

Varsha Vijay

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National Socio-Environmental Synthesis Center

1 Park Place, Suite 300

Annapolis, MD. 21401

EDUCATION

2018 Duke University, Durham, NC
Ph.D. Doctoral Program in the Environment, Nicholas School of the Environment
Advisor: Dr. Stuart Pimm
Understanding the impacts of agricultural expansion on biodiversity and habitat loss.

2010 Duke University, Durham, NC
B.S. Environmental Sciences

PROFESSIONAL APPOINTMENTS

2018-present National Socio-Environmental Synthesis Center, Annapolis MD
Postdoctoral Fellow
The Effectiveness of Protected Areas in Meeting Ecological and Socio-economic Goals of Conservation

2016-2017 United States Geological Survey, Global Food Security-Support Analysis
Contractor
Remote sensing analysis of cropping intensity & extent in South America (NASA MEaSURES)

2010-2011 Duke University, Nicholas School of the Environment, Durham NC
Research Technician
Data collection and analysis Free Air CO₂ Enrichment Experiment in Duke Forest

2009 Waorani Womens Association (AMWAE), Puyo, Ecuador
Research Intern and Technician
Research examining the effects of petroleum extraction on biodiversity in Waorani Territory and Yasuni National Park.

2008 Save America's Forests, Washington D.C.
Intern
Research and coordination of Western Amazon conservation projects, grant writing, material preparation for congressional visits.

PROFESSIONAL EXPERTISE

Land use change/deforestation monitoring and modeling, tradeoffs in food security and conservation, species assessments and distribution modeling, conservation purchasing/ROI, protected area effectiveness and planning.

Skills: programming (R, Javascript, Python), GIS/remote sensing (ArcGIS, ENVI, Google Earth Engine), semi-structured interviews

PUBLICATIONS

JOURNAL ARTICLES (PEER REVIEWED)

Ghosh, M., An, R., Athreya, R., Borthakur, U., Chanchani, P., Chetry, D., Datta, A., Harihar, A., Karanth, K., Mariyam, D., Mohan, D., Onial, M., Ramakrishnan, U., Robin, V. V., Saxena, A., Shahabuddin, G., Thatte, P., **Vijay, V.**, Wacker, K., Mathur, V., Pimm, S. L., & Price, T.D. (2019). Protected Areas and biodiversity conservation in India. *Biological Conservation*, 237, 114-124.

Vijay, V., Reid, C. D., Finer, M., Jenkins, C. N., & Pimm, S. L. (2018). Deforestation risks posed by oil palm expansion in the Peruvian Amazon. *Environmental Research Letters*, 13(11), 114010.

- *Environmental Research Letters featured article.*
- *Media coverage in Mongabay Latam/El Comercio.*

Weise, F. J.*, **Vijay, V.***, Jacobson, A. P., Schoonover, R. F., Groom, R. J., Horgan, J., Keeping, D., Klein, R., Marnewick, K., Maude, G., Melzheimer, J., Mills, G. van der Merwe, V., van der Meer, E., van Vuuren, R. J., Wachter, B., Pimm, S. L. (2017). The distribution and numbers of cheetah (*Acinonyx jubatus*) in southern Africa. *PeerJ*, 5, e4096. (***equal contribution**)

- *PeerJ Top 5 most viewed Conservation Biology in 2017.*
- *Media coverage in BBC World News, National Geographic and Mongabay.*

Ocampo-Peñuela, N., Jenkins, C. N., **Vijay, V.**, Li, B. V., & Pimm, S. L. (2016). Incorporating explicit geospatial data shows more species at risk of extinction than the current Red List. *Science Advances*, 2(11), e1601367.

- *Media coverage in Science, National Geographic, Mongabay and The Verge.*

Vijay, V., Pimm, S. L., Jenkins, C. N., & Smith, S. J. (2016). The impacts of oil palm on recent deforestation and biodiversity loss. *PloS one*, 11(7), e0159668.

- *PlosONE top 1% downloaded article of 2016.*
- *Media coverage in Mongabay, Conservation Magazine, Innovation Forum and Food Navigator.*
- *Article and corresponding educational resource highlighted in Nature Ecology and Evolution editorial: "Reach Out" (<https://www.nature.com/articles/s41559-017-0155>).*

Finer, M., **Vijay, V.**, Ponce, F., Jenkins, C. N., & Kahn, T. R. (2009). Ecuador's Yasuni Biosphere Reserve: a brief modern history and conservation challenges. *Environmental research letters*, 4(3), 034005.

BOOK CHAPTERS

S. L. Pimm and **V. Vijay**. (*In Press*). The Impact of agriculture on global biodiversity. In: Gustafson, P., Raven, P., and Ehrlich, P., editors. *Population, Agriculture and Biodiversity*. Columbia, MO, Missouri Press.

OTHER PUBLICATIONS AND REPORTS

Finer, M., **Vijay, V.**, & Mamani, N. (2018). Baseline Oil Palm Map for the Peruvian Amazon. *Monitoring of the Andes Amazon Project (MAAP):95*.

Vijay, V., Pimm, S. L., Jenkins, C. N., Smith, S. J., & Conlisk, E. (2016). Palm oil is everywhere—but where did it come from? *Environmental Science journal for teens*, 1-6.

Vijay, V. (2016). Where in the World Is Palm Oil Deforestation? The Equation. Union of Concerned Scientists. <http://blog.ucsusa.org/science-blogger/where-in-the-world-is-palm-oil-deforestation>

Finer, M., **Vijay, V.**, Pappalardo, S., & De Marchi, M. (2013). Stunning aerial photos reveal Ecuador building roads deeper into richest rainforest on Earth (Yasuní National Park). Mongabay.

Finer, M., Jenkins, C.N., & **Vijay, V.** (2013). The case against Ecuador's claims of 'low-impact drilling' in Yasuní. Mongabay.

Finer, M., **Vijay, V.**, Ponce, F., Jenkins, C. N., & Kahn, T. R. (2010). La Reserva de la Biósfera Yasuní de Ecuador: una breve historia moderna y los retos de la conservación. *Esperanza Martínez e Alberto Acosta, ITT-Yasuní: Entre el petróleo y la vida*, 35-60

Vijay, V. (2007). My Land: The struggle to provide a sustainable policy solution for slash and burn agriculture in Madagascar. Hart Leadership Program, Duke University, Durham, NC.

PUBLISHED DATASETS

Vijay, V., Reid, C. D., Finer, M., Jenkins, C. N., & Pimm, S. L. (2018), Data from: Deforestation risks posed by oil palm expansion in the Peruvian Amazon, Dryad, Dataset, <https://doi.org/10.5061/dryad.kk7hq10>

Weise, F. J.*, **Vijay, V.***, Jacobson, A. P., Schoonover, R. F., Groom, R. J., Horgan, J., Keeping, D., Klein, R., Marnewick, K., Maude, G., Melzheimer, J., Mills, G. van der Merwe, V., van der Meer, E., van Vuuren, R. J., Wachter, B., Pimm, S. L. (2017), Data from: The distribution and numbers of cheetah (*Acinonyx jubatus*) in southern Africa, Dryad, Dataset, <https://doi.org/10.5061/dryad.7n4h4>

Ocampo-Peñuela, N., Jenkins, C. N., **Vijay, V.**, Li, B. V., & Pimm, S. L. (2017), Data from: Incorporating explicit geospatial data shows more species at risk of extinction than the current Red List, Dryad, Dataset, <https://doi.org/10.5061/dryad.6983c>

Zhong, Y., Giri, C., **Vijay, V.**, Thenkabail, P., Congalton, R., Yadav, K. & Smith, C. (2017). Global Food Security-support Analysis Data (GFSAD) Cropland Extent 2015 South America 30 m V001. NASA EOSDIS Land Processes DAAC. <https://lpdaac.usgs.gov/products/gfsad30sacev001/>

Vijay, V., Pimm, S. L., Jenkins, C. N., Smith, Sh J. (2017), Data from: The impacts of oil palm on recent deforestation and biodiversity loss, Dryad, Dataset, <https://doi.org/10.5061/dryad.2v77j>

IN PREPARATION

Vijay, V., Giri, C. 250-m Cropland Intensity Map of Continental South America using MODIS Data on Google Earth Engine.

Vijay, V., Ward, E. The use of 360° imagery as a novel and cost effective tool in ecological monitoring: three case studies.

AWARDS, HONORS, AND FELLOWSHIPS

- 2018-2020** Postdoctoral Research Fellowship, SESYNC, U. of Maryland
- 2018** Thoreson Endowment Fellowship, Duke U.
- 2013-2017** Graduate Research Fellowship Program, National Science Foundation
- 2010** Brower Youth Award, New Leaders Initiative, Earth Island Institute
- 2010** Second Place, Duke Global Health Institute Case Study Competition
- 2009** Explorer's Club Young Explorers Award
- 2007** Hart Leadership Center Summer Opportunities in Leadership Award, Duke U.

RESEARCH AND TRAVEL GRANTS

- 2018** SavingSpecies Research Travel Grant (for travel and fieldwork in India Jan. 2018)
- 2017** Duke University Graduate School Conference Travel Award (\$700)
- 2016** Association for Tropical Biology and Conservation Conference Travel Grant (\$200)
- 2015** Duke University Nicholas School of the Environment Travel Grant (\$500)
- 2009** David Blinken Foundation Grant (\$1500)
- 2008** David Blinken Foundation Grant (\$2000)

SELECTED PRESENTATIONS

- 2020** Diversity, Equity, and Inclusion in Socio-Environmental Synthesis Research. U. of Maryland. National Socio-Environmental Synthesis Center. Annapolis, Maryland
- 2019** Understanding the Phenomenon of Agricultural Cultivation inside Protected Areas. International Congress for Conservation Biology. Kuala Lumpur, Malaysia.
- 2019** Presentation of scientific evidence to support shareholder resolution on sustainable commodity sourcing at YUM! Brands. YUM! Brands Annual General Meeting, Louisville, KY. * *Invited presentation on behalf of SumOfUs.*

- 2019** The Effectiveness of Protected Areas in Meeting Ecological and Socio-economic Goals of Conservation: The extent of cropland within and around global protected areas. National Institute for Mathematical and Biological Synthesis (NIMBioS), University of Tennessee, Knoxville, TN. * *Invited seminar*.
- 2019** Cheetah (*Acinonyx jubatus*) in Southern Africa. Duke University, Durham, NC. **Invited seminar*.
- 2017** Patterns and Distribution of Deforestation for Oil Palm and Cropland in Peru. International Congress for Conservation Biology. Cartagena, Colombia
- 2017** Remote Sensing of Croplands in South America: Cropping Intensity. NASA AMES, CA.
- 2016** Remote Sensing of Croplands in South America: Irrigated Cropland and Cropping Intensity. USGS Flagstaff, AZ.
- 2015** Building a Broader Community in Ecology and the Related Sciences*. Ecological Society of America Annual Meeting. Baltimore, MD. **Facilitator and Session Co-organizer*.
- 2015** Assessing the Conservation Impact of Industrial Oil Palm Production. Association of Tropical Conservation Biology. Honolulu, HI. **Presenter and Session Co-organizer*.

INVITED CONFERENCE AND WORKSHOP PARTICIPATION

- 2010** The Carpentries Instructor Training to teach foundational computational and data science skills. <https://carpentries.github.io/instructor-training/21-carpentries/index.html>
- 2019** Bayesian Statistics for Ecologists and Social Scientists (U. of Maryland) National Socio-Environmental Synthesis Center. Annapolis, MD.
- 2016** Google Earth Engine Users Summit. Mountain View, CA
- 2009** ARIDnet Conference on Desertification: ARIDnet Executive Working Group, University of Buenos Aires, National Institute of Agropecuarian Technology. Villa Mercedes, San Luis, Argentina.
- 2009** Taller Socio Bosque: US AID, Ecuador Ministry of the Environment, Wildlife Conservation Society, Nature Conservancy. Quito.
- 2009** REDD Seminar on Deforestation: US Embassy, Quito, Ecuador.
- 2008** United Nations Permanent Forum on Indigenous Affairs. New York, NY.

TEACHING

- 2020** Instructor, Introduction to Spatial Analysis in Google Earth Engine, SESYNC.
- 2017** Teaching Assistant, Program Management for Environmental Professionals. Duke U.
- 2016-2017** Teaching Assistant, Big Cats Initiative, Duke U. and National Geographic.
- 2014-2015** Teaching Assistant and Guest Lecturer. Conservation Biology. Duke U.

RESEARCH OUTREACH AND ADVOCACY

- 2019** Data visualization website development to accompany publication of “Deforestation risks posed by oil palm expansion in the Peruvian Amazon”.
<https://shiny.sesync.org/apps/PeruMap/>
- 2019** Science Network Spotlight: Varsha Vijay. Union of Concerned Scientists
(<https://www.ucsusa.org/science-network/member-profiles/varsha-vijay>)
- 2016** The impact of oil palm on recent deforestation. (Video Blog) ScienceVideos.org. August 5, 2016. (<http://sciencevideos.org/the-impacts-of-oil-palm-on-recent-deforestation-and-biodiversity-loss/>)

- 2016** Scientist of the Month: Varsha Vijay. (Profile) Union of Concerned Scientists.
- 2013** Featured Profile in textbook *The Environment and You* by Norm Christensen. (Interview) New York, NY: Pearson.
- 2011** Featured as subject in documentary television pilot about my research in the Ecuadorian Amazon. *Ecochamps*. Rikshaw Films.
- 2009** Interview with Waorani Collaborators for Ecuavisa Network. Indigenous medicinal plant use in the Waorani Amazonian community of Tonampare.

SERVICE AND MENTORSHIP

- 2015-2016** Mentor, North Carolina School of Science and Mathematics
- 2015-2016** Organizer, Graduate Afternoon Seminar, Nicholas School of the Environment, Duke U.
- 2015** Instructor, Girls in Science, North Carolina Museum of Natural Sciences, Raleigh, NC.
- 2015** Presenter, Teen Science Cafe, North Carolina Museum of Natural Sciences, Raleigh, NC.

FIELD RESEARCH

Locations: India, Western Amazon (Ecuador and Peru), United States (North Carolina and Minnesota), Madagascar.

Tasks included field site evaluations for conservation purchases, development of imaging protocols for phenological observation, ground reference sampling for remote sensing analyses, semi-structured interviews, and plant, bird, and mammal survey and inventory.

PROFESSIONAL SOCIETY MEMBERSHIP

Ecological Society of America, Society of Conservation Biology, Association for Tropical Biology and Conservation, American Geophysical Union

REFERENCES

Stuart Pimm
Professor, Doris Duke Chair of Conservation Ecology, Duke University
(919) 613-8141, stuartpimm@me.com

Paul Armsworth
Professor, University of Tennessee, Knoxville
(865) 974-9748, p.armsworth@utk.edu

James Reynolds
Professor Emeritus, Duke University
(919) 660-7404, james.f.reynolds@duke.edu

Jesko Von Windheim (teaching reference)
Lynn Gorguze-Scott Peters Professor of the Practice of Environmental Entrepreneurship & Innovation, Duke University
(919) 613-8136, jesko.vonwindheim@duke.edu