



Coevolution of Semiarid Hillslopes in Response to Alternative Management Strategies

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We study the coevolution of landforms, vegetation and soils in semiarid areas with sparse vegetation cover composed by mixed herbaceous and woody plant species. The vegetation is subject to competition and facilitation interactions. Shifts in vegetation structure resulting from human pressures and management strategies that alter the hydrologic response of the hillslopes, can have very diverse impacts on ecosystem functioning. We analyse results from a spatial ecogeomorphologic model that simulates the dynamics of runoff redistribution and erosion for hillslopes with patterned vegetation in Australia. We investigate the effects of shrub clearing strategies for plant species with varying competition and facilitation mechanisms, and the implications for the productivity of Australian rangelands.