

## 黄土丘陵沟壑区不同恢复方式下植物群落的土壤水分和养分特征

焦菊英; 焦峰; 温仲明

中国科学院、水利部水土保持研究所; 西北农林科技大学水土保持研究所 陕西杨凌712100

## Soil water and nutrients of vegetation communities under different restoration types on the hilly-gullied Loess Plateau

JIAO Ju-ying; JIAO Feng; WEN Zhong-ming \*

Inst. of Soil and Water Conservation; CAS and MWR; Inst. of Soil and Water Conservation; Northwest Sci-technology Univ. of Agri. and For.; Yangling 712100; Shaanxi; China

[摘要](#)[参考文献](#)[相关文章](#)Download: [PDF \(3139KB\)](#) [HTML](#) OKB Export: [BibTeX](#) or [EndNote \(RIS\)](#) [Supporting Info](#)

**摘要** 现存不同植物群落的土壤水分和养分特征对有效干预和调控植被恢复有着非常重要的参考价值。在黄土高原丘陵沟壑区的吴旗,对不同恢复方式(封禁下的自然恢复、无管理下的自然恢复、人工造林、人工种草)下的植被样方进行调查与采样,采用典范变量分析,研究了不同植物群落的土壤水分和养分变化特征。结果表明,封禁自然恢复植物群落的土壤水分、有机质、全氮、有效氮、全磷和速效钾含量相对较高;近20年龄及以上的人工林地群落与人工草地群落下的土壤水分和速效磷含量很低;无管理下的自然恢复植物群落、4年龄的沙棘林地群落和农田的土壤水分含量和速效磷含量较高,而土壤有机质、全氮、有效氮、全磷和速效钾含量较低。这些植被群落下的土壤水分含量变化在凋萎湿度和50%田间持水量之间,均处于严重亏缺状态,土壤养分也处于较低的水平。相比之下,人工植被消耗大量的深层土壤水分,特别是20年龄以上的人工林地及人工草地,其200~500cm土层的土壤含水量几乎接近凋萎湿度。综合分析表明,封禁自然恢复是黄土高原丘陵沟壑区植被恢复的有效措施。

**关键词:** 植被恢复 土壤水分 土壤养分 退耕地 黄土丘陵沟壑区 植被恢复 土壤水分 土壤养分 退耕地 黄土丘陵沟壑区

**Abstract:** The characteristics of soil water and nutrients in the existent vegetation communities are the very important references for intervening and regulating vegetation restoration. Based on the field survey in Wuqi on the hilly-gullied Loess Plateau, the variation of soil water and nutrients under different vegetation restoration types were analyzed by Canonical Variate Analysis. It was showed that the natural restoration community without disturbance had higher soil water content, organic matter, extractable nitrogen, total phosphorus and exchangeable potassium; communities with long-term (nearly 20 years and more than 20 years) planted trees and planted grasses had lower soil water content and exchangeable phosphorus; natural vegetation communities without management, along with croplands and 4 years old *Hippophae rhamnoides* community experienced higher exchangeable phosphorus and soil water content, but lower organic matter, (total) nitrogen, extractable nitrogen, total phosphorus and exchangeable potassium. The soil water content of these communities, ranging from the wither moisture to 50% of field water holding capacity, was in severe deficient state; the soil nutrients are also in the lower level for vegetation to develop well. Planted vegetation, especially more than 20 years old planted trees and planted grasses consumed much more soil water than vegetation in natural restoration, and the soil water content in 200—500cm soil layers was almost near to wilting point. The results suggested that natural restoration without disturbance could be the better measure for vegetation restoration in the study sites.

**Keywords:**

## 引用本文:

焦菊英; 焦峰; 温仲明. 黄土丘陵沟壑区不同恢复方式下植物群落的土壤水分和养分特征[J] 植物营养与肥料学报, 2006, V12(5): 667-

JIAO Ju-ying; JIAO Feng; WEN Zhong-ming . Soil water and nutrients of vegetation communities under different restoration types on the hilly-gullied Loess Plateau[J] Acta Metallurgica Sinica, 2006, V12(5): 667-

## Service

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [Email Alert](#)
- ▶ [RSS](#)

## 作者相关文章