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Application of the Geoheritage Tool-kit for inventory-based selection of sites of geoheritage significance

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The “Geoheritage Tool-kit” involves a series of steps to enable geoheritage practitioners to systematically identify and categorise large areas and geosites for features of igneous, metamorphic, sedimentary, stratigraphic, structural, geochemical, mineralogic, palaeontologic, geomorphic, pedologic, hydrologic, and other aspects of geoheritage significance, allocate them to a conceptual category of geoheritage and a scale of reference, and assess the level of their significance. In terms of information and data collected, some parts of the “tool-kit” identify categories (nominal data and categorical data, e.g., identification of regions, or the category of geoheritage, respectively) while some are semi-quantitative (e.g., assessment of significance).

There are three levels at which the Geoheritage Tool-kit is employed: 1. geological region scale to comprehensively and exhaustively investigate and assess largely unknown areas; 2. site-specific or area-specific scale to systematically compile and assess the geological essentials within an already known geological framework; and 3. application to any area with known geoheritage features to refine previous assessments. The method or steps of the Geoheritage tool-kit, whether applied or region-wide, or area-specifically, or site-specifically are: Step 1 - identify the geological region and environmental setting in which an area, a site, or a feature occurs; Step 2 - compile a list (or inventory) of features that characterise, or are peculiar to, or that are the essence of the area; Step 3 - allocate each of the components of the list, or ensembles of the components (developed at Step 2) to a conceptual category of geoheritage (viz. reference or type section; culturally important site; geohistorical site; or area of active modern processes); Step 4 - allocate the geologic features in the list to a specific scalar frame of reference; Step 5 – semi-quantitatively assess the level of geoheritage significance; and Step 6 - determine what type and what level of geoconservation the site or area requires.