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## Dynamics of physical and chemical properties of soil after agricultural abandonment in a karst region in Southwest China

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Rocky desertification induced by severe deforestation has caused the water loss and soil erosion in karst regions in southeast China, limiting local social and economic developments. To prevent further rocky desertification, the farmland which had obtained by deforestation were abandoned for recovery. As soil quality improved by agriculture abandonment should be examined, it is necessary to investigate the dynamics of physical and chemical properties of soil in different ages after abandonment. In this study, 38 investigation sites were selected for soil sampling on the slopes in Longtan trough valley in Youyang County, Chongqing Municipality, China. The dominant plant species of the investigation sites were also noted during soil sampling. The sites were divided into seven age classes according to their abandonment time. Dynamics of water content, bulk density, pH, and concentration of available potassium, available phosphorus, available nitrogen, total nitrogen and organic matters were examined. It suggests that soil quality might be deteriorated right after abandonment and then improved from around 20 years after abandonment. Deterioration of soil quality may be induced by lack of plant coverage and exposure of rock outcrops which may accelerate water loss and swelling and shrinkage cycles of soil. After the formation of plant communities and litter layer above the ground, soil quality was then apparently improved. These findings can provide a potential guideline for recovery management in karst regions in southwest of China.