



**Paper**

# **Ecosystem Unit map, product description**

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# 1. Introduction

Natural capital consist of an inventory of natural resources like soils, forests, water and biodiversity. These resources are considered to give several advantages and benefits on economics and humanity. Benefits which are measurable by, among other, explicit definition of distinct ecosystems.

The composite Ecosystem Unit map will show a division of the ecosystems of the Netherlands.

Nationwide available map data and national registries were used. Only minor manual gathering was applied. This document describes the sources for the Ecosystem Unit map and how the process has come to this composition.

## 2. Maps and registers applied

The six main units of the map;

- Agriculture,
- dunes and beaches,
- forests and other (semi)natural environments,
- temporarily inundated land,
- built up and paved areas
- water

are divided into 31 key units (paragraph 4).

The legend units are derived from the available sources that are described in the following table.

In compiling the 2006 version a number of registers were not available, compared to the 2013 version. Thus alternative sources were used.

### 2.1 Data sources in composing the EU map 2006 and 2013

Data source	Owner	Version 2006	Version 2013
Digital Cadastral map	Cadastre	2004	1 Jan. 2013
Crop plots (BRP)	Netherlands Enterprise Agency	May 2006	May 2012
Statistics Netherlands Regiobase	Statistics Netherlands	1 Jan–31 Dec 2006	1 Jan–31 Dec 2012
Statistics Netherlands Dwelling register (WRG)	Statistics Netherlands	1 Jan 2006	–
Statistics Netherlands Addresses Geographical Base register (GBR)	Statistics Netherlands	Jan 2006	–
Coupling Object-ID and coordinate	Statistics Netherlands	1998–2016	–
Base register Addresses en Buildings (BAG)	Dutch Communities	–	1 Jan 2013
Base register Topography / Top10vector (BRT/Top10vector)	Cadastre	2003–2007	2011–2012
Statistics Netherlands Land Use map (BBG)	Statistics Netherlands	2006	2010
Boundary dunes		Natura2000	Natura2000
Ecological network	PBL; Netherland Environmental Assessment Agency	Nota Ruimte	SVIR
Boundary riverbed	PBL; Netherland Environmental Assessment Agency	BARRO 2011	BARRO 2011

## 3. Method applied to distract key units

In deriving a single EU symbol per unit area several nationwide maps were overlapped in a staged approach.

At first regions of the Ecosystem unit map are initially divided into water and land.

Within the land the allocation of the crop plot units will be applied. Thus the remaining land will be divided into paved and unpaved areas.

### 3.1 Water

The water area is aggregated from the accumulation of water and tidal lands according to Base register Topography.

### 3.2 Crop plot map

Area within the crop plot area map(BRP) is designated as unpaved area first with an accompanying EU-code. The remaining area is divided into paved areas and unpaved areas.

### 3.3 Paved area

Paved area is divided using the following sequence:

1. Definition of paved area starts from the collection of cadastral parcels where using the Base register Addresses and Buildings and Regiobase, the business establishments register of Statistics Netherlands.  
Regiobase contains a company code according to the Standard Industrial Classification. The SIC is coupled to Cadastral parcels by providing the addresses of different branch offices of Regiobase with an x- and y-coordinate and to project it on the Cadastral parcel surfaces. In coupling the addresses the relationship between the historical Object number with coordinates and addresses from the Base Addresses or the Geographic Base Register is applied. Larger Cadastral parcels are split up by roads and waterways.
2. Residential use is applied to Cadastral parcels by coupling the function in the Base register Addresses and Buildings in 2013 and the addresses of the Geographical Base Register and Dwelling Register in 2006.
3. Plots of up to 2 hectares or plots with 25% or more of the area covered by residential buildings and/or businesses are considered paved area.
4. Cadastral parcels containing only residential use are characterized as a residential area.
5. Cadastral parcels with several buildings containing as well residential function as a business function according to the Standard Industrial Classification are assigned the business function.
6. Greenhouses, according to the Topographical map.
7. Streets and roads according to the Topographical map.

8. Remaining paved terrain according to the topographical map and located within the Land Use main groups; traffic area, built-up area, semi-built-up area or recreation area is allocated to the units of paved area. These are often parks or linear shaped plots within residential and commercial areas where no buildings or residential or SIC business function can be linked to the Cadastral parcels.

### 3.4 Unpaved area

1. All terrain within the Crop plots (BRP) has already been classified as unpaved terrain.
2. Where no BRP parcel is present areas not classified as paved area are classified according to one of the units of unpaved terrain of the Topographical map.
3. Unpaved terrain (Topographical map) is classified as unpaved area when belonging to one of the Land Use main groups; traffic area, built-up areas or semi-cultivated land with the exception of 'Cemeteries'.
4. Unpaved terrain within the Land Use legend unit 'Cemetery' is assigned 'Public green space'.
5. Area belonging to Land Use legend unit 'Wet natural terrain' is assigned 'Freshwater wetlands'.
6. Grassland located inside boundaries of the Ecological Network is interpreted as 'Semi natural grassland'.

### 3.5 Dunes, salt marshes and floodplains

The legend of this map contains some location based functions like 'Dunes', 'Beach' or 'River flood basin'.

These areas are distinguished separately, in addition to their type of paved or unpaved area.

To distinguish dunes and beaches the NATURA2000 map is applied. Missing parts of the NATURA2000 map located on the seaside area interpreted manually.

Temporarily inundated lands are delineated by the boundary of the riverbed demarcated by BARRO 2011 and the NATURA2000 map, this included also the floodplains in the IJsselmeer.

## 4. Legend Ecosystem Unit map

De item EUcode1 contains a generic allocation according to the schema of water, paved and unpaved terrain.

The item EUcode2 contains a location code.

## 4.1 Ecosystem unit legend

Highest level of legend	Highest level map	EU code1	EU code2
<b>Agriculture</b>	Non-perennial plants	1	
	Perennial plants	2	
	Greenhouses	3	
	Meadows (grazing)	4	
	Bushes and hedges bordering fields	5	
	Farmyards and barns	6	
<b>Dunes and beaches</b>	Dunes with permanent vegetation		11
	Active coastal dunes		12
	Beach		13
<b>Forests and other (semi) natural, environments incl. unpaved terrain</b>	Deciduous forest	21	
	Coniferous forest	22	
	Mixed forest	23	
	Heath land	24	
	Inland dunes	25	
	Fresh water wetland	26	
	(semi) Natural grassland	27	
	Public green space	28	
	Other unpaved terrain	29	
	<b>Temporarily inundated lands</b>	River flood basin	
Salt marsh			32
<b>Built up and paved areas</b>	Residential area	41	
	Industry: offices and businesses	42	
	Services: offices and businesses	43	
	Public administration: offices and businesses	44	
	Roads, parking lots, runways, other	45	
	Forestry: offices and businesses	46	
	Fishery: offices and businesses	47	
	Non-commercial services: offices and businesses	48	
<b>Water</b>	Sea	51	
	Lakes and ponds	52	
	Rivers and streams	53	

## 5. Appendix

Statistics Netherlands Land Use map (Bestand Bodemgebruik), CBS.

2010: <https://www.pdok.nl/nl/producten/pdok-downloads/atomfeeds/c>

2006: to be obtained via <https://www.cbs.nl/nl-nl/dossier/nederland-regionaal/geografische%20data/natuur%20en%20milieu/bestand-bodemgebruik>

Crop plots (Basisregistratie Percelen), Netherlands Enterprise Agency, Ministry of Economic Affairs (voormalig Dienst Regelingen, Min. van EZ).

<https://www.pdok.nl/nl/producten/pdok-downloads/atomfeeds/b>

Ecological Network (uit Monitor Nota Ruimte 3), Netherland Environmental Assessment Agency (Planbureau voor de Leefomgeving)

<http://www.clo.nl/indicatoren/nl205003-bouwen-in-natuurgebieden-in-de-ecologische-hoofdstructuur>

Ecological Network (Structuurvisie Infrastructuur en Ruimte), Netherland Environmental Assessment Agency (Planbureau voor de Leefomgeving).  
<http://www.clo.nl/indicatoren/nl2050-bouwen-in-natuurgebieden-in-de-ecologische-hoofdstructuur>

Natura2000, Ministry of Economic Affairs (Min. van EZ).  
<http://inspiredatagids.nl/beschermde-gebieden/natura2000>

Riverbed larger rivers (BARRO 2011), Ministry of Infrastructure and the Environment (Min van IenM).  
<http://www.clo.nl/indicatoren/nl2042-ruimtelijke-ontwikkelingen-in-het-rivierbed-van-grote-rivieren>

## Explanation of figures

Empty cell	Figure not applicable
.	Figure is unknown, insufficiently reliable or confidential
*	Provisional figure
**	Revised provisional figure
2016–2017	2016 to 2017 inclusive
2016/2017	Average for 2016 to 2017 inclusive
2016/'17	Crop year, financial year, school year, etc., beginning in 2016 and ending in 2017
2014/'15–2016/'17	Crop year, financial year, etc., 2014/'15 to 2016/'17 inclusive

Due to rounding, some totals may not correspond to the sum of the separate figures.

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