

Appendix 1.

Table 1.1 The list of databases used in the MAES-HU EC mapping

Dataset	Details	ET	Spatial unit	Reference
The Ecosystem Map of Hungary	All calculations involving ecosystem types	All	20 m cell	Tanács and Belényesi et al. 2021
Hungarian Land Parcel Identification Scheme (LPIS) - 2015 and 2016	Mapping units	Arable land and grasslands	Block	Naszádos et al. 2017
				Csonka et al. 2011
Beneficiaries' Declarations (BD) - 2016	Calculation of grassland and arable land indicators	Arable land and grasslands	Block	Source: National Centre of Land Management
National Forestry Database (NFD) - 2015	Tree stand characteristics on composition and structure	Forests	Forest subcompartment (3,5 ha on average, ranging from 0,5 ha to over 30 ha)	Tobisch and Kottek 2013
Multiple Potential Natural Vegetation database of Hungary (MPNV)	Calculation of the departure of the potential from the actual vegetation	Grasslands and wetlands	35-ha hexagons	Somodi et al. 2012, 2017, 2021
Copernicus High Resolution Layer (HRL), Water and Wetness Probability Index (WWPI) - 2015	Indicator	Grasslands and wetlands	20 m cell	Langanke 2016
Soil productivity	To describe soil fertility (map made on the basis of expert scoring)	Soils	100 m cell	Várallyai et al. 1985, Pásztor et al. 2010, Pásztor et al. 2013, Pásztor et al. 2017
Open Street Map (OSM)*	Roads	Grasslands and wetlands	-	https://www.openstreetmap.org/
Habitat maps of Natura 2000 sites and from the Hungarian Biodiversity Monitoring System (NBmR) - 2008-2018	Training data for the CART classifier; validation	Grasslands	Habitat patch	Török and Fodor 2006
				Takács and Molnár 2009
				Source: the Ministry of Agriculture
Boundary of Natura2000 areas and Protected Areas - 2019	Calculation of the proportion of Natura 2000 areas within the main ecosystem types	All	Natura 2000 and Protected Area polygons	Source: the Ministry of Agriculture
CORINE Land Cover improved state layers 2000, 2006, 2012, 2018	Calculation of temporal changes (e.g. land take, grassland loss)	Agricultural areas, grasslands, forests	25-ha minimal mapping unit	Büttner 2014

Settlement boundary database of Hungary - 2019	Calculation of the proportion of green areas within settlements	Urban	Settlement polygons	Source: Lechner Knowledge Centre
Surface water database - 2019	Calculation of presence of / distance from surface waters	Grasslands and wetlands	-	Source: the General Directorate of Water Management
Pan-European Grid - 2019	Spatial units for the calculation of some landscape-level indicators	All	1-km grid	Source: Lechner Knowledge Centre
MAP database from BirdLife Hungary - 2014-2018	Biodiversity indicator based on the presence-absence of bird species	Agricultural areas, grasslands, wetlands and forests	2,5 x 2,5km grid	Szép et al. 2021

Short description of the most important datasets used for the EC mapping in MAES-HU

The multiple potential natural vegetation (MPNV) database of Hungary contains the occurrence probabilities of individual vegetation types using a five-class ordinal scale from 0 to 4, where the highest value (rank) represents the highest probability of occurrence. The habitats are defined according to the Á-NÉR habitat category system (Bölöni et al. 2011) and the spatial units are 35-ha hexagons (Somodi et al. 2017).

The database of bird observations contains data in a 2,5x2,5 km grid collected by volunteers according to a predefined method (Szép et al 2021). The version obtained for the project includes the list of observed bird species for each year between 2014 and 2018, the nesting probability code for each species (providing information on how the observed individuals of the species were behaving), and the overall duration of observation.

Habitat maps including condition information (recently created by field surveys) were used for comparison with the results, and in one case as training data. The maps use the modified Németh-Seregélyes naturalness (mNSN, Bölöni et al. 2008), a single synthetic value based on expert decision considering compositional, structural and landscape characteristics. There are five categories from totally degraded (1) to natural or close to natural state (5). The maps were provided by the Department of Nature Conservation (Ministry of Agriculture) and were in part created in the frames of the Hungarian Biodiversity Monitoring System (NBmR - Török and Fodor 2006).

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*Data referred to as OSM copyrighted OpenStreetMap contributors and available from <https://www.openstreetmap.org>