Nan Hu

August 2025

CONTACT INFORMATION

Joint Institute For Food Safety And Applied Nutrition
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EDUCATION

Ph.D., Biology September 2017 – May 2023
Texas Tech University, Lubbock

Advisor: Matthew S. Olson, Ph.D.
Dissertation: Sex chromosome evolution in willows (Salix spp.)

M.S., Forest Genetics September 2014 – July 2017
Nanjing Forestry University, Nanjing

Advisor: Tongming Yin, Ph.D.
Thesis: Organelle genome assembly of *Salix wilsonii*

B.S., Forestry September 2010 – July 2014
Nanjing Forestry University, Nanjing

Thesis: Phenotypical variance of wood properties of a *Salix suchowensis* F1 offspring
Outstanding Graduate

RESEARCH POSITIONS

Post-doctoral Research Associate January 2025 – Present
University of Maryland/JIFSAN

Supervisor: Jianghong Meng, Ph.D (JIFSAN)
Supervisor: Sara Handy, PhD (FDA)

Program: Improving detection of plant contaminants in mixed samples with targeted sequencing of 353 nuclear protein coding genes

Post-doctoral Research Associate August 2023 – December 2024
Texas Tech University, Lubbock
Supervisor: Matthew G. Johnson, Ph.D

Program: Improving detection of plant contaminants in mixed samples with targeted sequencing of 353 nuclear protein coding genes

PUBLICATIONS

1. Khanal, A., **Hu, N.**, Guo, M., Gambhir, D., Sanderson, B., & Olson, M. S (2025). Rare recombination in Salix nivalis and the maintenance of homomorphic sex chromosomes in willows. *American Journal of Botany*, e70059. https://doi.org/10.1002/ajb2.70059
2. Gambhir, D., Sanderson, B. J., Guo, M., **Hu, N.,** Khanal, A., Cronk, Q., ... & Olson, M. S. (2025). Disentangling serial chloroplast captures in willows. *American Journal of Botany*, *112*(5), e70039. https://doi.org/10.1002/ajb2.70039
3. **Hu, N.**, Sanderson, B. J., Guo, M., Feng, G., Gambhir, D., Hale, H., Wang, D., Hyden, B., Liu, J., Smart, L. B., DiFazio, S. P., Ma, T., & Olson, M. S. (2023). Evolution of a ZW sex chromosome system in willows. *Nature Communications*, *14*(1), 7144. https://doi.org/10.1038/s41467-023-42880-5
4. Sanderson, B. J., Gambhir, D., Feng, G. Q., **Hu, N.**, Cronk, Q. C., Percy, D. M., Freaner, F. M., Johnson, M. G., Smart, L. B., Keefover-Ring, K., Yin, T. M., Ma, T., DiFazio, S. P., Liu, J. Q., & Olson, M. S. (2023). Phylogenomics reveals patterns of ancient hybridization and differential diversification that contribute to phylogenetic conflict in willows, poplars, and close relatives. *Systematic Biology*, *72*(6), 1220-1232. https://doi.org/10.1093/sysbio/syad042

5. **Hu, N.**, Hale, H., Sanderson, B., Feng, G. Q., Guo, M. H., Gambhir, D., & Olson, M. (2023). Reproductive Sexual Dimorphisms in Two Willow Species, Salix exigua Nutt. and Salix nigra Marshall. *International Journal of Plant Sciences*, *184*(9), 688-695. https://doi.org/10.1086/726623
6. Liu, H. L., Wang, X. B., Wang, G. B., Cui, P., Wu, S. G., Ai, C., **Hu, N.**, Li, A. L., He, B., Shao, X. J., Wu, Z. C., Feng, H., Chang, Y. X., Mu, D. S., Hou, J., Dai, X. G., Yin, T. M., Ruan, J., & Cao, F. L. (2021). The nearly complete genome of Ginkgo biloba illuminates gymnosperm evolution. *Nature Plants*, *7*(6), 748-+. https://doi.org/10.1038/s41477-021-00933-x
7. Sanderson, B. J., Feng, G. Q., **Hu, N.**, Carlson, C. H., Smart, L. B., Keefover-Ring, K., Yin, T. M., Ma, T., Liu, J. Q., DiFazio, S. P., & Olson, M. S. (2021). Sex determination through X–Y heterogamety in Salix nigra. *Heredity*, *126*(4), 630-639. https://doi.org/10.1038/s41437-020-00397-3
8. Chen, Y.[+], **Hu, N.**[+], & Wu, H. (2019). Analyzing and characterizing the chloroplast genome of Salix wilsonii. *Biomed Research International*, *2019*, 5190425. https://doi.org/10.1155/2019/5190425
9. Olson, M. S., Sanderson, B., **Hu, N.**, Feng, G., & DiFazio, S. (2019). Diverse Sex Chromosomes in the Salicaceae. Plant and Animal Genome XXVII Conference (January 12-16, 2019),
10. Liu, H. L., Yang, W. X., Hou, J., **Hu, N.**, Yin, T. M., & Li, S. X. (2016). Genetic identification of 43 elite clonal accessions of Populus deltoides by SSR fingerprinting. *Canadian Journal of Plant Science*, *96*(3), 494-502. https://doi.org/10.1139/cjps-2015-0272
11. Zhou, W., Tang, Z., Hou, J., **Hu, N.**, & Yin, T. (2015). Genetic Map Construction and Detection of Genetic Loci Underlying Segregation Distortion in an Intraspecific Cross of Populus deltoides. *Plos One*, *10*(5), e0126077. https://doi.org/10.1371/journal.pone.0126077

[+]: Co-authorship

CONFERENCE

Botany 2025 – Botany without Barriers, Palm Springs, California

Presentation: A computational and targeted sequencing approach for mixed plant DNA identification with Angiosperms353

International Botanical Congress, Madrid-the 20th IBC

Poster Presentation: Mixed plant DNA identification with Angiosperms353: A computational and targeted sequencing approach

CURRICULUM DESIGN

Advanced Molecular Population Genetics Spring 2021
https://github.com/nhu92/popgen2021

Target sequencing workshop using Angiosperms353 Spring 2022
https://github.com/ELReedHerbarium/TargetCaptureWorkshop

TEACHING EXPERIENCE

Teaching Assistant:
Department of Biological Sciences, Texas Tech University

Biology I/II Spring 2022 – Spring 2023

- General biology lab course in full 3 hours
- Half lecturing and half wet labs organized by pedagogical practices

Plant Biology (Major) Fall 2021

- Major plant biology course with botanical practice weekly
- Guided an iNaturalist collection project

Population Genetics (Graduate Level) Spring 2021

- Molecular population genetics with weekly projects
- Developed computational pipelines for practical studies of molecular population genetics

Organic Evolution Fall 2019, Fall 2020

- Hosted discussion sessions about both macroevolution and microevolution topics

Plant Biology (Non-major) Spring 2018– Spring 2019, Spring 2020

- Non-major plant biology lab including understanding basic structure and physiology of plants
- Coordinator in Spring 2019 and Spring 2020

Genetics Fall 2017

- Lectured review sessions of undergraduate level genetics
- Including 18 hours of wet lab

Workshop:
Texas Tech University

Target sequencing workshop April 2022

- Introduced target sequencing data preparing and downstream analysis
- Designed and lectured on session 05: Species Tree using target sequencing

AWARDS

Graduate Research Support Funding Spring 2019

Texas Tech University

Proposal title: Does sex allocation result in clonal size differences in the dioecious plant *Salix exigua*?

Graduate School Poster Presentation Competition Spring 2019

Texas Tech University

First Prize in Plant Science

Title: Mapping the sex determination region in dioecious species *Salix exigua*

Biology Teaching Scholar Fall 2022

Workshop certificate of biology pedagogy applications in introductory biology courses