art15/>.
- Karafet, T. M., B. Hallmark, M. P. Cox, H. Sudoyo, **S. S. Downey**, J. S. Lansing, and M. F. Hammer. (2010). Major East-West Division Underlies Y-Chromosome Stratification Across Indonesia. *Molecular Biology and Evolution* 27(8):1833–1844.
<https://academic.oup.com/mbe/article/27/8/1833/988857/Major-East-West-Division-Underlies-Y-Chromosome>
- Lansing, J. S., M. P. Cox, **S. S. Downey**, M. Janssen, J. W. Schoenfelder. (2009). A Robust Budding Model of Balinese Water Temple Networks. *World Archaeology* 41(1).
<http://www.tandfonline.com/doi/abs/10.1080/00438240802668198>
- Downey, S. S.**, B. Hallmark, M. P. Cox, P. Norquest, and J. S. Lansing. (2008). Feature-Sensitive Reconstruction of Language Relationships: Using the ALINE Distance in Historical Linguistics. *Journal of Quantitative Linguistics* 15(4).
<http://www.tandfonline.com/doi/abs/10.1080/09296170802326681>

Lansing, J. S., M. P. Cox, **S. S. Downey**, B. Hallmark, T. M. Karafet, P. Norquest, J. Schoenfelder, H. Sudoyo, and M. F. Hammer. (2007). Coevolution of languages and genes on the island of Sumba, eastern Indonesia. *PNAS* 104(41):16022-16026.
<http://www.pnas.org/content/104/41/16022.short>

Downey, S. S. (2005) From Simulation Model to Critique of Structuration. *Structure and Dynamics* 1(2). <http://www.escholarship.org/uc/item/38f3f9kq>.

Downey, S. S. (2005). Experimenting with 'Lad Culture': A Simulation Based on Willis' "Learning to Labor". *Mathematical Anthropology and Cultural Theory*. UCLA: Human Complex Systems. <http://www.escholarship.org/uc/item/6kh181t1>. *Awarded 2005 MACT Prize for Best Student Paper delivered at the Society for Anthropological Sciences Annual Meetings in Santa Fe, NM, February 2005.*

Book Chapters

Kerig, T., K. Edinborough, ^[L]_[SEP] **S. S. Downey** and S. Shennan. (2015). A radiocarbon chronology of European flint mines suggests a link to population patterns. In *Connecting Networks: An EUROEVOL workshop on lithic exchange*, T. Kerig and S. Shennan, eds. Oxford: Archaeopress Publishing, Ltd.

Manning, K., B. Stopp, S. Colledge, **S. S. Downey**, J. Conolly, K. Dobney & S. Shennan. (2013). Animal exploitation in Early Neolithic of the Balkans and Central Europe. In S. Colledge, J. Conolly, K. Dobney, K. Manning, S. Shennan (eds). *The Origins and Spread of Domestic Animals in Southwest Asia and Europe*, pps. 237-252. Left Coast Press: Walnut Creek, CA.

Lansing, J. Stephen and **S. S. Downey**. (2011). Anthropology and Complexity. In Clifford Hooker, ed., *Philosophy of Complex Systems*, Vol. 10 of *Handbook of the Philosophy of Science*. 2011. North Holland: Elsevier, pps. 569-601.

In preparation

Henkner, J., J. Ahlrichs, **S. S. Downey**, M. Fuchs, B. James, A. Junge, T. Knopf, T. Scholten, Thomas, P. Kühn. (In review, Oct. 2017). Archaeopedological analysis of land use dynamics between favourable and unfavourable areas in SW Germany. *Royal Society Open Science*.

Downey, S. S. (In prep.) Swidden disturbance ecology: a non-equilibrium approach to coupled human-nature dynamics in anthropology. *Current Anthropology*.

Correa, F. and **S. S. Downey**. (In prep.) Agent-based models to explore the coupled human-nature dynamics of swidden agriculture in the Toledo District of Belize. *Ecological Modeling*.

Software

Booth, G., **S. S. Downey**, M. Cox., J. S. Lansing. (In prep.) An educational online app for teaching basic principles in computational historical linguistics.

Downey, S. S., G. Sun, (2015-2017) Software: alineR 1.1.4, Comprehensive R Online Network (CRAN), <https://cran.r-project.org/web/packages/alineR/index.html>.

EXTERNAL FUNDING

National Science Foundation. \$499,828. Award# 1553875. CAREER: Analyzing the Emergence of a Complex Swidden Management System in the Toledo District, Belize. (Principal Investigator). 2016-2021.

National Science Foundation. \$262,710. Award# 1030031. A multi-scale approach to computational-historical linguistic reconstruction in Nusa Tenggara, Indonesia. (Peter Norquest, Co-PI). 2010-2013.

Alphawood Foundation. \$13,000. Socio-environmental Dynamics in the North Vaca Plateau, Belize: A Long Term Perspective (Gyles Iannone, PI). 2010-2011.

National Science Foundation Dissertation Improvement Grant. \$15,000. Award# BCS-0647832. Socio-ecological analysis and modeling of Q'eqchi' Maya Milpa Agriculture in Toledo District, Belize. 2007-2008.

Research reports and papers

Downey, S. S., E. Jobbova. (2012). 2011 Ethnographic and ethno-historical Investigations: Climate Stress in Cayo and Toledo Districts, Belize. In G. Iannone, et al. (2012) Archaeological Investigations in the North Vaca Plateau, Belize: Progress Report on the 2011 Season.

Downey, S. S. (2009). Resilient Networks and the Historical Ecology of Q'eqchi' Maya Swidden Agriculture. Ph.D. Thesis. Department of Anthropology, University of Arizona. Tucson, AZ. <http://hdl.handle.net/10150/195686>.

Downey, S. S. (2003). Simulating Structuration Theory: Explanations and Reflections on the Computer Modeling Process. M.A. Thesis. Department of Anthropology, Northern Arizona University. Flagstaff, AZ.

Downey, S. S., J. Abraham, and D. Eysenbach. (2003). A State Drought Plan Summary: A Review of Colorado, Georgia, New Mexico, and Montana Drought Plans. Climate Assessment for the Southwest (CLIMAS), Tucson, AZ.

Downey, S. S. (2003). Chapter 3: Community Leadership in Sedona, Arizona. In Sedona Forum 2003: Background Research Report. W.M. Vannette, V.M., S. Downey, and R.C. Newton. Sedona Academy, Sedona, Arizona, 2003.

Downey, S. S. (2002). Chapter 2: Verde Valley Residents: Their Values and Opinions about Open Space. In Verde Valley Forum 2002: Background Research Report. R.J. Gunderson, R.C. Newton, W.M. Vannette, eds. Sedona Academy, Sedona, Arizona, 2002.

Downey, S. S. (1994) The Ceiba System: A Harris Diagram Based Archaeological Information System. Center for the Study of Architecture Newsletter. Summer. Pp. 1-2.

CONFERENCE TALKS AND PROFESSIONAL PAPERS PRESENTED.

- Downey, S.S. (2018). Analyzing the emergence of a complex swidden management system in the Toledo District, Belize. *Boundary Spanning: Advances in Socio-Environmental Systems Research*. Lecture conducted from National Socio-Environmental Synthesis Center, 1 Park Place, Suite 300, Annapolis, 21401, United States. <https://www.sesync.org/news/mon-2018-06-25-1015/boundary-spanning-symposium>.
- Downey, S.S. (2018). Q'eqchi' Maya Milpa Agriculture, Settlement Patterns, Ethnohistory and the Importance of Colonial Enterprise in Modern Belize. 1st Belize National Research Conference. Lecture conducted from University of Belize, Hummingbird Avenue, Belmopan, Belize.
- Downey, S.; Duran Correa, F.; Moritz, M. (2018). Roundtable: Anthropology's contributions to interdisciplinary graduate training, research, and education. Annual meetings of the American Anthropological Association on Anthropology. Lecture conducted from San Jose, California.
- Correa Duran, F.; Downey, S.S. (2018). Complexity, Anthropology, and Interdisciplinary Research. 117th Annual Meeting of the American Anthropological Association Annual Meeting. Lecture conducted from American Anthropological Association, San Jose Convention Center, San Jose, CA, United States.
- Downey, S. S. and Randy Haas. Early warning signals of demographic collapse detected in a meta-database of European Neolithic radiocarbon dates. Frison Institute Symposium: The Future of 'Big Data' in Archaeology. Society for American Archaeology Annual Meeting. Vancouver, British Colombia. March 29-April 2, 2017.
- Downey, S. S (Organizer with Steve Lansing, Chair & Presenter). "Emergent landscapes, disturbance ecology, and new approaches in ecological anthropology". American Anthropology Association Annual Meeting, Minneapolis, Minnesota, November 16-20, 2016.
- Downey, S. S. (Invited Speaker). Population Instability and the Transition to Farming in Europe (8000-4000 years ago). Resources in social Context(s): Curse, Conflicts and the Sacred. University of Tübingen, Tübingen, Germany, June 13, 2016.
- Downey, S. S (Organizer, with Steve Lansing). "Session II. Environmental Anthropology". American Anthropology Association Annual Meeting, Denver, Colorado, November 20, 2015.
- Downey, S. S (Organizer, Chair, and Presenter). Swidden agriculture, do we really know you?
- Downey, S. S. (Discussant). Small-scale, Big-data: A network science approach to producing anthropology in small-scale food systems. American Anthropological Association Annual Meeting, Washington, DC. Dec. 14, 2014.
- Orr, Y., and S. S. Downey (Organizers and Chairs). Ecological Anthropology 2012. American Anthropological Association Annual Meeting, San Francisco, CA, Nov. 14-18, 2012.
- Downey, S. S. A Demographic Model of the European Neolithic. European Association of Archaeologists Annual Meeting. 31 Aug. 2012, Helsinki, Finland.
- Downey, S., P. Norquest and B. Hallmark. A multi-scale analysis of computational language-tree accuracy in Nusa Tenggara, Indonesia. 22nd Annual conference of Southeast Asian Linguistics Society. Agay, France, 30 May-June 6 2012.

- Norquest, P. and S. Downey. The languages of Nusa Tenggara and their significance for Proto-Austronesian reconstruction and subgrouping. 22nd Annual conference of Southeast Asian Linguistics Society. Agay, France, 30 May-June 6 2012.
- Norquest, P., and S. S. Downey. The reconstruction of Macro-Sumba and its relevance to Proto Austronesian. Fifth Austronesian and Papuan Languages and Linguistics Conference. SOAS, London, UK, 4-5 May 2012.
- Downey, S. S., Norquest, P., and B. Hallmark. A multi-scale analysis of computational language-tree accuracy in Nusa Tenggara, Indonesia. Fifth Austronesian and Papuan Languages and Linguistics Conference. SOAS, London, UK, 4-5 May 2012.
- Resilience, Labor Exchange Networks, and the Historical Ecology of Q'eqchi' Maya Swidden Agriculture. Stockholm Resilience Centre. Stockholm, Sweden. August 19, 2011.
- Downey, S. S. A micro-demographic analysis of Q'eqchi' swidden agriculture and migration history in southern Belize. Rappaport Student Panel at the Meeting of the American Anthropological Association. New Orleans, Nov. 2010.
- Downey, S. S. The adaptive capacity of slash-and-burn agriculture in the Toledo District, Belize. Meeting of the American Anthropological Association. San Francisco, CA, Nov. 21, 2008.
- Downey, S. S. Experimenting with "Lad Culture": A Simulation Based on Willis' "Learning to Labor". Presented at The First General Scholarly Meeting of the Society for Anthropological Sciences, Feb. 25, 2005.

FELLOWSHIPS AND INTERNAL AWARDS

- TIER I: UMD Vice Provost for Research. Faculty Research Incentive.* \$49,644. Analyzing the Emergence of a Complex Swidden Management System in the Toledo District, Belize. 2015-2016.
- Graduate College University of Maryland/University of Tubingen (Germany) international graduate student training grant.* \$50,000. Graduate training program in Anthropology and Soil Science. Bruce James (PI) and Sean Downey (coPI). 2016-2017.
- Graduate College Research and Scholarship Award.* \$8,000. RASA: Analyzing the Emergence of a Complex Swidden Management System in the Toledo District, Belize. University of Maryland Graduate College. Summer 2015.
- Rappaport Prize Finalist.* Swidden, historical demography, and colonial expansion in the Toledo District, Belize. Anthropology and the Environment Section of the American Anthropological Association . 2010, New Orleans.
- Stanley R. Grant Scholarship.* \$1,100. Follow-up Dissertation Fieldwork in Belize: a re-survey to assess the reorganization of labor networks after a social schism. University of Arizona. May 4-25, 2009.
- Commins Fellowship.* \$700. American Anthropological Meeting, November 18-23, 2008 at the San Francisco Hilton and Tower, in San Francisco, CA.

Social and Behavioral Science Research Institute. \$800. Socio-ecological analysis and modeling of Q'eqchi' Maya Milpa Agriculture in Toledo District, Belize. December 2007.

Foreign Language and Area Studies (FLAS) Fellowship. \$3,800. Q'eqchi' Language Training in Coban, Guatemala. U.S. Dept. of Education. Spring 2005.

Riecker Fellowship. \$2,000. Kekchi Land-use Strategies: Robust Adaptations in a Tropical Environment. University of Arizona. Spring 2005.

Commins Fellowship. \$800. Kekchi Land-use Strategies: Robust Adaptations in a Tropical Environment. University of Arizona. Spring 2005.

Best Student Paper. \$100. Experimenting with "Lad Culture": A Simulation Based on Willis's "Learning to Labor". Presented at The First General Scholarly Meeting of the Society for Anthropological Science. Santa Fe, NM. February 23-27, 2005.

Travel Grant. \$500. Graduate and Professional Student Council, U. Arizona to attend The First General Scholarly Meeting of the Society for Anthropological Science. Santa Fe, NM. Feb. 23-27, 2005.

Travel Grant. National Academy of Sciences. To Attend Adaptive Agents, Intelligence and Human Organization: Capturing Complexity Through Agent-Based Modeling, October, 2001, Irvine, CA.

Graduate Research Grant. Northern Ariz. Univ. College of Social and Behavioral Sciences. For Simulating Social Dynamics: A Hands-On Workshop for Anthropologists, Jul. 30-Aug. 3, 2001, Flagstaff, AZ.

National Science Foundation, Research Experience for Undergraduates Stipend. Patricia A. McAnany, Principal Investigator. CEIBA: Design and Implementation of a Computer System for the LifeCycle of an Archaeological Project. 1993-94.

NOTABLE TRAININGS

Professional Media Training. Institute for Applied Agriculture and the Vice President for Research. University of Maryland. College Park, Maryland. March 10, 2017.

Alan Alda Center for Communicating Science. University of Maryland. College Park, Maryland. April 7, 2016.

Bayesian Modeling for Ecological & Social Scientists. Tom Hobbs and Mary Collins, instructors. SESYNC. Annapolis, Maryland, August 19-28, 2015.

Complex Systems Summer School. Santa Fe Institute. Santa Fe, New Mexico, July 2003.

COURSES TAUGHT

2014-17 ANTH 322: Methods and Theory in Ecological Anthropology (CORE). Department of Anthropology, University of Maryland. College Park, MD.

2014-17 ANTH 630: Quantification and Statistics in Applied Anthropology (CORE). Department of Anthropology, University of Maryland. College Park, MD.

2014-17 ANTH 722: Ecological Anthropology (CORE). Department of Anthropology, University of Maryland. College Park, MD.

2009 INDV 102: Many Ways of being human. 50 students. Department of Anthropology, University of Arizona. Tucson, AZ.

2009 ANT 200: Introduction to Cultural Anthropology (TA). 50 students. Department of Anthropology, University of Arizona, Tucson, AZ.

2008 ANTV 305: Culture Change. 8 Students. University of Arizona South. Tucson, AZ. *Multi-mode delivery using ITV and remote classrooms with live AV links.*

2005 ANT 307: Ecological Anthropology (TA). 50 Students. Department of Anthropology, University of Arizona, Tucson, AZ.

2003 ANT 310: Introduction to Cultural Immersion. 5 students. Department of Anthropology, University of Arizona.

EXTERNAL SERVICE

NSF Cultural Anthropology Doctoral Dissertation Improvement Grant review panel. 2013-2016.

Webmaster, Anthropology and the Environment Section of the American Anthropological Association (www.eanth.org), 2005-2012.

President, Anthropology Graduate Students at the University of Arizona (AGUA), 2005-2006.

Grant Reviewer, Graduate and Professional Student Council (GPSC), University of Arizona, 2005.