



# Transforming cities, enhancing well-being through nature-based solutions

*the EU-led mission towards the urban green transformation*

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*Sustainable Management of  
Natural Resources*

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The EU funds innovative research on **biodiversity, ecosystem services and nature-based solutions** for sustainable and resilient cities and territories.

**Objective:**

*"to achieve a resource- and water-efficient and climate change resilient economy and society, the protection and sustainable management of natural resources and ecosystems, and a sustainable supply and use of raw materials, in order to meet the needs of a growing global population within the sustainable limits of the planet's natural resources and eco-systems."*

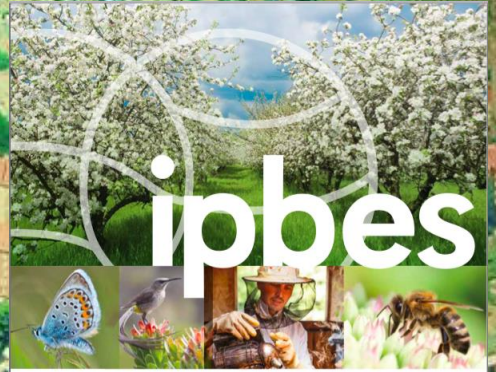
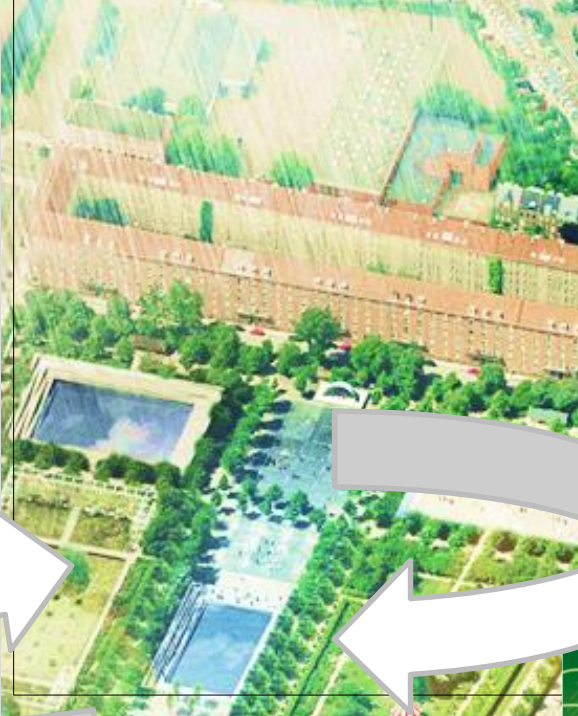


The ERA-Net promoting pan-European research on biodiversity and ecosystem services

### The BiodivERsA Strategic Research and Innovation Agenda 2017-2020



Biodiversity: a natural heritage to conserve for ecosystem services and Nature-based Solutions to societal challenges



The assessment report on **POLLINATORS, POLLINATION AND FOOD PRODUCTION**

**ipbes**  
**IPBES Global Assessment**

Friday 05, May



www.ipbes.net



### An Action Plan for nature, people and the economy

The EU Habitats and Birds Directives





**Nature-based solutions** are living solutions, inspired and supported by nature, which provide **environmental, social and economic benefits** and help build **resilience**. Such solutions bring more nature into cities, landscapes and seascapes, through local, resource-efficient and **systemic** interventions.



Wetlands



Bio-filters



Vegetated floodway, swales



Green roofs, green walls



Permeable pavements



Floodable parks  
Retention ponds  
Alluvial meadows



Daylighting,  
Re-naturalization of  
River course



Green spaces



Reforestation,  
Street trees

# Urban challenges...



Water scarcity



Flooding



Wellbeing and  
climate driven  
health issues



Economic  
opportunities,  
green jobs



Pollution



Heat stress



Participatory  
planning,  
Governance



Densification,  
urban sprawl



Biodiversity loss



Habitat loss

Social justice,  
Social cohesion



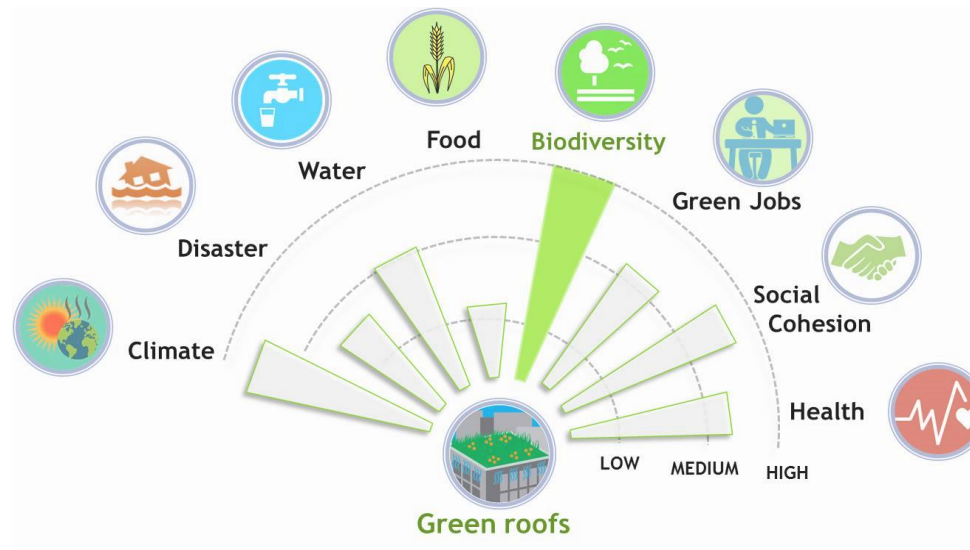
# Environmental Research

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## Nature-Based Solutions in the EU: Innovating with nature to address social, economic and environmental challenges ☆

Nicolas Faivre  , Marco Fritz, Tiago Freitas, Birgit de Boissezon, Sofie Vandewoestijne



# Horizon 2020

## Portfolio of NBS projects

### Call Topic SCC-02-2016-2017 Demonstrating innovative nature-based solutions in cities

Project name 2017-2022	EU contribution (in EUR)
Connecting Nature	11 394 282
GrowGreen	11 224 058
UNaLab	12 768 932
URBAN GreenUP	13 970 642

#### 2018-2023

CLEVER Cities	14 214 661
EdiCitNet	11 254 913
proGReg	10 432 512
URBINAT	13 019 300

**Total EUR 98 279 300**

### Call Topic SC5-08-2017 Large-scale demonstrators on nature-based solutions for hydro-meteorological risk reduction

Project name 2018-2023	EU contribution (in EUR)
PHUSICOS	9 472 200
RECONNECT	13 520 690
OPERANDUM	12 257 343

**Total EUR 35 250 233**

### Call Topic SCC-03-2016 New governance, business, financing models and economic impact assessment tools for sustainable cities with nature-based solutions (urban re-naturing)

Project name 2016-2020	EU contribution (in EUR)
NATURVATION	7 797 878
Nature4Cities	7 499 981

**Total EUR 15 297 859**

### Call Topic SC5-09-2016 Operationalising insurance value of ecosystems

Project name 2016-2019	EU contribution (in EUR)
NAIAD	4 994 370

### Other research projects funded by other calls

ThinkNature, 2016-2019  
EU contribution: EUR 2 974 164

BiodivERsA3, 2015-2020  
EU contribution: EUR 11 988 018

EKLIPSE, 2016-2020  
EU contribution: EUR 2 997 271

ESMERALDA, 2015-2018  
EU contribution: EUR 3 002 166

INSPIRATION, 2015-2018  
EU contribution: EUR 2 598 761





## SCC-03–2016: Research and Innovation on business, finance and governance models and Economic Impact Assessment (RIA)

- ✓ *capture the multiple impacts & values of NBS for decision-making, including in spatial planning*
- ✓ *identify promising governance, business/finance and participation models*
- ✓ *leverage of investments and synergies between private and public action*

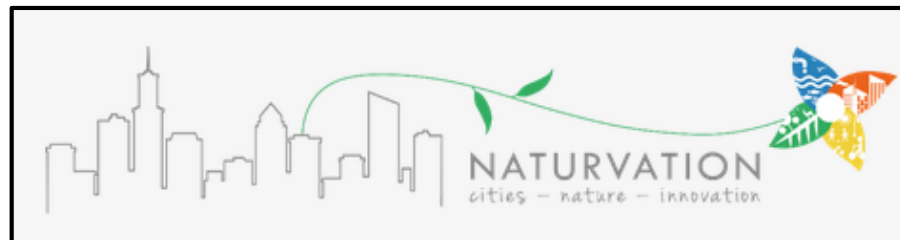


### **NATURE4CITIES**

**EU Contribution:** ~ 7.5Mill€

**Case studies :** Milano (IT), Alcalá de Henares (ES), Ankara (TR) and Szeged (HU)

[www.nature4cities.eu](http://www.nature4cities.eu)



### **NATURVATION**

EU contribution: ~7.8Mill€

Case studies: Barcelona (ES), Győr (HU), Leipzig (DE), Newcastle (UK), Malmo (SE), Utrecht (NL)

[www.naturvation.eu](http://www.naturvation.eu)

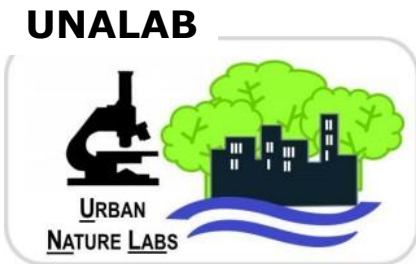


## SCC-02-2016/2017: Demonstrating innovative nature-based solutions in cities (IA)

- ✓ (2016) NBS for water and climate resilience in urban areas
- ✓ (2017) NBS to enhance health, wellbeing and social cohesion through inclusive urban regeneration

2016

GROW GREEN



[www.unalab.eu](http://www.unalab.eu)



[www.growgreenproject.eu](http://www.growgreenproject.eu)

Urban GreenUP



[www.urbangreenup.eu](http://www.urbangreenup.eu)

Connecting Nature



[www.connectingnature.eu](http://www.connectingnature.eu)

2017

CLEVER CITIES

EdiCitNet

proGIreg

URBiNAT

- EU budget of ~12Mill EUR per project
- Minimum involvement of 5 cities per project



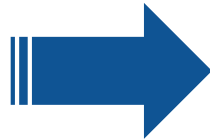
## **Providing a robust, EU-wide evidence base and develop a European reference framework on nature-based solutions in cities**

- ✓ *Develop and implement monitoring schemes to assess efficacy and performance of nature-based solutions, looking at benefits and co-benefits*
- ✓ *Develop methodologies for replication and up-scaling*
- ✓ *Identify and assess barriers and ways to overcome them*
- ✓ *Establishing sustainable data platforms*

## FRONT RUNNER CITIES



### Mentoring scheme



## FOLLOWER CITIES



- ✓ Cities as 'living laboratories' for the co-design, co-production, co-monitoring of NBS
- ✓ Demonstration of NBS through implementation and monitoring
- ✓ Committed to the mobilization of financial resources for the deployment of NBS

- ✓ Seek advice, expertise, assistance, capacity-building...
- ✓ Have access and participate in the tools/methodologies developed in front-runners
- ✓ Committed to develop re-naturing urban plans integrating NBS

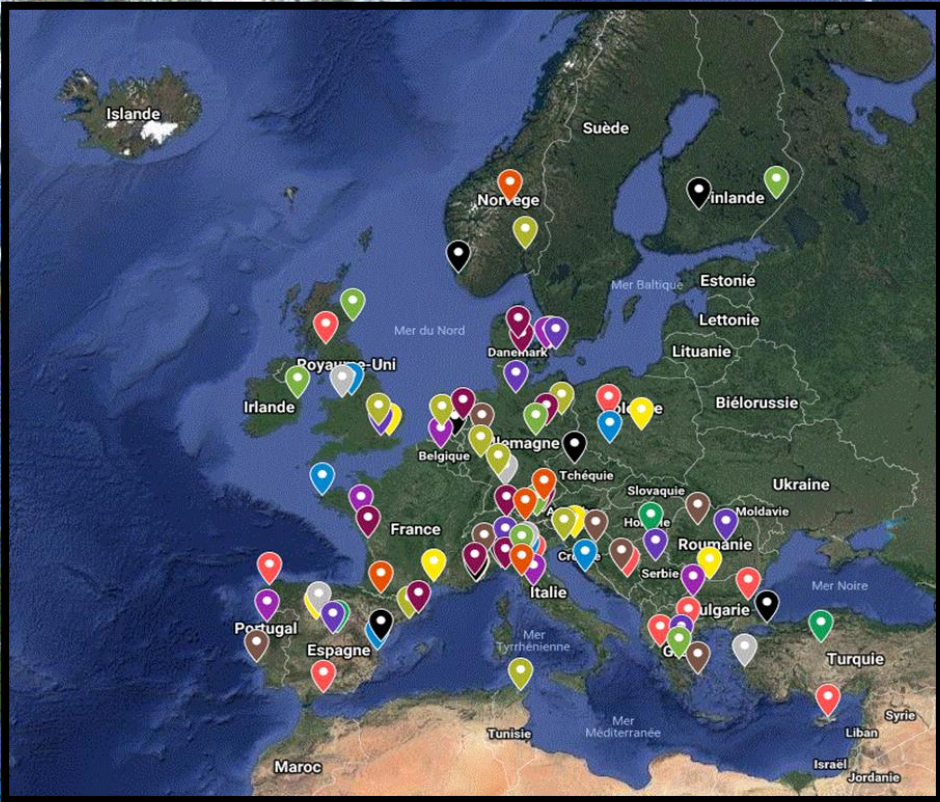


European  
Commission



**Co-design,  
co-creation,  
co-monitoring...**







Amsterdam - NBS for greening the city and increasing resilience



Bari - NBS for greening the urban space



Berlin - NBS for urban green connectivity and biodiversit



Bilbao - NBS for dealing with extreme temperature and rainfall events



Oradea - Improving quality of life with NBS



Milan - NBS for urban regeneration



Bristol - NBS for ensuring a sustainable future



Budapest - NBS for climate resilience and pollution control



Dresden - NBS for sustainable urban transition



Dublin - NBS for a more sustainable city by 2030



Poznań - NBS for a friendly, mobile city



Edinburgh - NBS enhancing health, wealth and sustainability



Genk - NBS bridging green and industrial heritage



Linz - NBS as a motor for urban growth



London - NBS for a leading sustainable city



Rotterdam - NBS for building a waterproof city

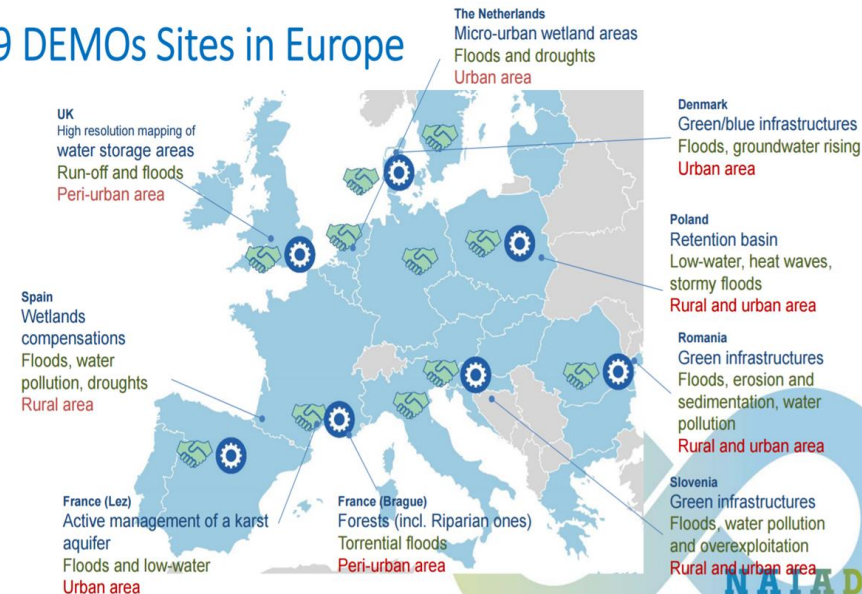


## SC5-09–2016: Operationalising insurance value of ecosystems

- ✓ *Develop replicable methods for the implementation of nature-based approaches for flood and drought risk*
- ✓ *Evidence base and methods for the **quantification, qualification and valuation of the insurance value of ecosystems to enable its full operationalization.***
- ✓ *Activate the insurance value of ecosystems into conventional and **new types of insurance policies and innovative business models***
- ✓ *Test in 9 demo sites (urban and at the catchment level)*
- ✓ *3 years, 5 Mill EUR*



### 9 DEMOs Sites in Europe







## SC5-08-2017: Large-scale demonstrators on nature-based solutions for hydro-meteorological risk reduction

- ✓ *Implementation of NBS for hydro-meteorological risk reduction*
  - *Mountains and coastal areas*
  - *Watershed or landscape scale*
- ✓ *Comparing and providing evidence-base of green and hybrid solutions compared to grey solutions*
- ✓ *Provide proof of concept for up-scaling and replication*
- ✓ *Project size: ~12 Mill € EC contribution*
- ✓ *5 year projects*



## RECONNECT: Regenerating ECOSystems with Nature-based solutions for hydro-meteorological risk rEduCTion

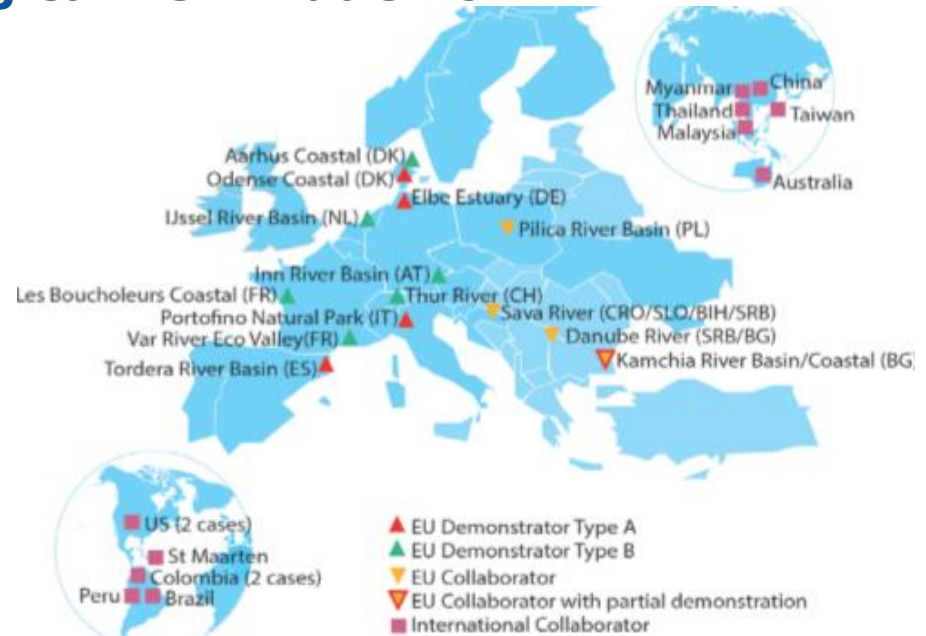
### ✓ *Different demo sites:*

- Demonstrators Type A (6)
- Demonstrators Type B (
- Collaborators (

### ✓ *Types of "water risks":*

*Storm surges, floods, droughts*

- ✓ *NBS: "room for the river", creation of meanders and re-meandering of rivers, terraced landscapes, afforestation, terrain slope stabilisation*



## ***OPERANDUM: Open-air laboratories for nature-based solutions to manage hydro-meteorological risks***

### *✓ Establishment of 11 open-air laboratories:*

- ✓ Po Valley ( IT)
- ✓ Lake Puruvesi (FI)
- ✓ UNESCO Biosphere Reserve Elbe Valley (DE)
- ✓ Spercheios River (GR)
- ✓ Catterline (UK)
- ✓ Dodde River ( IRL)
- ✓ Shiyang River Watershed (China)
- ✓ The Hong Kong New territories (China)

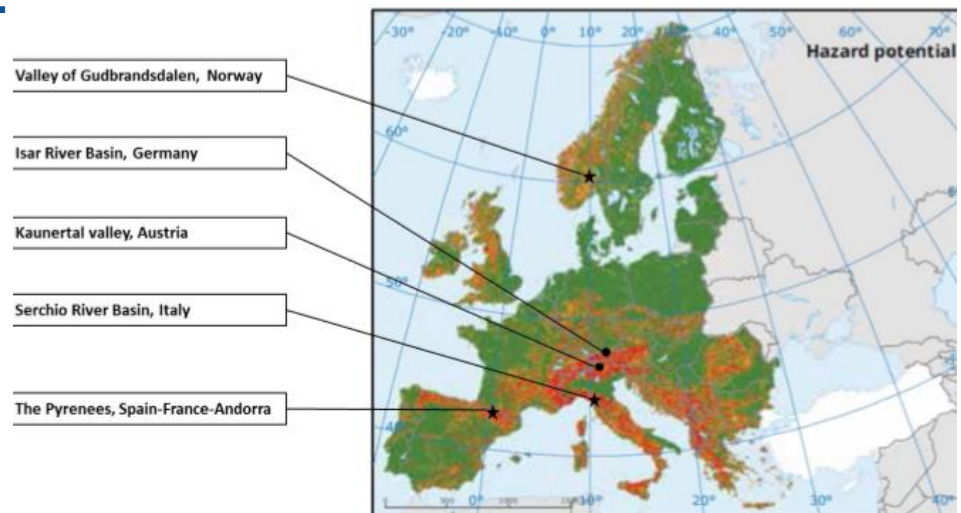
### *✓ Floods and droughts addressed*

### *✓ NBS:*



## PHUSICOS: According to nature

- ✓ Addressing NBSs for hydro-meteorological hazards in rural mountain landscapes.
- ✓ 3 large-scale demonstrator Sites: 1) Serchio River Basin (IT), 2) The Pyrenees in Spain-France-Andorra, and 3) Valley of Gudbrandsdalen in Norway
- ✓ 2 small-scale complementary concept cases to test specific challenges:
  - Kaunertal Valley (AT)
  - Isar River Basin (DE)
- ✓ Potential NBS:  
Afforestation, forest management, restoration and re-vegetation, microbe-assisted vegetation to reduce erosion...





European  
Commission



MULTI-STAKEHOLDER  
PLATFORM FOR  
NATURE BASED SOLUTIONS



An impact evaluation framework to  
support planning and evaluation of  
nature-based solutions projects

An EKLIPSE Expert Working Group report



Horizon 2020  
European Union Funding  
For Research & Innovation  
Grant agreement 1010174

The BiodivERsA  
Strategic Research  
and Innovation Agenda  
2017-2020





 **World Forum on  
Urban Forests**  
Mantova 2018

 **URBAN  
GREEN UP**

**The 1st Nature-Based Solutions Cooperation Manifesto  
will be launched!**

November 30, 2018 – 15.30  
Fondazione Univer Mantova – Aula Magna

## **WFUF2018 Side Event - “Nature-Based Solutions: overcoming barriers, enhancing benefits”**

**Side event organized by the NBS Projects Cluster/ Urban GreenUp**

**OPEN CALLS !**



#InvestEUresearch

# Horizon 2020 Work Programme for Research & Innovation 2018-2020

- **Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems (RIA)**
- **Visionary and integrated solutions to improve well-being and health in cities (IA)**
- **Strengthening EU-China cooperation on sustainable urbanisation: enhanced natural treatment solutions for water security and ecological quality of water in cities**
- **Innovative nature-based solutions for carbon neutral cities and improved air quality**
- **Climate resilience of coastal cities**

Research and  
Innovation

## **HorizonEurope:**

- **Current proposal: Cluster 5 includes agroforestry, bioeconomy, food, biodiversity and natural resources**
- **Accent on partnerships**
- **Ensuring that regulation and financing are innovation-friendly**
- **EU becoming a frontrunner in market-creating innovation**
- **Launching EU-wide research and innovation missions**



