



## **Modelling and integration of soil functions in Scotland using Spatialized BBN**

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Soil plays a crucial role in the ecosystem functioning and the modelling of their contributions is fundamental especially in the context of climate change. In this work we present an approach to assess and map the multiple contributions of soil to the delivery of ecosystem services. In this work we integrated continuous 3D soil information derived from digital soil mapping approaches covering the whole of mainland Scotland, excluding the Northern Islands. In particular, we focussed on the modelling of soil impact on erosion and carbon sequestration. Spatialised Bayesian Belief networks were used for the definition, assessment and mapping of soil contribution to multiple ecosystem services, integrating information from different sources. The uncertainty was accounted and propagated across the whole process. The results show the importance of the integration between the different ecosystem compartments and the contribution of soils to the ecosystem service delivery. The Scottish test case is particularly important to highlight the differences in roles between mineral and organic soils.