

**Curriculum Vitae****James S. Clark**

*Nicholas Professor in Global Environmental Change  
Professor of Statistical Science*

Duke University, Durham, NC 27708

<http://sites.nicholas.duke.edu/clarklab/people/>

**Education**

Ph.D., Ecology and Behavioral Biology, University of Minnesota (1988)

Fulbright - DAAD Fellow, Universitat Göttingen, West Germany (1984)

M.S., Forestry, University of Massachusetts (1983)

B.S., Entomology, North Carolina State University (1979)

**Employment**

Professor, Department of Statistical Science, Duke Univ (2006)

Distinguished Professor, Nicholas School of the Environment, Duke Univ (2004)

Distinguished Professor, Dept Biology, Duke Univ (2001-)

Professor, Dept Biology, Duke Univ (1998-)

Associate Professor, Dept Botany, Duke Univ (1995-98)

Assistant Professor, Dept Botany, Duke Univ (1992-95)

Assistant Professor, Dept Botany, Univ Georgia (1990-92)

Senior Scientist, New York State Museum (1988-90)

**Awards and Honors**

*National Academy of Sciences* (2020)

*Make Our Planet Great Again Lauréat* (2018)

*Humboldt Research Prize* (2017)

*Chief of the Forest Service Science Award, National Drought Assessment* (2016)

*Best poster award, Biennial World Congress of the International Soc Bayesian Analysis* (2016)

*Fellow of the Ecological Society of America* (2012)

*ISI Highly Cited Researcher* (2010)

*American Academy of Arts and Sciences* (2005)

*Distinguished Alumnus*, Natural Resources Conservation, Univ Massachusetts (2004)

*H.L. Blomquist Distinguished Professor*, Duke University (2001)

*Smith Fellowship*, Duke University (2000)

*Leopold Leadership Fellowship*, Ecological Society of America (1999)

*NSF Presidential Faculty Fellow* (1994)

*The George Mercer Award*, Ecological Society of America (1991)

*The William Skinner Cooper Award*, Ecological Society of America (1988)

*Fulbright-DAAD Scholarship* to West Germany (1983-84)

**Lectureships**

Plenary Lecture, *Advances in Complex Systems*, Lake Como School Adv Stud, Como (2019)

Opening Lecture, *47<sup>th</sup> Annual Alexander von Humboldt Symp*, Bamberg (2019)

Plenary Lecture, *Collaborations in Biodiversity Symposium*, Univ Florida (2019)

Plenary Lecture, *University Program in Ecology Annual Symposium*, Duke Univ (2018)

Symposium Lecture, *Ecol Soc Amer, Forecasting extremes: a research agenda*, New Orleans (2018)

Plenary Lecture, Quadrennial 12<sup>th</sup> Int Congress of Ecology (INTECOL), Beijing (2017)  
Plenary Lecture, *Climate Ecology and Tree Growth*, Harvard (2016)  
Invited Special Session, *Internat Soc Bayesian Analysis Biennial Conf*, Sardinia (2016)  
Plenary Speaker, *US-China Biodiversity Workshop*, NSF, Raleigh (2015)  
Plenary Lecture, *G70 Celebration of Alan Gelfand's career*, Durham (2015)  
Keynote speaker, *Graybill Conference, Amer Stat Assoc, Section Stat & Environm*, Ft Collins (2014)  
*Sun Yat-sen Lecture*, Guangzhou (2014)  
Plenary Speaker, *International Soc Biogeography Symposium*, Miami (2013)  
Plenary Speaker, *Next generation climate data products*, NSF/NCAR, Boulder (2013)  
*Symposium on hierarchical modeling*, Ecol Soc Japan, Kanto (2012)  
*Young Investigators Workshop on Data Assimilation in Global Change Science*, NSF Woods Hole (2012)  
*Inaugural lecture, Distinguished Lecturer Series*, Centre Global Change Science, Univ Toronto (2012)  
*Distinguished Ecologist Lecture Series*, Colorado State Univ (2012)  
Invited Speaker, *BayesComp2012, Internat Soc Bayesian Analysis Biennial Meeting*, Tokyo (2012)  
*Distinguished Ecologist Lecture*, Univ Kansas (2011)  
Plenary Speaker, *North American Forest Ecology Workshop*, Roanoke, VA (2011)  
Plenary Lecture, *Ecology and Control of Invasive Species*, Mathematical Biosciences Inst, Columbus (2011)  
*Distinguished Seminar Speaker Series*, College of ACES, Univ Illinois (2010)  
*Ecology Program Annual Speaker*, Utah State Univ (2009)  
Opening Plenary, *International Statistical Ecology Conf*, St Andrews (2008)  
Keynote speaker, *Annual Ecology Symposium*, Madison (2008)  
Invited speaker, *International Society for Bayesian Analysis*, Hamilton Island (2008)  
Keynote address, *Environmental Information Management*, Albuquerque (2008)  
Special Lecture, *Data Assimilation for the Carbon Cycle*, NCAR (2007)  
Plenary speaker, *Neural Information Processing Systems (NIPS) Conf*, Vancouver (2006)  
Keynote speaker, *1<sup>st</sup> Annual Ecosystem Informatics Symposium*, Oregon State (2006)  
Keynote address, *Uncertainty in Ecological Analysis*, Mathematical Biosciences Inst, Columbus (2006)  
Plenary Lecture, *Biogeographic responses to global change*, Internat Biogeogr Soc, Shepardstown (2005)  
*MacConnell Lecture*, Univ Massachusetts (2004)  
Plenary Lecture, *Multi-dimensional Forest Structure*, NASA (2003)  
Plenary Lecture, *Interfaces in Environmental Biology*, Univ Kentucky (2003)  
Plenary Lecture, *Dynamics of genetic diversity in forest ecosystems*, European Union, Strasbourg (2002)  
Plenary Lecture, *45<sup>th</sup> Symp Intern Assoc Veg Sci*, Porto Alegre, Brazil (2002)  
Plenary Lecture, *Gordon Conference: Theoretical Biology & Biomathematics*, Tilton (2002)  
*University Lecture*, Univ Wisconsin, Madison (2001)  
Keynote address, *Flammable Australia: the fire regimes of a continent*, Albury, New South Wales (1997)

## Government service

### Congressional testimony

2004 House Subcommittee on VA HUD and Independent Agencies

### Government agencies

#### Interagency

2015-16 co-Director, *Effects of Drought on Forests and Rangelands in the United States: A Comprehensive Science Synthesis*. Vose, J.M., J. S. Clark C. H. Luce, T. Patel-Weynand (editors) 2016. [United States Department of Agriculture, Forest Service Gen. Tech. Report WO-93b](#).

#### National Science Foundation

2015 Chair, annual meeting *Macrosystems Biology Workshop*, Washington DC  
 2012 Advisory Panel, *Ecosystems*  
 2010 Advisory Panel, *Ecology of Infectious Disease*  
 2006 External Review Panel: UCLA's *Center for Embedded Network Sensing (CENS)*  
 2005 Advisory Panel: High Performance Computing Workshop, Chicago  
 2003 *Cedar Creek LTER* Review Panel  
 1999 Advisory Panel, *LTER*  
 1995-00 Science Advisory Board, *National Center for Ecological Analysis and Synthesis*  
 1994 Advisory Panel, *Earth System History*  
 1992-97 Advisory Panel, *Ecology*  
 1992 External review panel: *Niwot Ridge, LTER*

#### National Academy of Science Engineering and Medicine

2018 Advisory to the Committee on Forest Health and Biotechnology

#### National Ecological Observatory Network

2017 Chair, *Terrestrial Sampling Technical Working Group*: advise NSF and the NSB on design to absorb 40% budget reduction.  
 2014- *Vegetation Technical Working Group*  
 2014-15 [Science Capability Review Team: Abbot M, Dawson T, Clark J,S, Covich A, Goldberg D, Kinzig A. NEON Science Capability Assessment. Boulder \(CO\): NEON, Inc.; 2015 19p.](#)  
 2007 NEON Global Change Experiment, Design Team  
 2007-8 NEON Project Execution Plan Review Panel  
 2005 NEON Design working group  
 2004 Climate Change working group, Tucson

#### U.S. Global Change Research Program

2018 Coauthor, *USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA. [doi: 10.7930/NCA4.2018](#).

NASA

- 2004 *Earth System Science Pathfinder Mission Concept planning workshop, JPL, Pasadena*  
 2002 *Earth Science Vision Steering Group, Washington DC.*

DOE

- 2018 Workshop Co-director: *Disturbance and Vegetation Dynamics in Carbon Cycle Models*

Foreign government

- 2019 *Make Our Planet Great Again, [advisory to President Macron on Biodiversity policy](#)*  
 2018 *Make Our Planet Great Again Lauréat, France*  
 2016 *Review Panel Research Infrastructures, German Council of Science and Humanities, Berlin*  
 1990-92 Program Advisory Committee, *Dahlem Conference: Fire in Natural Ecosystems*

NATO

- 1994 Director, Advanced Scientific Workshop, *Biomass burning emissions and global change, Algarve*

**Educational workshops**

- 2019—*Univ Ljubljana: Masting Inference and Forecasting: Methods and Analysis* (Univ Ljubljana, Slovenia); *NASA Biodiversity and Ecological Forecasting Team Meeting* (Wash DC); *Advances in Complex Systems*, Lake Como School Adv Stud, Como  
 2018 – Ecological Society of America Annual Meeting: *Generalized Joint Attribute Modeling*; University of Tennessee: *Generalized Joint Attribute Modeling*  
 2017 – SUNY Stonybrook: *Generalized Joint Attribute Modeling*  
 2016 – ILTER 1st Open Sci Meeting, Uncertainty Quantification for NEON, *Data synthesis* (Kruger Nat Park)  
 2015 – Statistics and Applied Math Inst: *Multivariate models in ecology* (Research Triangle Park)  
 2010 – Amer Statistical Assoc Annual Meeting: *Bayesian Ecology*, Vancouver; Northern Arizona State Univ IGERT: *Summer Inst on Hierarchical Modeling*  
 2009 – 2<sup>nd</sup> Summer Course on Flux Measurements and Advanced Modeling: *Bayesian Analysis* (Niwt Ridge); Northern Arizona State Univ IGERT: *Summer Inst on Hierarchical Modeling*  
 2008 – Northern Arizona State Univ IGERT: *Summer Inst on Hierarchical Modeling*  
 2007 – Northern Arizona State Univ IGERT: *Summer Inst on Hierarchical Modeling*  
 2006 – 2<sup>nd</sup> NSF Institute on Statistical Computation for Ecological Inference and Prediction (Duke); Northern Arizona State Univ IGERT: *Summer Inst on Hierarchical Modeling*  
 2005 – Statistics and Applied Math Inst: *Bayesian analysis for complex models* (Research Triangle Park); Northern Arizona State Univ IGERT: *Summer Inst on Hierarchical Modeling*  
 2004 – 1<sup>st</sup> NSF Institute on Statistical Computation for Ecological Inference and Prediction (Duke)

**Other professional activities**

- Organizer, *Masting Inference and Forecasting (MASTIF) Synthesis Workshop*, Grenoble (2019)  
 coOrganizer, *Joint Species Distribution Modeling Workshop*, Grenoble  
 Creator and Admin: Citizen Science *Masting Inference and Forecasting (MASTIF)*

Chair, *External Review Committee, Univ Kansas, Department of Ecology and Evolutionary Biology* (2017)

*Drought Impacts on U.S. Forests and Rangelands: Translating Science into Management*, San Antonio (2017)

Organizer and Convener: *Drought trends and vulnerability of North American forest and rangelands*, AGU, San Francisco (2016)

Organizing committee: *NIMBioS Graduate Workshop--Current Issues in Statistical Ecology* (2014-15)

Organizer: *Multivariate models for biodiversity and climate change*, SAMSI Working Group (2014-2015)

Coordinating committee, *SAMSI Program on Mathematical and Statistical Ecology* (2013-15)

Organizer, *Emerging methods in global change science*, NSF, Duke University (2013)

*Macrosystems Biology Workshop*, NSF, Boulder (2012)

Organizer, *New Perspectives on Data Assimilation in Global Change Science*, NSF Woods Hole (2012)

*Research Coordination Network, "Data-model assimilation"* NSF (2010-2012)

*Coordinated Approaches to Address Long-Term Issues in Global Change Experiments*, NSF-DOE (2009)

*Improving Ecological Forecasts by Integrating Feedback Mechanisms*, FEMMES, Potsdam (2009)

*Ecology of Infectious Disease Advisory Panel*, NSF (2009)

*Drivers of population change under threat*, Centre for Population Biology, London (2009)

Prog Comm: "Data-model assimilation in ecology: Techniques and applications" NSF, Norman (2007)

Prog Comm: "Development/Assessment of Complex Computer Models", *Stat & Appl Math Inst*, RTI (2005-2008).

Program Comm: "Control/assimilation wireless networks in global change" *Stat & Appl Math Inst*, RTI (2005-2008).

Director, *2<sup>nd</sup> NSF Institute on Statistical Computation for Ecological Inference and Prediction* (2006)

Organizing Comm, "Uncertainty in Ecological Analysis, *Math Biosci Inst*, Ohio State Univ, (2005-06)

Director, *NSF Institute on Statistical Computation for Ecological Inference and Prediction* (2003-04)

Organizer and Editor: *Uncertainty in ecological forecasting*, *Ecology* Special Feature (2001)

Director, *Ecological Forecasting*, NCEAS workshop, Santa Barbara (2000)

Faculty Director, *Center for Global Change*, Duke University (2000-2005)

Co-chair, *Sustainable Biosphere Initiative*, Ecol Soc America (1998-2003)

Chair, *Research Committee*, Ecol Soc America (1998-2003)

Planning workshop, *International Program on Ecosystem Change* (IPEC) (1999)

Observer, *Millennium Assessment Steering Committee* (1998)

Vice President of Science & Governing Board, *Ecological Society of America* (1998-2003)

Organizer, *The role of dispersal in Holocene migrations of trees*, NCEAS wksp, Santa Barbara (1996)

Organizer, *Climate and CO<sub>2</sub> effects on biomes across glacial/interglacial boundaries*, ESA Symp. (1995)

Chair, *Mercer Award Committee*, Ecological Society of America (1993-97)

## Editorial

**Guest Editor:** *PNAS* (2019, 2017); *Trends in Ecology and Evolution* 20<sup>th</sup> Anniversary Issue (with A. Reid) (2006); *Ecology* (2006); *PNAS* (2006); *Ecology* Special Feature: *Uncertainty in ecological forecasting*, (2003)

**Editorial Boards:** *Elementa* (2013 - 2020); *Trends in Ecology and Evolution* (2006 - ); *Journal of Agricultural, Biological, and Environmental Statistics* (2010 - 2014); *Ecosystems* (2004 – 2007); *Annual Reviews of Ecology and Systematics* (1998-2003); *Ecology and Ecological Monographs* (1996-99); *Global Change Biology* (1994-2007)

## Major Research Funding

NSF-ICER- 2033934 (\$299,693) “Identifying microbes’ population-level environmental responses using Bayesian modeling.” Other PIs (Dana Hunt (lead) and Mark Borsuk, 2 yr (2020)

NASA-18-AIST18-0063 (\$574,926) “The bridge from canopy condition to continental scale biodiversity forecasts, including the rare species of greatest conservation concern”. other PIs Jennifer Swenson, 2 yr (2019)

NSF-DEB-1754443 (\$1,213,977): “Collaborative Research: Combining NEON and remotely sensed habitats to determine climate impacts on community dynamics”. other PIs Jennifer Swenson, Roland Kays, 4 yr (2018).

Ministère de l’Enseignement Supérieur de la Recherche et de l’Innovation, France, *Make Our Planet Great Again* (\$1,277,416): “Forecasting Biodiversity Change” other PIs: Benoit Courbaud, Wilfried Thuiller, Georges Kunstler, 4 yr (2018).

NSF ICER/Belmont Forum Biodiversa (\$179,997 Duke budget): “Scenarios of Biodiversity and Ecosystem Services”, other PIs W Thuiller et al., 4 yr (2018).

NASA-16-AIST16-0052 (\$483,367) “Generative Models to Forecast Community Reorganization with Climate Change”. other PIs Jennifer Swenson, 2 yr (2017).

NSF-EF-1550911 \$(266,279) “Collaborative Research EAGER-NEON: Probabilistic Forecasting of Biodiversity Response to Intensifying Drought by Combining NEON, National Climate, Species, and Trait Data Bases”. other PIs: Rob Dunn, Alan Gelfand, Roland Kays, Diana Nemergut, 2 yr (2015)

NSF-EF-1137364 (\$4,273,484) "Macrosystems: Climate change impacts on forest biodiversity: individual risk to subcontinental impacts", other PIs: Alan Gelfand, Mike Dietze, Andrew Finley, Sean McMahon, Jackie Mohan, Maria Uriarte, coPIs, 5 yr (2011).

ONR (\$413,136) “Population Consequences of Acoustic Disturbance for Marine Mammal Populations”, 3 yr (2009).

DEB-0955904 (\$593,331) “Pathogen mediated diversity and response to climate change”, Rytas Vilgalys, Michelle Hersh, coPIs, 4 yr (2009).

NSF-LTER (\$225,000) “Southern Appalachia on the Edge –Exurbanization & Climate Interaction in the Southeast” 6 yr (2009).

NSF-CDI 0940671 (\$1,701,370) “Integrating algorithmic and stochastic modeling techniques for environmental prediction”, Pankaj Agarwal, Alan Gelfand, coPIs (2009).

USFS (\$165,000) “Remote Sensing Climate-Related Forest Stress: Development of a Real Time Decision Support System for the Southern U.S.” (2009)

DOE (\$654,845, Duke Budget, \$2,185,451 total) “Effects of warming on tree species’ recruitment in deciduous forests of the eastern United States”. Jerry Mellilo, Jackie Mohan, coPIs. (2008).

NSF DDDAS 0540347 (\$1,247,845, Duke Budget, \$1,690,000 total) “Collaborative Research: DDDAS-TMRP: Dynamic Sensor Networks - Enabling the measurement, modeling, and

- prediction of biophysical change in a landscape". Pankaj Agarwal, Carla Ellis, Paul Flikemma, Alan Gelfand, Kamesh Mungala, Jun Yang, co PI's, 5 yr (2005).
- NSF DEB-0527070 (\$126,000). "The 2nd Summer Institute: Uncertainty in Ecological Inference, Forecasting, and Decision: Modern Statistical Computation," Alan Gelfand, Barbara Braatz, Carol Brewer, co-PIs (1 yr) 2005.
- NSF SEII 0430693 (\$317,291, Duke budget) "Collaborative Research: SEI\ (BIO\)--Automated Methods for Generating High-Resolution GIS Databases from Remotely Sensed Data for Biodiversity Predictions" Howard Shultz, Thomas Millette, co PIs, 4 yr (2004).
- NSF DEB 0425465 (\$499,907). "Integration of data and models to assess forest biodiversity". Pankaj Agarwal, co-PI, 3 yr (2004).
- NSF IDEA-0308498 (\$453,474 Duke budget). "Large-Scale Wireless Sensor Networks for In Situ Observation of Ecosystem Processes". Paul Flikkema, Bruce Hungate, George Koch, Steve Sillette, co-PIs, 5 yr (2003).
- NSF DEB- 0308724 (\$96,000). "Summer Institute on Statistical Computation for Ecological Inference and Prediction". 1 yr (2003).
- NSF ATM-0212962 (\$234,226, Duke budget) "Collaborative Research: Holocene Drought Cycles and Impacts on the Northern Great Plains". E. Grimm, J. Donovan, co-PIs , 3 yr (2002).
- NSF subcontract (RR551-080 2401964) (\$220,481, Duke Budget): "Long-term studies of disturbances as they affect ecological processes in landscapes of the southern Appalachians". 6 yr (2002).
- NSF BDEI: 0131905 (\$93,181) "Computation and uncertainty in ecological forecasting", P. Agarwal and M. Lavine, co-PIs. 1 yr. (2001)
- NSF DEB-0089769 (\$250,000): "Rates of range expansion in eastern trees based on fossil and molecular data". J. McLachlan, P Manos, co-PIs. 3 yr. (2001)
- DOE (\$3,2111,960): "Duke Forest Experiment: Continuation". 10 PIs. 3 yr. (2001)
- NSF DEB-0074705 (\$25,000): "Ecological Forecasting: an emerging imperative". Workshop. (2000)
- NSF DEB-9981392 (\$480,000): "Experimental and model analysis of large disturbance consequences for forest diversity". 4 yr (1999)
- DOE (\$297,971): "Forest succession in a CO2 enriched environment". W.H. Schlesinger, co-PI. 3 yr
- NSF (number pending) (\$66,000): "The role of wildfire in Alaska: experimental and regional approaches to improved understanding of boreal feedbacks to climate". 3 yr (1997)
- NSF DEB-9632854 (\$214,981, Duke budget): "Long-term studies of disturbances as they affect ecological processes in landscapes of the southern Appalachians". 5 yr. (1996)
- NSF ATM (\$12,189): "Subdecadal reconstruction of drought patterns in North America's arid interior: 0 - 2 ka. 1 yr. (1996)
- Presidential Faculty Fellow Award DEB 9453498 (\$500,000). 5 yr. (1995)
- US Fish and Wildlife (\$25,000): "Fire and insect outbreaks on Kenai Peninsula, Alaska". 1 yr. (1995)
- NSF BSR-9444146 (\$156,000): "Long-term studies of ecosystem response to disturbance along environmental gradients at Coweeta Hydrologic Laboratory". 2 years. (1994)
- NSF DEB-9419677(\$242,696): "Prehistoric biomass burning at local to regional scales in eastern North America". E. Grimm, co-PI. 3 yr. (1994)
- NATO/NSF Advanced Workshop Series (\$51,000): "Biomass burning emissions and global change", Algarve, Portugal, (1994)
- NSF BSR-9107272 (\$195,000): "The role of fire in prehistoric times of rapid climate change". 3 yr. (1991)

NSF/LTER (\$150,000): “Long-term studies of ecosystem response to disturbance along environmental gradients at Coweeta Hydrologic Laboratory”. 6 years (1991)

NSF BSR-8818355 (\$205,000): “Long-term climate change and fire regimes in eastern North America”. H.E. Wright, co-PI. 2 yr. (1989)

Fulbright-DAAD, “Holocene fire and vegetation dynamics in southwestern Germany”. (1983)

### University service

- 2019 - Program II Committee
- 2018 – 19 Chair, Faculty Council, Nicholas School of the Environment
- 2018 Promotion Committee, Nicholas School of the Environment
- 2018 - Arts & Sciences Committee on Program II, Natural Sciences Representative
- 2018 Duke Alumni Travel Faculty Representative, Galapagos Islands
- 2018 Promotion Committee, Nicholas School of the Environment
- 2017 – 19 Faculty Council, Nicholas School of the Environment
- 2017 Promotion Committee, Nicholas School of the Environment
- 2017 Duke Alumni Travel Faculty Representative, Panama/Costa Rica
- 2016 Promotion Committee, Nicholas School of the Environment
- 2016 Structure Committee, Nicholas School of the Environment
- 2016 - Education Committee, Nicholas School of the Environment
- 2016 Duke Alumni Travel Faculty Representative, Amazon basin
- 2015 Promotion Committee, Nicholas School of the Environment
- 2014 Promotion Committee, Nicholas School of the Environment
- 2014 - 19 *Oosting Lecture committee*, Chair
- 2013 - 16 Academic Promotion and Tenure Committee
- 2013 Promotion Committee, Biology
- 2013 Promotion Committee, Nicholas School of the Environment
- 2012 - 14 Strategic Priorities Committee, Nicholas School of the Environment
- 2010 - 12 Chair, Life Sciences Faculty, Nicholas School of the Environment
- 2011 - Executive Committee, University Program in Ecology
- 2010 Chair, Ecohydrology cluster hire search committee, Nicholas School of the Environment
- 2010 Promotion committee, Biology
- 2009 Chair, Promotion committee, NSOE/Inst Genomic Science & Policy
- 2008 - 09 Chair, Search committee, NSOE/Inst Genomic Science & Policy
- 2008 - 09 Chair, Promotion committee, Biology
- 2007 - 09 University Academic Council
- 2007 - 10 Graduate Admission Committee, Nicholas School of the Environment
- 2005 - 14 Chair, Distinguished Professors Committee, Nicholas School of the Environment
- 2004 - 10 Promotion Review Committee, Biology
- 2002 Provost’s Scientific Advisory Committee, Multidisciplinary Sciences Building
- 2001- 03 Faculty Director, Center for Global Change
- 2001- 04 Advisory Committee on Distinguished Professorships (Chair, Natural Sciences)
- 2001 Search Committee, Biology Chair
- 2001 Chair of Search committee, Doris Duke Chair of Conservation Biology
- 2001 Promotion committee
- 2001 Promotion committee
- 2001- 04 Duke Forest committee
- 2000 Botany Academic Priorities committee



- 2000- Biology Graduate committee
- 2000 Search committee, Aquatic Biology, Nicholas School of the Environment
- 2000 - 02 Computer Committee, Dept Biology
- 1999 - 04 Director of Graduate Studies, Univ Program in Ecology
- 1999 Provost's Task Force on Biological Sciences
- 1999 Promotion committee
- 1999 Promotion committee
- 1998 Chair of Search Committee, Evolutionary Biology
- 1998 - 00 Director of Graduate Studies, Botany
- 1995 Dean's task force on Biological Sciences
- 1993 Search Committee, Landscape ecology, Nicholas School of the Environment

## Books

- Kueppers, L. and J.S. Clark (Co-directors and editors) U.S. DOE. 2018. *Disturbance and Vegetation Dynamics in Earth System Models*, [DOE/SC-0196](#). Office of Biological and Environmental Research, U.S. Department of Energy Office of Science.
- Vose, J.M., J. S. Clark C. H. Luce, T. Patel-Weynand (editors) 2016. *Effects of Drought on Forests and Rangelands in the United States: A Comprehensive Science Synthesis*. [United States Department of Agriculture, Forest Service Gen. Tech. Report WO-93b](#).
- Clark, J.S. 2007. *Models for Ecological Data*. Princeton University Press.
- Clark, J.S. 2007. *Ecological data models with R*. Princeton University Press.
- Clark, J.S. and A. E. Gelfand (eds). 2006. *Hierarchical Modelling for the Environmental Sciences*. Oxford University Press, Oxford, England.
- Clark, J. S., B. J. Stocks, H. Cachier, and J. G. Goldammer (eds). 1997. *Sediment Records of Biomass Burning and Global Change*. Springer Verlag, Berlin, Germany.

## Software

- Clark, J.S. 2016. gjam: Generalized Joint Attribute Modeling in R, <https://cran.r-project.org/web/packages/gjam/index.html>
- Clark, J.S. 2019. mastif: Mast Inference and Forecasting in R, <https://cran.r-project.org/web/packages/mastif/index.html>, <http://rpubs.com/jimclark/281413>.

## Publications

- 1) Clark, J. S., C. Lane Scher, and Margaret Swift. 2020. The emergent interactions that govern biodiversity change. *Proceedings of the National Academy of Sciences*, in press.
- 2) Qiu, T., C. Song, J. S. Clark, B. Seyednasrollah, and N. Rathnayaka. 2020. Understanding the continuous phenological development at daily time step with a Bayesian hierarchical space-time model: impacts of climate change and extreme weather events. *Remote Sensing of Environment*, in press.
- 3) Seyednasrollah, B. and J.S. Clark. 2020. Where resource-acquisitive species are located: The role of habitat heterogeneity. *Geophysical Research Letters* 47, e2020GL087626, <https://doi.org/10.1029/2020GL087626>.
- 4) McDowell, N.G, C. D. Allen, K. Anderson-Teixeira, B. H. Aukema, B. Bond-Lamberty, L. Chini, J. S. Clark, M. Dietze, C. Grossiord, A. Hanbury-Brown, G. C. Hurtt, R. B. Jackson, D. J. Johnson, L. Kueppers, J. W. Lichstein, K. Ogle, B. Poulter, T. A.M. Pugh, R. Seidl, M.

- G. Turner, M. Uriarte, A. P. Walker, C. Xu. 2020. Pervasive shifts in forest dynamics in a changing world. *Science*, in press.
- 5) Clark, J.S., C. Nunes, and B. Tomasek. 2019. Masting as an unreliable resource: spatio-temporal host diversity merged with consumer movement, storage, and diet. *Ecological Monographs*, <https://doi.org/10.1002/ecm.1381>.
  - 6) Wang, Z., D. L. Juarez, J.-F. Pan, S. K. Blinbery, J. Gröniger, J. S. Clark, Z. I. Johnson, and D. E. Hunt. 2019. Microbial communities across nearshore to offshore coastal transects are shaped by both distance from shore and seasonality. *Environmental Microbiology*, in press.
  - 7) Seyednasrollah, B., J.-C. Domec, and J.S. Clark. 2019. Spatiotemporal sensitivity of thermal stress for monitoring canopy hydrological stress in near real-time. *Agricultural and Forest Meteorology*, 269, 220-230.
  - 8) Domke, G.M., Fettig, C.J., Joyce, L.A., Keane, R.E., Luce, C.H., Prestemon, J.P., Band, L.E., Clark, J.S., Cooley, N.E., D'Amato, A., and Halofsky, J.E., 2018 Forests. in USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA. doi: 10.7930/NCA4. 2018.
  - 9) Nunez, C. J.S. Clark, and J. Poulson. 2018. Low-intensity logging and hunting have long-term effects on seed dispersal but not fecundity in Afrotropical forests. *Annals of Botany*, <https://doi.org/10.1093/aobpla/ply074>.
  - 10) Berdanier, A. and J. S. Clark. 2018. Tree water balance drives temperate forest responses to drought. *Ecology*, 99: 2506-2514.
  - 11) Bachelot B., Uriarte M., Muscarella R., Forero-Montana J., Thompson J., McGuire K., Zimmerman J.K., Swenson N.G. and J.S. Clark. 2018. Associations among arbuscular mycorrhizal fungi and seedlings are predicted to change with tree successional status. *Ecology*, 99: 607-620.
  - 12) Schliep, E.M., A. E. Gelfand, J. S Clark, and R. Kays. 2018. [Joint Temporal Point Pattern Models for Proximate Species Occurrence in a Fixed Area Using Camera Trap Data](#). *Journal of Agricultural, Biological, and Environmental Statistics*, 23: 334–357.
  - 13) Seyednasrollah, B. J. Swenson, J.-C. Domec, and J. S. Clark. 2018. Leaf phenology paradox: why warming matters most where it is already warm. *Remote Sensing of Environment*, 209: 446-455.
  - 14) Knoepp, J., See, C., Vose, J., Miniati, C., and J.S. Clark. 2018. Total C and N pools and fluxes vary with time, soil temperature, and moisture along an elevation, precipitation and vegetation gradient in southern Appalachian forests. *Ecosystems*, 21: 1623–1638.
  - 15) Clark, J.S. and A.E. Gelfand. 2018. Accommodating so many zeros: univariate and multivariate data. Pages 211 – 239 in A.E. Gelfand, M. Fuentes, J. Hoeting, and R. Smith (eds) *Handbook of Environmental Statistics*. CRC Press, Boca Rotan, FL.
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### Invited talks—seminars, symposia, and conferences

- 2020 Environmental Biology, UC Santa Cruz  
Biology, Rice University
- 2019 Invited Symposium, *Macrosystems Biology Annual Meeting*, Boulder  
Doñana Biol Inst, Sevilla  
German Centre for Integrative Biodiversity Research (iDiv), Halle-Jena-Leipzig
- 2018 *Southeastern Climate Science Center*, annual meeting  
Invited symposium: *Forecasting the effect of extreme climatic events on population dynamics: a research agenda*, Ecol Soc America, New Orleans  
Ecology, Univ Tennessee  
*Disturbance and Vegetation Dynamics in Carbon Cycle Models*, DOE (Washington DC)
- 2017 Plenary Lecture, *12<sup>th</sup> Int Congress of Ecology (INTECOL)*, Beijing  
*Drought Impacts on U.S. Forests and Rangelands: Translating Science into Management*, USFS (San Antonio)  
Ecology and Evolution, Stony Brook University  
Forestry and Natural Resources, Purdue University  
NIMBioS Investigative Workshop: *Species' Range Shifts in a Warming World* (Knoxville)  
Invited Session, *Functional Traits and Ecological Communities across Climate Gradients*, Ecol Soc America (Portland)
- 2016 Invited symposium on *Global scale patterns of invasion*, Annual Meeting, Int Assoc Landscape Ecol, Asheville  
Plenary Lecture, *Climate Ecology and Tree Growth*, Harvard  
Invited session ILTER *First Open Science Meeting*, Kruger Nat Park, S Africa



- Workshop: ILTER *First Open Science Meeting*, Uncertainty Quantification for LTER and NEON, Kruger Nat Park
- Invited Special Session, *Internat Soc Bayesian Analysis Biennial Conf*, Sardinia
- 2015 Global Ecology, Stanford-Carnegie  
 Plenary Speaker, *US-China Biodiversity Workshop*, NSF, Raleigh  
 Invited session: *Dynamic species distribution models*, ESA annual meeting  
*The Macrosystems Biology Program*, NSF, Washington DC  
*National Institute for Environmental Science and Research*, Grenoble  
 Multivariate models in ecology, *Statistics and Appl Math Sci Institute*, Res Tri Park  
 Plenary lecture, *G70 Celebration of Alan Gelfand's Birthday*, Durham
- 2014 *Symp on Climate Change and Biodiversity in the SE*, East Carolina Univ  
 Earth Sciences, Boston Univ  
*Graybill Conference*, Amer Stat Assoc Section on Statistics & Environment, Ft Collins  
*Bayesian Analysis for ecological Data*, Beijing  
 Scripps Oceanographic Inst, La Jolla
- 2013 Agric, Forest, & Environm Sci, Clemson  
*Plenary International Soc Biogeography Symposium*, Miami  
*Next Generation Climate Data Products*, NCAR  
 Biology, East Carolina Univ  
*Ecological Theory*, ETH/Univ Zurich  
 Biology, Marine Biological Lab, Woods Hole
- 2012 Ecology, Penn State University  
*NSF workshop on Data assimilation*, Woods Hole  
*Symposium on hierarchical modeling*, *Ecol Soc Japan*, Kanto  
*Inaugural lecture, Distinguished Lecturer Series*, Centre for Global Change Science, Univ Toronto  
 Invited Speaker, *BayesComp2012, Internat Soc Bayesian Analysis Biennial Meeting*, Tokyo  
*Distinguished Ecologist Lecture Series*, Colorado State Univ
- 2011 *Challenges to Ecological Modelling and Theory in a Changing World*, Berlin  
 Ecology/Forestry, Michigan State University  
 Plenary Lecture, Ecology and Control of Invasive Species, Math Biosci Inst, Columbus  
 Distinguished Ecologist Lecture, Univ Kansas  
 Plenary Lecture, North Amer Forest Ecology Workshop  
 Conservation Biology, Univ Michigan
- 2010 Ecology, Univ Georgia  
 Ecology, McGill Univ  
 Ecology Center, Utah State Univ  
*Population Consequences of Acoustic Disturbance to Marine Mammals*, Office of Naval Research  
 Ecology, Univ Connecticut  
*Distinguished Seminar Speaker Series*, College of ACES, Univ Illinois  
 Ecology, Univ Utah
- 2009 Plant Ecology & Nature Conservation, Univ Potsdam  
*Second Summer Course on Flux Measurements and Advanced Modeling*, NSF, Niwot Ridge  
 Paleoecology, Univ Minnesota  
 IGERT Short Course, NAU, *Hierarchical modeling in ecology*  
*Coordinated Approaches to Address Long-Term Issues in Global Change Experiments*, NSF-DOE  
*Population change under different threat scenarios*, Univ London, Silwood Park  
*Improving Ecological Forecasts by Integrating Feedback Mechanisms*, FEMMES, Potsdam  
*Population Consequences of Acoustic Disturbance to Marine Mammals*, Office of Naval Research

- Ecology, Notre Dame
- 2008 Invited speaker, *International Society for Bayesian Analysis*, Hamilton Island  
 Experimental Forest Research Conference, USFS, Shepardstown  
 Keynote speaker, *Annual Spring Ecology Symposium*, Madison  
 Keynote address, *Environmental Information Management*, Albuquerque  
*Ecological Forecasting: Applications of model-data fusion techniques*, ESA Symposium, Milwaukee.  
 Opening plenary, *International Statistical Ecology Conf*, St Andrews  
 Biomathematics, NCSU  
 CEMAGREF, Grenoble  
*Prediction of biome boundary shifts in regional and global dynamic vegetation models*, Yokohama  
 Inst Ecosystem Studies, Millbrook
- 2007 *Statistics in ecological and climate modeling*, Invited Session, Joint Stat Meetings, Salt Lake City  
*Mathematical Challenges / Opportunities in Sensor Networking*, Inst Pure & Appl Math, UCLA  
*Uncertainty in age estimation*, Max Plank Inst Demography, Rostock  
 Transition workshop, *Complex computer models*, Res Tri Park.  
 Center for Forest Ecosystem Assessment, Alabama A&M  
*Data-Model Assimilation in Ecology*, NSF Workshop, Norman  
 Ecology, UC Santa Barbara  
 Special Seminar, *Data Assimilation for the Carbon Cycle*, NCAR
- 2006 Botany, North Carolina State University  
*2nd International Research Workshop of Evolutionary Demography*. Max Plank Inst Demography,  
 Rostock  
 Tutorial, *Complex Computer Models*, Stat & Appl Math Inst, Research Triangle Park  
 Ecology, Univ North Carolina Chapel Hill  
 Keynote speaker, *1<sup>st</sup> Annual Ecosystem Informatics Symposium*, Oregon State  
 Ecology, Wake Forest University  
 Plenary speaker, *Neural Information Processing Systems (NIPS) Conf*, Vancouver  
 Center for Integrating Statistical and Environmental Science, Univ Chicago  
 Ecology, McGill University  
 Population Research Institute Colloquium, Duke Univ  
 Keynote Address, *Uncertainty in Ecological Analysis*, Math Biosci Inst, Columbus
- 2005 *Biogeographic responses to global change*, Internat Biogeogr Soc, Shepardstown, WV  
*Frontiers of Environ Change Research: Climate Change Drivers, Impacts, and Policy*, Brown Univ  
 Biology, Harvard  
 Ecology, Univ Tennessee  
 Ecology, Univ Montana  
 TERRAC: *Modeling Ecosystem Responses to Global Change*, Sanibel, FL  
*How to succeed in Ecology*, ESA panelist  
*Testing hypotheses with the Paleorecord*, ESA speaker.  
 Ecology, Penn State  
 Botany, Univ Vermont  
 TERRAC: *Global Environmental Change and Biodiversity*, Paris.  
*Stony Brook World Environmental Forum*, SUNY Stony Brook, NY
- 2004 Ecology, Univ Georgia  
*Winemiller Symp: New Developments of Stat Anal in Ecol Res*, Univ Missouri  
*CIEMAS Dedication ceremony: Sensor technology for environmental protection*. Duke Univ  
*Landscapes, Genomics and Transgenic Conifers*, Nicholas Environm Leadership Forum, Durham  
 Biological Sciences, Univ Illinois Chicago

- Earth System Science Pathfinder Mission Concept* planning meeting, JPL, Pasadena  
*NEON Climate Change* planning workshop, Tucson  
 Ecology, Ohio Univ  
*Mathematical Models for Biological Invasions*, Banff Int Res Station, Math Innovation  
*Computational Environmetrics* Environ Sect, Am Stat Assoc/Int Stat Environm Sci, Univ Chicago  
 Ecology/Math, Colorado State Univ  
*Models for estimating population size*, Environm Sec, Joint Statistical Meetings, Toronto  
 Ecology, Northern Arizona Univ  
 Geography, Univ North Carolina  
*Interagency Climate Change Science Program (CCSP) Ecosystems Workshop*, Washington DC
- 2003 Ecology, Cornell University  
 Biology, Univ Miami  
 Keynote lecture, *Interfaces in Environmental Biology*, Univ Kentucky  
 Biology, Univ Illinois  
*Multi-dimensional Forest Structure*, NASA Workshop  
 Research Prospects of NSF BDEI Program  
 Morrison Institute, Stanford University  
 Biology, Rutgers Univ
- 2002 Gordon Conference: *Theoretical Biology & Biomathematics*, Tilton, NH  
 NSF Digital Government Conference, Los Angeles  
 IUFRO: *Dynamics of genetic diversity in forest ecosystems*, European Union, Strasbourg  
 Millennium Assessment Wrkshp: *Conceptual Tools for Biodiversity Scenarios*, Trinidad  
 Biology, Univ Nebraska  
*Climate Change Impacts and Integrated Assessment Wrkshp*, Snowmass, CO  
 Biology, Bowdoin College  
 American Meteorological Society, RTP  
 ESA Symposium: *Uncertainty in ecological estimation and forecasting*  
 Biology, Rice University  
 Statistics, NC State University
- 2001 NCEAS Workshop: *A new synthesis of demography and dispersal*, Santa Barbara  
 Ecology, Michigan State Univ  
 Inst Statistics & Decision Sci, Duke University  
 ESA Symposium: *Extreme Event Analysis in Ecology*  
 ESA Symposium: *Long distance dispersal*  
 Workshop: *Seed dispersal and migration modeling*, Montpelier  
 University lecture, Univ Wisconsin  
 Univ Program Ecology, Duke University
- 2000 Planning workshop: *International Program on Ecosystem Change (IPEC)*. Paris  
 Workshop: *Ecological Forecasting: an Emerging Imperative*, Santa Barbara  
 Ecology and Evol Biology, Princeton University  
 Ecology and Evol Biology, Univ of Arizona
- 1999 GTCE Workshop: *Evolutionary and ecological responses to environmental change*, Reno.  
 Keynote address, *Flammable Australia: the fire regimes of a continent*, Albury, New South Wales  
 Biology, Wake Forest Univ  
 Biology, Louisiana State Univ  
 Environmental Science, Frostburg Univ  
 Steering committee observer, *The Millennium Assessment*, Washington DC
- 1998 Ecology, Univ Minnesota

- Limnological Res Cent, Univ Minnesota  
 Ecology, Stony Brook  
 Plant Biology, CSIRO, Canberra  
 Geography, Univ Monash  
 Biology, Univ North Carolina
- 1997 Bodega Marine Lab, UC  
 Symposium: *Long-term Environmental Dynamics*, Wengen, Switzerland  
 Workshop: *Global Change and Terrestrial Ecosystems - Landscape scale processes*, San Diego
- 1996 Botany, Univ Vermont  
 Workshop: *The role of dispersal in the Holocene expansion of forest trees*, Santa Barbara  
 Workshop: *Plant dispersal and migration in response to climate change*, Bateman's Bay, Australia
- 1995 NASA Conference: *Biomass burning and global change* (Williamsburg)  
 Forestry, Penn State
- 1994 Amer Quaternary Assoc: *Models in Quaternary Paleorecords* (Mpls)  
 Environm Sci, Univ VA
- 1993 Ecology, Univ Illinois  
 Symposium: *Extending long-term ecological monitoring into the past* (ESA, Madison)
- 1992 Biology, McGill Univ  
 Biology, Univ Quebec  
 Botany, Duke Univ  
*Dablen Conference: Fires in natural ecosystems* (Berlin)  
 Stichting Mathematisch Centrum, Univ Amsterdam  
 Biology, UNC-Chapel Hill  
 Savanna River Ecol Lab  
 Symposium: *Testable models of ecological dynamics?* (ESA, Honolulu)  
 Workshop: *The role of ecological models in earth system modeling.* (UCAR, Boulder)
- 1991 Geology, Univ. Georgia  
*Special Year in Theoretical and Computational Biology* (Cent Appl Math, Cornell)  
 Institute of Ecology, Univ Georgia  
 Symposium: *Patch Dynamics in Terrestrial, Marine, and Freshwater Ecosys* (Cornell)  
 Symposium: *Consequences of global change for communities* (Univ Wash)
- 1990 Biology, Univ Wis-Milwaukee  
 Public Lecture Series on Global Climate Change, Univ Maine  
 Botany, Univ Georgia  
 Symposium: *Populations, Communities, & Ecosystems: an Individual Perspective*, Knoxville  
 Oak Ridge Nat Lab, Oak Ridge  
 Symposium: *Biotic indicators of global change*, Friday Harbor  
 Workshop: *Earth Syst Modeling* (Global Change Inst, Univ Corp Atm Res, Snowmass)  
 Geography, Univ Georgia  
 Dept Biology, Clemson  
 Limnol Res Center, Univ Minnesota  
 Symposium: *Scaling processes between Leaf and Landscape Levels* (Snowbird, UT)
- 1989 Ecosystem Res Center, Cary Arboretum  
 Biology, SUNY Albany  
 Sect Ecol & Syst, Cornell Univ  
 Symposium: *Global Climate Change and Life on Earth*, New York State Ed Dept  
 AIBS Symposium: *Environmental Impact of Global Climate Change*, Toronto
- 1988 Biol Survey, New York State Museum

Div Biol Science, Kansas State Univ  
 Botany, Univ Maine  
 Quaternary Inst, Univ Maine  
 Workshop: *Wildfire and Global Clim Change*, Nat Cen Atmosph Res & US For Serv  
 Dept Bot, Univ Toronto

## Presentations at annual meetings

- Bell, D.M., E. J. Ward, J. S. Clark, and R. Oren. 2009. Can differences in stomatal regulation explain competitive differences among tree species? Ecological Society of America Annual Meeting.
- Hersh, M.H. and J.S. Clark. 2009. Why generalist fungi may matter in shaping plant diversity: Parsing out fungal function in a multispecies context. Ecological Society of America Annual Meeting.
- Moran, E.V. and J. S. Clark. 2009. Contrasting patterns of dispersal and gene flow in two populations of red oak (*Quercus rubra*). Ecological Society of America Annual Meeting.
- Rapp' J.M., M. R. Silman, and J. S. Clark. 2009. Diameter growth across an altitudinal gradient in the cloud forest tree genus *Weinmannia*. Ecological Society of America Annual Meeting.
- McMahon, S., J.S. Clark, P. K. Agarwal, and M. Dietze. 2009. Forest biodiversity is not maintained by the immigration-extinction balance. Ecological Society of America Annual Meeting.
- Way, D.A., S. L. LaDeau, H. R. McCarthy, J. S. Clark, R. Oren, A. C. Finzi, and R. B. Jackson. 2009. Greater seed production in elevated CO<sub>2</sub> is not accompanied by reduced seed quality in loblolly pine. Ecological Society of America Annual Meeting.
- Clark, J.S. and M. Hersh. 2009. When multiple pathogens infect multiple hosts: Inference for incidence, infection, and impact. Ecological Society of America Annual Meeting.
- McMahon, S., J. S. Clark, P. K. Agarwal, and H. Yu. 2008. Simulating future forests: Process uncertainty, individual differences, and the importance of frailty to predicting forest community dynamics. Ecological Society of America Annual Meeting.
- Moran, E., J.S. Clark, and J. Willis. 2008. Spatial genetic structure in two populations of northern red oak (*Quercus rubra*): Implications for seed and pollen movement and demographic processes. Ecological Society of America Annual Meeting.
- Metcalf, J.E., and J.S. Clark. 2008. Tree growth inference when the point of measurement changes: Modeling around buttresses in tropical forests. Ecological Society of America Annual Meeting.
- Clark, J.S., M. C. Dietze, R. W. Lucas, A. M. Latimer, S. McMahon, and J. Metcalf. 2008, A network platform for understanding biodiversity change: Data and models to maximize learning.
- Hersh, M.H., R. Vilgalys, and J.S. Clark. 2008. Generalist fungal pathogens and seedling recruitment in a temperate mixed hardwood forest. Ecological Society of America Annual Meeting.
- McMahon, S. M., J. S. Clark, P. Agarwal, and H. Yu. October 2007. (Poster.) Putting the forest together again: simulating forest dynamics from data. NSF workshop on Data-Model Assimilation. Norman, OK.
- McMahon, S. M. and J. S. Clark. March, 2007. Modeling the trees for the forest: a computer simulation of a terrestrial ecosystem. A course for the Terrestrial Modeling component of the Statistical and Applied Mathematical Sciences Institute (SAMSI) Education and Outreach Program for 2006-2007. Research Triangle, NC.
- Salk, C.F.\* and J.S. Clark. 2007. Sprouting ability of diverse tropical tree species depends on environmental conditions. Ecological Society of America Annual Meeting.
- Colchero, F. \* and J.S. Clark. 2007. Estimation of age-specific survivorship when age is unknown. Ecological Society of America Annual Meeting.

- Moran, E.V. \* and J. S. Clark 2007. Simultaneous parentage and dispersal estimation in monoecious plants: A Bayesian approach, combining genetic and spatial data. Ecological Society of America Annual Meeting.
- Wu, W. \* and J.S. Clark. 2007. Applying Bayesian inference on a conceptual hydrological model
- Hersh, M.H.\*, J. S. Clark, and R. Vilgalys. 2007. Effects of fungal and oomycete pathogens on seedling recruitment in a temperate mixed hardwood forest. Ecological Society of America Annual Meeting.
- Clark, J.S.\*, M. C. Dietze, M. H. Hersh, I. Ibanez, S. L. LaDeau, J. Mohan, M. Wolosin. 2007. Interacting life history schedules of trees: Implications for biodiversity. Ecological Society of America Annual Meeting.
- Mohan, J.\*, Melillo, J., Schlesinger, W., Clark, J.S. 2006. Global change impacts on temperate forests: increased temperature and CO<sub>2</sub>. Ecological Society of America Annual Meeting.
- Wolosin, M., Clark, J.S., Dietze, M., Chakraborty, S., Agarwal, P. 2006. The three dimensional structure of canopy trees: how to model crowns for light-driven growth. Ecological Society of America Annual Meeting
- Salk, C.F.\*, Augspurger, C., Clark, J.S. 2006. Projections of climate change driven shifts in temperate trees' budbreak and leaf expansion dates. Ecological Society of America Annual Meeting
- Beckage, B.\*, Clark, J.S. 2006. Fires, hurricanes, and tree mortality: multi-factor natural experiments as a model selection problem. Ecological Society of America Annual Meeting
- Flikkema\*, P.G., PK Agarwal, JS Clark, C Ellis, A Gelfand, K Munagala and J Yang .The Precision and Energetic Cost of Snapshot Estimates in Wireless Sensor Networks. IEEE Symposium on Computing and Communications (ISCC 2006), Pula-Cagliari, Italy, June 2006.
- Dietze, M\*, Clark, J.S. 2006. Regeneration dynamics in large forest gaps: assessing the importance of resprouting. Ecological Society of America Annual Meeting.
- Grimm EC\*, Brown KJ, Clark JS, and Donovan JJ. 2005. Fire, Drought, and Vegetation cycles on the Northern Great Plains. Fire History and Climate Synthesis in the western United States workshop sponsored by Western Mountain Initiative, USGS Global Change Program and the International Geosphere Biosphere Program.
- Brown KJ\*, Clark JS, Grimm EC, and Donovan JJ. 2005. A 4,500 year record of aridity cycles on the Northern Great Plains, USA. PAGES Abstracts.
- Brown KJ\*, Clark JS, Grimm EC, and Donovan JJ. 2005. A Holocene record of climate-fuel-fire cycles in the Northern Great Plains, USA. LaSys Workshop, Denmark.
- Brown KJ\*, Clark JS, Grimm EC, and Donovan JJ. 2005. A 4,500 year record of aridity cycles on the Northern Great Plains, USA. INYS Workshop, Sweden.
- Clark, JS\*, Flikkema, P, Hungate, B, Koch, G, Sillett, S. 2005. Wireless networks for modeling of canopy and soil processes in forests. ESA invited symposium.
- Dietze, M\*, Agarwal, P, Chakraborty, S, Clark, J, Govindarajan, S, McBride, A, Wolosin, M. 2005. Data assimilation, inference, and prediction in a hierarchical forest model. ESA Program and Abstracts (talk).
- Ibáñez, I\*, Clark, JS, Dietze, M. 2005. Predicting tree seedling recruitment of resident and potential immigrant species under climate change. ESA Program and Abstracts (talk).
- Hersh, M\*, Vilgalys, R, Clark, J. 2005. Molecular analysis of arbuscular mycorrhizal fungi associated with two Southeastern tree species. ESA Program and Abstracts (talk).
- Bugalho, M\*, Ibáñez, I, Clark, JS. 2005. Deer herbivory and tree seedling coexistence at two different forest types. ESA Program and Abstracts (poster).
- Brown, K.J.\*, J. S. Clark, E.C. Grimm, J.J. Donovan, and P. Mueller. 2004. Fire cycles on the northern Great Plains and their relation to prairie drought. AGU (talk).

- Brown KJ\*, Clark JS, Grimm EC, and Donovan JJ. 2005. A Holocene record of climate-fuel-fire cycles in the Northern Great Plains, USA. BES Abstracts.
- Ibáñez, I. \*, Clark, J. S., LaDeau, S. 2004. Regional and temporal variability on habitat suitability for seedling establishment. ESA Program and abstracts (poster).
- Clark, J.S. \*, Bjornstad, O. 2004. Population time series with errors, missing values, and time lags. ESA Program and abstracts (talk).
- LaDeau, S. \*, Clark, J.S. 2004. Fecundity and fine-scale genetic structure in a population of loblolly pine. ESA Program and abstracts (poster).
- Hersh, M. \*, Vilgalys, R., Clark, J. S. 2004. Host specificity of arbuscular mycorrhizal fungi inhabiting two forest tree species. ESA Program and abstracts (poster).
- McLachlan, J. \*, Clark, J.S., Manos, P. 2004. The importance of small populations in the postglacial dynamics of eastern forests. ESA Program and abstracts (talk).
- Brown, K. \*, Clark, J.S., Grimm, E., Donovan, J., Mueller, P. 2004. On-again off-again charcoal deposition in northern Great Plains lakes and its relation to prairie drought. ESA Program and abstracts (talk).
- Grimm EC, Brown KJ, Clark JS, and Donovan JJ. 2004. Forest demise, prairie development, and drought cycles on the Northern Great Plains. AMQUA Abstracts.
- Brown KJ, Clark JS, Grimm EC, Donovan JJ, and Mueller PG. 2003. The history of fire on the northern plains, USA, and its response to Holocene drought-cycles. AGU Abstracts.
- McLachlan, J.S.\*, J.S. Clark and P.S. Manos. 2003. Conservation lessons from the Last Glacial Maximum. ESA Program and abstracts (talk).
- Ibáñez, I.\*, J.S. Clark and S.L. Ladeau. 2003. Climate variability and tree species recruitment, implications on species coexistence. ESA Program and abstracts (poster).
- Clark, J.S.\*, M. Dietze, S. Govindarajan and P.K. Agarwal. 2003. Stabilizing biodiversity with random individual effects. ESA Program and abstracts (talk).
- Wolosin, M.S.\*, J.S. Clark, S. Ladeau and M.C. Dietze. 2003. Canopy area, growth, and fecundity in a mixed-hardwood forest. ESA Program and abstracts (poster).
- Ladeau, S.L.\* and J.S. Clark. 2003. Maternal and paternal fecundity of trees growing in an elevated CO<sub>2</sub> atmosphere. ESA Program and abstracts (poster).
- Dietze, M.C.\*, S. Govindarajan, P.K. Agarwal and J.S. Clark. 2002. Computational methods for ecological forecasting: Spatial models and Algorithms ESA Program and abstracts (talk).
- HillerisLambers, J.\* and J.S. Clark. 2002. Seed banking in temperate forests: implications for recruitment Limitation. ESA Program and abstracts (talk).
- Ibáñez, I.\*, J.S. Clark, M.L. Lavine and M.C. Dietze. 2002. Role of environmental gradients on tree species recruitment: Comparisons within and between sites. ESA Program and abstracts (poster).
- Ladeau, S.L.\* and J.S. Clark 2002. Comparisons of male and female reproductive effort in temperate tree species. ESA Program and abstracts (poster).
- McLachlan, J. S; Clark, J. S; Manos, P. S. 2002. Tree migration capacity under rapid climate change: evidence from the early Holocene. *Dynamics and conservation of genetic diversity in forest ecosystems* (talk).
- Calder, K. J. S. Clark, P. Mueller, and M. Lavine. 2001. Incorporating observational error in density dependence population models. ESA Program and abstracts (talk).
- Clark, J.S., M. Lewis, J. McLachlan, and J. HilleRisLambers. 2001. Estimating population spread based on dispersal data: what can we forecast and how well? ESA Program and abstracts (talk).
- LaDeau, S. L., J.S. Clark, J. HilleRisLambers, and I. Ibanez. 2001. Fecundity schedules for forest trees. ESA Program and abstracts (talk).
- Wyckoff, P. and J.S. Clark. 2001. Measuring tree growth as a function of light using low-level aerial photography. ESA Program and abstracts (talk).

- Ibanez, I. and J. S. Clark. 2001. The role of seed fall patterns vs. environmental resources in the spatial distribution of tree seedlings. ESA Program and abstracts (talk).
- McLachlan, J.S., J. S. Clark, and P. S. Manos . 2001. The role of extreme dispersal in plant migration: estimation and prediction. ESA Program and abstracts (talk).
- Mohan, J., W.H. Schlesinger, and J.S. Clark. 2001. How will increased atmospheric CO<sub>2</sub> and mammalian herbivory affect forest succession? ESA Program and abstracts (talk).
- HilleRisLambers, J., J. S. Clark, P H. Wyckoff and S LaDeau. 2001. Trade-offs in growth and reproduction of temperate forest tree species. ESA Program and abstracts (talk).
- Dietze, M., S. Govindarajan, J.S. Clark, and P.K. Agarwal. 2001. The extinction debt revisited: population dynamics in a continuous space model. ESA Program and abstracts (talk).
- McLachlan, J.S., P.S. Manos and J.S. Clark. 2000. Holocene migration patterns of eastern North American trees: Evidence from molecular markers. ESA Program and abstracts (talk).
- Clark, J.S., E.C. Grimm, J. Donovan, S. Fritz, and D. Engstrom. 2000. Drought cycles and prairie responses with past aridity in the northern Plains. ESA Program and abstracts (talk).
- HilleRisLambers, J. and J.S. Clark. 2000. Disentangling the effects of dispersal, distance- and density-dependent mortality on distributions of trees. ESA Program and abstracts (talk).
- Mohan, J.E., J. S. Clark, and W. H. Schlesinger. 2000. Can the future elevated CO<sub>2</sub> responses of forests plants be predicted? ESA Program and abstracts (talk).
- LaDeau, S., I. Ibanez, and J.S. Clark. 2000. Reproductive Response of *Pinus taeda* in a Free-Air Carbon Dioxide Enrichment Experiment. ESA Program and abstracts (talk).
- Ibanez, I., J. S. Clark, and S. LaDeau. 2000. Effects of seed rain and fecundity variability on the successional dynamics of neighboring communities. ESA Program and abstracts (poster).
- Lynch, J.A., J. S. Clark, P. Camill, J. B. Adams. 2000. Changes in short- and long-term carbon storage following permafrost thaw in the boreal peatlands of Manitoba, Canada. ESA Program and abstracts (talk).
- Beckage, B. and J.S. Clark. 2000. Tree seedling survival and growth in southern Appalachian forests: Effects of canopy gaps, understory removal, trenching and fertilization. ESA Program and abstracts (talk).
- Grimm, E.C. and J.S. Clark. 1999. Fossil pollen and charcoal evidence for drought intensity and variability in the Northern Great Plains. Amer Geophys Union abstract.
- Mohan, J.E., W.H. Schlesinger, and J.S. Clark. 1999. Evolutionary consequences of global change for a common temperate tree species. ESA Program and abstracts (talk).
- Lynch, J.A. and J.S. Clark. 1999. The importance of wild fires in the western boreal forest of the United States and Canada: Implications of future climate change. ESA Program and abstracts (poster).
- HilleRisLambers, J. and J.S. Clark. 1999. Controls on soil seed densities in a southern Appalachian forest. ESA Program and abstracts (talk).
- Kloepfel, B.D., N.R. Hayden, J.S. Clark, M.D. Hunter, and B.C. Reynolds. 1999. Aboveground forest biomass, net primary productivity, and nitrogen content across a complex gradient at Coweeta Hydrologic Laboratory, North Carolina. ESA Program and abstracts (talk).
- Lewis, M.A. and J.S. Clark. 1999. Limits to migration: Discrete migration estimators based on dispersal data. ESA Program and abstracts (talk).
- Mohan, J.E., J.S. Clark, W.H. Schlesinger. 1998. Will elevated atmospheric CO<sub>2</sub> change the succession and composition of future forests? ESA Program and abstracts (talk).
- Grimm, E.C. and J. S. Clark. 1998. Holocene vegetation and climate change in the Great Plains: Evidence from pollen and charcoal studies. GSA Program and abstracts (talk).



- Beckage, B. and J.S. Clark. 1998. Seed and seedling predation reduces establishment of shade tolerant species more than intolerant species in the southern Appalachians. ESA Program and abstracts (talk).
- Macklin, E.A. and J.S. Clark. 1998. Testing theories of species coexistence: stochastic seed dispersal in a temperate forest. ESA Program and abstracts (talk).
- Clark, J.S., E. Grimm, and J. Lynch. 1998. Consequences of drought cycles and longer-term climatic change for the northern Central Plains. ESA Program and abstracts (talk).
- HilleRisLambers, J. and J.S. Clark. 1998. Response of red maple ecotypes to temperature: implications for climate change. ESA Program and abstracts (talk).
- Beckage, B. and J.S. Clark. 1997. "Canopy gaps, *Rhododendron maximum*, and tree recruitment in the southern Appalachians." ESA Program and abstracts (talk).
- Camill, P. and J.S. Clark. 1997. "Complex dynamics of boreal permafrost peatlands across a climate gradient caused by landscape structure, vegetation, and fire." ESA Program and abstracts (talk).
- Clark, J. S. 1997. "Rapid tree migration: confronting theory with dispersal biology and the paleo record." ESA Program and abstracts (talk).
- HilleRisLambers, J. and J.S. Clark. 1997. "Variability within early life history stages of temperate forest trees". ESA Program and abstracts (talk).
- Mohan, J.E., Clark, J.S., and W.H. Schlesinger. 1997. "Forest succession in a CO<sub>2</sub> enriched world: results from the FACTS-1 study in the Duke Forest." ESA Program and abstracts (talk).
- Wyckoff, P.H., and J.S. Clark. 1997. "Improved mortality functions alter the predictions of a gap-type forest model." ESA Program and abstracts (talk).
- Wyckoff, P. H. and J. S. Clark. 1997. Species-specific variation in the growth-mortality relationship for southern Appalachian trees: implications for forest development. US-IALE, Durham, NC.
- Lynch, J.A. and J.S. Clark. 1996. "The effect of fire on 20<sup>th</sup> century recovery forests of the Southern Appalachians USA. ESA Program and abstracts (talk).
- Camill, P. and J.S. Clark. 1996. "Relative contributions of local autogenic vs regional climatic processes on the succession of boreal permafrost: implications of rapid climate change. ESA Program and abstracts (talk).
- Clark, J.S. and T. Hussey. 1995. "Effects of temperature change on fire importance in Siberian boreal forest". ESA Program and abstracts (talk).
- Macklin, E. and J.S. Clark. 1995. "Local vs regional time scales: a synthesis of life history and physiological tradeoffs leading to coexistence". ESA Program and abstracts (talk).
- Clark, J.S., L. Wood, and P. Camill. 1994. "Recruitment limitation in forests: evidence from seed production and dispersal in closed stands". ESA Program and abstracts (poster).
- Imm, D. and J.S. Clark. 1992. "Climate sensitivity of eastern deciduous forests". *ESA Program and Abstracts* (talk by Imm).
- Overpeck, J.T., E. Cook, K. Gajewski, and J.S. Clark. 1992. "Assessing the potential of fossil pollen data for reconstructing annual to century-scale climatic change". *AMQUA Abstracts* 12:19.
- Clark, J.S. 1991. "Climate change and fire occurrence in eastern North America".
- Clark, J.S. 1990. "The length and direction of forest succession along a fertility gradient." *ESA Program and Abstracts* (talk and abstract).
- Clark, J.S. 1989. "The relative importance of resource competition and disturbance in old-growth forests of northwestern Minnesota." *ESA Program and Abstracts* (talk and abstract).
- Clark, J.S. 1988. "Stratigraphic charcoal analysis on petrographic thin sections: theory, methods, and results". *AMQUA Abstracts* 59 (poster).
- Clark, J.S. 1988. "Long-term tree population dynamics in northwestern Minnesota". *ESA Program and Abstracts* (talk and abstract).

- Clark, J.S. 1987. "Climate, fire, and forest dynamics during the last 400 yr at Itasca State Park, northwestern Minnesota". *ESA Abstracts* (talk and abstract).
- Clark, J.S. 1984. "Chronologies for recent sediments in coastal environments". *12<sup>th</sup> Nordic Symposium on Sediments*, Skallingen, Denmark (talk and abstract).
- Clark, J.S., Merkt, J., and Muller, H. 1984. "Post-Glacial fire and vegetation history at Schleinsee, SW Germany". *AMQUA Abstracts 23* (poster).
- Clark, J.S. and Patterson, W.A. 1982. Post-settlement changes in Fresh Pond Marsh and adjacent upland environments on the north coast of Long Island, New York. *AMQUA Abstracts 81* (poster).

## Teaching

Regular courses:

Biodiversity and climate change in the big data era	Annually, fall semester
Ecological Models and Data	Annually, spring semester

**Current PhD advisees:** Christopher Kilner, Ruben Palacio, Renata Poulton-Kamakura, Lane Scher, Maggie Swift, Becky Tang

## Former PhDs

- Chase Nunez (2019, postdoc, IDIV): logging impacts on tree fecundity in Gabon
- Brad Tomasek (2018, re-insurance industry): climate change impacts on biodiversity
- Bijan Seyednasrollah (2017, postdoc Harvard): continent-wide impacts on of drought on trait distributions and phenology
- Matt Kwit (2016, postdoc Duke University): experimental warming effects on tree recruitment
- Aaron Berdanier (2016, postdoc Duke University): water use and tree competition
- Kai Zhu (2014, Assist Prof, UC Santa Cruz): climate impacts on biodiversity
- Denis Valle (2013, Assist Prof, Univ Florida): Land cover, climate and malaria in the western Amazon
- Dave Bell (2011: USFS Research Scientist) Effects of climate change on recruitment dynamics
- Carl Salk (2010: postdoc, Univ Colorado) Experimental warming and phenology
- Emily Moran (2009: Assist Prof, UC Merced) Population genetics of oaks
- Michelle Hersh (2009, Assistant Professor, Eastern Michigan University): Fungal pathogen effects on tree diversity
- Fernando Colchero (2007, Assistant Professor, Univ Southern Denmark): Demography and aging of Sooty terns
- Ines Ibanez (2006, Assist Prof, Univ Michigan): Climate change and tree recruitment.
- Mike Wolosin (2006, Pew Center for Climate Change): Forest canopy dynamics
- Mike Dietze (2006, Assistant Prof, Boston University): Gap dynamics and forest stand response.
- Shannon LaDeau (2005, Assistant Professor, Cary Institute): Fecundity of trees under elevated CO<sub>2</sub>.
- Jason McLachlan (2003: Associate Prof, Notre Dame). Late Quaternary molecular biogeography of forest tree populations.
- Jacqueline Mohan (2002: Assistant Prof, Univ Georgia). Elevated CO<sub>2</sub> and forest succession.
- Janneke HilleRisLambers (2001: Associate Prof, Univ Washington): Dispersal through space and time: dispersal and seed dormancy.
- Jason Lynch (2001: USEPA, Washington DC): Long-term trends in fire frequency, forest dynamics, and paleohydrology in the western boreal forest of Canada and Alaska
- Brian Beckage (2000: Associate Prof, Univ Vermont): Seedling recruitment in southern Appalachian forests: Does spatial heterogeneity maintain species diversity?

Phil Camill (1999; Associate Prof, Bowdoin College): Succession and carbon dynamics of boreal permafrost peatlands during rapid climate warming

Pete Wyckoff (1999; Associate Prof, Univ Minnesota, Morris): Life history and demography of southern Appalachian trees: growth and mortality

Eric Macklin (1997; Massachusetts General Hospital): Seed dispersal in gap-dynamic forests: effects on population and community dynamics.

### **Current and former postdocs**

Kendrick Brown, Danish Geological Survey

Valentin Journe, current postdoc

John Lichter, Associate Professor, Bowdoin College

Sean McMahon, Research Scientist, SERC

Jessica Metcalf, Assistant Professor, Princeton University

Tong Qiu, current postdoc

Brantlee Richter, University of South Florida

Rob Schick, University of St Andrews

Erin Schliep, Assistant Professor, Univ Missouri

Soledad Ponce, Assistant Professor, Ohio State University

Souparno Ghosh, Texas Tech University

Daniel Taylor-Rodrigues, Assistant Professor, Univ Washington

Wei Wu, Assistant Professor, Univ Southern Mississippi

Amanda Schwantes, postdoc, Univ Toronto

Christoph Hellmyer, private industry

Tong Qui, current postdoc

Valentin Journe, current postdoc

### **Current PH.D. Committees**

Erika Cunningham	Statistics	Tjokdar
Michelle D'Aguillo	Biology	Donahue
Anne Driscoll	Statistics	Banks
Joe Fader	NSOE	Read
Graden Froese	Ecology	Poulson
Rachel Hillyer	Biology, Wake Forest	Silman
Christopher Kilner	Ecology	Clark
Lindsay Leverett	Biology	Donahue
Yanlan Liu	NSOE	Kumar
Alex Loomis	Biology	Morris
Ruben Palacio	NSOE	Clark
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