

SOPHIE WESTBROOK

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1107 Throckmorton Plant Sciences Center
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EXPERIENCE

- Research Assistant Professor**, Kansas State University 2024–present
Rangeland and invasive weed ecology and management
50% research and 50% teaching
Primary advisor for one M.S. student at Kansas State University
External committee member for M.S. and Ph.D. students at Cornell University
- Graduate Student**, Cornell University 2020–2024
Ecology of weeds and agricultural ecosystems
Mentored 17 undergraduate students
- Research Technician**, Purdue University 2019–2020
Stomatal mechanics and drought resistance

EDUCATION

- PhD** Cornell University, Soil and Crop Sciences May 2024
GPA: 4.3/4.3
- AB** Harvard University, Integrative Biology May 2019
Graduated *summa cum laude*, GPA: 4.0/4.0

TEACHING

- Range Management** 2024
Instructor, in-person and distance education
- Range Grasses** 2024
Instructor
- Principles and Practices in Certified Organic Agriculture** 2024
Teaching assistant
- Weed Biology & Management** 2023
Co-instructor and teaching assistant
“Overall teaching quality” of 4.9/5.0 (lecture), 5.0/5.0 (lab).
Full evaluation available upon request

Graduate Student School Outreach Program
Middle school and high school educator

2023–2024

HONORS

Outstanding Teaching Assistant Award Awarded to one or two students per department at Cornell University	2024
Barbara McClintock Award Awarded to four students in the School of Integrative Plant Science	2024
Gerald O. Mott Award Awarded to one student per department by Crop Science Society of America	2024
MacDonald-Musgrave Outstanding Graduate Student Award Awarded to one student in Soil and Crop Sciences at Cornell University	2023
Robert D. Sweet Outstanding MS Student Awarded to one student in Northeastern Weed Science Society	2023
Sophia Freund Prize Awarded to the highest-ranking graduating senior(s)	2019
Phi Beta Kappa Senior 48	2019

AWARDS

USDA NIFA Federal Capacity Funds: Hatch <ul style="list-style-type: none">Participant, “<i>Developing Integrated Weed Management (IWM) strategies for Kansas cropping systems</i>”	2024–2029
USDA NIFA Federal Capacity Funds: Multistate <ul style="list-style-type: none">Participant, “<i>Optimizing forage and grazing cattle management</i>”	2024–2029
NSF Partnerships for Innovation (\$998,427) <ul style="list-style-type: none">“<i>Diversity in a Bag: Planting millions of milkweeds to address a dearth of diversity</i>”Unlisted collaborator on proposal extending earlier research [Westbrook et al. <i>Weed Science</i> (2023)]	2024–2027
USDA NIFA Federal Capacity Funds: Hatch (\$90,000) <ul style="list-style-type: none">“<i>Optimizing field margin management to minimize agricultural weed problems and enhance ecosystem services</i>”Unlisted collaborator on proposal extending earlier research [Westbrook et al. <i>Annals of Applied Biology</i> (2024); Westbrook et al. <i>Agriculture, Ecosystems and Environment</i> (2024)]	2023–2026

Schmittau-Novak Integrative Plant Science Small Grants (\$9,621)	2023–2024
<ul style="list-style-type: none"> • Co-PI, “<i>Bridging molecular, physiological, ecological, and biogeographical scales to understand how elevated temperature affects Palmer amaranth performance and control</i>” 	
Atkinson Center Sustainable Biodiversity Fund (\$7,230)	2023
<ul style="list-style-type: none"> • PI, “<i>Restoring biodiversity and ecosystem services to agricultural landscapes: Are annual flower strips the answer?</i>” 	
Cornell University Fellowship (\$58,000)	2022
<ul style="list-style-type: none"> • Merit-based graduate student fellowship 	
Denison Graduate Fellowship (\$62,000)	2021
<ul style="list-style-type: none"> • Merit-based graduate student fellowship 	
Presidential Life Sciences Fellowship (\$63,000)	2020
<ul style="list-style-type: none"> • Merit-based graduate student fellowship 	

PUBLICATIONS

Peer-Reviewed Book Chapters (2)

Westbrook, A. S., DiTommaso, A., & Menalled, F. D. (accepted). Ecological principles in the study of edible weeds. In F. D. Menalled & R. Ebel (Eds.), *Agroecology of edible weeds and non-crops. Ecological and socio-economic potential of the associated plant biodiversity*.

Westbrook, A. S., Nikkel, E., Clements, D. R., & DiTommaso, A. (2022). Modeling and managing invasive weeds in a changing climate. In L. H. Ziska (Ed.), *Invasive species and global climate change* (2nd ed., pp. 281-305). CABI.

Peer-Reviewed Journal Publications (29)

Pratt, M. K., **Westbrook, A. S.**, & DiTommaso, A. (accepted). Reproductive strategy, management, and medicinal uses of field horsetail (*Equisetum arvense*). *Weed Technology*.

Hameed, O., Ugine, T., **Westbrook, A. S.**, & Losey, J. (2024). Consumption of nectar-like sugar solutions promotes longevity and fecundity in coccinellids *Harmonia axyridis* and *Hippodamia convergens*. *Arthropod-Plant Interactions*, 18, 763–770.

Westbrook, A. S., Stup, R., Morris, S., Ugine, T., & DiTommaso, A. (2024). Establishing flower strips near agricultural fields with minimal weed management. *Agriculture, Ecosystems & Environment*, 374, 109157.

Stup, R., **Westbrook, A. S.**, & DiTommaso, A. (2024). Impact of burial depth and root segment length on vegetative propagation of common milkweed (*Asclepias syriaca*). *Weed Science*. doi:10.1017/wsc.2024.37

Marschner, C. A., Colucci, I., Stup, R. S., **Westbrook, A. S.**, Brunharo, C. A., DiTommaso, A., & Mesgaran, M. B. (2024) Modeling weed seedling emergence for time-specific weed management: a systematic review. *Weed Science*. doi:10.1017/wsc.2024.25.

Westbrook, A. S., Morris, S., Stup, R., Xia, R., Coffey, R., & DiTommaso, A. (2024). Annual flower strips increase biodiversity even if planting is delayed. *Annals of Applied Biology*, 185, 81-90.

Shen, H., Dong, S., DiTommaso, A., **Westbrook, A. S.**, Li, S., Zheng, H., Zhi, Y., Zuo, H., Wang, Q., Liu, J. (2024). Physiological factors contribute to increased competitiveness of grass relative to sedge, forb and legume species under different N application levels. *Science of the Total Environment*, 906, 167466.

Westbrook, A. S., & DiTommaso, A. (2023). Hybridization in agricultural weeds: a review from ecological, evolutionary, and management perspectives. *American Journal of Botany*, 110, e16258.

Esposito, M., **Westbrook, A. S.**, Maggio, A., Cirillo, V., & DiTommaso, A. (2023). Neutral weed communities: the intersection between crop productivity, biodiversity, and weed ecosystem services. *Weed Science*, 71, 301-311.

Westbrook, A. S., Milbrath, L. R., Weinberg, J., & DiTommaso, A. (2023). Biology of Invasive Plants 3. *Vincetoxicum nigrum* (L.) Moench and *V. rossicum* (Kleopow) Barbarich. *Invasive Plant Science and Management*, 16, 3-26.

Westbrook, A. S., Amirkhani, M., Taylor, A. G., Loos, M. T., Losey, J. E., & DiTommaso, A. (2023). Multi-Seed *Zea* Pellets (MSZP) for increasing agroecosystem biodiversity. *Weed Science*, 2, 160-171.

Kordbacheh, F., Mohler, C. L., Taylor, A. G., **Westbrook, A. S.**, Rahimian-Mashhadi, H., Alizadeh, H. M., & DiTommaso, A. (2023). Optimising cutting method and timing for the control of *Abutilon theophrasti* seed production. *Weed Research*, 63(1), 34-44.

Losey, J., Allee, L., Gill, H., Morris, S., Smyth, R., Wolleman, D., **Westbrook, A. S.**, & DiTommaso, A. (2023) Predicting plant attractiveness to coccinellids with plant trait profiling, citizen science, and common garden surveys. *Biological Control*, 176, 105063.

Westbrook, A. S., & McAdam, S. A. (2022). The poisoned chalice of evolution in water: physiological novelty versus morphological simplification in Marsileaceae. *American Fern Journal*, 112(4), 320-335.

Averill, K. M., Morris, S. H., **Westbrook, A. S.,** Hunter, M. C., & DiTommaso, A. (2022). Ivyleaf morningglory (*Ipomoea hederacea* Jacq.) competition is not intensified by drought in silage corn in central New York State, USA. *Canadian Journal of Plant Science*, 102(5), 957-963.

DiTommaso, A., Mohler, C. L., & **Westbrook, A. S.** (2022). Response of hairy galinsoga (*Galinsoga quadriradiata*) to nitrogen, phosphorus, and competition from lettuce. *Weed Science*, 70(5), 579-586.

Averill, K. M., **Westbrook, A. S.,** Pineda-Bermudez, L., O'Briant, R. P., DiTommaso, A., & Ryan, M. R. (2022). Effects of Tertill® weeding robot on weed abundance and diversity. *Agronomy*, 12(8), 1754.

Wolff, A., **Westbrook, A. S.,** & DiTommaso, A. (2022). In the ruins: the neglected link between archaeology and weed science. *Weed Science*, 70(2), 135-143.

Magidow, L. C., DiTommaso, A., **Westbrook, A. S.,** Kwok, M. J., Ketterings, Q. M., & Milbrath, L. R. (2022). Soil characteristics of North American sites colonized by the non-native, invasive vines black swallow-wort and pale swallow-wort. *Northeastern Naturalist*, 29(1), 108-132.

Averill, K., **Westbrook, A.S.,** Morris, S., Kubinski, E., & DiTommaso, A. (2022). Silage corn yield is reduced by burcucumber competition and drought in New York State. *Weed Technology*, 36(1), 86-92.

Westbrook, A. S., Bhaskar, V., & DiTommaso, A. (2022). Weed control and community composition in living mulch systems. *Weed Research*, 62(1), 12-23.

DiTommaso, A., Averill, K. M., Qin, Z., Ho, M., **Westbrook, A. S.,** & Mohler, C. L. (2021). Biomass allocation of *Vincetoxicum rossicum* and *V. nigrum* in contrasting competitive environments. *American Journal of Botany*, 108(9), 1646–1661.

Bhaskar, V., Bellinder, R. R., Reiners, S., **Westbrook, A. S.,** & DiTommaso, A. (2021). Significance of herbicide order in sequential applications to target weeds in a sunn hemp living mulch. *Weed Technology*, 35(4), 565-573.

Westbrook, A. S., Han, R., Zhu, J., Cordeau, S., & DiTommaso, A. (2021). Drought and competition with ivyleaf morningglory (*Ipomoea hederacea*) inhibit corn and soybean growth. *Frontiers in Agronomy*, 3, 720287.

Bhaskar, V., **Westbrook, A. S.**, Bellinder, R. R., & DiTommaso, A. (2021). Integrated management of living mulches for weed control: a review. *Weed Technology*, 35(5), 856-868.

Little, N. G., DiTommaso, A., **Westbrook, A. S.**, Ketterings, Q. M., & Mohler, C. L. (2021). Effects of fertility amendments on weed growth and weed-crop competition: a review. *Weed Science*, 69(2), 132-146.

DiTommaso, A., Milbrath, L. R., Marschner, C. A., Morris, S. H., & **Westbrook, A. S.** (2021). Seed germination ecology of meadow knapweed (*Centaurea × moncktonii*) populations in New York State, USA. *Weed Science*, 69(1), 111-118.

Westbrook, A. S., & McAdam, S. A. (2021). Stomatal density and mechanics are critical for high productivity: insights from amphibious ferns. *New Phytologist*, 229(2), 877-889.

Westbrook, A. S., & McAdam, S. A. (2020). Atavistic stomatal responses to blue light in Marsileaceae. *Plant Physiology*, 184(3), 1378-1388.

Submitted Manuscripts (2)

Westbrook, A. S., Wilcox, N.-R., Stup, R., Djuric, N., Xu, S., Coffey, R., Özaslan, C., Xia, R., Urmaza, S., Sher, M., & DiTommaso, A. (in revision). What we still don't know about weed diversity: a scoping review. *Weed Research*.

Yang, S., Chen, C., Yang, Y., Teng, L., Liu, J., Gui, W., Zhu, J. Zhou, W., **Westbrook, A. S.**, DiTommaso, A. (in review). Differential responses of weeds and rice to shading stress from oilseed rape straw mulch

Outreach Publications (2)

Westbrook, A. S. (2023) Research report: annual flower plantings on farms. *New York Certified Organic (NYCO)*.

Westbrook, A. S. (2023). Does drought favor crops or weeds? *Northeastern Weed Science Society* [Tied for first place in student contest].

PRESENTATIONS

How Weed Management Practices Influence Weed Communities

Cornell Cooperative Extension, May 2024

Planting Time Influences Annual Flower Strip Establishment when Weed Abundance is Low

Northeastern Weed Science Society, January 2024

Integrating Ecology and Seed Technology to Improve Establishment of Pollinator Plants

Cornell Seed Conference, November 2023

Vulnerabilities in Weed Biology

Cornell Cooperative Extension, March 2023

Multi-Seed *Zea* Pellets (MSZP) for Increasing Agroecosystem Biodiversity

Northeastern Weed Science Society/Weed Science Society of America, January 2023

Awarded first place in NEWSS graduate student presentation contest

Biology, Ecology, and Management of Invasive Swallow-worts (*Vincetoxicum* spp.)

Upper Midwest Invasive Species Conference, October 2022

Effects of Tertill® Weeding Robot on Weed Abundance and Diversity

Northeastern Weed Science Society, July 2022

Awarded second place in graduate student presentation contest

PEER REVIEW

Assistant Editor, *Invasive Plant Science and Management* (2024–present)

(Co-)reviewed articles for *Agronomy for Sustainable Development*, *BMC Ecology*, *Crop Science*, *Environmental Entomology*, *Frontiers in Sustainable Food Systems*, *Invasive Plant Science and Management*, *NeoBiota*, *Pest Management Science*, *Preslia*, *Weed Biology and Management*, *Weed Research*, *Weed Science*, as well as university and national grant applications

LEADERSHIP AND SERVICE

Geospatial Science Faculty Search Committee, Cornell University 2023–2024
Contributed to faculty search as student representative

Agroecology Group, Cornell University 2022–2024
Organized biweekly meetings of 47-member discussion group

Atkinson Center Sustainable Solar Group, Cornell University 2022–2024
Represented graduate student and ecological perspectives on solar energy

MacDonald/Musgrave Awards Committee, Cornell University 2022
Reviewed and voted on departmental award nominations

Graduate Student Association, Cornell University 2020–2024
Served as treasurer (2023–2024) and contributed to event planning

Harvard Science Review, Harvard University 2015–2019

Served in editorial and presidential roles

PROFESSIONAL AFFILIATIONS

Northeastern Weed Science Society	2021–present
Crop Science Society of America	2024–present