

TERRESTRIAL, COASTAL AND MARINE ECOSYSTEM SERVICE MATRIX

by

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Relevant projects:

BACOSA II & SECOS Synthese

Abstract

This research item is a revised and enlarged version of a qualitative assessment matrix for the appraisal of ecosystem service potentials. The product is a simple tool for scoring landscape and seascape types with respect to their abilities to provide provisioning, regulating and cultural ecosystem services as well as indicators of ecosystem state by applying criteria of ecosystem integrity.

Documentation

The ecosystem services matrix is based on a development series that was launched in 2008 and consistently improved and expanded in stages (cf. Burkhard et al. 2009, 2012, 2014, Stoll et al. 2015, Burkhard 2017). Most recently, it was subjected to a test by more than 50 experts in 2018. The resulting matrix consists of a list of 6 integrity parameters, 14 services, 11 regulatory services, and 6 cultural ecosystem services on the vertical axis. On the horizontal axis, there are 42 different ecosystem types. Terrestrial ecosystem types correspond to the CORINE-Land Cover classification of the EU. The ecosystem types in the coastal and marine area originate from a grouping by the KüNO projects SECOS and BACOSA, which has been based upon the established classification schemes of the Water Framework Directive and Natura2000.

For each intersection or field in the matrix, the question was asked: "What is the potential of ecosystem type (X) to provide contributions to ecosystem service (Y)?" The assessment was carried out on a total scale of ecosystem service potential points between 0 (absolutely no service potential) and 100 (optimal service potential), whereby in the present general matrix version a restriction was made to the assessment range between 5 and 90 in order to be able to consider possible alternatives with more extreme profiles in more detailed investigations. For example, the CORINE land cover type "non-irrigated arable land" covers almost all arable systems in northern Germany. For more precise statements, however, it often makes sense to work out a further differentiation e.g. according to crops (e.g. maize, wheat, potatoes ...), as these produce very different yields. In this case, values above the general value of 90 could occur for crop production potential. The matrix allows for an application across study areas, nationally and internationally and also supports simplification and optimization of ecosystem service aggregation.

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