Geotourism:

The Tourism of Geology and Landscape

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Introduction

Established in 1789 as the 12th state, North Carolina lies in the eastern seaboard of the United States of America between the Appalachian mountain range and the Atlantic Ocean. It is ranked 28th with respect to its size (139,389 square kilometers) and is the 10th most populated state with 9.1 million residents as of 2007 (US Census Bureau, 2008). The state was known for its farming/tobacco, textile and furniture industries, but substantial transformation has taken place over the past few decades and now the service industry, led by tourism, is the major part of the state's economy (Gade, 2008).

North Carolina has a unique and rich natural heritage which includes geological, landscape and biological resources that span three physiographic regions: the Appalachian Mountains, the Piedmont Plateau and the Coastal Plain (Horton *et al.*, 1991; Stewart and Roberson, 2007). This natural heritage forms an integral part of the network of attractions enticing local, out-of-state and international tourists, who spent over $17 billion in the state and generated almost 200,000 jobs in 2007 (TIA, 2008). Indeed, North Carolina's tourism promotional material (e.g., travel guides, brochures, websites) routinely highlight physical landscapes such as the Great Smoky Mountains, peaks like Pilot Mountain and geomorphic features such as waterfalls. Many of these geological features and attractions can be found in North Carolina's state park (NCSP) system, which received over 12.8 million visitors in 2007– 2008 (Leung *et al.*, 2009), with an estimated annual economic impact of $289 million to local economies (NCDPR, 2009). Landform-dependent recreation opportunities draw tourists to the state as well, with skiers enjoying the mountains and kitesurfers flocking to sandy beaches at the Outer Banks. In addition, mineral hunting has become a popular tourist activity with several independent contractors offering mine tours, cave tours and gemstone mining.

The geodiversity of North Carolina supports not only aesthetic and economic values, it also offers tremendous potential for research, education and recreation (Gray, 2004). The state capital city of Raleigh hosts the Museum of Natural Science, while the Museum of North Carolina Minerals is located along the Blue Ridge Parkway. Bulletins published by the North Carolina Geological Survey (NCGS) describe the geology at Eno River State Park, Gorges State Park, the Blue Ridge Parkway and the state park system as a whole (Carpenter, 1989; Carter *et al.*, 2001; Wooten *et al.*, 2003; Bradley, 2007).

Although the Roadside Geology Series has decidedly overlooked the southeast with the exception of Florida, other guides are being published to fill the need. Recently, the first geology guide book for North and South Carolina was published with the state-park visiting public as the target audience (Stewart and Roberson, 2007).

In pursuit of an eco-friendly path to development, North Carolina is embracing sustainable forms of tourism, in which geotourism, or tourism based on geoheritage and its conservation (Dowling and Newsome, 2006) seems to have a significant role to play. Similar to ecotourism, geotourism has the potential to support sustainable economic development while cultivating public support for geoheritage conservation (Burek and Prosser, 2008). However, these goals can be attainable only if geotourism opportunities are communicated to nature-seeking as well as causal tourists. Hence, interpretation is the key to connecting sustainable tourism with geoheritage conservation (Hose, 1996, 2006).

While there is a wealth of information about the resource base (geoheritage) and park facilities (infrastructure) that are important for geotourism development, we know far less about interpretation services that facilitate geotourism experiences. Two published studies seem to be particularly relevant to our discussion. Hose (1996) reports results from visitor studies on three geoheritage sites in the UK, which suggest a need for more interpretation and using appropriate vocabulary in interpretive materials. In China, Wei and Wang (2007) evaluated the effectiveness of interpretive materials and programs in Yuntaishan World Geopark using a visitor survey. The respondents were found to have a strong preference for interactive interpretation through interpreters or multimedia, and they were more interested in the scientific explanation on Yuntaishan's landform than in the fairy tales related to the site. These two studies point to the need for more evaluation of interpretive programs and materials in support of geotourism.

The purpose of this chapter was to take a first look at the current status and potential of geotourism in North Carolina from an interpretive perspective using state parks as an example. We were interested in the extent to which North Carolina's geoheritage is communicated to state park visitors and in what ways. We begin with a concise review of geoheritage in North Carolina. The rest of the chapter focuses on the results of a recent survey of state park managers on geoheritage resources and their interpretation. Implications to management and research are discussed in light of survey results.

Geoheritage in North Carolina

The varied landscapes in North Carolina are controlled for the most part by the underlying geology (Figure 13.1). The Blue Ridge Mountains make up the westernmost part of the state and include over 40 peaks that reach 1800 m in elevation. East of the Blue Ridge, the Piedmont is characterized by rolling hills and subdued topography, although there are several locations in the Piedmont with high elevations (over 900 m). The Coastal Plain makes up the eastern half of the state and has low elevation (about 120 m down to sea level) and low topographic relief. The Atlantic Ocean coast of North Carolina is marked by a chain of narrow barrier islands.

The rocks that make up the Blue Ridge mountains are metamorphic rocks that were created during a series of plate tectonic collisions beginning about 1 billion years ago with the assembly of the ancient supercontinent of Rodinia during an event known as the Grenville orogeny. Billion-year-old metamorphic rocks are ubiquitous in the western part of the Blue Ridge (Hatcher, 1989; Horton *et al.*, 1991).