

Curriculum Vitae

STEPHEN W. PACALA

Director, Princeton Environmental Institute

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EDUCATION

B.A. Biology, Dartmouth College, 1978

Ph.D. Biology, Stanford University, 1982

PROFESSIONAL EXPERIENCE

2006-2014 Director of Princeton Environmental Institute

2009- Chair of "Monitoring and Verification of Greenhouse Gas Emissions", NAS.

2000- Co-Director, The Carbon Mitigation Initiative, Princeton University

2009- Associated Faculty, Program in Latin American Studies

2005-2006 Acting Director of Princeton Environmental Institute

2002- Associated Faculty, Program in AOS

1995-2003 Co-Director, NOAA Carbon Modeling Center, Princeton University

1994- Associated Faculty, Princeton Environmental Institute, Princeton University

1993-2006 Director of Graduate Studies, Department of Ecology and Evolutionary Biology, Princeton University

1992- Professor, Department of Ecology and Evolutionary Biology, Princeton University

1987-1992 Associate Professor, Department of Ecology and Evolutionary Biology, The University of CT

1982-1987 Assistant Professor, Ecology Section, Biological Sciences Group, The University of CT

1979-1981 Teaching Assistant, Stanford University

1977-1978 Teaching Assistant, Dartmouth College

1975-1978 Research Assistant, Dartmouth College

VISITING POSITION

Visiting Professor, Division of Biology, Imperial College, London, UK, 2007

HONORS AND DISTINCTIONS

Awarded Honorary Membership of the British Ecological Society, 2014

Presidential Award of the American Society of Naturalists 2013

Ecological Society of America Best Theory Paper 2012

Appointed Lifetime Fellow of the Ecological Society of America, 2012

Robert H. MacArthur Award of the Ecological Society of America, 2010

Elected to the National Academy of Sciences, 2007

Visiting Professor, Division of Biology, Imperial College, London, 2007

Elected Fellow, American Association for the Advancement of Science, 2005

Elected Member, American Academy of Arts and Sciences, 2003

Witherspoon Distinguished Lecturer, Lawrence Berkeley National Laboratory, 2002

Frederick D. Petrie Professor of Ecology and Evolutionary Biology, 2000

Tansley Lecturer, British Ecological Society, UK, 1999

George Mercer Award of the Ecological Society of America, 1997

David Starr Jordan Prize, 1995

Fellowship from The Seaver Institute, 1993-1996

"Integrated Biological, Physical and Chemical Control of the Global Climate."

NIH Predoctoral Training Fellowship, 1980-1982

PROFESSIONAL SOCIETIES AND ORGANIZATIONS

National Academy of Sciences
American Association for the Advancement of Science
American Academy of Arts and Sciences
The Ecological Society of America
American Association for the Advancement of Scientists
American Society of Naturalists

FIELDS OF SPECIALIZATION

Plant Ecology
Global Interactions of the Biosphere, Atmosphere and Hydrosphere
Mathematical Modeling
Community Ecology

BOARDS

Chairman of The Board of Directors, Climate Central (2008 -)
Member, Board of Trustees of Environmental Defense (2006 -)
Member, Global Climate & Energy Program (GCEP) Advisory Board (2008 -)
Member, The Microsoft Research Cambridge Scientific Advisory Board (2007 -)
Member, Board of Advisors, Trident Capital's Clean Tech/Sustainability Initiative (2008 -)
DOE, NSF, NOAA, and NASA Panels
Chair, Environmental Defense Fund Science Advisory Board
Member, BP ESC Advisory Board (2010 -)
Member, Siebel Scholars Advisory Board
Member, Academic Advisory Board to Intelligence Community, MEDEA (2010 -)
Member, Board on Atmospheric Sciences and Climate (BASC), National Academy of Sciences (2012 -)

PUBLICATIONS

2014

- Chen AP, JW Lichstein, JLD Osnas, **S.W. Pacala**. 2014. Species-independent down-regulation of leaf photosynthesis and respiration in response to shading: evidence from six temperate forest tree species. *PLoS ONE* 9 (4), e91798.
- Dybzinski, R, C.E. Farrior, and **S.W. Pacala**. 2014. Increased forest carbon storage with increased atmospheric CO₂ despite nitrogen limitation: A game-theoretic allocation model for trees in competition for nitrogen and light. *Global Change Biology*. doi: 10.1111/gcb.12783.
- Lichstein, J.W., N. Golaz, S. Malyshev, E. Shevliakova, T. Zhang, J. Sheffield, R. A. Birdsey, J.L. Sarmiento, and **S.W. Pacala**. 2014. Confronting terrestrial biosphere models with forest inventory data. *Ecological Applications* 24(4):699-715.
- Ogle, K., S. Pathikonda, K. Sartor, J.W. Lichstein, J. Osnas, and **S.W. Pacala**. 2014. A model-based meta-analysis for estimating species specific wood density and identifying potential sources of variation. *Journal of Ecology*. doi: 10.1111/1365-2745.12178.
- Sulman, B. N., Phillips, R. P., Oishi, A. C., Shevliakova, E., & **Pacala, S. W.** 2014. Microbe-driven turnover offsets mineral-mediated storage of soil carbon under elevated CO₂. *Nature Climate Change*, 4, 1099–1102. doi:10.1038/nclimate2436
- Violle C, Reich PB, **Pacala S.W.**, Enquist BJ, Kattge J. The emergence and promise of functional biogeography. 2014. *Proceedings of the National Academy of Sciences*. 111(38):13690-13696. doi: 10.1073/pnas.1415442111.
- Weng, E., S. Malyshev, J. W. Lichstein, C.E. Farrior, R. Dybzinski, T. Zhang, E. Shevliakova, **S.W. Pacala**, 2014. Scaling from individuals to ecosystems in an Earth System Model using a mathematically tractable model of height-structured competition for light. *Biogeosciences Discussion*. 11, doi: 10.5194/bgd-11-1-2014.

2013

- Farrior, C.E., D. Tilman, R. Dybzinski, P.B. Reich, S.A. Levin, and **S.W. Pacala**. 2013. Resource limitation in a competitive context determines complex plant responses to experimental resource additions. *Ecology*. 94(11):2505-2517.
- Gerber, S., L.O. Hedin, S.G. Keel **S.W. Pacala** and E. Shevliakova. 2013. Land-use change and nitrogen feedbacks constrain the trajectory of the land carbon sink. *Geophysical Research Letters*. doi: 10.1002/grl.50957
- Osnas, J.L.D., J.W. Lichstein, P.B. Reich and **S.W. Pacala**. 2013. Global leaf trait relationships: mass, area, and the leaf economics Spetrum. *Science*, 340(6133):741-744, doi: 10.1126/science.1231574.
- Farrior, C.E., R Dybzinski, S.A. Levin, and **S.W. Pacala**. 2013. Competition for water and light in closed-canopy forests: a tractable model of carbon allocation with implications for carbon sinks. *The American Naturalist* 181(3): 314-330.
- Dybzinski, R., C.E. Farrior, S. Ollinger, and **S.W. Pacala**. 2013. Interspecific vs intraspecific patterns in leaf nitrogen of forest trees across nitrogen availability gradients. *New Phytologist*. 200: 112–121. doi: 10.1111/nph.12353
- Shevliakova E., R.J. Stouffer, S. Malyshev, J.P. Krasting, G.C. Hurtt and **S.W. Pacala**. 2013. Historical warming reduced due to enhanced land carbon uptake. *Proceedings of the National Academy of Sciences*.
- Wang, S., A. Chen, J. Fang, and **S.W. Pacala**. 2013. Why abundant tropical tree species are phylogenetically old. *Proceedings of the National Academy of Sciences*. doi:10.1073/pnas.1314992110
- Wang, S., A. Chen, J. Fang, and **S.W. Pacala**. 2013. Specification rates decline through time in individual-based models of specification and extinction. *The American Naturalist*. 182 (3): E83-E93. doi: 10.1086/671184

2012

- Chen, A., S. Wang, **S. W. Pacala**. 2012. Comment on "Global correlations in tropical tree species richness and abundance reject neutrality". *Science*. 336:1639. doi: 10.1126/science.1222534.
- B. I. Magi, S. Rabin, E. Shevliakova, and **S.W. Pacala**. 2012. Separating agricultural and non-agricultural fire seasonality at regional scales. *Biogeosciences*. doi: 10.5194/bg-9-3003-2012.
- Menge, DNL, L.O. Hedin, and **S.W. Pacala**. 2012. Nitrogen and phosphorus limitation over long-term ecosystem development in terrestrial ecosystems. *PLOS One*. 7(8): e42045. doi: 10.1371/journal.pone.0042045.
- Alvarez, R., **S.W. Pacala**, J. J. Winebrake, W. L. Chameides and S. P. Hamburg. 2012. Greater focus needed on methane leakage from natural gas infrastructure. *Proceedings of the National Academy of Sciences*. 109(17):6435-40. doi 10.1073/pnas.1202407109.
- Bohlman, S. A. and **S.W. Pacala**. 2012. A forest structure model that determines crown layers and partitions growth and mortality rates for landscape-scale applications of tropical forests. *Journal of Ecology*, doi: 10.1111/j.1365-2745.2011.01935.x.

2011

- Chisholm R. A. and **S. W. Pacala**. 2011. Theory predicts a rapid transition from niche-structured to neutral biodiversity patterns across a speciation-rate gradient. *Theoretical Ecology*, 4:195-200
doi: 10.1007/s12080-011-0113-5.
- Chisholm, R. A. and **S. W. Pacala**. 2011. Independent species in independent niches behave neutrally: a response. *Oikos* 120:964-965, doi: 10.1111/j.1600-0706.2011.19880.x.
- Dybzinski, R., C. Farrior, A. Wolf, P. Reich, **S.W. Pacala**. 2011. Evolutionary stable strategy carbon allocation to foliage, wood, and fine roots in trees competing for light and nitrogen: an analytically-tractable, individual-based model and quantitative comparisons to data. *American Naturalist*, 177(2):153-166.
- Lichstein, J.W. and **S.W. Pacala**. 2011. Local diversity in heterogeneous landscapes: quantitative assessment with a height-structured forest metacommunity model. *Theoretical Ecology*, 4:269-281,
doi: 10.1007/s12080-011-0121-5.

Pan, Y., R. Birdsey, J. Fang, R. Houghton, P. Kauppi, W. Kurz, O. Phillips, A. Shvidenko, S. Lewis, J. Canadell, P. Ciais, R. Jackson, **S. W. Pacala**, A.D. McGuire, S. Piao, A. Rautianinen, S. Sitch, D. Hayes. 2011. A Large and Persistent Carbon Sink in the World's Forests. *Science*, 333:988, doi:10.1126/science.1201609.

2010

Chisholm R. A. and **S.W. Pacala**. 2010. Niche and neutral models predict asymptotically equivalent species abundance distributions in high-diversity ecological communities. *Proceedings of the National Academy of Sciences*, 107(36):15821-15825

Pacala, S.W., C. Breidenich, P.G. Brewer, I. Fung, M.R. Gunson, G. Heddle, B. Law, G. Marland, K. Paustian, M. Prather, J.T. Randerson, P. Tans, S. Wofsy. 2010. Verifying Greenhouse Gas Emissions: Methods to Support International Climate Agreements. *The National Academy of Sciences*. p. 1-110.

Lichstein, J.W., J. Dushoff, K. Ogle, A. Chen, D.W. Purves, J.P. Caspersen and **S.W. Pacala**. 2010. Unlocking the forest inventory data: relating individual-tree performance to unmeasured environmental factors. *Ecological Applications* 20(3):684-699.

Gerber, S., L.O. Hedin, M. Oppenheimer, **S.W. Pacala**, and E. Shevliakova. 2010. Nitrogen cycling and feedbacks in a global dynamic land model. *Global Biogeochemical Cycles*. 24, GB1001, doi:10.1029/2008GB003336.

2009

Sarmiento, J. L., M. Gloor, N. Gruber, C. Beaulieu, A. R. Jacobson, S. M. Fletcher, **S.W. Pacala**, and K. Rodgers. 2009. Trends and regional distributions of land and ocean carbon sinks. *Biogeosciences Discuss*, 6:10583-10624, doi:10.5194/bgd-6-10583-2009

Ogle, K. and **S.W. Pacala**. 2009. A modeling framework for inferring tree growth and allocation from physiological, starvation, and allometric traits. *Tree Physiology* 29, 587-605 doi:10.1093/treephys/tpn051

Tilman, D., R. Socolow, J.A. Foley, J. Hill, E. Larson, L. Lynd, **S.W. Pacala**, J. Reilly, T. Searchinger, C. Somerville, R. Williams. 2009. Beneficial Biofuels – The Food, Energy, and Environment Trilemma. *Science* V325. Pp. 270-271.

Lichstein, J.W., C. Wirth, H.S. Horn, and **S.W. Pacala**. 2009. Biomass chronosequences of United States forests: implications for carbon storage and forest management. *In: Old-growth forests: function, fate and value*, 207, 4, 301-341

Chakravarty, S., A. Chikkatur, H. de Coninck, **S.W. Pacala**, R. Socolow, M. Tavoni. 2009. Reply to Grubler and Pachauri: Developing national obligations from individual emissions. *Proceedings of the National Academy of Sciences*, vol. 106 no.43 <http://www.pnas.org/content/106/43/E124.extract>

Chakravarty, S., A. Chikkatur, H. de Coninck, **S.W. Pacala**, R. Socolow, M. Tavoni. 2009. Sharing global CO₂ emission reductions among one billion high emitters, *Proceedings of the National Academy of Sciences*, vol. 106 no. 29 11884-11888

Shevliakova, E., **S. W. Pacala**, S. Malyshev, G. C. Hurtt, P. C. D. Milly, J. P. Caspersen, L. T. Sentman, J. P. Fisk, C. Wirth, and C. Crevoisier 2009. Carbon cycling under 300 years of land use change: Importance of the secondary vegetation sink, *Global Biogeochem. Cycles*, 23, GB2022, doi:10.1029/2007GB003176

Tol, R.S.J., **S.W. Pacala** and R.H. Socolow. 2009. Understanding Long-Term Energy Use and Carbon Dioxide Emissions in the USA. *Special Issue: An Economic Model-Based Analysis of Climate and Energy Policy*. Guest Editor: ZhongXiang Zhang. *Journal of Policy Modeling* 31, pp 425-445.

Smith, D., A.C. Schuerger, M.M. Davidson, **S.W. Pacala**, C. Bakermans and T.C. Onstott. 2009. Survivability of *Psychrobacter cryohalolentis* K5 under Simulated Martian Surface Conditions. *Astrobiology* V9 no.2, pp 221-228.

2008

Menge, D.N.L., **S.W. Pacala** and L. O. Hedin. 2008. Emergence and maintenance of nutrient limitation over multiple time scales in terrestrial ecosystems. *American Naturalist* V173, No. 2, pp. 164-175.

- Purves, D.W., J.W. Lichstein, N. Strigul, **S.W. Pacala**. 2008. Predicting and understanding forest dynamics using a simple tractable model. *Proceedings of the National Academy of Sciences*, V105 no. 44, pp 17018-17022
- Strigul, N., D. Pristinski, D.W. Purves, J. Dushoff, **S.W. Pacala**. 2008. Scaling from trees to forests: tractable macroscopic equations for forest dynamics. *Ecological Monographs*, 78(4), 2008, pp.523-545
- Purves, D. and **S.W. Pacala**. 2008. Predictive Models of Forest Dynamics. *Science* 320, 1452-1453.
- 2007**
- Crevoisier, C., E. Shevliakova, M. Gloor, C. Wirth, and **S.W. Pacala**. 2007. Drivers of fire in the boreal forests: Data constrained design of a prognostic model of burned area for use in dynamic global vegetation models, *J. Geophys. Res.*, 112, D24112, doi:10.1029/2006JD008372
- Adams, T.A., D.W. Purves, **S.W. Pacala**. 2007. Understanding height-structured competition in forests: is there an R* for light? *Proceedings of the Royal Society, Series B*. 274, 3039-3047
doi:10.1098/rspb.2007.0891
- Lichstein, J.W., J. Dushoff, S.A. Levin, and **S.W. Pacala**. 2007. Intraspecific variation and species coexistence. *American Naturalist* 170(6):807-818.
- Purves, D.W., J.W. Lichstein, **S.W. Pacala**. 2007. Crown Plasticity and Competition for Canopy Space: A New Spatially Implicit Model Parameterized for 250 North American Tree Species.
<http://www.plosone.org/article/lookup?articleURI=info:doi/10.1371/journal.pone.0000870>
- Pacala, S.W.**, Coordinating Lead Author. And: R. Birdsey, S. Bridgman, J. Caspersen, R. Conant, K. Davis, B. Hales, R. Houghton, J. Jenkins, M. Johnson, G. Marland, K. Paustian, R. Socolow, R. Tol. and S. Wofsy. 2007. The North American Carbon Budget Past and Present. **In:** *The First State of the Carbon Cycle Report (SOCCR): The North American Carbon Budget and Implications for the Global Carbon Cycle*. Departments of Energy and Commerce and NASA.
- 2006**
- Hurttt, G.C., S. Frolking, M.G. Fearon, B. Moore, E. Shevliakova, S. Malyshev, **S.W. Pacala** and R.A. Houghton. 2006. The underpinnings of land-use history: three centuries of global gridded land-use transitions, wood-harvest activity, and resulting secondary lands. *Global Change Biology* 12, 1208-1299.
- Moorcroft, P.R., **S.W. Pacala**, M.A. Lewis. 2006. Potential role of natural enemies during tree range expansions following climate change. *Journal of Theoretical Biology* 241: 601-616.
- Socolow, R.H. and **S.W. Pacala**. 2006. A Plan to Keep Carbon in Check. *Scientific American*. Pgs 50-57.
- 2005**
- Livnat, A., **S. W. Pacala**, S.A. Levin. 2005. The Evolution of Intergenerational Discounting in Offspring Quality. *American Naturalist* Vol. 165, No. 3
- Purves D.W. and **S.W. Pacala**. 2005. Ecological drift in niche-structured communities: neutral pattern does not imply neutral process. Pages 108 - 138 in *Biotic Interactions in the Tropics* (eds. D. Burslem, M. Pinard, S. Hartley). Cambridge University Press.
- Sandin, S.A. and **S.W. Pacala**. 2005. Demographic theory of coral reef fish populations with stochastic recruitment: comparing sources of population regulation. *American Naturalist* 165: 107-119
- Sandin, S.A., **S.W. Pacala**. 2005. "Fish aggregation results in inversely density dependent predation on continuous coral reefs," *Ecology* 86(6), pp. 1520-1530
- 2004**
- Pacala, S.W.** and R.H. Socolow. 2004. Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies. *Science* Vol: 305 (5686), pp. 968-972
- Socolow, R., R. Hotinski, J. B. Greenblatt and **S.W. Pacala**. 2004. Solving the Climate Problem: Technologies Available to Curb CO₂ Emissions. *Environment* Vol. 46 (10) pp 8-19.
- Socolow, R.H., **S.W. Pacala**, J. Greenblatt. 2004. Wedges: Early Mitigation with Familiar Technology. *Proceedings of the 7th International Conference on Greenhouse Gas Control Technologies*, (GHGT-7), Vancouver, BC, Canada.

- Baidya Roy, S., **S.W. Pacala** and R.L. Walko. 2004. Can large wind farms affect local meteorology? *Journal of Geophysical Research*, Vol. 109, D19191, doi:10.1029/2004JD004763
- Keith, David W., J. F. DeCarolis, D. C. Denkenberger, D.H. Lenschow, S. L. Malyshev, **S. W. Pacala**, and P. J. Rasch. 2004. The Influence of Large-scale Wind-power on Global Climate. *Proceedings of the National Academy of Sciences* Vol. 100 (46) 16115-16120
- Sandin, S.A. and **S.W. Pacala**. 2004. Regulation in populations of coral reef fish: an exploration of models and data. *Proceedings of the Ninth International Coral Reef Symposium, Bali*. 1:455-462, Bali, Indonesia
- Purves D. W., J.P. Caspersen, P.R. Moorcroft, G.C. Hurtt, **S.W. Pacala**. 2004. Human-induced Changes in U.S. Biogenic Volatile Organic Compound Emissions: evidence from long-term forest inventory data. *Global Change Biology* V10, 1-19.
- Hurtt, G.C., R. Dubayah, J. Drake, P. Moorcroft, **S.W. Pacala**, and M. Fearon. 2004. Beyond Potential Vegetation: Combining Lidar Remote Sensing and a Height Structured Ecosystem Model for Improved Estimates of Carbon Stocks and Fluxes. *Ecological Applications*. 14(3), pp 873-883

2003

- Baidya Roy, S., G. C. Hurtt, C. P. Weaver, and **S. W. Pacala**, 2003. Impact of historical land cover change on the July climate of the United States, *J. Geophys. Res.*, 108(D24), 4793, doi:10.1029/2003JD003565.
- Kinzig A.P., D. Starrett, K. Arrow, S. Aniyar, B. Bolin, P. Dasgupta, P. Ehrlich, C. Folke, M. Hanemann, G. Heal, M. Hoel, A.M. Janesson, B.O. Janesson, N. Kautsky, S. Levin, J. Lubchenco, K.G. Maler, **S.W. Pacala**, S.H. Schneider, D. Siniscalco, and B. Walker. 2003. Coping with Uncertainty: A Call for a New Science-Policy Forum. Royal Swedish Academy of Sciences. *Ambio* Vol. 32 (5), Pp. 330-335.
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- Pacala, S. W.**, E. Bulte, J. A. List and S. A. Levin. 2003. False Alarm over Environmental False Alarms. *Science* Vol. 301: 1187-1188.
- Bolker, B.M., **S.W. Pacala**, and C. Neuhauser. 2003. Spatial dynamics in model plant communities: what do we really know? *American Naturalist* Vol. 162:2
- Levin, S.A. and **S.W. Pacala**. 2003. Ecosystem Dynamics. In: (K.-G. Mäler and J. Vincent, eds) *Handbook of Environmental Economics*. Elsevier/North Holland, Amsterdam. Vol. 1: 61-95.

2002

- Pacala, S.W.** and G.D. Tilman. 2002. The Transition from Sampling to Complementarity. Pp. 151-166. In: A.P Kinzig, S.W. Pacala and G.D. Tilman (eds.). *The Functional Consequences of Biodiversity: Experimental Progress and Theoretical Extensions*. Princeton University Press, Princeton, NJ.
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- Chesson, P., **S.W. Pacala** and C. Neuhauser. 2002. Environmental Niches and Ecosystem Functioning. Pp. 213-245. In: A.P Kinzig, S.W. Pacala and G.D. Tilman (eds.). *The Functional Consequences of Biodiversity: Experimental Progress and Theoretical Extensions*. Princeton University Press, Princeton, NJ.
- Hixon, M.A., **S.W. Pacala**, and S.A. Sandin. 2002. Population regulation: historical context and contemporary challenges of open vs. closed systems. *Ecology* 83(6): 1490-1508.
- Hurtt, G.C., **S.W. Pacala**, P.R. Moorcroft, J. Caspersen, E. Shevliakova, R.A. Houghton and B. Moore III. 2002. Projecting the Future of the U.S. Carbon Sink. *Proceedings of the National Academy of Sciences*. 99 (3), 1389-1394.
- Kinzig, A.P. **S.W. Pacala** and G.D. Tilman (Eds.) 2002. *The Functional Consequences of Biodiversity: Experimental Progress and Theoretical Extensions*. Princeton University Press, Princeton, NJ.

Kinzig, A.P. and **S.W. Pacala**. 2002. Successional Biodiversity and Ecosystem Functioning. Pp. 175-212. In: A.P Kinzig, S.W. Pacala and G.D. Tilman (eds.). **In: The Functional Consequences of Biodiversity: Experimental Progress and Theoretical Extensions**. Princeton University Press, Princeton, NJ.

Kinzig, A.P., **S.W. Pacala** and G.D. Tilman. 2002. Looking Back, Peering Forward. Pp. 314-329. In: A.P Kinzig, S.W. Pacala and G.D. Tilman (eds.). **In: The Functional Consequences of Biodiversity: Experimental Progress and Theoretical Extensions**. Princeton University Press, Princeton, NJ.

2001

Pacala S.W., Hurtt G.C., Moorcroft P.R., Caspersen J.P. 2001. Carbon storage in the US caused by land use change. Pp. 145-172. **In: The Present and Future of Modeling Global Environmental Change**. Terra Scientific Publishing. Tokyo, Japan.

Pacala, S.W., G.C. Hurtt, R.A. Houghton, R.A. Birdsey, L. Heath, E.T. Sundquist, R.F. Stallard, D. Baker, P. Peylin, P. Moorcroft, J. Caspersen, E. Shevliakova, M.E. Harmon, S.-M. Fan, J.L. Sarmiento, C. Goodale, C.B. Field, M. Gloor and D. Schimel. 2001. *Consistent Land- and Atmosphere-Based U.S. Carbon Sink Estimates*. *Science* 292 (5525): 2316-2320. (Designated as top-ten paper of 2001 by *Science*.)

Caspersen, J.P. and **S.W. Pacala**. 2001. Successional diversity and forest ecosystem function. *Ecological Research* 16, 895-903.

Moorcroft, P.R., G.C. Hurtt and **S.W. Pacala**. 2001. A Method for Scaling Vegetation Dynamics: the Ecosystem Demography Model (ED). *Ecological Monographs*, 71(4), 557-586

Schimel, D.S., J.I. House, K.A. Hibbard, P. Bousquet, P. Ciais, P. Peylin, B.H. Braswell, M.J. Apps, D. Baker, A. Bondeau, J. Canadell, G. Churkina, W. Cramer, A.S. Denning, C.B. Field, P. Friedlingstein, C. Goodale, M. Heimann, R.A. Houghton, J.M. Melillo, B. Moore III, D. Murdiyarso, I. Noble, **S.W. Pacala**, I.C. Prentice, M.R. Raupach, P.J. Rayner, R.J. Scholes, W.L. Steffen, C. Wirth. 2001. Recent patterns and mechanisms of carbon exchange by terrestrial ecosystems. *Nature* 414, 169 – 172.

Wilson, H.B., M.J. Keeling and **S.W. Pacala**. 2001. Deterministic limits to stochastic, spatial models of natural enemies. *American Naturalist*. 159, 57-80.

Rees, M., R. Condit, M. Crawley, **S.W. Pacala** and D. Tilman. 2001. Vegetation Dynamics (9315). *Science* 293 (5530): 650-655.

2000

Lewis, M.A. and **S.W. Pacala**. 2000. Modeling and analysis of stochastic invasion processes. *Journal of Mathematical Biology* 41: 387-429.

Keeling, M.J., H.B. Wilson and **S.W. Pacala**. 2000. Re-interpreting Space, Time-lags, and Functional Responses to Ecological Models. *Science*. 290:1758-1761.

Caspersen, J.P., **S.W. Pacala**, J.C. Jenkins, G.C. Hurtt, P.R. Moorcroft, and R.A. Birdsey. 2000. Contributions of land-use history to carbon accumulation in US forests. *Science* 290: 1148-1151.

Gloor, M., S.-M. Fan, **S.W. Pacala**, and J.L. Sarmiento. 2000. Optimal sampling of the atmosphere for purpose of inverse modelling - a model study. *Global Biogeochem. Cycles* 14(1): 407-428.

Bolker, B.M., **S.W. Pacala**, S.A. Levin. 2000. Moment methods for stochastic processes in continuous space and time. Pp. 388-411. **In: U. Dieckmann, R. Law and J. Metz (eds.) The geometry of Ecological Interactions: Simplifying Spatial Complexity**. Cambridge University Press, Cambridge.

Gloor, M., S.-M. Fan, **S.W. Pacala**, J.L. Sarmiento, and M. Ramonet. 2000. A model-based evaluation of 3-D GCM inversions, using annual mean mixing ratios, as a tool to monitor CO₂ surface fluxes *J. Geophys. Res-Atmos* 104(D12): 14245-14260.

1999 - 1979

Neuhauser, C. and **S.W. Pacala**. 1999. An Explicitly Spatial Version of the Lotka-Volterra Model with Interspecific Competition. *Annals of Applied Probability*. 9(4): 1226-1259.

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