

More new species in geologically dynamic region

February 28 2013

Mountain formation stimulates increased biodiversity. This is what Carina Hoorn of the University of Amsterdam (UvA) and colleagues from the Senckenberg (Germany) and Gothenburg Botanical Garden (Sweden) propose in a *Correspondence* to the scientific journal *Nature Geoscience*.

It is often thought that a long-term stable environment lead to [species richness](#) and, therefore, greater biodiversity. It now appears that geologically dynamic regions actually play a major role in the increase of biodiversity. The authors have come to this conclusion based on their own research and literature on, among other things, the Andes-[Amazon region](#).

The scientists argue that young mountain ranges such as the Andes, Himalayas and the Zagros (in Iraq and Iran) have caused large-scale landscape and climatic changes in the last 10 million years. In this way, many new habitats have been formed that were beneficial for the development of new species. The newly created corridors stimulated species exchange, while at the same time acting as barriers and separate populations (as a result of which new species could subsequently arise).

The effects of mountain formation and related climate changes have been felt far beyond the mountain ranges. New river systems followed the changes in relief or shifted their course. Such large-scale changes stretched to the coast and the [continental shelf](#) where the eroded sediments of the mountains accumulated in [river deltas](#) and marine

systems. Mountain building thus also drastically affected the marine-biological development.

New data, better understanding

Although the relationship between biodiversity and mountain formation has been documented previously, Hoorn and colleagues propose that the application of new [analytical techniques](#) can more accurately determine the timing of speciation and their relation to tectonics.

New geological techniques can better quantify timing of uplift and paleoaltitudes leading to greater insight into the formation mountain ranges. From a molecular-biological perspective, the evolution of plant and animal material can now be mapped out more accurately; in combination with paleontological data, the timing of biological evolution has become much more transparent.

The scientists take the interaction between the Andes and Amazon as an example. However, this model is also applicable to other young mountain ranges as new data becomes available.

More information: Hoorn, C. et al. Biodiversity from mountain building. *Nature Geoscience* (vol 6, March 2013).

Provided by Universiteit van Amsterdam

Citation: More new species in geologically dynamic region (2013, February 28) retrieved 24 June 2024 from <https://phys.org/news/2013-02-species-geologically-dynamic-region.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is

provided for information purposes only.