

Curriculum Vitae

Ruth S. DeFries

Ecology, Evolution, and Environmental Biology
Columbia University
New York, NY 10027
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Current Appointment

Co-founding dean, Columbia Climate School (2021-present)
Denning Family Professor of Sustainable Development, Columbia University (2008-present)
(designated Denning Family University Professor in 2016)
Co-director, undergraduate program in Sustainable Development, Earth Institute (2010-present)

Research Interests

Role of tropical landscapes in climate adaptation and mitigation, conservation, food security, and human livelihoods;
Ecosystem services from tropical agriculture and forests;
Characterization of deforestation and anthropogenic land use change with remote sensing;
Application of science to policy for sustainable development.

Education

Ph.D. (1980)
Department of Geography and Environmental Engineering
Johns Hopkins University, Baltimore, MD

B.A., *summa cum laude* (1976)
Washington University, St. Louis, MO (major in earth science)

Fellowships and Honors

MacArthur Fellowship (2007)
Member, National Academy of Sciences (elected 2006)
University Professor (highest faculty rank), Columbia University (2016)
Web of Science, Highly Cited Researcher, 2016, 2017, 2019, 2020, 2021 (environment/ecology) and 2018 (cross field)
Marsh Award for Climate Change Research (2021)
Fellow, Ecological Society of America (elected 2012)
Distinguished Scholar Award, American Association of Geographers (2015)
Honorary Doctorate, McGill University (2016)
Honorary Doctorate, University of Leuven Belgium (2017)
Oosting Lecture, Duke University (2016)
Breakthrough Paradigm Award (2014)
Fellow, California Academy of Sciences (elected 2017)
Fellow, American Academy of Arts and Sciences (elected 2010)
Fellow, American Geophysical Union (elected 2009)
Fellow, American Association for the Advancement of Science (elected 2008)
Fellow, Aldo Leopold Leadership Program of the Ecological Society of America (2001)
Fulbright Award for Research in India (2007)
Phi Beta Kappa

Previous Appointments

Chair, Earth Institute faculty, Columbia University (2018-2021)

Chair, Department of Ecology, Evolution and Environmental Biology (2011-2014)

Associate Professor and Professor (Aug 1999 - 2008)
University of Maryland, College Park
Joint appointment in Department of Geography (50%) and Earth System Science Interdisciplinary Center (50%)

Associate Research Scientist (Aug 1991 - Aug 1999; 1991-97 60%; 97-99 80%)
Department of Geography, University of Maryland, College Park

Visiting scientist (June - Aug 1998)
Carnegie Institution of Washington, Department of Plant Biology, Palo Alto, CA

Senior Project Officer (June 1983 - Aug 1991)
National Research Council, Washington, D.C.

Research Associate (Feb 1981 - March 1983)
Environmental Science and Engineering Group
Indian Institute of Technology, Bombay, India

Hydrologist (Oct 1979 - Oct 1980)
United States Geological Survey, Baltimore, MD

Journal Articles (*=first author is student or postdoc supervised by DeFries)

- *Schoen, J., A. Neelakantan, S. Cushman, T. Dutta, B. Habib, Y. Jhala, I. Mondal, U. Ramakrishnan, P. Reddy, S. Saini, S. Sharma, P. Thatte, B. Yumnan and R. DeFries (in press). Synthesizing connectivity analyses for co-management of a globally important human-dominated tiger (*Panthera tigris*) conservation landscape. *Conservation Biology*.
- Meyfroidt, P., A. de Bremond, C. M. Ryan, E. Archer, R. Aspinall, A. Chhabra, G. Camara, E. Corbera, R. DeFries, S. Díaz and et. al 2022. Ten facts about land systems for sustainability. *Proceedings of the National Academy of Sciences* **119**(7).
- Mondal, P., R. DeFries, J. Clark, J. Fanzo, N. Flowerhill, Md. Arif, A. Harou, S. Downs, and J. Fanzo. 2021. Multiple Cropping Alone Does Not Improve Year-Round Food Security among Smallholders in Rural India. *Environmental Research Letters* 16, no. 6 (2021): 065017.
- *Choksi, P., D. Singh, J. Singh, P. Mondal, H. Nagendra, J. Urpelainen, and R. DeFries. 2021. Sensitivity of Seasonal Migration to Climatic Variability in Central India. *Environmental Research Letters*.
- DeFries, R., M. Agarwala, S. Baquie, P. Choksi, S. Khanwilkar, P. Mondal, H. Nagendra, and J. Urpelainen. 2021. Improved Household Living Standards Can Restore Dry Tropical Forests. *Biotropica*.
doi.org/10.1111/btp.12978
- Tambe, S., L. French, C. Wyborn, L. Scarlett, R. DeFries, H. Nagendra, H. Kulkarni, et al. 2021. India's Environmental Policy Standoff: Reimagining the Interface of Science, Policy, and Practice. *International Forestry Review* 23, no. 2: 1-11.
- *Clark, B., R. DeFries, and J. Krishnaswamy. 2021. India's commitments to increase tree and forest cover: Consequences for water supply and agriculture production within the Central Indian Highlands. *Water* 13: 959.
- *Khanwilkar, S., C. Gould, R. DeFries, B. Habib, and J. Urpelainen. 2021. Firewood, forests, and fringe populations: Exploring the inequitable socioeconomic dimensions of liquified petroleum gas (LPG) adoption in India. *Energy Research and Social Science* 75, no. 1021012 (2021): 1-13.
- Jain, M., R. Fishman, P. Mondal, G. Galford, N. Bhattarai, S. Naeem, U. Lall, B. Singh, and R. DeFries. 2021. Groundwater Depletion Will Decrease Cropping Intensity in India. *Science Advances* 7, no. 9.
- Neelakantan, A., et al. 2021. Pathways towards people-oriented conservation in a human-dominated landscape: The Network for Conserving Central India. *Ecosystems and People* **17**.
- Singh, D., Karambelas, A., Chhatre, A., DeFries, R., Kinney, P., & Davis, K. 2021. A systems lens to evaluate the compound human health impacts of anthropogenic activities. *One Earth*.

- Williams, P., Wynne, R., Thomas, V., & DeFries, R. 2021. Mapping smallholder forest plantations in Andhra Pradesh, India using multitemporal Harmonized Landsat Sentinel-2 S10 data. *Land Degradation and Development*, 1-15.
- Heilpern, S., K. Fiorella, C. Canas, A. Flecker, L. Moya, S. Naeem, S. Sethi, and R. DeFries. 2021. Substitution of Inland Fisheries with Aquaculture and Chicken Undermines Human Nutrition in the Peruvian Amazon." *Nature Food* 2:192-197.
- Heilpern, S., R. DeFries, K. Fiorella, A. Flecker, S. Sethi, M. Uriarte, and S. Naeem. 2021. Declining Diversity of Wild-Caught Species Pits Dietary Nutrient Supplies at Risk. *Science Advances* 7, no. 22.
- DeFries, R., M. Agarwala, S. Baquie, P. Choksi, N. Dogra, G.S. Preetha, S. Khanwilkar, et al. 2020. Post-Lockdown Spread of Covid-19 from Cities to Vulnerable Forest-Fringe Villages in Central India. *Current Science* 00113891, no. 119.1.
- Baquie, S., J. Urpelainen, S. Khanwilkar, C. Galletti, N. Velho, P. Mondal, H. Nagendra, and R. DeFries. 2020. Migration, Assets, and Forest Degradation in a Tropical Deciduous Forest of South Asia. *Ecological Economics* 106887.
- Jayadevan, A., R. Nayak, K. Karanth, J. Krishnaswamy, R. DeFries, U.K. Karanth, and S. Vaidyanathan. 2020. Navigating Paved Paradise: Evaluating Landscape Permeability to Movement for Large Mammals in Two Conservation Priority Landscapes in India. *Biological Conservation* 247 (2020): 1908613.
- Lipper, L., R. DeFries, and L. Bizikova. 2020. Shedding Light on the Evidence Blind Spots Confounding the Multiple Objectives of SDG 2. *Nature Plants* 6 (2020): 1203-10.
- Liu, T., L. Mickley, M. Marlier, R. DeFries, M. Firoz Khan, M.T. Latif, and A. Karambelas. 2020. Diagnosing Spatial Biases and Uncertainties in Global Fire Emissions Inventories: Indonesia as Regional Case Study. *Remote Sensing of Environment* 237: 111557.
- Liu, T., L. Mickley, S. Singh, M. Jain, R. DeFries, and M. Marlier. 2020. Crop Residue Burning Practices across North India Inferred from Household Survey Data: Bridging Gaps in Satellite Observations. *Atmospheric Environment* 8, no. 100091 (2020).
- Nayak, R., K. Karanth, T. Dutta, R. DeFries, U.K. Karanth, and S. Vaidyanathan. 2020. Bits and Pieces: Impact of Linear Institutions on Forest Structural Connectivity in India. *Land Use Policy*. 99:104618.
- *Neelakantan, A., R. DeFries, E. Sterling, and S. Naeem. 2020. Contributions of Financial, Social and Natural Capital to Food Security around Kanha National Park. *Regional Environmental Change* 20, no. 26.
- *Osuri, A., S. Machado, J. Ratnam, M. Sankaram, N. Ayyappan, S. Muthuramkumar, N. Parthasarathy, et al. 2020. Tree Diversity and Carbon Storage Co-Benefits in Tropical Human-Dominated Landscapes. *Conservation Letters* e12699.
- *Osuri, A., A. Gopal, T.R.Shankar Raman, R. DeFries, S. Cook-Patton, and S. Naeem. 2020. "Greater stability of carbon capture in species-rich natural forests compared to species-poor plantation." *Environmental Research Letters* 15:034011.
- Singh, S., A. Jones, R. DeFries, and M. Jain. 2020. The association between crop and income diversity and farmer intra-household dietary diversity in India. *Food Security*: 1-22.
- *Neelakantan, A., R. DeFries, E. Sterling, and S. Naeem. 2020. Contributions of financial, social and natural capital to food security around Kanha National Park. *Regional Environmental Change* 20 (26).
- *Davis, K., A. Chhatre, N. Rao, D. Singh, S. Ghosh-Jerath, M. Poblete-Caenave, N. Pradhan, and R. DeFries. 2019. Assessing the sustainability of post-Green Revolution cereals in India. *Proceedings of the National Academy of Sciences*:1-8.
- Marlier, M., T. Liu, K. Yu, J. Buonocore, S. Koplitz, R. DeFries, L. Mickley, D. Jacob, J. Schwartz, B. Wardhana, and S. Myers. 2019. Fires, smoke exposure, and public health: An integrative framework to maximize health benefits from peatland restoration. *GeoHealth* 3: 1-12.
- *Davis, K., A. Chhatre, N. Rao, D. Singh, and R. DeFries. 2019. Sensitivity of grain yields to historical climate variability in India. *Environmental Research Letters* 14:064013.
- *Neelakantan, A., R. DeFries, and K. Ramesh. 2019. "Resettlement and landscape-level conservation: Corridors, human-wildlife conflict and forest use in central India." *Biological Conservation* 232:142-151.
- Anderson, C., R. DeFries, R. Litterman, P.A. Matson, D. Nepstad, S.W. Pacala, W. Schlesinger, R. Shaw, P. Smith, C. Weber, and C. Field. 2019. "Natural climate solutions are not enough: Decarbonizing the economy must remain a critical priority." *Science* 363 (6430):933-934.
- Smith, M., DeFries, R., Chhatre, A., Ghosh-Jerath, S., Myers, S. 2019. Inadequate zinc intake in India: Past, present, and future. *Food and Nutrition Bulletin*. 40 (1):26-40.

- Liu, T., M. Marlier, A. Karambelas, M. Jain, S. Singh, M. Singh, R. Gautum, and R. DeFries. 2019. Missing emissions from post-monsoon agricultural fires in northwestern India: regional limitation of MODIS burned area and active fire products. *Environmental Research Communications* 1 (01 1007).
- Cutsworth, D., Mickley, L., Sulprizo, M., Liu, T., Marlier, M., DeFries, R., Guttikunda, S., Gupta, P. 2018. Quantifying the influence of agricultural fires in northwest India on urban air pollution in Delhi, India. *Environmental Research Letters* 13.
- *Davis, K., Chiarelli, D., Chhatre, A., Richter, B., Singh, D., DeFries, R. 2018. Alternative cereals can improve water use and nutrient supply in India. *Science Advances* 4, 1-11.
- DeFries, R., Chhatre, A., Davis, K., Dutta, A., Fanzo, J., Ghosh-Jerath, S., Myers, S., Smith, M. 2018. Impact of historical changes in coarse cereals consumption in India on micronutrient intake and anemia prevalence. *Food and Nutrition Bulletin* 39, 377-392.
- Dutta, T., Sharma, S., DeFries, R. 2018. Targeting restoration sites to improve connectivity in a tiger conservation landscape in India. *PeerJ*:e5587 DOI 10.7717/peerj.5587.
- *Karambelas, A., Holloway, T., Kinney, P., Fiore, A., DeFries, R., Kiesweter, G., Chris, H. 2018. Urban vs rural health impacts attributable to PM2.5 and O3 in northern India. *Environmental Research Letters* 13, 064010.
- Rao, N., Min, J., DeFries, R., Ghosh-Jerath, S., Valin, H., Fanzo, J. 2018. Healthy, affordable and climate-friendly diets in India. *Global Environmental Change* 49, 154-165.
- *Velho, N., DeFries, R., Tolonen, A., Srinivasan, U., Patil, A. 2018. Aligning conservation efforts with resource use around protected areas. *Ambio*, 1-12.
- *Chang, X., DeFries, R., Liu, L., Davis, K. 2018. Understanding dietary and staple food transitions in China from multiple scales. *PLoS One*.
- *Liu, T., Marlier, M., DeFries, R., Westervelt, D., Xia, K., Fiore, A., Mickley, L., Cutsworth, D., Milly, G. 2018. Seasonal impact of regional outdoor biomass burning on air pollution in three Indian cities: Delhi, Bengaluru and Pune. *Atmospheric Environment* 172, 83-92.
- Wood, S., Smith, M., Fanzo, J., Remans, R., DeFries, R. 2018. Trade and the equitability of global food nutrient distribution. *Nature Sustainability* 1, 34-37.
- DeFries, R. and H. Nagendra. 2017. Ecosystem management as a wicked problem. *Science*, 356, 265-270.
- *Schwartz, N., M. Uriarte, R. DeFries, K. Bedka, K. Fernandes, V. Gutierrez-Velez and M. Pinedo-Vasquez. 2017. Fragmentation increases wind disturbance impacts on forest structure and carbon stocks in a western Amazonian landscape. *Ecological Applications*, 1-15.
- *Schwartz, N., M. Uriarte, R. DeFries, V. Gutierrez-Velez and M. Pinedo-Vasquez. 2017. Land-use dynamics influence estimates of carbon sequestration potential in tropical second-growth forest. *Environmental Research Letters*, 12, 074023.
- Andela, N., D. Morton, L. Giglio, Y. Chen, G. Van der Werf, P. Kasabhatla, R. DeFries, G. J. Collatz, S. Hantson, S. Kloster, D. Bachelet, M. Forrest, G. Lasslop, F. Li, S. Mangeon, J. Melton, C. Yue and J. Randerson. 2017. A human-driven decline in global burned area. *Science*, 356, 1356-1362.
- *Agarwala, M., S. Ghoshal, L. Verchot, C. Martius, R. Ahuja & R. DeFries. 2017. Impact of biogas interventions on forest biomass and regeneration in southern India. *Global Ecology and Conservation*, 11, 213-223.
- DeFries, R., J. Fanzo, P. Mondal, R. Remans & S. Wood. 2017. Is voluntary certification of tropical agricultural commodities achieving sustainability goals?: A review of the evidence. *Environmental Research Letters* 12, 033001.
- DeFries, R., Mondal, P., Singh, D., Agrawal, I., Fanzo, J., Remans, R., Wood, S. 2017. Synergies and trade-offs for sustainable agriculture: Nutritional Yields and Climate-Resilience for cereal crops in central India. *Global Food Security*.
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- *Agarwala, M., DeFries, R., Qureshi, Q., Jhala, Y. 2016. Factors associated with long-term species composition in dry tropical forests of Central India. *Environmental Research Letters* 11, 105008.
- Kopplitz, S., Mickley, L., Marlier, M., Buoncare, J., Kim, P., Liu, T., Sulprizo, M., DeFries, R., Jacob, D., Schwartz, J., Pongsiri, M., Myers, S. 2016. Public health impacts of the severe haze in Equatorial Asia in September-October 2015: Demonstration of a new framework for informing fire management strategies to reduce downwind smoke exposure. *Environmental Research Letters* 11, 094023. (selected as editor's choice for 2016)

- Meiyappan, P., Roy, P.S., Sharma, Y., Ramachandran, R., Joshi, P.K., DeFries, R., Jain, A.K. 2016. Dynamics and determinants of land change in India: Integrating satellite data with village socioeconomics. *Regional Environmental Change*, 1-14.
- *Agarwala, M., DeFries, R., Qureshi, Q., Jhala, Y. 2016. Changes in dry tropical forests in Central India with human use. *Regional Environmental Change* 16.
- *Cattau, M., Harrison, M., Shinyo, I., Tungau, S., Uriarte, M., DeFries, R. 2016. Sources of anthropogenic fire ignitions on the peat-swamp landscape in Kalimantan, Indonesia. *Global Environmental Change* 39, 205-219..
- *Clark, B., DeFries, R., Krishnaswamy, J. 2016. Intra-annual dynamics of water stress in the Central Indian Highlands from 2002-2012. *Regional Environmental Change* 16.
- DeFries, R., Sharma, S., Dutta, T. 2016. A landscape approach to conservation and development in the Central Indian Highlands: Introduction to the Special Issue. *Regional Environmental Change* 16.
- Mondal, P., Jain, M., Zukowski, M., Galford, G., DeFries, R. 2016. Quantifying fluctuations in winter cropped area in the Central Indian Highland landscape. *Regional Environmental Change* 16.
- *Fagan, M., R. DeFries, S. Sesnie, J. Arroyo, and R. Chazdon. 2016. Targeted reforestation could combat declines in connectivity for understory birds in a tropical habitat corridor. *Ecological Applications* 26: 1456-1474.
- Marlier, M., Jina, A., Kinney, P., & DeFries, R. 2016. Extreme air pollution in global megacities. *Current Climate Change Reports* 2(15).
- *Dutta, T., S. Sharma, P. S. Roy, B. McRae, and R. DeFries. 2015. Connecting the dots: Connectivity mapping for tiger in central India. *Regional Environmental Change* 16.
- Anderman, T., R. DeFries, S. Wood, R. Remans, R. Ahuja, and S. Ulla. 2015. Biogas cook stoves for healthy and sustainable diets? A case study in Southern India. *Frontiers in Nutrition - Nutrition and Environmental Sustainability* 2:28.
- DeFries, R., J. Fanzo, R. Remans, C. Palm, S. Wood, and T. Anderman. 2015. Metrics for land-scarce agriculture: Nutrient content must be better integrated into planning. *Science* **349**:238-240.
- *Marlier, M., R. DeFries, P. Kim, S. Koplitz, J. Daniel, L. Mickley, and S. Myers. 2015. Fire emissions and regional air quality impacts from fires in oil palm, timber, and logging concessions in Indonesia. *Environmental Research Letters* 10.
- *Marlier, M., R. DeFries, P. Kim, D. Gaveau, S. Koplitz, D. Jacob, L. Mickley, B. Margono, and M. S. 2015. Regional air quality impacts of future fire emissions in Sumatra and Kalimantan. *Environmental Research Letters* 10(5).
- *Fagan, M., R. DeFries, S. Sesnie, J. Arroyo-Mora, C. Soto, A. Singh, P. Townsend, and R. Chazdon. 2015. Mapping species composition of forests and tree plantations in northeastern Costa Rica with an integration of hyperspectral and multitemporal Landsat imagery. *Remote Sensing* **7**:5660-5696.
- *Jain, M., S. Naeem, B. Orlove, V. Modi, and R. DeFries. 2015. Understanding the causes and consequences of differential decision-making in adaptation research: adapting to a delayed monsoon onset in Gujarat, India. *Global Environmental Change* **31**:98-109.
- *Mondal, P., Jain, M., DeFries, R., Galford, G., and Small, C. 2015. Sensitivity of crop cover to climate variability: Insights from two Indian agro-ecoregions. *Journal of Environmental Management* **148**:21-30.
- Kim, P., D. Jacob, L. Mickley, S. Koplitz, M. Marlier, R. DeFries, S. Myers, B. Chew, and Y. Mao. 2015. Sensitivity of population smoke exposure to fire locations in Equatorial Asia. *Atmospheric Environment* **102**:11-17.
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- *Anderman, T., R. Remans, S. Wood, K. DeRosa, and R. DeFries. 2014. Synergies and tradeoffs between cash crop production and food security: a case study in rural Ghana. *Food Security: The Science, Sociology and Economics of Food Production and Access to Food* **6**:541-554.
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- *Gutierrez-Velez, V., M. Uriarte, R. DeFries, M. Pinedo-Vasquez, K. Fernandes, P. Ceccato, W. Baethgen, and C. Padoch. 2014. Land cover change interacts with drought severity to change fire regimes in Western Amazonia. *Ecological Applications* **24**:1323-1340.
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- DeFries, R., M. Herold, L. Verchot, M. Macedo, and Y. Shimabukuro. 2013. Export-oriented deforestation in Mato Grosso: Harbinger or exception for other tropical forests? *Philosophical Transactions of the Royal Society B* **368**.
- *Gutierrez-Velez, V. and R. DeFries. 2013. Annual multi-resolution detection of land cover conversion to oil palm in the Peruvian Amazon. *Remote Sensing of Environment* **129**:154-167.
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- Liu, J., V. Hull, M. Batistella, R. DeFries, T. Dietz, F. Fu, T. Hertel, R. Izaurralde, E. Lambin, S. Li, L. Martinelli, W. McConnell, E. F. Moran, R. Naylor, Z. Ouyang, K. Polenske, A. Reenburg, G. Rocha, C. Simmons, P. Verburg, P. M. Vitousek, F. Zhang, and C. Zhu. 2013. Framing sustainability in a telecoupled world. *Ecology and Society* **18**:26.
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- Macedo, M., M. Coe, R. DeFries, M. Uriarte, P. Brando, C. Neill, and W. Walker. 2013. Land use-driven stream warming in southeastern Amazonia. *Philosophical Transactions of the Royal Society B* **368**:20120153.
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- Davidson, E., et al. (DeFries one of 14 authors), 2012, The Amazon basin in transition, *Nature*, **481**, 321-328.

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- DeFries, R., O. Edenhofer, A. Halliday, G. Heal, T. Lenton, M. Puma, J. Rising, Rockstrom, J., A. Ruane, H. Schellnhuber, D. Stainforth, N. Stern, M. Tedesco, and B. Ward. 2019. The missing economic risks in assessments of climate change impacts. In *Policy Insight: Grantham Research Institute on Climate Change and the Environment*, The Earth Institute, The Potsdam Institute for Climate Impact Research.
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- DeFries, R. 2018. Trade-offs and synergies among resilience, human nutrition, and agricultural productivity of cereals - what are the implications for the agricultural research agenda? *prepared for Science Forum, Oct 10-12 October 2018, Stellenbosch, South Africa, CGIAR*.
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- DeFries, R. 2017. The tangled web of people, landscapes, and protected areas. In *Science, Conservation and National Parks*, S. Bessinger, D. Ackerly, Doremus, H. and Machlis, G. editors., University of Chicago Press. Chapter 11.
- Eakin, H., R. DeFries, S. Kerr, E. Lambin, J. Liu, P. Marcotullio, P. Messerli, A. Reenberg, X. Rueda, S. Swaffield, B. Wicke and K. S. Zimmerer. 2014. Significance of telecoupling for exploration of land-use change. In *Rethinking Global Land Use in and Urban Era*. S. K. and A. Reenberg. Cambridge, MA, MIT Press. Strungmann Forum Reports: 141-161.
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- DeFries, R. 2012. Why forest monitoring matters for people and the planet. Pages 1-14 in F. Achard and M. Hansen, editors. *Global Forest Monitoring from Earth Observation*. CRC Press.
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- Asner, G.P., R. DeFries, and R.A. Houghton, 2004: Typological responses of ecosystems to land use change. In: *Ecosystems and Land Use Change*, R. DeFries, G.P. Asner, and R.A. Houghton (eds.). 153, American Geophysical Union, Washington, DC.
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- Hansen, A.J., DeFries, R. and Turner, W., 2004. Land use change and biodiversity: A synthesis of rates and consequences during the period of satellite imagery. In: G. Gutman et al. (Editors), *Land Change Science: Observing, Monitoring, and Understanding Trajectories of Change on the Earth's Surface*. Kluwer Academic Publishers, Dordrecht, The Netherlands.
- DeFries, R., 2004. Rates of Tropical Deforestation (expert box). In: W. Steffen et al. (eds.), *Global Change and the Earth System: A Planet Under Pressure*. International Geosphere Biosphere Program, Stockholm, Sweden.
- DeFries, R., 2003. Tropical forests, deforestation, and ecosystem services: Contributions of remote sensing. In: P.S. Roy (Editor), *Geoinformatics for Tropical Ecosystems*. Bishen Singh Mahendra Pal Singh, Dehra Dun, India, pp. 1-32.
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- DeFries, R. and Townshend, J. R. G., 1994, Global land cover: Comparison of ground-based data sets to classifications with AVHRR data. In *Environmental Remote Sensing from Regional to Global Scales*, edited by G. Foody and P. Curran (U.K.: John Wiley and Sons). pp. 84-110.
- DeFries, R., 1986, Effects of land use history on sedimentation in the Potomac Estuary, Maryland, U.S. Geological Survey water-supply paper 2234-K. 23 pp.

Books for Popular Audiences

- DeFries, R. 2021. *What Would Nature Do?: A Guide for Our Uncertain Times*. Columbia University Press. 264 pp.
- DeFries, R. 2014. *The Big Ratchet: How Humanity Thrives in the Face of Natural Crisis*. Basic Books. 288 pp.
- Silver, C and DeFries, R. 1990. *One Earth, One Future: Our Changing Global Environment*. National Academy Press. Washington, D.C. 196 pp. (translated into French, Portuguese, Arabic, and Japanese)

Science-Policy Interface/Advisory Committees/Working Groups (selected)

- Board Member, Science for Nature and People Program (SNAPP), The Nature Conservancy and Wildlife Conservation Society, 2015-present
- Co-chair, National Academies of Sciences, Engineering and Medicine, Committee on Advancing a Systems Approach to Studying the Earth: A Strategy for the National Science Foundation (2020-present)
- Member, Committee on Research and Exploration, National Geographic (2018-present)
- Advisory Board Member, Planetary Health Alliance, 2016-2019
- Member, Scientific Advisory Committee, Ashoka Trust for Research in Ecology and Environment, 2019-present
- Member, National Geographic Society Committee for Research and Exploration, 2018-present
- Member, Science and Technology Advisory Committee, International Monetary Fund
- Board of Trustees, Environmental Defense Fund, 2010-present
- Board of Trustees, U.S. World Wildlife Fund, 2016-present
- Editorial Board, *Proceedings of the National Academy of Sciences*, 2007-present
- Editorial Board, *Environmental Research Letters*, 2017-present
- Editorial Board, *World Development Perspectives*, 2018-present

Editorial Board, *Global Food Security*, 2020-present
 Member, Technical Committee, High Carbon Stock Study for Sustainable Palm Oil Manifesto, 2014 – 2015
 Member, Scientific Steering Committee, Our Common Future Under Climate Change, 2015-2015
 Lead author, Intergovernmental Panel on Climate Change, Fifth Assessment, 2010 – 2014
 Member, National Research Council, Board on Environmental Change and Society, 2011-2018
 Member, Scientific Committee for Ecosystem Change and Society (PECS), International Council for Science, 2008-2018
 Member, National Science Foundation Advisory Board for Social, Behavioral and Economic Sciences, 2013-2018
 Member, National Research Council, Committee on the Assessment of NASA's Earth Science program, 2010-2012
 Chair, Ecosystems, Land Use, and Biodiversity Panel of Decadal Survey for the Earth Sciences, National Research Council, 2005-2007
 Vice-chair, National Research Council, Committee on Earth Studies, Space Sciences Board, 2008-2011.
 Member, America's Climate Choices: Science Panel, National Research Council, 2008-2010
 Member, Terrestrial Carbon Group, 2007-2011
 Executive Editor, *Environment* magazine, 2006-2011
 Editorial Board, *Regional Environmental Change*, journal published by Springer-Verlag, 2003 – 2011.
 Coordinating Lead Author, Millennium Ecosystem Assessment, 2001-2005
 Member, Global Observations of Forest Cover, Forest/Land Cover Implementation Team, 2001-2015

Ph.D. Students (primary advisor)

Awarded:

- B. Clark (co-advised with C. Palm), "Crops, canopies, and waiting for rain: Water for small-plot agriculture in the tropics" (awarded 2019)
- A. Neelakantan, "Moving people for tigers: Resettlement, food security and landscape-level conservation in Central India" (awarded 2018)
- N. Schwartz (co-advised with M. Uriarte), "Earth, Wind, and Fire: Interactions between Land Use and Natural Disturbance in a Dynamic Amazonian Landscape" (awarded 2017)
- M. Agarwala, "Forest Degradation and Governance in Central India: Evidence from Ecology, Remote Sensing and Political Ecology Forest Degradation in Tropical Deciduous Forests" (awarded 2014)
- M. Cattau, "Tropical Peat Swamp Forest Loss in Indonesia: Linking Landscape Connectivity, Seed Dispersal, and Carbon Storage" (awarded 2016)
- M. Jain (co-advised with S. Naem), "Adaptation to Climate Variability in Social Agro-ecological Systems" (awarded 2014)
- M. Fagan, "The Changing Matrix: Reforestation and Connectivity in a Tropical Habitat Corridor" (awarded 2014)
- M. Marlier (co-advised with K. Griffin), "Contributions of Biomass Burning to Air Quality Degradation" (awarded 2013)
- V. Gutierrez-Velez, "Oil Palm Expansion and Land Cover Changes in the Peruvian Amazon: Implications for Forest Conservation and Fire Management" (awarded 2013)
- M. Macedo, "Tropical Deforestation and the Land-Water Interface" (awarded 2011)
- K. Wurster, "Using MISR to Assess the Impact of Charcoal Production on Forest Regeneration Rates in Southeastern Senegal" (awarded 2010)
- S. Zeigler, "Incorporating Landscape in Population Viability Analysis: Improving Generic Modeling Platforms for Endangered Species Conservation" (awarded 2010)
- D. Morton, "Savannization of a Tropical Forest Frontier: Carbon Consequences of Climate and Anthropogenic Fire from a Height-Structured Ecosystem Model" (awarded 2008)
- J. Dempewolf, "Fire Dynamics and Woody Cover Changes in the Serengeti-Mara Ecosystem 2000 to 2005: A Remote Sensing Approach" (awarded 2007)
- L. Anderson (co-advised), "Analyzing the Impact of Participatory-Developed Conservation Policies in the Negril Environmental Protection Area, Western Jamaica" (awarded 2007)
- M. Songer, "Dynamics of Non-Timber Forest Product Extraction in a Protected Tropical Dry Forest Area in Southeast Asia" (awarded 2006)

Current:

S. Khanwilkar

P. Choksi
V. Ramesh
J. Schoen
M. Levin