

CURRICULUM VITAE - VARUN SWAMY, Ph.D. (updated June 2019)

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CURRENT RESEARCH INTERESTS

Regeneration dynamics of tropical forests, plant-animal interactions, effects of hunting-induced defaunation on forest plant communities, DNA barcoding and phylogenetic analyses, drone-based ecological monitoring, citizen science, interdisciplinary strategies for maintaining ecological integrity of tropical forests.

APPOINTMENTS

2018- : Center for Energy, Environment and Sustainability (CEES) Fellow, Wake Forest University, USA.
2012- : Research Fellow, San Diego Zoo Institute for Conservation Research, Escondido, CA.
2013-16: Research Associate, Nicholas School of the Environment, Duke University, Durham NC, USA.
2012-13: Charles Bullard Fellow in Forest Research, Harvard University, Cambridge, MA, USA.
2008-12: Postdoctoral Associate, Nicholas School of the Environment, Duke University, Durham NC, USA.

EDUCATION

2008. Ph.D. Nicholas School of the Environment, Duke University, Durham NC, USA.
Dissertation: "Fruit to sapling: an ontogenetically integrated study of tree recruitment in an Amazonian rainforest". Committee: John Terborgh, Norman Christensen, Gary Hartshorn, Dean Urban.

2001. B.A. Environmental Studies, *magna cum laude*, Connecticut College, New London CT, USA.

Specialized courses and workshops

2013. Likelihood Methods in Forest Ecology, Cary Institute of Ecosystem Studies, Millbrook, NY.
2004. Tropical Plant Systematics summer field course, Organization for Tropical Studies, Costa Rica.

SIGNIFICANT PUBLICATIONS

Krehenwinkel, H., Pomerantz, A., Henderson, J. B., Kennedy, S. R., Lim, J. Y., **Swamy, V.**, Shoobridge, J. D., Graham, N., Patel, N. H., Gillespie, R. G. & Prost, S. (2019) Nanopore sequencing of long ribosomal DNA amplicons enables portable and simple biodiversity assessments with high phylogenetic resolution across broad taxonomic scale. *GigaScience*, **8**.

Horwath, A. B., Royles, J., Tito, R., Gudiño, J. A., Allen, N. S., Farfan-Rios, W., Rapp, J. M., Silman, M. R., Malhi, Y., **Swamy, V.**, Farfan, J. P. L. & Griffiths, H. 2019. Bryophyte stable isotope composition, diversity and biomass define tropical montane cloud forest extent. *Proceedings of the Royal Society B: Biological Sciences*, 286, 20182284.

Bagchi, R.*, **Swamy***, V., J. Latorre Farfan, J. Terborgh, C. Vela Apaza, N.C.A. Pitman. W. Galiano Sanchez. 2018. Defaunation increases the spatial clustering of lowland Western Amazonian tree communities. *Journal of Ecology* 106: 1470– 1482. (*equal contributors)

Rosin, C., J.R. Poulsen, **V. Swamy**, A. Granados. 2017. A pantropical assessment of vertebrate physical damage to forest seedlings and the effects of defaunation. *Global Ecology and Conservation* 11: 188-195.

Swamy, V. 2017. Forest composition & spatial patterns across a western Amazonian river basin: the influence of plant-animal interactions. Pages 159-180 in Myster, R.W. (ed) *Forest structure, function, and dynamics in Western Amazonia*. John Wiley & Sons, Ltd, Chichester, UK.

Swamy, V. & Pinedo-Vasquez M. 2014. Bushmeat harvest in tropical forests: Knowledge base, gaps and research priorities. Occasional Paper 114. Center for International Forestry Research, Bogor, Indonesia.

Diaz-Martin, Z., **V. Swamy**, J. Terborgh, P. Alvarez, F. Cornejo. 2014. Identifying keystone plant resources in an Amazonian forest using a long-term fruit-fall record. *Journal of Tropical Ecology* 30: 291-301.

Rosin, C. and **V. Swamy**. 2013. Variable density responses of primate communities to hunting pressure in a western Amazonian river basin. *Neotropical Primates* 20(1): 25-31.

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- Swamy, V.**, J. Terborgh, P. Álvarez-Loayza, F. Cornejo-Valverde, J.P. Latorre Farfan, C.I. Vela Apaza, J.J. Chillihuani. 2013. El impacto de desfaunación sobre la regeneración del bosque en la cuenca del Río Madre de Dios: resultados preliminares de un estudio de largo plazo. pp 138-153 In: Groenendijk, J., Tovar, P., & Wust, W. (Eds). 2013. *Reporte Manu 2013: Pasión por la Investigación en la Amazonía Peruana*. San Diego Zoo Global Peru y SERNANP.
- Swamy, V.**, J. Terborgh, K.G. Dexter, B.D. Best, P. Alvarez, F. Cornejo. 2011. Are all seeds equal? Spatially explicit comparisons of seed fall and sapling recruitment in a tropical forest. *Ecology Letters* 14:195-201.
- Swamy, V.** & J. Terborgh. 2010. Distance-responsive natural enemies strongly influence seedling establishment patterns of multiple species in an Amazonian rainforest. *Journal of Ecology* 98: 1096-1107.
- Terborgh, J., G. Nuñez-Ituri, N. Pitman, F.H. Cornejo Valverde, P. Alvarez, **V. Swamy**, B. Pringle, C. E.T. Paine. 2008. Tree recruitment in an empty forest. *Ecology* 89(6): 1757-68.
- Warren, R. S., P. E. Fell, R. Rozsa, A. H. Brawley, A. C. Orsted, E. T. Olson, **V. Swamy**, W. A. Niering. 2002. Salt marsh restoration in Connecticut: 20 years of science and management. *Restoration Ecology* 10(3): 497-513.
- Swamy, V.**, P.E. Fell, M. Body, M.B. Keaney, M.K. Nyaku, E.C. McIlvain, A.L. Keen. 2002. Macroinvertebrate and fish populations in a restored impounded salt marsh 21 years after the re-establishment of tidal flooding. *Environmental Management* 29(4): 516-530.

GRANTS & FELLOWSHIPS

- Conservation, Food and Health Foundation Research Grant – 2009-2020 (\$190,562 total)
- Franklin Research Grant, American Philosophical Society – 2017 (\$6000)
- National Geographic Society Committee for Research and Exploration – 2013-14 (\$25,013)
- Charles Bullard Fellowship in Forest Research, Harvard University – 2012-2013.
- National Science Foundation DEB 0742830 (co-authored with Dr. John Terborgh) 2008-11. (\$400,000)
- Wildlife Conservation Society Research Fellowship Program - 2008-09. (\$20,000)
- Amazon Conservation Association (ACA) Postdoctoral Seed Grant - 2008-09. (\$10,000)
- Lewis & Clark Fund for Exploration and Field Research, American Philosophical Society - 2007. (\$2700)
- Amazon Conservation Association (ACA) Graduate Research Grant - 2005-06. (\$4765)
- Francis Bossuyt Fellowship, Organization for Tropical Studies - 2004. (\$3000)
- Duke University Graduate School Research Travel Grants - 2006, 2003-04. (\$6600 total)
- Mellon Travel Grant, Duke Center for Latin American & Caribbean Studies - 2006, 2002-04. (\$4750 total)
- Sigma Xi Grants-in-Aid of Research Award - 2006. (\$700)
- Mellon Science Foundation Grant for Undergraduate Research - 1999. (\$3000)

TEACHING AND MENTORING EXPERIENCE

Teaching:

- 2018 (January):** Instructor, “Amazonian ABCs: Fundamentals of Rainforest Ecology and Field Botany” field course. Field Projects International, Saint Louis, MO.
- 2010, 2012 (Spring).** Co-Instructor, ENV 217: Tropical Ecology, Duke University.
- 2008 (Summer).** Invited Lecturer, Amazonian Ecosystems & Global Change field course, Organization for Tropical Studies, Peru.
- 2007 (Fall).** Co-Instructor, Amazonian Forest Ecology & Ethnobotany field course, Connecticut College in Peru study abroad program.
- 2007 (Spring).** Instructor, ENV 298.77: Topics in Tropical Forest Ecology & Conservation, Duke University.
- 2006-07 (Fall).** Teaching Assistant, ENV 201: Forest Resources Field Skills, Duke University (Instructor: Dr. Daniel Richter).
- 2002-06 (Spring).** Teaching Assistant, ENV 217: Tropical Ecology, Duke University (Instructor: J. Terborgh).

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Mentoring:

- Duke University (2008-12): 3 master's thesis projects
- Connecticut College (2011-12): 1 undergraduate honors thesis.
- Universidad Nacional San Antonio Abad Cusco, Peru (2011-): 5 undergraduate thesis projects.
- Universidad Nacional Amazónica Madre de Dios, Peru (2013-): 4 undergraduate thesis projects.

PROFESSIONAL EXPERIENCE

2012-16 Consultant, Center for International Forestry Research, Bogor, Indonesia.

- produced white paper on status of research on wild meat harvest in tropical forests.
- compiled digital library and bibliographic database of existing literature.
- created Google Fusion Tables-based maps showing geographic & thematic distribution of research.

2008-09. Station manager, Cocha Cashu Biological Station (CCBS), Peru; Member, CCBS Advisory Board.

- coordinated and oversaw operational logistics and financial accounting.
- participated in strategic planning meetings on the field station's administrative and financial future.

PRESENTATIONS AND SYMPOSIA ORGANIZATION

2017. *A pantropical assessment of physical damage to forest seedlings and the impact of defaunation.* Annual Meeting of the Association for Tropical Biology & Conservation (ATBC-AM), Mérida, Mexico.

2015. *Short- and long-term consequences of defaunation on western Amazonian floodplain forests.* ATBC-AM, Honolulu, Hawaii.

2012. *Community-level effects of vertebrate defaunation on forest composition and regeneration dynamics across a western Amazonian river basin.* ATBC-AM, Bonito, Brazil.

2011. Symposium organizer: "*Regeneration dynamics in defaunated tropical forests - a pantropical survey*" ATBC-AM, Arusha, Tanzania.

2011. *Intra- and inter-cohort spatial organization in western Amazonian forests confirm the predictions of the Janzen-Connell hypothesis.* ATBC-AM, Arusha, Tanzania.

2010. *Tree recruitment patterns across a western Amazonian river basin.* ATBC-AM, Bali, Indonesia.

2010. *A basin-wide study of seed rain patterns in lowland western Amazonia.* 5th International Symposium-Workshop on Frugivores and Seed Dispersal, Montpellier, France.

2008. *Tropical tree recruitment: dispersal is critical, density is a red herring, distance is the key.* ATBC-AM, Paramaribo, Suriname.

2007. *Pervasive distance effects control early-stage tree recruitment in an Amazonian rainforest.* Annual Meeting of the Ecological Society of America (ESA), San Jose, California.

2007. *Community-level distance effects are pervasive through multiple stages of tree recruitment in an Amazonian rainforest.* ATBC-AM, Morelia, Mexico.

2005. *From fruit to sapling: constructing an integrated picture of tropical tree recruitment.* ATBC-AM, Uberlandia, Brazil.

2000. *Macroinvertebrates and fish populations in a restored impounded salt marsh 21 years after the re-establishment of tidal flooding.* New England Estuarine Research Society (NEERS) Spring Conference, Portland, Maine.

INVITED TALKS AND SEMINARS (English)

- Department of Biology, Connecticut College, New London CT, USA. 09/2015 and 04/2010.
- Department of BioSciences, Rice University, Houston TX, USA. 04/2015.
- Department of Biology, University of Florida, Gainesville FL, USA. 11/2014.
- Committee for Exploration & Research, National Geographic Society, Washington D.C., USA. 05/2014.
- Department of Biology, Boston University, Boston MA, USA. 11/2013.
- Institute for Conservation Research, San Diego Zoo Global, San Diego CA, USA. 10/2013
- Harvard University Herbarium, Cambridge MA, USA. 04/2013.
- Harvard Forest, Petersham MA, USA. 12/2012.
- University Program in Ecology, Duke University, Durham NC, USA. 09/2010.
- Ashoka Trust for Research in Ecology & Environment, Bangalore, India. 01/2010.
- Center for Ecological Studies, Indian Institute of Sciences, Bangalore, India. 01/2010.

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- National Museum of Natural History, Smithsonian Institution, Washington D.C., USA. 05/2008.
- Dept. of Environmental Science, Policy & Management, University of California, Berkeley CA. 05/2006.

INVITED LECTURES & PRESENTATIONS IN OTHER LANGUAGES

- *Plenary speaker*, Congreso Internacional “Investigación y monitoreo biológico en áreas naturales protegidas y corredores de conservación”, Puerto Maldonado, Peru – 10/2016 (Spanish)
- Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru – 10/2016.
- *Plenary speaker*, 3ro Simposio de Primatología en el Perú, Puerto Maldonado – 10/2015 (Spanish)
- Universidad Nacional San Antonio Abad, Cusco, Peru – 08/2008, 09/2013, 12/2014. (Spanish)
- Universidad Nacional Amazónica de Madre de Dios, Peru – 10/2014. (Spanish)
- Universidad Peruana Cayetano Heredia, Lima, Peru – 02/2011. (Spanish)
- Asociación para la investigación y Desarrollo Integral (AIDER), Peru – 02/2011. (Spanish)
- Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Brazil. 03/2011. (Portuguese)

REVIEWER SERVICES

Biological Conservation, Biotropica, Journal of Ecology, National Geographic Society, National Science Foundation, PLoS ONE, Proceedings of the Royal Society: Biological Sciences.

OTHER RESEARCH EXPERIENCE

1999-2001 *Salt Marsh Restoration, Stonington, CT, USA.*

- examined recovery of invertebrate and fish populations on formerly impounded salt marshes in CT, USA.
- received Rankin Award for Best Undergraduate Student Presentation, New England Estuarine Research Society (NEERS) Spring 2000 conference, Portland, Maine.

2000 *Center for Science and Environment, New Delhi, India.*

- conducted field interviews of farmers, administrators and agricultural scientists in Uttaranchal State, India.
- produced report on the ecological & socio-economic implications of decline in traditional agroecosystems.

LANGUAGES

English (native), Spanish (fluent in reading, writing, conversation), Portuguese (basic), Hindi & Tamil (basic).

PROFESSIONAL REFERENCES

Dr. Mercedes Foster - Research Zoologist (retired), Smithsonian Institution, Washington DC, USA. E-mail: FOSTERM@si.edu

Dr. Robert Askins - Katharine Blunt Professor of Biology, Connecticut College, New London, USA. E-mail: raask@conncoll.edu

Dr. Ronald R. Swaisgood - Brown Chair/Director of Applied Animal Ecology, Institute for Conservation Research, San Diego Zoo Global, Escondido, USA. E-mail: rswaisgood@sandiegozoo.org

Dr. Jordan Karubian - Associate Professor, Department of Ecology and Evolutionary Biology, Tulane University, New Orleans, USA. E-mail: jk@tulane.edu

Dr. Patricia Wright – Distinguished Service Professor, Stony Brook University, Stony Brook, USA. E-mail: patchapplewright@gmail.com; patricia.wright@stonybrook.edu

Dr. Miles R. Silman - Andrew Sabin Family Foundation Professor of Conservation Biology, Wake Forest University, Winston-Salem, USA. E-mail: silmanmr@wfu.edu

Dr. Nigel C. Pitman - Senior Conservation Ecologist, Keller Science Action Center, The Field Museum, Chicago, USA. E-mail: npitman@fieldmuseum.org

Dr. Kyle G. Dexter - Lecturer, School of GeoSciences, University of Edinburgh, United Kingdom. E-mail: kgdexter@gmail.com

Mr. Kurt Holle – Country director, WWF Peru. E-mail: kurthollef@gmail.com