令和2年度　環境科学院　修士論文内容の要旨

An analysis of characteristics of hiking trails in the Cuihuashan National Geopark, China
（中国，翠華山国立ジオパークにおける登山道の特徴の分析）

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Protected areas (PAs) are widely thought to be extremely significant for protecting biodiversity. As one of the fastest growing economy, Chinese people's disposable income has also increased leading to an increasing demand for natural recreational activities. Recreational trails function as a mean of protection of nature and natural resources by concentrating users' activities and their impacts on narrow and resistant trail surface. Tails, therefore, should be well designed, routed, constructed, and regularly maintained. The Cuihuashan National Geopark is located at the northern foot of the Qinling Mountains in Xi'an city, Shaanxi Province. It covers an area of 32 square kilometers and is about 20 kilometers away from Xi'an.

This research mainly collects information on the trails of the Cuihuashan National Geopark to map the present trail system situation; identify and classify different trail materials; confirm the proportion of hardened and unhardened trails; observe whether the trails have erosion problems and to provide some opinions for the park and a theoretical basis for the future construction of geopark trails in China and other countries with similar situations.

In this study, a mixture of many research methods was adopted. For data collection on the hiking trails system and distribution of the Cuihuashan National Geopark, a handy GPS equipment was used to record the entire movement track and specific points; when collecting on-site data, the GPS equipment was turned on throughout the entire process, and the starting point and ending point of each trail of different materials were recorded both with the device itself and a fieldwork notebook; for the width and height of the hiking trail, the author used a tapeline to conduct the measurement process.

Results show that the total length of the trail network is 38.23km. The length of the hiking trails 29.14km. Since this study is aimed at the hiking trails for tourists, trails for buses, cars and vehicles are not in the consideration of this study. Totally, 5 types of materials were identified in this study, including Cement-stone type, Stone type, Boulder type, Meadow type, and Exposed soil type. There are three types, Cement-stone type, Stone type, Boulder type, in hardened trails; two types, Meadow type, Exposed soil type, in unhardened trails. The length of hardened hiking trails accounts for 86.8% of the total length of hiking trails and unhardened trails accounted for 13.2%. Through the trail height data, it is found that there is no erosion on the hardened trail, and most of the unhardened trail has erosion.

This study identified the distribution of hiking trails in the Cuihuashan National Geopark and suggested in less visited remote area hardened trails should be limited or even recovered. This study also provided a theoretical reference and basis for future park management in China's National Geoparks and for other countries with similar condition worldwide.