Doomed to collapse: Why Algerian steppe rangelands are overgrazed and some lessons to help land-use transitions

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This work illustrates the application of a simulation model to analyse how swiftly large-scale land-use changes can drive broad territories to collapse. In this sense, the economic needs of a population should not clash with the natural environment but rather be reconciled with it. Abundant literature deals with the integration of socioeconomic drivers, ecological aspects, farming management, and climatology related to Algerian rangeland degradation. The present study seeks to compare the time course of Alfa grass biomass and the livestock raised on these distinctive rangelands under two different land-use strategies. The traditional one has nomads as the main inhabitants of these lands. For centuries, their strategy for alleviating pressure on resources was to move from one area to other. The more recent sedentary land-use leads to overgrazing supported by the massive use of cheap supplemental feed. Additionally, the model was used as a platform to launch scenarios for sustainable land-use management under a competitive market-economy. A key finding for preserving grazing resources was the increment of supplemental feed prices, which is compatible with stocking rates higher than the historical ones. © 2017 Elsevier B.V.

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