

SOPHIE WESTBROOK

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1107 Throckmorton Plant Sciences Center
1712 Claflin Road, Manhattan, KS 66506

EXPERIENCE

Research Assistant Professor , Kansas State University Rangeland and invasive weed ecology and management 50% research and 50% teaching Instructor: Agron 251 (A, ZA), 260, 400, 462, 490/790, 640, 670, 810 Graduate student advisor (one student) and committee member (three students) Interim Associate Director, Rannells Flint Hills Prairie Preserve	2024–present
Graduate Student , Cornell University Ecology of weeds and agricultural ecosystems	2020–2024
Research Technician , Purdue University Stomatal mechanics and drought resistance	2019–2020

EDUCATION

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

TEACHING

Agronomy Seminar (Co-coordinator)	S 2025
Range Management Planning (Instructor)	S 2025
Agricultural Biodiversity (Instructor)	S 2025
Range Management Problems (Instructor) TEVAL: “overall effectiveness” of 4.5/5.0	F 2024, S 2025
Range Management (Instructor) TEVAL: “overall effectiveness” of 4.4/5.0 (in-person), 4.5/5.0 (online)	F 2024
Range Grasses (Instructor) TEVAL: “overall effectiveness” of 5.0/5.0	F 2024

Principles and Practices in Certified Organic Agriculture (TA)	S 2024
Weed Biology & Management (Co-instructor)	F 2023
TEVAL: “Overall teaching quality” of 4.9/5.0 (lecture), 5.0/5.0 (lab).	

Graduate Student School Outreach Program	2023–2024
Middle school and high school educator	

HONORS

Outstanding Reviewer Award	2025
<i>Invasive Plant Science and Management</i> journal	

Outstanding Teaching Assistant Award	2024
Awarded to one or two students per department at Cornell University	

Barbara McClintock Award	2024
Awarded to four students in the School of Integrative Plant Science	

Gerald O. Mott Award	2024
Awarded to one student per department by Crop Science Society of America	

MacDonald-Musgrave Outstanding Graduate Student Award	2023
Awarded to one student in Soil and Crop Sciences at Cornell University	

Robert D. Sweet Outstanding MS Student	2023
Awarded to one student in Northeastern Weed Science Society	

Sophia Freund Prize	2019
Awarded to the highest-ranking graduating senior(s) at Harvard University	

Phi Beta Kappa Senior 48	2019
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EXTRAMURAL FUNDING

Competitive Grants, Current (\$230,620)

Weed Science Society of America Innovative Grants Program (\$23,814)	2023–2024
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- Lead PI, “*Integrating Research and Education to Understand Adaptation at Multiple Spatiotemporal Scales in Water-Limited Rangeland Weeds*”

USDA NRCS Kansas Conservation Innovation Grants (\$123,545)	2025–2028
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- Lead PI, “*Remote-operated Robotic Mowers (RRMs) for Invasive Weed Control: Novel Application of an Emerging Technology to Promote Sustainable Rangeland Management*”

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| USDA NRCS Kansas Conservation Innovation Grants (\$83,261) | 2025–2027 |
| <ul style="list-style-type: none"> • Co-PI, <i>“Evaluating the Effectiveness of Drones for Seeding Cover Crops”</i> | |

Competitive Grants, Not Funded (\$1,245,260)

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| USDA NIFA AFRI Foundational & Applied Science (\$747,075) | 2025–2029 |
| <ul style="list-style-type: none"> • Lead PI, <i>“Integrating Ecological and Management Perspectives to Assess Indirect Effects of Climate Change on Invasive Rangeland Weeds”</i> | |

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| [Preproposal] NCR Sustainable Agriculture Research and Education (Est. \$199,000) | 2025–2028 |
| <ul style="list-style-type: none"> • Lead PI, <i>“Harnessing Multi-Seed Pellet (MSP) Technology for Restoration and Biodiversity Enhancement on Marginal Lands in Kansas”</i> | |

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| USDA NIFA AFRI Foundational & Applied Science (\$299,185) | 2025–2027 |
| <ul style="list-style-type: none"> • Lead PI, <i>“Monitoring and Minimizing Water Use by Rangeland Weeds in a Changing Climate”</i> | |

Competitive Grants, Completed (\$16,851)

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| 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> | |

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| Atkinson Center Sustainable Biodiversity Fund (\$7,230) | 2023 |
| <ul style="list-style-type: none"> • Lead PI, <i>“Restoring biodiversity and ecosystem services to agricultural landscapes: Are annual flower strips the answer?”</i> | |

Federal Capacity Funds

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| Capacity Grant: Hatch | 2024–2029 |
| <ul style="list-style-type: none"> • Co-PI, <i>“Developing Integrated Weed Management (IWM) strategies for Kansas cropping systems”</i> | |

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| Capacity Grant: Hatch Multistate | 2024–2029 |
| <ul style="list-style-type: none"> • Co-PI, <i>“Optimizing forage and grazing cattle management”</i> | |

Peer-Reviewed Book Chapters (2)

Westbrook, A. S., DiTommaso, A., & Menalled, F. D. (2024). 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* (pp. 1–24). Elsevier.

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 (31)

Yang, S., Chen, C., Yang, Y., Teng, L., Liu, J., Gui, W., Zhu, J., Zhou, W., **Westbrook, A. S.**, & DiTommaso, A. (2024). Differential responses of weeds and rice to shading stress from oilseed rape straw mulch. *Crop Protection*, 189, 107038.

Westbrook, A. S., Wilcox, N.-R., Stup, R., Djuric, N., Xu, S., Coffey, R., Özaslan, C., Xia, R., Urmaza, S., Sher, M., & DiTommaso, A. (2024). What we still don't know about weed diversity: a scoping review. *Weed Research*, 64, 418-433.

Pratt, M. K., **Westbrook, A. S.**, & DiTommaso, A. (2024). Reproductive strategy, management, and medicinal uses of field horsetail (*Equisetum arvense*). *Weed Technology*, 38, e47.

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*, 72, 313-329.

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.

Manuscripts in Review or Revision (3)

Kochendoerfer, N., **Westbrook, A. S.**, McMillan, C. E., Lapierre, P. A., Zaman, M. A., Morris, S. H., DiTommaso, A., & Grodsky, S. M. (in revision). Co-location of sheep grazing and solar energy production yields agrotechnological synergies. **Agricultural Systems**.

Westbrook, A. S., Butler-Jones, A. L., Morris, S. H., Goldman, M. B., Agrawal, A. A., & DiTommaso, A. (in review). Deer browsing impacts seedbanks and plant communities over 18 years of post-agricultural succession.

Xu, S., Özaslan, C., **Westbrook, A. S.**, Kezar, S., & DiTommaso, A. (in review). Effects of soil moisture on competition between a central New York State Johnsongrass (*Sorghum halepense*) biotype and corn.

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

Establishing Flower Strips near Agricultural Fields with Minimal Weed Management
Weed Science Society of America, February 2025

Control of Noxious Weeds: Sericea Lespedeza, Johnsongrass, Teasels
Kansas Noxious Weeds Short Course, February 2025

Tips and Tricks for Low(er)-Stress Academic Writing
Agronomy Graduate Student Association, December 2024

AI and Precision Agriculture Technologies for Soil-Water-Energy Nexus

Panel participant, Kansas State AI Symposium, October 2024

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

Associate 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

Undergraduate Scholarship Committee 2025–present

Course and Curriculum Committee 2025–present

Kling Anderson Lecture Committee 2024–present

Range Management Faculty Search Committee 2024–present

Geospatial Science Faculty Search Committee	2023–2024
Agroecology Group (Organizer)	2022–2024
Atkinson Center Sustainable Solar Group (Student Representative)	2022–2024
Graduate Student Association (Treasurer)	2020–2024
Harvard Science Review (President)	2015–2019

PROFESSIONAL AFFILIATIONS

Crop Science Society of America	2025–present
Society for Range Management	2025–present
North American Colleges and Teachers of Agriculture	2024–present
Gamma Sigma Delta	2024–present
American Society of Agronomy	2024–present
Weed Science Society of America	2023–present