

Strengthening Protected Area Networks for Birds in Europe:

Priority Areas and Management Approaches to Meet Biodiversity
Targets and Mitigate Climate Change Impacts



Prepared by

**The Secretariat of the Convention on the
Conservation of Migratory Species of Wild Animals (CMS) and
SPEAR** (Scenarios for Protecting European Avian Redistributions) Project

Context

Rapid climate warming and widespread land-use change are transforming ecosystems across Europe. These shifts are putting increasing pressure on biodiversity and challenging the capacity of existing protected areas to safeguard species and habitats. In response, the United Nations and the European Union have committed to protecting 30% of land and sea by 2030. Achieving this goal requires smart, spatially targeted conservation planning that aligns protected areas with the habitat needs of species most at risk.

Many bird species are shifting their distributions towards higher latitudes as temperatures rise both during the breeding and wintering season. Future range shifts can reduce the benefits of current protected areas on land and freshwater habitats, and even more so at sea, where Marine Protected Areas remain limited in extent. Seabirds move widely across coastal and open ocean areas but much of their habitat is unprotected. The UN and EU 30% target creates an opportunity to enhance the effectiveness of protected area networks by strategically expanding coverage, particularly at sea where protection remains uneven.

Habitat characteristics strongly shape how species respond to global warming, highlighting the need for conservation strategies that account for climate trends and local environmental conditions. This includes protecting and restoring key habitats such as wetlands and effectively managing land use within protected areas. Effective conservation planning also requires aligning protected areas with species' current and future distributions and understanding how disturbances—such as changes in forest canopy structure—affect bird populations differently across regions.

Strengthening conservation networks in Europe requires anticipating climate-driven redistributions, improving site-level management accordingly, and aligning new protections with key habitats that will support species' long-term persistence.

Research from the SPEAR initiative provides new scientific guidance to help policymakers enhance the design and management of Europe's protected areas. These insights aim to support more effective conservation of European bird species and ensure that protected area networks remain resilient under accelerating environmental change.

About SPEAR



SPEAR (Scenarios for Protecting European Avian Redistributions) is an international research initiative funded by Biodiversa+ that examines pan-European data on seabirds, waterbirds, and landbirds to assess how environmental change and gaps in the current network of protected areas affect bird populations. By combining large-scale monitoring data with scenario modelling, SPEAR develops robust, policy relevant tools and guidelines to improve conservation planning and management for bird species and their habitats across Europe.

Duration

2023-02-01 to 2026-05-31

Total Budget

Approx. 1,6 mil. EUR

Link

<https://www.biodiversa.eu/2023/04/19/spear/>

SPEAR

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PROTECTING EUROPE'S BIRD DIVERSITY:

GAPS AND PRIORITIES FOR ACTION

Main Findings from SPEAR Research Projects

MARINE PROTECTION GAPS



1. CURRENT STATUS

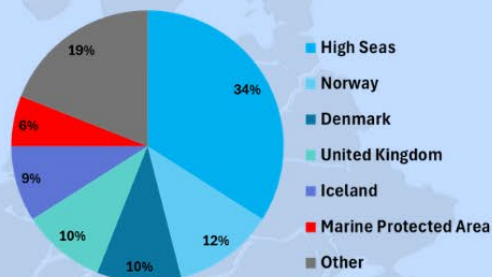
- Current Marine Protected Areas (MPAs) cover **only 6%** of the North Atlantic → This protects only ~5% of six most abundant pelagic bird species populations!

2. TOWARD THE 30% TARGET

- Focusing the remaining 24% on top-priority areas, including the High Seas of the North Atlantic, covers 56% of species' populations

3. WHERE ARE PRIORITY MARINE AREAS LOCATED?

Distribution of priority areas in the North Atlantic, based on species-level spatial prioritization



TERRESTRIAL PROTECTION GAPS

1. TOWARD THE 30% TARGET

- Protecting 30% of Europe's land would cover:
 - ~ 49% of 435 breeding bird species' range
 - ~ 63% of 435 breeding bird species' population

2. FOREST DISTURBANCE EFFECTS

- Canopy gaps often cause declines in forest species populations
- Bird species preferring open habitats tend to increase when gaps form

SPATIAL PRIORITIZATION



- Prioritize** underprotected habitats, e.g., tundra and marine areas
- Prioritize** areas with highest species abundance, especially for rare and small-ranged species

➔ Protecting the top 10% of habitat-specific priority areas would cover most breeding populations of tundra and marine species



CLIMATE CHANGE PRESSURES

1. RISING TEMPERATURES

- Bird communities cannot adapt as fast as temperatures rise
- Habitat-level protection supports faster climate adaptation than single-species protection
- Warming & rainfall threaten Natura2000 areas with Mediterranean bird species being most affected

2. SPECIES SHIFTS & SUSTAINABLE HUNTING

- Bird populations shift northward → Increase in cooler areas & decline in warmer areas
- Hunting levels should adjust to local climate trends to remain sustainable

AGRICULTURAL THREATS



HARMFUL AGRICULTURAL PRACTICES

- Persist due to insufficient funding and limited implementation of conservation measures
- Intensive use of agrochemicals presents major unaddressed threat in many areas

POLICY RECOMMENDATIONS

1) PRIORITIZE EXPANSION OF EUROPE'S TERRESTRIAL PROTECTED AREAS TO MEET THE 30% TARGET SET BY THE UN AND THE EU

This level of protection would encompass ~ 50% of bird species' ranges and nearly two-thirds of their populations

2) PLAN PROTECTED AREAS BASED ON SPECIES ABUNDANCE AND CRITICAL HABITATS

Allows more effective identification of priority areas especially for rare or range-restricted species

3) EXPAND CURRENT MARINE PROTECTED AREA NETWORK IN THE NORTH ATLANTIC FROM 6% TO 30%

Consider top priority areas for conservation planning such as the High Seas of the North Atlantic

4) INCREASE FUNDING AND MEASURES TO REDUCE THREATS FROM INTENSIVE FARMING AND AGROCHEMICAL USE

Reconsider implementation of restrictive measures initially proposed under the European Green Deal.

5) PROTECT AND RESTORE HABITAT NETWORKS TO SUPPORT CLIMATE ADAPTATION

Helps bird communities adjust to climate warming faster rather than focusing on single species

6) PRIORITIZE MONITORING AND MANAGEMENT IN VULNERABLE REGIONS ACROSS EUROPE

Noting the conclusion of LIFE funding, sustained financial support for monitoring and management remains a concern

7) MANAGE HARVESTS BASED ON LOCAL CLIMATE-DRIVEN POPULATION CHANGES

8) INCORPORATE CANOPY-GAP DYNAMICS INTO FOREST MANAGEMENT TO MAINTAIN BIRD DIVERSITY

THESE ACTIONS CONTRIBUTE TO:

- Meeting obligations under the EU restoration regulation
- Supporting targets adopted under the Kunming–Montreal Global Biodiversity Framework including the 30x30 target
- Advancing Natura 2000 conservation objectives

Final considerations

The implementation of the policy recommendations is vital to ensure the effective conservation of Europe's avian populations and the resilience of their habitats in the context of climate change. These measures will address existing gaps in the pan-European network of protected areas and contribute directly to the achievement of international biodiversity targets, such as those set under the Kunming-Montreal Global Biodiversity Framework, including the 30x30 protected-area target on land and at sea, as well as commitments established through the EU Nature Restoration Regulation and the Natura 2000 network. By adopting these recommendations, policymakers can safeguard an important percentage of Europe's bird populations, advance sustainable management of terrestrial and marine ecosystems, strengthen compliance with EU and global environmental commitments, and promote long-term ecological stability that supports both biodiversity and human livelihoods.

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Authors

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Further reading

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