

DANIEL S. W. KATZ

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Education

2009 – 2015 Ph.D., University of Michigan, Ann Arbor, MI, Natural Resources & Environment, advisor: Inés Ibáñez
Dissertation: The effect of biotic interactions on range expansion of plant species

2003 – 2007 B.A., Bard College, Annandale, NY, Environmental Studies

Professional appointments

2019 - present **Postdoctoral Fellow**

University of Texas at Austin, Dell Medical School, Department of Population Health
Research project: Allergenic pollen exposures and epidemiology in Texas
Advisors: Elizabeth Matsui and Shalene Jha

2016 - 2019 **National Institutes of Health NRSA F32 Postdoctoral Fellow**

Michigan Institute of Clinical & Health Research Postdoctoral Fellow
University of Michigan – Ann Arbor, School of Public Health, Environmental Health Sciences
Research project: Allergenic pollen production, dispersion, and exposures
Advisor: Stuart Batterman

Grants, fellowships, awards, and competitive programs

2020	Researcher Grant – Texas Ecological Laboratory	\$11,970
2016-2019	NRSA F32 Postdoctoral Research Fellow – National Institutes of Health	\$181,400
2016-2018	PTSP Fellow – Michigan Institute of Clinical & Health Research	\$60,000
2017	Planet Ambassador: Satellite Imagery Data Access Award – Planet Labs	
2017	Library Data Grant: Remote Sensing Data – University of Michigan Clark Library	
2013-2015	Doctoral Dissertation Improvement Grant – National Science Foundation	\$20,200
2015	Rackham Dissertation Grant – University of Michigan Graduate School	\$15,800
2015	C. Pack Foundation Award – UM School of Natural Resources and Environment	\$1,000
2011-2014	Graduate Research Fellow – National Science Foundation	\$134,000
2011-2014	STAR Fellow – Environmental Protection Agency, <i>offer declined</i>	\$126,000
2010-2014	Rackham Travel Grants – University of Michigan Graduate School	\$3,500
2013	Earnest Woodman Award – UM School of Natural Resources and Environment	\$500
2012	E.S. George Reserve Scholarship Award – UM E.S. George Reserve	\$6,150
2012	Howard M. Wight Award – UM School of Natural Resources and Environment	\$500
2012	William D. Drake Prize – Matthaei Botanical Gardens and Nichols Arboretum	\$1,000
2012	Winifred Chase Award – Matthaei Botanical Gardens and Nichols Arboretum	\$2,000
2011	Samuel A. Graham Award – UM School of Natural Resources and Environment	\$1,000
2011	Donald M. Matthews Award – UM School of Natural Resources and Environment	\$500
2010	Lund Ecology Award – UM School of Natural Resources and Environment	\$500
2006-2007	Trustee Leader Scholar – Bard College	
2005, 2007	Alice Doyle Award – Bard College	\$500
2006	NSF REU participant – Cary Institute of Ecosystem Studies	
2005	NSF REU participant – Harvard Forest	

Publications (*coauthor is an undergraduate mentee)

- 14 **Katz, D.S.W.**, S.J. Brines and S.A. Batterman. 2020. Improved classification of urban trees using a widespread multi-temporal aerial image dataset. *Remote Sensing* 12.15:2475.
- 13 **Katz, D.S.W.** and S.A. Batterman. 2020. Urban-scale variation in pollen concentrations: A single station is insufficient to characterize daily exposure. *Aerobiologia* 36: 417-431.

- 12 **Katz, D.S.W.**, J. Morris, and S.A. Batterman. 2020. Pollen production for 13 urban North American tree species: allometric equations for tree trunk diameter and crown area. *Aerobiologia* 36: 401-415.
- 11 **Katz, D.S.W.** and S. Batterman. 2019. Allergenic pollen production across a large city for common ragweed (*Ambrosia artemisiifolia*), *Landscape and Urban Planning* 190: 103615.
- 10 **Katz, D.S.W.**, A. Dzul, A. Kendel, and S. Batterman. 2019. Effect of intra-urban temperature variation on tree flowering phenology, airborne pollen, and measurement error in epidemiological studies of allergenic pollen. *Science of the Total Environment* 653: 1213-1222.
- 9 **Katz, D.S.W.** and I. Ibáñez. 2017. Differences in biotic interactions across range edges have only minor effects on plant performance. *Journal of Ecology* 105: 321-331.
- 8 I. Ibáñez, **D.S.W. Katz**, and B. Lee. 2017. The contrasting effects of short-term climate change on the early recruitment of tree species. *Oecologia* 184.3: 701-713.
- 7 **Katz, D.S.W.** and I. Ibáñez. 2016. Foliar damage beyond species distributions is partly explained by distance dependent interactions with natural enemies. *Ecology* 97.9: 2331-2341.
- 6 **Katz, D.S.W.** 2016. The effects of invertebrate herbivores on plant population growth: a meta-regression analysis. *Oecologia* 182.1:43-53.
- 5 **Katz, D.S.W.** and I. Ibáñez. 2016. The effect of biotic interactions on range expansion of three invasive plant species. *Biological Invasions* 18:3351-3363.
- 4 **Katz, D.S.W.** and T.S. Carey*. 2014. Heterogeneity in ragweed pollen exposure is determined by local and neighborhood plant composition. *Science of the Total Environment* 485: 435-440.
- 3 **Katz, D.S.W.**, B. Connor-Barrie, and T.S. Carey*. 2014. Urban ragweed populations in vacant lots: An ecological perspective on management. *Urban Forestry and Urban Greening* 13.4: 756-760.
- 2 I. Ibáñez, **Katz, D.S.W.**, B. Connor-Barrie, S. Wolf, D. Peltier. 2014. Assessing the integrated effects of landscape fragmentation on plants and plant communities: the challenge of multiprocess – multiresponse dynamics. *Journal of Ecology* 102: 882-895.
- 1 **Katz, D.S.W.**, G.M. Lovett, C.M. O'Reilly, and C.D. Canham. 2010. Legacies of land use diminish over 22 years in a forest in southeastern New York. *Journal of the Torrey Botanical Society* 137.2: 236-251.

In preparation:

Katz, D.S.W., L. Bielory, J. Wang, C. Karounos, and S.A. Batterman. Low-cost programmable rotorod devices for sampling pollen. Anticipated submission to *HardwareX*.

Zapata-Marin, S., Schmidt, A.M., Weichenthal, **Katz, D.S.W.**, and S., Lavigne, E., et al. Characterizing the spatiotemporal variations of aeroallergens in an urban area using a land use regression model. Anticipated submission to *Environmental Research*.

Invited presentations and guest lectures

Katz, D.S.W. 10/26/20, 20 minutes. “Modeling allergenic pollen at the municipal scale with a process-based approach.” Invited presentation: National Atmospheric Deposition Program, Aeroallergen Monitoring Science Committee.

Katz, D.S.W. 10/26/20, 40 minutes. “Pollen trackers: a citizen science project to forecast cedar fever.” Invited presentation: Hill Country Chapter, Texas Master Naturalists.

Katz, D.S.W. 9/28/20, 25 minutes. “Allergenic pollen: How moving from monitoring networks to process-based models could create new epidemiological and public health opportunities.” Invited presentation: Council of State and Territorial Epidemiologists, Climate, Health, and Equity Subcommittee.

Katz, D.S.W. 9/17/20, 40 minutes. “Pollen trackers: a citizen science project to forecast cedar fever.” Invited presentation: Lindheimer Chapter, Texas Master Naturalists.

Katz, D.S.W. 9/14/20, 40 minutes. “Pollen trackers: a citizen science project to forecast cedar fever.” Invited presentation: Hill Country Chapter, Native Plant Society of Texas.

Katz, D.S.W. 1/30/20, 40 minutes. “Tracking cedar fever in Texas: A citizen science project.” Invited presentation: El Camino Real Chapter, Texas Master Naturalists.

Katz, D.S.W. 1/30/20, 40 minutes. “Tracking cedar fever in Texas: A citizen science project.” Invited presentation: El Camino Real Chapter, Texas Master Naturalists.

Katz, D.S.W. 1/30/20, 40 minutes. “Tracking cedar fever in Texas: A citizen science project.” Invited presentation: El Camino Real Chapter, Texas Master Naturalists.

Katz, D.S.W. 1/30/20, 50 minutes. “Tracking cedar fever in Texas: A citizen science project.” Invited presentation: Lindheimer Chapter, Texas Native Plant Society.

Katz, D.S.W. 1/16/20, 30 minutes. “Tracking cedar fever in Texas: A citizen science project.” Invited presentation: Big Country Chapter, Texas Master Naturalists.

Katz, D.S.W. 1/8/20, 50 minutes. “Tracking cedar fever in Texas: A citizen science project.” Invited presentation: Highland Lakes Chapter, Texas Master Naturalists.

Katz, D.S.W. 4/23/19, 30 minutes. “Spatio-temporal heterogeneity in airborne pollen concentrations.” Invited remote presentation: Aeroallergen Team, Climate Change Working Group, Center for Disease Control.

Katz, D.S.W. 3/14/19, 30 minutes. “Allergenic pollen in Detroit: From demolition to exposure.” Invited presentation: Detroit School Series, University of Michigan.

Katz, D.S.W. 3/12/19, 20 minutes. “Love is in the air: Plant sex, allergenic pollen, and how to avoid it.” Invited presentation to the public: Biology on Tap, Corner Brewery, Ypsilanti, Michigan.

Katz, D.S.W. 11/16/18, 15 minutes. “An interdisciplinary approach to addressing pollen allergies.” Invited presentation: Giving Thanks for Research Event, Michigan Institute for Clinical & Health Research, University of Michigan.

Katz, D.S.W. 2/7/16, 1 hour. “Human-environment interactions and allergenic pollen.” Guest lecture: Environment and Society (ENV 105), Washtenaw Community College.

Katz, D.S.W. 12/2/15, 30 minutes. “Alternate stable states and novel ecosystems.” Guest lecture: Ecological Systems – Concepts and Applications (NRE 509), University of Michigan.

Katz, D.S.W. 9/8/15, 1 hour. “Climate change, fragmentation, and invasive species in Michigan.” Invited presentation: Steward’s Circle, Ann Arbor Natural Areas Presentation.

Presentations in professional meetings (*coauthor is an undergraduate mentee)

Katz, D.S.W., C. Zigler, and E. Matsui. 2020. “Asthma-related emergency department visits in Texas: Associations with allergenic pollen and other seasonal triggers.” Poster presentation. *International Society of Environmental Epidemiology*, virtual conference.

Katz, D.S.W. and S. Batterman. 2019. “Pollen production across a city: Scaling from anthers to neighborhoods with allometric equations and remote sensing.” Oral presentation. *Ecological Society of America*, Louisville, KY.

Katz, D.S.W. and S. Batterman. 2018. “Measurement error in epidemiological studies of allergenic pollen due to heterogeneity in flowering time.” Oral presentation. *International Society of Exposure Science and International Society of Environmental Epidemiology*, Ottawa, Canada.

- Katz, D.S.W.** and S. Batterman. 2018. “Creating a comprehensive municipal inventory of common ragweed (*Ambrosia artemisiifolia*) to predict allergenic pollen exposures.” Poster presentation. *Translational Science*, Washington, DC.
- V. Bankowski* and **D.S.W. Katz**. 2018. “Allometric equations for predicting common ragweed pollen production. Oral presentation, *Michigan Academy of Science, Arts, and Letters*, Mount Pleasant, MI.
- Katz, D.S.W.** and S. Batterman. 2017. “Allergenic pollen in cities: Using remote sensing to determine source plant locations.” Oral presentation. *Ecological Society of America*, Portland, OR.
- V. Bankowski* and **D.S.W. Katz**. 2017. “Spatial variation in *Alternaria* spore concentration in Detroit.” Poster presentation. *Undergraduate Research Opportunity Program symposium*, Ann Arbor, MI. This poster was awarded the Blue Ribbon Prize.
- Katz, D.S.W.** and I. Ibáñez. 2015. “Will biotic interactions determine temperate tree range expansion success?” Oral presentation: Organized oral symposium. *Ecological Society of America*, Baltimore, MD.
- T. Carey* and **Katz, D.S.W.** 2014. “Allergies on the rise: Spatial correlations between management, plant populations and airborne pollen concentrations for ragweed” Oral presentation. *Ecological Society of America*, Sacramento, CA.
- Katz, D.S.W.** and I. Ibáñez. 2014. “You can run but you can’t hide: biotic interactions and range expansion” Oral presentation. *Ecological Society of America*, Sacramento, CA.
- Katz, D.S.W.** 2014. “Biotic interactions and range expansion dynamics” Oral presentation. *Michigan Academy of Science Arts and Letters*, Oakland, MI.
- Katz, D.S.W.** and I. Ibáñez. 2013. “The impact of biotic interactions on seedling recruitment during tree range expansion” Oral presentation: Organized oral symposium. *Ecological Society of America*, Minneapolis, MN.
- Katz, D.S.W.** 2013. “Can agricultural biodiversity buffer against climate variability?” Oral presentation. *Michigan Academy of Science Arts and Letters*, Holland, MI.
- Katz, D.S.W.** and I. Ibáñez. 2012. “Range expansion of plants in response to climate change” Poster presentation. *Ecological Society of America*, Portland, OR.
- Ennis, K., **Katz, D.S.W.**, T. Ong, L. Cline, Y.J. Su, B. Li, D. Gonthier, I. Perfecto, and B. Cardinale. 2012. “Crop diversity and yield stability: Do polycultures buffer against climate variability?” Oral presentation. *Ecological Society of America*, Portland, OR.
- Katz, D.S.W.** and T. Carey*. 2012. “Allergenic pollen in the urban environment” Oral presentation. *Michigan Academy of Science Arts and Letters*, Alma, MI.
- Katz, D.S.W.** and I. Ibáñez. 2011. “Is the grass greener on the other side? Range expansion and enemy release” Oral presentation. *Ecological Society of America*, Austin, TX.
- Carey, T.* and **Katz, D.S.W.** 2011. “Pollen and public health: A citizen science project” Poster presentation. *Ecological Society of America*, Austin, TX.
- Katz, D.S.W.** 2011. “The potential for tree range expansion in response to climate change” Oral presentation. *Michigan Academy of Science Arts and Letters*, Saginaw, MI.
- Katz, D.S.W.** and I. Ibáñez. 2010. “Frost and flowers: how will climate change effect spring frost damage in North America?” Oral presentation. *Ecological Society of America*, Pittsburgh, PA.

Publications for broader audiences and media appearances

- R. Haupt. 45-minute guest appearance on *Science... sort of* podcast. 10/24/20, “Amber waves of sap and problems of pollen prairies” Full version available online:
<https://sciencesortof.com/show-notes/2020/10/330-amber-waves-of-sap-and-problems-of-pollen-prairies>

B. Fitzsimmons. Participant in 11-minute television interview for Spectrum News. 3/11/20, “Pollen count goes automated with help from artificial intelligence.” Full version available online: <https://spectrumlocalnews.com/tx/austin/news/2020/03/11/pollen-counter-goes-automated-with-help-from-ai>

W. Bishop. Participant in 24-minute interview on Facebook Live. 1/15/20, “Cedar trees: the good, the bad, and the sneezy.” *Texas Parks and Wildlife Department*, 37,000 views: <https://www.facebook.com/texasparksandwildlife/videos/619640848837872/>

M. Maeckle. 1/2/20, “Something’s in the air: San Antonio enters peak cedar fever season.” *Rivard Report*, <https://therivardreport.com/something-in-the-air-san-antonio-enters-peak-cedar-fever-season/>

L. Joel. 8/14/19. “As the forest moves back in, pollen is on the rise in Detroit.” *Undark Magazine*, <https://undark.org/article/detroit-public-health-problem-pollen> This article about my research was republished on several websites including: *Grist*, *the Daily Beast*, *Planetizen*, and *DailyMail*.

V. Bankowski* and **D.S.W. Katz**. 2018. Estimates of common ragweed pollen production for urban ragweed plants. *The University of Michigan Undergraduate Research Journal* 12: 27-32.

D. Fair. 5/30/18, 10 minute interview: “Climate change expected to contribute to rough allergy season.” *Issues of the Environment*, WEMU 89.1. <https://www.wemu.org/post/issues-environment-climate-change-expected-contribute-rough-allergy-season>

J. Erickson. 6/17/14. Press release: “Not mowing vacant lots could ease Detroit’s ragweed problem.” *Michigan News*: <https://record.umich.edu/articles/not-mowing-vacant-lots-could-ease-detroits-ragweed-problem/> This led to original articles on several websites, including: *Smithsonian Magazine: SmartNews*, *The Atlantic: City Lab*, and *Vice Magazine: Motherboard*.

Zeilin, L. 4/1/13. “Beyond Blight.” *LSA Magazine*, spring issue, P. 45: <https://record.umich.edu/articles/not-mowing-vacant-lots-could-ease-detroits-ragweed-problem/>

Katz, D.S.W. and G.M. Lovett. 1/20/2008. Forest Change Offers Insight. *Poughkeepsie Journal*. E1.

Service & affiliations

2010-2014, 2016-2018 Michigan Undergraduate Research Opportunity Program – Mentor
2011-2014 Michigan Academy of Science Arts and Letters – Plant Ecology Section Chair
2012-2013 SNRE Promotion and Tenure Committee – Member

Reviewer for: *Journal of Ecology*, *Ecography*, *Ecosphere*, *Aerobiologia*, *Evolution*, *Landscape and Urban Planning*, *Pest Management Science*, *PLOS One*, *Restoration Ecology*, *BioScience*, *Oecologia*, *Journal of the Torrey Botanical Society*, *Urban Forestry and Urban Greening*, *Forests*, *Plant Ecology*, *Atmospheric Environment*, *Forests*

Invited reviewer for proposals from: Mitacs (Canada), National Science Centre (Poland)

Professional society membership: *Ecological Society of America*, *International Society of Exposure Science*

Teaching, mentoring, and public engagement

2014 & 2015 **University of Michigan**, Course Coordinator Ann Arbor, MI

- Assisted with the creation and implementation of NRE 509: Ecological Systems – Concepts and Applications, the largest field class in departmental history.
- Oversaw the efforts of six graduate student instructors each semester, assisted with curriculum development and implementation, worked with students to develop independent projects, and arranged logistics for the lab component of this class of ~90 students.

2010-2018 **University of Michigan**, Supervisor and Mentor Ann Arbor, MI

- Primary supervisor and mentor of four undergraduate students through the Undergraduate Research Opportunity Program at the University of Michigan.

- Worked with Victoria Bankowski, a non-traditional undergraduate student to quantify spatial heterogeneity in *Alternaria* spore concentration in Detroit and to create allometric equations for ragweed pollen production.
- Worked with Tiffany Carey to create a research project and an accompanying educational outreach program in a Detroit high school on spatial variation in allergenic pollen in Detroit. Tiffany was awarded the SEEDS fellowship, competitive travel grants to ESA in 2011 and 2012, and has since been awarded the Brower Youth Award.
- Other projects included plant-animal interactions in the context of tree range expansion (Max Ramsey) and spatial heterogeneity in the impacts of deer on tree seedlings using automatic trail cameras (Seema Patel).
- Primary supervisor of 8 research assistants

2013-2014	University of Michigan , Ecological Education Consultant	Ann Arbor, MI
	<ul style="list-style-type: none"> • Assisted with curriculum development for 7th graders in Ann Arbor public schools for a unit focusing on the impacts of climate change on Michigan forests. 	
2010 & 2011	University of Michigan , Graduate Student Instructor	Ann Arbor, MI
	<ul style="list-style-type: none"> • Taught two sections of EEB 315: Ecology and Evolution of Infectious Diseases. • Led 68 students in discussions, computer labs, and wet labs over two semesters. 	
2005-2007	EcoDiscoverers , Program Co-Director	Annandale, NY
	<ul style="list-style-type: none"> • Led the environmental education program EcoDiscoverers, a project devoted to educating youth about nature, science, and the outdoors. • Organized weekend expeditions for groups of up to 20 children aged 8-15, designed lesson plans, coordinated volunteers, and maintained a fun and safe learning environment. 	

Other work experience

Spring 2009	Boston University , Research assistant: studied bats and ecosystem services	San Saba, TX
Fall 2008	Progressive Future , Community organizer: elected environmentally friendly legislators	PA, NH, CO
Summer 2008	Cornell University , Research assistant: studied nutrients and biodiversity in fens	Ithaca, NY
2007-2008	We Love LEDs , Business co-founder: established company selling LED light bulbs	Hong Kong
Summer 2007	Natural Resources Group , Research assistant: studied wetland restoration in the Bronx	New York, NY