Boshen Ren

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EDUCATION

Wuhan Botanical Garden, Chinese Academy of Sciences, China *Expected June 2025*

Master of Philosophy in **Global Change Ecology**

- **Supervisors:** Assoc. Prof. Qinghu Jiang, Prof. Feng Liu.
- Cumulative GPA: 3.79 / 4.00

Tibet University, China *Expected June 2025*

Master of Philosophy in **Ecology** *(Joint Program)*

Three Gorges University, China *2018.09-2022.06*

Bachelor of Science in **Ecology**

- **Thesis Topic:** *Leaf Functional Traits of Four Typical Shrub Species in Guangxi*

RESEARCH INTERESTS

- Integration of ground survey data with multi-source remote sensing data, particularly hyperspectral remote sensing, to investigate plant functional traits' adaptation and response to environmental changes.
- Utilization of multi-source remote sensing techniques, especially hyperspectral remote sensing, combined with field observations, to study plant community structure, diversity, and their relationships with ecosystem functions, aiming to enhance understanding and quantification of complex ecological processes.

RESEARCH EXPERIENCE

Survey and Evaluation of Grassland Resources in Southern Mountains of China *2022.05-2024.05*

Member, funded by Strategic Priority Research Program of the Chinese Academy of Sciences (Class A)

- Participated in a comprehensive survey of grassland resources in southern mountainous regions of China.
- Utilized remote sensing techniques and field surveys to assess grassland conditions and biodiversity.

Vegetation and Plant Diversity Monitoring Network in Shennongjia National Park, China

2022.09-2025.08

Core researcher, funded by Local Project for Shennongjia National Park, Hubei Province, China

- Participated in establishing and surveying a 25-hectare forest plot, altitudinal gradient plots, and wetland meadow community quadrats in Dajiu Lake.
- Utilized UAV to acquire hyperspectral, multispectral, LiDAR, and thermal infrared remote sensing data for the 25-hectare forest plot, followed by data processing and analysis.
- Coordinated field data collection efforts to ensure high-quality long-term monitoring data.
- Analyzed plant community structure, diversity, and their relationships with ecosystem functions to provide scientific basis for biodiversity conservation strategies

Hyperspectral Remote Sensing of Subalpine Peatland Wetland Vegetation *2023.06- Present*

Master's Research, Thesis: "Plant Diversity Patterns and Seasonal Dynamics in Dajiu Lake Wetland Based on UAV Remote Sensing"

- Conducted multi-scale (leaf, canopy, UAV) plant spectral characteristic analysis and functional trait retrieval in subalpine peatland wetlands.
- Investigated the relationship between plant diversity and spectral diversity in peatland ecosystems, exploring influencing factors.
- Developed classification and mapping methods for dominant wetland species using hyper/multi-spectral data specific to subalpine peatland vegetation
- Utilized UAV-based remote sensing to capture seasonal dynamics of wetland vegetation diversity in subalpine peatland environments.

Impact of Forest Structure and Traits on Carbon and Nitrogen Leaching Processes *2024.06- Present*

Member, National Natural Science Foundation of China (General Program)

- Investigating the effects of structural and trait differences in various forest community types on carbon and nitrogen downward leaching processes, utilizing field plot monitoring, LiDAR, UAV hyperspectral technology, and laboratory analysis
- Exploring multi-interface regulatory mechanisms of forest structure and traits on carbon and nitrogen leaching processes in ecological restoration forests of the water source area of China's South-to-North Water Diversion Project

ACADEMIC ACHIEVEMENTS

- **Ren BS**, Yang LS, Tang BC, Jiang MX, Liu F, Jiang QH. Spectral Characteristics Analysis of Vegetation in Subalpine Typical Peatlands [J]. *Plant Science Journal*, 2024. **(Top Chinese Journal)**
- Chen L, Fang J, Jiang QH, **Ren BS**, Liu F. Spatiotemporal variation of the forest net ecosystem productivity and their responses to climatic factors in the water source area of the Middle Route of the South-to-North Water Diversion Project[J]. *Plant Science Journal*,2024. **(Top Chinese Journal)**
- Xiaoxiang Zhao, Qiuxiang Tian, Anders Michelsen, Mengzhen Lu, **Boshen Ren**, Lin Huang, Rudong Zhao, The effect of experimental warming on fine root functional traits of woody plants: Data synthesis. *Science of the Total Environment*, 2023, 165003. **(SCI, JCR Q1)**
- **Boshen Ren** et al., Deconstructing the Plant-Spectral Diversity Relationship: Synergistic Effects of Vertical and Horizontal Structure. **(Manuscript completed)**

SKILLS & SELF EVALUATION

Language Proficiency:

- English: CET-6 certified; Capable of writing academic papers independently

Technical Skills:

- GIS & Remote Sensing: Proficient in ArcGIS, QGIS, ENVI, LiDAR360, Google Earth Engine
- Programming: Skilled in Python, R, and MATLAB
- UAV Operation: Experienced in drone piloting and aerial survey planning

Professional Competencies:

- Remote Sensing: Multi-source data acquisition, image processing and analysis

- Ecological Research: Vegetation surveys, sample collection, physiological measurements, spectral analysis
- Data Analysis: Multivariate statistical analysis

Personal Attributes:

- Highly adaptable with strong resilience
- Excellent hands-on abilities and teamwork skills
- Outgoing personality with a positive attitude