6 NOVEMBRE 2018 | ORE 15.00 - 18.00 | SALA DIOTALLEVI 1, HALL SUD

SESSIONE TEMATICA DI APPROFONDIMENTO E DI CONSULTAZIONE

LA GREEN ECONOMY NELL'AGRICOLTURA ITALIANA E LA NUOVA POLITICA AGRICOLA COMUNE (PAC)

Con il patrocinio di

mipaaft
ministero delle politiche agricole alimentari, forestali e del turismo

ASPETTATIVE E PRIORITÀ DELLE ISTITUZIONI NAZIONALI

Lorenzo Ciccarese - Responsabile Area per la conservazione delle specie e degli habitat e per la gestione sostenibile delle aree agricole e forestali, ISPRA

Sostenibilità dell'agricoltura italiana in cifre

Emissioni di gas serra
30,4 Mt CO_2

Emissioni acidificanti
22,2 Mt eq

Precursori ozono troposferico
0,2 Mt TOPP

Uso energia in agricoltura
59 Mtep

Consumo fertilizzanti
3,5 Mt

Consumo prodotti fitosanitari
0,1 Mt

Superficie irrigata
2,5 Mha

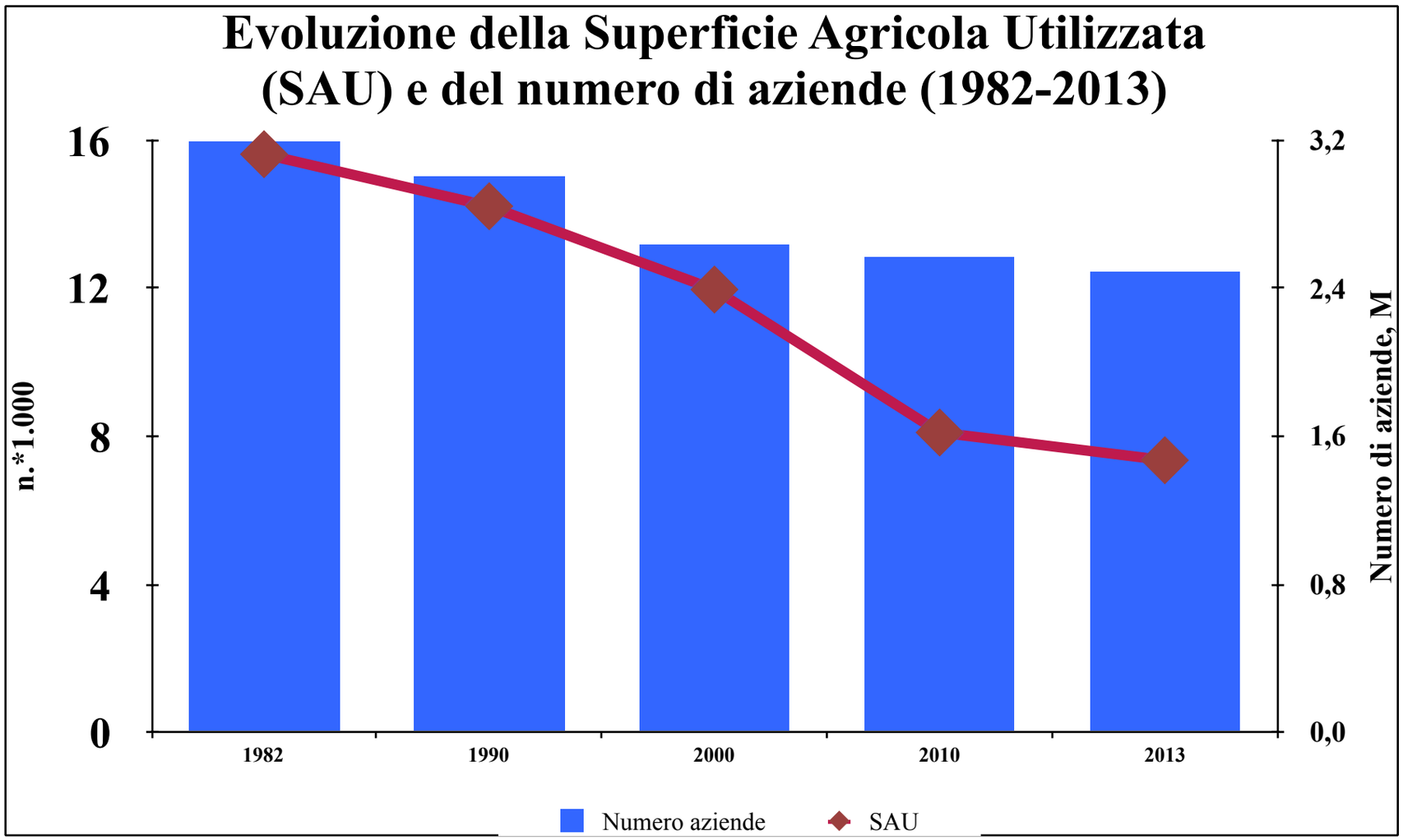
Prati permamenti e pascoli
3,2 Mha

Superficie Agricola Utilizzata
12,6 Mha

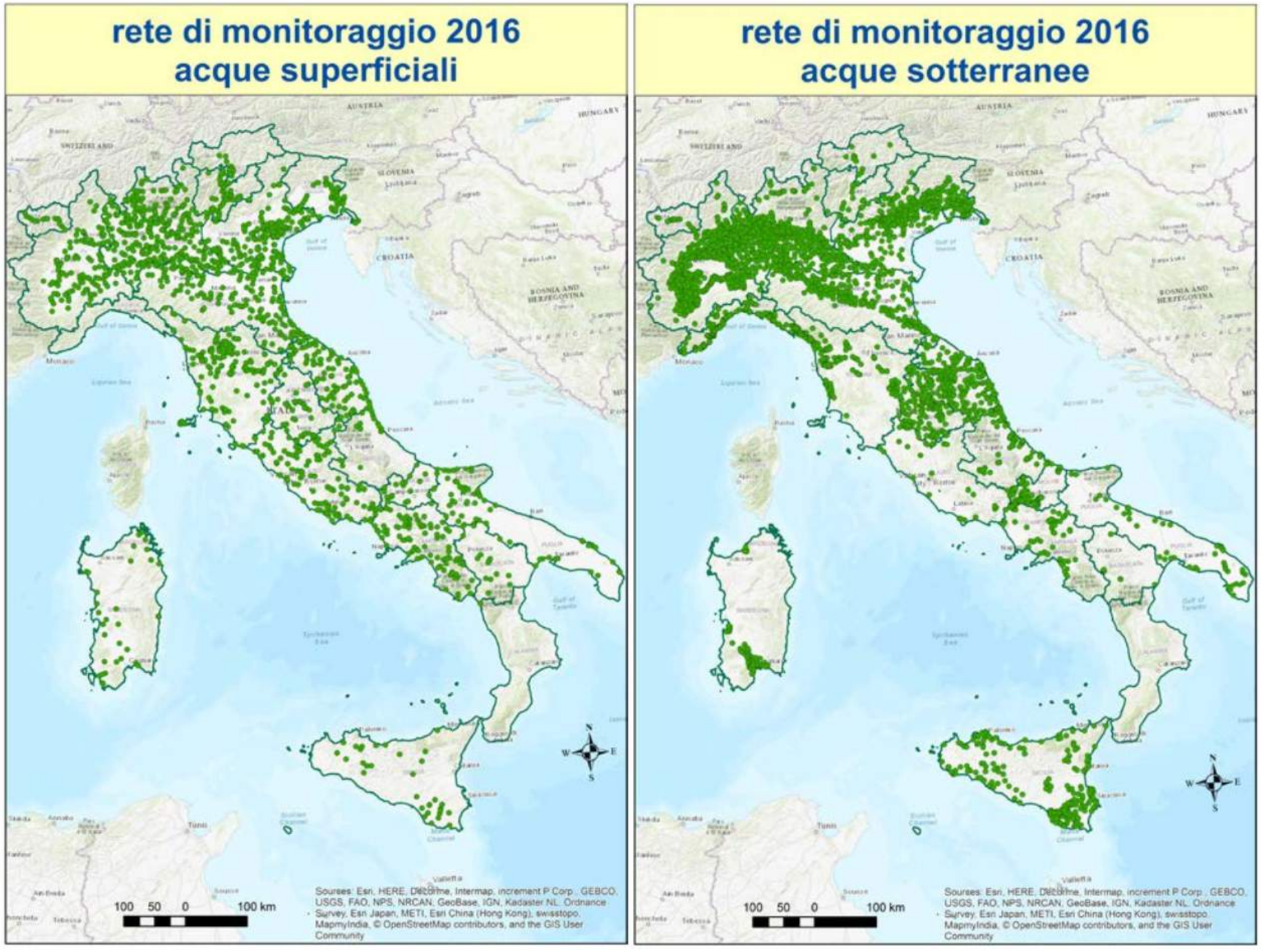
Valore aggiunto ai prezzi di base
29.314 Meur

Aziende agrituristiche
23.406

Superficie biologica
1,9 Mha


Evoluzione della Superficie Agricola Utilizzata (SAU) e del numero di aziende (1982-2013)
n.*1.000
16
12
8
4
0
3,2
2,4
1,6
0,8
0,0
Numero di aziende, M
1982
1990
2000
2010
2013
Numero aziende
SAU

ISPRA
Italian National Institute for Environmental Protection and Research



Pesticides in water, percentage of contaminated points increases: + 20% in surface waters, + 10% in underground waters. 224 different substances were found, indicating greater controls. In surface waters, glyphosate is among the substances that exceed the limits most often.

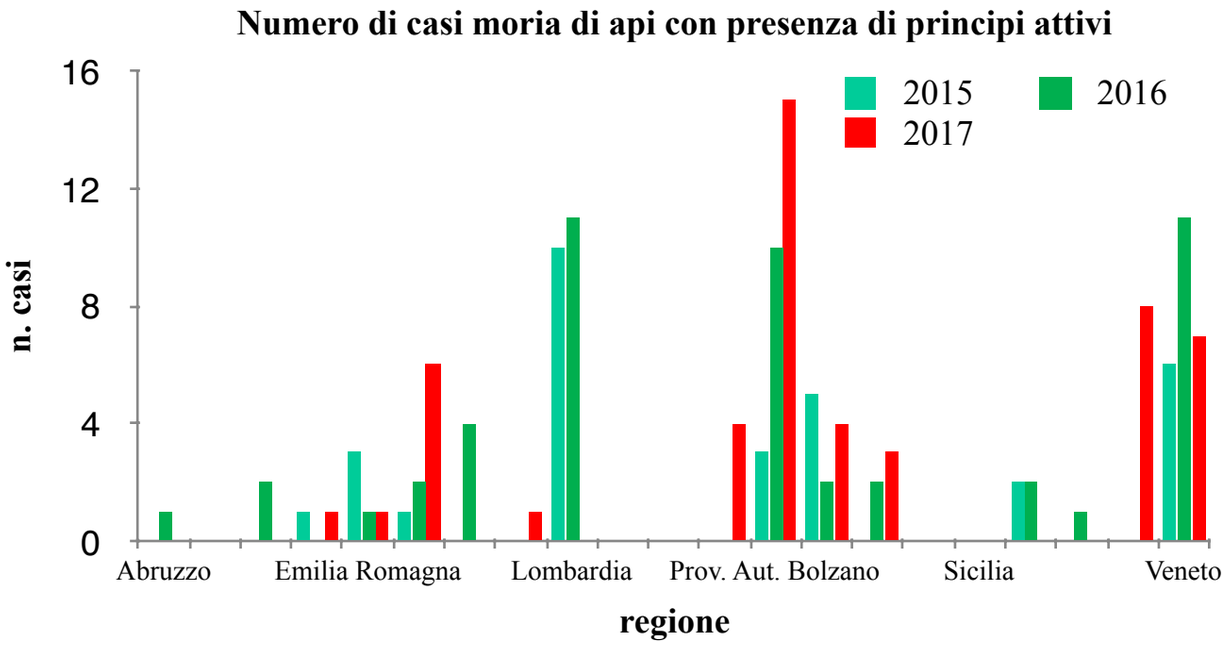
(Da: Rapporto Nazionale Pesticidi nelle acque. Dati 2015-2016 – Edizione 2018. ISPRA Rapporti 282/2018)

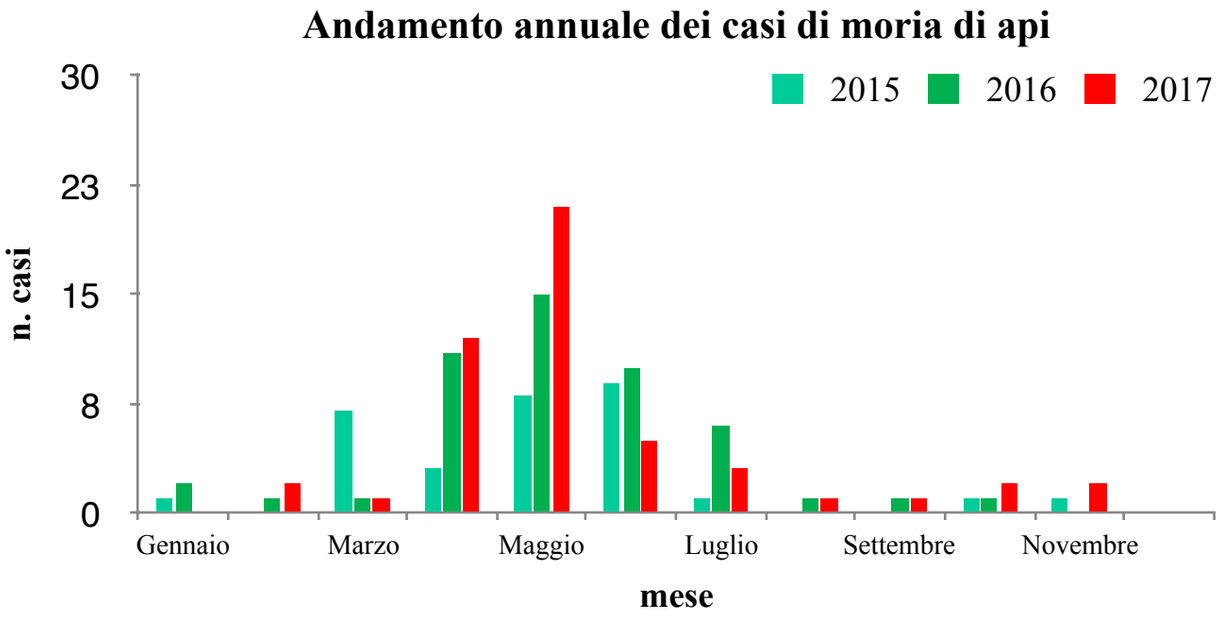
acque superficiali 2016

acque sotterranee 2016

(Da: Rapporto Nazionale Pesticidi nelle acque. Dati 2015-2016 – Edizione 2018. ISPRA Rapporti 282/2018)

Moria delle api associata all'uso di pesticidi





Aziende agrituristiche in Italia nel 2017

Istat | Istituto Nazionale di Statistica

QUANTE SONO

23.406

+3,3%

gestite da donne

8.483

+4,0%

dove sono

31,4% in montagna

52,8% in collina

15,8% in pianura

3,9 numero medio di notti

3,2 milioni di clienti

+6,7%

posti letto

253.328

+3,2%

produzione agrituristica
valore corrente

1,36
miliardi di euro

+6,7%

prodotti di qualità

2.533
produttrici di DOP e IGP **+220,2%**

non solo attività agrituristiche…

sport **21,3%**

escursionismo **14,9%**

trekking **8,3%**

mountain bike **11,1%**

osservazioni naturalistiche **5,3%**

equitazione **6,4%**

tutte le variazioni si riferiscono all'anno 2016

ENVIRONMENTAL SCIENCES

Accelerated modern human–induced species losses: Entering the sixth mass extinction

Gerardo Ceballos,[1]* Paul R. Ehrlich,[2] Anthony D. Barnosky,[3] Andrés García,[4] Robert M. Pringle,[5] Todd M. Palmer[6]

10.1126/sciadv.1400253

Table 2. Elevation of "highly conservative" and "conservative" modern vertebrate extinction rates above background rate of 2 E/MSY (see table S2 for calculations). For each assessment category, two periods are shown: extinction rates computed from 1500 to the present, and from 1900 to the present.

Animal group	Elevation of modern rates with respect to expected rates			
	Highly conservative		Conservative	
	Since 1500	Since 1900	Since 1500	Since 1900
Vertebrates	8	22	15	53
Mammals	14	28	20	55
Birds	13	24	15	34
Reptiles	5	8	8	24
Amphibians	5	22	22	100
Fishes	5	23	12	56

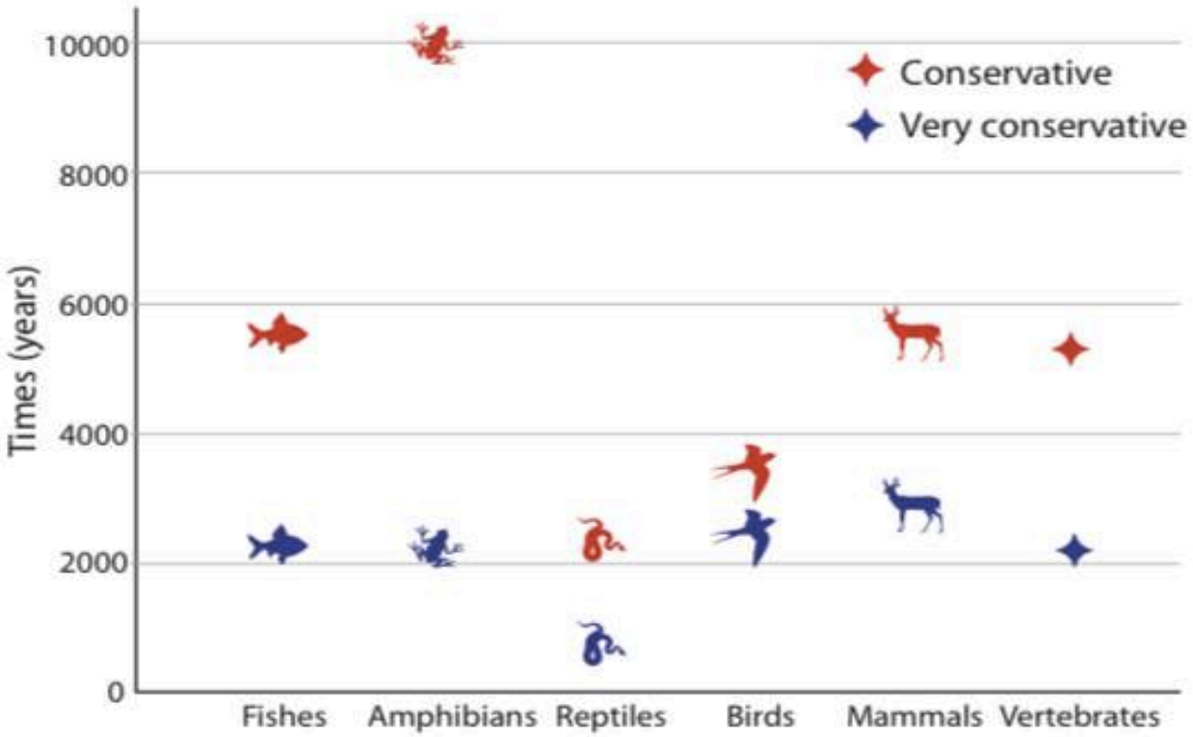


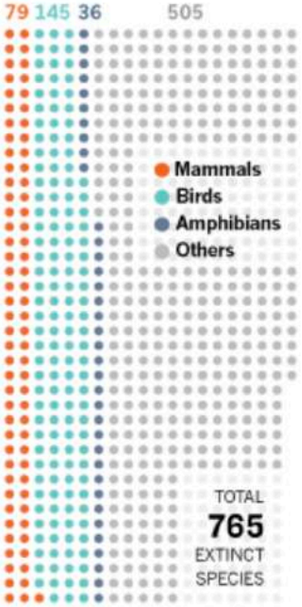
Fig. 2. Number of years that would have been required for the observed vertebrate species extinctions in the last 114 years to occur under a background rate of 2 E/MSY. Red markers, highly conservative scenario; blue markers, conservative scenario. Note that for all vertebrates, the observed extinctions would have taken between 800 to 10,000 years to disappear, assuming 2 E/MSY. Different classes of vertebrates all show qualitatively similar trends.

Life under threat

Thousands of species are currently deemed to be threatened, but the true number of species at risk of extinction may be much higher. Estimates suggest that between 500 and 36,000 species might be disappearing each year. The best data are for well-studied groups — mammals, birds and amphibians. Much less is known about threats to other groups, such as insects and fish.

ALREADY EXTINCT

TOTAL DOCUMENTED SINCE 1500



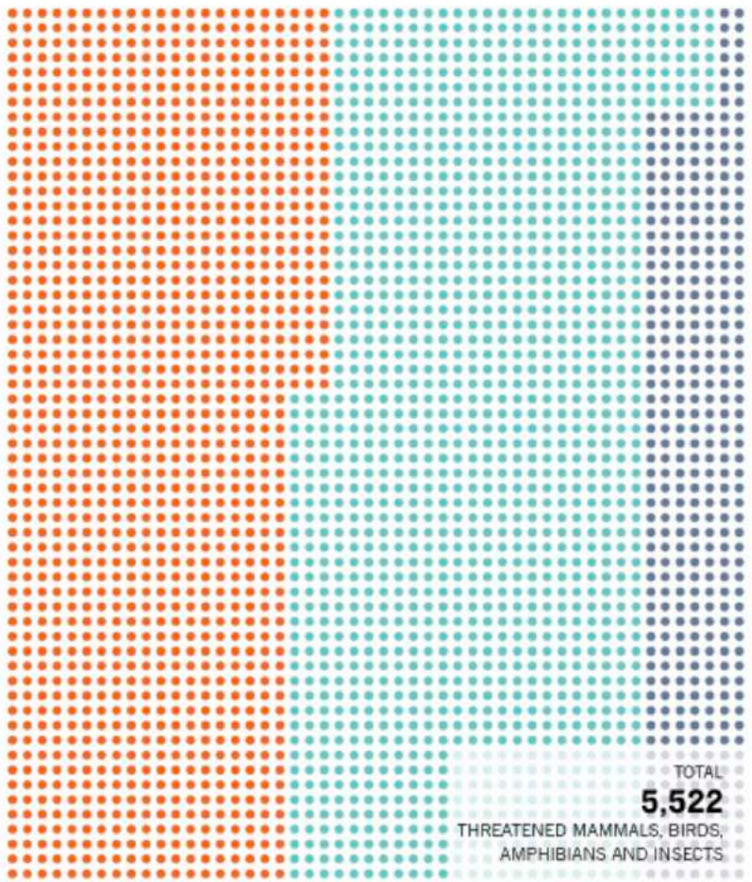
CURRENTLY THREATENED

Mammals
1,199
THREATENED SPECIES
26% of described species

Birds
1,373
THREATENED SPECIES
13% of described species


Burramys parvus


Spheniscus demersus



Amphibians
1,957
THREATENED SPECIES
41% of described species

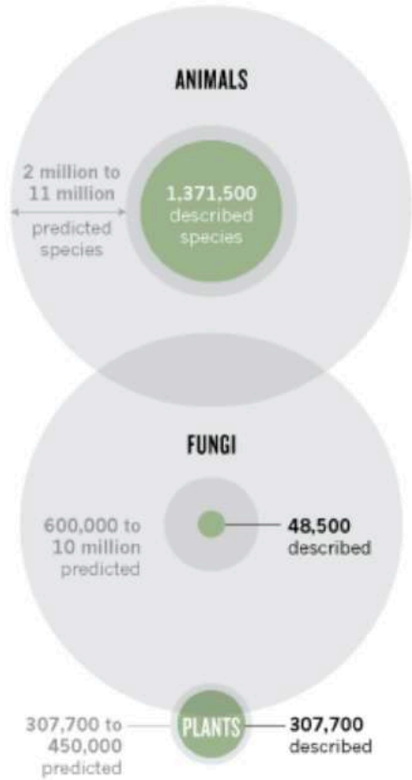

Ranitomeya summersi

Insects
993
THREATENED SPECIES
(Only 0.5% of roughly 1 million described have been evaluated. Number of living species may exceed 5 million)


Nicrophorus americanus

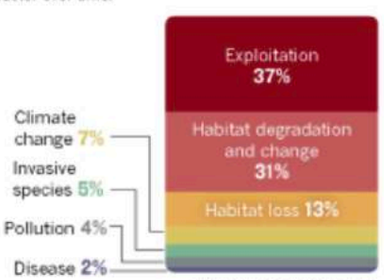
How many species are there?

Estimates of the number of species of animals, fungi and plants vary significantly. That uncertainty clouds understanding of how many species are threatened and how many are going extinct.



Main threats

Hunting, fishing and other forms of exploitation are a major factor in declines in animal populations, according to the Living Planet Index. Habitat degradation and loss are also dominant threats. Climate change is expected to become a bigger factor over time.



FIGURES HAVE BEEN ROUNDED

March towards mass extinction

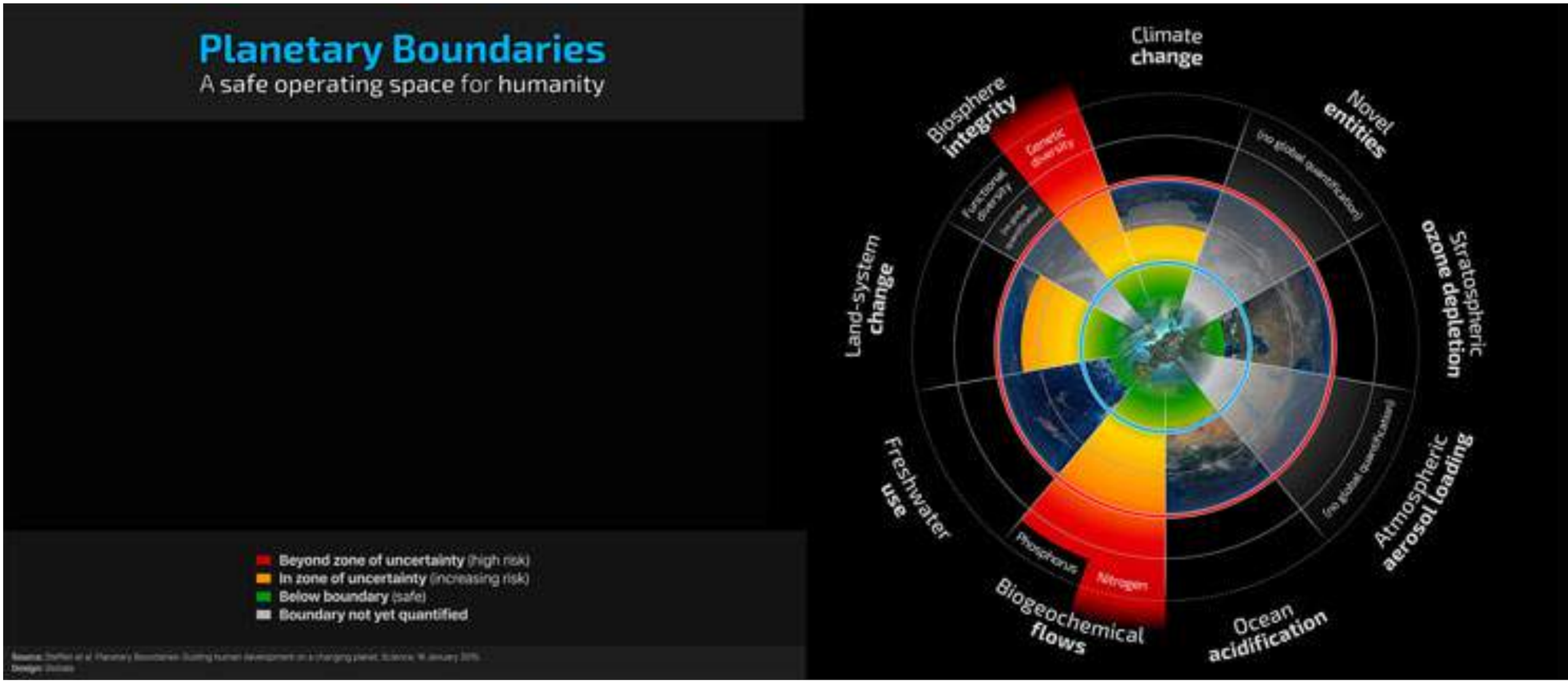
Mass extinctions — loss of 75% of existing species — have happened 5 times in the planet's history. If there are 5 million animal species and they are disappearing at rate of 0.72% per year (the upper end of estimates), a sixth mass extinction could happen by the year 2200. At the low end of the estimated range, a mass extinction would not happen for thousands of years.

EXTINCTIONS PER WEEK

BY RICHARD MONASTERSKY | GRAPHIC BY 5W INFOGRAPHIC

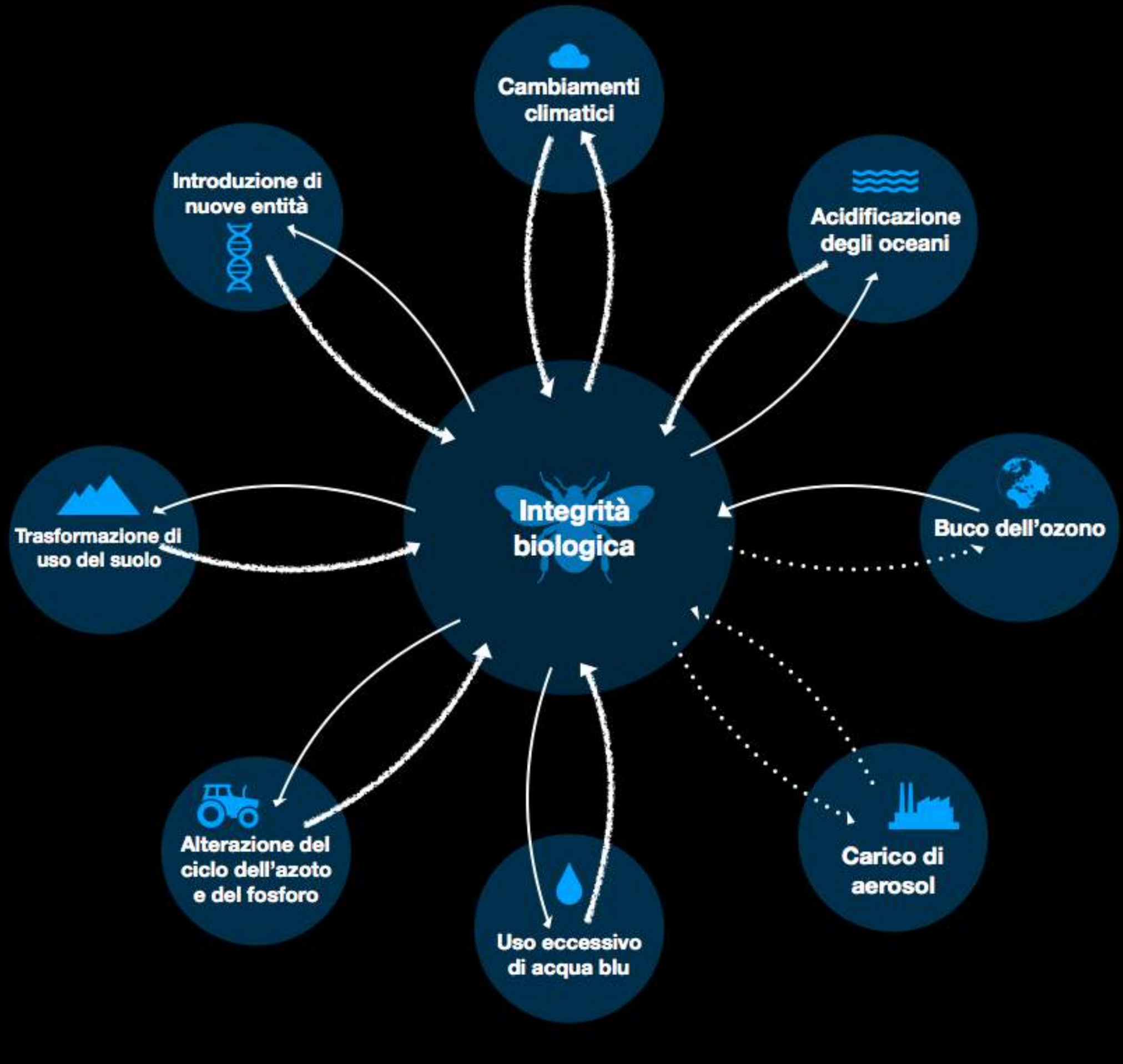
PHOTO CREDITS: *B. parvus* and *N. americanus*: Joel Sartore/National Geographic Creative; *S. demersus*: Life on white/Alamy; *R. summersi*: Joel Sartore/National Geographic Creative/Getty.

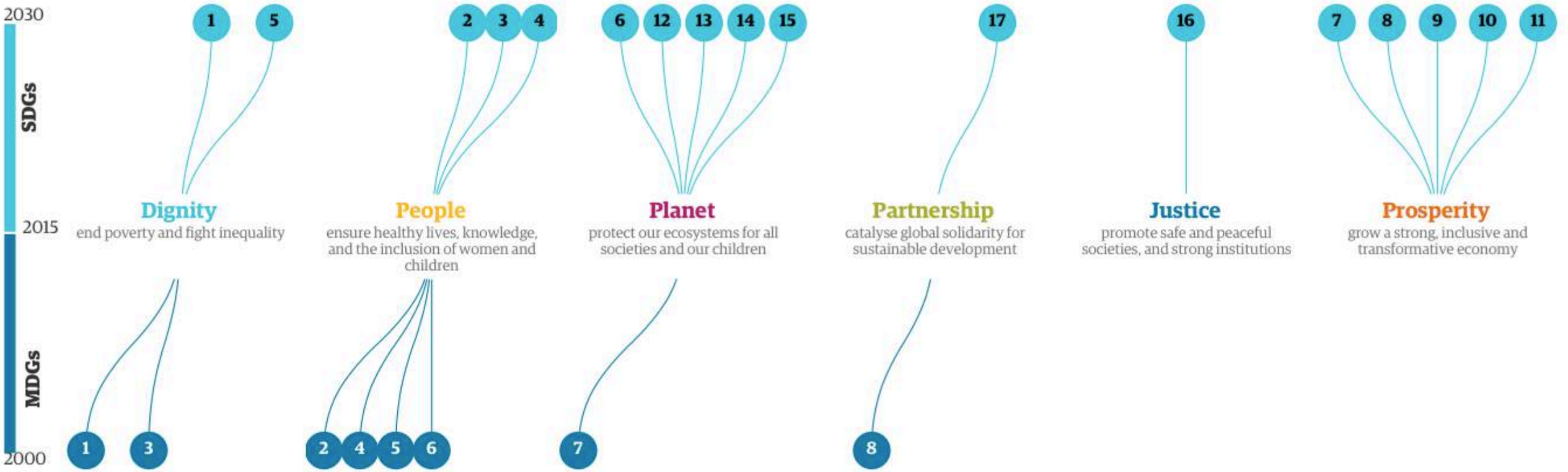
SOURCES: Already Extinct, Currently threatened: IUCN Red List. How many species are there?: S. L. Pimm *et al. Science* **344,** 1246752 (2014); B. R. Scheffers *et al. Trends Ecol. Evol.* **27,** 501–510 (2012); IUCN Red List. March towards mass extinction: Pimm *et al.*; C. Mora *et al. Science* **341,** 237 (2013). Main threats: *WWF Living Planet Report 2014*.



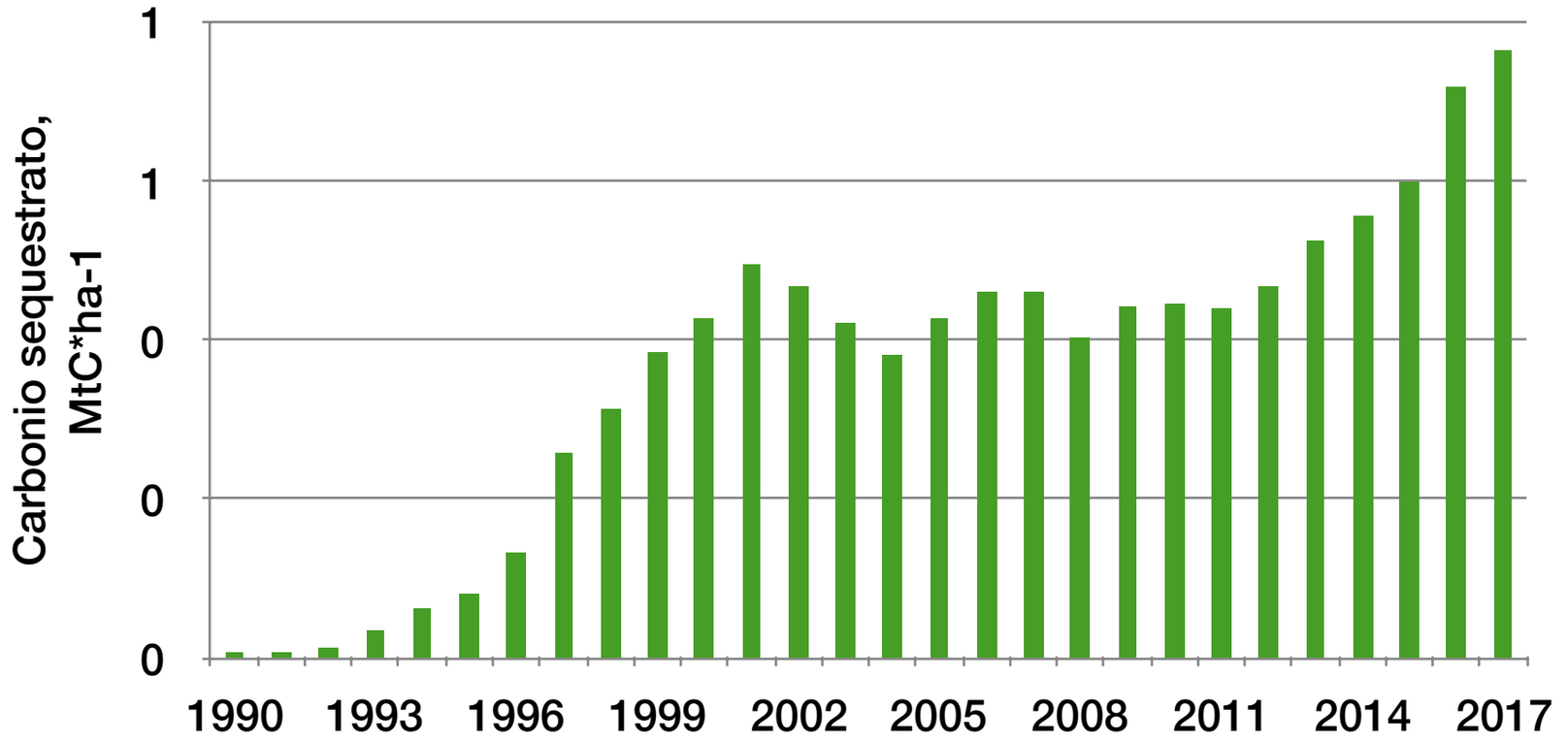
Steffen et al. (2015). Planetary boundaries: Guiding human development on a changing planet. Science, 347 Issue 6223, DOI: 10.1126/science.1259855

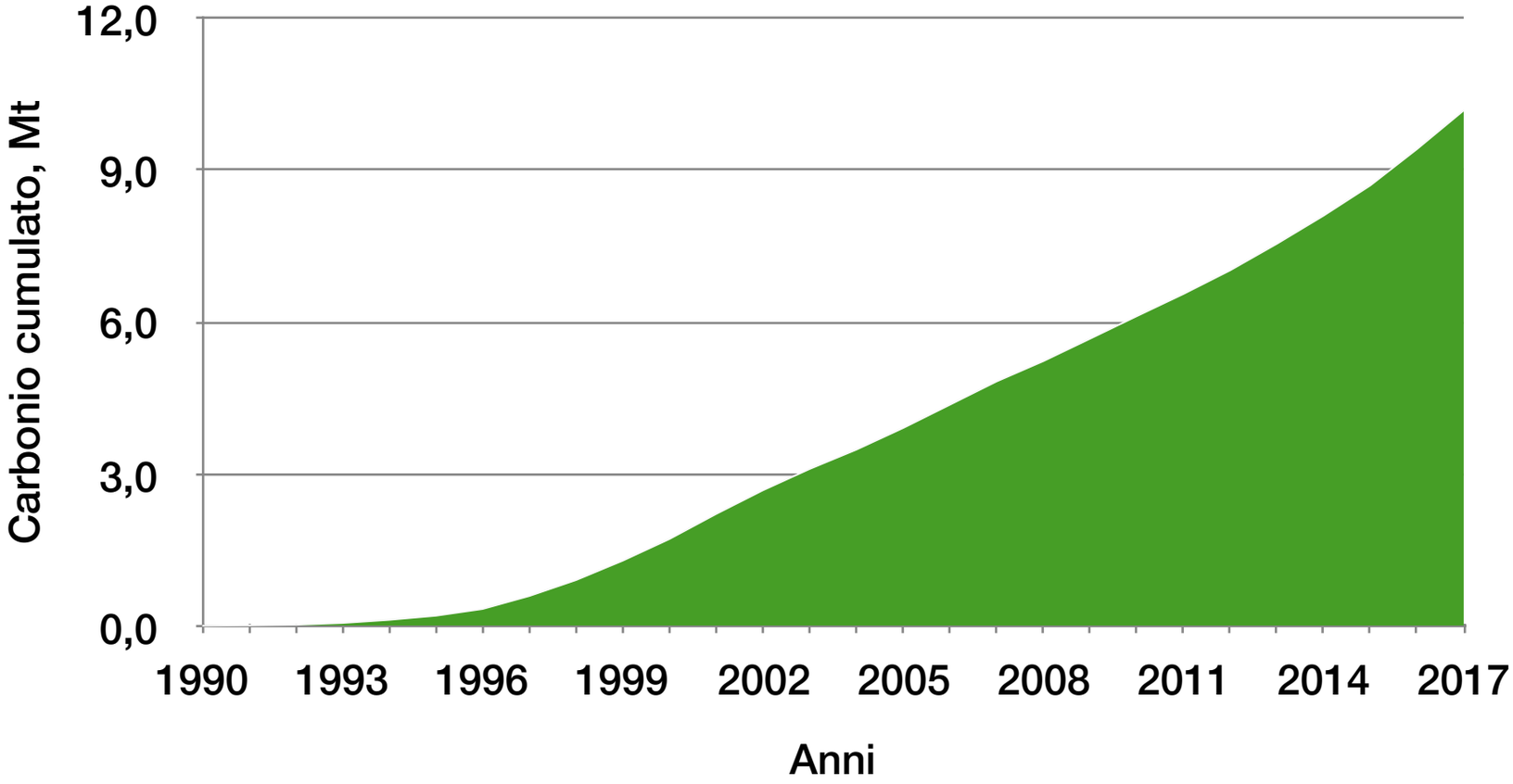
Rockstrom et al. (2009). A safe operating space for humanity. Nature 461, 472–475.


Cambiamenti climatici
Introduzione di nuove entità
Acidificazione degli oceani
Trasformazione di uso del suolo
Integrità biologica
Buco dell'ozono
Alterazione del ciclo dell'azoto e del fosforo
Uso eccessivo di acqua blu
Carico di aerosol



Fonte: The Guardian





ISPRA
Italian National Institute for Environmental Protection and Research

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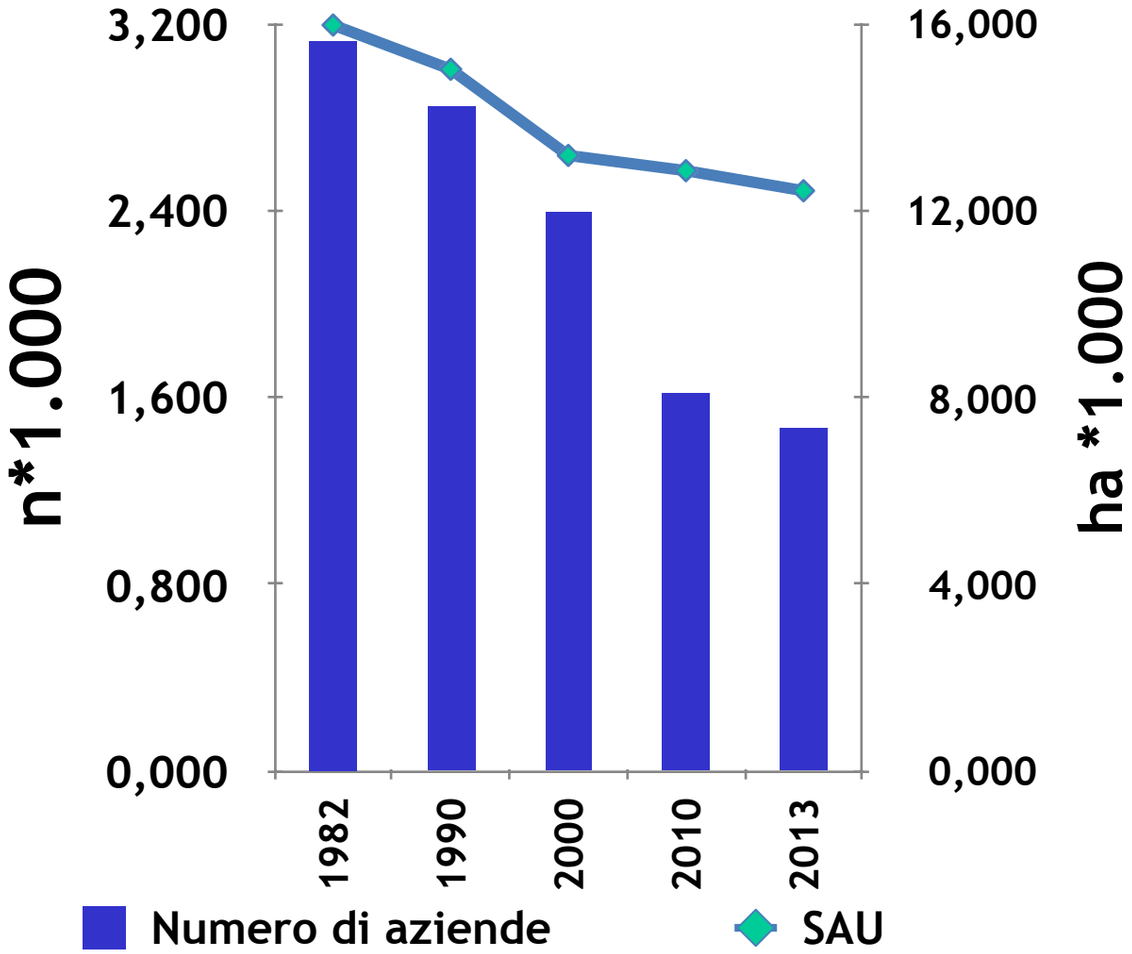
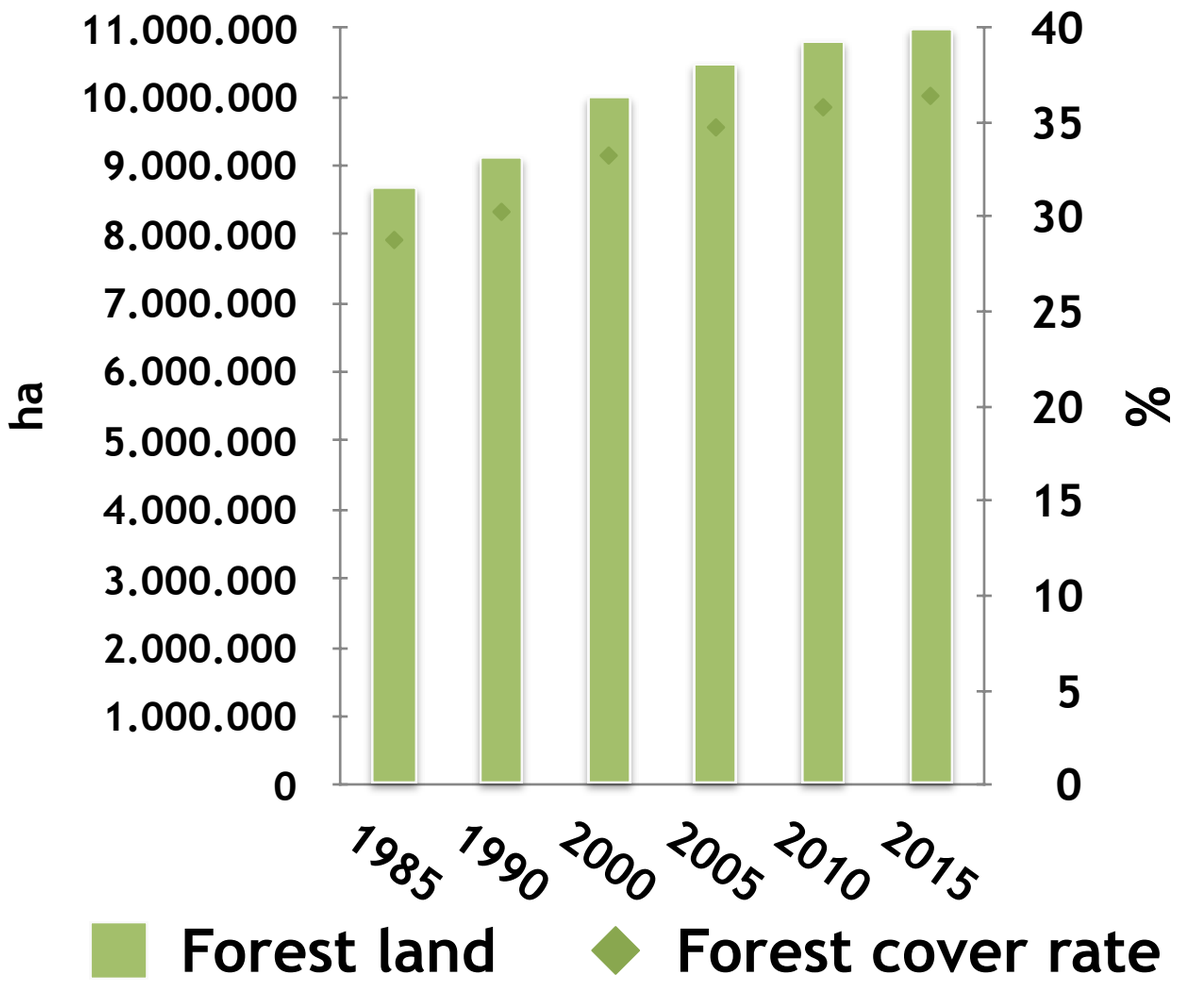
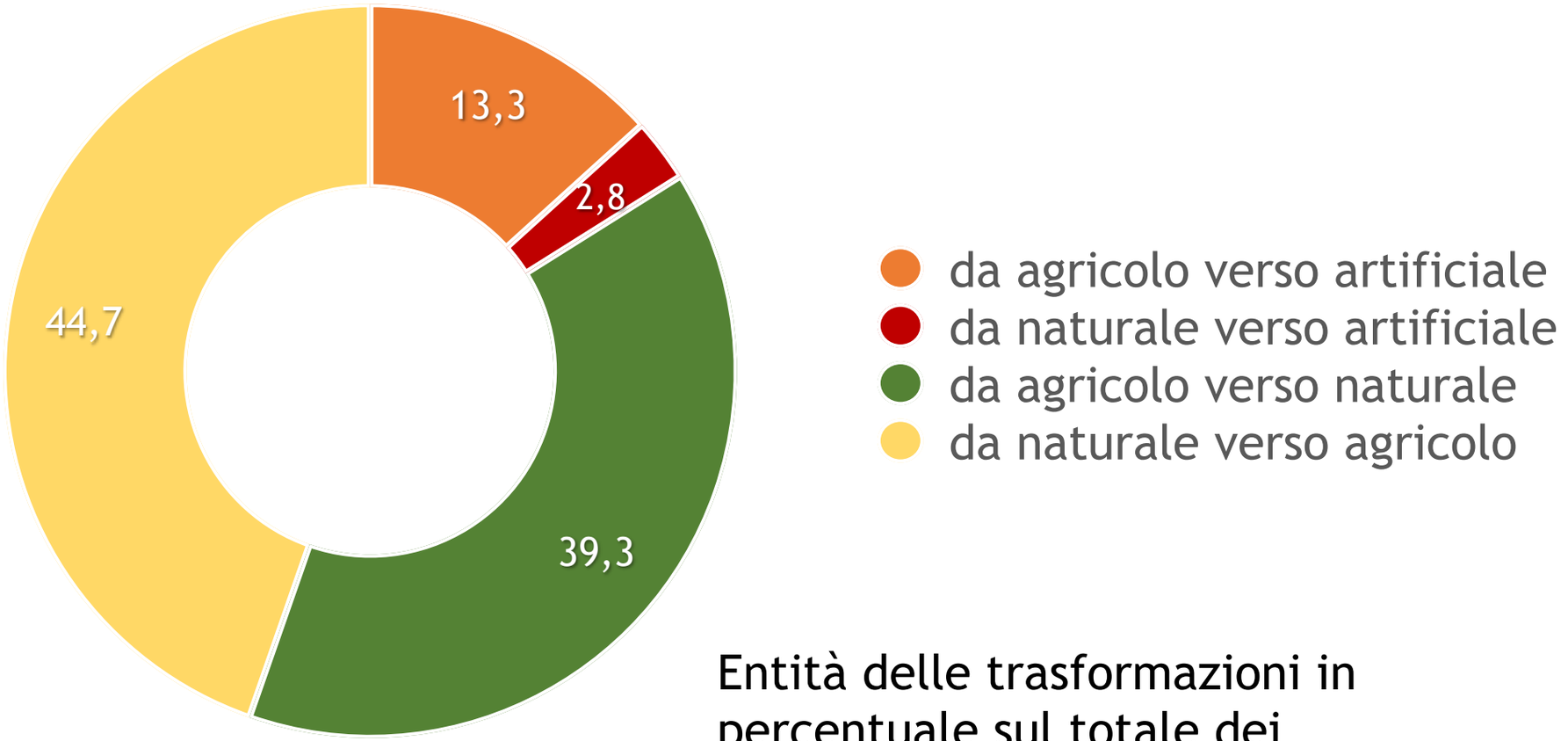
Italian National Institute for Environmental Protection and Research

Evoluzione della superficie agricola utilizzata (SAU) e del numero di aziende agricole, dal 1982 al 2013 (a sinistra); e della superficie forestale e del tasso di copertura forestale, dal 1985 al 2015 (a destra). Source ISTAT e MiPAAF



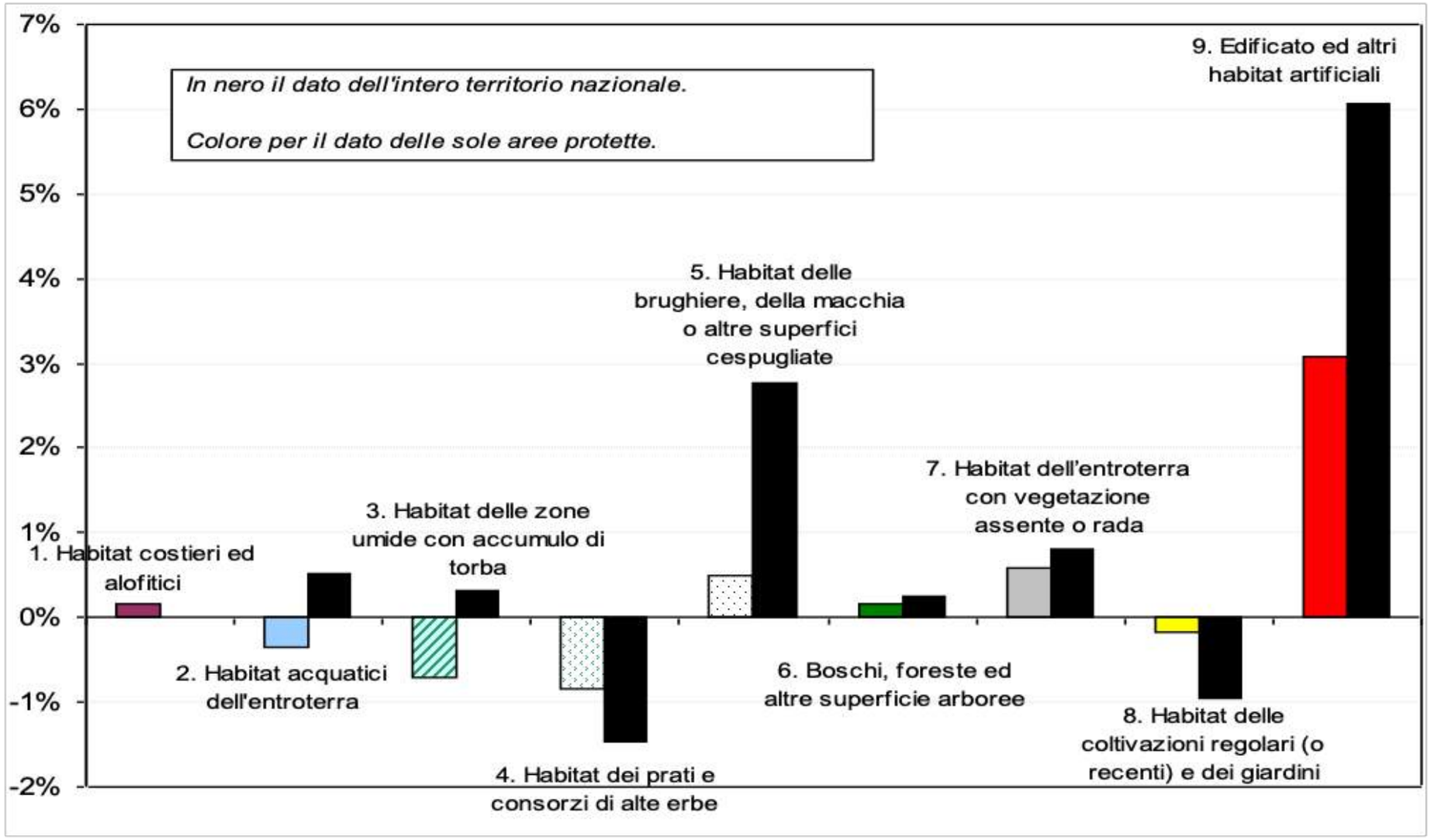


Principali dinamiche di trasformazione del paesaggio



Entità delle trasformazioni in percentuale sul totale dei cambiamenti a livello nazionale

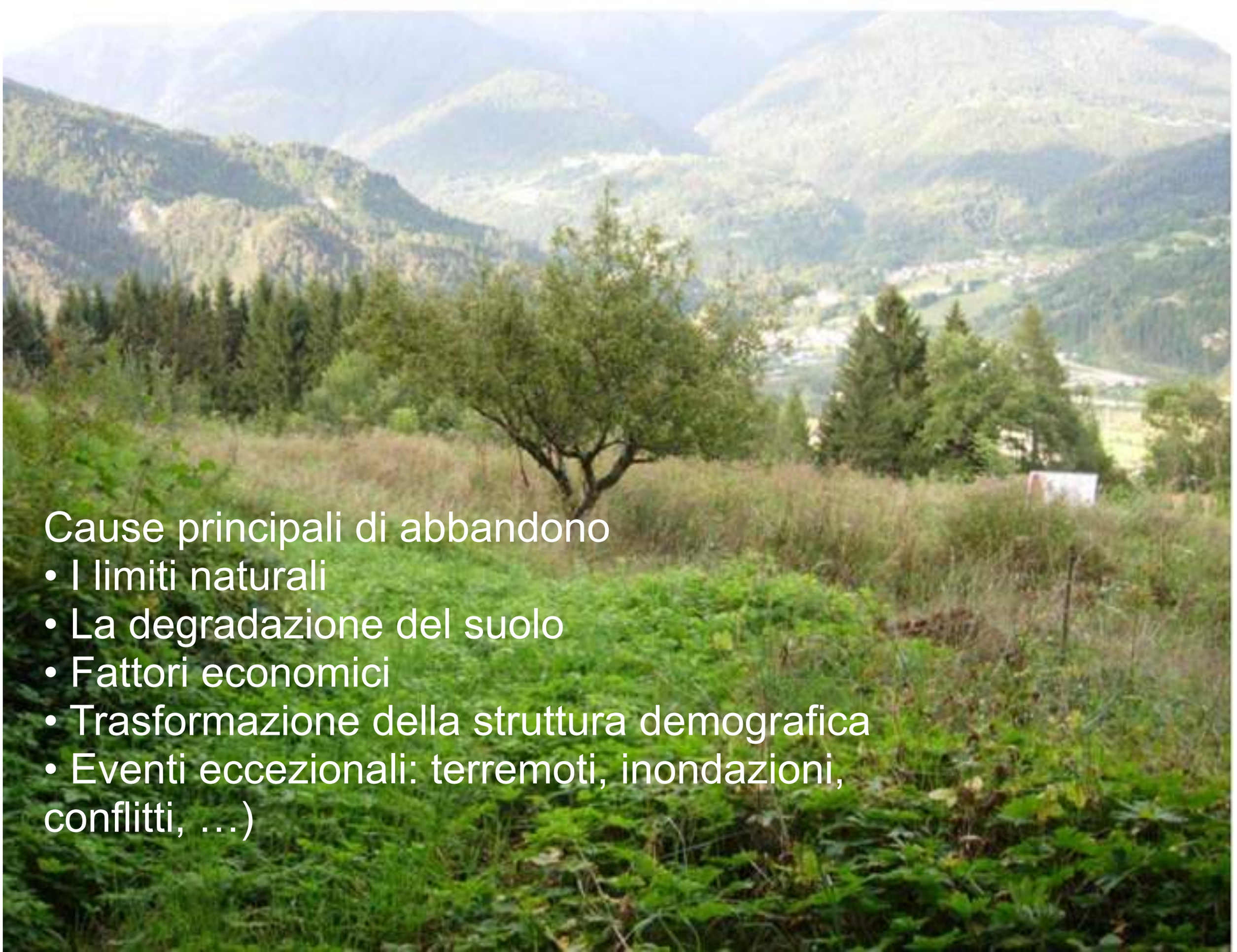
Analisi delle principali dinamiche territoriali all'interno delle aree protette



“It’s not a journey where we are backing into the caves. It’s a journey of high technology, good health, of better democracy, and huge, multiple benefits that go well beyond saving the planet.”

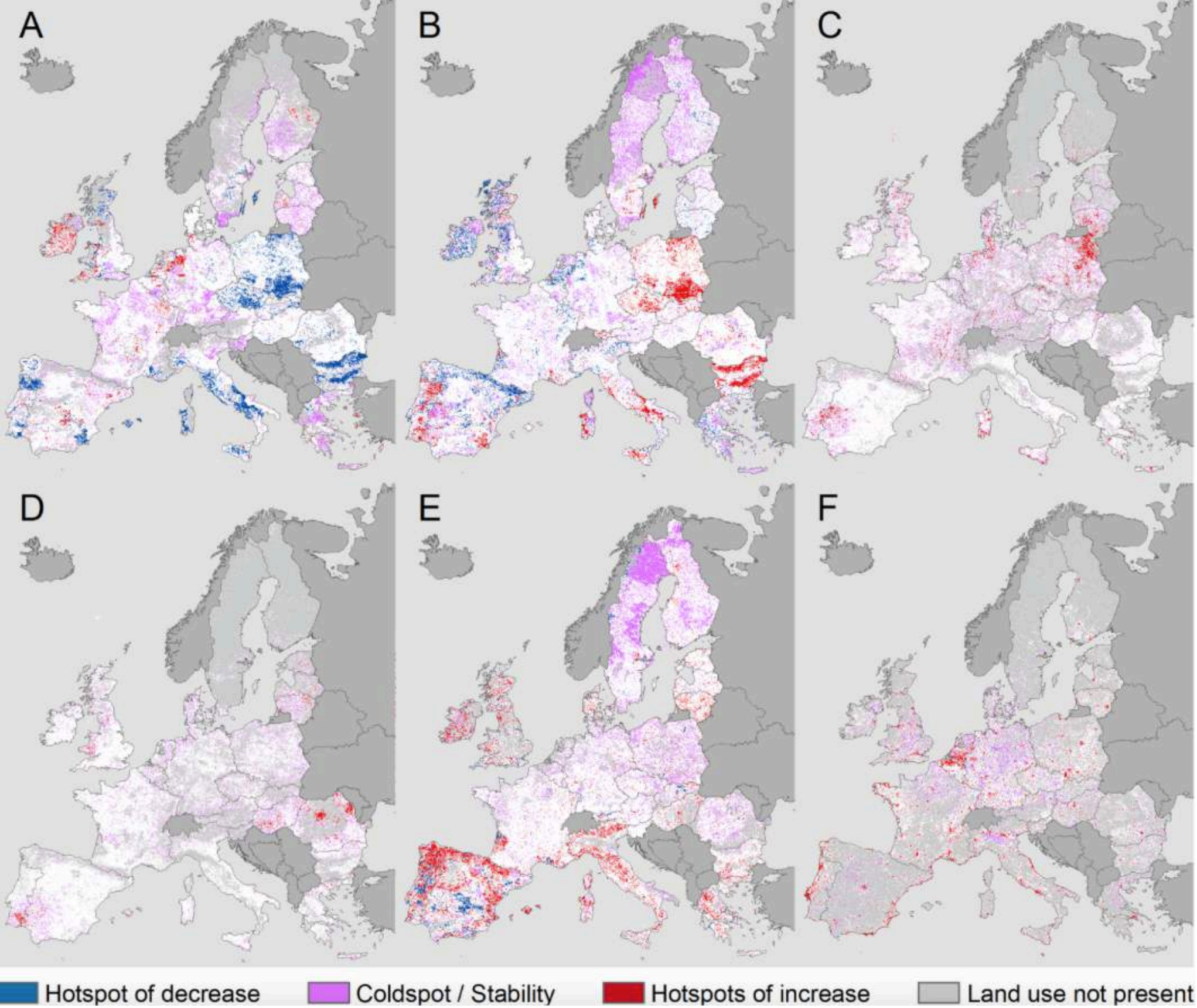
"Non è un viaggio di ritorno nelle caverne. È un viaggio di alta tecnologia, di benessere psico-fisico, di democrazia più ampia e diffusa, e di enormi, molteplici benefici che vanno ben oltre il fatto di salvare pianeta. “

Johan Rockström, 2018



Cause principali di abbandono

- I limiti naturali
- La degradazione del suolo
- Fattori economici
- Trasformazione della struttura demografica
- Eventi eccezionali: terremoti, inondazioni, conflitti, …)



A - AGRICOLI

B - PASCOLI

C –ABBANDONATI

D – RIC. AGRICOLA

E – FORESTE

F – URBANIZZATO

***Hotspots of land use change in Europe*, Kuemmerle et al, 2016, Environ. Res. Lett. 11 064020 doi:10.1088/1748-9326/11/6/064020**

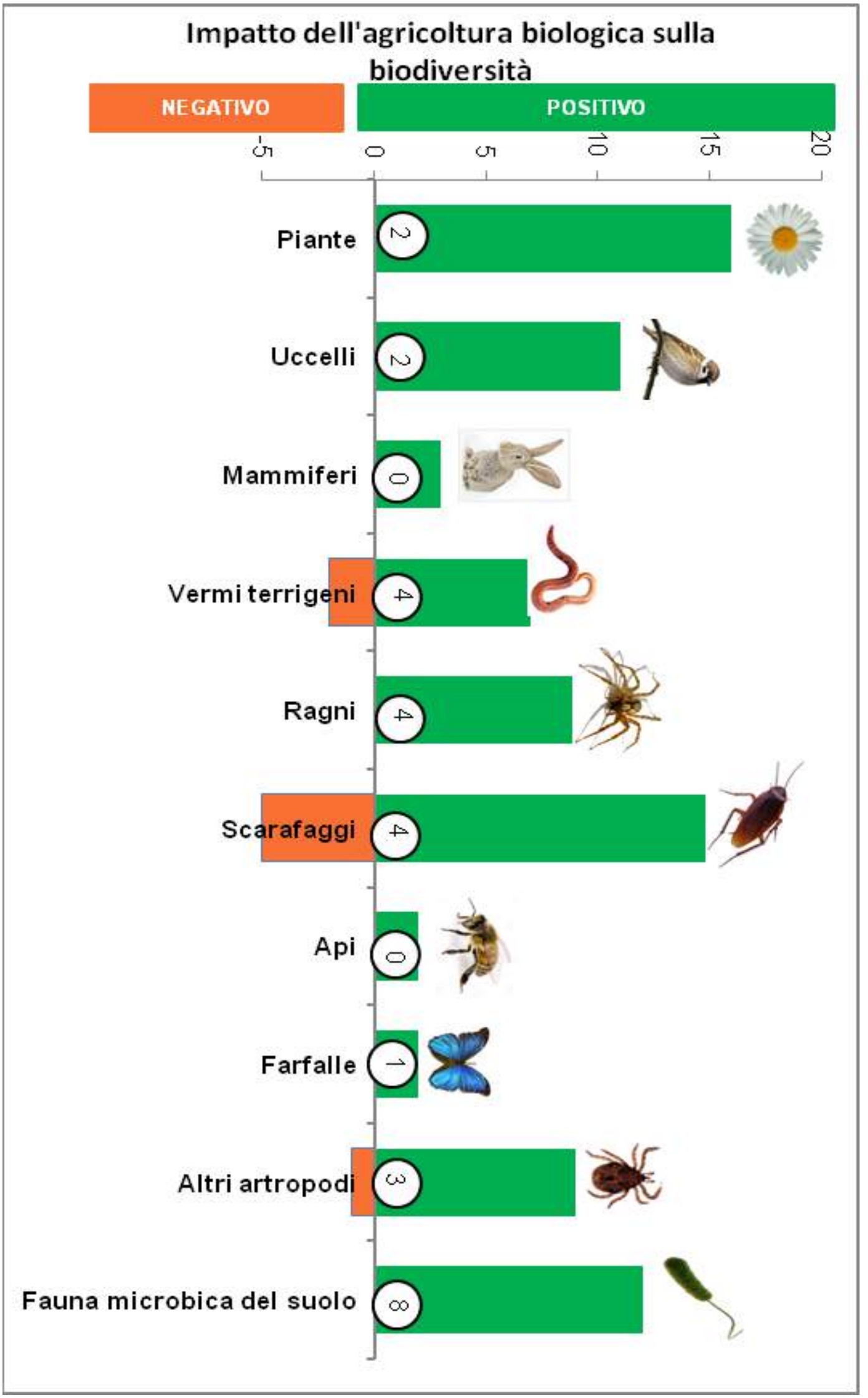
In sintesi

Impatti negativi

- Ambientali (degradazione del suolo e del territorio, maggiori rischi di incendio, banalizzazione del paesaggio, riduzione della biodiversità di specie e genetica, etc.)
- Economici
- Sociali

Impatti positivi

- Ambientali (estensivazione e riduzione delle pressioni, aumento della biodiversità di specie e genetica, qualità delle acque, carbon sink, etc.)
- Economici
- Sociali


Impatto dell'agricoltura biologica sulla biodiversità
NEGATIVO
POSITIVO
-5
0
5
10
15
20
Piante
2
Uccelli
2
Mammiferi
0
Vermi terrigeni
4
Ragni
4
Scarafaggi
4
Api
0
Farfalle
1
Altri artropodi
3
Fauna microbica del suolo
8

Corine land cover classes

1. Artificial surfaces

1.1 Urban fabric

- 1.1.1. Continuous urban fabric
- 1.1.2. Discontinuous urban fabric

1.2 Industrial, commercial and transport units

- 1.2.1. Industrial or commercial units
- 1.2.2. Road and rail networks and associated land
- 1.2.3. Port areas
- 1.2.4. Airports

1.3 Mine, dump and construction sites

- 1.3.1. Mineral extraction sites
- 1.3.2. Dump sites
- 1.3.3. Construction sites

1.4 Artificial, non-agricultural vegetated areas

- 1.4.1. Green urban areas
- 1.4.2. Sport and leisure facilities

2. Agricultural areas

2.1 Arable land

- 2.1.1. Non-irrigated arable land
- 2.1.2. Permanently irrigated land
- 2.1.3. Rice fields

2.2 Permanent crops

- 2.2.1. Vineyards
- 2.2.2. Fruit trees and berry plantations
- 2.2.3. Olive groves

2.3 Pastures

- 2.3.1. Pastures

2.4 Heterogeneous agricultural areas

- 2.4.1. Annual crops associated with permanent crops
- 2.4.2. Complex cultivation patterns
- 2.4.3. Land principally occupied by agriculture
- 2.4.4. Agro-forestry areas

3. Forests and semi-natural areas

3.1 Forests

- 3.1.1. Broad-leaved forest
- 3.1.2. Coniferous forest
- 3.1.3. Mixed forest

3.2 Shrub and/or herbaceous vegetation associations

- 3.2.1. Natural grassland
- 3.2.2. Moors and heathland
- 3.2.3. Sclerophyllous vegetation
- 3.2.4. Transitional woodland shrub

3.3 Open spaces with little or no vegetation

- 3.3.1. Beaches, dunes, and sand plains
- 3.3.2. Bare rock
- 3.3.3. Sparsely vegetated areas
- 3.3.4. Burnt areas
- 3.3.5. Glaciers and perpetual snow

4. Wetlands

4.1 Inland wetlands

- 4.1.1. Inland marshes
- 4.1.2. Peatbogs

4.2 Coastal wetlands

- 4.2.1. Salt marshes
- 4.2.2. Salines
- 4.2.3. Intertidal flats

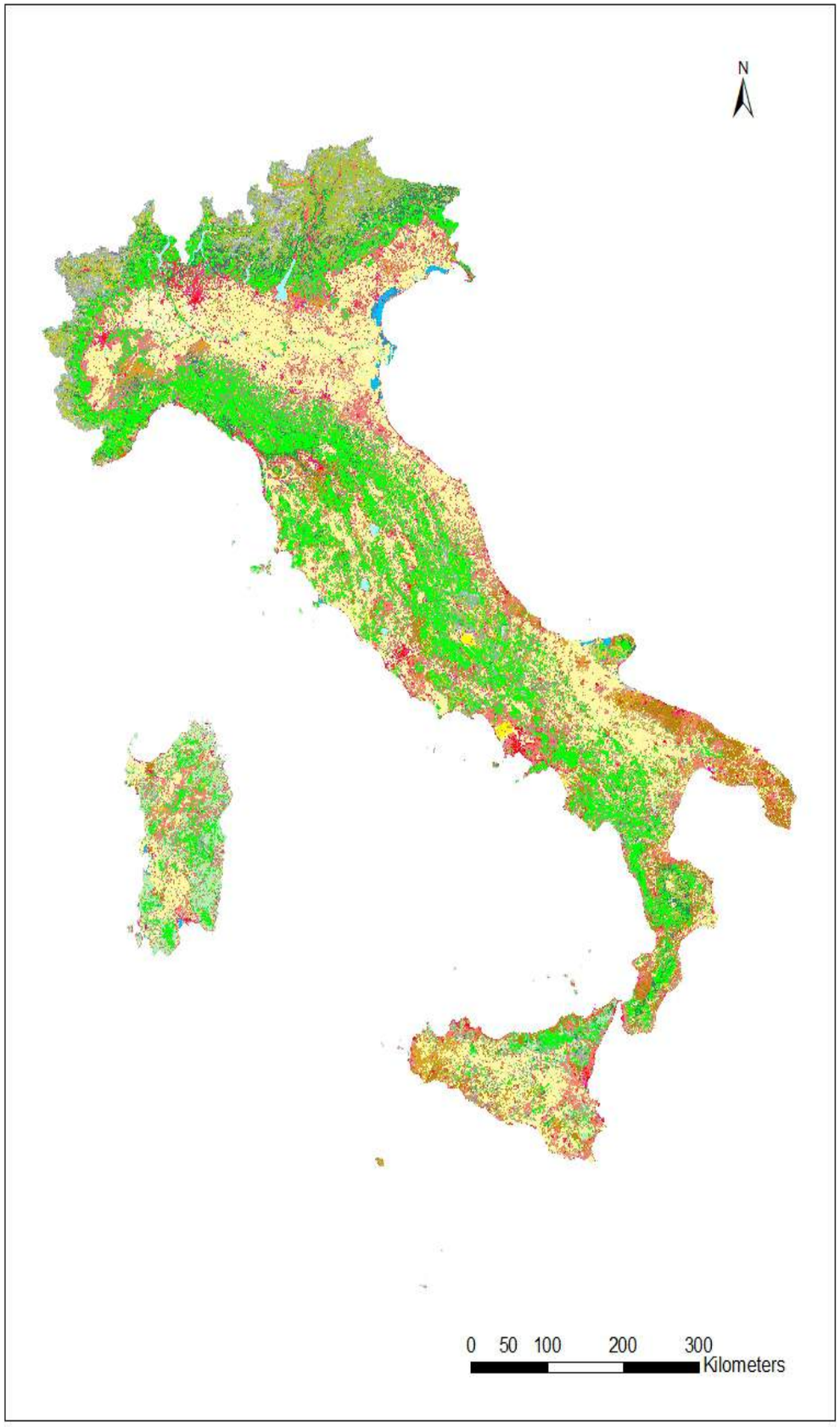
5. Water bodies

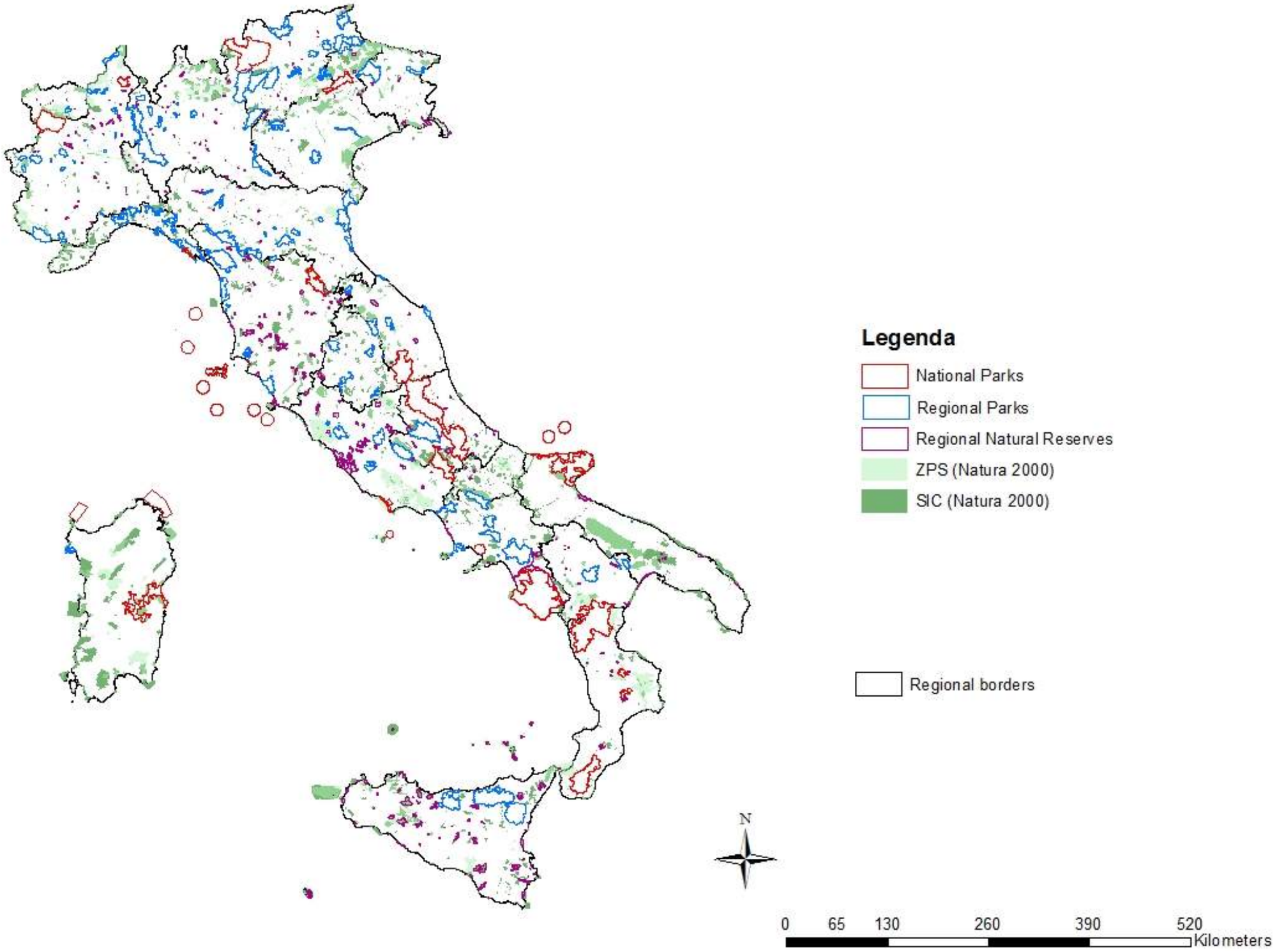
5.1 Inland waters

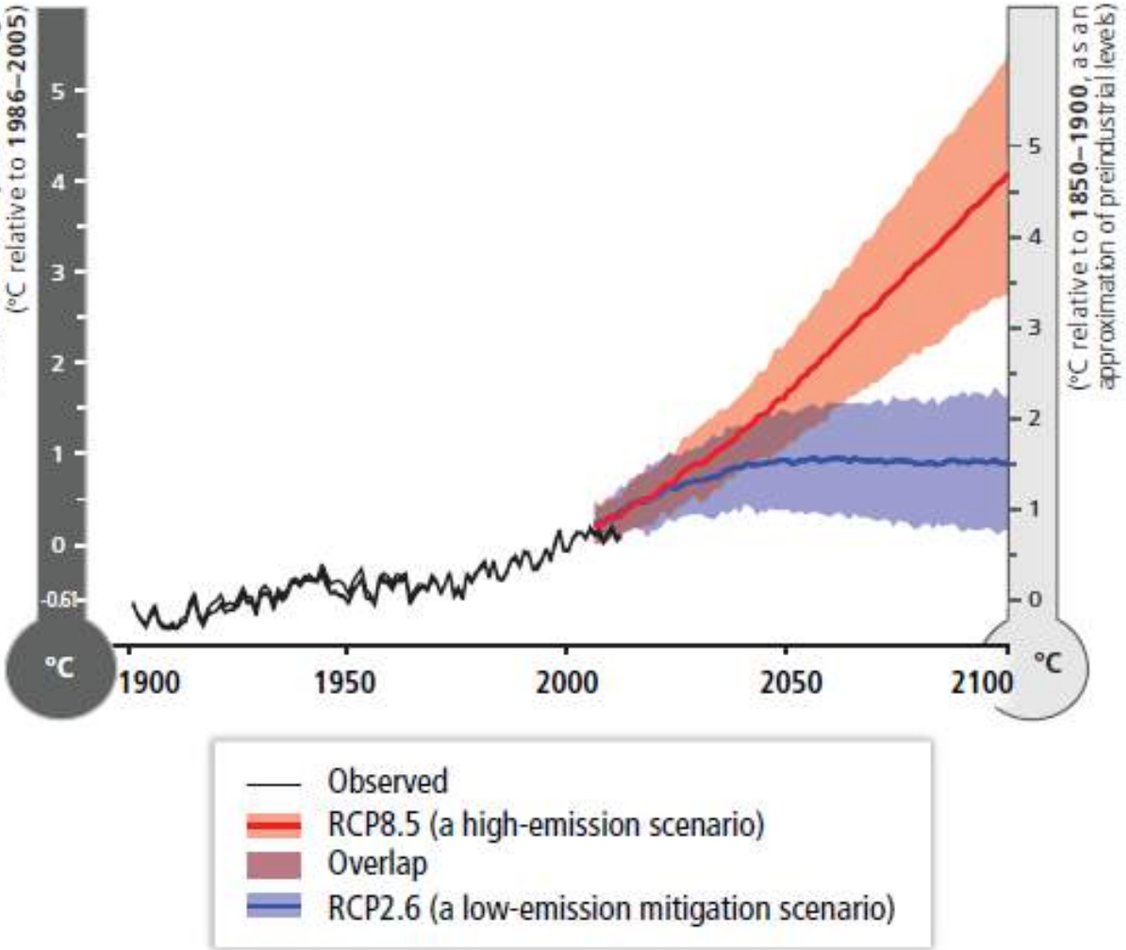
- 5.1.1. Water courses
- 5.1.2. Water bodies

5.2 Marine waters

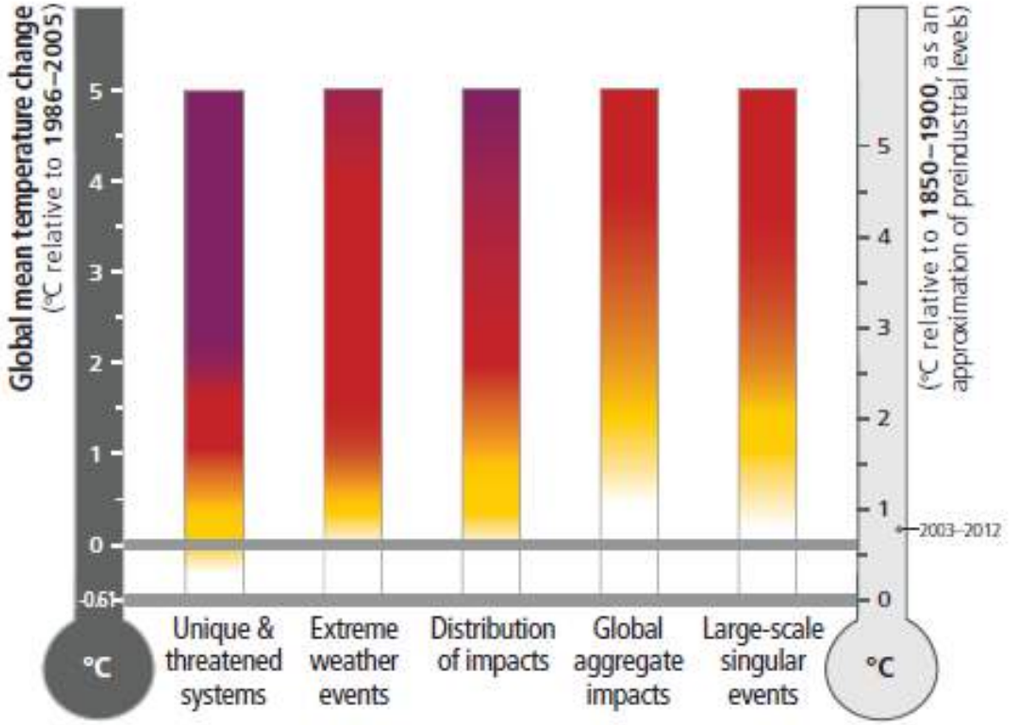
- 5.2.1. Coastal lagoons
- 5.2.2. Estuaries
- 5.2.3. Sea and ocean




Legenda
National Parks
Regional Parks
Regional Natural Reserves
ZPS (Natura 2000)
SIC (Natura 2000)
Regional borders
N
0 65 130 260 390 520
Kilometers


Global mean temperature change
(°C relative to 1986–2005)
5
4
3
2
1
0
-0.61
°C
1900
1950
2000
2050
2100
(°C relative to 1850–1900, as an approximation of preindustrial levels)
5
4
3
2
1
0
°C

Observed
RCP8.5 (a high-emission scenario)
Overlap
RCP2.6 (a low-emission mitigation scenario)


Global mean temperature change
(°C relative to 1986–2005)
5
4
3
2
1
0
-0.61
°C
Unique & threatened systems
Extreme weather events
Distribution of impacts
Global aggregate impacts
Large-scale singular events
(°C relative to 1850–1900, as an approximation of preindustrial levels)
5
4
3
2
1
2003–2012
0
°C


Level of additional risk due to climate change
Undetectable
Moderate
High
Very high

Evoluzione delle precipitazioni nella regione mediterranea (1902 - 2010)

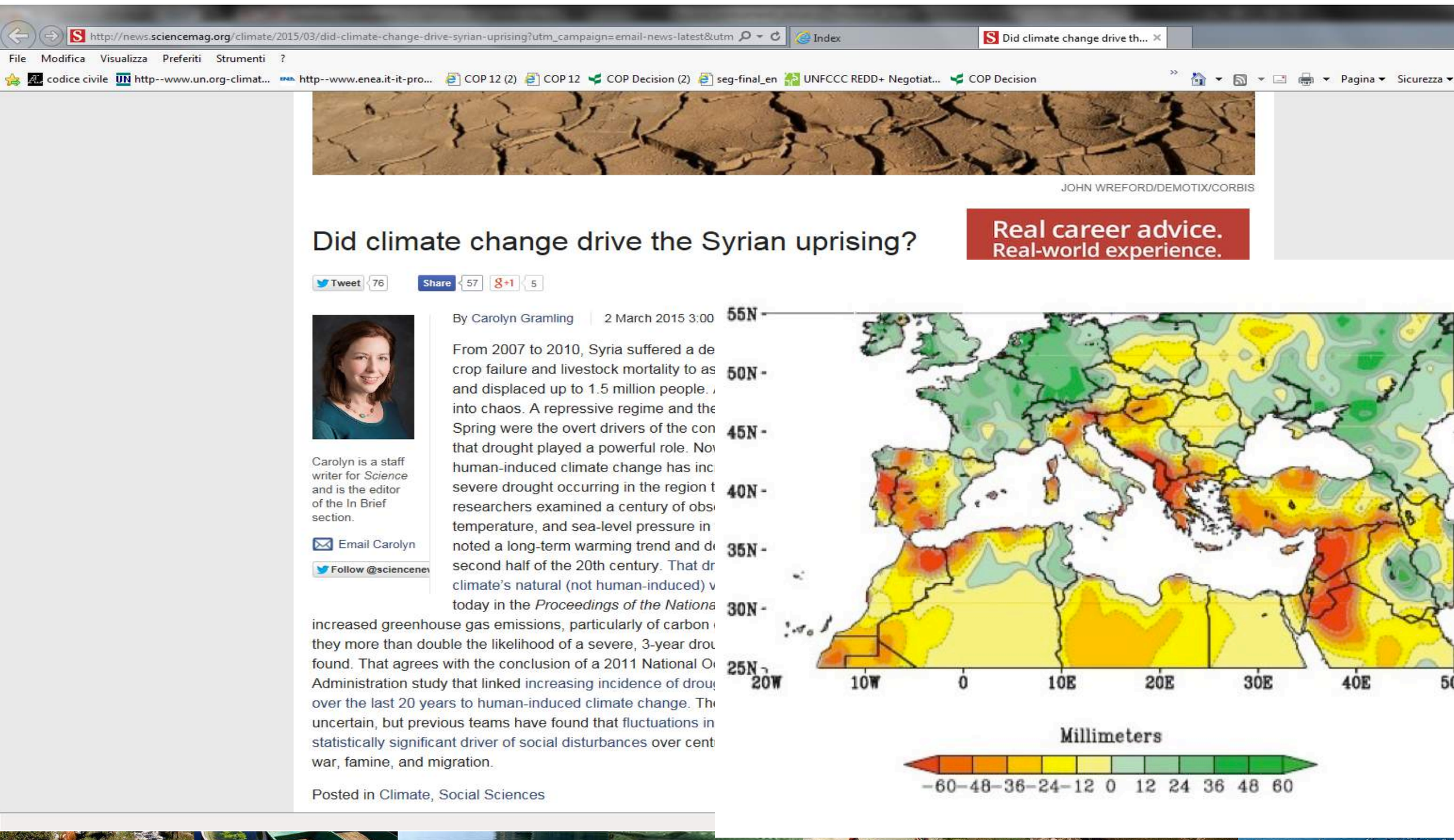


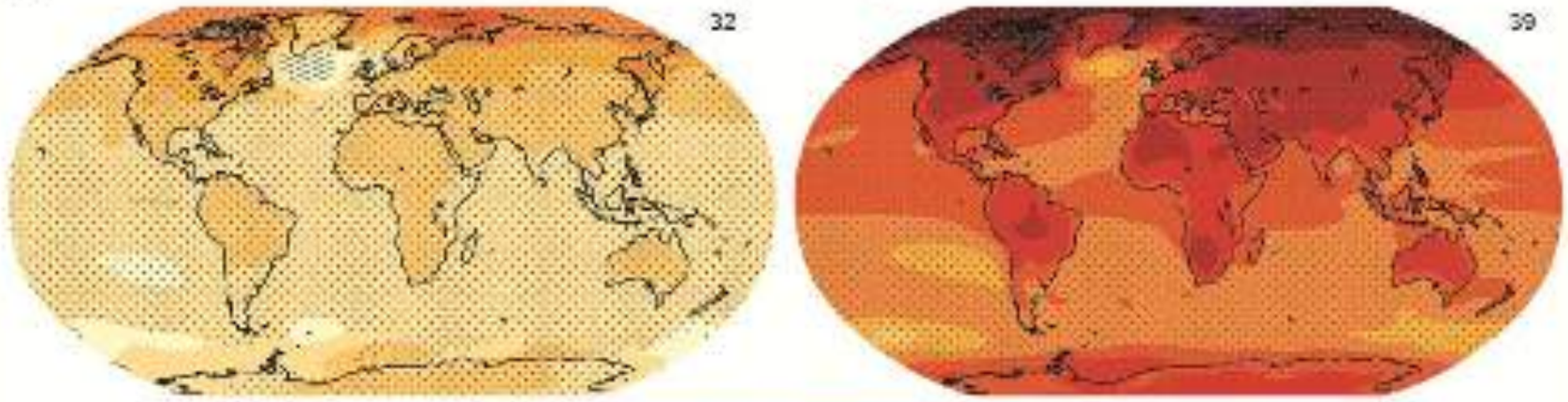
Table 12.4. *Summary of the main expected impacts of climate change in Europe during the 21st century, assuming no adaptation.*

Sectors and Systems	Impact	Area: North	Atlantic	Central	Mediterr.	East
Water resources	Floods	↓↓	↓↓	↓↓	↓	↓↓↓
	Water availability	↑↑	↑↑	↓	↓↓↓	↓↓
	Water stress	↑↑	↑↑	↓	↓↓↓	↓↓
Forest, shrublands and grasslands	Forest NPP	↑↑↑	↑↑	↑ to ↓	↓	↑ to ↓
	Northward/inland shift of tree species	↑↑↑	↑↑	↑↑	↑ to ↓	↓↓
	Stability of forest ecosystems	↓↓	↓	↓	↓↓↓	↓↓↓
	Shrublands NPP	↑↑↑	↑↑↑	↑	↓↓↓	↓↓
	Natural disturbances (e.g., fire, pests, wind-storm)	↓	↓	↓	↓↓↓	↓↓
	Grasslands NPP	↑↑↑	↑↑	↑ to ↓	↓↓↓	↑
Agriculture and fisheries	Suitable cropping area	↑↑↑	↑↑	↑	↓↓	↓
	Agricultural land area	↓↓	↓↓	↓↓	↓↓	↓↓
	Summer crops (maize, sunflower)	↑↑↑	↑↑	↑	↓↓↓	↓↓
	Winter crops (winter wheat)	↑↑↑	↑↑	↑ to ↓	↓↓	↑
	Irrigation needs	na	↑ to ↓	↓↓	↓↓↓	↓
	Energy crops	↑↑↑	↑↑	↑	↓↓	↓
	Livestock	↑ to ↓	↓	↓↓	↓↓	↓↓
	Marine fisheries	↑↑	↑	na	↓	na

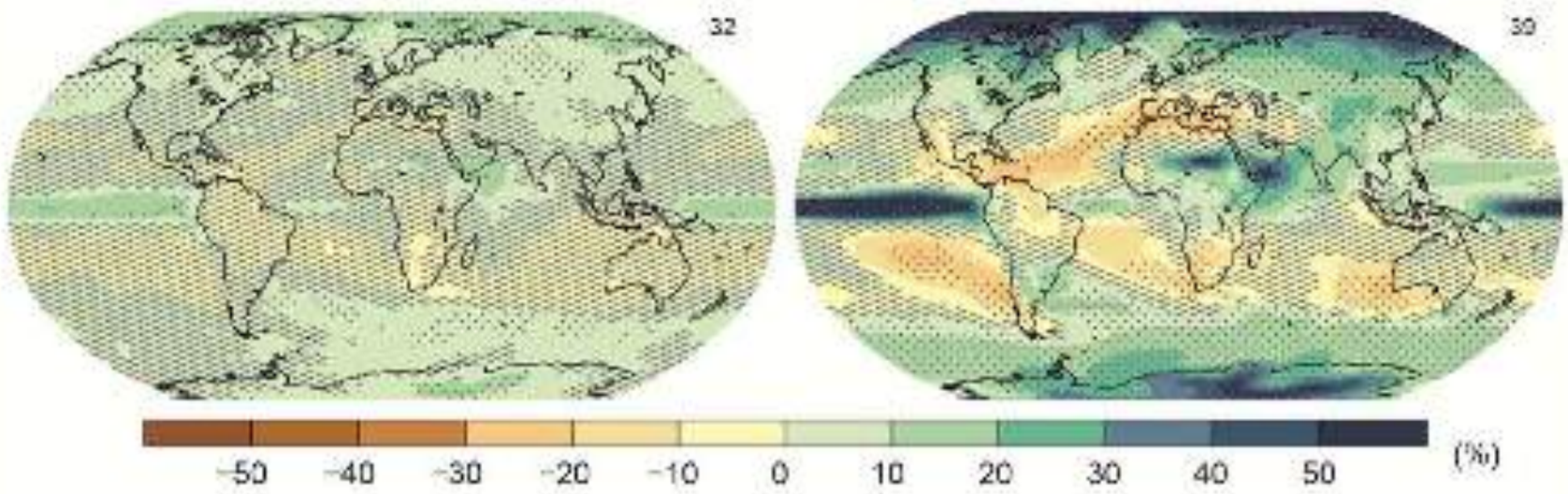
RCP 2.6

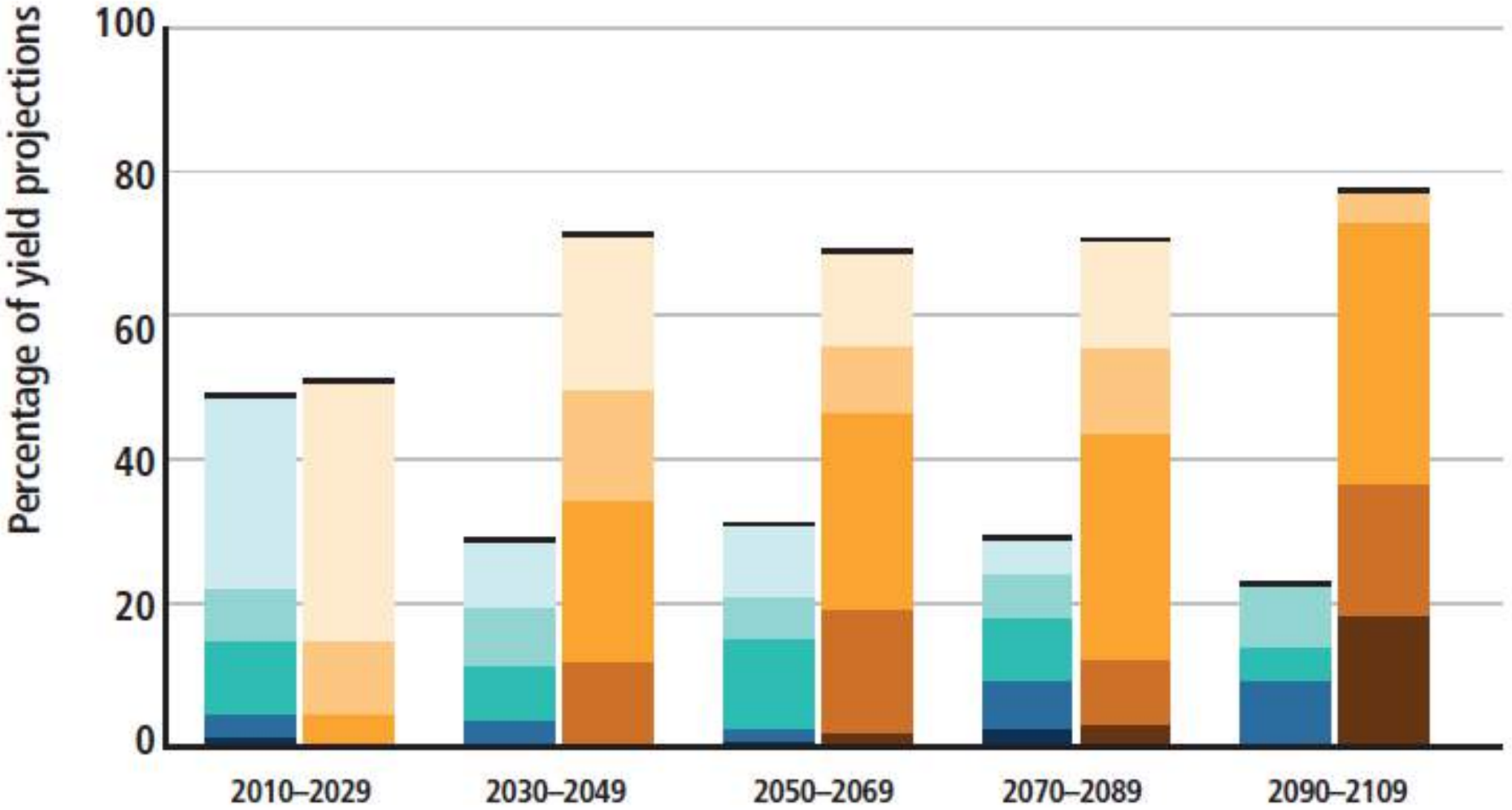
RCP 8.5

(a) Change in average surface temperature (1986–2005 to 2081–2100)



(b) Change in average precipitation (1986–2005 to 2081–2100)

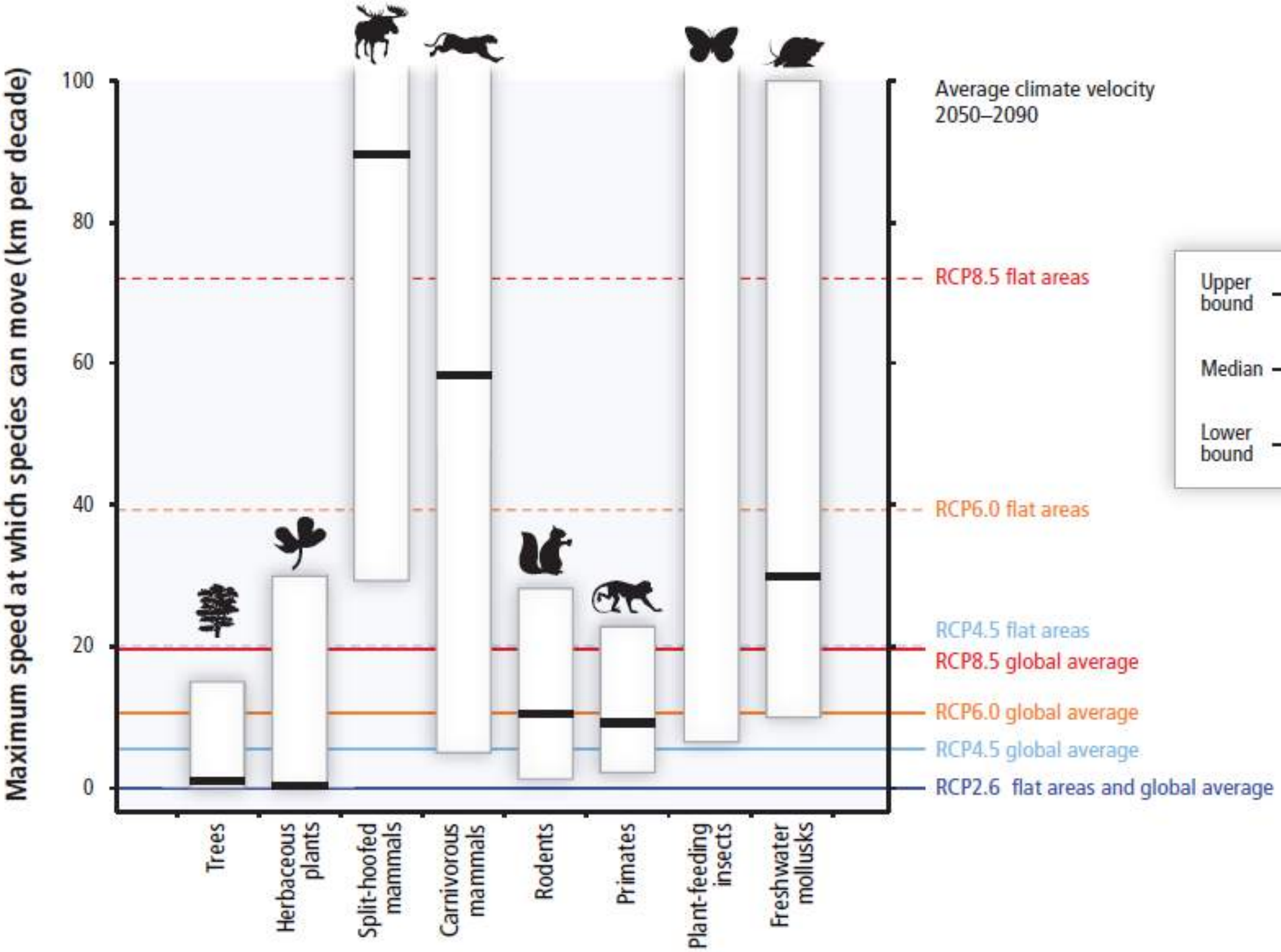



Percentage of yield projections
100
80
60
40
20
0
2010–2029
2030–2049
2050–2069
2070–2089
2090–2109
Color Legend
Range of yield change
increase in yield
50 to 100%
25 to 50%
10 to 25%
5 to 10%
0 to 5%
decrease in yield
0 to –5%
–5 to –10%
–10 to –25%
–25 to –50%
–50 to –100%

Region	Sub-region	Yield impacts (%)	Scenario	Reference
Australia	South	Wheat: –15, –12	A2; Low, high plant available water capacity 2080 +CO_2 CCAM	Luo et al. (2009)
	Southeast	Wheat: –29 (–25)	B2, A2, A1FI 2080 –CO_2 (+CO_2) CCAM	Anwar et al. (2007)

Regional impacts on livestock

Region	Sub-region	Climate change impacts	Scenarios	Reference
Africa	Botswana	Cost of supplying water from boreholes could increase by 23% due to increased hours of pumping, under drier and warmer conditions.	A2, B2 2050	Section 22.3.4.2
	Lowlands of Africa	Reduced stocking of dairy cows, a shift from cattle to sheep and goats, due to high temperature.		
	Highlands of East Africa	Livestock keeping could benefit from increased temperature.		
	East Africa	Maize stover availability per head of cattle may decrease due to water scarcity.		
	South Africa	Dairy yields decrease by 10–25%.	A2 2046–2065/2080–2100 ECHAM5/MPI-OM, GFDL-CM2.0/2, MRI-CGCM2.3.2	Nesamvuni et al. (2012)
Europe	Netherlands	Dairy production affected at daily mean temperatures above 18°C		Section 23.4.2
	Italy	Mortality risk to dairy cattle increased by 60% by exposure to high air temperature and high air humidity during breeding.		
	French Uplands	Annual grassland production system significantly reduced by 4-year exposure to climatic conditions.	A2 2070	Cantarel et al. (2013)
	France	No impact on dairy yields.	A2 1970–1999, 2020–2049, 2070–2099 ARPEGE	Graux et al. (2011)
	Ireland, France	Grassland dairy system increases potential of dairy production, with increased risk of summer–autumn forage failure in France.	A1B By the end of century	
	Overall Europe	Spread of bluetongue virus (BTV) in sheep and ticks in cattle due to climate warming.	2080	Graux et al. (2011)
		No increase in risk of incursion of Crimean–Congo hemorrhagic fever virus in livestock.		Section 23.4.2


Maximum speed at which species can move (km per decade)
100
80
60
40
20
0
Trees
Herbaceous plants
Split-hoofed mammals
Carnivorous mammals
Rodents
Primates
Plant-feeding insects
Freshwater mollusks
Average climate velocity 2050–2090
RCP8.5 flat areas
RCP6.0 flat areas
RCP4.5 flat areas
RCP8.5 global average
RCP6.0 global average
RCP4.5 global average
RCP2.6 flat areas and global average
Upper bound
Median
Lower bound

Biodiversity Conservation