**Jonah Busch, Ph.D.**

Chief Economist

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**EDUCATION**

2008 Ph.D., Economics and Environmental Science, University of California, Santa Barbara, CA

2004 M.A., Economics, University of California, Santa Barbara, CA

2000 B.A. with distinction, Mathematics, Geography, Environmental Studies; Minor in Economics, Indiana University, Bloomington, IN

**PROFESSIONAL EXPERIENCE**

2018-Present Chief Economist, Earth Innovation Institute, San Francisco, CA

2013-2018 Senior Fellow, Center for Global Development, Washington, DC

2005-2013 Climate and Forest Economist, Conservation International, Arlington, VA

2000-2002 High School Math Teacher, Peace Corps, Gourcy, Burkina Faso

2018 Lecturer (Adjunct Professor), Columbia University, New York, NY

2018 Economic Consultant, The Nature Conservancy, Washington, DC, San Francisco, CA

2016-Present Visiting Fellow, Center for Effective Global Action, University of California, Berkeley, CA

2016-Present Advisory Board, Carbon 180, Oakland, CA

2016-2017 Visiting Fellow, Zhejiang University, Hangzhou, China

2013-Present Editorial Board, *Conservation Letters*, Society for Conservation Biology

2012-2013 Technical Advisor, Forest Carbon Partnership Facility, World Bank, Washington, DC

2012 Adjunct Professor, Monterey Institute of International Studies, Monterey, CA

2009 Special Advisor to the President for Carbon and Climate Change, Office of the President, Georgetown, Guyana

2007, 2009, 2013 Technical Advisor, Global Environment Facility, Washington, DC

2003-2006 Economic Analyst, Environmental Defense Center, Santa Barbara, CA

**PUBLICATIONS**

2020 Dobson, A.P., Pimm, S., Hannah, L., Kaufman, L., Ahumada, J.A., Ando, A.W., Bernstein, A., Busch, J., Daszak, P., Engelmann, J., Kinnaird, M., Li, B., Loch-Temzelides, T., Lovejoy, T., Nowak, K., Roehrdanz, P., Vale, M.M. (2020). “Ecology and economics for pandemic prevention.” *Science,* 369(6502):379-381.

2020 Busch, J., Kapur, A., Mukherjee, A. “Did India’s ecological fiscal transfers incentivize state governments to increase their forestry budgets?” *Environmental Research Communications.* doi.org/10.1088/2515-7620/ab817c

2020 Yang, B., Qin, S., Xu, W., Busch, J., Yang, X., Gu, X., Yang, Z., Wang, B., Dai, Q., Xu, Y. “Gap Analysis of Giant Panda Conservation as an Example for Planning China's National Park System” *Current Biology*, 30:1-5.

2020 Griscom, B., Busch, J., Cook-Patton, S., Ellis, P., Funk, J., Leavitt, S., Lomax, G., Turner, W., Chapman, M., Engelmann, J., Gurwick, N., Landis, E., Lawrence, D., Malhi, Y., Schindler Murray, L., Navarrete, D., Roe, S., Scull, S., Smith, P., Streck, C., Walker, W., Worthington, T. “National mitigation potential from natural climate solutions in the tropics.” *Philosophical Transactions of the Royal Society B*, 375:20190126.

2020 Busch, J., Amarjargal, O. “Authority of second-tier governments to reduce deforestation in 30 tropical countries.” *Frontiers in Forests and Global Change,* 3:1*.* doi: 10.3389/ffgc.2020.00001.

2020 Bauhoff, S., Busch, J. (2020). Does deforestation increase malaria prevalence? Evidence from satellite data and health surveys. *World Development,* 127:104734.

2019 Busch, J., Engelmann, J., Cook-Patton, S., Griscom, B., Kroeger, T., Possingham, H., Shyamsundar, P. (2019). “Low-cost opportunities for carbon dioxide removal through tropical reforestation” *Nature Climate Change*, 9:463-466.

2019 Funk, J.M., Aguilar-Amuchastegui, N., Baldwin-Cantello, W., Busch, J., Chuvasov, E., Evans, T., Griffin, B., Harris, N., Napolitano Ferreira, M., Petersen, K., Phillips, O., Soares, M.G., van der Hoff, R.J.A.(2019). “Securing the climate benefits of stable forests.” *Climate Policy.* 7:845-860.

2018 Game, E.T., Tallis, H., Olander, L., Alexander, S.M., Busch, J., Cartwright, N., Kalies, E.L., Masuda, Y.J., Mupepele, A-C, Qiu, J., Rooney, A., Sills, E., Sutherland, W.J. 2018. “Cross-discipline evidence principles for sustainability policy.” *Nature Sustainability*, 1:452-454.

# 2018 Busch, J. 2018. “Monitoring and Evaluating the Payment-for-Performance Premise of REDD+: The Case of India’s Ecological Fiscal Transfers.” *Ecosystem Health and Sustainability.* 4(7):169-175.

2018 Busch, J. and Engelmann, J. 2018. “Cost Effectiveness of Reducing Emissions from Tropical Deforestation, 2016-2050.” *Environmental Research Letters.* 13(1):015001.

2017 Busch, J. and Mukherjee, A. 2017. “Encouraging State Governments to Protect and Restore Forest Using Ecological Fiscal Transfers: India’s Tax Revenue Distribution Reform.” *Conservation Letters.* 11(2):e12416.

2017 Alisjahbana, A. and Busch, J. 2017. “Survey of Recent Developments: Forestry, Fires, and Climate Change in Indonesia.” *Bulletin of Indonesian Economic Studies.* 53(2):111-136.

2017 Busch, J. and Ferretti-Gallon, K. 2017 “What drives deforestation and what stops it? A meta-analysis” *Review of Environmental Economics and Policy*, 11(1):3-23.

2016 Seymour, F. and Busch, J. 2016. *Why Forests? Why Now? The Science, Economics, and Politics of Tropical Forests and Climate Change.* Center for Global Development, Washington, DC, 429pp.

2015 Goetz, S.J., Hansen, M., Houghton, R.A., Walker, W., Laporte, N., Busch, J. 2015. “Measurement and monitoring needs, capabilities and potential for addressing reduced emissions from deforestation and forest degradation under REDD+” *Environmental Research Letters* 10:123001.

2015 Pelletier, J., Busch, J., Potvin, C. 2015. “Addressing uncertainty upstream or downstream of accounting for emissions reductions from deforestation and forest degradation” *Climatic Change*, 130(4):635-648.

2015 Busch, J., Ferretti-Gallon, K., Engelmann, J., Wright, T., Austin, K., Stolle, F., Turubanova, S., Potapov, P., Margono, B., Hansen, M., Baccini, A. 2015. “Reductions in emissions from deforestation from Indonesia’s moratorium on new oil palm, timber, and logging concessions” *Proceedings of the National Academy of Sciences of the United States of America.* 112(5):1328-1333.

2014 Yang, B., Busch., J., Zhang, L., Ran, J., Gu, X., Zhang, W., Du, B., Xu, Y., Mittermeier, R.A. 2014. “China’s collective forest tenure reform and the future of the giant panda.” *Conservation Letters*. 8(4):251-261.

2014 Andersen, L., Busch, J., Curran, C., Ledezma, J.C., Mayorga, J., Ruiz, P. 2014. “Environmental and socio-economic consequences of forest carbon payments in Bolivia: Results of the OSIRIS-Bolivia model.” *Latin American Journal of Economic Development* 22:7-48.

2013 Busch, J. 2013. “Supplementing REDD+ with biodiversity payments: The paradox of paying for multiple ecosystem services.” *Land Economics* 89(4):655-675.

2013 Busch, J. and Grantham, H. 2013. “Parks vs. payments: reconciling divergent strategies for addressing biodiversity loss and climate change from tropical deforestation.” *Environmental Research Letters* 8:034028*.*

2013 Yang, B., Busch, J., Zhang, L., Ran, J., Gu, X., Zhang, W., Du, B., Mittermeier, R. 2013. “Eco-compensation for giant panda habitat.”*Science* 339:521. (letter)

2013 Busch, J., Ahumada, J., de Koning, F., Harvey, C.A., Hewson, J., Hole, D., Honzak, M., Panfil, S.N., Pidgeon, E., Portela, R., Steininger, M., Tabor, K., Turner, W.R. 2013. “Research spotlight: Designing nature-based mitigation to promote multiple benefits.” *Carbon Management* 4(2):129-133.

2012 Busch, J., Lubowski, R., Godoy, F., Steininger, M., Yusuf, A., Austin, K., Hewson, J., Juhn, D., Farid, M. and Boltz, F. 2012. “Structuring economic incentives to reduce emissions from deforestation within Indonesia.” *Proceedings of the National Academy of Sciences of the United States of America* 109(4):1062-1067.

2012 Busch, J., Dave, R., Hannah, L., Cameron, A., Rasolohery, A., Roehrdanz, P. and Schatz., G. 2012. “Climate change and the cost of conserving species in Madagascar.” *Conservation Biology* 24(3):408-419.

2011 Busch, J., Godoy, F., Turner, W. and Harvey, C. 2011. “Biodiversity co-benefits of reducing emissions from deforestation under alternative reference levels and levels of finance.” *Conservation Letters* 4(2)101-115.

2010 Cattaneo, A., Lubowski, R., Busch, J., Creed, A., Strassburg, B., Boltz, F. and Ashton, R. 2010. “On international equity in reducing emissions from deforestation.” *Environmental Science and Policy* 13(8):742-753.

2009 Busch, J., Strassburg, B., Cattaneo, A., Lubowski, R., Bruner, A., Rice, R., Creed, A., Ashton, R. and Boltz, F. 2009. “Comparing climate and cost impacts of reference levels for reducing emissions from deforestation.” *Environmental Research Letters* 4:044006.

2009 Busch, J. 2009. “Surfer and beachgoer responsiveness to coastal water quality warnings.” *Coastal Management* 37:529-549.

2009 Busch, J. and Cullen, R. 2009. “Effectiveness and cost-effectiveness of yellow-eyed penguin recovery.” *Ecological Economics* 68(3):762-776.

2008 Busch, J. 2008. “Gains from configuration: The transboundary protected area as a conservation tool.” *Ecological Economics* 67(3):394-404.

2007 da Fonseca, G.A.B., Rodriguez, C.M., Midgley, G., Busch, J., Hannah, L. and Mittermeier, R.A. 2007. “No forest left behind.” *PLoS Biology* 5(8):1645-1646.

**LEADERSHIP, RECOGNITIONS, AND ADVENTURES**

2018 Featured scientist, “How Can I Help? Working in the Earth Sciences,” *Imagine*, Johns Hopkins Center for Talented Youth

2018 Lead-authored paper selected among “Highlights of 2017,” *Environmental Research Letters*

2016 Co-authored paper selected among “Highlights of 2015,” *Environmental Research Letters*

2010 “Head in the Sky” award, Conservation International Chairman’s Council

2010 Contestant, *Jeopardy!*

2009 Expert, Copenhagen Insider Blog, *National Journal*

2008 “Cool Scientist You Should Know,” Dive Into Your Imagination

2008 “Most Interesting Paper Published in Biological Sciences,” Faculty of 1000 Biology

2007 East Asia & Pacific Summer Institute, National Science Foundation

2004 Distinction, Ph.D. Preliminary Exam in Microeconomics, University of California, Santa Barbara

2003 IGERT Economics and Environmental Science Traineeship, National Science Foundation

2003 Chancellor’s Fellowship, University of California, Santa Barbara

2000 Marie S. Wilcox Scholarship for Outstanding Math Achievement, Indiana University

1999 Phi Beta Kappa

# 1999 Overseas Study, University of Wollongong, Wollongong, Australia

**LANGUAGES**

English Native

French Fluent

Mooré (West Africa) Formerly fluent

Spanish Conversational

Indonesian Conversational

Chinese (Mandarin) Advanced intermediate (HSK Level 4 passed 15 October 2017)