



## **Comparison of three methodologies for geodiversity assessment. Application in the Subbéticas Geopark (Spain).**

Juan F. Martinez-Murillo and David Carruana  
Universidad de Málaga, Málaga, Spain (jfmurillo@uma.es)

The term 'geodiversity' has been used in different contexts and defined in various ways ranging from geological diversity to the variability of natural and anthropogenic features of a landscape. A very accepted definition was proposed by Gray (2004): 'the natural range (diversity) of geological (rocks, minerals, fossils), geomorphological (land form, physical processes) and soil features'. Later, Serrano and Ruiz-Flaño (2007) included topography and elements of the hydrosphere in the diversity of abiotic nature. Thus, geodiversity can be defined by its constituent elements in the physical environment. These elements are characterized with a certain dimensions and a location. Depending on how the components of the physical environment are interrelated in a geographic dimension, be this at a micro, meso or macroscale, the characteristics of an area (local, district, regional) will change. Consequently, geodiversity cannot be understood without considering the spatial scale. In addition to the scientific, cultural, and aesthetic values of geodiversity, functional and economic values are also important. Thus, evaluation of geodiversity should focus on not only conservation of fossils, rare rocks and minerals, landforms and landscapes, but also on the management of mineral, non renewable energy resources, and water resources, which are essential to the development of human activities.

This study deals with the comparison of three methodologies to assess the spatial variability of Geodiversity. The methodologies applied were proposed by Serrano and Ruiz-Flaño (2007), Najwer et al. (2016), and Araujo and Pereira (2018). All of them are applied to the Subbéticas Geopark area, located in the Province of Córdoba, in southern Spain. This geopark belongs to the European and World Geopark Network since 2006. The landscape and geology of the Geopark are closely related; ridges are formed of hard limestone; valleys are created in areas underlain by softer argillaceous carbonates and other detrital sediments. The rocks, which range in age from the Jurassic to the Tertiary, were deposited approximately between 200 million years and 25 million years ago. The rocks are rich in fossils and are noted for their Mesozoic ammonites. The Geopark is internationally recognised as one of the most significant areas for the study of the evolution of this group of fossils.

The results show certain spatial and values differences in the Geodiversity. This makes evident to continue investigating on appropriate methodologies to evaluate geodiversity owing to their validities to improve management, especially, in geoparks.

### References

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