



Geodiversity and environmental services in developing-world cities: examples of Johannesburg and São Paulo

Jasper Knight (1), Maria da Glória Motta Garcia (2), and Christine Bourotte (2)

(1) University of the Witwatersrand, Geography, Archaeology & Environmental Studies, Johannesburg, South Africa (jasper.knight@wits.ac.za), (2) Instituto de Geociências/USP Rua do Lago 562, Cidade Universitária, 05508-080 São Paulo, Brasil

Natural spaces within the urban environment are positively associated with social and environmental indicators such as public health, mental wellbeing, air quality, temperature regulation and biodiversity. Maintaining urban natural areas is a particular issue in developing world cities that are commonly growing very rapidly, where poor urban and transport planning results in low environmental quality. Sao Paulo (Brazil) and Johannesburg (South Africa) are both rapidly-developing cities set in hilly landscapes. In both cities, bedrock hills, ridges and river basins offer areas of high recreation and biodiversity value, but are also areas of high geodiversity and geoheritage potential. This study explores the relationship between these elements, using specific examples of the Parque Estadual da Cantareira (São Paulo) and Melville Koppies (Johannesburg). Both sites are protected as nature reserves mainly for their high ecological and biodiversity values, but also present a rich biodiversity where bedrock surfaces and structures are exposed and control geological heritage and geomorphic character. In addition, both sites have historical and archaeological heritage value, affect urban microclimate of surrounding areas, affect water supply and water quality, and by virtue of their topography also affect the spatial design and structure of surrounding urban areas. The relationship between geodiversity elements and provision of environmental services in these urban environments has not been well described, but this study emphasizes the fundamental role of the abiotic part of nature in the conservation and management of environmental and ecosystem services, linked to landscape geodiversity.