

A. CARLA STAVER

Assistant Professor

Ecology and Evolution Biology

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PROFESSIONAL APPOINTMENTS

2014-pres Assistant Professor, Ecology and Evolutionary Biology, Yale University
2015-pres Secondary Appointment, Forestry & Environmental Studies, Yale University
2012-2014 Prize Postdoctoral Fellow, E3B, Columbia University
2012 Postdoctoral Researcher, EEB, Princeton University

EDUCATION AND TRAINING

2008-2012 Ph.D. in Ecology and Environmental Biology, Princeton University
2006-2008 M.Sc. in Botany, with distinction, University of Cape Town
2001-2005 B.A. in Ecology, Evolution, & Environmental Biology, Columbia University

HONORS AND AWARDS

2017 Tansley Medal shortlist from the New Phytologist Trust
2015-2020 Early Career Fellow, Ecological Society of America
2015 Runner-up for Harper Prize, British Ecological Society
2013 Jasper Loftus-Hills Young Investigator Award, American Society of Naturalists
2012 George Mercer Award, Ecological Society of America
2005-2006 Fulbright US Student Fellowship

GRANTS AND FUNDING

2018-2023	Scaling Fire Size from Local Process to Continental Pattern (PI) NSF Macrosystems Biology	\$1,035,000
2016-2019	Spatial Dynamics of Savanna-Forest Boundaries (PI) NSF Mathematical Biology	\$250,000
2015	Reading the Historical Record of the Mara Using Sediment Cores from the Mara Wetland (Co-PI) World Wildlife Fund for Nature	\$65,641
2012-2015	Fire, land use, and the savannization of seasonally dry Amazon forests (Co-PI) Gordon and Betty Moore Foundation Sub-award from Woods Hole Research Center	\$112,838

SERVICE AND SYNERGISTIC ACTIVITIES

Reviewer: *Various*
Associate Editor: *Journal of Ecology* (2018-2021)

Member: Ecological Society of America (ESA), Association for Tropical Biology and Conservation (ATBC), American Geophysical Union (AGU)
 2015-pres Advisory Board, Global PaleoFire Working Group

TEACHING EXPERIENCE

2014-present General Ecology (EEB 220), Yale University
 2017-present Scientific Writing for EEB (EEB 220), Yale University
 2018-present Plant Ecology (EEB 305), Yale University
 2016 Long-term Temporal Dynamics of Ecological Systems (EEB 740), Yale U.
 2015 The Ecology of Global Change (EEB 720), Yale University
 2014 Field Ecology in Savanna, Columbia University
 2011-2012 Statistics Tutor (Senior Thesis Writing Group – EEB), Princeton University
 2008, 2010 TA, Population and Community Ecology (EEB 321), Princeton University
 2006-2009 TA, Field Botany (BOT 309), University of Cape Town

PUBLICATIONS (Staver lab postdocs‡, grad students† and undergrads°)

Case†, M.F. and A.C. **Staver**. 2018. Soil texture mediates tree responses to rainfall intensity in African savannas. *The New Phytologist* (online).

Aleman‡, J.C. and A.C. **Staver**. 2018. Spatial patterns in the global distributions of savanna and forest. *Global Ecology and Biogeography* 27, 792-803.

Touboul, J.D., A.C. **Staver**, and S.A. Levin. 2018. On the complex dynamics of savanna landscapes. *PNAS* (online).

Aleman‡, J.C., M. Jarzyna, and A.C. **Staver**. 2018. Forest extent and deforestation in sub-Saharan Africa since 1900. *Nature Ecology and Evolution* 2, 26-28.

Pellegrini, A.F.A., A. Ahlström, S.E. Hobbie, P.B. Reich, L.P. Nieradzik, A.C. **Staver**, B.C. Scharenbroch, A. Jumponnen, W.R.L. Anderegg, J.R. Randerson, and R.B. Jackson. 2018. Fire frequency drives decadal changes in soil carbon and nitrogen and ecosystem productivity. *Nature* 553, 194-198.

Staver, A.C. 2018. Tansley Insight: Prediction and scale in savanna ecosystems. *New Phytologist* 219: 52-57.

Staver, A.C., J. Botha, and L. Hedin. 2017. Soils and fire jointly determine vegetation structure in an African savanna. *New Phytologist* 216: 1151-1160.

Case†, M.F. and A.C. **Staver**. 2017. Fire prevents woody encroachment only at higher-than-historical frequencies in a South African savanna. *Journal of Applied Ecology* 54, 955–962.

◇ Runner up for the Southwood Prize from the British Ecological Society

Staver, A.C., H. Beckett, and J. Graf. 2017. Chapter 3: Long-term vegetation dynamics. In Cromsigt, J., S. Archibald, and N. Owen-Smith (eds). *Savanna Ecology and Management: Conserving Africa's Mega-Diversity in the Hluhluwe-iMfolozi Park*. Cambridge UP: Cambridge.

Bond, W.J., A.C. **Staver**, M. Cramer, J. Wakeling, J.J. Midgley, and D. Balfour. 2017. Chapter 9: Demographic bottlenecks and savanna trees. In Cromsigt, J., S. Archibald, and N. Owen-Smith (eds). *Savanna Ecology and Management: Conserving Africa's Mega-Diversity in the Hluhluwe-iMfolozi Park*. Cambridge UP: Cambridge.

- Archibald, S., H. Beckett, W.J. Bond, D. Druce, A.C. **Staver**, and C. Coetsee. 2017. Chapter 10: Interactions between fire and ecosystem processes: implications for fire management. In Cromsigt, J., S. Archibald, and N. Owen-Smith (eds). *Savanna Ecology and Management: Conserving Africa's Mega-Diversity in the Hluhluwe-iMfolozi Park*. Cambridge UP: Cambridge.
- Pellegrini, A.F.A., A.C. **Staver**, L.O. Hedin, T. Charles-Dominique and A. Tourgee. 2016. Aridity, not fire, favors nitrogen-fixing plants across tropical savanna and forest biomes. *Ecology* 97 (9), 2177-2183.
- Aleman†, J.C., O. Blarquez, and A.C. **Staver**. 2016. Land use change outweighs projected effects of changing rainfall on tree cover in sub-Saharan Africa. *Global Change Biology* 22 (9), 3013-3025.
- Charles-Dominique, T., A.C. **Staver**, G.F. Midgley, and W.J. Bond. 2015. Functional differentiation of biomes in an African savanna/forest mosaics. *South African Journal of Botany* 101: 82-90.
- Pellegrini, A.F.A., L. Hedin, A.C. **Staver**, and N. Govender. 2015. Fire alters ecosystem carbon and nutrients but not plant nutrient stoichiometry or composition in tropical savanna. *Ecology* 96: 1275–1285.
- Staver**, A.C., and M. Hansen. 2015. Analysis of stable states in global savannas: is the CART pulling the horse? – a comment. *Global Ecology and Biogeography* 24: 985–987.
- Schertzer, E, AC **Staver**, & S Levin. 2015. Implications of the spatial dynamics of fire spread for the bistability of savanna and forest. *Journal of Mathematical Biology* 70:329-341.
- Staver**, A.C. and S. Koerner. 2015. Chapter 5: Top-Down and Bottom-Up Interactions Determine Tree and Herbaceous Layer Dynamics in Savanna Grasslands. In LaPierre, K. and T. Hanley (eds). *Trophic Ecology: Bottom-Up and Top-Down Interactions across Aquatic and Terrestrial Systems*. Cambridge UP: Cambridge.
- Staver**, A.C., and W.J. Bond. 2014. Is there a ‘browse trap’? Dynamics of herbivore impacts on trees and grasses in an African savanna. *Journal of Ecology* 102: 595-602.
- Pérez-Harguindeguy, N. *et al.* 2013. New handbook for standardised measurement of plant functional traits worldwide. *Australian Journal of Botany* 61:167–234.
- Staver**, A.C., and S.A. Levin. 2012. Integrating theoretical climate and fire effects on savanna and forest systems. *The American Naturalist* 180: 211-224.
- Staver**, A.C., W.J. Bond, M. J. Cramer, and J. L. Wakeling. 2012. Top-down determinants of niche structure and adaptation among African Acacias. *Ecology Letters* 15: 673–679.
- Archibald, S., A.C. **Staver**, and S.A. Levin. 2012. The evolution of human-driven fire regimes in Africa. *Proceedings of the National Academy of Sciences, USA* 109: 847–852.
- Staver**, A.C., S. Archibald, and S.A. Levin. 2011. The global extent and determinants of savanna and forest as alternative biome states. *Science* 334: 230-232.
- Wakeling, J.L., A.C. **Staver**, and W.J. Bond. 2011. Simply the best: the transition of savanna saplings to trees. *Oikos* 120: 1448-1451.
- Staver**, A.C., S. Archibald, and S.A. Levin. 2011. Tree cover in sub-Saharan Africa: rainfall and fire constrain forest and savanna as alternative stable states. *Ecology* 92: 1063-1072.
 ◇ Winner of the George Mercer Prize from the Ecological Society of America
- Staver**, A.C., E.C. February, and W.J. Bond. 2011. History matters: tree establishment variability and species turnover in an African savanna. *Ecosphere* 2: art49.

- Staver**, A.C., W.J. Bond, W.D. Stock, S.J. van Rensburg, and M.S. Waldram. 2009. Browsing and fire interact to suppress tree density in an African savanna. *Ecological Applications* 19: 1909-1919.
- Debroux, L., T. Hart, D. Kaimowitz, A. Karsenty and G. Topa (eds). 2007. Forests in post-conflict Democratic Republic of Congo: analysis of a priority agenda. A joint report by teams of the World Bank, CIFOR, CIRAD, AWF, CNONGD, CI, GTF, LINAPYCO, SNV, REPEC, WCS, Woods Hole Research Center, ICRAF, and WWF. xxii, 82p.
- Staver**, A.C., W. de Jong, and D. Kaimowitz. 2007. Nicaragua's Frontier: the Bosawas Biosphere Reserve. In De Jong, W., D. Donovan, and A.K. Ichi (eds). *Extreme conflicts and tropical forests*. Springer: Berlin.

SEMINARS

- University of Texas, Austin, Invited Seminar* (February 2019)
- Columbia University, Lamont Doherty Earth Observatory* (January 2019)
- Duke University, Mathematics, Probability Seminar Series* (September 2018)
- Smithsonian Tropical Research Institute, Invited Seminar* (August 2018)
- Utrecht Uni., Copernicus Institute of Sustainable Development, Invited Seminar* (June 2018)
- Goethe Uni., Senckenberg Biodiversity & Climate Research Center, Invited Sem.* (June 2018)
- Oxford University, Center for the Environment, Invited Seminar* (June 2018)
- Cary Institute for Ecosystem Studies, Invited Seminar* (February 2018)
- Indian Institute for Science, Bangalore, Invited Seminar & Workshop* (January 2018)
- Instituto de Ecología (INECOL), Xalapa, Invited Seminar* (in Spanish) (December 2017)
- Texas A&M University, Departments of Ecosystem Science & Management and Ecology & Evolutionary Biology, Student Invited Speaker* (October 2017)
- University of Notre Dame, Biology, Departmental Seminar* (September 2017)
- University of the Witwatersrand, School of Animal, Plant and Environmental Sciences, Departmental Seminar* (April 2017)
- University of Edinburgh, School of Geosciences, Departmental Seminar* (October 2016)
- Utah State University, Ecology Center, Student Invited Speaker* (September 2016)
- Brown University, EEB, Departmental Seminar* (September 2016)
- College de France, Invited Seminar, Symposium: Modelling & Predicting Ecological Transitions* (June 2016)
- Yale University, School of Forestry & Environmental Studies Seminar* (March 2016)
- Harvard University, Arnold Arboretum Seminar* (December 2015)
- Stanford University, Biology, Departmental Seminar* (December 2014)
- Columbia University, Schools of Arts and Sciences, Invited Colloquium* (April 2014)
- Duke University, Mathematics, Departmental Seminar* (April 2014)
- College de France, Center for Interdisciplinary Research in Biology, Invited Seminar* (December 2013)
- University of California Berkeley, ESPM, Departmental Seminar* (March 2013)
- University of Maryland, Biology, Departmental Seminar* (January 2013)
- University of California Davis, Ecology & Evolution, Departmental Seminar* (January 2013)
- Yale University, Ecology & Evolutionary Biology, Departmental Seminar* (November 2012)
- Columbia University, E3B, Departmental Seminar* (February 2012)

NIMBioS, 'Disturbance Regimes & Climate-Carbon Feedbacks' Invited Colloquium
(February 2012)

COLLOQUIA

- New Phytologist Symposium, Determinants of tropical vegetation structure and function, Accra, Ghana* (August 2019): Alternative stable states and tropical vegetation distributions: theory and evidence (invited).
- AGU, Washington, D.C.* (December 2018): Spatial Patterning among Savanna Trees in High-Resolution, Large-Scale Data (invited).
- ESA, New Orleans, LA* (August 2018): Impacts of drought on interactions between grass and grazers (invited).
- Princeton Center for Theoretical Science, Workshop "Regular Patterns In Biology: Causes and Consequences"* (April 2018): Patterns in spatial heterogeneity in tree cover are consistent across diverse savannas in Kruger (invited).
- Savanna Science Networking Meeting, Skukuza, South Africa* (March 2018): Meeting summary and concluding remarks (invited).
- ESA, Portland, OR* (August 2017): Integrating Fire-Related PFTs into Predictions of Large-Scale Forest Responses to Fire in Amazonia (contributed).
- New Phytologist, Emerging Scientists Symposium* (July 2017): Evolution of flammability (invited).
- UC Irvine, NASA, and Woods Hole Research Center, Workshop "Fire Regime Changes in Amazonia: Understanding and managing risk"* (April 2017): Integrating fire-related PFTs into predictions of large-scale forest responses to fire in Amazonia (invited).
- ESA, Ft. Lauderdale, FL* (Aug 2016): Tree and grass responses to global change in extant savanna landscapes (contributed).
- ATBC, Montpellier, France* (June 2016): Seasonal feeding strategies determine population size among savanna herbivores (invited).
- Savanna Science Networking Meeting, Skukuza, South Africa* (March 2016): Spatial and temporal patterns in grass and woody structure in South African savanna (contributed).
- ESA, Baltimore, MD* (Aug 2015): Spatial fire spread and the evolution of flammability among grasses (contributed).
- AGU, San Francisco* (December 2014): Global fire-related functional traits (invited).
- Savanna Science Networking Meeting, Skukuza, South Africa* (March 2014): Grass, fire, and soil resources interact to determine tree dynamics in savanna (contributed).
- ATBC, Bonito, Brazil* (June 2012): Predicting biome responses to global change: Implications of savanna and forest as alternative stable states (contributed).
- Savanna Science Networking Meeting, Skukuza, South Africa* (March 2012): Critical transitions in fire spread in savanna landscapes (contributed).
- ESA, Austin, TX* (August 2011): Resource limitation, fire and tree growth in savanna systems (invited).
- ATBC/SCB Africa Section, Arusha, Tanzania* (June 2011): Tree cover in sub-Saharan Africa: rainfall and fire constrain forest and savanna as alternative stable states (invited).

Savanna Science Networking Meeting, Skukuza, South Africa (March 2011): Examining savanna ecosystem dynamics in Kruger National Park using the VCA dataset (contributed).

ESA, Pittsburg, PA (Aug 2010): Tree cover in sub-Saharan Africa: rainfall and fire constrain forest and savanna as alternative stable states (contributed).

Savanna Science Networking Meeting, Skukuza, South Africa (March 2007). Continuous vs. episodic recruitment in Acacia in Hluhluwe iMfolozi Park: implications for understanding savanna structure and dynamics (contributed).