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# 学 位 論 文 内 容 の 要 旨

博士（環境科学）

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## 学 位 論 文 題 名

Protected area-people connectivity in Qinling Zhongnanshan UNESCO  
Global Geopark, China

(中国，秦嶺・終南山ユネスコ世界ジオパークにおける保護地域と人の結合性)

It has been widely considered that protected areas (PAs) serve as the first line of protecting global biodiversity. Recently, many researchers suggested that popularity of mountain recreation has increased and that a potential for related ecological impacts to the ecosystems of mountainous areas has risen. As of 2018 China is a “mega-diversity” country with 21.02% of territory as PAs, which include 217 national geoparks. As a world’s leading country of geoparks, China has 37 members of the UNESCO Global Geopark Network. However, most China’s geoparks were designated from the existing national parks or scenic areas; therefore, it is common to see geoparks with more than one title and under the management of many agencies. China has made great progress in nature conservation; however, negative effects of China’s PAs have been indicated as well.

This study aims at exploring the connectivity among different stakeholders of China’s PAs, their perceptions towards PAs and the forest cover change. That is why this study has chosen the Qinling Zhongnanshan UNESCO Global Geopark as a study area. The QZUGG is located in the south

of Xi'an city. It is composed of 8 different scenic spots. Each of them is either a National Geopark or a National Forest Park. Questionnaire surveys and interviews were adopted to detect any significant differences between different groups. For the detection of forest cover change before and after the establishment of this geopark, a GIS approach was employed. Satellite images of years 2003, 2009, and 2016 were processed and classified into forest and non-forest areas.

Results on the satellite image analysis showed that from 2009-2016 the QZUGG experienced a forest cover decrease from 2415.7 km<sup>2</sup> to 2267 km<sup>2</sup>. Statistical differences have been found between management officials and other respondents towards entrance fee, parking fee, resource abundance and resource appreciation at a significant level of 0.00, showing that management officials were more satisfied. This study also has found significant differences about perceptions towards the following aspects: opinions on trekking trails construction and planning, on guide maps, on educational service, on nature protection and on the quantity of artificial constructions ( $p=0.00-0.009$ ).

Results of the questionnaire survey showed that most local residents living in or around the QZUGG are engaged in their full-time jobs for the geopark and more than 33% of the respondents' all family members are involved in the jobs there. The respondents reported that more than 60% of their household's total income was generated from the QZUGG. All respondents in the Wangshunshan scenic spot whose farmland was requisitioned had received some financial compensation; however, none of the Zhuque respondents had been compensated. Some of the respondents from Taiping (26.3%) and a few Cuihuashan respondents (4.7%) reported that they had received financial compensation.

This study has identified gaps among different stakeholders. Eight scenic spots are suggested to strengthen their mutual connection to produce a comprehensive management scheme. In order to eliminate local people's complaints due to the uneven compensation and limited job opportunities, the Geopark should provide sound compensation plan and more job opportunities in management posts. The geopark should also provide more geo-education to both local residents and visitors. By introducing new and appropriate notion of nature conservation, gaps identified would be bridged in the future, hence, a strong connectivity.

This study presented a new research model by using a concept of connectivity or nexus. This is helpful to organize and analyze complex relationships among many concerned groups.