

YA YANG 杨涯

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 University of Minnesota, Twin Cities
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[Google Scholar profile](#)

EDUCATION

- 2012 Ph.D. in Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, USA
 Advisor: Paul Berry
 2005 B.S. in Biology, Peking University, Beijing, China

ACADEMIC APPOINTMENTS

- 2016– Assistant (2016–2023), and Associate (2023–) Professor, Dept. of Plant and Microbial Biology, U of Minnesota
 2016– Curator, U of Minnesota Herbarium (MIN)
 2016– Graduate Faculty, Plant and Microbial Biology Graduate Program and Ecology, Evolution, and Behavior Graduate Program
 2012–2016 Postdoctoral Research Associate, U of Michigan. Advisor: Stephen Smith
 2006–2011 Graduate Student Teaching, Research, and Curatorial Assistant, U of Michigan

AWARDS & FELLOWSHIPS

- 2023–2026 McKnight Presidential Fellow, University of Minnesota
 2012 Peter Buck Postdoctoral Fellowship, Smithsonian National Museum of Natural History (declined to accept a postdoc position at the U Michigan)

RESEARCH SUPPORT

- 2020–2025 NSF BII-Implementation: The causes and consequences of plant biodiversity across scales in a rapidly changing world. Senior personnel and project leader. Lead PI: Jeannine Cavender-Bares. \$12.5 M total, %3 role.
 2020–2024 NSF DEB-NERC: Collaborative research: Plant chemistry and its impact on diversification and habitat of plants adapted to extreme environments. Lead PI. \$1.4M total, \$482,198 to Yang.
 2020–2023 NSF DEB SG: Phylogenomics, chromosome evolution, and diversification of the sundews, a group of carnivorous plants. PI, proposal developed by graduate student Rebekah Mohn. \$199,994.
 2020–2021 US Army Corp of Engineers (USACE) Multiple Species Inventory and Management Analysis Mississippi Headwaters Project, St. Paul District. Co-PI. Lead PI: Kenneth Kozak. \$34,496 total, \$5,864 to Yang.
 2018–2021 NSF Digitization TCN: Collaborative: Digitizing “Endless forms most beautiful and most wonderful”: Facilitating Research on Imperiled Plants with Extreme Morphologies. PI for \$27,426 subaward to U Minnesota. Lead PI: Matthew Pace, New York Botanical Garden.
 2018–2021 Minnesota Environment & Natural Resources Trust Fund (ENRTF): Minnesota Biodiversity Atlas: Phase II Expansion. Co-PI. Lead PI: George Weiblen. \$350,000 total (5–10% to Yang).

- 2019 US Army Corp of Engineers (USACE): Multiple Species Inventory and Management Analysis Mississippi Headwaters Project, St. Paul District. Co-PI. Lead PI: Kenneth Kozak. \$164,299 total (7% to Yang).
- 2010 McBryde Fellowship, National Tropical Botanical Garden (\$10,000)
- 2008 Winifred B. Chase Fellowship, U Michigan (\$1,500)
- 2006 Rackham Graduate Student Research Grant, U Michigan (\$1,500)

PUBLICATIONS

Lab members in bold

2023

33. **Mohn, R.A.**, R. Zenil-Ferguson, T.A. Krueger, A.S. Fleischmann, A.T. Cross, **Y. Yang**. Dramatic difference in rate of chromosome number evolution among sundew (*Drosera* L., Droseraceae) lineages. In revision for *Evolution*. [Preprint](#)
32. Pucker, B., N. Walker-Hale, W.C. Yim, J. Cushman, **A. Crum, Y. Yang**, S.F. Brockington. Evolutionary blocks to anthocyanin accumulation and the loss of an anthocyanin carrier protein in betalain-pigmented Caryophyllales. *New Phytologist*. Accepted. [Preprint](#)
31. Feng, T., B. Pucker, **Y. Yang**, M.J. Moore, B. Song, N. Lin, H.-J. Zhang, X. Zhang, Y.-X. Sun, T. Deng, H.-C. Wang, H. Sun. The genome of the glasshouse plant noble rhubarb provides a window into alpine adaptation. *Communications Biology*. In press.

2022

30. **Morales-Briones, D.F., N. Lin, E.Y. Huang**, D.L. Grossenbacher, J.M. Sobel, C.D. Gilmore, D.C. Tank, **Y. Yang**. 2022b. Phylogenomic analyses in Phrymaceae reveal extensive gene tree discordance in relationships among major clades. *American Journal of Botany*. 109(6): 1035–1064.
- Tefarikis, D.T., **D.F. Morales-Briones, Y. Yang**, G. Edwards, G. Kadereit. 2022. On the hybrid origin of the *C₂ Salsola divaricate* agg. (Amaranthaceae) from *C₃* and *C₄* parental lineages. *New Phytologist*. 234:1876–1890.
28. **Morales-Briones, D.F.**, B. Gehrke, C.-H. Huang, A. Liston, H. Ma, H.E. Marx, D.C. Tank, **Y. Yang**. 2022a. Analysis of paralogs in target enrichment data pinpoints multiple ancient allopolyploidy events in *Alchemilla* s.l. (Rosaceae). *Systematic Biology*. 71(1):190–207.

2021

27. Thompson, C.L., M. Alberti, S. Barve, F.U. Battistuzzi, J.L. Drake, L. Govaert, C. Partridge, **Y. Yang**. 2021. Back to the future: Reintegrating biology to understand how past eco-evolutionary change can predict future outcomes. *Integrative and Comparative Biology*. 61(6):2218–2232.
26. Shaw, A.K., C. Accolla, J.M. Chacón, T.L. Mueller, M. Vaugeois, **Y. Yang**, N. Sekar, and D.E. Stanton. 2021. Differential retention contributes to racial/ethnic disparity in U.S. academia. *PLoS ONE* 16(12): e0259710.
25. Qiu, Y.-J., **Y. Yang**, C.D. Hirsch, E. Watkins. 2021. Building a reference transcriptome for the hexaploid Hard Fescue turfgrass (*Festuca brevipila*) using a combination of PacBio IsoSeq and Illumina sequencing. *Crop Science*. 61:2798–2811.

24. **Morales-Briones, D.F.**, G. Kadereit, D.T. Tefarikis, M.J. Moore, S.A. Smith, S.F. Brockington, A. Timoneda, W.C. Yim, J.C. Cushman, and **Y. Yang**. 2021. Disentangling sources of gene tree discordance in phylogenomic datasets: Testing ancient hybridizations in Amaranthaceae s.l. *Systematic Biology*. 70(2):219–235.

2019

23. Qiu, Y.-J., C.D. Hirsch, **Y. Yang**, and E. Watkins. Towards improved molecular identification tools in Fine Fescue (*Festuca* L., Poaceae) turfgrasses: Nuclear genome size, ploidy, and chloroplast genome sequencing. *Frontiers in Genetics*.10:1223

22. **Chen L.-Y., D.F. Morales-Briones**, C.N. Passow, and **Yang Y.** Performance of gene expression analyses using de novo assembled transcripts in polyploid species. *Bioinformatics*. 35(21): 4314–4320.

21. Feng T., **Y. Yang**, L. Busta, E.B. Cahoon, H.-C. Wang, and S.-Y. Lu. FAD2 gene radiation and positive selection contributed to polyacetylene metabolism evolution in Campanulids. *Plant Physiology*. 181(2):714–728.

20. Wang, N., **Y. Yang**, M.J. Moore, S.F. Brockington, J.F. Walker, J.W. Brown, B. Liang, T. Feng, C. Edwards, J. Mikenas, J. Olivieri, V. Hutchison, A. Timoneda, T. Stoughton, R. Puente, L.C. Majure, U. Eggli and S.A. Smith (2019). Evolution of Portulacineae marked by gene tree conflict and gene family expansion associated with adaptation to harsh environments. *Molecular Biology and Evolution* 36(1): 112–126.

2018

19. **Yang, Y.**, C.W. Morden, M.J. Sporck-Koehler, L. Sack, W.L. Wagner, and P.E. Berry. Repeated range expansion and niche shift in a volcanic hotspot archipelago: radiation of C₄ Hawaiian *Euphorbia* (Euphorbiaceae). *Ecology and Evolution*. doi:10.1002/ece3.4354

18. Walker, J.F., **Y. Yang**, T. Feng, A. Timoneda, J. Mikenas, V. Hutchison, C. Edwards, N. Wang, S. Ahluwalia, J. Olivieri, N. Walker-Hale, L.C. Majure, R. Puente, G. Kadereit, M. Lauterbach, U. Eggli, H. Flores-Olvera, H. Ochoterena, S.F. Brockington, M.J. Moore, and S.A. Smith. From cacti to carnivores: Improved phylotranscriptomic sampling and hierarchical homology inference provides further insight to the evolution of Caryophyllales. *American Journal of Botany*. 105(3):446–462

17. McKain, M.R., M.G. Johnson, S. Uribe-Convers, D. Eaton, and **Y. Yang**. Practical considerations for plant phylogenomics. *Applications in Plant Sciences* 6(3): e1038.

16. Lopez-Nievesa, S., **Y. Yang**, A. Timoneda, M.-M. Wang, T. Feng, S.A. Smith, S.F. Brockington, and H.A. Maeda. 2018. Relaxation of tyrosine pathway regulation underlies the evolution of betalain pigmentation in Caryophyllales. *New Phytologist* 217(2): 896–908.

15. **Yang, Y.**, M.J. Moore, S.F. Brockington, J. Mikenas, J. Olivieri, J.F. Walker, and S.A. Smith. 2018. Improved transcriptome sampling pinpoints 26 ancient and more recent polyploidy events in Caryophyllales, including two allopolyploidy events. *New Phytologist*. 217(2): 855–870.

14. Smith, S.A., J.W. Brown, **Y. Yang**, R. Bruenn, C.P. Drummond, S.F. Brockington, J.F. Walker, N. Last, N.A. Douglas, and M.J. Moore. 2018. Disparity, diversity, and duplications in the Caryophyllales. *New Phytologist* 217(2): 836–854.

2017

13. Walker, J.F., **Y. Yang**, M.J. Moore, J. Mikenas, A. Timoneda, S.F. Brockington, and S.A. Smith. Widespread paleopolyploidy, gene tree conflict, and recalcitrant relationships among the carnivorous Caryophyllales. *American Journal of Botany*. 104(6): 858–867

12. **Yang, Y.**, M.J. Moore, S.F. Brockington, A. Timoneda, T. Feng, H.E. Marx, J.F. Walker, and S.A. Smith. An efficient field and laboratory workflow for plant phylotranscriptomic projects. *Applications in Plant Sciences* 5(3):1600128.

2016 and earlier (during Ph.D. and postdoc at U Michigan)

11. Smith, S.A., M.J. Moore, J.W. Brown, and **Y. Yang**. 2015. Analysis of phylogenomic datasets reveals conflict, concordance, and gene duplications with examples from animals and plants. *BMC Evolutionary Biology*. 15:150. doi:10.1186/s12862-015-0423-0. *Highly accessed

10. Brockington S.F.*, **Y. Yang***, F. Gandia-Herrero, S. Covshoff, J.M. Hibberd, R.F. Sage, G.K.-S. Wong, M.J. Moore, and S.A. Smith. 2015. Lineage-specific gene radiations underlie the evolution of novel betalain pigmentation in Caryophyllales. *New Phytologist*. 207(4) 1170–1180 *Co-first author.

9. **Yang, Y.**, M.J. Moore, S.F. Brockington, D.E. Soltis, G.K.-S. Wong, E.J. Carpenter, Y. Zhang, L. Chen, Z.-X. Yan, Y.-L. Xie, R.F. Sage, S. Covshoff, J.M. Hibberd, M.N. Nelson, and S.A. Smith. 2015. Dissecting molecular evolution in the highly diverse plant clade Caryophyllales using transcriptome sequencing. *Molecular Biology and Evolution* 32(8): 2001–2014.

8. **Yang, Y.** and S.A. Smith. 2014. Orthology inference in non-model organisms using transcriptomes and low-coverage genomes: improving accuracy and matrix occupancy for phylogenomics. *Molecular Biology and Evolution* 31(11):3081–3092.

7. Horn, J.W., Z.-X. Xi, R. Riina, J.A. Peirson, **Y. Yang**, B.L. Dorsey, P.E. Berry, C.C. Davis, and K.J. Wurdack. 2014. Evolutionary bursts in the *Euphorbia* (Euphorbiaceae) are linked with photosynthetic pathway. *Evolution*. 68(12):3485–3504

6. Yang, X.-X, **Y. Yang**, C.-J. Ji, T. Feng, Y. Shi, L. Lin, J.-J. Ma, and J.-S. He. 2014. Large-scale patterns of stomatal traits in Tibetan and Mongolian grassland species. *Basic and Applied Ecology* 15(2):122–132

5. **Yang, Y.** and S.A. Smith. 2013. Optimizing de novo assembly of short-read RNA-seq data for phylogenomics. *BMC Genomics* 14:328. doi:10.1186/1471-2164-14-328. *Highly accessed

4. **Yang, Y.**, R. Riina, J.J. Morawetz, T. Haevermans, X. Aubriot, and P.E. Berry. 2012. Molecular phylogenetics and classification of *Euphorbia* subgenus *Chamaesyce*. *Taxon* 61(4): 764–789

3. **Yang, Y.** and P.E. Berry. 2011. Phylogenetics of the Chamaesyce clade (*Euphorbia*, Euphorbiaceae): reticulate evolution and long-distance dispersal in a prominent C₄ lineage. *American Journal of Botany* 98(9):1486–1503

2. Berry, P.E., V.W. Steinmann, and **Y. Yang**. 2011. Proposal to conserve the name *Euphorbia acuta* Engelm. against *Euphorbia acuta* Bellardi ex Colla (Euphorbiaceae). *Taxon* 60 (2):603–604

1. Hendry, T.A., B. Wang, **Y. Yang**, E.C. Davis, J.E. Braggins, R.M. Schuster, and Y.-L. Qiu. 2007. Evaluating phylogenetic positions of four liverworts from New Zealand, *Neogrollea notabilis*, *Jackiella curvata*, *Goebelobryum unguiculatum* and *Herzogianthus vaginatus*, using three chloroplast genes. *The Bryologist* 110:738–751

Book chapter

Berry, P.E., J.A. Peirson, J.J. Morawetz, V.W. Steinmann, R. Riina, **Y. Yang**, D. Geltman, & N.I. Cacho. *Euphorbia*. 2016. Flora of North America Editorial Committee, eds. *Flora of North America North of Mexico*. Vol. 12. 240–324. New York and Oxford.

PRESENTATIONS

Invited departmental seminar presentations

2022	Louisiana State University	
2020	Duke U (virtual)	2020 Oregon State U Herbarium (virtual)
2020	Texas Tech U (virtual)	2019 U Illinois at Chicago
2019	U Minnesota, Duluth	2017 U Idaho
2017	Wuhan Botanical Garden, China	2016 U Minnesota, Twin Cities
2016	U Alabama, Tuscaloosa	2016 U Tennessee, Knoxville
2015	National Center for Integrative Biomedical Informatics, U Michigan, MI	

Invited and contributed conference presentations

Botany: 2007–2009, 2014–2016, 2018, 2020, 2023
 Society of Systematic Biologists standalone meeting: 2017, 2020
 Evolution: 2011, 2014, 2023
 Society for Molecular Biology and Evolution: 2013, 2020
 International Botanical Congress: 2011, 2017
 Caryophyllales meeting: 2018
 Plant & Animal Genome Conference: 2018
 Symposium on “Applications of Genomics”, Michigan State University, 2023

FIELD EXPERIENCE

2019– USA: MN; floristic survey. (2019: 1 week Mississippi Head Waters; 2021: 2 days Mississippi Head Waters; 2023: 2 days NW Minnesota)
 2019 USA: MN; 1 week. *Drosera*
 2015 Southwestern USA; 3.5 weeks. Caryophyllales.
 2014 Northern Mexico; 2 weeks. Caryophyllales.
 2009 USA: HI; 1.5 weeks. *Euphorbia*.
 2008 USA: Southern FL; 1.5 weeks. *Euphorbia*.
 2008 Mexico: Baja California Sur; 1 week. *Euphorbia*.
 2007 Central Mexico; 1 week. *Euphorbia*.
 2007 USA: Western TX; 2 weeks. *Euphorbia*.
 2003 China: Guangxi Province; 4 weeks. Undergraduate field assistant on behavior study of *Trachypithecus leucocephalus* (White-headed langur).

SERVICE AND OUTREACH

Service to the discipline

Review for journals, book proposals, and conference proceedings:

<i>American Journal of Botany</i>	<i>Molecular Ecology Resources</i>
<i>Applications in Plant Sciences</i>	<i>Molecular Phylogenetics and Evolution</i>
<i>Bioinformatics</i>	<i>Nature</i>
<i>BMC Bioinformatics</i>	<i>New Phytologist</i>
<i>BMC Biology</i>	<i>Pacific Science</i>
<i>BMC Evolutionary Biology</i>	<i>Pacific Symposium on Biocomputing</i>
<i>Botanical Journal of the Linnean Society</i>	<i>PeerJ</i>
<i>Bulletin of the Society of Systematic Biologists</i>	<i>Plant Physiology</i>
<i>CRC Press/Taylor and Francis Group</i>	<i>Phytotaxa</i>
<i>Evolution</i>	<i>PLoS One</i>
<i>Frontiers in Plant Science</i>	<i>Proceedings of the Royal Society B</i>
<i>Genome Biology and Evolution</i>	<i>Scientific Reports</i>
<i>Integrative and Comparative Biology</i>	<i>Systematic Botany</i>
<i>Journal of Ecology</i>	<i>Systematic Biology</i>
<i>Journal of Systematics and Evolution</i>	<i>Taxon</i>
<i>Molecular Biology and Evolution</i>	<i>Taxonomy</i>

Review for grants:

2021, 2022 Reviewer, National Science Foundation (NSF)
 2021 Reviewer, Minnesota Agricultural Experiment Station (MAES) Hatch, UMN
 2016, 2017, 2020 Reviewer, Society of Systematic Biologists Graduate Student Research Award
 2016, 2018, 2023 Panelist, National Science Foundation (NSF)

Editorial services:

2021– Associate Editor, *Systematic Biology*
 2018– Associate Editor, *Applications in Plant Sciences*
 2017 Guest Editor, Tree of Life special issue, *Applications in Plant Sciences*

Conferences and workshops organized

2020 Panelist, Careers in Botany Luncheon; judge, Cooley award for best contributed paper in plant systematics; reviewer, one-on-one CV review session. Botany virtual conference
 2018 Field trip coordinator; panelist, job transparency workshop. Botany, Rochester, MN

External PhD Examiner

2020 Siri Birkeland, University of Oslo, Norway.

Service to Professional Societies

2022–2024 Society of Systematics Biologist Council

Service to the University of Minnesota

PMB = *Plant and Microbial Biology*; EEB = *Ecology, Evolution and Behavior*

2017– Bell Museum public outreach events: summer camps, Bell Live virtual event, blog post for Bell website, Minnesota State Fair booth, Master Naturalist citizen science workshop, herbarium tours, educator preview, scientific partner luncheon, grand opening Science Sunday events, Botany Bonanza special exhibition.
 2022 Review panel, EEB graduate student written exam.
 2022 Review panel, Interdisciplinary Doctoral Fellowship (IDF).
 2022 Reviewer, PMB 8901 thesis proposal writing course.
 2022–2023 PMB seminar committee

- 2021–2023 PMB admissions committee
- 2020 Reviewer, Thesis Research Travel Grant
- 2019 Reviewer, EEB graduate student summer award proposals.
- 2018 Search Committee for the U Minnesota Herbarium collection manager
- 2017–2019 PMB graduate program steering committee
- 2017–2019 Bell Museum Diversity Committee
- 2017–2022 College of Biological Sciences Conservatory planning committee (2017–2019), faculty advisory committee (2021), and curator search committee (2022)
- 2017 Reviewer, EEB graduate student written exam

Service to the University of Michigan

- 2012–2013 Organizer, EEB postdoc career development monthly events
- 2012 Judge, “EEB Outstanding Graduate Student Paper”
- 2012 Organization committee, Early Career Scientist Symposium “Biodiversity Informatics”
- 2009–2010 Member, EEB Seminar Committee

Public service

- 2018 Market Science volunteer, Minneapolis, MN
- 2017 Invited lightning talk, SciSpark Women in Science, St. Paul, MN
- 2016 Panelist, Career in academia, Peking University Alumni Symposium, San Francisco, CA
- 2014 Teaching assistant, high school teacher workshop “Genes and Genomes”. Ann Arbor, MI

PROFESSIONAL DEVELOPMENT & ADDITIONAL TRAININGS

- 2016– Workshops offered by the Center for Educational Innovation (CEI), the New Faculty Program, and Broadening Representation and Equity with Science (BREWS), U Minnesota.
- 2021 Flipped Classroom Program, Center for Educational Innovation, U Minnesota.
- 2020 – 2021 Early Career Teaching and Learning Program, U Minnesota.
- 2020 Supervisory Development Cohort, virtual course by U Minnesota.
- 2019 Reintegrating Biology Jumpstart virtual meeting, National Science Foundation.
- 2018 Faculty Success Program, National Center for Faculty Development & Diversity (NCFDD).
- 2018 Grant Writing Workshop, Mountain Lake Biological Station, VA.
- 2018 Strategic Planning for Herbarium short course, Society of Herbarium Curators and iDigBio.
- 2018 Advancing Digitization of Biodiversity Collections (ADBC) Summit, iDigBio, Gainesville, FL.
- 2017 ForestGEO Genomics Workshop, Smithsonian Tropical Research Institute, Panama.
- 2016 Plant Systems Cyberinfrastructure Strategic Plan, Rockville, MD.
- 2013–2015 Workshops offered by the annual Prepare Future Faculty conference, U Michigan.
- 2009 Fast, Free Phylogenies: HPC for Phylogenetics Tutorial. National Institute for Mathematical and Biological Synthesis (NIMBioS), Knoxville, KY.
- 2006 Five-week course “Biodiversity of Tropical Plants” with P. Barry Tomlinson, Harvard Summer School. Fairchild Tropical Botanic Garden, Miami, FL.
- 2005 Three-week intensive Graduate Student Instructor training program “Teaching and Classroom Communication”, U Michigan.

PROFESSIONAL AFFILIATIONS

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| <ul style="list-style-type: none"> American Society of Plant Taxonomists (ASPT) Society of Systematic Biologists (SSB) | <ul style="list-style-type: none"> Botanical Society of America (BSA) Society for Molecular Biology and Evolution (SMBE) |
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Languages: Chinese (native), English (fluent)