**Session Proposal**

# Session Title

Forest and Grassland Soil Functions and Sustainable Utilization under Global Change.

# Session Organizers

Qiwu Sun（孙启武），Research Institute of Forestry Chinese Academy of Forestry，sqw@caf.ac.cn，18611168878，primary contact person.

Yunting Fang（方运霆），Institute of Applied Ecology, Chinese Academy of Sciences，fangyt@iae.ac.cn.

Yongfu Li（李永夫），Zhejiang A&F University，yongfuli@zafu.edu.cn.

Zhihong Xu（徐志红），Griffith Universiy，zhihong.xu@griffith.edu.au.

# Session Description

The symposium will center on ‌" Forest and Grassland Soil Functions and Sustainable Utilization under Global Change "‌, exploring the interactions between ‌climate change, human activities, and forest and grassland soil systems‌, with a focus on carbon and nitrogen cycling dynamics, assessment of ecological service functions and restoration of degraded soils.‌Topics may include but are not limited to:‌

1. **Fundamental Research**‌

* + Mechanisms of forest soil carbon sequestration
	+ Microbial community interactions with nutrient cycling
	+ Dynamic modeling of soil erosion processes

**2. Technological Applications**‌

* + Digital soil mapping (e.g., GIS and remote sensing integration)
	+ AI-powered models for soil health diagnostics
	+ Bioremediation strategies for soil rehabilitation

3. **Policy and Management**‌

* + Frameworks for forest and grassland soil conservation policies
	+ Design of ecological compensation mechanisms
	+ Soil management practices aligned with carbon neutrality goals

4. **Interdisciplinary Synergies**‌

* + Collaborative innovations integrating forestry, ecology, environmental engineering, and related disciplines

The symposium will also provide a networking opportunity for domestic/early-career soil scientists as well as established international soil scientists.

# Format

Oral presentations and posters.

# Proposed Speakers

**Speaker 1, Chuanwu Xi（奚传武）** is a Chair Professor at Eastern Institute of Technology, Ningbo, where he also serves as Vice Provost for Global Engagement and Dean of the School of the Environment and Sustainable Engineering. He earned his Ph.D. from the University of Leuven, Belgium, in 2000. Previously, he was a Professor of Environmental Health Sciences and Global Public Health at the University of Michigan, USA, where his research was focused on the transmission and control of infectious diseases in the environment. He has made outstanding contributions to water quality management as well as the control and treatment of infectious diseases. Dr. Xi has conducted systematic research on the distribution and transmission of various pathogenic microorganisms (including bacteria and viruses) in different environments (water, air, soil, indoor and outdoor buildings, etc.). He has also delved into the molecular and ecological mechanisms of pathogen survival in the environment while developing innovative methods and products for efficient inactivation of microbial pathogens for diverse environmental and clinical applications. To date, he has published over 130 SCI-indexed articles in internationally renowned journals.

He previously served as Chair of the Environmental and Applied Microbiology Division of the American Society for Microbiology (ASM, 2014–2016) and President of the Overseas Chinese Society for Microbiology (2014–2018). In 2016, he was honored as a Scholar-in-Residence by the U.S. Food and Drug Administration (FDA), providing technical support and guidance on the regulation of anti-infective products. He has served as an editorial board member for journals such as Applied and Environmental Microbiology and BMC Microbiology and currently holds the positions of Associate Editor for mLife and Chair of the Public Health Advisory Board for NSF International.

**Speaker 2, Biao Zhu（朱彪）**is a Professor of Ecology at Peking University and Dean of the School of Ecology and Environment at Inner Mongolia University. His research mainly focuses on root ecology and soil carbon dynamics in response to global change. His group has been conducting experimental, observational, and modelling work in various forest, grassland and wetland ecosystems across China. He is a chief editor of Soil Biology and Biochemistry, and holds various editor roles for other journals including Ecology, Journal of Ecology, Forest Ecosystems, and Journal of Plant Ecology. He has published >200 papers, with >15,000 citations (H-index 67). He is one of Clarivate Highly Cited Researchers (2024) and Elsevier Most Cited Chinese Researchers (2024).

**Speaker 3，Yuanhe Yang（杨元合）**, Director of Key Laboratory of Vegetation and Environmental Change, Institute of Botany, Chinese Academy of Sciences. He obtained "The National Science Foundation for Distinguished Young Scholars", and the "National Ten Thousand Talent Program for Leading Scientists". He is mainly engaged in the research of global change ecology and grassland ecology. He has published more than 190 papers in international journals such as Science Advances, Nature Geoscience and Nature Communications, selected as “Elsevier Highly Cited Chinese Researchers” for 5 years. He presided over the leading projects such as the National Key Research and Development Program of China, Strategic Priority Research Program of Chinese Academy of Sciences, and received several academic awards such as Ho Leung Ho Lee Foundation Prize for Scientific and Technological Innovation, Explorer Prize, Special Government Allowances of the State Council, China Youth Science and Technology Award. He has held leadership roles in prestigious academic organizations, including as Chair of the Beijing Ecological Society and Co-Editor-in-Chief of the Journal of Plant Ecology. He is also an active member of the Botanical Society of China, Ecological Society of China, The China Society of Tibetan Plateau. Additionally, he serves on the editorial advisory board of Global Change Biology and the editorial group National Science Review.

**Speaker 4. Zhilin Yuan（袁志林）**, the PI of State Key Laboratory of Tree Genetics and Breeding (Beijing). He mainly works on the genetic and environmental basis of novel tree root-fungus mutualistic interactions, population genomics of root dark septate endophytes (DSEs) and DSEs-based synthetic fungal community construction. These advances have revolutionized our understanding of functioning of soil mutualistic fungi and paved the way for technology of "matching site, fungi, and fertilizer with trees". In the past five years, a total of 23 peer reviewed papers were published including prestigious journals like the Nat. Commun., The ISME Journal, Curr. Biol. and Trends Microbiol.

**Speaker 5. Yuanchun Yu（俞元春）** is a professor（second grad） in forest ecology and soil science, and the Director of Contaminated Soil Remediation and Environmental Protection Research Institute of Nanjing Forestry University（NFU）, He holds a PhD in Ecology and M.Sc. in Forest Ecology from NFU. He also studied or worked in University of New Brunswick, Canada, Clemson University, USA and Griffith University, Australia. His research interests mainly include forest soil quality, soil fertility and long-term productivity maintenance of plantations such as Chinese fir and eucalyptus, and carbon and nitrogen cycling in forest ecosystems; Soil pollution and remediation; Urban forestry soil, etc.. He has secured more than 50 research projects of external funding support, including 2 National key research and development program of China, 6 National Natural Science Foundation of China（NCFC）, 2 Erasmus+ projects of European Commission. and 8 International cooperation projects, etc. He has published 12 monographs and textbooks, including "Characteristics and Evaluation of Soil Quality in Urban Forestry", and 196 refereed journal and conference papers, with 55 of them in the past 5 years.

**Speaker 6. Chao Wang（王超）** is a professor at the Institute of Applied Ecology, Chinese Academy of Sciences. His research focuses on soil biogeochemistry, using stable isotope tracing and microbiome techniques to investigate how microbial life cycles regulate the formation of soil organic carbon. He developed high-abundance isotope labeling methods for microbial necromass and has published over 60 SCI papers, including in Nature sub-journals.

**Speaker 7. Fusheng Chen（陈伏生）**Second-Class Professor; Dean of the College of Forestry at Jiangxi Agricultural University, selected into the ‌National Millions of Talents Project‌, ‌National Leading Talent in Forestry and Grassland Science and Technology Innovation‌, and recipient of the ‌State Council Special Allowance Expert‌, among other honors‌1. His research primarily focuses on ‌forest soils and forest ecology‌. He has presided over ‌more than 30 provincial/ministerial-level or above projects‌, published ‌over 230 papers‌, and received ‌11 provincial/ministerial-level awards‌.

**Speaker 8.Xueyan Liu（刘学炎）**，Xueyan had a PhD of geochemistry and is now working as a researcher in the Institute of Geochemistry, CAS. He is interested in studies with natural stable isotopes, with achievements on sources and processes of nitrogen pollutants in atmospheric and terrestrial ecosystems. He will talk about isotopic constraints on N cycles and fates in forests under high N inputs.

**Speaker 9. Xiangyin Ni(倪祥银)**, Professor, Fujian Normal University (China)

Prof. Ni serves as a member of the Soil Science Society of China and is currently a broad member of Chinese Journal of Soil Science. His primary research focuses on soil organic matter formation and stabilization in forests, particularly in highly weathered Ultisols. He has led several major research projects, including one National Key Research and Development Program for Young Scientists and three grants from the National Natural Science Foundation of China. In recent years, he has published over 40 papers in SCI-indexed journals, such as PNAS, Global Change Biology, Soil Biology & Biochemistry and Soil Science Society of America Journal.

**Speaker 10.Mianhai Zheng（郑棉海）;** Mianhai Zheng, research professor at South China Botanical Garden, Chinese Academy of Sciences, focus on forest ecology and soil carbon-nitrogen biogeochemistry, with the specific interests on nitrogen deposition and biological nitrogen fixation. Currently, he is hosting multiple research programs, including the National Youth Talent Program and Guangdong Outstanding Youth Scholar Program, etc. He has published over 30 articles as first or corresponding author in journals, such as Nature Geoscience, Global Change Biology, Ecology Letters, Ecology, Journal of Ecology, Ecological Applications, Soil Biology & Biochemistry, etc.

**Speaker 11. Xinli Chen（陈信力）,** Professor, Zhejiang A&F University (China)

Prof. Chen is a professor serving as the Principal Investigator at Zhejiang A&F University’s National Key Laboratory and is a Banting Fellow in Canada. His research focuses on the relationship between biodiversity and soil ecosystem functionality, resulting in over 50 scholarly articles in top international journals, including Nature, Nature Sustainability, Nature Ecology & Evolution, Nature Communications and Science Advances. He has received awards such as the Outstanding Young Scholar Award from CSSSA and the Young Ecologist Award from ESA, and he currently serves on several editorial boards, including those of Global Change Biology and Soil Use and Management.

**Speaker 12. Enqing Hou（侯恩庆）**, Research Fellow, South China Botanical Garden, CAS (China).Prof. Hou is currently an Editor for several journals such as Global Change Biology, Fundamental Research, Journal of Plant Ecology, and Scientific Data. His primary research focuses on forest soil carbon and phosphorus cycling in the context of global change. He has led several major research projects, including two sub-projects of the National Key R&D Program and four grants from the National Natural Science Foundation of China. In recent years, he has published over 100 papers in SCI journals such as Nature Communications, One Earth, Nature Food, Ecology Letters, and Global Change Biology.

**Speaker 13. Xiaoqi Zhou(周小奇)**, Professor, East China Normal University (China)

Prof. Zhou serves as a member of the Microbial Ecology Committee of the Chinese Ecological Society and is currently an editorial board member for the Journal of Soils and Sediments, Plant and Soil, and the Journal of Plant Ecology. His primary research focuses on greenhouse gas emissions and microbial processes in forest soils within the context of global change. Prof. Zhou has led over ten research projects, including several funded by the National Natural Science Foundation of China. In recent years, he has published more than 100 papers in SCI journals, including Trends in Ecology and Evolution, Trends in Plant Science, and Global Change Biology.

**Speaker 14.  Silong Wang (汪思龙),** Director of Hunan Key Laboratory of Forest Ecosystem Services, and former director of Huitong National Research Station of Forest Ecosystem, CAS. His research focus on the dynamics processes of soil organic matter, carbon sequestration of subtropical forest, interaction of intercropped tree species, and sustainable management subtropical forest. He has presided over thress Key projects on dynamics and stability of soil organic carbon of subtropical plantation forest funded by National Natural Science Foundation. And He has published over 100 papers in international journal of Ecology, Functional Ecology, Soil biology and Biochemistry，Plant and Soil etc. He is also an active member of prestigious academic organizations, for example, he is the vice-Chair of professional board of forest soil science under Chinese society of Forest Science and Chinese Society of Soil science.

**Speaker 15. Qiwu Sun(孙启武)** isa professor serving as the Institute of Forestry, Chinese Academy of Forestry. He is the director of the Forest Soil Committee of Chinese Forestry Society and Chinese Soil Society, also is the Executive Secretary of China Wild Plant Protection Association Yew Conservation Committee, member of Wild plant Protection Expert Advisory Committee of National Forestry and Grassland Administration.He is mainly engaged in soil resources investigation and evaluation, forest soil quality evolution and control, rare and endangered plants rescue and breeding. Presided over more than 20 national scientific research projects, participated in the editing of 7 books, published more than 50 SCI and CSCD papers, and formulated/revised 6 industry standards. He is an expert reviewer of GEODRAMA, CATENA, INT J SYST EVOL MICR, Frontiers, Journal of Ecology, Journal of Beijing Forestry University, Chinese Landscape Architecture and other academic journals.

**Speaker 16.Fang Yunting（方运霆）** is the deputy director, a Professor, and a doctoral supervisor at the Institute of Applied Ecology, Chinese Academy of Sciences. He mainly uses field control experiments combined with stable isotope technology as the primary technical means to conduct research on the carbon and nitrogen cycles in terrestrial ecosystems and their responses to global changes and human disturbances. His research findings have been published in journals such as Nature Climate Change, Nature Communications, Nature Food, PNAS, Ecological Monographs, Ecological Applications, Global Change Biology, and New Phytologist. He has presided over projects including key R & D projects of the Ministry of Science and Technology, key projects of the National Natural Science Foundation of China, and the Lu Jiaxi International Team of the Chinese Academy of Sciences. He serves as the director of the Specialty Committee of Stable Isotope Ecology of the Ecological Society of China.

**Speaker 17.Yongfu Li（李永夫）**, Professor, Zhejiang A&F University (China)

Prof. Li serves as Vice Chair of the Forest Soil Committee of the Soil Science Society of China. He is currently a Subject Editor for the Journal of Soils and Sediments. His primary research focuses on forest soil carbon and nitrogen cycling in the context of global change. He has led several major research projects, including one key international collaborative project under the National Key R&D Program and five grants from the National Natural Science Foundation of China. In recent years, he has published over 90 papers in SCI journals such as Soil Biology & Biochemistry, Agricultural and Forest Meteorology, and Forest Ecology and Management.

**Speaker 18. Zhihong Xu（徐志红）**, Professor, Griffith University (Australia)

Prof. Xu has served as the Chair of Forest Soils Working Group of International Union of Soil Science since 2006. He is Editor-in-Chief of Journal of Soils and Sediments, and Editor of Environmental Science and Pollution Research. He has worked on soil microbial communities and diversity, carbon and nitrogen cycling, climate change and ecosystem feedback in forest ecosystems. More than refereed 400 papers have been published in leading journals such as Global Change Biology, Remotes Sensing of Environment, ISME Journal, New Phytologist, Soil Biology & Biochemistry and Tree Physiology in the fields of climate change, plant science, soil science, and forestry.

**Speaker 19. Xiangyang Sun（孙向阳）**the Head of Forest Soil Science research group at Beijing Forestry University and currently serves as Director of the Hebei Provincial Key Laboratory for the Comprehensive Utilisation of Green Waste. His research primarily focuses on forestry soil surveys and soil health restoration, soil ecology, and resource recovery from green waste. He has been recognised as a recipient of the New Century Excellent Talent Programme by the Ministry of Education and has received several prestigious awards, including a First Prize from the Ministry of Agriculture, a Second Prize from the Ministry of Environmental Protection, and the Second Prize of Liang Xi Forestry Science and Technology Progress Award. He holds various editorial positions, serving as Associate Editor-in-Chief for both the Journal of Beijing Forestry University and Scientia Silvae Sinicae, and as Deputy Leader of the Field Technical Team for the Third National Soil Survey. He also holds significant roles as Vice Chairman of the Forest Soil Professional Committee under both the Chinese Society of Forestry and the Chinese Society of Soil Science, Deputy Chairman of the Beijing Society of Soil Science, and is a member of the International Geosphere-Biosphere Programme (IGBP) China Committee. He has published over 200 academic papers in reputable journals.

**Speaker 20. Jiang Jiang（姜姜）,** PhD, Professor of Nanjing Forestry University. He is a recipient of the Jiangsu Specially-Appointed Professorship, Leading Talent in Forestry and Grassland Science and Technology Innovation, and the Youth Science and Technology Award in Forestry and Grassland. His recent research focus on carbon sequestration of degraded farmland shelter forest system and development of biochar products; soil carbon dynamics of Chinese Fir Plantation mediated by mycorrhizal fungi; key technologies for structural optimization of inefficient timber forest; development of carbon cycle model based on mangrove spatial heterogeneity. He serves as committee member of forest soil council in Chinese Society of Forestry, Soil Science Society of China, and Jiangsu Soil and Water Conservation Society.

**Speaker 21.** **Yuan Jun（袁军）**, Ph.D. Professor of Central South University of Forestry and Technology (CSUFT).Committee Member of the Forest Soil Committee under the Chinese Society of Soil Science;Deputy Director of the Key Laboratory of Non-timber Forest Cultivation and Conservation (Ministry of Education), and the Key Laboratory of non-wood Forest Breeding and Cultivation (National Forestry and Grassland Administration), and Principal Investigator (PI) of the National Key Laboratory of Woody Oil Resources Utilization. Main research areas encompass nutrient cycling and utilization soil fertility evolution mechanisms in plantations, and Biological Stress and Abiotic Stress Adaptation Mechanisms in non-wood forests.

**Speaker 22. Weidong Zhang（张伟东）** is a professor at the Institute of Applied Ecology, Chinese Academy of Sciences. His research focuses on carbon and nutrient cycling in plantation forest, using 13C stable isotope technique to study the regulation of plant biodiversity and management practices on the priming effect and formation of soil organic carbon in plantation forest. He has published over 60 SCI papers, including Ecology, Journal of Applied Ecology, Functional Ecology, and Soil Biology and Biochemistry.

**Speaker 23. Hua Qin (秦华),** Professor and PhD supervisor in School of Environmental and Resource Sciences, Zhejiang A&F University. His research primarily focuses on soil microbial ecology and its functions, including the role of mycorrhizal fungi in ecosystem carbon cycling, as well as soil health assessment and enhancement. He published over 60 papers as the first/corresponding author in journals such as Soil Biology & Biochemistry, Plant & Soil, Geoderma, Forest Ecology and Management, etc.

**Speaker 24. Xiao Zhang（张晓）,** Professor and Ph.D supervisor at Northwest A&F University, is a recipient of Shaanxi Provincial High-level Talent Program and Henan Provincial Outstanding Youth Science Fund. Her research focuses on forest soil microbial diversity and carbon cycling, investigating: 1) large-scale spatial distribution patterns and community assembly mechanisms of soil microbe; 2) impacts of nitrogen deposition on microbial diversity and function relationships; 3) microbial regulation of soil carbon formation under climate change. Supported by the National Natural Science Foundation of China, the Sub-project of the National Key Research and Development Program of China and provincial talent projects, she has published papers in prominent international and domestic academic journals, including Nature Communications, Molecular Ecology, Ecography and Geoderma. She serves as Deputy Director of Forest Soil Council in Chinese Society of Forestry, a Committee Member of the Forest Soil Council in Soil Science Society of China, and Youth Editorial Board member of Scientia Silvae Sinicae and Climate Smart Agriculture.

**Speaker 25. Zhenghu Zhou (周正虎),** Professor and PhD supervisor at School of Ecology, Northeast Forestry University. He mainly focusses on the biogeographic patterns of soil microbial diversity, the response of soil microorganisms to global change, and the microbial mechanisms of soil carbon cycling. He published over 40 papers as the first/corresponding author in journals such as Proceedings of the National Academy of Sciences of the United States of America, Nature Communications, One Earth, Global Change Biology, etc.

**Speaker 26.Gao Zhi-qin（高志勤）:** Professor and Ph.D supervisor at School of Landscape Ecology, Ningbo City College of Vocational Technology.He is Member of Forest Soil Committee of Chinese Society of Forestry and Chinese Soil Science Society.His research focuses on Evolution of soil properties under forest management and soil carbon sequestration.

**Speaker 27. Tonggang Zha（查同刚）**, Ph.D and Professor at Beijing Forestry University, serves as a member of the Forest Soil Committee at the Chinese Society of Soil Science， Deputy Director of the National Field Observation and Research Station of Jixian Forest Ecosystem in Shanxi Province. PI of the Soil Degradation and Ecological Restoration Research Team, conducting research ecological restoration, soil improvement, and terrestrial ecosystem carbon cycling.

**Speaker 28. Ling Zhang（张令）** earned his PhD from Nanjing Agricultural University (China) and conducted collaborative research at Rice University, USA (2012–2013). Currently a professor in the College of Forestry at Jiangxi Agricultural University (China), he supervises doctoral candidates and leads multidisciplinary research programs in global change biology, forest ecology, and soil ecology. His work focuses on ecosystem responses to anthropogenic and climatic stressors, with over 100 peer-reviewed publications in high-impact journals. He has authored or co-authored 12 academic monographs, including pioneering studies on soil carbon dynamics and nutrient cycling in forest ecosystems. Prof. Zhang actively shapes global scientific discourse as an editorial board member for leading SCI-indexed journals, including Journal of Plant Ecology, Journal of Integrative Agriculture, Plant Ecology, Frontiers in Forests and Climate Change. Additionally, he serves as a peer reviewer for more than 70 international journals, providing expertise in sustainable forest management, biogeochemical cycles, and climate adaptation strategies. His interdisciplinary research bridges theoretical ecology with scalable solutions for building climate-resilient landscapes, emphasizing the integration of traditional ecological knowledge with modern scientific methodologies.

**Speaker 29. Chen Lijun（陈利军）,** Ph.D., Associate Professor at Central South University of Forestry and Technology. He has published over 30 papers, which were cited in more than 1,200 research papers. And his H-index is 14. He has led 8 research projects, including grants from the National Natural Science Foundation of China, the Hunan Provincial Excellent Youth Program, the China Postdoctoral Science Foundation, and Guangxi’s Key R&D Program. Additionally, he holds 4 authorized invention patents.

**Speaker 30. Xiuqing Nie（聂秀青）**, Ph.D., associate researcher. He is mainly engaged in the research of soil element cycle, and its response to the global change and grazing disturbance. He has presided over 4 projects such as the National Natural Science Foundation of China. He has published more than 20 research papers in journals such as Catena as the first author; 2 authorized invention patents and 1 local standard; He has won the President Award of the Chinese Academy of Sciences and the Outstanding Graduate of Beijing.

**Speaker 31. Lingyu Hou（厚凌宇）**, Ph.D., associate researcher at the Institute of Forestry, Chinese Academy of Forestry. She is the secretary of the Forest Soil Committee of Chinese Soil Society, also is the member of the Forest Soil Committee Chinese Forestry Society She is mainly engaged in forest soil and microorganisms, soil resources investigation and evaluation, forest soil quality evolution and control, rare and endangered plants rescue and breeding. Participated in the editing of 2 books, published more than 30 SCI and CSCD papers, and formulated/revised 5 industry standards.

**Speaker 31.Lei Liu （刘蕾）**，Ph.D., associate researcher at the Institute of Forestry, Chinese Academy of Forestry. Her research focuses on functional microbial resources and the mechanisms of microbe-plant interactions. She has applied cultomics combined with genomics approaches to determine the taxonomic status of multiple novel bacterial taxa and conduct their functional characterization. She is hosting multiple research projects, including the National Natural Science Foundation of China. She has published over 30 peer-reviewed papers in journals such as Industrial Crops and Products, Acta microbiologica Sinica, Journal of Bacteriology, and Antonie van Leeuwenhoek, and holds 6 authorized invention patents.

**Speaker 32. Guodong Shao（邵国栋）**is an Associate Professor and Master's Supervisor at the College of Forestry and Landscape Architecture, South China Agricultural University. His research focuses on soil biogeochemical cycles. By combining field studies with laboratory incubation experiments and using modeling approaches, he investigates key processes in carbon and nitrogen cycling in terrestrial ecosystems and their responses to global change and human activities.