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Abstract. To be able to map future natural areas and value selected ecosystem services from these on the basis of existing environmental economics research in Denmark this paper presents an example in the case of Haderslev Municipality. More specifically, the focus is on quantifying consequences when implementing a large interconnected network of natural areas in the case area; a network that potentially can form part of a future national nature network. Where applicable, accurate and local knowledge on the scope and value of ecosystem services are used; where not, more generic approaches (i.e. data and models from national or international studies) as well as available research based knowledge on ecosystem services are used. The paper covers and quantifies relevant ecosystem services in Haderslev Municipality and illustrates their potential application in evaluating and ranking conservation measures at local level and also when establishing a national nature network towards 2050. Based on a number of scenario analyses, results are presented on how the size of welfare economic costs relates to various area selections to the nature network and to the quality of nature in the given selection – expressed through the High Nature Value Farming (HNV) Index. We also present an evaluation of a number of welfare economic benefits from selected ecosystem services. As an example, a selection of 11 % of agricultural and forested land in the case area to nature purposes (8.955 hectares) will realize half the HNV potential in the case area and also contain a considerate number of focus areas for recreation and water supply. A selection of this size would mean forgone production values equivalent to a welfare economic value of about 18-21m DKK/annum. We have conducted valuation of the effects on CO_2 sequestration, reductions in nitrogen application, certain elements of landscape values and enhanced hunting possibilities. These benefits add up to a welfare economic value of 6-9m DKK/annum. Bottom line is a welfare economic cost of 12-13m DKK/annum which is to be aligned with environmental effects not yet valued economically in the case area. This in particular is the value of biodiversity, which at present only is presented by the HNV Index, but also further recreational opportunities including tourism as well as interests regarding water for consumption. The latter two are also solely presented qualitatively in the analysis. On top of this comes other possible effects on climate, nutrients (such as phosphorus) when converting agricultural land into natural areas, improved hunting access through larger game populations, fewer issues related to smell, and other local effects. Synergies within these benefits are uncovered and trade-offs between them are likewise presented to illustrate effects of conflicting interest when implementing measures. In doing this the importance of an eventual political stance incorporated into the model can be shown. The paper discusses both the natural and social scientific challenges and evaluates the outline and the applied models applicability's to transfer into a mapping of the value of ecosystem services in the country proper. In this way, the paper contributes in sketching the use of methods in a welfare economic evaluation and ranking of conservation measures related to Nature Plan Denmark, including the prospect of a national nature network towards 2050. The paper also shows examples of potentials in the mapping and valuation of ecosystems and ecosystem services in current demand in the contemporary mapping by the EU (Mapping and Assessment of Ecosystem Services -MAES).