

## *Curriculum Vitae*

### ***Ruth S. DeFries***

Ecology, Evolution, and Environmental Biology  
Columbia University  
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#### **Current Appointment**

Denning Family Professor of Sustainable Development, Columbia University (2008-present)  
(designated Denning Family University Professor in 2016)  
Emeritus co-founding dean, Columbia Climate School

#### **Research Interests**

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

#### **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)  
Member, National Academy of Engineering (elected 2024)  
University Professor (highest faculty rank), Columbia University (2016)  
Web of Science, Highly Cited Researcher, 2016, 2017, 2019, 2020, 2021 (environment/ecology) and 2018, 2022 (cross field)  
Corresponding Fellow, British Academy (elected 2023)  
Marsh Award for Climate Change Research (2021)  
Distinguished Scholar Award, American Association of Geographers (2015)  
Honorary Doctorate, McGill University (2016)  
Honorary Doctorate, University of Leuven Belgium (2017)  
Breakthrough Paradigm Award (2014)  
Fellow, California Academy of Sciences (elected 2017)  
Fellow, Ecological Society of America (elected 2012)  
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**

Co-founding dean, Columbia Climate School (2021-2025)  
Co-director, undergraduate program in Sustainable Development, Earth Institute (2010-2025)  
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)

- Clark, B.D., Kritee, K., Agarwal, S., Choudhary, A., Eagle, A.J., Goveas, N., Vaddi, U. and DeFries, R.S., 2026. Potential for reducing greenhouse gas emissions from cropping in India: Where (district), Which (crop), and Who (farmers). *Environmental Research Letters*.
- Goldstein, J.E., Brockington, D., Sandbrook, C., Meyfroidt, P., Geldmann, J., Kuemmerle, T., Pfeifer, M., Sauls, L.A., Vera, L., Dutta, A., Pritchard, R., DeFries, R... 2026. Environmental data justice is key for developing more effective area-based conservation approaches. *Nature Reviews Biodiversity*, pp.1-11.
- DeFries, R., King, E.O., Monga, M., Nagendra, H. and Neelakantan, A., 2025. An evidence-based, farmer-focused revival of traditional cereals. *Frontiers in Sustainable Food Systems*, 9, p.1592723.
- \*Bakhshi, R., Agrawal, I. and DeFries, R., 2025. Indicators for equitable restoration of commons through invasive species removal in Central India. *Environmental and Sustainability Indicators*, p.100989.
- Gandhi, N., DeFries, R., Nair, S.C. and Ghosh-Jerath, S., 2025. Mapping of food access points of Indigenous tribal communities of Madhya Pradesh with Geospatial tools: a study protocol. *BMC nutrition*, 11(1), p.177.
- Fagan, M.E., Schwartz, N.B. and DeFries, R.S., 2025. The responsible use of global remote-sensing datasets. *Nature Ecology & Evolution*, pp.1-4.
- \*Ramesh, V., Hariharan, P., Gupte, P.R., Mohan, A.V., Akshay, V.A., Rajan, A., Das, C., Lockwood, I., Robin, V.V., Tingley, M.W. and DeFries, R., 2025. Grassland Bird Species Decline With Colonial-Era Landscape Change in a Tropical Montane Ecosystem. *Global Change Biology*, 31(7), p.e70358.
- \*Agarwal, S., Clark, B., Vaddi, U., Goveas, N., Nagendra, H. and DeFries, R., 2025. Achieving high-integrity tree-planting projects in the voluntary carbon market. *Environmental Research Letters*, 20(4), p.044052.
- \*Schoen, J.M., DeFries, R. and Cushman, S., 2025. Open-source, environmentally dynamic machine learning models demonstrate behavior-dependent utilization of mixed-use landscapes by jaguars (*Panthera onca*). *Biological Conservation*, 302, p.110978.
- \*Liang, S., Davis, K.F., Rao, N.D., Singh, D., Sun, J., Wu, W., Tang, H., Yang, P. and DeFries, R., 2025. Conflicting stakeholder priorities produce sustainability tradeoffs for cereal production in Northeast China. *Environmental Research Communications*, 7(5), p.051003.
- \*Cooley, S.S., Moore, E., Martinez, J., Fahlen, J., Maybach, E., Gollerkeri, M., Rao Vasa, A., Kou-Giesbrecht, S., Huddell, A.M., Norton, L. and Cawse-Nicholson, K., 2025. global “climate opportunity benefit” of forest regeneration: Meta-analysis shows warming from soil CH<sub>4</sub> and N<sub>2</sub>O is small relative to agriculture. *Global Biogeochemical Cycles*, 39(10), p.e2024GB008446.

- Lim, Y., Fernandes, K., Gutiérrez-Vélez, V.H., DeFries, R.S., Pinedo-Vasquez, M. and Uriarte, M., 2025. Socioeconomic and land use drivers of weedy grass infestation in the Peruvian Amazon. *Regional Environmental Change*, 25(4), p.145.
- Gurazada, M., McDermid, S., DeFries, R., Davis, K.F., Singh, J. and Singh, D., 2024. El Niño and positive Indian Ocean Dipole conditions simultaneously reduce the production of multiple cereals across India. *Environmental Research Letters*, 19(10), p.104059.
- Buma, B., Gordon, D., Kleisner, K., Bartuska, A., Bidlack, A., DeFries, R., Ellis, P., Friedlingstein, P., Metzger, S., Morgan, G., Novick, K. ...., and Hamburg, S.2024. Expert review of the science underlying nature-based climate solutions, *Nature Climate Change*.
- Cooley, S., Pinto, N., Becerra, M., Alverado, G., Fahlen, J., Rivero, O., Frinker, G., Dantos, A., Aguilar-Amuchestegui, N., Reygadas, Y., Gan, J., DeFries, R., and Menge, D.. 2024. Combining spaceborne lidar from GEDI with local knowledge for monitoring fragmented tropical landscapes: a case study in the forest-agriculture interface of Ucayali, Peru. *Ecology and Evolution*.
- Karl, K., DeFries, R., Baethgen, W., Furtado, M., Potent, J., Leal, E., Contreras, E., and Rosenzweig, C.. 2024. Toward a holistic and data-driven framework to evaluate livestock-derived protein systems, *One Earth*, 7.
- Chakraborti, R., Davis, K., DeFries, R., Rao, N., Joseph, J., & Ghosh, S. 2023. Crop switching for water sustainability in India's food bowl yields co-benefits for food security and farmers' profits. *Nature Water*, 1, 864-878.
- \*Choksi, P., Agrawal, A., Bialy, I., Chaturvedi, R., Davis, K. F., Dhyani, S., Fleischman, F., Lechner, J., Nagendra, H., Srinivasan, V. and DeFries, R. 2023. Combining socioeconomic and biophysical data to identify people-centric restoration opportunities. *npj Biodiversity*, 2(1), 7.
- Srivathsa, A., Vasudev, D., Nair, T., Chakrabarti, S., Chanchani, P., DeFries, R., Deomurari, A., Dutta, S., Ghose, D., Goswami, V. R. 2023. Prioritizing India's landscapes for biodiversity, ecosystem services and human well-being. *Nature Sustainability*, 1-10.
- Tambe, S., Ballal, A., Tomar, R., Wyborn, C., DeFries, R., Ganguly, S., & Masters, L. 2023. Bridging science, policy and practice for sustainability: Towards a conceptual framework. *Environmental Science and Policy*, 145.
- \*Choksi, P., Kotian, M., Biniwale, S., Mourya, P., Korche, D., Agarwala, M., Khanwilkar, S. Ramesh, V., DeFries, R. 2023. Listening for change: Quantifying the impact of ecological restoration on soundscapes in a dry tropical forest. *Restoration Ecology*, e13864.
- \*Ramesh, V., Hariharan, P., Akshay, V. A., Choksi, P., Khanwilkar, S., DeFries, R., & Robin, V. V. 2023. Using passive acoustic monitoring to examine the impacts of ecological restoration on faunal biodiversity in the Western Ghats. *Biological Conservation*, 282, 11071.
- DeFries, R., Ahuja, R., Friedman, J., Gordon, D., Hamburg, S. P., Kerr, S., Mwangi, J., Nouwen, C., Pandit, N. 2022. Land management can contribute to net zero. *Science*, 376(6598), 1163-1165.
- \*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. 2022. Synthesizing connectivity analyses for co-management of a globally important human-dominated tiger (*Panthera tigris*) conservation landscape. *Conservation Biology*. 36(4):13909.
- Löfqvist, S., Kleinschroth, F., Bey, A., de Bremond, A., DeFries, R., Dong, J., Fleischman, F., Lele, S., Martin, D.,Messerli, P. 2022. How social considerations improve the equity and effectiveness of ecosystem restoration. *BioScience*, 73(2), 134-148.
- \*Ramesh, V., Gupta, P. R., Tingley, M., Robin, V. V., & DeFries, R. 2022. Using citizen science to parse climatic and land cover influences on bird occupancy in a tropical biodiversity hotspot. *Ecography*, 9, e06075.
- 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).
- Liu, T., Mickley, L. J., Patel, P. N., Gautam, R., Jain, M., Singh, S., DeFries, R., Marlier, M. 2022. Cascading delays in the monsoon rice growing season and postmonsoon agricultural fires likely exacerbate air pollution in North India. *Journal of Geophysical Research: Atmospheres*, 127(24), e2022JD036790.
- Norstrom, A., 37 other authors, & DeFries, R. 2022. The programme on ecosystem change and society (PECS) - a decade of deepening social-ecological research through a place-based focus. *Ecosystems and People*, 18(598-608).
- 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* 54 (6): 1480-1490.
- 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*.
- \*Cattau, M., Marlier, M., DeFries, R. 2016. Effectiveness of Roundtable on Sustainable Palm Oil (RSPO) for reducing fires on oil palm concession in Indonesia from 2012 to 2015. *Environmental Research Letters* **11**, 105007.
- \*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. Kopplitz, 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. Kopplitz, 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.
- \*Marlier, M., R. DeFries, D. Pennington, E. Nelson, E. Ordway, J. Lewis, S. Kolpitz, and L. Mickley. 2015. Future fire emissions associated with projected land use change in Sumatra. *Global Change Biology* **21**:345-362.
- \*Schwartz, N., Uriarte, M., Gutierrez, V., Baethgen, W., DeFries, R., Fernandes, K., Pinedo-Vasquez, M. 2015. Climate, landowner residency, and land cover predict local scale fire activity in the Western Amazon. *Global Environmental Change*:144-153.
- Remans, R., S. Wood, N. Saha, T. Anderman, and R. DeFries. 2014. Measuring nutritional diversity of national food supplies. *Global Food Security* **3**:174-182.
- \*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.
- Gaveau, D., M. Salim, K. Hergoualc'h, B. Locatelli, S. Sloan, M. Wooster, M. Marlier, E. Molidena, H. Yaem, R. DeFries, R. Nasi, L. Verchot, D. Murdiyarsa, P. Holmgren, and S. D. 2014. An extreme fire event: haze and greenhouse gas emissions from Sumatra, Indonesia, during 2013 a non El Nino year. *Scientific Reports* **4**:1-7.
- \*Mondal, P., M. Jain, A. W. Robertson, G. Galford, C. Small, and R. DeFries. 2014. Winter crop sensitivity to inter-annual climate variability in central India. *Climatic Change* **126**:61-76.
- \*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.
- \*Wood, S., A. Jina, M. Jain, P. Kristjanson, and R. DeFries. 2014. Smallholder farmer cropping decisions related to climate variability across multiple regions. *Global Environmental Change* **25**:163-172.
- Meyfroidt, P., K. Carlson, M. Fagan, V. Gutierrez-Velez, M. Macedo, L. M. Curran, R. DeFries, G. Dyer, H. Gibbs, E. Lambin, D. Morton, and V. Robiglio. 2014. Multiple pathways of commodity crop expansion in tropical forest landscapes. *Environmental Research Letters* **9**:074012.
- 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.
- \*Jain, M., P. Mondal, R. DeFries, C. Small, and G. Galford. 2013. Mapping cropping intensity of smallholder farms: a comparison of methods using multiple sensors. *Remote Sensing of Environment* **134**:210-223.
- 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.
- \*Marlier, M., R. DeFries, A. Voulgarakos, P. Kinney, J. Randerson, D. Shindell, Y. Chen, and G. Faluvegi. 2013. El Nino and health risks from landscape fire emissions in Southeast Asia. *Nature Climate Change* **3**:131-136.
- Yang, J., D. Morton, Y. Jin, G. J. Collatz, P. Kasibhatla, G. van der Werf, R. DeFries, and J. Randerson. 2013. Long-term trends and interannual variability of forest, savanna, and agricultural fires in South American fires. *Carbon Management* **4**:617-638.
- Brando, P., M. Coe, R. DeFries, and A. Azevedo. 2013. Ecology, economy and management of an agro-industrial frontier landscape in the southeast Amazon. *Philosophical Transactions of the Royal Society B* **368**.
- 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.
- Morton, D., Y. Le Page, R. DeFries, G. J. Collatz, and G. C. Hurtt. 2013. Understory fire frequency and the fate of burned forests in southern Amazonia. *Philosophical Transactions of the Royal Society B* **368**:20120163.
- \*Fagan, M., R. DeFries, S. Sesnie, J. Arroyo, W. Walker, C. Soto, R. Chazdon, and A. Sanchun. 2013. Land cover dynamics following a deforestation ban in northern Costa Rica. *Environmental Research Letters* **8**:034017.
- Karanth, K., L. Naughton-Treves, R. DeFries, and A. Gopalaswamy. 2013. Living with wildlife and mitigating conflicts around three protected areas. *Environmental Management* **52**:1320-1332.
- Karanth, K., A. Gopalaswamy, R. DeFries, and N. Ballal. 2012. Assessing patterns of human-wildlife conflicts and compensation around a Central Indian protected area. *PLoS One* **7**:e50433.

- Johnston, F., S. Henderson, Y. Chen, J. Randerson, M. Marlier, R. DeFries, P. Kinney, D. Bowman, and M. Brauer. 2012. Estimated global mortality attributable to smoke from landscape fires. *Environmental Health Perspectives* **120**:695.
- Karanth, K., R. DeFries, A. Srivathsa, and V. Sankaraman. 2012. Wildlife tourists in India's emerging economy: Potential for a conservation constituency? *Oryx* **46**:382-390.
- DeFries, R., E. C. Ellis, F. S. I. Chapin, P. A. Matson, B. L. Turner II, A. Agrawal, P. J. Crutzen, C. Field, P. Gleick, P. Kareiva, E. Lambin, D. Liverman, E. Ostrom, P. Sanchez, and J. Syvitski. 2012. Planetary opportunities: A social contract for global change science to contribute to a sustainable future. *BioScience* **62**:603-606.
- \*Macedo, M., R. DeFries, D. Morton, C. Stickler, G. Galford, and Y. Shimabukuro. 2012. Decoupling of deforestation and soy production in the southern Amazon during the late 2000s. *Proceedings of the National Academy of Sciences* **109**:1841-1846.
- Uriarte, M., M. Pinedo-Vasquez, R. DeFries, K. Fernandes, V. Gutierrez-Velez, W. Baethgen, and C. Padoch. 2012. Depopulation of rural landscapes exacerbates fire activity in Western Amazon. *Proceedings of the National Academy of Sciences* **109**:21546-21550.
- Carpenter, S. R., et al. (DeFries one of ten authors). 2012. Program on ecosystem change and society: an international research strategy for integrated social-ecological systems, *Current Opinion in Environmental Sustainability*, 4(1-5).
- Davidson, E., et al. (DeFries one of 14 authors), 2012, The Amazon basin in transition, *Nature*, 481, 321-328.
- \*Gutierrez-Velez, V., R. DeFries, M. Pinedo-Vasquez, M. Uriarte, C. Padoch, W. Baethgen, K. Fernandes, and Y. Lim (2011), High-yield oil palm expansion spares land at the expense of forests in the Peruvian Amazon, *Environmental Research Letters*, 6, 044029.
- Chen, Y., J. Randerson, D. Morton, R. DeFries, G. J. Collatz, P. Kasibhatla, L. Giglio, Y. Jin, and M. Marlier. 2011. Fire season severity in South America using sea surface temperature anomalies, *Science*, 334(6057), 787-791.
- Yackulic, C., M. Fagan, M. Jain, A. Jina, Y. Lim, M. Marlier, R. Muscarella, P. Adame, R. DeFries, and M. Uriarte. 2011. Biophysical and socioeconomic factors associated with forest transitions at multiple spatial and temporal scales. *Ecology and Society* 16 (3).
- Bowman, D., J. Balch, P. Artaxo, W. J. Bond, M. Cochran, C. D'Antonio, R. DeFries, F. Johnstaon, J. Keeley, M. Krawchuk, C. Kull, M. C. Mack, M. Moritz, S. Pyne, C. Roos, A. Scott, N. Sodhi, and T. Swetnam. 2011. The human dimension of fire regimes on Earth. *Journal of Biogeography* 1-14.
- Fernandes, C., W. Baethgen, S. Bernardes, R. DeFries, D. DeWit, L. Goddard, W. Lavado, D. E. Lee, C. Padoch, M. Pinedo-Vasquez, and M. Uriarte. 2011. North Tropical Atlantic influence on western Amazon fire season variability. *Geophysical Research Letters* **38**.
- Hansen, A., C. Davis, N. Pikielak, J. Gross, D. Theobald, S. Goetz, F. Melton, and R. DeFries. 2011. Delineating the ecosystems containing protected areas for monitoring and management. *BioScience* **61**:363-373.
- \*Karanth, K. and DeFries, R. 2011. Nature-based tourism in Indian protected areas: New challenges for park management. *Conservation Letters* **4**:137-149.
- Morton, D., R. DeFries, J. Nagol, C. Souza, E. Kasischke, G. C. Hurtt, and R. Dubayah. 2011. Mapping canopy damage from understory fires in Amazon forests using annual time series of Landsat and MODIS data. *Remote Sensing of Environment* **115**:1706-1720.
- DeFries, R. and C. Rosenzweig, 2010. Toward a whole-landscape approach for sustainable land use in the tropics. *Proceedings of the National Academy of Sciences* **107**,46): 19627-19632.
- Freedman, A. H., Buermann, W., Mitchard, E.T.A., DeFries, R.S., and T.B. Smith, 2010. Human impacts flatten rainforest-savanna gradient and reduce adaptive diversity. *PLoS One* **5**(9): e13088.
- Giglio, L., Randerson, J.T., Van der Werf, G., Kasibhatla, P., Collatz, G.J., Morton, D., and R. DeFries, 2010. Assessing variability and long-term trends in burned area by merging multiple satellite fire products. *Biogeosciences Discussion* **7**: 1171-1186.
- \*Karanth, K. and DeFries, R., 2010. Conservation and management in human-dominated landscapes: Case studies from India. *Biological Conservation* **143**,12): 2865-2869.
- Sachs, J., Remans, R., Smukler, S., Winowiecki, L., Andelman, S., Cassman, K., Castle, D., DeFries, R., Denning, G., Fanzo, J., Jackson, L., and R. Leemans, R., 2010. Monitoring the world's agriculture. *Nature* doi:10.1038/466558a.
- van der Werf, G., J. T. Randerson, L. Giglio, G. J. Collatz, M. Mu, P. Kasibhatla, D. Morton, R. DeFries, Y. Jin, and T. van Leeuwen. 2010. Global fire emissions and contribution of deforestation, savanna, forest, agricultural, and peat fires (1997-2009). *Atmospheric Chemistry and Physics Discussions* **10**:16153-16230.

- Vina, A., M.-N. Tuanmu, et al., 2010. Range-wide analysis of wildlife habitat: Implications for conservation. *Biological Conservation* **143**: 1960-1969.
- \*Zeigler, S., W. F. Fagan, et al., 2010. Identifying important forest patches for the long-term persistence of the endangered golden-headed lion tamarin (*Leontopithecus chrysomelas*). *Tropical Conservation Science* **3**(1): 63-77.
- DeFries, R., Rudel, T.K., Uriarte, M., and Hansen, M., 2010. Deforestation driven by urban population growth and agricultural trade in the twenty-first century. *Nature Geoscience*, **3**, 178-181.
- DeFries, R., Karanth, K., and Pareeth, S., 2010. Interactions between protected areas and their surroundings in human-dominated tropical landscapes. *Biological Conservation*, **143**, 2870-2880.
- DeFries, R., and D. Pandey. 2010. Urbanization, the energy ladder and forest transitions in India's emerging economy: Trade-offs and synergies for ecosystem services and human well-being. *Land Use Policy*. **27**: 130-138.
- Baker, J., G. Richards, Grainger, A., Gonzalez, P., Brown, S., DeFries, R., Held, A., Kellndorfer, J., Ndunda, P., Ojima, D., Skrovest, P., Souza, C. Jr., Stolle, F., 2010. Achieving forest carbon information with higher certainty: A five-part plan. *Environmental Science and Policy* **13**(3): 249-260.
- Rudel, T.K., Schneider, L., Uriarte, M., Turner II, B.L., DeFries, R., Lawrence, D., Geoghegan, J., Hecht, S., Ickowitz, A., Lambin, E., Birkenholtz, T., Baptista, S., and Grau, R., 2009. Agricultural intensification and changes in cultivated areas, 1970-2005. *Proceedings of the National Academy of Sciences*, **106**, 20675-20680.
- van der Werf, G., Morton, D., DeFries, R., Olivier, J., Kasibhatla, P., Jackson, R.B., Collatz, G.J., and Randerson, J.T., 2009. CO2 emissions from forest loss. *Nature Geoscience*. **2**, 1-2.
- Rudel, T. K., DeFries, R., Asner, G. and W. Laurance. 2009. Changing drivers of deforestation and new opportunities for conservation. *Conservation Biology*. **23**: 1396-1405.
- Asner, G., Rudel, T., Aide, T.M, DeFries, R. and R. Emerson. 2009. A contemporary assessment of global humid tropical forest change. *Conservation Biology*. **23**: 1386-1395.
- Bowman, D., Balch, J., Artaxo, P., Bond, W.J., Carlson, J., Cochrane, M.A., D'Antonia, C., DeFries, R., Doyle, J., Harrison, S., Johnston, F., Keeley, J., Krawchuk, M., Kull, C., Marston, J.B., Moritz, M., Prentice, I.C., Roos, C., Scott, A., Swetman, T.W., van der Werf, G., and Pyne, S. 2009. Fire in the earth system. *Science* (324): 481-484.
- DeFries, R., F. Rovero, P. C. Wright, J. Ahumada, S. J. Andelman, K. Brandon, J. Dempewolf, A. Hansen, J. Hewson, and J. Liu. 2009. From plot to landscape scale: Linking tropical biodiversity measurements across spatial scales. *Frontiers in Ecology and the Environment*. doi:10.1890/080104.
- \*Songer, M., Aung, M., Senior, B., DeFries, R., and Leimgruber, P. 2009. Spatial and temporal deforestation dynamics in protected and unprotected dry forests: a case study from Myanmar (Burma). *Biodiversity Conservation* (18): 1001-1018.
- Carpenter, S., Mooney, H., Agard, J., Capistrano, D., DeFries, R., Diaz, S., Dietz, T., Duraiappah, A., Oteng-Yeboah, A., Pererira, H., Perrings, C., Reid, W., Sarukhan, J., Scholes, R., Whyte, A. 2009. Science for managing ecosystem services: Beyond the Millennium Ecosystem Assessment. *Proceedings of the National Academy of Science* (106): 1305-1312.
- van der Werf, G. R., J. Dempewolf, S. N. Trigg, J. T. Randerson, P. S. Kasibhatla, L. Giglio, D. Murdiyarso, W. Peters, D. Morton, G. J. Collatz, and R. DeFries. 2008. Climate regulation of fire emissions and deforestation in equatorial Asia. *Proceedings of the National Academy of Sciences*. **105**(51): 20350-20355.
- van der Werf, G. R., D. C. Morton, R. S. DeFries, L. Giglio, J. T. Randerson, G. J. Collatz and P. S. Kasibhatla. 2008. Estimates of fire emissions from an active deforestation region in the southern Amazon based on satellite data and biogeochemical modeling. *Biogeosciences Discussion*. **5**: 3533-3573.
- DeFries, R., D. Morton, G. van der Werf, L. Giglio, G. J. Collatz, J. T. Randerson, J. T. Houghton, P. Kasibhatla, and Y. Shimabukuro. 2008. Fire-related carbon emissions from land use transitions in Southern Amazonia. *Geophysical Research Letters*. **35**(L22705): doi:10.1029/2008GL035689.
- DeFries, R. 2008. Terrestrial vegetation in the coupled human-earth system: Contributions of remote sensing. *Annual Review of Environment and Resources* **33**:369-390.
- \*Morton, D., R. DeFries, J. T. Randerson, L. Giglio, W. Schroeder, and G. van der Werf. 2008. Agricultural intensification increases deforestation fire activity in Amazonia. *Global Change Biology* **14**:2262-2276.
- Hansen, M. C., S. V. Stehman, P. V. Potapov, T. Loveland, J. R. G. Townshend, R. DeFries, K. W. Pittman, B. Arunarwati, F. Stolle, M. K. Steininger, M. Carroll and C. DiMiceli 2008. Humid tropical forest clearing from 2000 to 2005 quantified using multi-temporal and multi-resolution remotely sensed data. *Proceedings of the National Academy of Sciences* **105**(27): 9439-9444.

- Achard, F., R. DeFries, H. Eva, M. Hansen, P. Mayaux and H.-J. Stibig. 2007. Pan-tropical monitoring of deforestation. *Environmental Research Letters* 2: 045022.
- DeFries, R., F. Achard, F. Brown, M. Herold, D. Murdiyarso, B. Schlamadinger and C. M. Souza. 2007. Earth observations for estimating greenhouse gas emissions from deforestation in developing countries. *Environmental Science and Policy*. 10: 385-394.
- DeFries, R., A. J. Hansen, B. L. Turner II, R. Reid and J. Liu. 2007. Land use change around protected areas: Management opportunities to balance human needs and ecological function. *Ecological Applications*. 17: 1031-1038.
- Hansen, A. J. and R. DeFries. 2007. Ecological mechanisms linking nature reserves to surrounding lands. *Ecological Applications*. 17: 974-988.
- \*Dempewolf, J., R. DeFries, S. N. Trigg and S. Eby. 2007. MODIS derived burned area mapping of Serengeti-Mara region. *IEEE Geoscience and Remote Sensing Letters*. 4: 312-316.
- Foley, J., G. P. Asner, M. A. Costa, M. Coe, R. DeFries, H. Gibbs, E. Howard, S. Olson, J. Patz, N. Ramankutty and P. Snyder. 2007. Amazonia revealed: Unexpected forest degradation and the loss of ecosystem goods and services in the Amazon basin. *Frontiers in Ecology and the Environment*. 5 (1): 25-32.
- Carpenter, S. R., R. DeFries, T. Dietz, H. A. Mooney, S. Polasky, W. V. Reid and R. J. Scholes. 2006. Millennium Ecosystem Assessment: Research needs. *Science* 313: 257-258.
- DeFries, R., G. P. Asner and J. Foley. 2006. A glimpse out the window: What landscapes reveal about livelihoods, land use, and environmental consequences. *Environment* 48(8): 22-36.
- \*Morton, D., R. DeFries, Y. Shimabukuro, L. Anderson, E. Arai, F. Espirito-Santo, R. Freitas and J. Morisette. 2006. Cropland expansion changes deforestation dynamics in the southern Brazilian Amazon. *Proceedings of the National Academy of Sciences* 103(39): 14637-14641.
- Ramankutty, N., H. Gibbs, F. Achard, R. DeFries, J. Foley and R. A. Houghton. 2006. Challenges to estimating carbon emissions from tropical deforestation. *Global Change Biology* 12: 1-16.
- Schimel, D., I. Y. Fung and R. DeFries. 2006. Space-based ecological observations: The NASA decadal survey. *Frontiers in Ecology and the Environment* 4(4): 171.
- Nelson, G., E. Bennett, A. Berhe, K. Cassman, R. DeFries, T. Dietz, A. P. Dobson, A. Doberman, A. C. Janetos, M. Levy, D. Marco, N. Nakicenovic, B. O'Neill, R. Norgaard, G. Petschel-Helf, D. Ojima, P. Pingali, R. Wateron and M. Zurek. 2006. Anthropogenic drivers of ecosystem change: An overview. *Ecology and Society* 11(2): 29.
- Brown de Colstoun, E., R. DeFries and J. Townshend. 2006. Evaluation of ISLSCP Initiative II satellite-based land cover data sets and assessment of progress in land cover data for global modeling. *Journal of Geophysical Research* 111(D22S07).
- Miles, L., A.C. Newton, R. DeFries, C. Ravilious, I. May, S. Blyth, V. Kapos, and J. Gordon, 2006: A global overview of the conservation status of tropical dry forests. *Journal of Biogeography*. 33: 491-505.
- \*Pongratz, J., L. Bounoua, R. DeFries, D. Morton, L. Anderson and W. Mauser. 2006. Estimating the impact of land cover change on energy and water balance in Mato Grosso, Brazil. *Earth Interactions*, 10:1-17.
- Foley, J., R. DeFries, G.P. Asner, C.G. Barford, G.B. Bonan, S.R. Carpenter, F.S.I. Chapin, M.T. Coe, G. Daily, H. Gibbs, J.H. Helkowski, T. Holloway, E. Howard, C. Kucharik, C. Monfreda, J. Patz, I.C. Prentice, N. Ramankutty, and P.K. Snyder, 2005: Global consequences of land use. *Science*, 309: 570-574.
- Anderson, L.O., Y.E. Shimabukuro, R.S. DeFries, and D. Morton, 2005: Assessment of land cover and land use changes in the Brazilian Amazon using multitemporal fraction images derived from Terra MODIS: Examples from the state of Mato Grosso. *IEEE Geoscience and Remote Sensing Letters*, 2(3): 315-318.
- \*Jasinski, E., D. Morton, R. DeFries, Y. Shimabukuro, L. Anderson, M. Hansen, and M. Latorre, 2005: Biophysical correlates of the expansion of mechanized agriculture in Mato Grosso, Brazil. *Earth Interactions* 9 (16): 1-18.
- \*Morton, D., R. DeFries, Y. Shimabukuro, L. Anderson, F. Espirito-Santo, M. Hansen, and M. Carroll, 2005: Rapid assessment of annual deforestation in the Brazilian Amazon using MODIS data. *Earth Interactions*, 9(8): 1-22.
- DeFries, R., Hansen, A.J., Newton, A.C. and Hansen, M.C., 2005. Increasing isolation of protected areas in tropical forests over the past twenty years. *Ecological Applications*, 15(1): 19-26.
- Randerson, J.T., G.R. vanderWerf, G.J. Collatz, L. Giglio, C.J. Still, P. Kasibhatla, J.B. Miller, J.W.C. White, R. DeFries, and E.S. Kasischke, 2005: Fire emissions from C3 and C4 vegetation and their influence on interannual variability of atmospheric CO<sub>2</sub> and d13CO<sub>2</sub>. *Global Biogeochemical Cycles*, 19 (GB2019).
- Lepers, E., Lambin, E.F., Janetos, A.C., DeFries, R., Achard, F., Ramankutty, N. and Scholes, R.J., 2005. A synthesis of rapid land-cover change information for the 1981-2000 period. *BioScience*, 55(2): 115-124.

- Hansen, M. and DeFries, R., 2004, Detecting long term forest change using continuous fields of tree cover maps from 8km AVHRR data for the years 1982-1999. *Ecosystems*. DOI 10.1007/s10021-004-0243-3.
- DeFries, R. and Bounoua, L. 2004. Consequences of land use change for ecosystem services: A future unlike the past. *Geojournal*, 61: 345-351.
- DeFries, R., Foley, J. and Asner, G.P., 2004. Land Use Choices: Balancing Human Needs and Ecosystem Function. *Frontiers in Ecology and the Environment*, 2(5): 249-257.
- \*Wessels, K.J., DeFries, R.S., Dempewolf, J., Anderson, L.O., Hansen, A.J., Powell, S. and Moran, E.F., 2004. Mapping regional land cover with MODIS data for biological conservation: Examples from the Greater Yellowstone Ecosystem, USA and Para State, Brazil. *Remote Sensing of Environment*, 92: 67-83.
- Imhoff, M., Bounoua, L., DeFries, R., Lawrence, W., Stutzer, D., Tucker, C.J. and Ricketts, T., 2004. The consequences of urban land transformation on net primary productivity in the United States. *Remote Sensing of Environment*, 89: 434-443.
- DeFries, R. and Eshleman, K., 2004. Land use change and hydrologic processes: A major focus for the future (invited commentary). *Hydrologic Processes Today*, 18: 2183-2186.
- Xue, Y., Juang, H.-M., Li, W.-P., Prince, S., DeFries, R., Jiao, Y. and Vasic, R., 2004. Role of land surface processes in monsoon development: Part I - East Asia and West Africa. *Journal of Geophysical Research-Atmospheres*, 109(D03105): doi:10.1029/2003JD003556.
- Zeng, X., Rao, P., DeFries, R. and Hansen, M., 2003. Interannual variability and decadal trend of global vegetation cover from 1982 to 2000. *Journal of Applied Meteorology*, 42: 1525-1530.
- Hansen, M.C., DeFries, R.S., Townshend, J., Carroll, M., Dimiceli, C. and Sohlberg, R., 2003. Global percent tree cover at a spatial resolution of 500 meters: First results of the MODIS Vegetation Continuous Fields algorithm. *Earth Interactions*, 7(10): 1-15.
- Bounoua, L., DeFries, R.S., Imhoff, M.L. and Steininger, M.K., 2003. Land use and local climate: A case study near Santa Cruz, Bolivia. *Meteorology and Atmospheric Physics*, DOI 10.1007/a00703-003-0616-8.
- Still, C., Berry, J., Collatz, G. and DeFries, R., 2003, The global distribution of C3 and C4 plants: Carbon cycle implications. *Global Biogeochemical Cycles* 17: 6-1 – 6-14.
- DeFries, R., Houghton, R.A., Hansen, M., Field, C., Skole, D.L. and Townshend, J.: 2002, Carbon emissions from tropical deforestation and regrowth based on satellite observations for the 1980s and 90s. *Proceedings of the National Academy of Sciences*, 99(22): 14256-14261.
- \*Chan, J.W.-C., Laporte, N., and DeFries, R., 2003, Texture classification of logging using machine learning algorithms. *International Journal of Remote Sensing* 24: 1401-1407.
- DeFries, R., Bounoua, L. and Collatz, G.J., 2002, Human modification of the landscape and surface climate in the next fifty years. *Global Change Biology* 8: 438-458.
- DeFries, R., 2002, Past and future sensitivity of primary production to human modification of the landscape. *Geophysical Research Letters* 29 (7):36-1 – 36-4.
- Bounoua, L., DeFries, R., Collatz, G.J., Sellers, P. and Khan, H., 2002, Effects of land cover conversion on surface climate. *Climatic Change* 52: 29-64.
- Hansen, M., DeFries, R., Townshend, J.R.G., Marufu, L. and Sohlberg, R., 2002, Development of a MODIS tree cover validation data set for Western Province, Zambia. *Remote Sensing of Environment*, 83(1-2): 320-335.
- Hansen, M.C., DeFries, R.S., Townshend, J.R.G., Sohlberg, R., DiMiceli, C. and Carroll, M., 2002, Towards an operational MODIS continuous field of percent tree cover algorithm: Examples using AVHRR and MODIS data. *Remote Sensing of Environment*, 83(1-2): 303-319.
- Huang, C., Townshend, J., Liang, S., Kalluri, S., and DeFries, R., 2002, Impact of sensor's point spread function on land cover characterization: Assessment and deconvolution. *Remote Sensing of Environment*, 80: 208-212.
- \*Chan, J.C.-W., Huang, C. and DeFries, R., 2001, Enhanced algorithm performance for land cover classification using bootstrap aggregating (bagging). *IEEE Transactions on Geoscience and Remote Sensing*, 39 (3):693-695.
- DeFries, R. and Chan, J., 2000, Multiple criteria for evaluating machine learning algorithms for land cover classification from satellite data. *Remote Sensing of Environment*. 74:503-515.
- DeFries, R. Hansen, M., Townshend, J.R.G., Janetos, A.C., and Loveland, T.R. 2000. A new global 1km data set of percent tree cover derived from remote sensing. *Global Change Biology*. 6: 247-254.
- DeFries, R., Hansen, M., and Townshend, J., 2000, Global continuous fields of vegetation characteristics: A linear mixture model applied to multiyear 8km AVHRR data, *International Journal of Remote Sensing*. 21: 1389-1414.
- DeFries, R. and A.S. Belward, 2000, Global and regional land cover characterization from satellite data: An introduction to the special issue, *International Journal of Remote Sensing*. 21: 1083-1093.

- Los, S.O., Sellers, P.J., Collatz, G.J., Malmstrom, C.M., DeFries, R.S., Tucker, C.J., Pollack, N.H., Dazlich, D.A., Bounoua, L., 2000, A global 9-year biophysical landsurface dataset from NOAA AVHRR data. *Journal of Hydrometeorology*: 183-199.
- Zeng, X., Dickinson, R., Walker, A., Shaikh, M., DeFries, R. and Qi, J. 2000. Derivation and evaluation of global 1-km fractional vegetation cover data for land modeling. *Journal of Applied Meteorology*. 39: 826-839.
- Hansen, M., DeFries, R., Townshend, J. R. G. and Sohlberg, R., 2000, Global land cover classification at 1km resolution using a decision tree classifier, *International Journal of Remote Sensing*. 21: 1331-1365.
- Zhan, X., DeFries, R., Townshend, J., Hansen, M., Huang, C. and Sohlberg, R., 2000, The global land cover change indicator product from the Moderate Resolution Imaging Spectroradiometer of NASA's Earth Observing System, *International Journal of Remote Sensing*. 21: 1433-1460.
- Townshend, J.R.G., Huang, C., Kalluri, S.N.V., DeFries, R. and Liang, S.: 2000, Beware of per-pixel characterization of land cover. *International Journal of Remote Sensing*. 21: 839-843.
- DeFries, R., Field, C., Fung, I., Collatz, G. and Bounoua, L., 1999. Combining satellite data and biogeochemical models to estimate global effects of human-induced land cover change on carbon emissions and primary productivity, *Global Biogeochemical Cycles*. 13(3): 803-815.
- DeFries, R., Townshend, J. R. G. and Hansen, M., 1999, Continuous fields of vegetation characteristics at the global scale at 1km resolution, *Journal of Geophysical Research - Atmospheres*. 104, 16,911-16,925.
- DeFries, R. and Los, S., 1999. Implications of land cover misclassifications for parameter estimates in global land surface models: An example from the Simple Biosphere Model (SiB2). *Photogrammetric Engineering and Remote Sensing*. 65(9): 1083-1088.
- DeFries, R. and Townshend, J., 1999, Global land cover characterization from satellite data: From research to operational implementation?, *Global Ecology and Biogeography Letters*. 8 (5): 367-379.
- DeFries, R., Hansen, M., Townshend, J. R. G. and Sohlberg, R., 1998, Global land cover classifications at 8 km spatial resolution: The use of training data derived from Landsat imagery in decision tree classifiers, *International Journal of Remote Sensing*; 19 (16): 3141-3168.
- Justice, C., Vermote, E., Townshend, J., DeFries, R., Roy, D., Hall, D., Salomonson, V., Privette, J., Riggs, G., Strahler, A., Lucht, W., Myneni, R., Knyazikhin, Y., Running, S., Nemani, R., Wan, Z., Huete, A., van Leeuwen, W., Wolfe, R., Giglio, L., Muller, J.-P., Lewis, P. and Barnsley, M., 1998, The Moderate Resolution Imaging Spectroradiometer (MODIS): Land remote sensing for global change research, *IEEE Transactions on Geoscience and Remote Sensing*, 36, 1228-1249.
- DeFries, R., Hansen, M., Steininger, M., Dubayah, R., Sohlberg, R. and Townshend, J., 1997, Subpixel forest cover in Central Africa from multisensor, multitemporal data, *Remote Sensing of Environment*, 60, 228-246.
- Smith, P., Kalluri, S., Prince, S. and DeFries, R., 1997, The NOAA/NASA Pathfinder AVHRR 8-km land data set, *Photogrammetric Engineering and Remote Sensing*, 63, 12-31.
- Hansen, M., Dubayah, R. and DeFries, R., 1996, Classification trees: An alternative to traditional land cover classifiers, *International Journal of Remote Sensing*, 17, 1075-1081.
- DeFries, R., Hansen, M. and Townshend, J., 1995, Global discrimination of land cover types from metrics derived from AVHRR Pathfinder data, *Remote Sensing of Environment*, 54, 209-222.
- DeFries, R., Field, C. B., Fung, I., Justice, C. O., Matson, P. A., Matthews, M., Mooney, H. A., Potter, C. S., Prentice, K., Sellers, P. J., Townshend, J., Tucker, C. J., Ustin, S. L. and Vitousek, P. M., 1995, Mapping the land surface for global atmosphere-biosphere models: toward continuous distributions of vegetation's functional properties, *Journal of Geophysical Research*, 100, 20,867-20,882.
- DeFries, R. and Townshend, J. R. G., 1994, NDVI-derived land cover classification at global scales, *International Journal of Remote Sensing*, 15, 3567-3586.
- DeFries, R., Farrington, J. and Weiss, E., 1985, SCOPE: Opportunities for international study of global environmental issues, *The Environmental Professional*, 7, 311-315.
- Brush, G., Martin, E., DeFries, R. and Rice, C., 1982, Comparisons of lead-210 and pollen methods for determining rates of estuarine sediment accumulation, *Quaternary Research*, 18 (2) 196-217.
- Brush, G. and DeFries, R., 1981, Spatial distributions of pollen in surface sediments of the Potomac Estuary, *Limnology and Oceanography*, 26 (2) 295-309.

### **Academic Books and Edited Volumes**

- DeFries, R., Sharma, S., and Dutta, T. (eds.). 2016. A Landscape Approach to Conservation and Development in the Central Indian Highlands. Special Issue in Regional Environmental Change (13 papers). 15 (6).
- Mondal, P., Nagendra, H., and DeFries, R. (eds.). 2016. Climate Change Impacts and Adaptation. Special Section in Current Science (8 papers) 110 (7).
- Brando, P., Coe, M. and DeFries, R. (eds.). 2013. Ecology, economy and management of an agro-industrial frontier in the southeast Amazon. Transactions of the Royal Society B. Theme issue (18 contributions).
- DeFries, R. and Rosenzweig, C. (eds.). 2010. Climate Mitigation and Food Production in Tropical Landscapes. Proceedings of the National Academy of Sciences 107 (46).
- Karanth, K. and DeFries, R. (eds.). 2010. Conservation and Management in Human-Dominated Landscapes: Case Studies from India. Journal of Biological Conservation 143 (12).
- Hansen, A., and DeFries, R. (eds.). 2007. Land Use Change around Nature Reserves: Implications for Sustaining Biodiversity. Invited Feature for Ecological Applications.
- DeFries, R., Asner, G., and Houghton, R. (eds.) 2004. Ecosystems and Land Use Change. American Geophysical Union. Geophysical Monograph Series. Vol. 153. Washington, DC. 309 pp.
- DeFries, R. and Belward, A.S. (eds.) 2000. Global and Regional Land Cover Characterization from Satellite Data. Special Issue of International Journal of Remote Sensing. includes 23 refereed papers.
- 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)
- DeFries, R. and Malone, T. (eds.) 1989. Global Change and Our Common Future: Papers from a Forum. National Academy Press. Washington, D.C. 227 pp.

### **Book Chapters, Reports, Commentaries, and Reviews**

- DeFries, R., and Ghosh-Jerath, S. 2023. The millet revival can overcome the pitfalls of the Green Revolution, Mongabay-India
- DeFries, R. "Greening Agri-Food Production in Less-Industrialized Countries." 2021. *In* The Economics of Sustainable Food: Smart Policies for Health and the Planet, edited by N. Batini: Island Press, Washington D.C.
- 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.
- Agarwala, M., R. DeFries, Y.V. Jhala, and Q. Qureshi. 2019. "Threats to coexistence of humans and forests in Central India." *In Nature Conservation in the New Economy*, edited by G. Shahabuddin and K. Sivaramakrishnan, 108-134. New Delhi, India: Orient BlackSwan.
- DeFries, R., and A. Chhatre. 2019. "Why India needs a unique approach to sustainability." *Ecology, Economy and Society* 2 (2):3-8.
- 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.*
- DeFries, R. 2017. Robust assessment comes of age. *Nature Ecology and Evolution*. 1.9:1222.
- 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.
- DeFries, R. 2013. Review: Seeds of Sustainability: Lessons from the Birthplace of the Green Revolution in Agriculture, edited by Pamela A. Matson. *Ecological Restoration* 31.
- DeFries, R. 2013. Remote sensing and image processing. Pages 389-399 *in* S. Levin, editor. Encyclopedia of Biodiversity, second edition. Academic Press, Waltham, MA.
- 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.

- \*Songer, M., M. Aung, K. Swe, T. Oo, C. Wemmer, R. DeFries, and P. Leimburger. 2011. The impact of local communities on a dry tropical forest sanctuary. Pages 305-320 in *The Ecology and Conservation of Seasonally Dry Forests in Asia*. W. J. McShea, S. Davies, and N. Bhumpakphan (eds.) Rowman and Littlefield Publishers Inc and Smithsonian Institution Scholarly Press, Washington, DC.
- \*Fagan, M. and R. DeFries. 2009. Measurement and monitoring of the world's forests: A review and summary of remote sensing technical capability, 2009-2015. Resources for the Future, Washington, D.C.
- GOFC-GOLD, 2009, Reducing greenhouse gas emissions from deforestation and degradation in developing countries: A sourcebook of methods and procedures for monitoring, measuring and reporting, GOFC-GOLD Report version COP-15, GOF-GOLD Project Office, Alberta, Canada.
- Walker, R., DeFries, R., del C. Vera-Diaz, M., Shimabukuro, Y., Venturieri, A., 2009. The expansion of intensive agriculture and ranching in Brazilian Amazonia, In *Amazonia and Global Change*. ed. M. Keller. American Geophysical Union, Geophysical Monograph Series, Washington DC.
- DeFries, R., S. Pagiola, H.R. Akcakaya, A. Arcenas, S. Babu, D. Balk, U. Confalonieri, W. Cramer, S. Fritz, R. Green, E. Gutierrez-Espeleta, R. Kane, J. Latham, E. Matthews, T. Ricketts, and T.X. Yue, 2005: Analytical Approaches for Assessing Ecosystem Condition and Human Well-Being. In: *Millennium Ecosystem Assessment Working Group on Conditions and Trends*, R. Schole and H. Rashid (eds.), Island Press, Washington, D.C.
- 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.
- DeFries, R., G.P. Asner, and R.A. Houghton, 2004: Trade-offs in land-use decisions: Towards a framework for assessing multiple ecosystem responses 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, 1-12.
- Mustard, J., DeFries, R., Fisher, T. and Moran, E.F., 2004. Land use and land cover change pathways and impacts. 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.
- Bonan, G.B., DeFries, R., Coe, M. and Ojima, D., 2004. Land use and climate. 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.
- 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.
- DeFries, R., Townshend, J. and Los, S., 1997, Scaling land cover heterogeneity for global atmosphere-biosphere models. In *Scale in Remote Sensing and GIS*, edited by D. A. Quattrochi and M. F. Goodchild (Boca Raton, FL: CRC/ Lewis Publishers Inc.). pp. 231-246.
- 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. (Distinguished Book Award, Columbia University Press)
- 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)**

Founder and director, Network for Conserving Central India, 2012-present  
Board of Trustees, Environmental Defense Fund, 2010-present  
Board of Trustees, U.S. World Wildlife Fund, 2016-2025  
Board Member, Science for Nature and People Program (SNAPP), The Nature Conservancy and Wildlife Conservation Society, 2015-present  
Member, National Geographic Society Committee for Research and Exploration, 2018-present  
IIASA Science Advisory Committee, 2017-2023  
Council member, National Academy of Sciences, 2019-2023  
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 (2020-2022)  
Advisory Board Member, Planetary Health Alliance, 2016-2019  
Member, Scientific Advisory Committee, Ashoka Trust for Research in Ecology and Environment, 2019-present  
Member, Science and Technology Advisory Committee, International Monetary Fund, 2017-2019  
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  
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:*

J. Schoen, “Carnivore Movement Ecology for Conservation Prioritization” (awarded 2025)  
M. Levin, “Walking on Sunshine: Aligning Wildlife Conservation and Solar Energy Development” (awarded 2025)  
S. Khanwilkar, “Social and Ecological Insights Across Landscape, Community, and Household Scales: Forest Health, Governance, and Livelihoods in Central India” (awarded 2023)  
P. Choksi, “Ecological Restoration in Rural Livelihoods in Central India” (awarded 2023)  
V. Ramesh, “Environmental Drivers of Bird Species Occupancy in a Tropical Montane Biodiversity Hotspot” (awarded 2023)  
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 Peatswamp Forest Loss in Indonesia: Linking Landscape Connectivity, Seed Dispersal, and Carbon Storage” (awarded 2016)
- M. Jain (co-advised with S. Naeem), “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:*

- R. Bakshi. “Evaluating Ecological Outcomes of Governance and Management in Forest and Non-Forest Commons in India” (advanced to candidacy)
- A. Vanamamaalai