



Wild boars as geomorphologic agent: a conceptual framework

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The wild boar (*Sus scrofa*) is the most responsible of soil degradation in Europe among the main invasive species. At the same time, the stable presence of this species in agricultural areas has induced a conflict with human causing economic losses and environmental degradation, as well as social issues. A clear quantification of the potential damages (in term of soil bioturbation) of this species at large scale is still unknown. The purpose of our research is to delineate a conceptual framework on the role of wild boar as geomorphologic agent. Firstly, different wild boar's damages type are presented and their interaction with hydro-geomorphological processes described. Then, a case study is proposed on mapping and quantifying of wild boar damages in an agricultural hilly landscape located in northeast Italy. The wild boar damages were geolocalized through GPS in two years of field campaign among agricultural fields interested by wild boars' damaging activities. For each interested area several measures of soil erosion depth were taken and the surface involved in degradatation processes was mapped. The volume of removed soil was then estimated considering the average depth of damages previously recorded. Finally, the Connectivity Index was applied in order to classify the considered damages based on their connection to both river and road network. The results indicate that the ongoing uncontrolled wild boars expansion may not affect only crops or be a risk for people, but can also result in an increasing of soil erosion, with potential connection to the hydrographic networks and human infrastructures.