

LA VALUTAZIONE DEI SERVIZI ECOSISTEMICI DEL SUOLO A SCALA NAZIONALE

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Il suolo è una risorsa a rischio

- fondamentale per la sopravvivenza degli esseri viventi
- limitata
- sostanzialmente non rinnovabile



1 pianeta
7,5 miliardi
di persone

**CONSUMO = variazione
da una copertura non
artificiale a una copertura
artificiale del suolo**

SNPA produce ogni anno la
cartografia aggiornata
liberamente accessibile
attraverso la classificazione di
immagini satellitari
del [programma Copernicus](#).

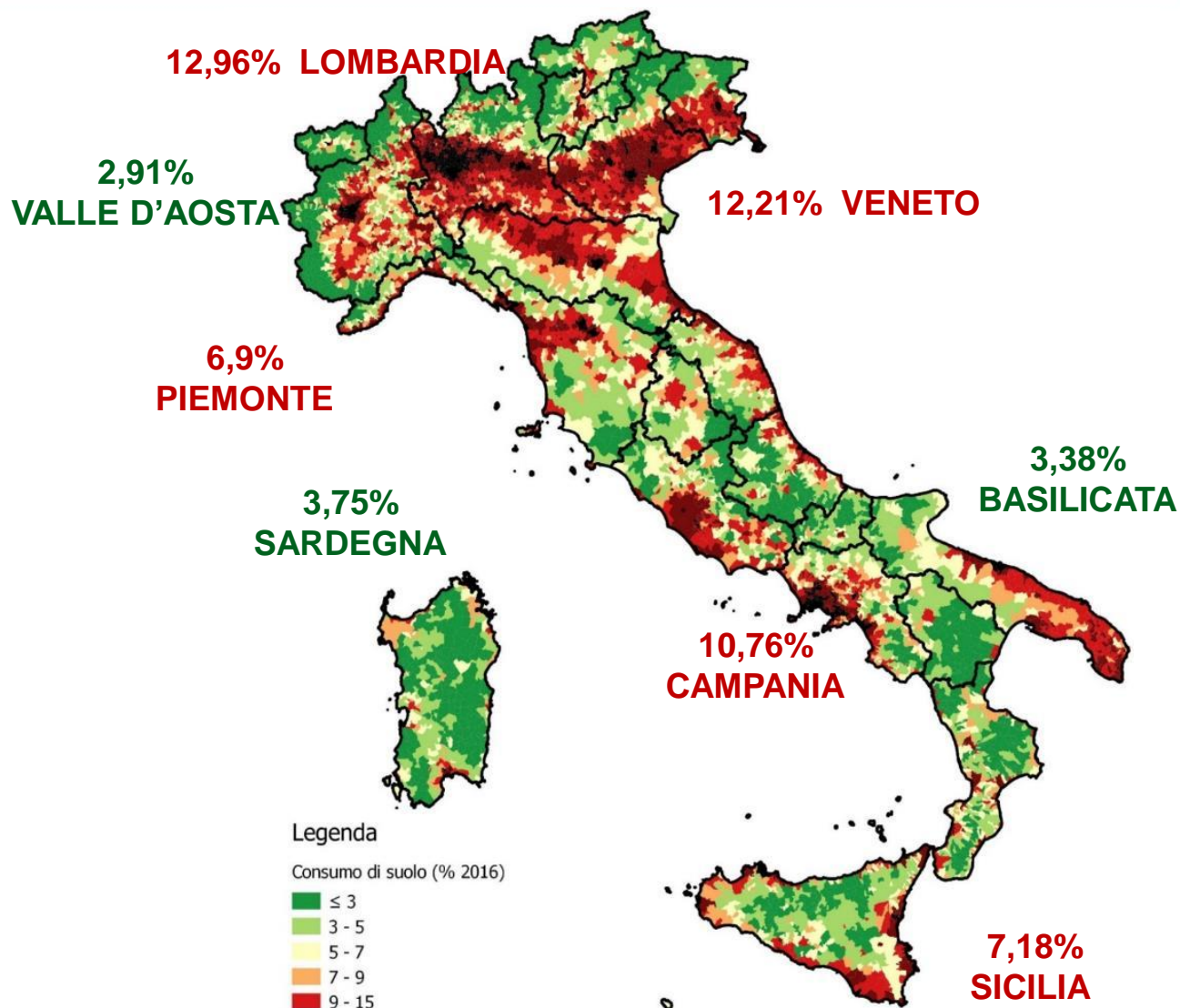
**IL CONSUMO DI SUOLO È LA PRINCIPALE
PRESSIONE AMBIENTALE NEI PIANI
TERRITORIALI E LOCALI**



**Suolo consumato
in % rispetto alla
superficie
amministrativa
(dati 2016)**

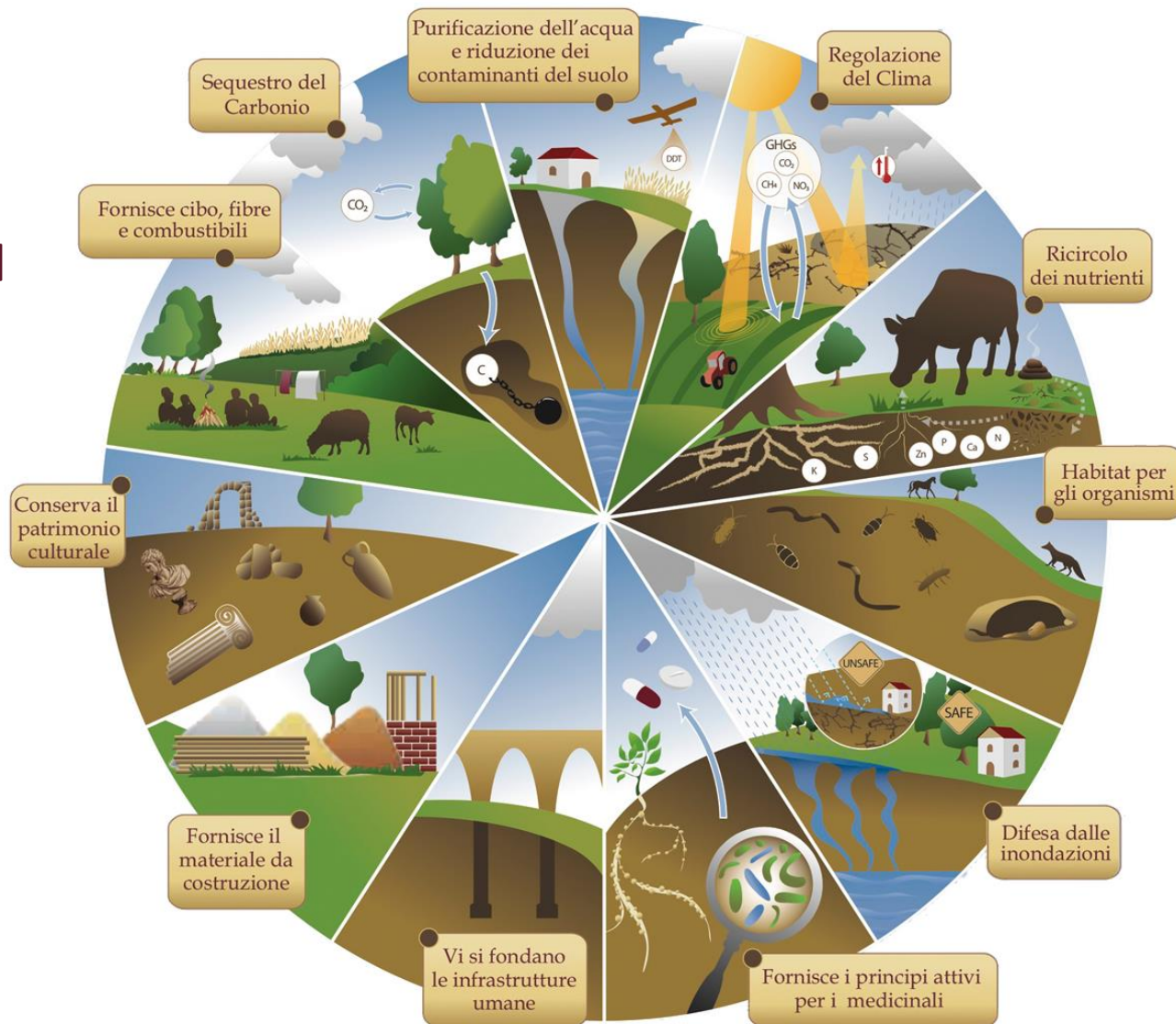
7.64%
**IL CONSUMO DI
SUOLO IN ITALIA**

23039
**CHILOMETRI
QUADRATI (2016)**



FUNZIONI E SERVIZI ECOSISTEMICI DEL SUOLO

SAM4CP NE
HA
CONSIDERATI
7



Legenda

Carta Copertura del Suolo

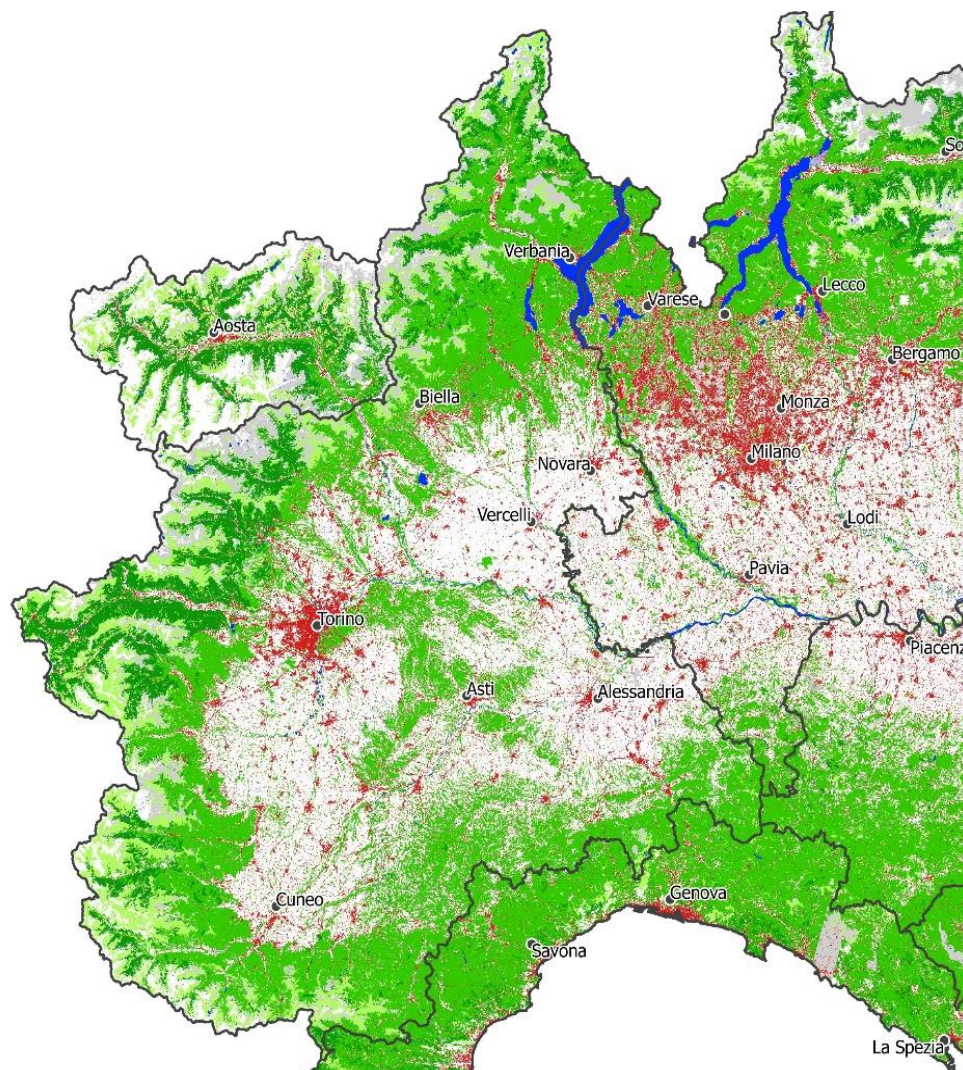
- Suolo consumato
- Latifoglie
- Conifere
- Prati
- Zone umide
- Corpi idrici
- Altro

0 10 20 30 40 km



ISPRA

Istituto Superiore per la Protezione
e la Ricerca Ambientale



I dati di
input –
copertura
del suolo

Quality

Habitats:

- Beaches, dunes, sands
- Permanent water bodies
- Wetlands
- Grasslands
- Scrublands
- Broad-leaved forests
- Coniferous forests
- Inland unvegetated or sparsely vegetated areas
- Agricultural land-intensive
- Agricultural land-extensive
- Buildings and other artificial areas or imperviousness soil
- Open urban areas

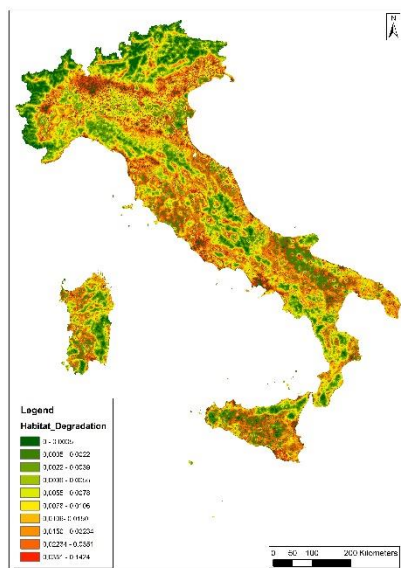
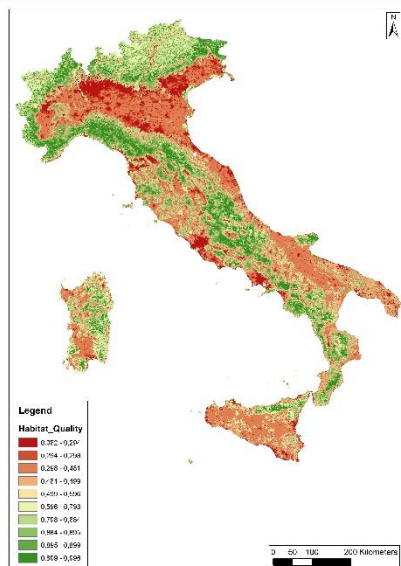
Habitat Quality

Threats:

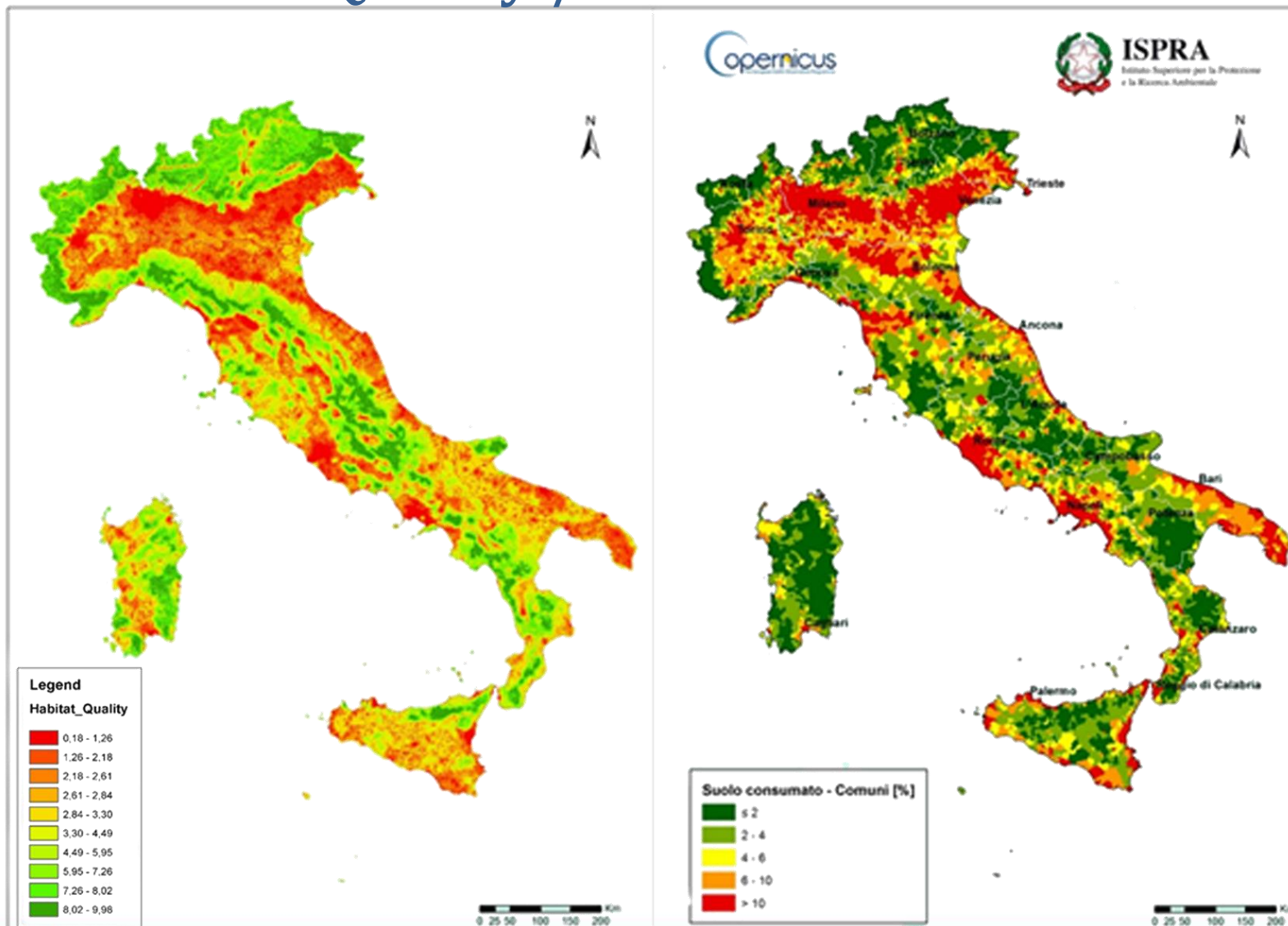
- Road network (primary roads)
- Road network (secondary roads)
- Road network (urban roads)
- Dirt roads
- Agricultural land-intensive
- Agricultural land-extensive
- Buildings and other artificial areas or imperviousness soil

Degradation

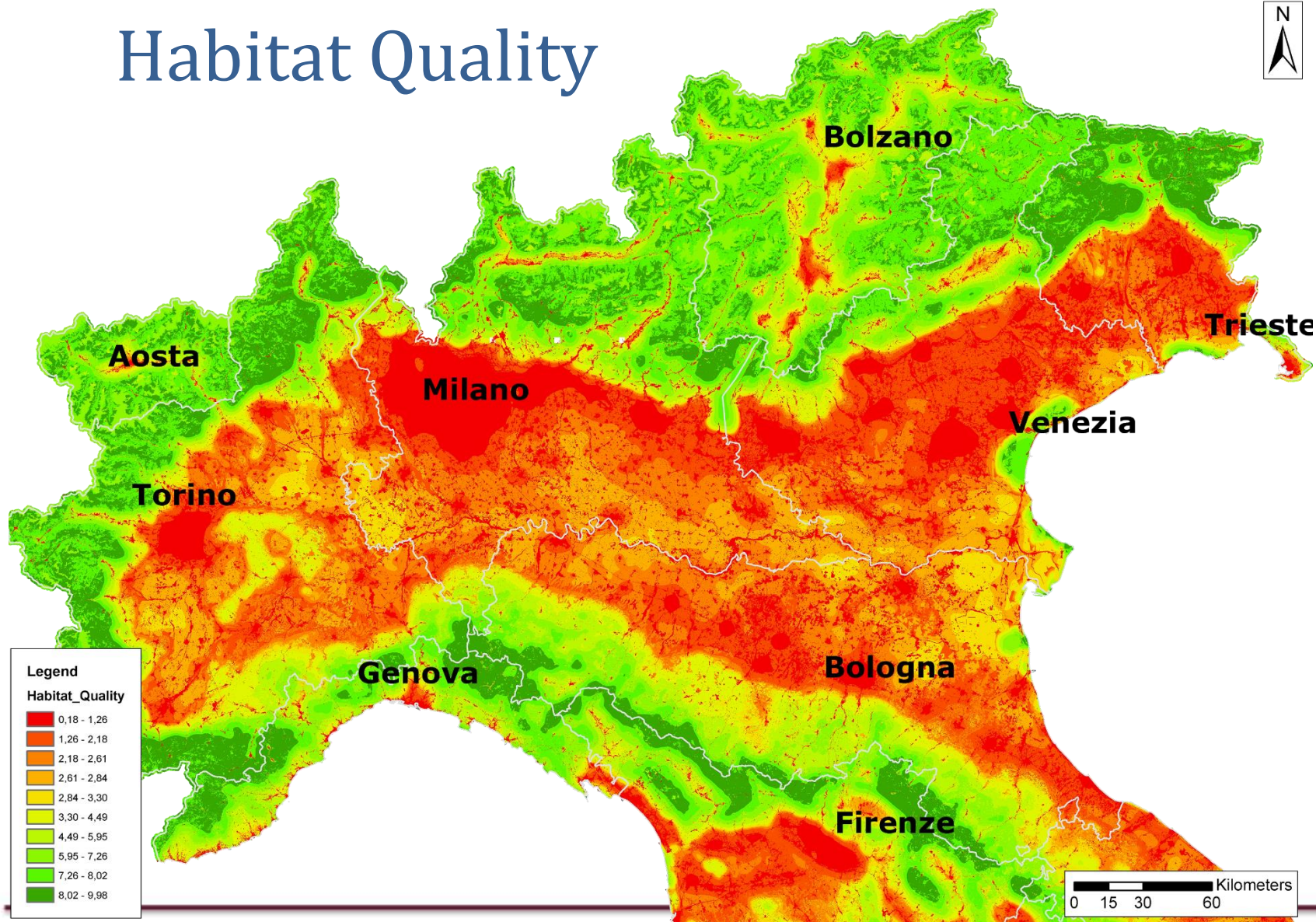
Expert based approach

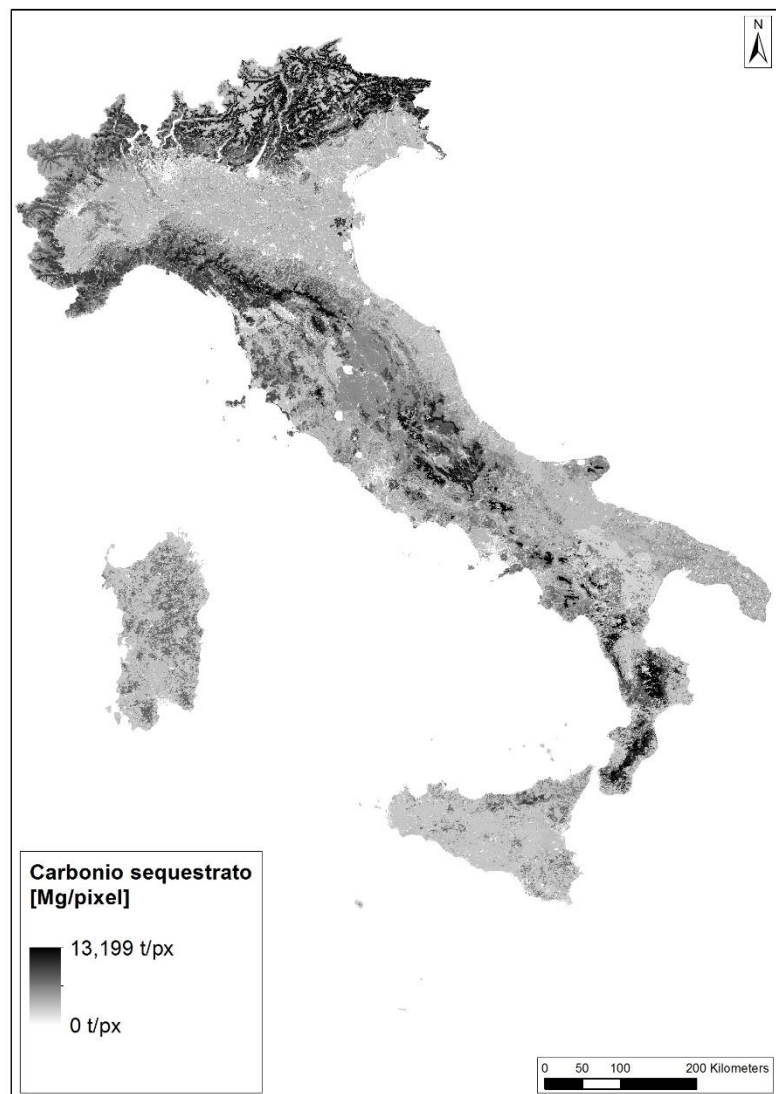


Habitat Quality / Consumo di suolo



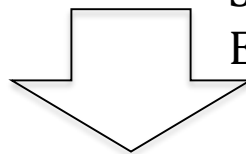
Habitat Quality



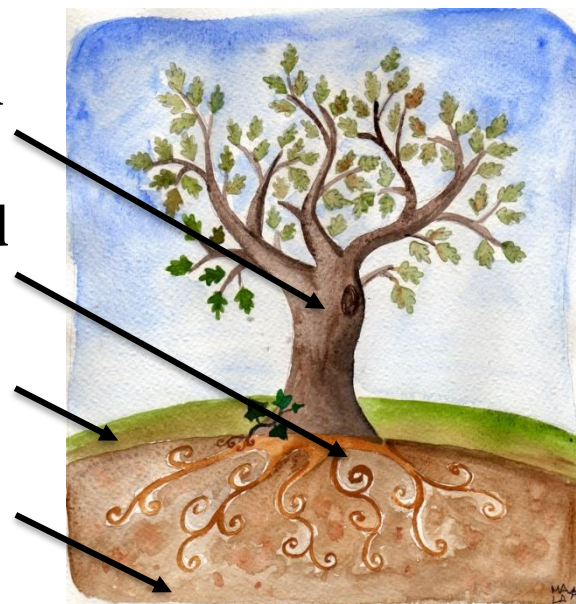


Carbon Storage

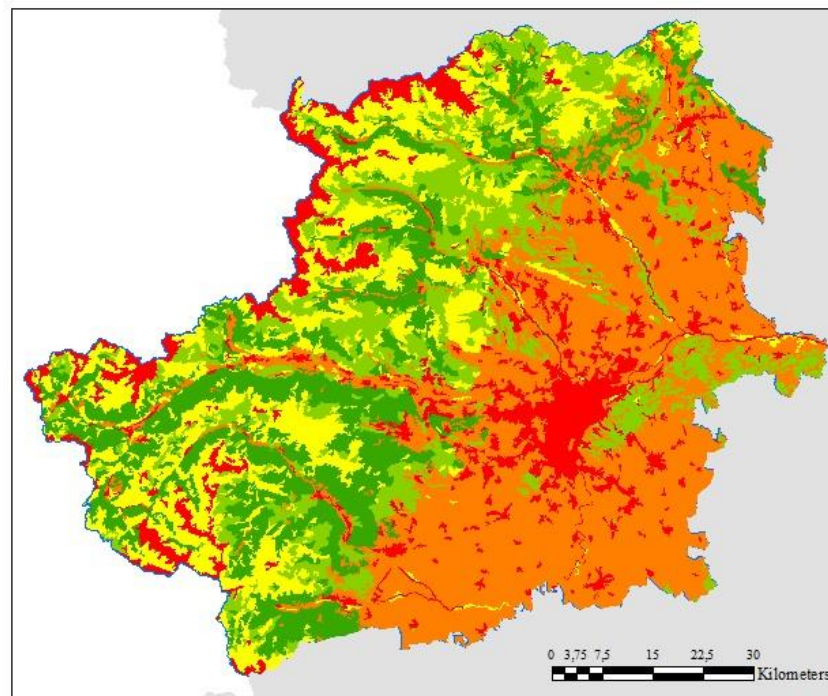
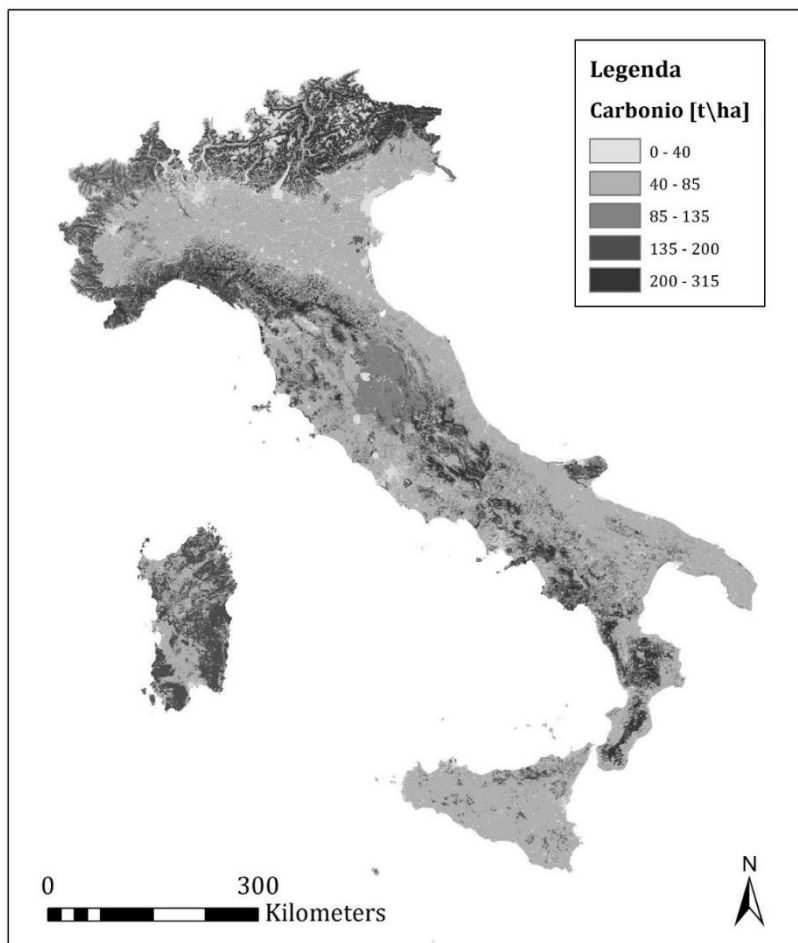
- INFC, National Inventory of Forests and forest Carbon pools
- Papers
- National Inventory Report, ISPRA
- SIAS, Development of Environmental Indicators on Soil



- C aboveground biomass
- C belowground biomass
- C dead organic matter
- C soil



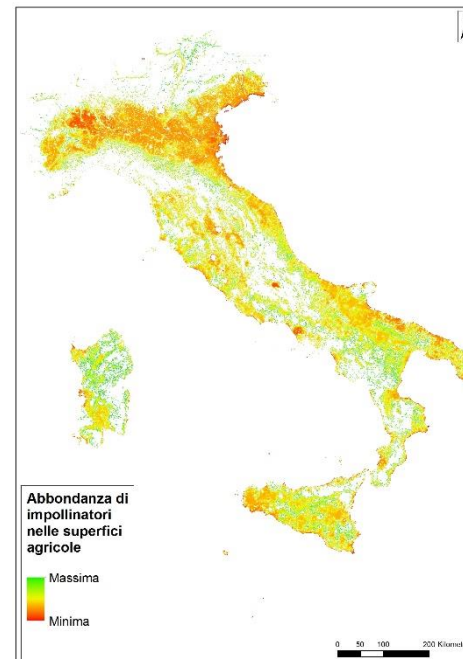
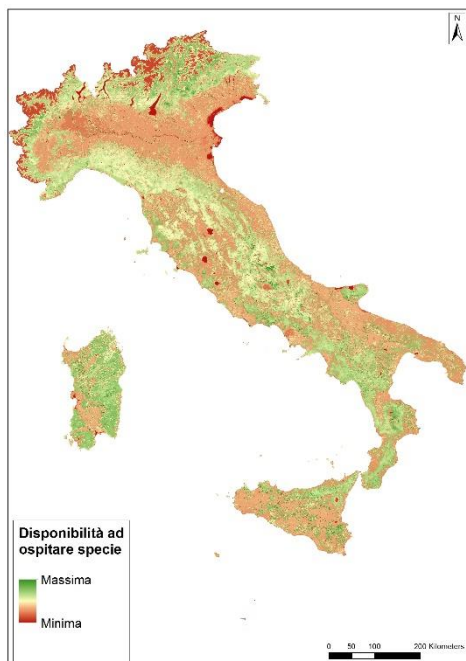
Carbon Storage



Pollination

Map of pollinator
abundance index

Map of pollinator
abundance on each
agricultural cell in
the landscape



50 Species of pollinator

Pollinator species data:

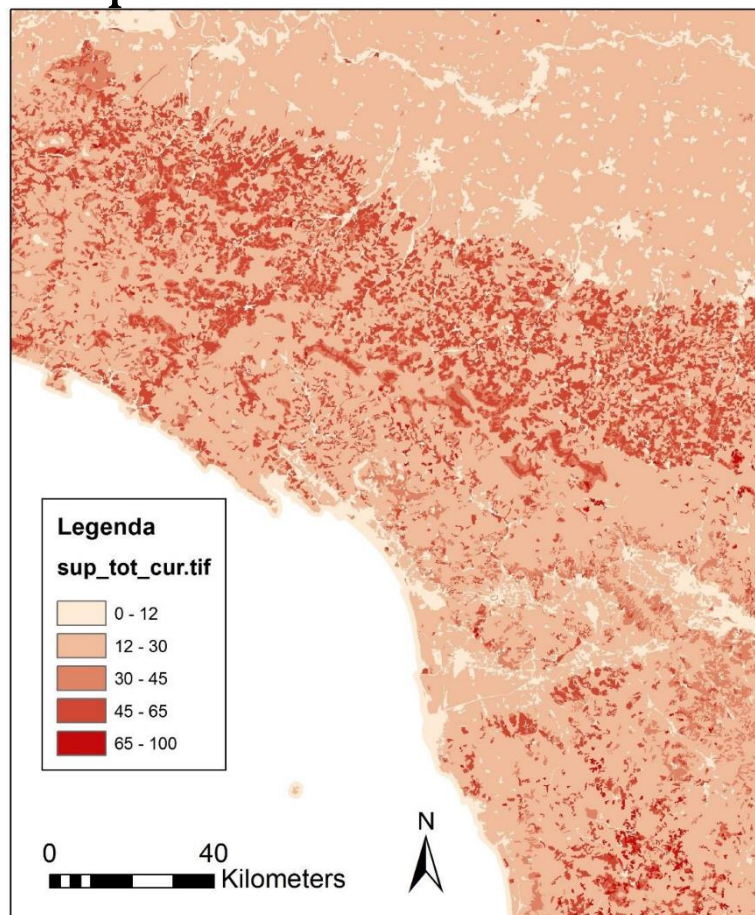
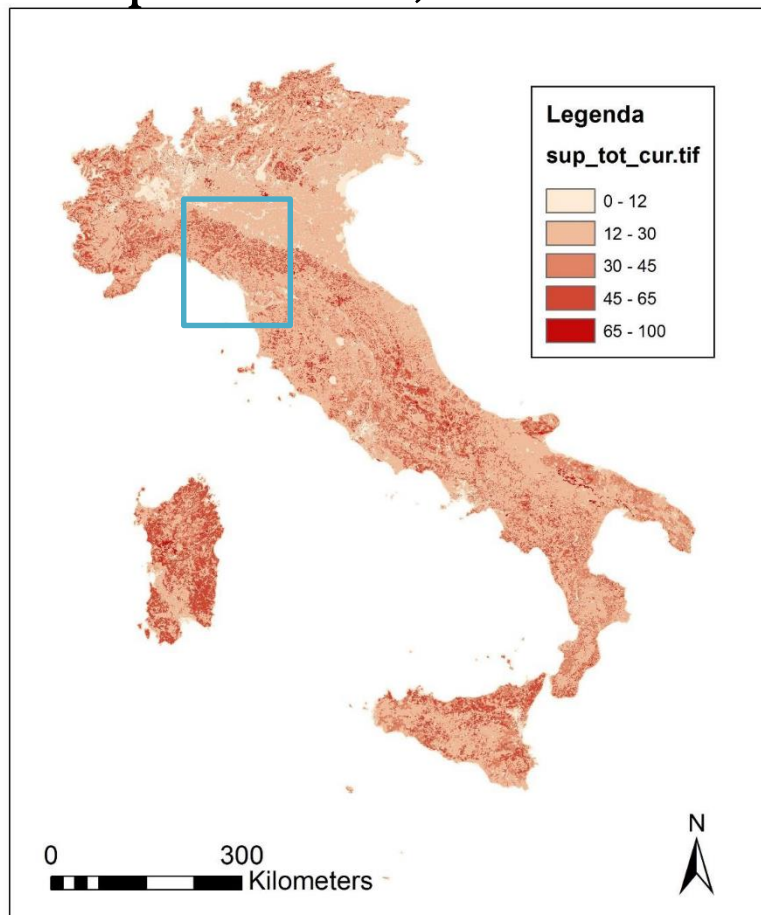
- Habitat
- Activity by floral season
- Average distance each species or guild travels to forage on flowers
- Altitude

Land use data:

- Relative index of the availability of nesting type
- Relative abundance (0-1) of flowers in each LULC class
- Ecoregion (alpine, mediterranean, continental)

Pollination

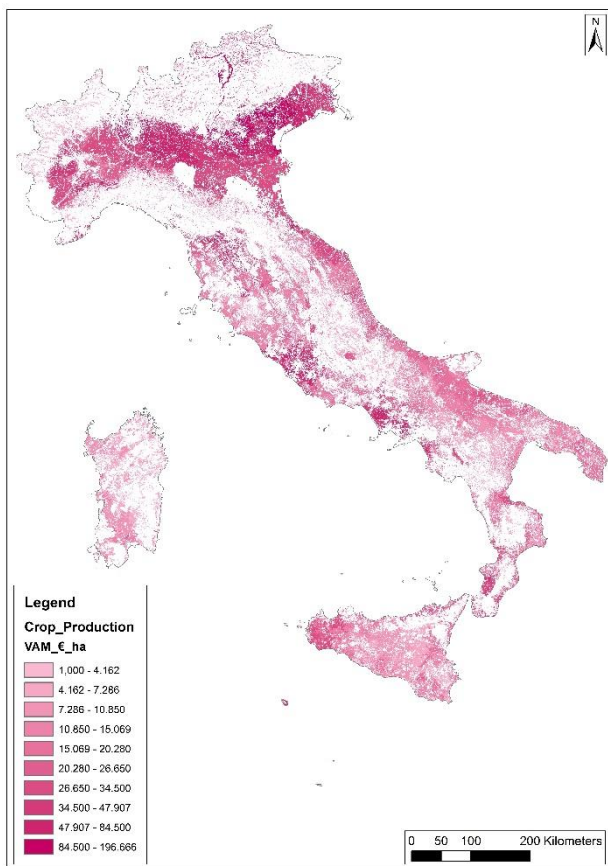
Indice (1 – 100) relativo all'abbondanza di impollinatori, somma di tutte le specie considerate.



Crop Production and Timber Production

IL SUOLO REGALA TANTO: NON CALPESTIAMOLO

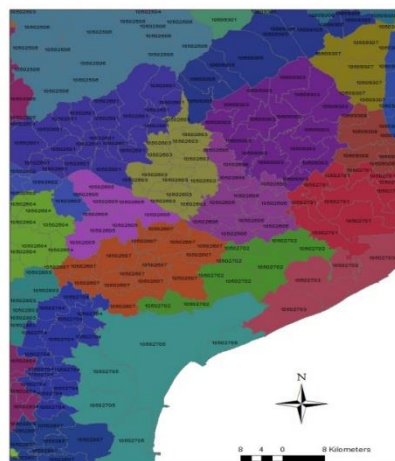
Crop Production



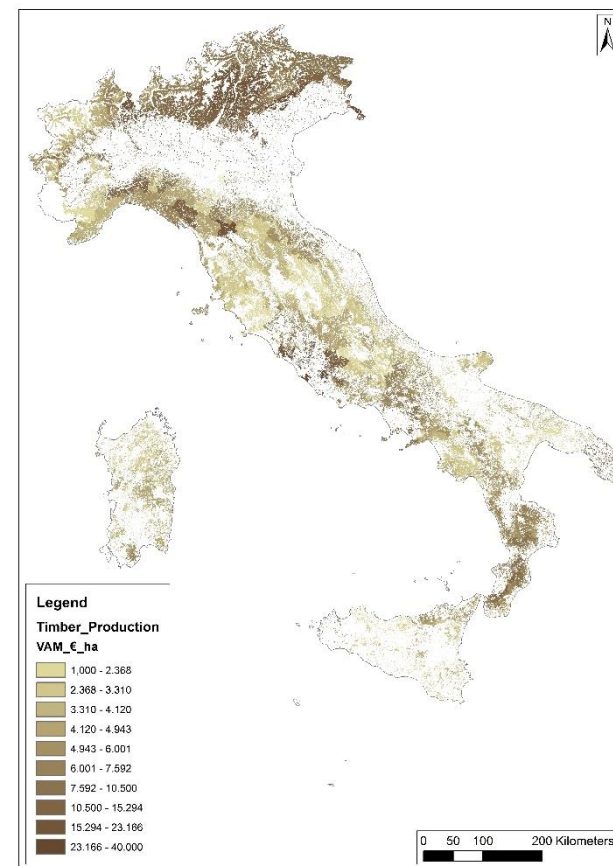
VAM – Average Farm Values

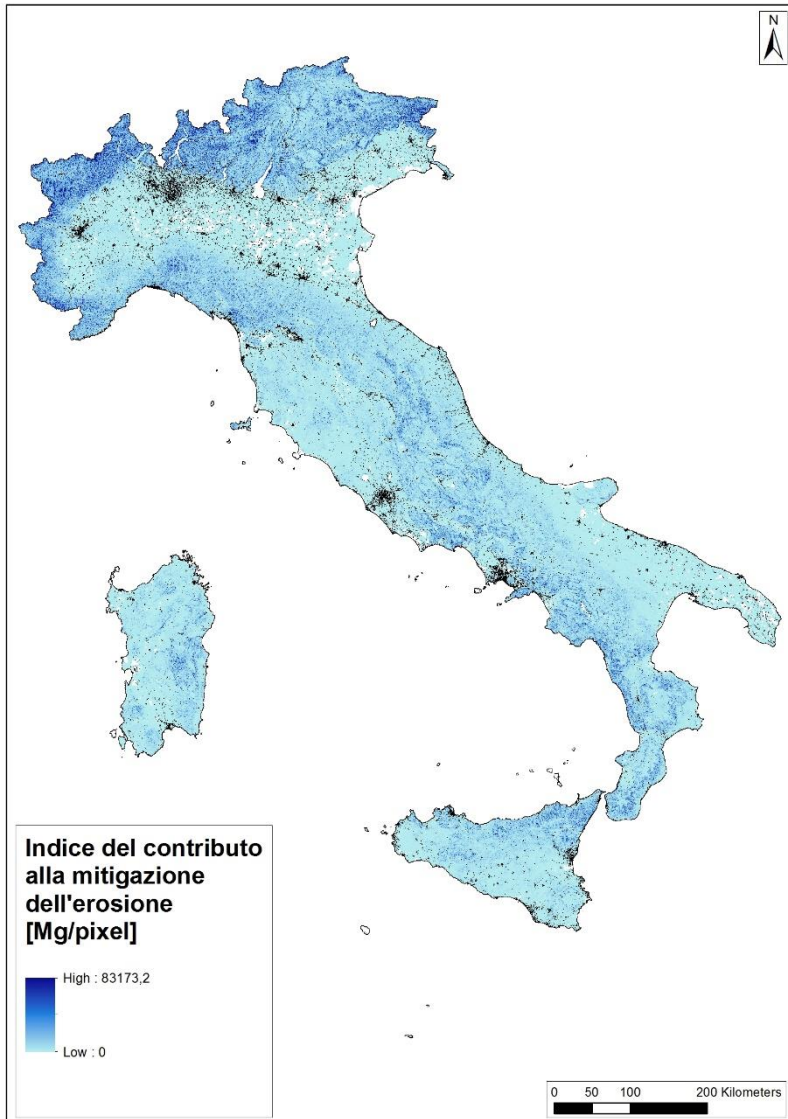
Tables of values for agricultural land proposed by the Revenue Agency

A map of agricultural regions was created for the spatial distribution



Timber Production





Sediment Retention

USLE (Universal Soil Loss Equation)

V = amount of annual soil loss on pixel

$$V = R * K * LS * c * p$$

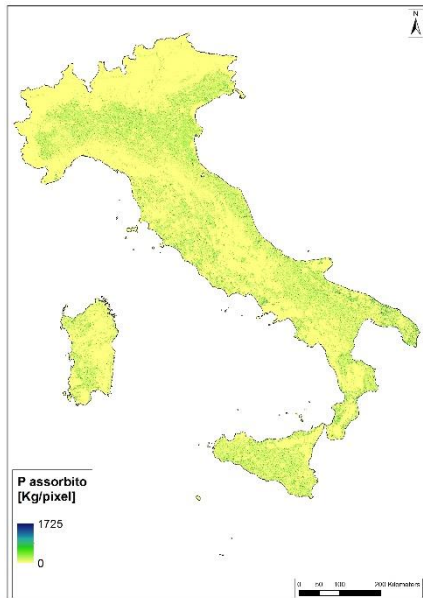
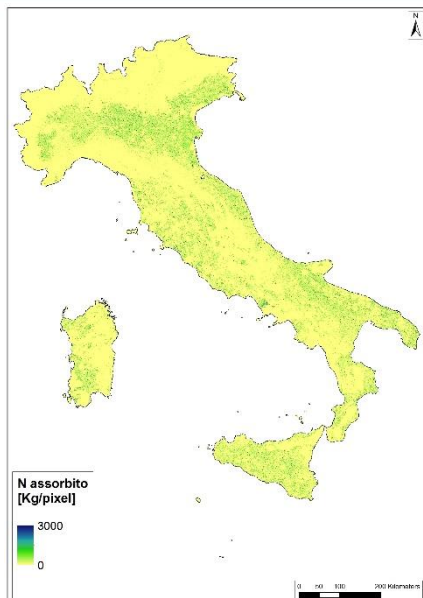
R = rainfall erosivity

K = soil erodibility

LS = slope length-gradient factor

c = crop-management factor

p = support practice factor



Input data: Nutrient Retention

- Digital Elevation Model
- Land Use Land Cover
- Watersheds
- Root restricting layer depth
- Precipitation
- Plant Available Water Content (PAWC)
- Average annual potential evapotranspiration (PET)
- Biophysical Table:
 - nutrient loading
 - vegetation filtering value per pixel size
 - maximum root depth for vegetated land use classes
 - plant evapotranspiration coefficient

N
P₂O₅

Stime nazionali ISPRA 2017

Rapporto sul consumo di suolo, dinamiche territoriali e servizi ecosistemici

Servizio ecosistemico	Valore minimo [€/anno]	Valore medio [€/anno]	Valore massimo [€/anno]
Stoccaggio e sequestro del carbonio	-14.548.507	-73.348.723	-132.148.938
Qualità degli habitat	-11.146.847	-11.146.847	-11.146.847
Produzione agricola	-412.049.834	-412.049.834	-412.049.834
Produzione legnosa	-15.665.938	-15.665.938	-15.665.938
Protezione dall'erosione	-33.060.912	-110.995.495	-188.930.078
Impollinazione	-3.195.550	-3.731.128	-4.266.706
Regolazione del microclima	-1.830.676	-4.576.690	-7.322.703
Infiltrazione dell'acqua	-132.918.045	-132.918.045	-132.918.045
Rimozione di particolato e ozono	-1.129.569	-2.304.998	-3.480.426
Totale	-625.545.878	-766.737.697	-907.929.515

Grazie per l'attenzione

Per maggiori informazioni:

consumosuolo@isprambiente.it

Per i dati e la cartografia:

**[http://www.isprambiente.gov.it/it/temi/suolo-e-territorio/il-
consumo-di-suolo/i-dati-sul-consumo-di-suolo](http://www.isprambiente.gov.it/it/temi/suolo-e-territorio/il-consumo-di-suolo/i-dati-sul-consumo-di-suolo)**

**[www.sinanet.isprambiente.it/it/sia-ispra/download-mais/consumo-
di-suolo](http://www.sinanet.isprambiente.it/it/sia-ispra/download-mais/consumo-di-suolo)**
