

Curriculum Vitae

Miao Sun

Professor · Master's/Ph.D. Supervisor
Ornamental Plant Phylogenomics and Conservation

Contact Information

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& Utilization of Horticultural Crops
College of Horticulture and Forestry Sciences
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Research Interests

Clarifying evolutionary relationships among species is a prerequisite for biodiversity conservation and industrial application of horticultural germplasm resources. I have long been committed to using biological big data (genes/genomes, morphology, species distribution data, etc.) and comparative biological approaches to investigate lineage diversification (e.g., Elaeagnaceae, Rosaceae) and how are their key innovative traits evolved to respond to environmental factors, as well as the underlying molecular mechanisms, providing a theoretical foundation for the exploration of innovative agronomic traits and biodiversity conservation.

Positions

- **Professor (2022.01 ~ present)**
College of Horticulture and Forestry Sciences, Huazhong Agricultural University
- **Postdoctoral Research Fellow (2019.10 ~ 2021.09)**
Department of Bioscience, Aarhus University Advisor: Dr. Wolf L. Eiserhardt
- **Postdoctoral Research Fellow (2016 ~ 2019.8)**
Florida Museum of Natural History, University of Florida
Advisor: Dr. Pamela S. Soltis
- **Postdoctoral Research Fellow (2015 ~ 2016)**
Department of Biology, University of Florida
Advisor: Dr. Douglas E. Soltis

- **Research Assistant (2014.07 ~ 2015.01)**
State Key Laboratory of Systematic and Evolutionary Botany
Institute of Botany, Chinese Academy of Sciences
Advisor: Dr. Zhiduan Chen

Education

- 2009 ~ 2014, PhD in Botany, Institute of Botany, Chinese Academy of Sciences
- 2006 ~ 2009, Master of Botany, Institute of Botany, Chinese Academy of Sciences
- 2002 ~ 2006, Bachelor of Environmental Science, College of Resources and Environment, Beijing Forestry University
- 2020.2 ~ 2020.8, Visiting scholar in Department of Ecology and Evolutionary Biology, University of Michigan
- 2012.10 ~ 2013.1, Visiting scholar in Florida Museum of Natural History, University of Florida

Projects Led/Participated

- 2024-01 ~ 2027-12 National Postdoctoral Overseas Talent Introduction Program, PI, In Progress
- 2023-01 ~ 2026-12 National Natural Science Foundation of China (NSFC), PI, In Progress
- 2023-01 ~ 2026-12 “Wuhan Talent” Industrial Leading Talent Program, PI, In Progress
- 2022-01 ~ 2027-12 High-Level Talent Start-Up Fund, PI, In Progress
- 2023-09 ~ 2028-08 Germplasm Innovation and Utilization National Key Laboratory Self-Funded Project, Participant, In Progress
- 2019-01 ~ 2024-09 Denmark VILLUM FONDEN Project: Explaining the biological hyperdiversity of tropical rainforests using the Tree of Life (TropiToL), Participant, Completed
- 2015-01~ 2019-08 US National Science Foundation, Dimensions US-China Collaborative Research: How historical constraints, local adaptation, and species interactions shape biodiversity across an ancient floristic disjunction, Participant, Completed
- 2012-01 ~ 2016-12 NSFC General Project: Phylogenetic Study of the rosid COM Clade, Participant, Completed

Publications

*equally contributing author; 36 publications, contributed to 5 book chapters of different floras, h-index 22; **2348** total citations according to Google Scholar

Papers:

1. Zhao YY, Yu D, Kuo W, Huang J, Guo J, **Sun M**, Hu Y, Soltis DE, Soltis PS, Ma H, Huang CH. (2025) Nuclear phylogenomics provide evidence to clarify key morphological evolution and whole-genome duplication across rosids. *Journal of Integrative Plant Biology*, doi:10.1111/jipb.13972.

2. Zhao LN, Liu Y, Ye JF, Liu B, Hu HH, Lu LM, Chang J, Guralnick RP, **Sun M**[#], Chen ZD[#]. (2025) Flowering plants at Sino-Himalaya and the Tibetan Plateau face increased extinction risk. *Journal of Systematics and Evolution* 63: 148-159.
3. Chen YP, Sunojkumar P, Spicer RA, Hodel RGJ, Soltis DE, Soltis PS, Paton AJ, **Sun M**, Drew BT, Xiang CL. (2025) Rapid radiation of a plant lineage sheds light on the assembly of dry valley biomes. *Molecular Biology and Evolution* 42(2): msaf011. doi: 10.1093/molbev/msaf011.
4. Yan X*, Shi G*, **Sun M***, Shan S*, Chen R, Li R, Wu S, Zhou Z, Li Y, Liu Z, Hu Y, Liu Z, Soltis PS, Zhang J, Soltis DE, Ning G, Bao M. (2024) Genome evolution of the ancient hexaploid *Platanus* × *acerifolia* (London planetree). *Proceedings of the National Academy of Sciences of the United States of America* 121(24): e2319679121.
5. Wang XQ, Xiong T, Wang YY, Zhang XR, **Sun M**[#]. (2024) Integrating genomic sequencing resources: an innovative perspective on recycling with universal Angiosperms353 probe sets. *Horticulture Advances* 2(4). doi:10.1007/s44281-023-00026-z.
6. Lin H-Y*, **Sun M***, Hao YJ, Li DJ, Gitzendanner MA, Fu CX, Soltis DE, Soltis PS, Zhao Y-P. (2023) Phylogenetic diversity patterns in eastern Asia-eastern North America disjunct plants: The roles of diversification rate, climatic environments, and community assembly processes. *Plant Diversity* 45(1): 27-35.
7. Rudbeck AV, **Sun M**, Tietje M, Gallagher RV, Govaerts R, Smith SA, Svenning JC, Eiserhardt WL. (2022) The Darwinian shortfall in plants: phylogenetic knowledge is driven by range size. *Ecography* 2022(8): 06142. doi:0.1111/ecog.06142.
8. Yu H, Sui X, **Sun M**, Yin X, Deane DC. (2022) Relative importance of ecological, evolutionary and anthropogenic pressures on extinction risk in Chinese angiosperm genera. *Frontiers in Ecology Evolution* 10: 844509. doi: 10.3389/fevo.2022.844509.
9. Carruthers T, **Sun M**, Baker WJ, Smith SA, de Vos JM, Wolf L, Eiserhardt WL. (2022) The implications of topological incongruence between gene trees and the species tree for divergence time estimation. *Systematic Biology*, 71(5):1124-1146. doi: 10.1093/sysbio/syac012.
10. Liu BB, Ma ZY, Ren C, Hodel R, **Sun M** et al. (2021) Capturing single-copy nuclear genes, organellar genomes, and nuclear ribosomal DNA from deep genome skimming data for plant phylogenetics: A case study in Vitaceae. *Journal of Systematics and Evolution* 59(5): 1124-1138. doi: 10.1111/jse.12806.
11. Shimai H, Setoguchi P, Roberts D, **Sun M**. (2021) Biogeographical patterns and speciation of the genus *Pinguicula* (Lentibulariaceae) inferred by phylogenetic analyses. *PLOS ONE* 16(6): e0252581. doi: 10.1371/journal.pone.0252581.
12. Lu LM, Hu HH, Peng DX, Liu B, Ye JF, Yang T, Li HL, **Sun M**, Smith SA, Soltis PS, Soltis DE, Chen ZD. (2020). Noise does not equal bias in assessing the evolutionary history of the angiosperm flora of China: A response to Qian. *Journal of Biogeography* 47: 2286–2291. doi: 10.1111/jbi.13947.
13. **Sun M***, Folk FA*, Gitzendanner MA, Soltis PS, Chen ZD, Soltis DE, Guralnick RP. (2020). Recent, accelerated diversification in rosids occurred outside the tropics. *Nature Communications* 11: 3333. doi: 10.1038/s41467-020-17116-5.
14. **Sun M***, Folk FA*, Gitzendanner MA, Soltis PS, Chen ZD, Soltis DE, Guralnick RP. (2020). Estimating rates and patterns of diversification with incomplete sampling: A case study in the rosids. *American Journal of Botany* 107(6): 1–15. doi: 10.1002/ajb2.1479 (also see *bioRxiv* 749325).
15. Lichman BR, Godden GT, Hamilton JP, Lira PL, Kamileen MO, Zhao D, Vaillancourt B, Wood J, **Sun M**, Henry LK, Lopez CR, Dudareva N, Soltis DE, Soltis PS, Buell CR, O'Connor SE. (2020). The evolutionary origins of the cat attractant nepetalactone in catnip. *Science Advances* 6: eaba0721. doi: 10.1126/sciadv.aba0721.
16. Mu XY, Tong L, **Sun M**, Zhu YX, Wen J, Lin QW, Liu B. (2020). Phylogeny and divergence time estimation of the walnut family (Juglandaceae) based on nuclear RAD-Seq and chloroplast genome data. *Molecular Phylogenetics and Evolution* 147: 106802. doi: 10.1016/j.ympev.2020.106802.
17. Xue B, Guo X, Landis JB, **Sun M**, Tang CC, Soltis PS, Soltis DE, R.M.K. Saunders RMK. (2019). Accelerated diversification correlated with functional traits shapes extant diversity of the early divergent angiosperm family Annonaceae. *Molecular Phylogenetics and Evolution* 142: 106659. doi: 10.1016/j.ympev.2019.106659.
18. Li DJ, Lauren Trotta L, Marx HE, Allen JM, **Sun M**, Soltis DE, Soltis PS, Guralnick RP, Baiser BH. (2019). For comparing phylogenetic diversity among communities, go ahead and use synthesis

- phylogenies. *Ecology* 100(9): e02788. doi: 10.1002/ecy.2788.
19. Yang T, Tedersoo L, Soltis PS, Soltis DE, Gilbert JA, **Sun M**, Shi Y, Wang HF, Li YT, Zhang J, Chen ZD, Lin HY, Zhao YP, Fu CX, Chu HY. (2018). Phylogenetic imprint of woody plants on the soil mycobiome in natural mountain forests of eastern China. *The ISME Journal* 13: 686–697.
 20. Marodiev EV, **Sun M**, Schroder L, Steadman DW, Ebach MC. (2018). Moving from modern toward post-modern science: comment on “An integrated assessment of the vascular plants of the Americas.” *Phytotaxa* 351: 96–98.
 21. Folk RA, **Sun M**, Soltis PS, Smith SA, Soltis DE, and Guralnick RP. (2018). Challenges of comprehensive taxon sampling in comparative biology: Wrestling with Rosids. *American Journal of Botany* 105(3): 433–445.
 22. Lu LM*, Mao L*, Yang T*, Ye JF*, Liu B*, Li HL*, **Sun M***, Miller JT, Mathews S, Hu HH, Niu YT, Peng DX, Chen YH, Smith SA, Chen M, Xiang KL, Le CT, Dang VC, Lu AM, Soltis PS, Soltis DE, Li JH, Chen ZD. (2018). Evolutionary history of the angiosperm flora of China. *Nature* 554: 234–238. doi: 10.1038/nature25485.
 23. Mu XY, **Sun M**, Yang PF, Lin QW. (2017). Unveiling the identity of Wenwan walnuts and phylogenetic relationships of Asian Juglans species using restriction site-associated DNA-sequencing. *Frontiers in Plant Science* (8): 1708. doi: 10.3389/fpls.2017.01708
 24. Hodel RG, Gitzendanner MA, Germain-Aubrey CC, Liu X, Crowl AA, **Sun M**, Landis JB, Segovia-Salcedo MC, Douglas NA, Chen SC, Soltis DE, Soltis PS. (2016). A new resource for the development of SSR markers: Millions of loci from a thousand plant transcriptomes. *Applications in Plant Sciences* 4(6): 1600024.
 25. Hodel RG, Segovia-Salcedo MC, Landis JB, Crowl AA, **Sun M**, Liu XX, Gitzendanner MA, Douglas NA, Germain-Aubrey CC, Chen SC, Soltis DE, Soltis PS. (2016). The report of my death was an exaggeration: A review for researchers using microsatellites in the 21st century. *Applications in Plant Sciences* 4(6): 1600025.
 26. Chen ZD, Yang T, Li Lin, Lu LM, Li HL, **Sun M**, Liu B, Chen M, Niu YT, Ye JF, Cao ZY, Liu HM, Wang XM, Wang W, Zhang JB, Meng Z, Cao W, Li JH, Wu SD, Zhao HL, Liu ZJ, Du ZY, Wang QF, Guo J, Tan XX, Su JX, Zhang LJ, Yang LL, Liao YY, Li MH, Zhang GQ, Chung SW, Zhang J, Xiang KL, Li RQ, Soltis DE, Soltis PS, Zhou SL, Ran JH, Wang XQ, Jin XH, Chen YS, Gao TG, Li JH, Zhang SZ, Lu AM. (2016). Tree of life for the genera of Chinese vascular plants. *Journal of Systematics and Evolution* 54(4): 227–306.
 27. Li HL, Wang W, Li RQ, Zhang JB, **Sun M**, Naeem R, Su JX, Xiang XG, Mortimer PE, Li DZ, Hyde KD, Xu JC, Soltis DE, Soltis PS, Li JH, Zhang SZ, Wu H, Chen ZD, Lu AM. (2016). Global versus Chinese perspectives on the phylogeny of the N-fixing clade. *Journal of Systematics and Evolution* 54(4): 392–399.
 28. **Sun M**, Naeem R, Su JX, Burleigh GJ, Solits DE, Soltis PS, Chen ZD. (2016). Phylogeny of the *Rosidae*: A dense taxon sampling analysis. *Journal of Systematics and Evolution* 54(4): 363–391.
 29. **Sun M**, Solits DE, Soltis PS, Zhu XY, Burleigh GJ, Chen ZD. (2015). Deep phylogenetic incongruence in the angiosperm clade *Rosidae*. *Molecular Phylogenetics and Evolution* 83: 156–166.
 30. Wang B, Zhang Y, Wei P, **Sun M**, Ma X, Zhu X. (2015). Identification of nuclear low-copy genes and their phylogenetic utility in rosids. *Genome* 57(10): 150203143525007.
 31. Lu LM, **Sun M**, Zhang JB, Li HL, Lin L, Yang T, Chen M, Chen ZD. (2014). Tree of life and its applications. *Biodiversity Science* 22: 3–20.
 32. **Sun M**, Lin Q. (2010). A revision of *Elaeagnus* L. (Elaeagnaceae) in mainland China. *Journal of Systematics and Evolution* 48(5): 356–390.
 33. **Sun M**, Lin Q, Sun Q, Bei SQ, Li HL, Yang ZR. (2008). Validation of eight names of Chinese taxa in Ranunculaceae, Rosaceae and Scrophulariaceae. *Kew Bulletin* 64: 573–575.
 34. **Sun M**, Lin Q. (2008). Lectotypification of five scientific names in Rosaceae. *Guihaia* 28: 295–297. (In Chinese)
 35. Lin Q, Bei SQ, Li HL, Cao ZY, Sun Q, **Sun M**, Yang ZR. (2008). Lectotypification of twenty names of Chinese taxa in Angiospermae. *Bulletin of Botanical Research* 5: 534–539.
 36. Lin Q, Sun Q, **Sun M**, Bei SQ, Li HL. (2007). Lectotypification of twenty-eight names of Chinese taxa in Angiospermae. *Acta Botanica Boreali-occidentalia Sinica*, 27: 1247–1255.

Book chapters:

1. Chen SC, **Sun M** et al. (2024). **The Great Tree of Life** [Translated into Chinese]
2. **Sun M** et al. (2020). Malvaceae, Malpighiaceae, Celastraceae. In: Chen ZD, Lu AM, Liu B et al. eds. **Tree of Life for Chinese Vascular Plants**, Science Press, Beijing
3. **Sun M** et al. (2018). Malvaceae, Malpighiaceae, Celastraceae. In: Li DZ, Chen ZD, Wnag H, Lu AM eds. **Flora of Genera and Families of China Vascular Plants**, Science Press, Beijing
4. **Sun M** et al. (2018). Malvaceae, Malpighiaceae, Celastraceae. In: Li DZ, Chen ZD, Wnag H, Lu AM eds. **Dictionary of Genera and Families of China Vascular Plants**, Science Press, Beijing
5. **Sun M**, Peng H. (2016). Elaeagnaceae. In: Liu B, Lin QW eds. **Higher Plants of China in Color**, Volume 5, Angiosperms: Euphorbiaceae — Cornaceae, Science Press, Beijing, China
6. **Sun M** et al. (2015). In: Lin Q, Yang ZR eds. **Types Specimens in China National Herbarium (PE)**, Volume 6, Angiospermae, Henan Science and Technology Press, Henan, China
7. **Sun M** et al. (2015). In: Lin Q, Yang Y, Yang ZR eds. **Types Specimens in China National Herbarium (PE)**, Volume 7, Angiospermae, Henan Science and Technology Press, Henan, China
8. **Sun M** et al. (2015). In: Lin Q, Yang ZR, Lin Y eds. **Types Specimens in China National Herbarium (PE)**, Volume 10, Angiospermae, Henan Science and Technology Press, Henan, China
9. **Sun M**. (2014). Exploring deep phylogenetic incongruence of the COM clade in Rosidae: Phylogenomics approach. [PhD dissertation], Institute of Botany, the Chinese Academy of Sciences, Beijing, China
10. Simpson M. (2012). **Plant Systematics** (2nd Edition) (Chen ZD, Lu AM, **Sun M** Trans.), Science Press, Beijing, China (Original publisher Academic Press)
11. **Sun M**. (2009). Primary Taxonomic Study of *Elaeagnus* (Elaeagnaceae) in Mainland China. [Master thesis], Institute of Botany, the Chinese Academy of Sciences, Beijing, China

Conference Presentations/Posters:

1. **Sun M**, Wang XQ, Xiong T, Wang YY, Zhang XR. (2024). Glue them all: innovative recycling genomic sequencing resources using universal Angiosperms353 probe sets. *The XX International Botanical Congress 2024 (Madrid, Spain)*. Abstract ID: 613/1296 (Presentation).
2. **Sun M**, Folk RA, Gitzendanner M, Smith AS, Chen ZD, Solits P, Soltis D. (2020). Phylogenetic and diversification analyses of rosids. *Botany Conference*. (Presentation)
3. Abair A, Godden G, **Sun M**, El-Bahawy A, Soltis D, Soltis P. (2020). Assembling and Dating a Near-Comprehensive Phylogeny of Lamiaceae. *Botany Conference*. (Presentation)
4. **Sun M**. (2019). Build and use large-scale phylogenetic trees. *IBCAS Youth Forum*. (Presentation)
5. **Sun M**. (2018). Building, Using, and Tending the Tree of Life. *Chinese Genomics Meet-up*. (Presentation)
6. **Sun M**, Germain-Aubrey CC, Smith SA, Soltis PS, Chen ZD, Soltis DE. (2018). Exploring the phylogeny and diversification of rosids with a five-locus supermatrix. *The 1st AsiaEvo Conference 2018 (Shenzhen, China)*. Abstract ID: S38. (Poster)
7. Millar J, Collins M, Picardi S, Riemer K, Stucky B, **Sun M**, Ye H. (2018). A Carpentries Culture at the University of Florida. *CarpentryCon 2018* (Dublin, Ireland), Abstract ID: 13. (Poster)
8. **Sun M**, Whitten WM, Gitzendanner MA, Soltis DE, Soltis PS. (2017). Exploring the Applicability of Fluidigm Amplification and NGS Sequencing Using Samples From Multiple Families. *The XIX International Botanical Congress 2017 (Shenzhen, China)*, Abstract ID: T2-12-19. (Poster)
9. **Sun M**, Germain-Aubrey CC, Smith SA, Soltis PS, Chen ZD, Soltis DE. (2017). Exploring the phylogeny and diversification of rosids through a five-gene supermatrix approach. *The XIX International Botanical Congress 2017 (Shenzhen, China)*, Abstract ID: T2-44-15. (Poster)
10. Zhang T, Lichstein JW, **Sun M**. (2017). Functional traits and population dynamics of North American tree species in a phylogenetic and biogeographic context. Annual Meeting of Ecological Society of America (ESA), August 10, 2017 (Portland, USA). Abstract ID: COS135-5. (Poster)
11. Lichstein J, Zhang T, **Sun M**, Mack M, Graves S, Whitten M, Jantzen J, Park J, Bohlman S, Gitzendanner M, Soltis D, Soltis P. (2017). Ecological traits and recent population dynamics of eastern

- Asian-eastern North American disjunct tree species in North America. *The XIX International Botanical Congress 2017 (Shenzhen, China)*, Abstract ID: T2-12-05. (Presentation)
12. **Sun M**, Germain-Aubrey CC, Gitzendanner MA, Smith SA, Soltis PS, Chen ZD, Soltis DE. (2016). Wrestling with the Rosids I: progress and challenges for phylogenetics of a large, hyper-diverse angiosperm clade. *Botany Conference 2016 (Savannah, Georgia)*, Abstract ID: 404. (Presentation)

Service

- Peer reviews for: *Botany, Evolutionary Bioinformatics, Frontiers in Plant Science, Global Ecology and Biogeography, Journal of Integrative Plant Biology, Journal of Systematics and Evolution, Molecular Phylogenetics and Evolution, South African Journal of Botany, Systematic Biology, Taxon, Phytotaxa*, and *PLOS ONE*.
- Certified Instructor of Software Carpentry (The Carpentries; taught classes of >400 students)
- Board member of UF Carpentries Club (a workshop series to teach informatics skills)
- Judge for Graduate Student Research Day at University of Florida
- Judge Graduate Student Research Grant proposals for American Society of Plant Taxonomists
- Educator Summer Science Institute Tree of Life for high school teacher
- Volunteer Tree of Life Pop-Up Science
- Member of Botanical Society of America
- Member of the Botanical Society of China
- Table volunteer for iDigBio events
- Taxonomic instructor for training college students
- Board member of “*Red List of China Higher Plants*” evaluation committee

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