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THE “HIDDEN” GEODIVERSITY IN THE TRADITIONAL APPROACHES ON ECOSYSTEM SERVICES: AN OVERVIEW

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ABSTRACT:

Ecosystem services are the goods and services provided to society by nature. Traditional approaches focus on biotic elements and only recently has the role of geodiversity started to be discussed. However, even when not named, abiotic elements are the focus of much research. This study intends to detect which and how these elements have been approached, to demonstrate the relevance of geodiversity in research on ecosystem services.

The following methods were used: 1) Initial search with papers written in English and published in scientific journals and use of the keyword “Ecosystem Services” added to specific terms: Abiotic; Rocks; Lowland + Sediment; Mangrove + Sediment; Beach + Sand; Beach + Sediment; Groundwater; Fossil; Mineral; Geomorphology; 2) systematization of the data based on the Essential Geodiversity Variables (EGVs); 3) Final selection that abstracts to identify articles that focus on elements of geodiversity and exclusion of articles that contain the term “geodiversity” and that do not use qualitative or quantitative methods.

As a result, it is noted that the articles were published after the 2000s - initial search (397) and final selection (154 - 39%), with a significant increase after 2010, with an average of 14.3 published articles/year. When classifying articles according to EGVs, there are: Geology - hardrock, fossil & mineral (25%); un-consolidated deposits (18%); geophysical processes (1%); Geomorphology - landform distribution (15%); Solo - chemistry (6%); physical state (3%); Hydrology - surface water (14%); groundwater (18%). Research using the term “geodiversity” (2.3%) only appears after 2010.

These results show that, although specific research on the role of geodiversity is still incipient, several abiotic elements have been focused on studies on ecosystem services. The EGV with the highest percentage (25%) is “hardrock, fossil & mineral” as this variable embraces most of the elements of geodiversity (rocks, minerals and fossils). Systematization according to EGVs is important because it can guide future research that aims to understand the ecosystem services provided by geodiversity, as well as to value their losses. Although much research on ecosystem services does not address the abiotic part of nature, this scenario has changed because, without the contribution of geodiversity, many of the ecosystem services would not exist, since the ecosystem develops by the interaction between biotic and abiotic elements.