

CARL F SALK

International Institute for Applied Systems Analysis
Ecosystem Services and Management Program
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EDUCATION:

Duke University, Durham, NC

2011 Doctor of Philosophy in Biology, focus on forest ecology
Minor in Statistics

University of Illinois at Urbana-Champaign (UIUC)

1999 Bachelor of Science with Distinction in Plant Biology

1999 Bachelor of Science in Geology (Geophysics option)
Minor in Mathematics

OTHER TRAINING AND APPOINTMENTS:

2010- **International Institute for Applied Systems Analysis, Laxenburg, Austria**
Young Scientists Summer Program (2010); Visiting Scholar (2011-2013);
Postdoctoral Fellow (2014-)

2012-2013 **University of Colorado, Boulder, CO**
Postdoctoral researcher, Institute for Behavioral Science

Indiana University Workshop on Political Theory and Policy Analysis

2011 Visiting Scholar; International Forestry Resources and Institutions training

Organization for Tropical Studies (OTS), Costa Rica

2006 Graduate summer course on field identification of neotropical plants

1998 Undergraduate semester course in environmental science and policy in the tropics

PEER REVIEWED PUBLICATIONS:

- 19 Salk, CF, T Sturn, L See, S Fritz and C Perger (in review). Assessment of user quality in crowdsourced tasks: Lessons from the Cropland Capture game. *International Journal of Digital Earth*.
- 18 Torpey-Saboe, N, KP Andersson, E Mwngi, L Persha, C Salk and GD Wright (in review). Sharing of Benefits in Community Forestry: The Role of Locally-Enforced Property Rights. *World Development*
- 17 Salk, CF, S Fritz and L See (in review). Developing meaningful measures of map comparison: Can different land cover product's accuracies be directly compared? *Remote Sensing Letters*.
- 16 Schepaschenko, D, L See, M Lesiv, I McCallum, S Fritz, C Salk et al. (in press). Development of a Global global hybrid forest mask through the synergy of remote sensing and crowdsourcing. *Remote Sensing of Environment*
- 15 Marchin, RM, CF Salk, WA Hoffmann, RR Dunn (in press). Temperature alone does not explain phenological variation of diverse temperate plants under experimental warming. *Global Change Biology*

- 14 Clark, JS, CF Salk, JL Melillo and JM Mohan (2014). Tree phenology responses to winter chilling, spring warming, at north and south range limits. *Functional Ecology*, 28(6):1344-1355.
- 13 Salk, CF, U Frey and H Rusch (2014). Comparing managed forests across climates and biomes: Qualitative assessments, reference forests, and direct site inter-comparisons. *PLoS One*, 9(4): e94800.
- 12 Burge, DO and CF Salk (2014). Serpentine soils lower the elevational limits of California native plants. *Journal of Vegetation Science*, 25(3):873-884.
- 11 Clark, JS, JM Mohan, JL Melillo and CF Salk (2014). The timing of warming that controls onset of the growing season. *Global Change Biology*, 20: 1136-1145.
- 10 See, L, A Comber, C Salk, S Fritz, M van der Velde, C Perger, C Schill, I McCallum, F Kraxner and M Obersteiner (2013). Comparing the quality of crowdsourced data contributed by expert and non-experts. *PLoS One*, 8(7): e69958.
- 9 Salk, CF, RL Chazdon and KP Andersson (2013). Detecting landscape-level changes in tree biomass and biodiversity: Methodological constraints and challenges of plot-based approaches. *Canadian Journal of Forest Research*, 43(9): 799-808.
- 8 Salk, CF, M Jonas and G Marland (2013). Strict accounting with flexible implementation: the first order of business in the next climate treaty. *Carbon Management*, 4(3) 253-256.
- 7 Salk, CF (2012). Within-species leaf trait variation reveals ecological flexibility in resprouting tropical trees. *Journal of Tropical Ecology*, 28:527-530.
- 6 Bigelow, SM, MP North and CF Salk (2011). Using light to predict fuels-reduction and group-selection effects on succession in Sierran mixed-conifer forest. *Canadian Journal of Forest Research* 41:2051-2063.
- 5 Clark, J, D Bell, M Hersh, M Kwit, E Moran, C Salk, A Stine, D Valle and K Zhu (2011). Individual-scale variation, species-scale differences: inference needed to understand diversity. *Ecology Letters* 14:1273-1287.
- 4 Salk, CF and SM McMahon (2011). Ecological and environmental factors constrain sprouting ability in tropical trees. *Oecologia* 166:485-492.
- 3 Clark, J, et al. (2010). High-dimensional coexistence based on individual variation: a synthesis of evidence. *Ecological Monographs*, 80:569-608.
- 2 Powers, JS ... CF Salk et al. (2009). Decomposition in tropical forests: a pan-tropical study of the effects of litter type, placement and mesofaunal exclusion across a precipitation gradient. *Journal of Ecology*, 97:801-811.
- 1 Augspurger, CK, Cheeseman, JM and Salk, CF (2005). Light gains and physiological capacity of understory woody plants during phenological avoidance of canopy shade. *Functional Ecology* 19, 537-546.

TECHNICAL REPORTS:

- Salk, CF (2012). Changes in the onset of spring and uncertainty in 21st century terrestrial carbon sinks. Interim Report for the International Institute for Applied Systems Analysis.
- Bowles, F, S Butler and C Salk (2011). A Technical manual for the DOE-sponsored warming experiments at Harvard Forest and Duke Forest.
- Salk, CF (2010). Risks to forest-based carbon sequestration posed by dynamic global change. Policy brief for the Nicholas Institute for Environmental Policy Solutions.
- Salk, CF (2009). Environmental monitoring effectiveness at ADB. Report to the Asian Development Bank.

GRANTS AND AWARDS:

2013 International Institute of Applied Systems Analysis postdoctoral fellowship (€74,800 – 2 years)
2010 Peccei Award from International Institute for Applied Systems Analysis (€6,000)
2010 National Academy of Sciences funding to attend IIASA YSSP program (\$7,500)
2008 Duke MicroIncentives Research Center, co-awarded with Michael Cooper (\$9,600)
2007 Duke Biology Department grant-in-aid (\$1000)
2006 OTS Post-Course Grant (\$300)
2006 Tinker Latin American Field Research Grant (\$1525)
2006 NSF GRFP International Travel Grant (\$1000)
2005 Sigma Xi Grant in Aid of Research (\$300) and Duke University matching funds (\$400)
2005 NSF Graduate Research Fellowship (\$122,000 over three years)
2005 Tysor Endowed Fellowship, Duke University (\$17,000)
2005 James B. Duke Fellowship, Duke University (\$16,000 over four years)
1998 UIUC School of Life Sciences Enhancement Award for OTS course (\$1500)

PRESENTATIONS:

Salk, CF et al. (2014). Collecting, analyzing and assessing big land use data: Results from the cropland capture game. American Geophysical Union, San Francisco, California.
Salk, CF, T Sturn, S Fritz and L See (2014). Assessing metrics of user quality in a simple land cover validation task. GIScience, Vienna, Austria.
Salk, CF (2014). How to learn about land use from big data and crowdsourcing. Southern Swedish Forest Research Center, Swedish Agricultural University, Alnarp, Sweden.
Salk, CF (2012). Project introduction: Emergence of Adaptive Governance Arrangements for Tropical Forest Ecosystems. IIASA RPV Seminar.
Salk, CF (2011). The limits to growing season length: Tree phenology in the Duke Forest warming chambers. Department of Energy site review.
Salk, CF (2010). The consequences of uncertainty in temperate tree budburst forecasts. International Institute for Applied Systems Analysis. Laxenburg, Austria.
Salk, CF (2009). Environmental Monitoring Effectiveness at ADB. Asian Development Bank, Manila, Philippines.
Salk, CF (2008). Stump sprouting in tropical trees. Nicholas School of the Environment Graduate Afternoon Seminar, Duke University.
Salk, CF, Augspurger, CK and Clark, JS (2006). How will temperate trees' budbreak and leaf expansion dates advance with climate change? Invited speaker at the Ecological Society of America Annual meeting, Memphis, TN.

PROFESSIONAL EXPERIENCE:

Graduate Research Assistant, Duke University, Durham, NC, 2008-2011

Managed construction of a complex forest-based climate change experiment.

Environmental Project Evaluator, Asian Development Bank (ADB), Manila, Philippines, 2009

Researched the effectiveness of environmental monitoring at ADB.

Forest Monitoring Crew Leader, USDA Forest Service, Quincy, California, 2003-2005

Supervised a 3-person crew evaluating a politically-charged forest management project.

Research Operations Manager, Smithsonian Tropical Research Institute, Panama

Oversaw a Spanish-speaking workforce of 6 people in a forest ecology study. 2002-2003

Forest Ecologist and Wildland Firefighter, Yosemite National Park, California, 1999-2001

Assessed forest impacts of prescribed burns. Responded to firefighting emergencies.

OTHER INFORMATION:

Statistics: Expertise in data analysis and simulation modeling in R.

Languages: Native English speaker, fluent Spanish, basic French and German.

Botany: Knowledge of the forest flora of North America and the Western Hemisphere tropics.

Media: Broadcast appearances in North Carolina and the Philippines.

Reviewer: Agricultural and Forest Meteorology, Conservation Letters, Ecosphere, Global Change Biology, International Journal of Remote Sensing, Journal of Tropical Ecology, PLoS One, Restoration Ecology, Tropical Ecology.