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Geodiversity, geoheritage and geoconservation for society

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Geodiversity has been defined as “the natural range (diversity) of geological (rocks, minerals, fossils), geomorphological (landforms, topography, physical processes), soil and hydrological features. It includes their assemblages, structures, systems and contributions to landscapes” [1]. Geodiversity is the abiotic equivalent of biodiversity and has been brilliantly exploited by human societies for millennia from the Stone Age and Iron Age to the Oil Age and Silicon Age. The value that nature brings to society is nowadays expressed in terms of “ecosystem services”. These are the goods and functions of natural ecosystems that “sustain and fulfil human life” [2], but this ecosystem services approach has rarely included abiotic nature. This presentation will outline about 25 ways in which society benefits from the planet’s geodiversity. In fact, geodiversity is so important to our modern society that we simply couldn’t live without it.

Geoheritage is the name given to those examples of geodiversity that are “specifically identified as having conservation significance” [3]. Because rocks, fossils, sediments, landforms, etc. all provide evidence of the long history of our planet and the evolution of life on it, it is crucial that the important sites that provide this evidence are protected for scientific research, educational purposes and to hand on to future generations. The history of the Earth is a key part of human understanding and in itself is important for society and ought to be conserved.

Geoconservation is “action taken with the intent of conserving and enhancing geological and geomorphological features, processes, sites and specimens” [4]. This presentation will explain how geodiversity is a key basis for guiding the selection and/or promotion of geoheritage sites at the international and national levels, including World Heritage Sites, Global Geoparks and National Parks. It will also identify geoconservation aims and present a classification of geoconservation methods, including site management, policy and legislative approaches, and education.

References:

- [1] Gray M (2013) *Geodiversity: valuing and conserving abiotic nature*, 2nd ed: Wiley Blackwell, UK
- [2] Daily G (1997) *Nature’s services: societal dependence on natural ecosystems*: Island Press, Washington DC
- [3] Sharples C (2002) *Concepts and principles of geoconservation*: Parks and Wildlife Service, Tasmania
- [4] Burek CV & Prosser CD (2008) In: *The History of Geoconservation*: Geol Soc London Spec Publ 300:1-5

