Relationships between the Livelihood of Local Residents and Vegetation and Topography in Bwabwata National Park, Northeastern Namibia

Inception year: 2014
Place of fieldwork: Republic of Namibia
Name: Atsuki SHIBATA

Key Words: national park, local residents, livelihood, topography, vegetation

Research background

Africa's policy on nature conservation changed in the 1980s from "conservation of wilderness" to "community-based conservation," where local residents manage conservation. Following this policy change, many studies have made assessments of community-based conservation and its influence on local residents. Bwabwata National Park (figure 1) in northeastern Namibia has also been studied in detail because of the fact that local residents settle in the protected central region of the park. However, few quantitative studies have been conducted on the relationship between local residents and Bwabwata's natural environment. In particular, there are no findings about the relationship between the livelihood of local residents and the topography and vegetation in the national park, thereby paying attention on landscape. It is necessary to understand this aspect of community-based conservation to clarify how the practice works.

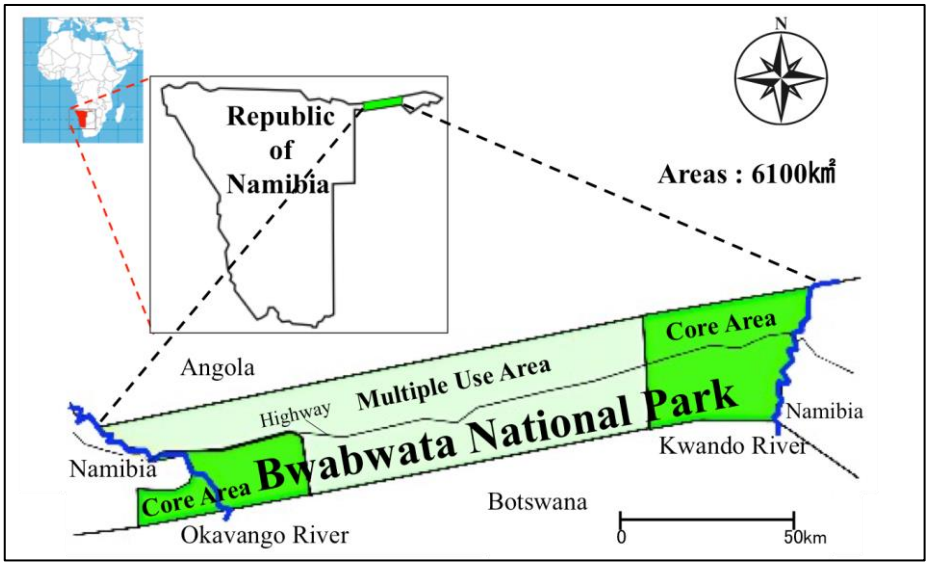

Fig 1. Research area map. There are two sections in the park. Residents live in the Multiple Use Area

Research purpose

The purpose of this study is to quantitatively explore the relationship between the livelihood of local residents and the topography and vegetation in Bwabwata National Park by paying attention to space and scene.

Results and achievements by fieldwork

The relationship between the livelihood of local residents and the natural environment of the national park became clear through observation, listening, and other qualitative methods. These were: the impact of gathering and felling on local vegetation, the meaning of burning (photograph 1) on the neighboring environment, and the relationship between field (photograph 2) position and topography. The state of the natural environment also became clear through surveys of vegetation and topography that examined space and scene.

These were: the impact of topography and vegetation on a special local topographical feature called "old drainage," the difference between the vegetation structure in the multiple use area and the one in Bwabwata's core area, and the unequal distribution of useful trees in villages which are diversified by population and time of settlement. Furthermore, interviews confirmed that residents' lives changed after the national park was established, and that setting up a protected area (the core area) conflicted (photograph 3) with their livelihoods.

From these results, it is possible to hypothesize that the gathering, felling, and planting of trees in the protected core area created spatial differences in vegetation, and is responsible for the unequal distribution of useful trees. It can also be argued that local agriculture was based on the natural condition of old drainage, and that burning was connected to the idea of maintaining healthy vegetation. Therefore, this study suggests that, even though the livelihood of the local residents impacts the vegetation and scenery of Bwabwata National Park, this livelihood is based on deep knowledge and experience of the park's natural environment, and is a crucial part of its conservation and management.

In Bwabwata National Park, nature management includes the livelihood of local residents, which is a departure from common concepts about wilderness conservation in national parks.

Photo 1. Burning (Aug / 2015)

Photo 2. Corn field (Dec / 2014)

Photo 3. Women and girls go beyond the park's limits for gathering (Dec / 2014)

(All photographs taken by author)

Implications and impacts on future research

It is necessary to continue to study the impact of local livelihoods on vegetation change in this new national park, which was established in less than ten years. It will also be important to carefully analyze the relationship between local residents and topography, through further surveys of geology and soil science in old drainage. Looking forward, I also hope to examine the impact that burning has on a natural environment, through quantitative survey and analysis.

Such studies will allow for a more complete understanding of the impact of local residents on Bwabwata's natural environment, and provide new perspectives for future research on nature conservation and management.