



# Biodiversity and ecosystem services

Protecting the planet's ecological resources



Many animal and plant species are seriously threatened by urban sprawl, intensive agriculture, pollution, invasive species and climate change resulting from human activities. According to experts, the global environmental commons of land, ocean, atmosphere and biosphere, essential to humankind, are being altered to a degree never seen before, with cascading impacts on climate, ecosystems, our economy and quality of life.

Research and  
Innovation

# Looking at the bigger picture

The International Union for Conservation of Nature estimates that up to 25 % of European animal species are now threatened with extinction. The UN Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) has elaborated a global assessment of the state of nature, ecosystems and nature's contributions to people. This demonstrates the global trend of biodiversity decline and identifies its causes.

The EU Biodiversity Strategy aims to halt the loss of ecosystem services in the EU as well as global biodiversity loss. It involves a commitment to protect species and habitats, maintain and restore ecosystems, and achieve more sustainable agriculture and forestry. In addition, it will make fishing more sustainable and the seas healthier, combat the spread of alien species, and help prevent the loss of plants and animals around the world.

## Spotlight on EU research

This CORDIS Results Pack focuses on 11 projects funded under the EU's FP7 and Horizon 2020 research programmes. These prove the need for biodiversity and ecosystem services research to ensure Europe's sustainability, and their relevance for current and future global policy objectives.

### BiodivERsA3

(Consolidating the European Research Area on biodiversity and ecosystem services), Coordinated in: France

The **BiodivERsA3** initiative mapped biodiversity research projects and funding across Europe and funded research calls on its own, strengthening the cooperation between programmes and research funders, and achieving greater resource efficiency.

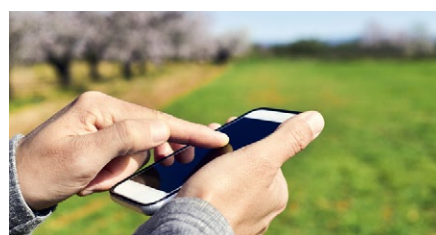


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### ESMERALDA

(Enhancing ecoSysteM sERvices mApping for poLicy and Decision mAking), Coordinated in: Germany

The **ESMERALDA** project created innovative strategies to facilitate European, national and regional mapping for the effective assessment of ecosystems and their services.



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### ECOPOTENTIAL

(Improving future ecosystem benefits through earth observations), Coordinated in: Italy

**ECOPOTENTIAL** developed tools to connect Earth observation techniques with field measurements to study ecosystems and better manage protected areas such as National Parks, UNESCO World Heritage and Natura2000 sites, and marine ecosystems.



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### AfricanBioServices

(Linking biodiversity, ecosystem functions and services in the Great Serengeti-Mara Ecosystem (GSME) - drivers of change, causalities and sustainable management strategies), Coordinated in: Norway

**AfricanBioServices** has sought to link biodiversity, ecosystem functions and services in the Serengeti-Mara region in East Africa with socio-economic and policy changes.



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## AQUACROSS

(Knowledge, Assessment, and Management for AQUatic Biodiversity and Ecosystem Services aCROSS EU policies), Coordinated in: Germany

**AQUACROSS** advanced knowledge on ecosystem management to enhance the resilience of aquatic ecosystems and arrest biodiversity loss. Wetlands are the ecosystems with the highest rate of loss around the world.

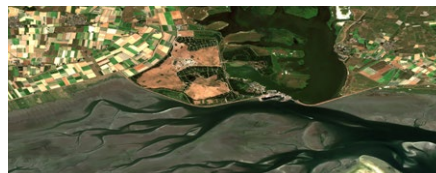


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## SWOS

(Satellite-based Wetland Observation Service), Coordinated in: Germany

The **SWOS** project developed a monitoring and information service for wetland ecosystems based on the European Space Agency's Sentinel satellites.



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## OPERAs and OPENNESS

(OPERAs: Operational Potential of Ecosystem Research Applications), Coordinated in: United Kingdom. (OPENNESS: OPERationalisation of Natural capital and Ecosystem ServiceS: from concepts to real-world applications), Coordinated in: Finland

**OPERAs** and **OPENNESS** demonstrated the value of ecosystems to people by studying exemplary cases and establishing communities of practice. The **Oppla** resource portal contains all the tools and case studies on ecosystem services and natural capital developed by both projects



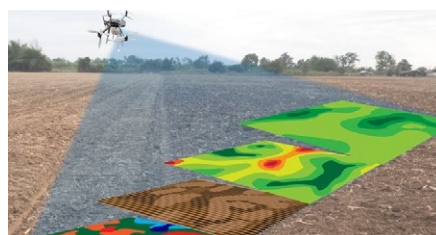
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## INSPIRATION

(INtegrated Spatial PlannIng, land use and soil management Research AcTION), Coordinated in: Germany

**INSPIRATION** developed a strategic research agenda related to land and soil, to keep providing essential ecosystem services and begin reverting biodiversity loss related to land use.



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## BIG4

(Biosystematics, Informatics and Genetics of the big 4 insect groups: training tomorrow's researchers and entrepreneurs), Coordinated in: Denmark

The **BIG4** project studied the four largest insect groups, represented by beetles, bees, flies and butterflies, and the services they could potentially provide, by combining genomics, phylogenetics, informatics, taxonomy, semantic biodiversity publishing and citizen science.



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## GLOBIS-B

(GLOBal Infrastructures for Supporting Biodiversity research), Coordinated in: Netherlands

Biodiversity data are stored in databases all over the world, and computational tools are needed to understand and predict biodiversity changes. **GLOBIS-B** is working to establish worldwide cooperation among research infrastructures to provide services for deploying the data for specific applications.



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## STEP

(Seventh Framework Programme – Status and Trends of European Pollinators), Coordinated in: United Kingdom

Finally, the FP7 **STEP** project is an outstanding example of how research can successfully inform policy making, providing evidence for the EU Pollinators Initiative (published in June 2018).



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### *EU Research and Innovation to protect the planet's ecological resources*

European research brings together knowledge and expertise to identify the causes of the current trend of biodiversity decline, to assess the contribution of ecosystems to people's wellbeing and the economy, and to provide solutions. It also supports IPBES and the development of EU policies, such as the EU Biodiversity Strategy, the EU Pollinators Initiative and the future post-2020 strategy.

The EU and its Member States contribute significant financial resources to the conservation of biodiversity. In 2016 EU biodiversity-related expenditure amounted to EUR 13 billion, i.e. 9 % of the total EU budget. EU investments in biodiversity-related research during Horizon 2020 are up to EUR 1.7 billion, including basic and applied research, training, infrastructures, ecosystem-based approaches and nature-based solutions.

#### **Learn more about**

EU policies on Nature and Biodiversity: [ec.europa.eu/environment/nature/index\\_en.htm](https://ec.europa.eu/environment/nature/index_en.htm)

EU Research and Innovation: [ec.europa.eu/research](https://ec.europa.eu/research)

Nature-Based Solutions: [europa.eu/!Kw67mN](https://europa.eu/!Kw67mN)

Horizon 2020 Environment and resources project map: [sc5.easme-web.eu/?theme=green](https://sc5.easme-web.eu/?theme=green)

CORDIS Results Pack: [bit.ly/2H0oXtb](https://bit.ly/2H0oXtb)

Pan-European research co-funded by BiodivERsA: [www.biodiversa.org/](http://www.biodiversa.org/)



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Directorate-General for Research and Innovation  
Contact: DG RTD C.3 RTD-BIODIVERSITY@ec.europa.eu  
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