

Evidence for the Presence of Quaternary Loess-Derived Soils in the Burren Karstic Area, Western Ireland.

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Abstract

Quaternary loess-derived soils are found in many mid-latitude countries. Extensive loess deposits have not been described from Ireland except in unpublished reports of possible loessic soils ("stone-free drift") on karstic terrain in the Burren, Co. Clare. The objective of this study is to verify or discount the presence of loess-derived soils in the Burren. Data on particle size, mineralogy and bulk geochemistry are presented for 14 soil samples from 12 sites, including 6 from areas which unpublished studies had identified (in map form) as covered by stone free drift. Most samples comprise silty clay soils (up to 58% silt) with low carbonate contents and low organic carbon contents. With regard to the carbonate-poor samples, XRD and XRF analyses enabled two groups to be distinguished. Group A soils show characteristics consistent with weathered till, while Group B soils show characteristics consistent with weathered loess. All sites falling within areas mapped as possible loess in previous studies provided samples which were assigned to group B. while group A soils were mapped as till or rendzina. Samples from two sites previously mapped as loess, which are relatively rich in silica and silt-sized particles, are the strongest candidates for being largely of loessic origin. These findings strongly support the view that scattered, weathered, aeolian deposits are found in upland karstic sites within the Burren. but further work is needed to confirm their extent.