ERIC WAYNE SANDERSON

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EDUCATION

Ph.D. Ecology (Area of Emphasis: Ecosystem and Landscape Ecology), University of California, Davis. June 1998. Dissertation: The Spatial Structure of a California Salt Marsh. Advisor: Dr. Susan L. Ustin.

Bachelor of Arts and Science in Biochemistry and English Literature (Teaching emphasis). University of California, Davis. June 1990. Graduation with honors.

RESEARCH AND CONSERVATION

Research metrics (overall): Citations: 14,188, h-index: 43, i10-index: 52. (Google Scholar, July 2023) ORCID: 0000-0002-7477-0193

Vice President of Urban Conservation, The New York Botanical Garden (NYBG), April 2023 – present.

Leads *Urban Conservation* efforts at NYBG, including matters related to historical ecology, ecological democracy, active restoration and environmental governance, with a special emphasis on New York City.

Senior Conservation Ecologist, Global Conservation Programs, Wildlife Conservation Society (WCS), April 2009 – March 2023

Leads the *Conservation Innovations* team of scientists, designers, programmers, and technical experts to develop innovative approaches to save wildlife and wild places and connect people to nature through research and communication, with a special emphasis on New York City. Major initiatives include:

Future studies

- New York City Nature Goals 2050, 2015 present.
- The Bottleneck and the Breakthrough, 2013 present.
- Climate resilience of New York City, 2013 2020, 2022 present.
- Visionmaker (aka Mannahatta 2409), 2011 2022.
- Terra Nova: The New World after Oil, Cars, and Suburbs, 2008 2013.
- Greenprints (with Maya Lin), 2009 2012.

Wildlife and landscape conservation planning

• A system for mapping the human footprint, 2016 – present.

- Conservation of the jaguar in the US, 2011 2015, 2019 2021
- Central Asian migratory species, 2016 2018
- A near-real time monitoring system for tiger conservation (TCL 3.0), 2019 present.
- ActGreen applications for jaguars, lions, and bison, 2021 present.

Historical ecology of cities

- The Welikia Project, 2010 present.
- Historical ecology of Jerusalem, 2010-2012; 2018 2020
- The Zaanheh Project: Historical ecology of Shanghai, 2018 2020
- Hidden Nature: San Francisco, 2014 2021

Associate Director, Living Landscapes Program, Global Conservation Programs, WCS, January 2003 – April 2009.

Co-lead a team supporting applications of landscape ecology, geographic analysis and strategic planning for WCS. Major initiatives include:

- Landscape species approach to conservation, 2002 2008
- Range-wide priority setting for species conservation: Mongolian gazelles (2004), American crocodiles (2004), white-lipped peccaries (2005), lowland tapirs (2005), African lions (2006), tigers (2006-2008), North American bison (2006-2008), Asian bears – four species (2007), and snow leopards (2008)
- The Mannahatta Project, 1999 2009.

Associate Conservation Ecologist, Landscape Ecology and Geographic Analysis Program, WCS, May 1998 – January 2003.

Founded program to provide to integrate the tools and theory of landscape ecology into the conservation activities of WCS. Major initiatives include:

- The Human Footprint, 2000 2002
- Range-wide Priority Setting for Jaguars, 1999 2002
- Geographic Information System Field Training, 1998 2005.

Biological Science Technician. Sequoia/Kings Canyon National Parks. July - Sept. 1995.

Assisted botanical field investigations and conducted geographic information systems analyses of alpine vegetation distributions.

Research Assistant. University of California, Davis, July 1994 - June 1995.

Assisted in botanical field measurements and analysis of plant pigments.

Associate Environmental Chemist, PTRL, February 1991 – November 1994.

Conducted research on the environmental degradation and fate of pesticides in agricultural settings.

SERVICE AND OUTREACH

Consultant, New York City Department of Environmental Protection, 2022 – present.

Advisor, The Underground Sound Project. 2022 - present. "The Underground Sound Project" an investigation and presentation of the sounds in trees, streams, and soil in Prospect Park, Brooklyn, by Nikki Lindt.

Advisor, City Island Oyster Reef Project, 2020 – present

Consultant, Google Ecology, 2019 – present.

Senior Fellow, The Breakthrough Institute, 2019 – present.

Ecology Team co-leader (with Angela Tovar), Bronx River Alliance, 2017 – 2018.

Contributor, Unsung New York, 2017. Created by David Al-Ibrahim and Bill McQuay, a project to reconstruct the pre-European soundscape of Mannahatta.

Advisor, CityAtlas (newyork.thecityatlas.org), 2014 – 2018.

Scientific advisor, Scenic Hudson, 2014 – 2016.

Executive Council member, Science & Resilience Institute at Jamaica Bay, 2013 – 2018.

Board member, Natural Areas Conservancy. 2013 – present. Member, nominating committee, 2015 – present. Co-chair of the program committee, 2022 – present.

Regular contributor, The Nature of Cities (<u>www.thenatureofcities.com</u>). 2012 – present.

Board member / advisor, City as a Living Laboratory. 2011 – 2014. "City as a Living Laboratory (CaLL)" is a science-based art project about urban sustainability developed by the artist Mary Miss.

Member, WCS Species Team, Wildlife Conservation Society, 2011 – present

Team member, Nature City, 2011 – 2012. "Nature City" is a concept for suburban Keizer, Oregon, developed by a team led by Amale Andros and Dan Wood of WorkAC, as part of the "Foreclosed: Rehousing the American Dream" exhibition at the Museum of Modern Art (February 15–August 13, 2012.)

Panel member, Linking scientists, policy makers, and practitioners: an international workshop on biodiversity conservation in Israel. 2010.

Guest curator, Museum of the City of New York. 2008 – 2009. "Mannahatta / Manhattan" exhibition, May – October 2009. Re-displayed at the South Street Seaport Museum, 2011-2012.

Member, IUCN Species Survival Commission (SSC) Conservation Planning Group, 2008 – present.

Member, IUCN Species Survival Commission (SSC) Bison Specialist Group, 2008 – present.

Member, IUCN Species Survival Commission (SSC) Task Force on Species Conservation Planning, 2006 – 2009.

Member, Society for Conservation GIS, 1999 – present (intermittently).

Member, Society for Conservation Biology, 1998 – present (intermittently).

Member, Ecological Society of America, 1993 – present (intermittently).

TEACHING

Adjunct Faculty, Environmental Studies Program, New York University, 2011 – 2018. Taught semester long, project-based seminar for environmental studies seniors (Spring 2011, Spring 2012, Fall 2012, Spring 2014, Fall 2014, Fall 2015, Fall 2016, Spring 2018, Fall 2018)

Adjunct Faculty, Certificate Program in Conservation Biology, Columbia University, New York, NY, 2001 – 2014.

Taught 5-week course module in applications of landscape ecology to conservation (Spring 2001, Spring 2002, Spring 2003, Spring 2005, Spring 2008, Fall 2013, Spring 2014)

Instructor, Wildlife Conservation Society, 1999 – 2005.

Taught introductory courses in GIS and remote sensing to WCS scientists. (Sept. 1999, Sept. 2000, Oct. 2002, Oct. 2003, Oct. 2004, Oct. 2005).

Teaching Assistant Consultant, University of California, Davis, Davis, CA. 1996 - 1997. Advised graduate students on teaching skills and made classroom observations.

Teaching Assistant, University of California, Davis, Davis, CA. 1995 - 1998. Lecture, ran lab sections and assisted students in GIS, remote sensing, nature and culture.

STUDENT ADVISING

Graduate Student Advisor/Committee Member:

Xiaoxing Bian, University of Florida (Ph.D., Wildlife Ecology & Conservation, exp. 2024) Patrick Lee, Miami University Advanced Inquiry Program (M.A., Conservation Biology, 2020)

Bella Rabionvich, Miami University Advanced Inquiry Program (M.A., Biology, 2017) Camille Stewart, Hunter College/CUNY (Graduate Certificate in Geographic Information Systems, 2017) Vivana Briseño Márquez, Miami University Advanced Inquiry Program (M.A., Conservation Biology, 2016)

Jesse Moy, Fordham University (M.S., Ecology, 2016)

Charles Yackulic, 2010, Columbia University (Ph.D. Ecology, 2010)

Heather Fener, 2005, Columbia University (M.S., Ecology, 2005)

Jessica Forrest, Columbia University (M.S., Ecology, 2003)

Undergraduate Thesis Advisor:

Fiona McKibben, NYU (B.A., Evolutionary Biology & Environmental Studies, 2011). Timothy Bean, Columbia University (B.A., Ecology, 2004).

FELLOWSHIPS & AWARDS

Guggenheim Fellowship, John Simon Guggenheim Memorial Foundation, 2021. Geography & Environmental Sciences.

Cullman Fellowship, Dorothy and Lewis B. Cullman Center for Scholars and Writers, New York Public Library, 2019 – 2020

New York City Cultural Innovation Award, The Rockefeller Foundation, 2011 – 2013.

Edgar Allen Poe Prize, Bronx County Historical Society, 2010

Isabelle Hermalyn Award for Urban History, Bronx County Historical Society, 2009. For Mannahatta: A Natural History of New York City.

New York Prize Fellowship in Sustainable Cities and Social Science Research, Van Alen Institute and the Social Science Research Council. 2009 – 2010.

NASA Earth Systems Science Fellowship, NASA Earth Sciences Directorate, 1995 – 1998.

Eagle Scout, Boy Scouts of America, Troop 202, Walnut Creek, CA. 1985.

SELECTED GRANTS AND CONTRACTS

Total for collaborative science, conservation, and education to date: ~\$20 million

New York City Water Board, 2022 – 2023.

Project: Historical streams and wetlands of New York City

Team: WCS

WCS

Project total: \$79,827

John Simon Guggenheim Memorial Foundation, 2021.

Project: The Welikia Project

Team: WCS

Project total: \$50,000

National Aeronautics and Space Administration, Ecological Forecasting, 2020 – 2024.

<u>Project:</u> Act Green: A near-real time integrated mapping and reporting system for rewilding efforts: applying, extending and enhancing an application for tigers (*Panthera tigris*) to lions (*Panthera leo*), jaguars (*Panthera onca*), and American bison (*Bison bison*).

<u>Team</u>: WCS (lead), Panthera, IUCN Species Survival Commission, University of Wisconsin- Madison, US Geological Survey, US Forest Service, World Wildlife Fund Total: \$1,076,784.

Google, Ecology Program, 2019 – 2022.

Project: New York City Ecology Advising

Team: WCS

<u>Total</u>: \$270,000 (multiple contracts)

Bernard and Anne Spitzer Charitable Trust, Urban resilience in estuaries, 2019 – 2020.

Project: Building sustained capacity for urban resilience

Team: Science and Resilience Institute at Jamaica Bay (lead), WCS, ARCADIS, Stevens

Institute of Technology

<u>Total</u>: \$250,000

New York Public Library, Dorothy and Lewis B. Cullman Center for Scholars and Writers,

2019 - 2020.

Project: The Welikia Project: historical ecology of New York City's five boroughs

<u>Team</u>: WCS <u>Total</u>: \$70,000

Doris Duke Charitable Foundation, 2019 – 2020.

Project: The Welikia Project: historical ecology of New York City's five boroughs

<u>Team</u>: WCS <u>Total</u>: \$85,000

Clement A. Price Institute on Ethnicity at Rutgers University-Newark, Public History

Project, 2019-2020.

Project: Conceptual and technical advice based on Welikia Project experience

<u>Team</u>: WCS <u>Total</u>: \$20,000

National Aeronautics and Space Administration, Sustainable Life Systems, 2018 – 2022.

<u>Project:</u> A near-real time integrated mapping and reporting system for critical biodiversity sites under Sustainable Development Goal 15: the tiger as model

<u>Team</u>: WCS (lead), Panthera, World Wildlife Fund, University of Maryland – College Park, Sparkgeo.

<u>Total</u>: \$710,620.

Simons Foundation, Science Sandbox, 2018 – 2020.

Project: Hidden Nature SF

Team: San Francisco Estuary Institute (lead), Exploratorium, WCS

<u>Total</u>: \$212,998

Mozilla Foundation, Hive NYC Learning Network, 2017 – 2018.

Project: Digital City Studies

<u>Team</u>: WCS and Center for Urban Pedagogy (co-leads), Fannie Lou Hamer Freedom

School

Total: \$39,605

J.M. Kaplan Fund, Discretionary Grant, 2017 – 2018.

Project: New York City Nature Goals

Team: Natural Areas Conservancy (lead), WCS

Total: \$75,000

National Oceanic and Atmospheric Administration, Coastal and Ocean Climate

Applications, Ecosystem Services for a Resilient Coast in a Changing Climate, 2016-2019.

<u>Project:</u> Incorporating Interactive Visions & Bioeconomic Values of Ecosystem Services into Climate Adaptation: An Example from Jamaica Bay, Brooklyn/Queens, New York City

Team: RAND Corporation (lead), Stevens Institute of Technology, WCS

Amount: \$296,597

Secretariat of the Convention on Migratory Species, 2016 – 2018.

Project: Priority Mapping of Movements of Central Asian Migratory Species and Linear

Infrastructure <u>Team</u>: WCS <u>Total</u>: \$60,000

National Park Service, Cooperative Ecosystem Studies Units, 2014 – 2017.

<u>Project:</u> Visionmaker Jamaica Bay: Evaluation and Synthesis of Community Generated Adaptation Strategies to Enhance Resilient Ecosystems in Jamaica Bay, New York

Team: WCS (lead), Cornell University, Rutgers University

Total: \$350,000

Rockefeller Foundation, 2014 - 2016.

Project: Integrated modelling of Jamaica Bay

Team: RAND Corporation (lead), Science and Resilience Institute at Jamaica Bay, WCS,

ARCADIS, Stevens Institute of Technology

Total: \$625,000 (approx.)

US Fish and Wildlife Service, Arizona Ecological Services Field Office, 2014 – 2015.

Project: Jaguar Survey and Monitoring Techniques and Methodologies

Team: WCS

Amount: \$114,000

The New York Community Trust, Brooke Astor Fund for NYC Education, 2014 – 2018.

Project: Expanding Mannahatta 2409: A STEM interdisciplinary learning initiative for

New York City Education

Institution: WCS

Amount: \$1,409,334 (two grants)

The Charles Hayden Foundation, Education, 2013-2014.

Project: Mannahatta 2409 Partnership

Team: WCS (lead), Frederick Douglass Academy

Amount: \$30,000

The Summit Foundation, 2013-2017.

Project: The Welikia Project, the Mannahatta Project, Visionmaker

Team: WCS

Amount: \$190,000 (four grants)

National Oceanic and Atmospheric Administration, Climate and Societal Interactions and Ocean Climate Applications, 2013-2015.

Project: Quantifying the Value and Communicating the Protective Services of Living

Shorelines Using Flood Risk Assessment

Team: Stevens Institute of Technology (lead), WCS, Columbia University - Lamont

Doherty Earth Observatory – CIESIN.

Amount: \$299,574

The Seed Fund, 2013-2015.

<u>Project:</u> Nature before the City: San Francisco Team: WCS (lead), San Francisco Estuary Institute

Amount: \$25,000 (two grants)

Bay and Paul Foundation, 2013-2014.

Project: Mannahatta 2409

Team: WCS Amount: \$50,000

National Oceanic and Atmospheric Administration, WCS/NOAA Regional Partnership, 2012-2013

Project: The Challenge of Success: Managing and Monitoring Bronx Urban Marine,

Estuarine and Riverine Wildlife in the Twenty-first Century

Team: WCS (lead), Bronx River Alliance, City of New York Department of Parks and

Recreation Natural Resources Group, Lehman College, Queens College.

Amount: \$364,367

The Summit Foundation, 2011 - 2012

<u>Project:</u> Ecological Performance Standards for New York City Team: Biomimicry Institute (lead), WCS, Terrapin Bright Green

Amount: \$114,000

The Rockefeller Foundation, Cultural Innovation Award, 2011-2014.

Project: Mannahatta 2409

Team: WCS (lead), Terrapin Bright Green, New York City Department of City Planning

Amount: \$250,000

National Oceanic and Atmospheric Administration, WCS/NOAA Regional Partnership, 2011-2012.

<u>Project:</u> Community-led Restoration of the Lower Bronx River

Team: City of New York Department of Parks and Recreation (lead), WCS, Bronx River

Alliance

Amount: \$146,593

US Fish and Wildlife Service, Arizona Ecological Services Field Office, 2011 – 2025.

Project: Jaguar Habitat Mapping

Team: WCS

Amount: \$150,000 (approx.; multiple grants).

Hudson River Foundation, NYCEP Newtown Creek, 2011-2012.

Project: My Good Home (Welikia) on Newtown Creek

Team: WCS Amount: \$24,972

Private donor, 2011-2012.

Project: Greenprints

Team: WCS (lead), Maya Lin Studio

Amount: \$250,000

What is Missing? Foundation, 2009-2010.

Project: Greenprints

Team: Maya Lin Studio (lead), WCS

Amount: \$50,000

New York State Environmental Protection Fund, Local Waterfront Revitalization Program, 2008-2009.

<u>Project:</u> Mannahatta/Manhattan: An Education Exhibit Based on the Mannahatta Project <u>Team:</u> New York City Department of Parks & Recreation (lead), WCS, Museum of the

City of New York Amount: \$410,398

Prior to 2009, research efforts led to \$5 million from Jaguar Cars for jaguar conservation; \$250,000 from Save the Tiger Fund/Critical Ecosystem Partnership Fund for tiger conservation, approximately \$10 million for two USAID grants for "Living Landscapes", and approximately \$150,000 from the Prospect Hill Foundation.

BOOKS

Sanderson, E.W. (In contract) The Welikia Atlas. Abrams, New York. Expected 2024.

Sanderson, E.W., W.D. Solecki., J.R. Waldman, and A. S. Parris. 2016. <u>Prospects for Resilience</u>: Insights from New York City's Jamaica Bay. Island Press, Washington, D.C.

Sanderson, E.W. 2013. <u>Terra Nova: The New World After Oil, Cars, and Suburbs</u>. Abrams, New York. 352 pp.

Sanderson, E.W. 2009. <u>Mannahatta: A Natural History of New York City</u>. Abrams, New York. 352 pp. Illustrated by Markley Boyer. Paperback edition May 2013. New York Times bestseller.

Sanderson, E.W., Robles Gil, P., Mittermeier, C.G., Martin, V.G., and Kormos, C.F. 2006. The Human Footprint: Challenges for Wilderness and Biodiversity. CEMEX - Agrupacion Sierra Madre – Wildlife Conservation Society, Mexico. 324 pp.

Medellin, R. A., C. Chetkiewicz, A. Rabinowitz, K. H. Redford, J. G. Robinson, E.W. Sanderson, and A. Taber, editors. 2002. <u>Jaguars in the new millennium: an evaluation of the status, priority-setting and recommendations for the jaguars in the Americas</u>. National Autonomous University of Mexico/Wildlife Conservation Society. Mexico D. F.

PEER-REVIEWED PUBLICATIONS, BOOK CHAPTERS & TECHNICAL REPORTS

Sanderson, E.W., Breitenmoser, U., Burki, R., Breitenmoser-Wursten, Fisher, K., Lanz, T., Mallon, D., McCarthy T., and Zahler, P. (*In press*) Global Strategies for Snow Leopard Conservation: A Spot-Joining Synthesis, in (Eds.) McCarthy, T., and Mallon, D. <u>Snow Leopards</u>, 2nd edition. ELSEVIER, Amsterdam. (*Accepted*).

Treglia, M., McPhearson, T., Sanderson, E.W., Yetman, G., and Nobel-Maxwell, E. Examing the distribution of green roofs in New York City through a lens of social, ecological, and technological filters. <u>Ecology and Society</u> 27:3. https://doi.org/10.5751/ES-13303-270320

Miquelle, D., and Sanderson, E.W. 2022. Identifying, Protecting, and Restoring Tiger Conservation Landscapes: A Brief to the Global Tiger Recovery Programme. Wildlife Conservation Society, Bronx, NY.

Goodrich, J., Wibisono, H., Miquelle, D., Lynam, AJ., Sanderson E.W., Chapman, S., Gray, TNE, Chanchani, P., and Harihar, A. 2022. *Panthera tigris*. The IUCN Red List of Threatened Species Assessment. E. T15955A214862019.

Sanderson, E.W., 2022. "Foreword", in Alison Sant's <u>Ground Up: Local Efforts to Create</u> Resilient Cities, Island Press.

Sanderson, E.W., Sanderson, E., and McLennen, C. 2022. <u>Wild for All: The Rationale</u>. Wildlife Conservation Society, Higher Ground, Count Us In, Freeborne Media. Co-launched with "Our Great National Parks", hosted by President Barack Obama on Netflix.

Sanderson, E.W., Beckmann, J.P., Beier, P., Bird, B., Bravo, J.C., Fisher, K., Grigione, M.M., Lopez-Gonzalez, C., Miller, J.R.B., Mormorunni, C.M., Paulson, L., Peters, R., Polisar, J., Povilitis, T., Robinson, M.J., and Wilcox, S. 2021. The case for reintroduction: the jaguar (*Panthera onca*) in the United States as a model. <u>Conservation Science and Practice</u> 3(6): e392. DOI: https://conbio.onlinelibrary.wiley.com/doi/10.1111/csp2.392

Sanderson, E.W., Fisher, K., Peters, R., Beckmann, J.P., Byrd, B., Bradley, C.M., Bravo, J.C., Grigione, M.M., Hatten, J.R., Lopez-Gonzalez, C., Menke, K., Miller, J.R.B., Miller, P.S., Mormorunni, C.M., Robinson, M.J., Thomas, R.E., and Wilcox, S. 2021. A systematic review of potential habitat suitability for jaguar (*Panthera onca*) in central Arizona and New Mexico, United States. Oryx. DOI: https://doi.org/10.1017/S0030605320000459

Venter, O., and Sanderson, E.W. 2021. Changes in the human footprint, in (eds.) Hunter, M.L. Jr., J.P. Gibbs, and V. Popescu. <u>Fundamentals of conservation biology</u>, 4th edition. Wiley-Blackwell, Oxford, United Kingdom.

Orton, P.M., Sanderson, E.W., Talke, S.A., Giampieri, M., McManus, K. 2020. Storm tide amplification due to historical geomorphic change in a manmade harbor. <u>Natural Hazards and Earth System Sciences</u> 20: 2415-2432.

Akçakaya, H.R., Rodrigues, A.S.L., Keith, D.A., Milner-Gulland, E.J., Sanderson, E.W., Hedges, S., Mallon, D.P., Grace, M.K., Long, B., Meijaard, E., and Stephenson, P.J. 2019. Assessing ecological function in the context of species recovery. <u>Conservation Biology</u> 34(3): 561-571.

Sanderson, E.W. 2019. A full and authentic reckoning of species ranges for conservation: response to Akçakaya et al. 2018. <u>Conservation Biology</u> 33(5): 1208-1210.

Meixler, M., Fisher, K., and Sanderson E.W. Latitude-enhanced species-area relationships for urban biodiversity prediction modeling. 2019. <u>Landscape Ecology</u> 34: 1877-1888.

Plumptre, AJ, Baisero, D., Grantham, H., Jedrzejewski, W., Kuhl, H., Maisels, F., Ray, J., Sanderson, E.W., Strindberg, S., Voight, M., and Wich, S. 2019. Are we capturing faunal intactness? A comparison of intact forest landscapes and a first coping of Key Biodiversity Areas of Ecological Integrity. Frontiers in Forests and Global Change 2. https://doi.org/10.3389/ffgc.2019.00024

Sanderson, EW, Moy, J., Rose, C., Fisher, K., Jones, B., Balk, D., Clyne, P., Miquelle, D., and Walston, J. 2019. Implications of the shared socioeconomic pathways for tiger (*Panthera tigris*) conservation. <u>Biological Conservation</u> 231: 13-23.

Fischbach, J.R., Knopman, D., Smith, H., Orton, P., Sanderson, E., Fisher, K., Moray, N., Friedberg, A., and Parris, A. 2018. <u>Building Resilience in an Urban Coastal Environment:</u> Integrated, Science-based Planning in Jamaica Bay, New York. RAND Corporation.

Sanderson EW, Walston J, Robinson JG. 2018. From bottleneck to breakthrough: urbanization and the future of biodiversity conservation. <u>BioScience</u> 68:412–426.

Smith, H., Orton, P.M., Sanderson, E.W., and Fischbach, J. 2018. Integrated modelling to predict landscape evolution, flooding, and water quality in Jamaica Bay, NY. Coastal Engineering Proceedings 1(36): 3. DOI: 10.9753/icce.v36.risk.3

Fain, J., Parris, A., Schlesinger, A., Dvarskas, A., Groffman P., Kaunzinger C., Meyer W., Miller, J., Muse, A. and Sanderson, E. 2017. <u>Technical Review of the Waterfront Alliance's Waterfront Edge Design Guidelines Program</u>. Science and Resilience Institute at Jamaica Bay. Brooklyn, NY.

Dubois, B., Allred, S., Bunting-Howarth, K., Giamperi, M., and Sanderson, E.W. 2017. Introducing Visionmaker.NYC: A free online landscape ecology tool to support social-ecological systems thinking. Journal of Extension 55(6): 6-8.

Sanderson EW. 2017. The Birth of the Anthropocene by Jeremy Davies [book review]. <u>The Quarterly Review of Biology</u> 92:463–463.

Giampieri, M., DuBois, B., Allred, S., Bunting-Howarth, K., Fisher, K., Moy, J., and Sanderson, E.W. 2017. Visions of resilience: lessons from applying a digital democracy tool in New York's Jamaica Bay watershed. <u>Urban Ecosystems</u>.DOI 10.1007/s11252-017-0701-2.

Beller, E., Mcclenachan, L., Trant, A., Sanderson, E.W., Rhemtulla, J., Guerinni, A., Grossinger, R., and Higgs, E. 2017. Toward principles of historical ecology. American Journal of Botany 104(5): 1-4. DOI: 10.3732/ajb.1700070

Sanderson, E.W., Gunther, B., and Charlop-Powers, S. 2016. <u>New York City Nature Goals 2050</u>. Natural Areas Conservancy and Wildlife Conservation Society.

Handel, S., et al. 2016. Ecology of Jamaica Bay: History, status and resilience In (Eds.) Sanderson, E.W., W.D. Solecki., J.R. Waldman, and A. S. Parris. <u>Prospects for Resilience: Insights from New York City's Jamaica Bay</u>. Island Press, Washington, D.C.

Sanderson, E.W., P. Orton, J. Fischbach, D. Knopman, H. Roberts, W.D. Solecki, J. Fitzpatrick, and R., Wilson. 2016. Computational modelling of the Jamaica Bay system. In (Eds.) Sanderson, E.W., W.D. Solecki., J.R. Waldman, and A. S. Parris. <u>Prospects for Resilience</u>: Insights from New York City's Jamaica Bay. Island Press, Washington, D.C.

Parris, A.S., W. D. Solecki, E.W. Sanderson, and J.R. Waldman. 2016. The future of Jamaica Bay: Putting resilience into practice. In (Eds.) Sanderson, E.W., W.D. Solecki., J.R. Waldman, and A. S. Parris. <u>Prospects for Resilience: Insights from New York City's</u> Jamaica Bay. Island Press, Washington, D.C.

Solecki, W.D., E.W. Sanderson, J.R. Waldman, and A.S. Parris 2016. Why prospects for resilience for Jamaica Bay? In (Eds.) Sanderson, E.W., W.D. Solecki., J.R. Waldman, and A.

- S. Parris. <u>Prospects for Resilience: Insights from New York City's Jamaica Bay</u>. Island Press, Washington, D.C.
- Swanson, L., M. Dorsch, M. Giampieri, P. Orton, A. Parris, and E.W. Sanderson 2016. Dynamics of the biophysical systems of Jamaica Bay. In (Eds.) Sanderson, E.W., W.D. Solecki., J.R. Waldman, and A. S. Parris. 2016. <u>Prospects for Resilience: Insights from New York City's Jamaica Bay</u>. Island Press, Washington, D.C.
- Orton, P., K. MacManus, K., E. Sanderson, J. Mills, M. Giampieri, K. Fisher, G. Yetman, E. Doxsey-Whitfield, D. Hugens, Z. Wu, L. Yin, N. Georgas, and A. Blumberg. 2016. Quantifying the Value and Communicating the Protective Services of Nature-Based Flood Mitigation using Flood Risk Assessment. Final Report to the National Oceanic and Atmospheric Administration Coastal Ocean Climate Applications program. Stevens Institute of Technology, Columbia University, and Wildlife Conservation Society, Hoboken NJ and New York, NY.
- Watson, J.E.M., Shanahan, D.F., Di Marco, M., Allan, J., Laurance, W.F., Sanderson, E.W., Mackey, B., Venter, O., 2016. Catastrophic Declines in Wilderness Areas Undermine Global Environment Targets. <u>Current Biology</u> 26: 1-6. doi:10.1016/j.cub.2016.08.049
- Venter, O., Sanderson, E.W., Magrach, A., Possingham, H.P., Small, C., Fekete, B.M., Wood, P., Laurance, W.F., Levy, M., Watson, J.E.M. 2016. Sixteen years of change in the global terrestrial human footprint and implications for biodiversity conservation. <u>Nature</u> Communications 7: 12558.
- Venter, O., Sanderson, E.W., Magrach, A., Allan, J.R., Beher, J., Jones, K.R., Possingham, H.P., Laurance, W.F., Wood, P., Fekete, B.M., Levy, M.A., Watson, J.E.M. 2016. Global terrestrial Human Footprint maps for 1993 and 2009. <u>Scientific Data</u> 3, 160067. doi:10.1038/sdata.2016.67
- Sanderson, E.W. 2016. Cartographic Evidence for Historical Geomorphological Change and Wetland Formation in Jamaica Bay, New York. Northeastern Naturalist 23(2): 277-304.
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Computer renderings in 1609 based on the Welikia Project data. Prepared for The New York Times. In collaboration with E. Sanderson.

Moy, J. 2017. "Three views of Brooklyn". Digital renderings.

Computer renderings of lower Manhattan and Brooklyn at the height of the Wisconsin glaciation, during the period of glacial melting, and in 1609. Prepared for the "WATERFRONT" exhibition at the Brooklyn Historical Society. In collaboration with E. Sanderson.

Giampieri, M. 2016. "Flushing Meadows". Digital rendering.

Computer renderings of Flushing Meadows looking west in 1609, based on Welikia Project data. On exhibition in "New York at its Core" exhibition, Museum of the City of New York. In collaboration with E. Sanderson.

Glow, B. 2016. "Mannahatta VR". Virtual reality experience.

A virtual reality response to Mannahatta as part of Lenapeway, an installation at 715

Broadway in the fall of 2016. URL: https://beatriceglow.org/mannahatta

Horie, A., and Brayman, A. 2015. "Who lives in Greenwich Village?" Ceramics. A series of ceramic pieces outlining the blocks around Washington Square Park and responding to the wildlife and ecosystems of this part of the city in 1609.

Edlund, P. 2013. "Hilly Island". Paintings.

A series of paintings of the 1609 landscape, some cases, juxtaposed with the contemporary landscape.

Lin, M. 2013. "Crossing Midtown". Sculpture.

Steel pins placed upright in a canvas mark out the original stream network of Mannahatta. Pace Gallery, New York.

Boyer, M. 2013. "Mannahatta". Sculpture.

A sculptural response to Mannahatta map. Photographed and reproduced in Becky Cooper's Manhattan: A Love (and Sometimes Hate) Story in Maps by 75 New Yorkers.

Kaufman, C. 2010. "Hudson Valley Quintet". Music.

A five part environmental art composition, tailored for the local environment. Accompanying art by Ken Cro-Ken and Alice Cotton. Performed by the Quintet of the Americas for Mannahatta in 2010. URL: https://soundartus.com/hudson-valley-music/

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Music inspired by Mannahatta Project. Performed by the Quintet of the Americas in 2010. URL: https://www.musicalamerica.com/news/newsstory.cfm?storyid=23079

Neilson, H. and Fraser, N. 2009. "Forest and Stream". Video.

A conceptual and video piece about ecosystem boundaries marked in chalk along 14th Street's sidewalk slowly disappearing over the course of a day as people walk by. URL: https://heidineilson.com/forest-stream/

Van Tienhoven, R. 2009. "The Manhattan Five". Sculpture.

A commemorative five euro coin issued by Royal Dutch mint. One face shows the modern outline of lower Manhattan, the other the shoreline of Mannahatta. URL: https://en.numista.com/catalogue/pieces20536.html

Reis, G. 2009. "NYU Native Woodland". Garden.

A garden installation of native plants based on the Mannahatta Project beside the main library building at New York University. Note: As of 2018, beyond a marker, the garden no longer exists.

Haeg, F., 2009. "Lenape Edible Estate". Garden.

Lenape-inspired garden at the Hudson Guild at Elliott-Chelsea Houses, produced in partnership with New York Restoration Project and Friends of the High Line. URL: https://www.fritzhaeg.com/garden/initiatives/edibleestates/lenape.html

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Digital landscape views based on Mannahatta Project. Published in <u>Mannahatta: A Natural History of New York City</u> and in the accompanying exhibition at the Museum of the City of New York. In collaboration with E. Sanderson.

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Stone, D., 2008. "In Old New York." Song.

A song recorded on Pinataland's <u>Songs for the Forgotten Future</u>, volume 2, released August 8, 2008. Cover art by Markley Boyer. URL: https://pinataland.bandcamp.com/track/in-old-new-york

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Sanderson, E.W., and Sanderson, E. (In prep.) Implications of the shared socioeconomic pathways for the sustainable development goal agenda.

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