

Publication

A global inventory of mountains for bio-geographical applications

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4220289

Author(s) Körner, Christian; Jetz, Walter; Paulsen, Jens; Payne, D.; Rudmann-Maurer, Katrin; Spehn, Eva M.

Author(s) at UniBasel [Körner, Christian](#) ; [Paulsen, Jens](#) ;

Year 2017

Title A global inventory of mountains for bio-geographical applications

Journal Alpine Botany

Volume 127

Number 1

Pages / Article-Number 1-15

Mountains are hotspots of biodiversity. Yet, evaluating their importance in global biodiversity inventories requires the adoption of a pertinent definition of mountains. Here, we first compare the well-established WCMC and GMBA definitions, which both use geographical information systems. We show that the WCMC approach arrives at twice the global mountain area and much higher human population numbers than the GMBA one, which is explained by the inclusion of (mostly) low latitude hill country below 600 m elevation. We then present an inventory of the world's mountains based on the GMBA definition. In this inventory, each of the 1003 entries corresponds to a polygon drawn around a mountain or a mountain range and includes the name of the delineated object, the area of mountainous terrain it covers stratified into different bioclimatic belts (all at 2.5'' resolution), and demographic information. Taken together, the 1003 polygons cover 13.8 Mio km² of mountain terrain, of which 3.3 Mio km² are in the alpine and nival belts. This corresponds to 83.7% of the global mountain area sensu GMBA, and 94% of the alpine/nival area. The 386 Mio people inhabiting mountainous terrain within polygons represent 75% of the people globally inhabiting mountains sensu GMBA. This inventory offers a robust framework for the integration of mountain biota in regional and larger scale biodiversity assessments, for biogeography, bioclimatology, macroecology, and conservation research, and for the exploration of a multitude of socio-ecological and climate change-related research questions in mountain biota, including the potential pressure on alpine ecosystems.

Publisher Springer

ISSN/ISBN 1664-2201 ; 1664-221X

edoc-URL <http://edoc.unibas.ch/59097/>

Full Text on edoc Available;

Digital Object Identifier DOI 10.1007/s00035-016-0182-6

ISI-Number WOS:000398467800001

Document type (ISI) Article