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Title

First approach to review Badlands landscape evolution in Quaternary

Abstract

Badlands are defined with different criteria: lithological conditions, weathering processes, landform features, agriculture potentiality, and even the difficulty of being crossed by humans (Martínez-Murillo and Nadal-Romero, 2018). The term “badlands” refers to regions that have soft and poorly consolidated material outcrops, limited vegetation, reduced or no human activity, and a wide range of geomorphic processes, such as weathering, erosion, landslides, and piping. These features interact at different spatial and temporal scales to shape these distinct landforms. According to Moreno-De las Heras and Gallart (2018), three general badland initiation patterns can be distinguished: i) first two patterns correspond to the expansion of hillslope gullies initiated at mid-slope sections, caused by within-slope conditions, or at the slope bottom, through a combination of within-slope and basal conditions; ii) the third one to the disruption of a non-channelized hillslope by mass movements that open a bare soil or rock scar to weathering and water erosion. The analysis of these phenomena is particularly relevant in subhumid and humid badlands, where these landforms are relatively small and young, which means that their initiation can be physically examined. Conversely, in semi-arid and arid areas, badlands are usually very extensive and relatively old, so that their initiation factors are frequently obscured by the action of other drivers that control the long-term evolution of these systems.

This study makes a first approach to review already published studies focussed on the Quaternary and landscape evolution in regions with Badlands, giving special attention to the geomorphic process leading to their origin and evolution. A list of publications in these topics was compiled using Scopus, ScienceDirect, and Google Scholar. At this first stage, the searches were conducted using the following codes: “Badlands” AND “Quaternary”, “Badlands” AND “Landscape evolution”, “Badlands” AND “Holocene”, “Badlands” AND “Pleistocene”, “Badlands” AND “Quaternary”, and “Badlands” AND “Anthropocene”. In total, the results showed 67, 52, 79,



geomorphological system and human activities.

References

Moreno-De las Heras, M., Gallart, F. 2018. The origin of badlands. In: E. Nadal-Romero, J.F. Martínez-Murillo, N. Kuhn, Badlands Dynamics in the Context of Global Change. Elsevier, Amsterdam, pp. 27-60.

Martínez-Murillo, J.F., Nadal-Romero, E. 2018. Perspectives on Badland Studies in the Context of Global Change. In: E. Nadal-Romero, J.F. Martínez-Murillo, N. Kuhn, Badlands Dynamics in the Context of Global Change. Elsevier, Amsterdam, pp. 1-26.

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I confirm that the presenting author will register to attend and present the paper at the Congress by April 29th 2019.

Career Stage

Established researcher

Details of career stage

Gender

Male

Supporting material

GDPR statement

Yes

No