# Xiuzi REN

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## Education

**Northwest A&F University**                                             **Shaanxi, CHINA**
MSc. in Pratacultural Science                                             2021/09-2024/06
Advisor: Prof. Xu Xuexuan; GPA: 3.9/4.0
Course: Advanced Grassland Ecology, Grassland Cultivation, Intelligence in Agriculture

**Northwest A&F University**                                             **Shaanxi, CHINA**
BSc. in Pratacultural Science; GPA: 3.5 /4.0                              *2017/09-2021/06*

## Research Experiences

**2023-Present: The Effect of Fire on Soil Water Infiltration in Grassland in the Loess Plateau Area**

This study selected different abandonment years grasslands in the Wangdonggou small watershed of Changwu County, Shaanxi Province, in the central southern region of the Loess Plateau as the research object. Through field simulation fire experiments, this research offers a fresh perspective on stating the effect of fire on soil moisture infiltration behaviors. To determine the optimal abandonment year in the region, measuring the grassland soil basic properties with different abandonment years and analyzing their differences were used. The findings should make an contribution to the restoration of the ecological system in the Loess Hilly Area. Sampling of soil after burning is currently underway.

**2021-2023: Restoration of Grassland Improves Soil Infiltration Capacity in Water-Wind Erosion Crisscross Region of China's Loess Plateau**

In order to compare the restoration effects of different types of soil under agricultural and grassland utilization methods, we measured the basic soil properties, aggregate characteristics, and water infiltration performance under different land use methods in the water and wind erosion crisscross area of the Loess Plateau. Correlation analysis and structural equation modeling were performed. Comprehensively, we found that among the three types of soil, the infiltration performance and soil properties of loess grassland are the best. The research results can be found in paper1 below.

**2020-2022: Evaluation of Soil Quality Change Under Influence of Land Cutting in Northern Mountain of Lanzhou City**

For the Evaluating the changes in soil quality caused by land cutting in the northern mountains of Lanzhou City, Four land use methods, including original cropland, forest land, grassland, and newly created land from mountain cutting, were selected in Beishan, Chengguan District, Lanzhou City. Principal Component Analysis (PCA) was used to selected the Minimum Data Set (MDS). We found

that the cropland and forest land have better soil quality. Besides, the water holding and nutrient accumulation capacity of newly created land was lower than existing cropland and forest land. The results showed that when cutting mountains to create land, it should be arranged on grasslands as much as possible. The research had also suggested that protecting the original farmland and forest land significantly important.

## Research Interest

- ✓ The impact of microplastics on soil buffering capacity, including but not limited to soil structure, nutrient storage, and surface runoff loss.
- ✓ For sustainable agricultural management, establish a visual interface or standardized evaluation criteria for monitoring soil nutrient management capacity and carbon removal capacity.
- ✓ Estimate the long-term changes in soil carbon removal/storage under different types of agricultural and forestry ecosystems.

## Skills

- ✓ **Computer:** Proficient in using software such as **R**; **Origin**; **SPSS**; **Graphpad Prism**; **Matlab**; **Amos**.
- ✓ **Data analysis methods:** Analysis of variance; dimensionality reduction; correlation analysis; random forest analysis; regression and structural equation modeling.
- ✓ **Visual cartography:** Regression map; box plot; heat map; radar map; **Arc GIS** basic geographic information mapping.

## Publications

[1]. **Xiuzi Ren**, Xiaohong Chai, Yuanyuan Qu, Yuanhui Xu, Farhat Ullah Khan, Junfeng Wang, Palixiati Geming, Weiwei Wang, Qi Zhang, Qinxuan Wu, Xuexuan Xu*, Feng Du. Restoration of Grassland Improves Soil Infiltration Capacity in Water-Wind Erosion Crisscross Region of China's Loess Plateau. *Land*. (IF = 3.9). 2023. https://doi.org/10.3390/land12081485

[2]. Xiaohong Chai, Weiwei Wang, **Xiuzi Ren**, Junfeng Wang, Qi Zhang, Feng Du, Xuexuan Xu*. Dominant plant functional types differentially alter the abundance, composition of soil hydrophobic compounds and water repellency on the Chinese Loess Plateau. *Plant and Soil*. (IF = 4.9), 2023. https://doi.org/10.21203/rs.3.rs-2954393/v1

[3]. **Xiuzi Ren**, Long Wang, Xuexuan Xu*, Lianke Zhang. Evaluation of Soil Quality Change Under Influence of Land Cutting in Northern Mountain of Lanzhou City. *Bulletin of soil and water conservation.* (IF = 2.3), 2022 (in Chinese).