

Developing an iterative and multi-scale landscape modelling approach for ecosystem services

Castellazzi, Marie S; Brown, Iain; Gimona, Alessandro; Poggio, Laura

Macaulay Land Use Research Institute, Craigiebuckler, Aberdeen, AB15 8QH
m.castellazzi@macaulay.ac.uk

Ecosystem-based approach (EBA) needs to integrate i) multiple scales, from parcels to regional landscapes, ii) flexible method for adaptive response and iii) stakeholders participation. Understanding complex inter-relationships between ecosystem functions and their services requires land use scenarios. We propose an iterative approach, which is multi-scale and user focused based upon the LandSFACTS toolkit to generate the required land use change scenarios. Scenarios are generated based upon spatio-temporal constraints on land uses, which are adaptable to the user's requirements. The complexity of the scenarios and knowledge of ecosystem services evaluated is refined iteratively with stakeholders. An example is presented on the development of scenarios of land use changes through EBA (e.g. food security, carbon sequestration, woodland habitat network) based on the integration of three scales (Tarland sub-catchment, Dee catchment and Grampian region in Scotland, UK).