Curriculum Vitae

STEPHEN W. PACALA

Frederick D. Petrie Professor of Biology
Princeton University, Department of Ecology and Evolutionary Biology
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EDUCATION

PH.D. Biology, Stanford University, 1982
B.A. Biology, Dartmouth College, 1978

PROFESSIONAL APPOINTMENTS

2019- Director of Carbon Mitigation Initiative, Princeton University
2006-2014 Director of Princeton Environmental Institute, Princeton University
2009-2010 Chair of "Monitoring and Verification of Greenhouse Gas Emissions," NAS
2005-2006 Acting Director of Princeton Environmental Institute
2002- Associated Faculty, Program in Atmospheric and Oceanic Sciences, Princeton University
2000-2019 Co-Director, Carbon Mitigation Initiative, Princeton University
1995-2003 Co-Director, NOAA Carbon Modeling Center, Princeton University
1994- Associated Faculty, High Meadows 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, University of Connecticut
1982-1987 Assistant Professor, Ecology Section, Biological Sciences Group, University of Connecticut
1979-1981 Teaching Assistant, Stanford University
1977-1978 Teaching Assistant, Dartmouth College
1975-1978 Research Assistant, Dartmouth College

VISITING POSITION

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

HONORS AND DISTINCTIONS

2020 Weldon Memorial Prize, Oxford University
2018 Received Honorary Doctorate from Radboud University, Netherlands
2014 Awarded Honorary Membership of the British Ecological Society
2013 Presidential Award of the American Society of Naturalists
2012 Ecological Society of America Best Theory Paper
2012 Appointed Lifetime Fellow of the Ecological Society of America
2010 Robert H. MacArthur Award of the Ecological Society of America
2007 Elected to the National Academy of Sciences
2005 Elected Fellow, American Association for the Advancement of Science
2003 Elected Member, American Academy of Arts and Sciences
2002 Witherspoon Distinguished Lecturer, Lawrence Berkeley National Laboratory
2000 Frederick D. Petrie Professor of Ecology and Evolutionary Biology
1999 Tansley Lecturer, British Ecological Society, UK
1997 George Mercer Award of the Ecological Society of America
1995 David Starr Jordan Prize
1993-1996 Fellowship from the Seaver Institute, 1993-1996
1980-1982 NIH Predoctoral Training Fellowship

PROFESSIONAL SOCIETIES AND ORGANIZATIONS

National Academy of Sciences (NAS)
American Association for the Advancement of Science
American Academy of Arts and Sciences
The Ecological Society of America
American Society of Naturalists
Sigma Xi

FIELDS OF SPECIALIZATION

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

BOARDS, COMMITTEES AND COUNCILS

Member, President Biden's Council of Advisors on Science and Technology (PCAST) (2021-current)
Chair of National Academies of Sciences, Engineering and Medicine (NASEM) Committee: Accelerating Decarbonization of the U.S. Energy System (2020-current)
Member, Board of Directors, Hamilton Insurance Group (2013-)
Chairman of The Board of Directors, Climate Central (2008-)
Member, Board of Trustees, Environmental Defense Fund (2006-)
Co-Chair, Environmental Defense Fund Science Committee (2005-)
Chair of NAS Committee: Developing a Research Agenda for Carbon Dioxide Removal and Reliable Sequestration (2017-2018)
Member, Advisory Council, Stanford University's Precourt Institute for Energy (2010-2017)
Member, Board on Atmospheric Sciences and Climate (BASC), NAS (2012 - 2016)
Member, Academic Advisory Board to Intelligence Community, MEDEA (2010-2014)
Member, Advisory Board, Global Climate & Energy Program (GCEP) (2008 -2014)
Member, BP ESC Advisory Board (2010-2012)
Member, The Microsoft Research Cambridge Scientific Advisory Board (2007-2011)

PUBLICATIONS

2022

Allen, M.R., … **S.W. Pacala**, R. Pierrehumbert, J. Rogelj, C.F. Schleussner, D. Shindell, R.B. Skeie, S.M. Smith, K. Tanaka (2022). Indicate separate contributions of long-lived and short-lived greenhouse gases in emission targets. *npj Climate and Atmospheric Sciences 5*(5), doi: 10.1038/s41612-021-00226-2.

Detto, M. & **S.W. Pacala** (2022). Plant hydraulics, stomatal control and the response of a seasonal tropical forest to water stress over multiple temporal scales. *Global Change Biology,* doi: 10.1111/gcb.16179.

Kleinhesselink, A.R., N.J.B. Kraft, **S.W. Pacala**, & J.M. Levine (2022). Detecting and interpreting higher order interactions in ecological communities. *Ecology Letters*. In press.

Levine, J. I., J.M. Levine, T. Gibbs, & **S.W. Pacala** (2022). Competition for water and species coexistence in phenologically structured annual plant communities. *Ecology Letters* 25(5): 1110-1125*,* doi: 10.1111/ele.13990.

Weng, E.,… **S.W. Pacala**, & B.I. Cook. Modeling demographic-driven vegetation dynamics and ecosystem biogeochemical cycling in NASA GISS's Earth system model (ModelE-BiomeE v.1.0), Geosci. Model Dev. Discuss. [preprint], https://doi.org/10.5194/gmd-2022-72, in review, 2022.

2021

Cabal, C., R. Martinez-Garcia, A. de Castro, F. Valladares, & **S.W. Pacala** (2021). Future paths for the 'exploitative segregation of plant roots' model. *Plant Signaling and Behavior 16*(5)*,*189175, doi: 10.1080/15592324.2021.1891755.

Detto, M., J. Levine, & **S.W. Pacala** (2021). Maintenance of high diversity in mechanistic forest dynamics models of competition for light. *Ecological Monographs*, doi: 10.1002/ecm.1500.

Jenkins, J., E.D. Larson, C. Greig, E. Mayfield, & **S.W. Pacala** (2021). Mission net-zero America: the nation-building path to a prosperous, net-zero emissions economy. *Joule 5,* 2755-2761*,* doi: 10.1016/j.joule.2021.10.016.

Kou-Giesbrecht, S., S. Malyshev, I. Martinez Cano, **S.W. Pacala**, E. Shevliakova, T.A. Bytenerowicz, & D. Menge (2021). A novel representation of biological nitrogen fixation and competitive dynamics between nitrogen-fixing and non-fixing plants in a land model (GFDL LM4.1-BNF). *Biogeosciences 18*(13), 4143–4183, doi:10.5194/bg-18-4143-2021.

Larson, E., C. Greig, J. Jenkins, E. Mayfield, A. Pascale, C. Zhang, J. Drossman, R. Williams, S. Pacala, R. Socolow, E.J. Baik, R. Birdsey, R. Duke, R. Jones, B. Haley, E. Leslie, K. Paustian, and A. Swan, 2021. Net-Zero America: Potential pathways, infrastructure, and impacts final report, Princeton University, doi: 10.5281/zenodo.6378139.

Ocko, I., T. Sun, D.Shindell, M. Oppenheimer, A. Hristov, **S.W. Pacala**, D.L. Mauzerall, Y. Xu, & S.P. Hamburg (2021). Acting rapidly to deploy readily available methane mitigation measures by sector can immediately slow global warming. *Environmental Research Letters 16*(5), 054042*,* doi: 10.1088/1748-9326/abf9c.

Pacala, S.W., Takeuchi, E., Tierney, S.,...& J. Wilcox (2021). Accelerating Decarbonization of the U.S. Energy System. *Committee on Developing a Research Agenda for Carbon Dioxide Removal and Reliable Sequestration, The National Academy of Sciences,* Washington, DC: The National Academies Press, doi:10.17226/25932.

Schwartzman, S., R.N. Lubowski, **S.W. Pacala**, N.O. Keohane, S. Kerr, M. Oppenheimer, & S.P. Hamburg (2021). Environmental integrity of emissions reductions depends on scale and systemic changes, not sector of origin. *Environmnetal Research Letters 16,* 091001*,* doi: 10.1088/1748-9326/ac18e.

Wang, K., X. Wang, S. Piao, F. Chevallier, J. Mao, X. Shi, A. Bastos, P. Ciais, H. Xu, R. Keeling, **S.W. Pacala**, A. Chen (2021). Unusual characteristics of the carbon cycle during the 2015−2016 El Niño. *Global Change Biology 27*, 3798–3809, doi: 10.1111/gcb.15669.

2020

Anderegg, W.R.L, A.T. Trugman, G. Badgley, C.M. Anderson, A.Bartuska, P. Ciais, D. Cullenward, C.B. Field, J. Freeman, S.J. Goetz, J.A. Hicke, D. Huntzinger, R.B. Jackson, J. Nickerson, **S.W. Pacala**, & J.T. Randerson (2020). Climate-driven risks to the climate mitigation potential of forests. *Science, 36* (6497), doi: 10.1126/science.aaz7005.

Cabal, C., R. Martinez-Garcia, A. de Castro, F. Valladares, & **S.W. Pacala** (2020). The exploitative segregation of plant roots. *Science, 370*(6521), 1197-1199, doi: 10.1126/science.aba9877.

Dobson, A.P., H.C.J. Godfray, S.A. Levin, **S.W. Pacala**, D.I. Rubenstein, & J. Seger (2020). Resolution of Respect Robert M. May (1936-2020). *Bulletin of the Ecological Society of America 102*(1)*,* e01769, doi:10.1002/bes2.1769.

Martinez Cano, I., E. Shevliakova, S. Malyshev, S. Wright, M. Detto, **S.W. Pacala**, & H. Muller-Landau (2020). Allometric constraints and competition enable the simulation of size structure and carbon fluxes in a dynamic vegetation model of tropical forests (LM3PPA-TV). *Global Change Biology, 26* (8), 4478-4494*,* doi: 10.1111/gcb.15188

Muller-Landau, H. C. & **S.W. Pacala** (2020). What determines the abundance of lianas and vines? In A. Dobson, R. Holt, and D. Tilman, Eds., for the volume *Unsolved Problems in Ecology* (pp. 239-264). Princeton, NJ: Princeton University Press.

Pacala, S.W. (2019). The importance of Durrett and Levin (1994): The importance of being discrete (and spatial). *Theoretical Population Biology 133,* 33-34, doi: 10.1016/j.tpb.2019.09.002.

2019

Anderson, C.M., R.S. Defries, R. Litterman, P.A. Matson, D.C. Nepstad, **S.W. Pacala**, W.H. Schlesinger, M.R. Shaw, P. Smith, C. Weber, & C.B. Field (2019). Maximize natural climate solutions—and decarbonize the economy. *Science, 363*(6430), 933-934, doi: 10.1126/science.aaw2741.

Detto, M., Visser, M.D., Wright, S.J., & **S.W. Pacala** (2019). Bias in the detection of negative density dependence in plant communities, *Ecology Letters 22,* 1923-1939*,* doi: 10.1111/ele.13372.

Martinez Cano, I., H.C. Muller-Landau, S.J. Wright, S.A. Bohlman, & **S.W. Pacala** (2019). Tropical tree height and crown allometries for the Barro Colorado Natural Monument, Panama: a comparison of alternative hierarchical models incorporating interspecific variation in relation to life history traits. *Biogeosciences 16*(4), 847-862*,* doi: 10.5194/bg-16-847-2019.

Pacala, S.W. (2019). The importance of Durrett and Levin (1994): The importance of being discrete (and spatial). *Theoretical Population Biology, 33*, 33-34, doi: 10.1016/j.tpb.2019.09.002.

Weng, E., R. Dybzinski, C.E. Farrior, **& S.W. Pacala** (2019). Competition alters predicted forest carbon cycle responses to nitrogen availability and elevated CO2: simulations using an explicitly competitive, game-theoretic vegetation demographic model. *Biogeosciences 16*(23), 4577–4599, doi: 10.5194/bg-16-4577-2019.

Zeppel, M., W.R.L. Anderegg, H. Adams, P. Hudson, A. Cook, R. Rumman, D. Eamus, D. Tissue, & **S.W. Pacala** (2019). Embolism recovery strategies among species influenced by biogeographic origin and nocturnal stomatal conductance. *Ecology and Evolution 9*(9), 5348-5361*,* doi: 10.1002/ece3.5126.

2018

Alvarez, R.A., D. Zavala-Araiza, D.R. Lyon, … **S.W. Pacala**, J.Peischl, A.L. Robinson, P.B. Shepson, C. Sweeney, A. Townsend-Small, S. C. Wofsy, & S.P. Hamburg (2018). Assessment of methane emissions from the U.S. oil and gas supply chain. *Science, 361*(6398),186-188, doi: 10.1126/science.aar7204.

Anderegg, W.R.L, A.G. Konings, A.T. Trugman, K. Yu, D.R. Bowling, R. Gabbitas, D. S. Karp, **S.W. Pacala**, J.S. Sperry, B.N. Sulman, & N. Zenes (2018). Hydraulic diversity of forests regulates ecosystem resilience during drought. *Nature*, *561*, 538–541 doi: 10.1038/s41586-018-0539-7.

Anderegg, W.R.L., A. Wolf, A. Arango-Velez, B. Choat, D.J. Chmura, S. Jansen, T. Kolb, S. Li, F. Meinzer, P. Pita, V. Resco de Dios, J.S. Sperry, B.T. Wolfe, & **S.W. Pacala** (2018). Woody plants optimize stomatal behavior relative to hydraulic risk. *Ecology Letters*, *21*(7), 968-977, doi: 10.1111/ele.12962.

Bartlett, M.K., M. Detto, & **S.W. Pacala** (2018)**.** Predicting shifts in the functional composition of tropical forests under increased drought and CO2 from trade-offs among plant hydraulic traits. *Ecology Letters 22*(1), 67-77*,* doi: 10.1111/ele.13168 .

Hèbert-Dufresne, L., A.F.A. Pellegrini, U. Bhat, S. Redner, **S.W. Pacala**, & A. Berdahl (2018). Edge fires drive the shape and stability of tropical forests. *Ecology Letters*, *21*, 794–803, doi: 10.1111/ele.12942.

Osnas, J.L.D., M. Katabuchi, K. Kitajima, S.J. Wright, P.B. Reich, S.A. Van Bael, N.J.B. Kraft, M.J. Samaniego, **S.W. Pacala**, & J.W. Lichstein (2018). Divergent drivers of leaf trait variation within species, among species, and among functional groups. *PNAS, 15*(21), 5480-5485, doi: 10.1073/pnas.1803989115.

Pacala, S.W., M. Al-Kaisi, M. Barteau, E. Belmont,..& J. Wilcox (2018). Negative emissions technologies and reliable sequestration: A research agenda. *Committee on Developing a Research Agenda for Carbon Dioxide Removal and Reliable Sequestration, The National Academy of Sciences,* p. 1-356.

Rabin, S., S. Malyshev, B. Magi, E. Shevliakova, & **S.W. Pacala** (2018). A fire model with distinct crop, pasture, and non-agricultural burning: use of new data and a model-fitting algorithm for FINAL.1, *Geoscientific Model Development 11*, 815-842, doi: 10.5194/gmd-11-815-2018.

Trugman, A., M. Detto, M.K. Bartlett, D. Medvigy, W.R.L. Anderegg, C. Schwalm, B. Schaffer, & **S.W. Pacala** (2018). Tree carbon allocation explains forest drought-kill and recovery patterns. *Ecology Letters*, *21*(10), 1552-1560, doi: 10.1111/ele.13136.

Trugman, A.T., D. Medvigy, W.R.L. Anderegg, & **S.W. Pacala** (2018). Differential declines in Alaskan boreal forest vitality related to climate and competition. *Global Change Biology, 24*(3), 1097-1107, doi: 10.1111/gcb.13952.

Uyehara, I.K.U & **S.W. Pacala** (2018). The role of succession in the evolution of flammability. *Theoretical Ecology, 11*(3), 291-303, doi: 10.1007/s12080-018-0366-3.

2017

Anderegg, W.R.L., A. Wolf, A. Arango-Velez, B. Choat, D.J. Chmura, S. Jansen, T. Kolb, S. Li, F. Meinzer, P. Pita, V. Resco de Dios, J.S. Sperry, B.T. Wolfe, & **S.W. Pacala** (2017). Plant water potential improves prediction of stomatal models. *PLOS One, 12*(10), e0185481, doi: 10.1371/journal.pone.0185481.

Chou, C., L.O. Hedin, & **S.W. Pacala** (2017). Functional groups, species, and light interact with nutrient limitation during tropical rainforest sapling bottleneck. *Journal of Ecology*, *106*(1), 157-167, doi: 10.1111/1365-2745.12823.

Menge, D., S. Batterman, L. Hedin, W. Liao, **S.W. Pacala**, & B. Taylor (2017). Why are nitrogen-fixing trees rare at higher compared to lower latitudes? *Ecology*, *98*(12), 3127-3140, doi: 10.1002/ecy.2034.

Ocko, I.B., S.P. Hamburg, D.J. Jacob, D.W. Keith, N.O. Keohane, M. Oppenheimer, J.D. Roy-Mayhew, D.P. Schrag, & **S.W. Pacala** (2017). Unmask temporal trade-offs in climate policy debates. *Science, 356*(6337), 492-493, doi: 10.1126/science.aaj2350.

Pellegrini, A.F.A., W.R.L. Anderegg, C.E.T. Paine, W.A. Hoffmann, T. Kartzinel, S. Rabin, D. Sheil, A.C. Franco, & **S.W. Pacala** (2017). Convergence of bark investment according to fire and climate structures ecosystem vulnerability to future change. *Ecology Letters 20*: 307–316, doi: 10.1111/ele.12725.

Xu, X., D. Medvigy, S.J. Wright, K. Kitajima, J. Wu, L. Albert, G. Martins, S. Saleska, & **S.W. Pacala** (2017). Variations of leaf longevity in tropical moist forests predicted by a trait-driven carbon optimality model. *Ecology Letters, 20,* 1097-1106, doi: 10.1111/ele.12804.

2016

Farrior, C.E., S.A. Bohlman, S. Hubbell, & **S.W. Pacala** (2016). Dominance of the suppressed: Power-law size structure in tropical forests. *Science,351*(6269), 155-157, doi: 10.1126/science.aad0592.

Weng, E. S., C.E. Farrior, R. Dybzinski, & **S.W. Pacala** (2016). Predicting vegetation type through physiological and environmental interactions with leaf traits: evergreen and deciduous forests in an earth system modeling framework. *Global Change Biology, 23*(6), 2482-2498, doi:10.1111/gcb.13542.

Wolf, A., W.R.L. Anderegg, & **S.W. Pacala** (2016). Optimal stomatal behavior with competition for water and risk of hydraulic impairment. *PNAS, 113*(46), E7222-E7230, doi: 10.1111/pce.12852.

2015

Anderegg, W.R.L., A.P. Ballantyne, W.K. Smith…& S.W. Pacala (2015). Tropical nighttime warming as a dominant driver of variability in the terrestrial carbon sink. *Proceedings of the National Academy of Sciences*, *112*(51), 15591-15596, doi: 10.1073/pnas.1521479112.

Anderegg, W.R.L., C. Schwalm, F. Biondi, J.J. Camarero, G. Koch, M. Litvak, … & **S.W. Pacala** (2015). Pervasive drought legacies in forest ecosystems and their implications for carbon cycle models. *Science, 349*(6247), 528-532, doi: 10.1126/science.aab1833.

Dybzinski, R., C.E. Farrior, & **S.W. Pacala** (2015). Increased forest carbon storage with increased atmospheric CO_2 despite nitrogen limitation: a game-theoretic allocation model for trees in competition for nitrogen and light. *Global Change Biology, 21*(3),1182-96, doi: 10.1111/gcb.12783.

Farrior CE, I. Rodriguez-Iturbe, R. Dybzinski, S.A. Levin, & **S.W. Pacala**. 2015. Decreased water limitation under elevated CO_2 amplifies potential for forest carbon sinks. *Proceedings of the National Academy of Sciences, 112*(23), 7213-7218, doi: 10.1073/pnas.1506262112.

Malyshev, S., E. Shevliakova, R.J. Stouffer, & **S.W. Pacala** (2015). Contrasting local vs. regional effects of land-use-change induced heterogeneity on historical climate: analysis with the GFDL earth system model. *Journal of Climate*, *28,* 5448–5469, doi: 10.1175/JCLI-D-14-00586.1.

Rabin, S.S., B.I. Magi, E. Shevliakova, & **S.W. Pacala** (2015). Quantifying regional, time-varying effects of cropland and pasture on vegetation fire. *Biogeosciences 12*(13), 6591-6604, doi: 10.5194/bg-12-6591-2015.

Wang, S., A. Chen**, S.W. Pacala**, & J. Fang (2015). Density-dependent speciation alters the structure and dynamics of neutral communities. *Journal of Theoretical Biology, 372*, 128-134, doi: 10.1016/j.jtbi.2015.02.007.

Weng, E. S., S. Malyshev, J.W. Lichstein, C.E. Farrior, R. Dybzinski, T. Zhang, E. Shevliakova, & **S.W. Pacala** (2015). Scaling from individual trees to forests in an Earth system modeling framework using a mathematically tractable model of height-structured competition. *Biogeosciences*, *12*(9), 2655-2694, doi:10.5194/bg-12-2655-2015.

Zavala-Araiza, D., D.R. Lyon, R.A. Alvarez…**S.W. Pacala**, A.L. Robinson, P.B. shepson, C. Sweeney, R. Talbot, A. Townsend-Small, T.I Yacovitch, D. Zimmerle, & S.P. Hamburg (2015). Reconciling divergent estimates of oil and gas methane emissions. *Proceedings of the National Academy of Sciences*, *112*(51), 15597-15602, doi: 10.1073/pnas.1522126112.

2014

Chen, A., J.W. Lichstein, J.L. Osnas, & **S.W. Pacala** (2014). Species-independent down-regulation of leaf photosynthesis and respiration in response to shading: evidence from six temperate tree species. *PloS One*, *9*(4), e91798, doi: 10.1371/journal.pone.0091798.

Lichstein, J. W., N.Z. Golaz, S. Malyshev, E. Shevliakova, T. Zhang, J. Sheffield … & **S.W. Pacala** (2014). Confronting terrestrial biosphere models with forest inventory data. *Ecological Applications*, *24*(4), 699-715, doi: 10.1890/13-0600.1.

Ogle, K., S. Pathikonda, K. Sartor, J.W. Lichstein, J.L. Osnas, & **S.W. Pacala** (2014). A model-based meta-analysis for estimating species-specific wood density and identifying potential sources of variation. *Journal of Ecology*, *102*(1), 194-208, doi: 10.1111/1365-2745.12178.

Sulman, B. N., R.P. Phillips, A.C. Oishi, E. Shevliakova, & **S.W. Pacala** (2014). Microbe-driven turnover offsets mineral-mediated storage of soil carbon under elevated CO_2. *Nature Climate Change*, *4*(12), 1099-1102, doi:10.1038/nclimate2436.

Violle, C., P.B. Reich, **S.W. Pacala**, B.J. Enquist, & J. Kattge (2014). The emergence and promise of functional biogeography. *Proceedings of the National Academy of Sciences*, *111*(38), 13690-13696, doi: 10.1073/pnas.1415442111.

2013

Dybzinski, R., C.E. Farrior, S. Ollinger, & **S.W. Pacala** (2013). Interspecific vs intraspecific patterns in leaf nitrogen of forest trees across nitrogen availability gradients. *New Phytologist*, *200*(1), 112-121, doi: 10.1111/nph.12353.

Farrior, C. E., R. Dybzinski, S.A. Levin, & **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, doi: 10.1086/669153.

Farrior, C. E., D. Tilman, R. Dybzinski, P.B. Reich, S.A. Levin, & **S.W. Pacala** (2013). Resource limitation in a competitive context determines complex plant responses to experimental resource additions. *Ecology*, *94*(11), 2505-2517, doi: 10.1890/12-1548.1.

Gerber, S., L.O.Hedin, S.G. Keel, **S.W. Pacala**, & E. Shevliakova (2013). Land use change and nitrogen feedbacks constrain the trajectory of the land carbon sink. *Geophysical Research Letters*, *40*(19), 5218-5222, doi: 10.1002/grl.50957.

Osnas, J. L., J.W. Lichstein, P.B. Reich, & **S.W. Pacala** (2013). Global leaf trait relationships: mass, area, and the leaf economics spectrum. *Science*, *340*(6133), 741-744, doi: 10.1126/science.1231574.

Shevliakova, E., R.J. Stouffer, S. Malyshev, J.P. Krasting, G.C. Hurtt, & **S.W. Pacal**a (2013). Historical warming reduced due to enhanced land carbon uptake. *Proceedings of the National Academy of Sciences*, *110*(42), 16730-16735, doi: 10.1073/pnas.1314047110.

Wang, S., A. Chen, J. Fang, & **S.W. Pacala** (2013). Speciation rates decline through time in individual-based models of specification and extinction. *The American Naturalist*, *182*(3), E83-E93, doi: 10.1086/671184.

Wang, S., A. Chen, J. Fang, & **S.W. Pacala** (2013). Why abundant tropical tree species are phylogenetically old. *Proceedings of the National Academy of Sciences*, *110*(40), 16039-16043, doi:10.1073/pnas.1314992110.

2012

Alvarez, R., **S.W. Pacala**, J. J. Winebrake, W. L. Chameides & S. P. Hamburg (2012). Greater focus needed on methane leakage from natural gas infrastructure. *Proceedings of the National Academy of Sciences, 109*(17), 6435-6440, doi: 10.1073/pnas.1202407109.

Alvarez, R. A., S.W. Pacala, J.J. Winebrake, W.L. Chameides, & S.P. Hamburg, (2012). Reply to Caldeira and Myhrvold: Radiative forcing is a useful, accepted metric to compare climate influence of alternative energy choices. *Proceedings of the National Academy of Sciences*, *109*(27), E1814, doi: 10.1073/pnas.1206927109.

Bohlman, S. A. & **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, 100*(2), 508-518, doi*:* 10.1111/j.1365-2745.2011.01935.x.

Chen, A., S. Wang, & **S. W. Pacala** (2012). Comment on "Global correlations in tropical tree species richness and abundance reject neutrality". *Science*, *336*(6089), 1639, doi: 10.1126/science.1222534.

Magi, B. I., S. Rabin, E. Shevliakova, & **S.W. Pacala** (2012). Separating agricultural and non-agricultural fire seasonality at regional scales. *Biogeosciences*, *9*(8), 3003-3012, doi: 10.5194/bg-9-3003-2012.

Menge, D. N., L.O. Hedin, & **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.

2011

Chisholm, R. A. & **S. W. Pacala** (2011). Independent species in independent niches behave neutrally: a response. *Oikos*, *120*(7), 964-965, doi: 10.1111/j.1600-0706.2011.19880.x.

Chisholm R. A. & **S. W. Pacala** (2011). Theory predicts a rapid transition from niche-structured to neutral biodiversity patterns across a speciation-rate gradient. *Theoretical Ecology, 4*(2), 195-200, doi: 10.1007/s12080-011-0113-5.

Dybzinski, R., C. Farrior, A. Wolf, P.B. Reich, & **S.W. Pacala** (2011). Evolutionarily 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. *The American Naturalist*, *177*(2), 153-166, doi: 10.1086/657992.

Lichstein, J.W. & **S.W. Pacala** (2011). Local diversity in heterogeneous landscapes: quantitative assessment with a height-structured forest metacommunity model. *Theoretical Ecology*, *4*(2), 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*(6045), 988-993, doi:10.1126/science.1201609.

2010

Chisholm R. A. & **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, doi: 10.1073/pnas.1009387107.

Gerber, S., L.O. Hedin, M. Oppenheimer, **S.W. Pacala**, & E. Shevliakova (2010). Nitrogen cycling and feedbacks in a global dynamic land model. *Global Biogeochemical Cycles*, *24*(1), doi:10.1029/2008GB003336.

Lichstein, J.W., J. Dushoff, K. Ogle, A. Chen, D.W. Purves, J.P. Caspersen & **S.W. Pacala** (2010). Unlocking the forest inventory data: relating individual tree performance to unmeasured environmental factors. *Ecological Applications*, *20*(3), 684-699, doi: 10.1890/08-2334.1.

Pacala, S.W., C. Breidenich, P.G. Brewer, I.Y. Fung, M.R. Gunson, G. Heddle, … & S.C. Wofsy (2010). Verifying greenhouse gas emissions: methods to support international climate agreements. *Committee on Methods for Estimating Greenhouse Gas Emissions, The National Academy of Sciences*, p. 1-110.

Sarmiento, J. L., M. Gloor, N. Gruber, C. Beaulieu, A. R. Jacobson, S. M. Fletcher, **S.W. Pacala**, & K. Rodgers (2010). Trends and regional distributions of land and ocean carbon sinks. *Biogeosciences*, *7*(8), 2351-2367, doi:10.5194/bg-7-2351-2010.

2009

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*, *106*(43), E124, doi: 10.1073/pnas.0911102106.

Chakravarty, S., A. Chikkatur, H. de Coninck, **S.W. Pacala**, R. Socolow, & M. Tavoni (2009). Sharing global CO_2 emission reductions among one billion high emitters, *Proceedings of the National Academy of Sciences, 106*(29), 11884-11888, doi: 10.1073/pnas.0905232106.

Lichstein, J.W., C. Wirth, H.S. Horn, & **S.W. Pacala** (2009). Biomass chronosequences of United States forests: implications for carbon storage and forest management. In C. Wirth, G. Gleixner, & M. Heimann, Eds., *Old-growth forests: Function, fate and value (*pp. 301-341). Berlin, Heidelberg: Springer-Verlag, chapter doi: 10.1007/978-3-540-92706-8_14.

Menge, D.N.L., **S.W. Pacala**, & L. O. Hedin (2009). Emergence and maintenance of nutrient limitation over multiple timescales in terrestrial ecosystems. *The American Naturalist*, *173*(2), 164-175, doi: 10.1086/595749.

Ogle, K. & **S.W. Pacala** (2009). A modeling framework for inferring tree growth and allocation from physiological, starvation, and allometric traits. *Tree Physiology, 29*(4), 587-605, doi:10.1093/treephys/tpn051.

Sarmiento, J. L., M. Gloor, N. Gruber, C. Beaulieu, A. R. Jacobson, S. M. Fletcher, **S.W. Pacala**, & K. Rodgers (2009). Trends and regional distributions of land and ocean carbon sinks. *Biogeosciences*, *7*(8), 2351-2367, doi:10.5194/bgd-6-10583-2009.

Shevliakova, E., **S. W. Pacala**, S. Malyshev, G. C. Hurtt, P. C. D. Milly, J. P. Caspersen, … & C. Crevoisier (2009). Carbon cycling under 300 years of land use change: Importance of the secondary vegetation sink. *Global Biogeochemical Cycles*, *23*(2), doi:10.1029/2007GB003176.

Smith, D., A.C. Schuerger, M.M. Davidson, **S.W. Pacala**, C. Bakermans & T.C. Onstott (2009). Survivability of psychrobacter cryohalolentis K5 under simulated martian surface conditions. *Astrobiology*, *9*(2), 221-228, doi:10.1089/ast.2007.0231.

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*, *325*(5938), 270, doi: 10.1126/science.1177970.

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). The letters about our commentary raise. *Science 326* (5958), 1346, doi: 10.1126/science.326.5958.1346-b.

Tol, R.S.J., **S.W. Pacala**, & R.H. Socolow (2009). Understanding long-term energy use and carbon dioxide emissions in the USA. *Journal of Policy Modeling*, *31*(3), 425-445, doi: 10.2139/ssrn.927741.

2008

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*, *105*(44), 17018-17022, doi: 10.1073/pnas.0807754105.

Purves, D. & **S.W. Pacala** (2008). Predictive models of forest dynamics. *Science*, *320*(5882), 1452-1453, doi: 10.1126/science.1155359.

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), 523-545, doi: 10.1890/08-0082.1.

2007

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 B: Biological Sciences*, *274*(1628), 3039-3048, doi:10.1098/rspb.2007.0891.

Crevoisier, C., E. Shevliakova, M. Gloor, C. Wirth, & **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. *Journal of Geophysical Research: Atmospheres (1984–2012)*, *112*(D24), doi:10.1029/2006JD008372.

Lichstein, J.W., J. Dushoff, S.A. Levin, & **S.W. Pacala** (2007). Intraspecific variation and species coexistence. *American Naturalist, 170*(6), 807-818, doi: 10.1086/522937.

Pacala, S.W., R. Birdsey, S.D. Bridgham, R.T. Conant, K. Davis, B. Hales, …& R.S. Tol (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*, U.S. Climate Change Science Program Synthesis and Assessment Product 2.2, Departments of Energy and Commerce and NOAA.

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. *PLoS One*, *2*(9), e870, doi: 10.1371/journal.pone.0000870.

2006

Hurtt, G.C., S. Frolking, M.G. Fearon, B. Moore, E. Shevliakova, S. Malyshev, **S.W. Pacala,** & 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*(7), 1208-1229, doi: 10.1111/j.1365-2486.2006.01150.x.

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*(3), 601-616, doi:10.1016/j.jtbi.2005.12.019.

Socolow, R.H. & **S.W. Pacala** (2006). A plan to keep carbon in check. *Scientific American*, *295*(3), 50-57*,* doi:10.1038/scientificamerican0906-50.

2005

Livnat, A., **S. W. Pacala**, & S.A. Levin (2005). The evolution of intergenerational discounting in offspring quality. *The American Naturalist*, *165*(3), 311-321, doi: 10.1086/428294.

Purves D.W. & **S.W. Pacala** (2005). Ecological drift in niche-structured communities: neutral pattern does not imply neutral process. In D. Burslem, M.A. Pinard, & S.E. Hartley, Eds., *Biotic interactions in the tropics: Their role in the maintenance of species diversity* (pp. 107-138). Cambridge: Cambridge University Press, chapter doi: 10.1017/CBO9780511541971.006.

Sandin, S.A. & **S.W. Pacala** (2005). Demographic theory of coral reef fish populations with stochastic recruitment: comparing sources of population regulation. *The American Naturalist*, *165*(1), 107-119, doi: 10.1086/426674.

Sandin, S.A. & **S.W. Pacala** (2005). Fish aggregation results in inversely density-dependent predation on continuous coral reefs. *Ecology*, *86*(6), 1520-1530, doi: 10.1890/03-0654.

2004

Baidya Roy, S., **S.W. Pacala**, & R.L. Walko (2004). Can large wind farms affect local meteorology? *Journal of Geophysical Research: Atmospheres (1984–2012)*, *109*(D19), doi:10.1029/2004JD004763.

Hurtt, G.C., R. Dubayah, J. Drake, P. Moorcroft, **S.W. Pacala**, & M. Fearon (2004). Beyond potential vegetation: combining lidar data and a height-structured model for carbon studies. *Ecological Applications*, *14*(3), 873-883, doi: 10.1890/02-5317.

Keith, D.W., J. F. DeCarolis, D. C. Denkenberger, D.H. Lenschow, S. L. Malyshev, **S. W. Pacala**, & P. J. Rasch (2004). The influence of large-scale wind power on global climate. *Proceedings of the National Academy of Sciences*, *101*(46), 16115-16120, doi: 10.1073/pnas.0406930101.

Pacala, S.W. & R.H. Socolow (2004). Stabilization wedges: solving the climate problem for the next 50 years with current technologies. *Science*, *305*(5686), 968-972, doi: 10.1126/science.1100103.

Purves D. W., J.P. Caspersen, P.R. Moorcroft, G.C. Hurtt, & **S.W. Pacala** (2004). Human-induced changes in US biogenic volatile organic compound emissions: evidence from long-term forest inventory data. *Global Change Biology*, *10*(10), 1737-1755, doi: 10.1111/j.1365-2486.2004.00844.x.

Socolow, R., R. Hotinski, J.B. Greenblatt, & **S.W. Pacala** (2004). Solving the climate problem: technologies available to curb CO_2 emissions. *Environment: Science and Policy for Sustainable Development*, *46*(10), 8-19, doi: 10.1080/00139150409605818.

Socolow, R.H., **S.W. Pacala**, & J. Greenblatt (2004, June). "Wedges": Early mitigation with familiar technology. In E.S. Rubin, D.W. Keith, C.F. Gilboy, M. Wilson, T. Morris, J. Gale, & K. Thambimuthu, Eds., *Greenhouse Gas Control Technologies 7: Proceedings of the 7th international conference on greenhouse gas control technologies* 5 *September 2004, Vancouver, Canada* (pp. 1983-1986), chapter doi: 10.1016/B978-008044704-9/50255-X.

2003

Baidya Roy, S., G. C. Hurtt, C. P. Weaver, & **S. W. Pacala** (2003). Impact of historical land cover change on the July climate of the United States. *Journal of Geophysical Research: Atmospheres (1984–2012)*, *108*(D24), doi:10.1029/2003JD003565.

Bolker, B.M., **S.W. Pacala**, & C. Neuhauser (2003). Spatial dynamics in model plant communities: what do we really know?. *The American Naturalist*, *162*(2), 135-148, doi: 10.1086/376575.

Kinzig A.P., D. Starrett, K. Arrow, S. Aniyar, B. Bolin, … **S.W. Pacala**, S.H. Schneider, D. Siniscalco, & B. Walker (2003). Coping with uncertainty: a call for a new science-policy forum. *AMBIO: A Journal of the Human Environment*, *32*(5), 330-335, doi: 10.1579/0044-7447-32.5.330.

Levin, S.A. & **S.W. Pacala** (2003). Ecosystem dynamics. In K. G. Mäler & J. R. Vincent, Eds., *Handbook of environmental economics volume 1* (pp. 61-95). Amsterdam: Elsevier, chapter doi: 10.1016/S1574-0099(03)01007-6.

Pacala, S.W. (2003). Could carbon sequestration solve the problem of global warming? In: *Energy and Transportation. Challenges for the Chemical Sciences in the 21St Century*. *Workshop on Energy and Transportation* (pp. 62-65). Washington, DC: National Academy of Sciences.

Pacala, S.W. (2003). Global constraints on reservoir leakage. In J. Gale & Y. Kaya, Eds., *Proceedings of the 6th international greenhouse gas control technologies volume 1*(pp. 267-272). Oxford: Elsevier Science Ltd., chapter doi:10.1016/B978-008044276-1/50043-X.

Pacala, S.W., E. Bulte, J.A. List, & S.A. Levin (2003). False alarm over environmental false alarms. *Science*, *301*(5637), 1187-1188, doi: 10.1126/science.1086646.

2002

Hixon, M.A., **S.W. Pacala**, & S.A. Sandin (2002). Population regulation: historical context and contemporary challenges of open vs. closed systems. *Ecology, 83*(6), 1490-1508, doi: 10.1890/0012-9658(2002)083[1490:PRHCAC]2.0.CO;2.

Hurtt, G.C., **S.W. Pacala**, P.R. Moorcroft, J. Caspersen, E. Shevliakova, R.A. Houghton, & B. Moore III (2002). Projecting the future of the US carbon sink. *Proceedings of the National Academy of Sciences*, *99*(3), 1389-1394, doi: 10.1073/pnas.012249999.

Keeling, M.J., Wilson, H.B., & **S.W. Pacala** (2002). Deterministic limits to stochastic spatial models of natural enemies. *The American Naturalist*, *159*(1), 57-80, doi: 10.1086/324119.

Nathan, R., G.G. Katul, H.S. Horn…**S.W. Pacala**, & S. Levin (2002). Mechanisms of long-distance dispersal of seeds by wind. *Nature, 418*, 409–413, doi:10.1038/nature00844.

2001

Caspersen, J.P. & **S.W. Pacala** (2001). Successional diversity and forest ecosystem function. *Ecological Research*, *16*(5), 895-903, doi: 10.1046/j.1440-1703.2001.00455.x.

Chesson, P., **S.W. Pacala**, & C. Neuhauser (2001). Environmental niches and ecosystem functioning. *The functional consequences of biodiversity: Empirical progress and theoretical extensions* (pp.213-245). Princeton, NJ: Princeton University Press.

Kinzig, A.P. & **S.W. Pacala** (2001). Successional biodiversity and ecosystem functioning. In A.P. Kinzig, **S.W. Pacala**, & G.D. Tilman, Eds., *The functional consequences of biodiversity: Empirical progress and theoretical extensions* (pp. 175-212). Princeton, NJ: Princeton University Press.

Kinzig, A.P. **S.W. Pacala**, & G.D. Tilman, Editors. (2001). *The functional consequences of biodiversity: empirical progress and theoretical extensions. Monographs in population biology, volume* 33. Princeton, NJ: Princeton University Press.

Kinzig, A.P., **S.W. Pacala**, & G.D. Tilman (2001). Looking back and peering forward. In A.P. Kinzig, **S.W. Pacala**, & G.D. Tilman, Eds., *The functional consequences of biodiversity: Empirical progress and theoretical extensions* (pp. 314-329). Princeton, NJ: Princeton University Press.

Moorcroft, P.R., G.C. Hurtt, & **S.W. Pacala** (2001). A method for scaling vegetation dynamics: the ecosystem demography model (ED). *Ecological monographs*, *71*(4), 557-586, doi: 10.2307/3100036.

Pacala, S.W. & A.P. Kinzig (2001). Introduction to theory and the common ecosystem model. In A.P. Kinzig, **S.W. Pacala**, & G.D. Tilman, Eds., *The functional consequences of biodiversity: Empirical progress and theoretical extensions* (pp. 169-174). Princeton, NJ: Princeton University Press.

Pacala, S.W. & G.D. Tilman (2001). The transition from sampling to complementarity. In A.P Kinzig, **S.W. Pacala**, & G.D. Tilman, Eds., *The functional consequences of biodiversity: Empirical progress and theoretical extensions* (pp. 151-166). Princeton, NJ: Princeton University Press.

Pacala S.W., G.C. Hurtt, P.R. Moorcroft, & J.P. Caspersen (2001). Carbon storage in the US caused by land use change. In T. Matsuno & H. Kida, Eds., *The present and future of modeling global environmental change: Toward integrated modeling* (pp. 145-172). Toyko, Japan: Terra Scientific Publishing.

[i]**Pacala, S.W.**, G.C. Hurtt, R.A. Houghton, R.A. Birdsey, … & C.B. Field (2001). Consistent land-and atmosphere-based US carbon sink estimates. *Science, 292*(5525), 2316-2320, doi: 10.1126/science.1057320.

Rees, M., R. Condit, M. Crawley, **S.W. Pacala**, & D. Tilman (2001). Long-term studies of vegetation dynamics. *Science*, *293*(5530), 650-655, doi: 10.1126/science.1062586 .

Schimel, D.S., J.I. House, K.A. Hibbard, P. Bousquet, P. Ciais, … **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*(6860), 169-172, doi: 10.1038/35102500.

2000

Bolker, B.M**., S.W. Pacala**, & S.A. Levin (2000). Moment methods for stochastic processes in continuous space and time. In U. Dieckmann, R. Law, & J. Metz, Eds., *The geometry of ecological interactions: Simplifying spatial complexity* (pp. 388-411). Cambridge: Cambridge University Press.

Caspersen, J.P., **S.W. Pacala**, J.C. Jenkins, G.C. Hurtt, P.R. Moorcroft, & R.A. Birdsey (2000). Contributions of land-use history to carbon accumulation in US forests. *Science*, *290*(5494), 1148-1151**,** doi: 10.1126/science.290.5494.1148.

Gloor, M., S.M. Fan, **S.W. Pacala**, & J.L. Sarmiento (2000). Optimal sampling of the atmosphere for purpose of inverse modeling: A model study. *Global Biogeochemical Cycles*, *14*(1), 407-428, doi: 10.1029/1999GB900052.

Keeling, M.J., H.B. Wilson, & **S.W. Pacala** (2000). Reinterpreting space, time lags, and functional responses in ecological models. *Science*, *290*(5497), 1758-1761, doi: 10.1126/science.290.5497.1758.

Lewis, M.A. & **S.W. Pacala** (2000). Modeling and analysis of stochastic invasion processes. *Journal of Mathematical Biology*, *41*(5), 387-429, doi: 10.1007/s002850000050 .

Sandin, S.A. & **S.W. Pacala** (2004). Regulation in populations of coral reef fish: an exploration of models and data. In *Proceedings of the 9th International Coral Reef Symposium,* Bali, Indonesia, *(1),* 455-462.

1999

Bolker, B.M. & **S.W. Pacala** (1999). Spatial moment equations for plant competition: understanding spatial strategies and the advantages of short dispersal. *The American Naturalist*, *153*(6), 575-602, doi: 10.1086/303199.

Caspersen, J.P., J.A. Silander, C.D. Canham, & **S.W. Pacala** (1999). Modeling the competitive dynamics and distribution of tree species along moisture gradients. In D. Mladenoff & W. Baker, Eds., *Spatial modeling of forest landscape change: Approaches and applications* (pp. 14-41). Cambridge: Cambridge University Press.

Deutschman, D.H., S.A. Levin, & **S.W. Pacala** (1999). Error propagation in a forest succession model: the role of fine-scale heterogeneity in light. *Ecology*, *80*(6), 1927-1943, doi: 10.1890/0012-9658(1999)080[1927:EPIAFS]2.0.CO;2.

Fan, S.M., J.L. Sarmiento, M. Gloor, & **S.W. Pacala** (1999). On the use of regularization techniques in the inverse modeling of atmospheric carbon dioxide. *Journal of Geophysical Research: Atmospheres (1984–2012)*, *104*(D17), 21503-21512, doi: 10.1029/1999JD900215.

Gloor, M., S.M. Fan, **S.W. Pacala**, J.L. Sarmiento, & M. Ramonet (1999). A model-based evaluation of 3-D GCM inversions, using annual mean mixing ratios, as a tool to monitor CO_2 surface fluxes. *Journal of Geophysical Research, 104*(D12): 14245-14260.

Kinzig, A.P., S.A. Levin, J. Dushoff, & **S.W. Pacala** (1999). Limiting similarity, species packing, and system stability for hierarchical competition-colonization models. *The American Naturalist, 153*(4): 371-383, doi: 10.1086/303182 .

Neuhauser, C. & **S.W. Pacala** (1999). An explicitly spatial version of the Lotka-Volterra model with interspecific competition. *Annals of Applied Probability*, 1226-1259, doi: 10.1214/aoap/1029962871.

1998

Bolker B.M., **S.W. Pacala**, & W.J. Parton (1998). Linear analysis of soil decomposition: insights from the century model. *Ecological Applications*, *8*(2), 425-439, doi: 10.2307/2641082.

---

[i] Designated as top-ten paper of 2001 by *Science*

Chapin, F.S. III, O. E. Sala, I.C. Burke…**S.W. Pacala**, J. Roy, W. Steffen, & D. Tilman (1997). Ecosystem consequences of changing biodiversity. *Bioscience*, *48*(1): 45-52, doi:10.2307/1313227.

Clark, J.S., C. Fastie, G. Hurtt, S.T. Jackson, C. Johson, G.A. King, M. Lewis, J. Lynch, **S.W. Pacala**… & P. Wyckoff (1998). Reid's paradox of rapid plant migration dispersal theory and interpretation of paleoecological records. *Bioscience 48*(1), 13–24, doi: 10.2307/1313224.

Fan, S.M, M. Gloor, J. Mahlman, **S.W. Pacala**, J. Sarmiento, T. Takahashi & P. Tans (1998). A large terrestrial carbon sink in North America implied by atmospheric and oceanic carbon dioxide data and models. *Science*, *282*(5388), 442-446, doi: 10.1126/science.282.5388.442.

Hurtt, G.C., P.R. Moorcroft, **S.W. Pacala**, & S. Levin (1998). Terrestrial models and global change: challenges for the future. *Global Change Biology*, *4*(5), 581-590, doi: 10.1046/j.1365-2486.1998.t01-1-00203.x.

Pacala, S.W. & M. Rees (1998). Models suggesting field experiments to test two hypotheses explaining successional diversity. *The American Naturalist*, *152*(5), 729-737, doi: 10.1086/286203.

Wilson, H.B., C. Godfray, M. Hassell, & **S.W. Pacala** (1998). The dynamics of spatially extended host parasitoid interactions. In R. Solé & J. Bascompte, Eds., *Modeling spatial temporal dynamics in ecology* (pp. 63-81). Berlin, Heidelberg, New York: Springer Verlag.

1997

Bolker, B.M. & **S.W. Pacala** (1997). Using moment equations to understand stochastically driven spatial pattern formation in ecological systems. *Theoretical Population Biology*, *52*(3), 179-197, doi:10.1006/tpbi.1997.1331.

Clark, J., C. Fastie, G. Hurtt, S. Jackson, C. Johnson, G. King, M. Lewis, J. Lynch, **S.W. Pacala**, C. Prentice, G. Schupp, T. Webb III, & P. Wycoff (1997). Reid's Paradox of Rapid Plant Migration Dispersal theory and interpretation of paleoecological records. *BioScience*, *48*(1), 13-24, doi: 10.2307/1313224.

Levin, S.A. & **S.W. Pacala** (1997). Theories of simplification and scaling of spatially distributed processes. In D. Tilman & P. Kareiva, Eds., *Spatial ecology: The role of space in population dynamics and interspecific interactions* (pp. 271-296). Princeton, NJ: Princeton University Press.

Pacala, S.W. (1997). Dynamics of plant communities. In M.C. Crawley, Ed. *Plant ecology, second edition* (pp. 532-555). Oxford, UK: Blackwell Publishing Ltd., doi: 10.1002/9781444313642.ch15.

Pacala, S.W. & S.A. Levin (1997). Biologically generated spatial pattern and the coexistence of competing species. In D. Tilman & P. Kareiva, Eds., *Spatial ecology: The role of space in population dynamics and interspecific interactions* (pp. 204-232). Princeton University Press, Princeton, NJ.

1996

Pacala, S.W., C.D. Canham, J. Saponara, J.A. Silander, R.K. Kobe, & E. Ribbens (1996). Forest models defined by field measurements: estimation, error analysis and dynamics. *Ecological monographs*, *66*(1), 1-43, doi: 10.2307/2963479.

Pacala, S.W., D. Gordon, & H. Godfray (1996). Effects of social group size on information transfer and task allocation. *Evolutionary Ecology*, *10*(2), 127-165, doi: 10.1007/BF01241782.

1995

Bolker, B.M., **S.W. Pacala**, F.A. Bazzaz, C.D. Canham, & S.A. Levin (1995). Species diversity and ecosystem response to carbon dioxide fertilization: conclusions from a temperate forest model. *Global Change Biology*, *1*(5), 373-381, doi: 10.1111/j.1365-2486.1995.tb00035.x.

Cain, M.L., **S.W. Pacala**, J.A. Silander Jr., & M.J. Fortin (1995). Neighborhood models of clonal growth in the white clover Trifolium repens. *American Naturalist*, 888-917, doi: 10.1086/285775.

Canham, C.D. & **S.W. Pacala** (1995). Linking tree population dynamics and forest ecosystem processes. In C. Jones & J. Lawton, Eds., *Species effects on ecosystems* (pp. 84-94). New York: Chapman & Hall, Inc., chapter doi: 10.1007/978-1-4615-1773-3_9.

Holt, R.D., **S.W. Pacala**, T.W. Smith, & J. Liu (1995). Linking contemporary vegetation models with spatially explicit animal population models. *Ecological Applications*, *5*(1), 20-27, doi: 10.2307/1942048.

Hurtt, G.C. & **S.W. Pacala** (1995). The consequences of recruitment limitation: reconciling chance, history and competitive differences between plants. *Journal of Theoretical Biology*, *176*(1), 1-12, doi:10.1006/jtbi.1995.0170.

Kobe, R., **S.W. Pacala** , J.A. Silander, & C.D. Canham (1995). Juvenile tree survivorship as a component of shade tolerance. *Ecological applications*, *5*(2), 517-532, doi: 10.2307/1942040.

Pacala, S.W. & D.J. Deutschman (1995). Details that matter: the spatial distribution of individual trees maintains forest ecosystem function. *Oikos*, *74*(3), 357-365, doi: 10.2307/3545980.

Sarmiento J., C. Le Quéré, & **S.W. Pacala (**1995). Limiting future atmospheric carbon dioxide. *Global Biogeochemical Cycles*, *9*(1), 121-137, doi: 10.1029/94GB01779.

1994

Canham, C.D., A. Finzi, **S.W. Pacala**, & D.H. Burbank (1994). Causes and consequences of resource heterogeneity in forests: interspecific variation in light transmission by canopy trees. *Canadian Journal of Forest Research*, *24*(2), 337-349, doi: 10.1139/x94-046.

Le Quéré, C., J.L. Sarmiento, & **S.W. Pacala** (1994). Model q. In I.G. Enting, T.M.L. Wigley, & M. Heimann, Eds., *Future emissions and concentrations of carbon dioxide: Key ocean/atmosphere/land analyses. CSIRO division of atmospheric research technical paper. no. 31* (p. 101). Australia: CSIRO.

Pacala, S.W. (1994). An ecologist's encounter with some models in the social sciences. In P.M. Groffman & G.E. Likens, Eds., *Integrated regional models: Interactions between humans and their environment* (pp. 35-49). New York: Chapman & Hall, Inc., chapter doi: 10.1007/978-1-4684-6447-4_3.

Pacala, S.W., C.D. Canham, J.A. Silander, & R. Kobe (1994). Sapling growth as a function of resources in a north temperate forest. *Canadian Journal of Forest Research*, *24*(11), 2172-2183, doi: 10.1139/x94-280.

Pacala, S.W. & D. Tilman (1994). Limiting similarity in mechanistic and spatial models of plant competition in heterogeneous environments. *American Naturalist*, *143*(2), 222-257, doi: 10.1086/285602.

Pickett, S.T.A., I.C. Burke, V.H. Dale, J.R. Gosz, R.G. Lee, **S.W. Pacala**, & M. Schachak (1994). Integrated models of forested regions. In P.M. Groffman & G.E. Likens, Eds., *Integrated regional models: Interactions between humans and their environment* (pp. 120-141). New York: Chapman & Hall, Inc., chapter doi: 10.1007/978-1-4684-6447-4_8.

Ribbens, E., **S.W. Pacala**, & J.A. Silander (1994). Seedling recruitment in forests: calibrating models to predict patterns of tree seedling dispersion. *Ecology*, *75*(6), 1794-1806, doi: 10.2307/1939638.

1993

Jones, T.H., M.P. Hassell, & **S.W. Pacala** (1993). Spatial heterogeneity and the population dynamics of a host--parasitoid system. *Journal of Animal Ecology*, *62*(2), 251-262, doi: 10.2307/5356.

Pacala, S.W. (1993). Part IV: A theoretical ecologist's perspective: Toward a unified paradigm for an ecology of populated areas. In M.J. McDonnell & S. Pickett, Eds., *Humans as components of ecosystems: A synthesis* (pp. 307-309). New York: Springer-Verlag, book doi: 10.1007/978-1-4612-0905-8_24.

Pacala, S.W., C.D. Canham, & J.A. Silander (1993). Forest models defined by field measurements: I. The design of a northeastern forest simulator. *Canadian Journal of Forest Research*, *23*(10), 1980-1988, doi: 10.1139/x93-249.

Reynolds, H.L. & **S.W. Pacala** (1993). An analytical treatment of root-to-shoot ratio and plant competition for soil nutrient and light. *American Naturalist*, *141*(1), 51-70, doi: 10.1086/285460.

Tilman, D. & **S.W. Pacala** (1993). The maintenance of species richness in plant communities. In R.E. Rickleffs & D. Schluter, Eds., *Species diversity in ecological communities* (pp. 13-25) Chicago, Il: University of Chicago Press, book doi: 10.1007/BF02803887.

1992

Dobson, A.P. & **S.W. Pacala** (1992). The parasites of *Anolis* lizards in the northern Lesser Antilles. II. The Structure of the Parasite Community. *Oecologia, 92,* 118-125, doi: 10.1007/BF00317249.

Dobson, A.P., **S.W. Pacala**, J. Roughgarden, E. Carper, & H. Harris (1992). The parasites of Anolis lizards in the northern Lesser Antilles. *Oecologia*, *91*(1), 110-117, doi: 10.1007/BF00317248.

Godfray, H.C.V. & **S.W. Pacala** (1992). Aggregation and the population dynamics of parasitoids and predators. *American Naturalist*, *140*(1), 30-40, doi: 10.1086/285401.

Lee, K.S., W. Philpot, & **S.W. Pacala (**1992). Calibration of a forest ecosystem model using remote sensing and GIS. In *Proceedings of 1992 ASPRS/ACSM annual convention: Monitoring and mapping global change* (pp. 20-29) Washington D.C.: ASPRS/ACSM.

Pacala, S.W. & M.J. Crawley (1992). Herbivores and plant diversity. *American Naturalist*, *140*(2), 243-260, doi: 10.1086/285411.

Pacala, S.W. & G.C. Hurtt (1992). Terrestrial vegetation and climate change: integrating models and experiments. In P.M. Kareiva, J.G. Kingsolver & R.B. Huey, Eds., *Biotic interactions and global change* (pp. 57-74). Sunderland, MA: Sinauer, book doi: 10.1002/joc.3370140710.

1991

Cain, M.L., **S.W. Pacala**, & J.A. Silander (1992). Stochastic simulation of clonal growth in the tall goldenrod, Solidago altissima. *Oecologia*, *88*(4), 477-485, doi: 10.1007/BF00317709.

Crawley, M.J., **S.W. Pacala**, A. Aeschlemann, & L. Bolis (1991). Herbivores, plant parasites and plant diversity. In C.A. Toft, A. Aeschlimann, & L. Bolis, Eds., *Parasite-host associations: Coexistence or conflict?* (pp. 157-176). Oxford, UK: Oxford University Press, book doi: 10.2307/1312190.

Hassell, M.P., R.M. May, **S.W. Pacala** & P. Chesson (1991). The persistence of host-parasitoid associations in patchy environments. I. A general criterion. *American Naturalist*, *138*(3), 568-583, doi: 10.1086/285235.

Pacala, S.W. & M.P. Hassell (1991). The persistence of host-parasitoid associations in patchy environments. II. Evaluation of field data. *American Naturalist*, *138*(3), 584-605, doi: 10.1086/285236.

Pacala, S.W. & J. Wiener (1991). Effects of competitive asymmetry on a local density model of plant interference. *Journal of Theoretical Biology*, *149*(2), 165-179, doi:10.1016/S0022-5193(05)80275-9.

1990

Hassell, M.P. & **S.W. Pacala** (1990). Heterogeneity and the dynamics of host-parasitoid interactions (and discussion). *Philosophical Transactions Royal Society London B(330),* 203-220, doi: 10.1098/rstb.1990.0193.

Holsinger, K. & **S.W. Pacala** (1990). Multiple-niche polymorphisms in plant populations. *American Naturalist, 135*(2), 301-309, doi: 10.1086/285046.

Pacala, S.W., M.P. Hassell, & R.M. May (1990). Host-parasitoid associations in patchy environments. *Nature 344*(6262), 150-153, doi:10.1038/344150a0.

Pacala, S.W. & J.A. Silander, Jr. (1990). Field tests of neighborhood population dynamic models of two annual weed species. *Ecological Monographs*, *60*(1), 113-134, doi: 10.2307/1943028.

Pacala, S.W. (1990) A theory of forest dynamics: Spatially explicit models and issues of scale. (No. DOE/ER/60933-1). Connecticut Univ., Storrs, CT (USA), doi: 10.2172/6556985.

Silander, J.A. & **S.W. Pacala (**1990). The application of plant population dynamic models to understanding plant competition. In D. Tilman & J.B. Grace, Eds., *Perspectives on plant competition* (pp. 67-91). San Diego, CA: Academic Press, Inc., chapter doi:10.1016/B978-0-12-294452-9.50009-6.

1989

Pacala, S.W. (1989). Plant population dynamic theory. In J. Roughgarden, R. May & S. Levin, Eds., *perspectives in ecological theory* (pp. 54-67). Princeton, NJ: Princeton University Press.

Roughgarden, J., & **S.W. Pacala** (1989). Taxon cycle among *Anolis* lizard populations: Review of evidence. In D. Otte, Ed. *Speciation and adaptation* (pp. 403-432). Philadelphia, PA: Academy of Natural Sciences of Philadelphia.

Thrall, P.H., **S.W. Pacala**, & J.A. Silander, Jr. (1989). Oscillatory dynamics in populations of an annual weed species Abutilon theophrasti. *Journal of Ecology, 77*(4), 1135-1149, doi: 10.2307/2260828.

1988

Pacala, S.W. (1988). Competitive equivalence: the coevolutionary consequences of sedentary habit. *American Naturalist*, *132*(4), 576-593, doi: 10.1086/284873.

Pacala, S.W. & A.P. Dobson (1988). The relation between the number of parasites/host and host age: population dynamic causes and maximum likelihood estimation. *Parasitology*, *96*(01), 197-210, doi: 10.1017/S0031182000081762.

1987

Pacala, S.W. (1987). Neighborhood models of plant population dynamics 3. Models with spatial heterogeneity in the physical environment. *Theoretical Population Biology*, *31*(3), 359-392, doi: 10.1016/0040-5809(87)90012-8.

Pacala, S.W. & J.A. Silander Jr. (1987). Neighborhood interference among velvet leaf, Abutilon theophrasti, and pigweed, Amaranthus retroflexus. *Oikos*, 48(2), 217-224, doi: 10.2307/3565858.

Roughgarden, J., S. Gaines, & **S.W. Pacala** (1987). Supply side ecology: The role of physical transport processes. In J. Gee & P. Giller, Eds., *Organization of communities past and present: The 27th symposium of the British ecological society* (pp. 491-518). Oxford: Blackwell Scientific Publications.

Satter, R., B. Chen, **S.W. Pacala**, & Y. Lee (1987). Circadian rhythms in Albizzia leaflets of different ages. In W.W. Thompson, E.A. Nothnagel, & R.C. Huffaker, Eds., *Plant Senescence: Its biochemistry and physiology. Proceedings. of the tenth annual symposium in botany, University of California, Riverside* (pp. 215-222). Rockville, MD: American Society of Plant Physiologists.

1986

Pacala, S.W. (1986). Neighborhood models of plant population dynamics. 4. Single and multi-species models of annuals with dormant seeds. *The American Naturalist, (128)*6, 859-878, doi: 10.1086/284610.

Pacala, S.W. (1986). Neighborhood models of plant population dynamics. 2. Multi-species models of annuals. *Theoretical Population Biology,29*(2), 262-292, doi: 10.1016/0040-5809(86)90011-0.

1985

Pacala, S.W. & J. Roughgarden (1985). Population experiments with the *Anolis* lizards of St. Maarten and St. Eustatius. *Ecology, 66*(1), 129-141, doi: 10.2307/1941313.

Pacala, S.W. & J.A. Silander, Jr. (1985). Neighborhood models of plant population dynamics. I. Single-species models of annuals. *American Naturalist,125*(3), 385-411.

Silander, J.A., Jr. & **S.W. Pacala** (1985). Neighborhood predictors of plant performance. *Oecologia*, *66*(2), 256-263, doi: 10.1007/BF00379863.

1984

Pacala, S.W. & J. Roughgarden (1984). Control of arthropod abundance by Anolis lizards on St. Eustatius (Neth. Antilles). *Oecologia*, *64*(2), 160-162, doi: 10.1007/BF00376864.

1983

Pacala, S.W., J. Rummel, & J. Roughgarden (1983). A technique for enclosing Anolis lizard populations under field conditions. *Journal of Herpetology*, *17*(1), 94-97, doi: 10.2307/1563793.\

Roughgarden, J., J. Rummel, & **S.W. Pacala (**1983). Experimental evidence of strong present-day competition between the *Anolis* populations of the Anguilla bank: A preliminary report. In A.G.J. Rhodin & K. Miyata, Eds., *Advances in herpetology and evolutionary biology: Essays in Honor of Ernest E. Williams* (pp. 409-506). Cambridge, MA: Museum of Comparative Zoology, Harvard University.

1982

Pacala, S.W. & J. Roughgarden (1982). Resource partitioning and interspecific competition in two two-species insular anolis lizard communities. *Science*, *217*(4558), 444-446, doi: 10.1126/science.217.4558.444.

Pacala, S.W. & J. Roughgarden (1982). The evolution of resource partitioning in a multidimensional resource space. *Theoretical Population Biology*, *22*(1), 127-145, doi: 10.1016/0040-5809(82)90039-9.

Pacala, S.W. & J. Roughgarden (1982). Spatial heterogeneity and interspecific competition. *Theoretical Population Biology*, *21*(1), 92-113, doi: 10.1016/0040-5809(82)90008-9.

1979

Holmes, R.T., R.E. Bonny, & **S.W. Pacala** (1979). Guild structure in the Hubbard Brook bird community: a multivariate approach. *Ecology, 60*(3): 512-520, doi: 10.2307/1936071.

TELEVISION

Pacala, S.W. in "Power Surge. Are we finally on the brink of a clean energy revolution?" Aired on PBS (NOVA) April 20th, 2011.

Pacala, S.W. in PBS series, "Journey To Planet Earth." based on Lester Brown's book *Plan B: Mobilizing to save civilization*. Aired on PBS March 30th, 2011.

Pacala, S.W. in "Discovery Project Earth". Aired on Discovery Channel (North America) August 22nd, 2008.

Pacala, S.W. in "Global Warming. What You Need to Know" with Tom Brokaw. Aired on Discovery Channel (North America) July 16th, 2006.

Pacala, S.W. in "Can We Save Planet Earth?" with David Attenborough. Aired on BBC in the UK May 2006.