



**INTERREG V-A COOPERATION PROGRAMME
GREECE – BULGARIA 2014 – 2020**

Reinforcing Protected Areas Capacity through an Innovative
Methodology for Sustainability

– **BIO2CARE** –

(Reg. No: 1890)

Deliverable 5.4.2

Biodiversity and state of nature

Vasiliki Chrysopolitou (Biologist MSc.)



- A few words about the Greek Biotope Wetland Centre (EKBY)
- Biodiversity – Definition and context
- Species and ecosystems – at a glance
- Ecosystem services
- The state of nature in Greece

The Greek Biotope Wetland Centre (EKBY, by its Greek initials):

- has its roots in The Goulandris Natural History Museum (GNHM)
- was established in 1991, at Thermi, Thessaloniki
- was the result of a coordinated effort by GNHM, European Commission, WWF and the Greek Ministry for the Environment (YPEXODE)

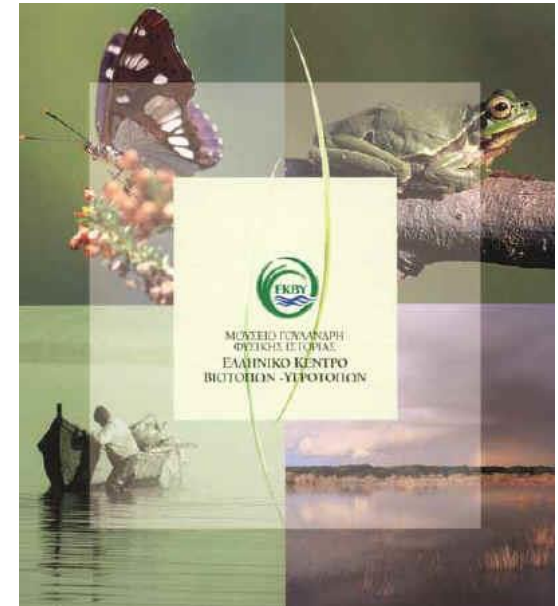


EKBY's overall objective

- to promote the sustainability of renewable natural resources in Greece and in the rest of Europe and the Mediterranean region

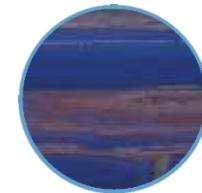
Fields of action

- Design of and support in natural areas' management
- Inventories and monitoring
- Applied Research
- Nature interpretation, sustainable tourism development and infrastructure design
- Environmental education and training
- Geospatial data and information systems
- Cooperation at national and EU level



EKBY has connected its name mainly with:

- Wetlands
- NATURA 2000 Network
- Water Framework Directive
- Forests as ecosystems



We bridge science with practice to solve problems for the benefit of the environment and man

➤ Biodiversity – Definition and context

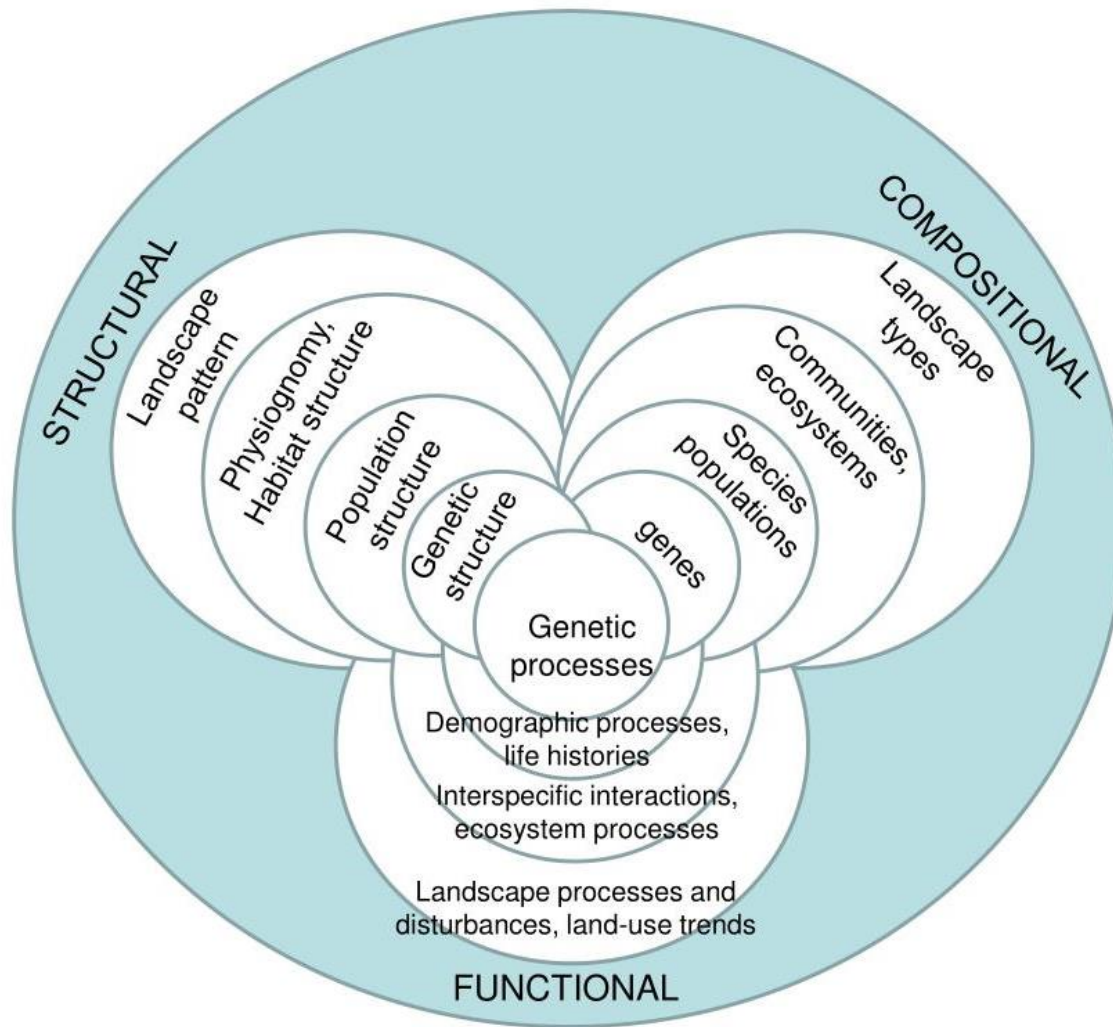
Adoption of the term "Biodiversity" in the early 1980s

Complex and vague term, variety of different definitions

Franklin *et al.* (1981) described three aspects of ecosystems: composition, structure, function

Noss (1990) expands the three primary attributes of biodiversity into a nested hierarchy that incorporates elements of each attribute at four levels of organization:

- a) regional landscape,
- b) community-ecosystem,
- c) population-species and
- d) genetic



Noss *et al.*, 1990

➤ Conceptual framework of the Hierarchical approach

- 1) Compositional biodiversity: The identity and variety of biological elements
- 2) Structural biodiversity: The rules of aggregation of biological elements in space
- 3) Functional biodiversity: Ecological and evolutionary processes between biological elements

Convention on Biological Diversity (CBD), Rio de Janeiro 1992

- Definition: “Biological diversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”
- The objectives of the CBD are:
 - the conservation of biological diversity (mostly in situ, supported by ex situ)
 - the sustainable use of its components and
 - the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.
- The CBD foresees the development of national strategies and the implementation of plans and programs for the conservation of biodiversity

Species – main categories

Endemic species: geographically limited distribution / therefore of unique value

Umbrella species: great need in habitat or other ecological requirements / conservation measures for these species target indirectly many others

Dominant species: the most abundant in a certain area

Key-stone species: with complex, intense and extensive interactions within the ecosystem / its extinction trigger successive direct and indirect changes at the food web

Endangered species: in risk of extinction in the near future, totally or in part of its distribution area

Extinct species: undoubtedly extinct

Ecosystems

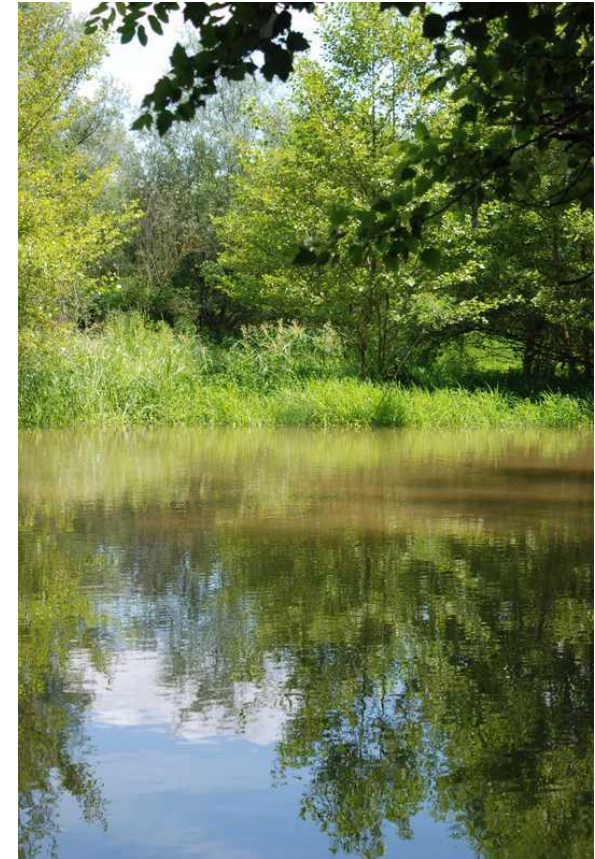
An ecosystem is characterized by four key features:

- biotic (living) elements
- abiotic elements (e.g. water, soil, climate)
- interactions within and between the above two components, through energy flows
- natural space in which it exists and operates



Ecosystems – categories

- Terrestrial (7 vegetation types from evergreen broadleaved forests-Mediterranean zone to sub-alpine zone)
- Wetland (rivers, deltas, estuaries, lakes, lagoons, marshes, etc.)
- Marine and coastal (pelagic and benthic systems)



Ecosystem services, Millennium Ecosystem Assessment 2005

- Ecosystems, with the biodiversity they encompass, offer a variety of services to humans:
 - a) Provisioning (food, freshwater, raw material, medicinal resources)
 - b) Regulating (local climate air quality, carbon sequestration and storage, moderation of extreme events, waste-water treatment, erosion prevention and maintenance of soil fertility, pollination, biological control, regulation of water flow)
 - b) Supporting (habitat for species, maintenance of genetic diversity)
 - d) Cultural (recreational and mental/physical health, tourism, aesthetic appreciation and inspiration for culture, art and design, spiritual experience and sense of place)

- Necessary for the well-being of human civilization

- Large-scale functionality with complex mechanisms - irreplaceable by human technological means

The Natura 2000 Network in Greece

<https://www.eea.europa.eu/data-and-maps/dashboards/natura-2000-barometer>

Barometer statistics per country

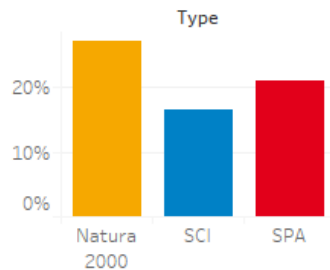
Country: Greece
Release version: End2019 --- 2020-03-23

Land area in km² (European part): 132,026 km²

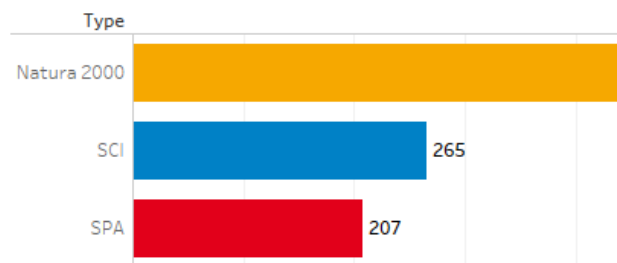
Natura 2000 area data (km²)

| | SPA | SCI | Natura 2000 |
|--|--------|--------|-------------|
| Number of Natura 2000 sites | 207 | 265 | 446 |
| Natura 2000 land area (km ²) | 27,761 | 21,912 | 35,982 |
| Natura 2000 marine area (km ²) | 10,764 | 17,528 | 22,796 |
| Natura 2000 total area (km ²) | 38,525 | 39,440 | 58,778 |
| Proportion European land area covered by | 21.0% | 16.6% | 27.3% |

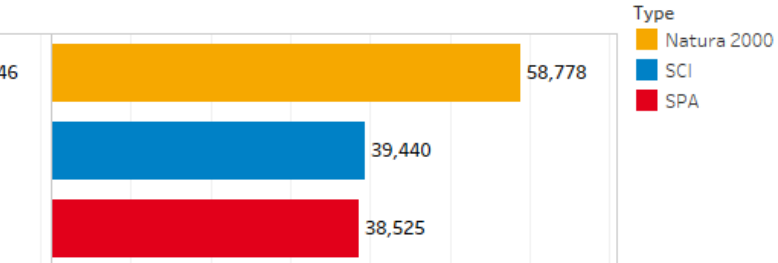
Proportion European land area covered by



Number of Natura 2000 sites



Natura 2000 total area km²



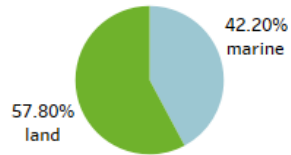
The Natura 2000 Network Terrestrial and marine areas

Barometer statistics

Natura 2000 in EU-28

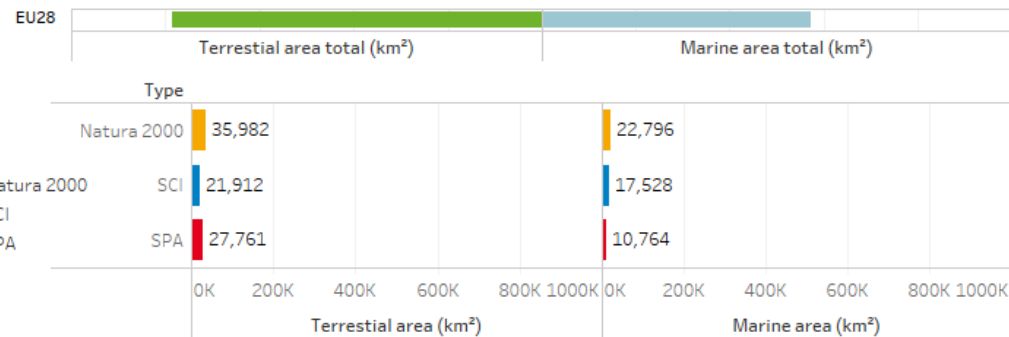
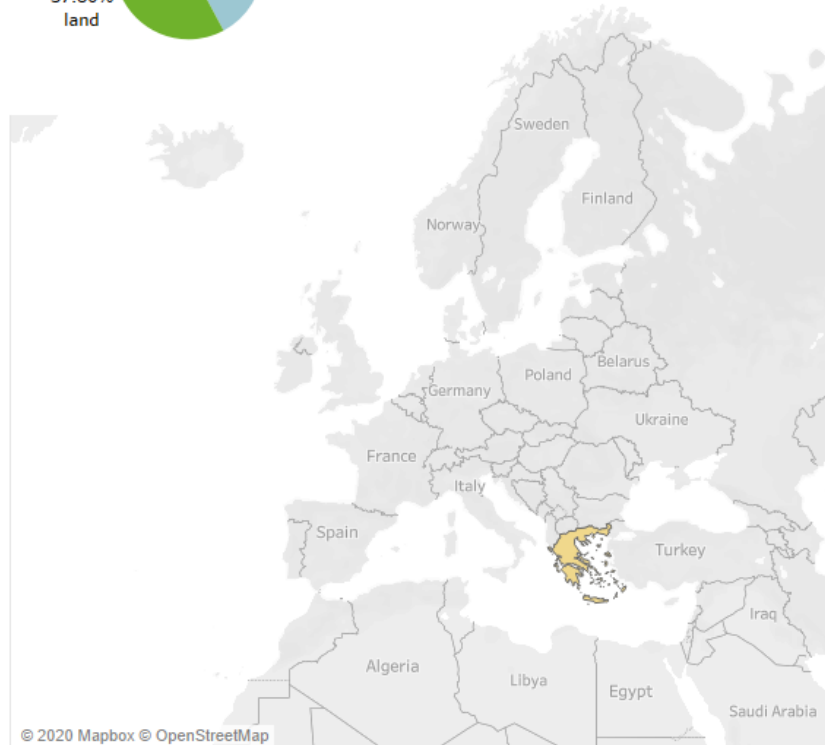
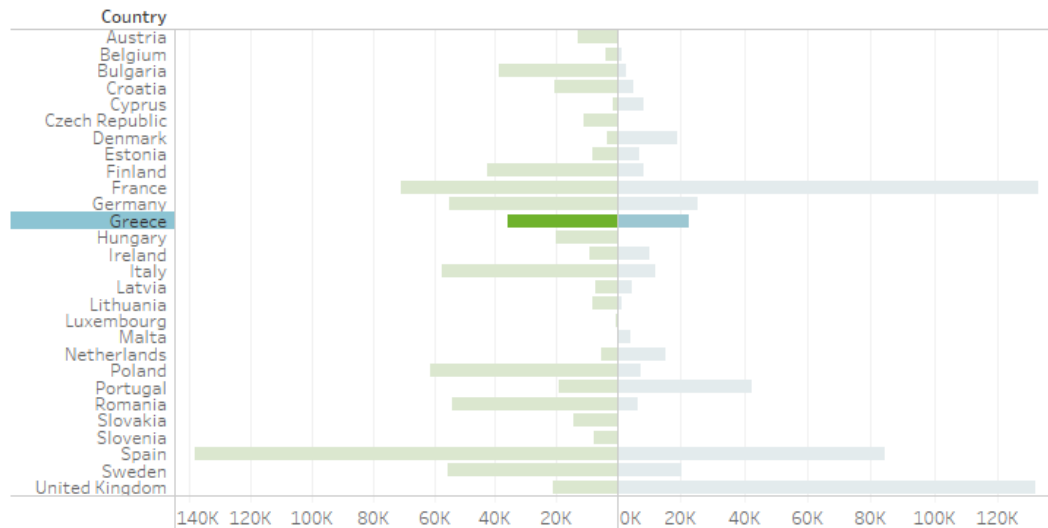
Natura 2000 area - Greece

| | |
|--|---------|
| Natura 2000 marine area (km ²) | 22,796 |
| Natura 2000 land area (km ²) | 35,982 |
| Land area (km ²) | 132,026 |
| Natura 2000 land area (%) | 27.3 |



Release version
End2019 --- 2020-03-23

Natura 2000 land and marine area



National Efforts – EU obligations

- National report on the implementation of Art. 17 of the Habitats Directive (Directive 92/43/EEC)
 - Reporting Period 2013-2018 – submission 2019
 - Factsheets and maps for 89 habitat types (Annex I to Directive) and 297 flora & 251 fauna species (Annexes II, IV and V) + 18 species with uncertain/unclear taxonomical status or presence/occurrence

- National report on the implementation of Art. 12 of the Birds Directive (Directive 2009/147/EC)
 - Reporting Period 2013-2018 – submission 2019
 - Factsheets and maps for 320 birds species and seasonality (breeding, wintering, passage)

- Data obtained through extensive fieldwork of many expert groups (2015)

- Report drafting and submission by EKBY, 2019

Conservation status – Habitats Directive

<https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/article-17-national-summary-dashboards/conservation-status-and-trends>

Conservation Status

| | |
|------------------------------------|--|
| Good: Favourable (FV) | ■ |
| Unknown: XX | ■ |
| Poor: Unfavourable-inadequate (U1) | ■ |
| Bad: Unfavourable-bad (U2) | ■ |
| N/A | ■ |

Member State

GR

(Filtering with the function (All) for Member States does not show the EU conservation status and trends but only the sum up of the relevant national data)

Methodology



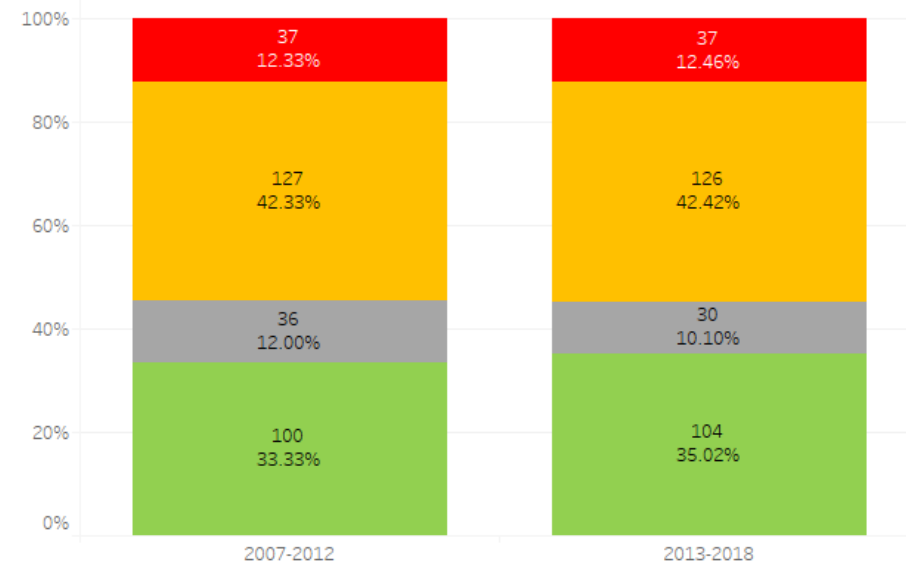
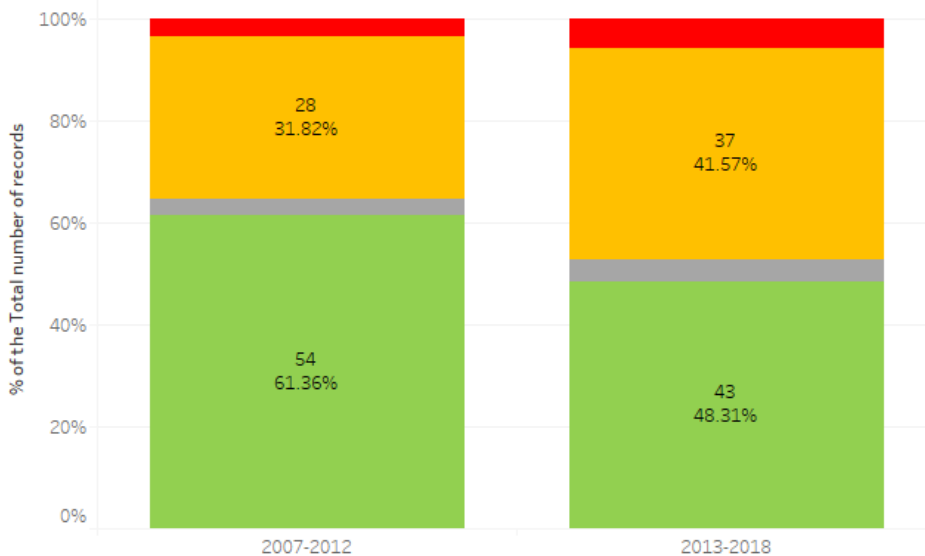
Proportion of assessments in each category of conservation status for 2007-2012 and 2013-2018 reporting periods

Member State(s) selected: GR

Member State(s) selected GR

% of assessments - habitats

% of assessments - species



Breeding trends – Birds Directive

<https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/article-12-national-summary-dashboards/breeding-population-and-distribution-trends>

Trend



Member State/sub-national region

GR

*Codes 'PT', 'ES' corresponds to Portugal mainland (excluding Azores and Madeira) and Spain mainland (excluding Canary Islands) respectively. Similarly 'UK' stands for the United Kingdom of Great Britain and Northern Ireland (excluding Gibraltar).

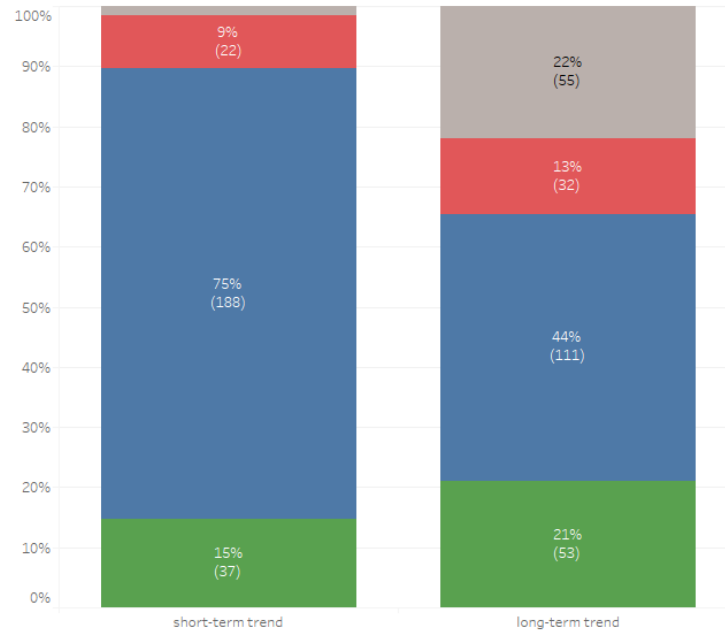
Methodology



Proportion of breeding species/populations reported as having decreasing, stable, fluctuating, increasing or unknown population trends for 2008-2012 and 2013-2018 reporting periods –**DRAFT**

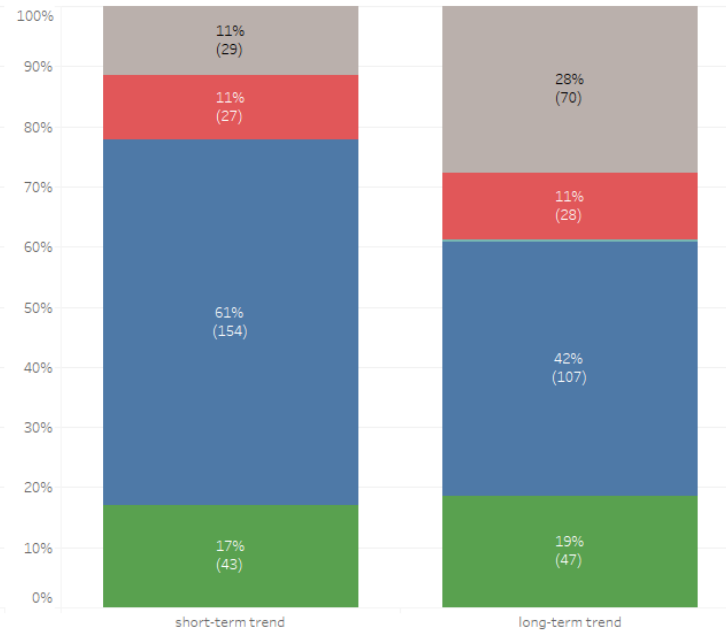
(based on data as reported by Member States prior to quality analysis and harmonisation)

Member State(s)/sub-national region selected: **GR**
% of species/populations



Breeding population trend for 2008 - 2012 period

Member state(s)/sub-national region selected: **GR**
% of species/populations



Breeding population trend for 2013 - 2018 period

Winter trends – Birds Directive

<https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/article-12-national-summary-dashboards/winter-population-trends>

Trend

| | |
|-------------|--------------------------------------|
| Increasing | ■ |
| Stable | ■ |
| Fluctuating | ■ |
| Unknown | ■ |
| Decreasing | ■ |

Member State/sub-national region
GR

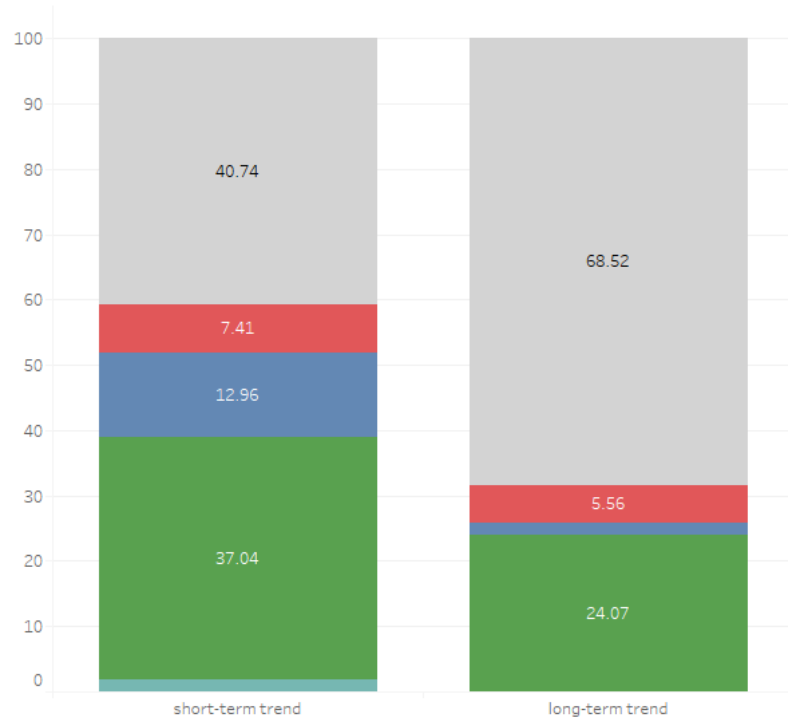
Methodology

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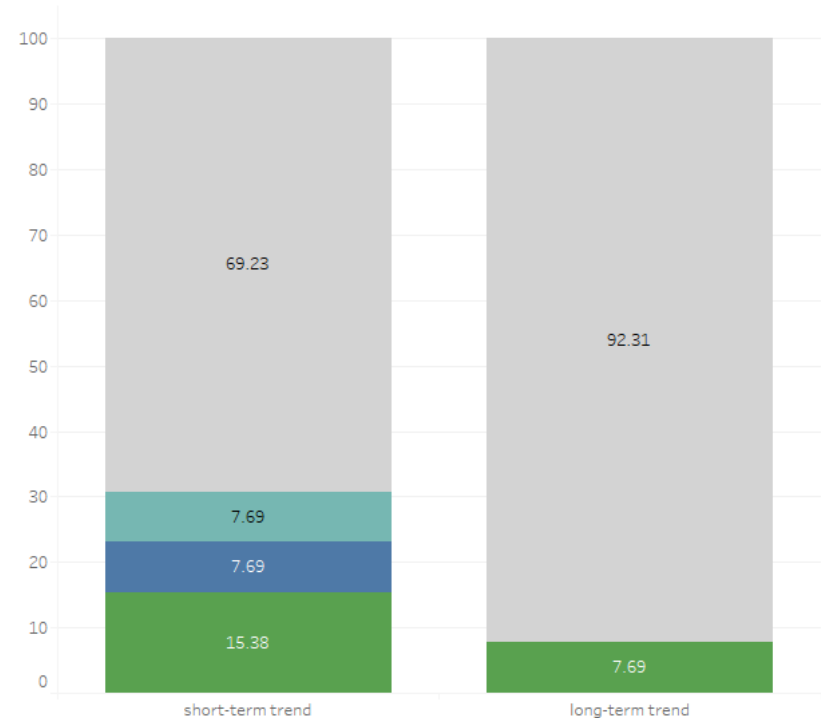


Winter population trends for 'key wintering species' and other wintering Annex I and SPA trigger species - DRAFT

Member State/sub-national region: **GR**
% of species/populations



% of species/populations



Winter population trends - other wintering Annex I and SPA trigger species

THANK YOU ALL, FOR YOUR ATTENTION!

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