D12.2 Science-based trade-off and synergy evaluation of hotspots and problem spots in future ESS supply

D12.2 present the scientific assessment of synergies and trade-offs between ecosystem services under the VOLANTE scenarios and policy alternatives using model outputs from WP7 and WP11. Ecosystem services were calculated using the models presented in Deliverable D 8.1 and their changes assessed as compared to the 2010 baseline values presented in D 8.2. Synergies and trade-offs were assessed using the so-called ‘scientific’ methods developed in deliverables 8.2, 8.3 and 12.1, aiming to identify hotspots in individual services and repeatable associations among ecosystem services, known as ecosystem service bundles.

Our results reveal that different ES may respond very differently to scenarios. In addition, we also found that for some ES (e.g. fire moderation or food-feed-fibre) policy alternatives may significantly modulate the response of ES supply to marker scenarios. Predicted bundles are rather close to the current bundles. However the A2 marker scenario may entail a more distinct segregation of services between forests and other types of land cover. That might arise from a lighter regulation of land use that would result on a higher conversion of semi-natural areas into arable lands or pasture.

The consequences of transitions in land use may be tough to disentangle as ES supply may also respond to other pressures (e.g. climate that is not straightforwardly addressed in VPA). Overall, our analyses demonstrate that expected trends in ES supply are not always met (e.g. fire moderation). Pollination, biocontrol of pests, deadwood, outdoor recreation and flood regulation either responded as expected or proved to be insensitive to marker scenarios and/or policy alternatives.