Poland

Factsheet on biodiversity

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Seminar: Biodiversity conservation & local sustainability labels
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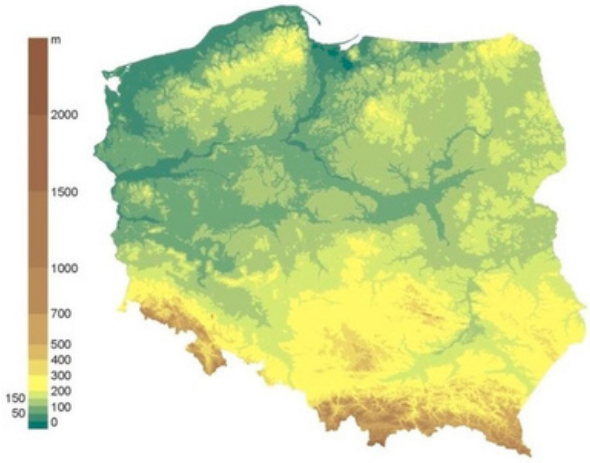
01. General Information

Poland is recognized as one of the most biodiverse countries in Europe, thanks to its central geographic location, transitional climate, and a wide variety of landscapes, soils, and water systems. These favorable conditions, along with relatively preserved natural areas, have allowed for **rich and regionally diverse biodiversity** (Secretariat of the Convention on Biological Diversity, n.d.).



Jackowiak, 2023: Physical Map of Poland

Forests are the most valuable natural ecosystems, both ecologically and economically. Moreover, over **32% of Poland's territory** is under some form of nature protection. The **Carpathian Mountains**, located in southern Poland, are a key area for **endemic species** due to their ecological continuity with mountain ecosystems across Central and Eastern Europe. These mountains are vital for maintaining regional biodiversity and serve as a **natural refuge** for numerous rare and mountain-adapted species. Some species endangered elsewhere are relatively stable or less threatened in Poland, including **Ants, Butterflies and the Otter**, which is recovering strongly across Polish territory (Jackowiak, 2023; Secreteriat of the Convention on Biological Diversity, n.d.).

Species Richness

- An estimated 63,000 species occur in Poland:
  - ~28,000 plant species
  - ~35,000 animal species, including ~700 vertebrates

However, due to **anthropocentic** influence, **species decline** has led to **124** plant species going **extinct** or retreating in 200 years. **2,769** animal species are **endangered**, 16 vertebrate species extinct with **60%** of **vertebrate loss** occurring in the **last 40 years** (Convention on Biological Diversity, n.d.).

02. General challenges & approaches to biodiversity conservation

Poland faces significant biodiversity threats due to historic uneven industrialization, urbanization, and ongoing environmental pressures. Since 1989, these threats have intensified, including (Secretariat of the Convention on Biological Diversity, n.d.) (Dośpiał-Borysiak et al., 2024).

Challenges

- **Habitat loss** from urban expansion, forest overexploitation, and unsustainable agriculture
- **Pollution** (gas, dust, and chemicals) near industrial and urban areas
- Introduction of **alien species and hydrological changes** (e.g. drainage, embankment regulation)
- **Overfishing, tourism pressure,** and **valley deforestation**
- **Small, relic populations** are especially endangered, particularly in fragmented or industrial zones

Rare habitats like salt marshes and river ecosystems are also under threat. Conservation is further challenged by limited cross-border cooperation with Ukraine due to the war, and a lack of legal and financial instruments to support transboundary biodiversity reserves (Raszka & Hełdak, 2023).

Approaches to biodiversity conservation:

Despite EU obligations, Poland lacks a national climate neutrality deadline and has opposed key EU climate regulations since 2015, citing social inequality concerns. Oversight of climate policy is weak, with no independent monitoring body (Dośpiał-Borysiak et al., 2024).

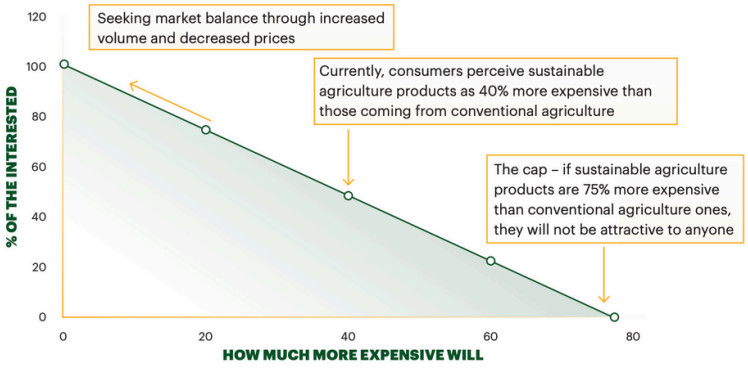
Conservation efforts include the 2030 National Environmental Policy, which was established by the Ministry of Climate in 2019 and is guided by the EU Biodiversity Strategy. Currently, 39.6% of land and 21.87% of marine areas are protected, including over 10,000 protected sites. The Białowieża Forest, a UNESCO World Heritage site, is one of Europe's last primeval forests. However, national parks cover only 1.1% of Poland, placing it 26th in Europe (Dośpiał-Borysiak et al., 2024).

Balancing conservation with economic development remains a key challenge.

03. Biodiversity & Consumption

Food Consumption

- increase in importance of **responsible consumption**
- **plant based alternatives** market is growing rapidly
  - 24% follow **flexitarian diet**
  - 6% follow a vegetarian or vegan diet
- by 2040 the **share of plant based substitutes** is expected to rise to 25% (Natalia, 2025)



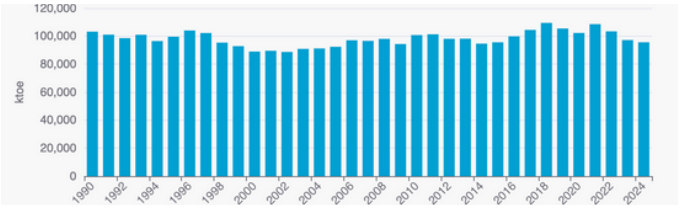
Food Consumption in Poland is currently undergoing a **transformation** and consumers are becoming more demanding. Food trends show that consumers focus more on environmental issues.

(Sustainable Food in Poland, o. D.)

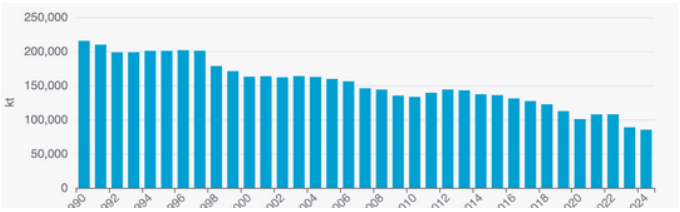
Energy Consumption

- Total **energy consumption** was 5% below EU average
- industry 34%, services 33%, households 20%, transport 2% of countries electricity (2022)
- around 70% of **oil products** are consumed in **transport**
- households, services and agriculture account for 38% of **gas consumption** (2023)
- **coal and lignite** are mainly consumed by power plants

(Enerdata, 2025)



total energy consumption in ktoe



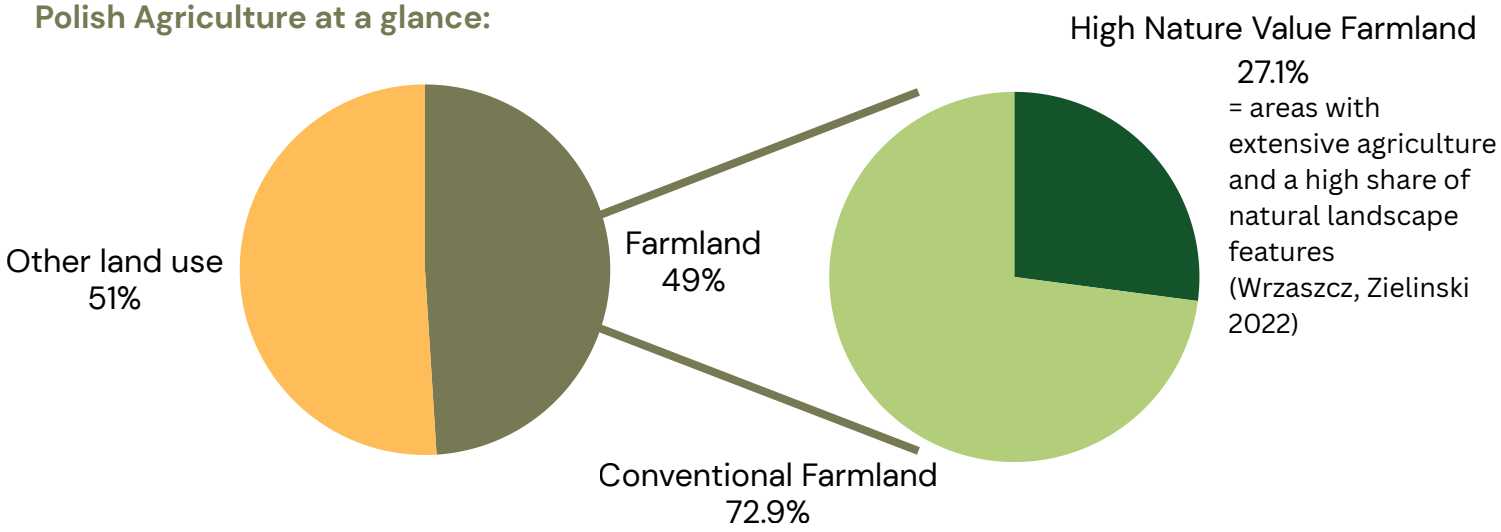
total coal consumption in kt

Recommendations:

Promote plant based diets through public procurement and awareness campaigns
    - make plant based option **mandatory** in public canteens
    - launch **health and environment campaigns** promoting benefits of reuced meat consumption
- **Subsidize organic and regenerative farming**
    - shift agricultural subsidies toward organic, low input and biodiveristy enhacning practices
- Introduce **eco labeling** and **food print transparency**
    - mandate environmental **impact labels on food products** (e.g. GHG emissions)
- support local food systems and biodiversity friendly supply chains
- accelerate the **coal phase out** with a just transition plan
- scale up **renewable energy investments**
    - increase **subsidies** for wind, solar and biogas energy while enforcing strict environmental impact assessments to avoid harm to ecosystems

04. Biodiversity & Agriculture

Polish Agriculture at a glance:



- Main crops: cereal, potato, sugar beet
- Low contribution to GDP: 3.6%

Current developments:

- Number of farms is decreasing, whilst average size increases (Food and Agriculture Organization of the UN, 2003)
- Increasing specialisation of farms to increase efficiency (Chmieliński et al., 2022)
- Increasing fertilizer usage due to EU wide competition (141.6 kg NPK per hectare of agricultural lands) (Piwowar 2021)
- fish species (esp. Cod) are overfished (Convention on Biological Diversity, n.d.)

Measures taken:

(Convention on Biological Diversity, n.d.)

- Compensation for financial losses as a result of conversion to less intensive production models
  → Increasing number of organic farms in Poland
- Rural Development Programme (RDP): measure to preserve the traditional knowledge of farmers and ensure their participation in activities related to food quality systems
- farmers/producers are being granted exclusive production rights to various products (e.g. oscypek cheese, various types of honey) (-> protection of traditional knowledge and practices fostering conservation)

Recommendations:

- strengthening production and usage of sustainable fertilizers (Piwowar, 2021)
- Higher financial support for small farms (Small holdings are contributing to the preservation of valuable local varieties of rare plant species, traditional orchards and old varieties of fruit trees (Convention on Biological Diversity, n.d.))

05. Biodiversity & ESD

Overview of ESD Initiatives in the Carpathian Mountains

- Significance: Critical biodiversity refuge and ecological corridor for Central/Eastern Europe.
- ESD Role: Utilises Education for Sustainable Development (ESD) under Article 12 of the Carpathian Convention.

Challenges in Poland's Segment

- Territory: 6% of national territory.
- Pressures: Habitat fragmentation, invasive species proliferation, and tourism-induced erosion

Strategic ESD Initiatives

- Policy-Science Integration: Aligns with Poland's 2030 National Environmental Policy and EU Biodiversity Strategy, tracking habitat restoration in Natura 2000 sites.
- Transboundary Gaps: Enhances coordination between Ukraine and Poland via local stakeholder networks.
- Agricultural Synergies: Promotes High Nature Value farmlands (27.1% of Utilized Agricultural Area) and curricula on soil conservation.

Target Audiences

- Focuses on climate adaptation, species monitoring, and sustainable tourism for schools, forestry units, farmers, and tourism operators.

Specific Example: Youth Eco-Ambassador Program: Biodiversity Monitoring Corps

- Scope: Secondary students collaborate with State Forest National Forest Holding (PGL LP) and UNESCO Biosphere Reserves to track keystone species:
  - Otter (Lutra lutra) populations via eDNA sampling in mountain rivers, countering hydrological threats (embankment regulation, drainage).
  - Endemic butterflies (Euphydryas maturna) using GIS-mapped habitat corridors, addressing 60% vertebrate loss in 40 years (CBD Secretariat).
- Outputs: Data feeds into Poland's State Environmental Monitoring System and the PolBIN Database (84,453 species records). Workshops on traditional pastoralism revive cultural ties to landscapes like Tatra meadows.

06. Biodiversity & Addressing the policy-science interface

In Poland, biodiversity protection efforts are increasingly based on collaboration between scientific communities and policy-makers. The goal of this science–policy interface is to ensure that public decisions are grounded in reliable, up-to-date, and comprehensive scientific data.

Legal and Strategic Frameworks

Poland has ratified the Convention on Biological Diversity, which aims to conserve biodiversity, promote sustainable use of its components, and ensure fair and equitable sharing of the resources. In line with its obligations under the Convention, Poland has developed a strategy, such as:

- The Biodiversity Strategy 2030, which outlines goals and priorities for nature protection, including strengthening the role of scientific knowledge in shaping environmental policy. (Strategia Na Rzecz Bioróżnorodności 2030 - Portal Gov.pl, 2025)

Examples of Integrating Science and Policy

- Scientific activities like monitoring species and habitats under the Natura 2000 provide essential data for assessing conservation status and planning interventions.
- Poland participates in international science–policy platforms like IPBES, which develops reports and recommendations for decision-makers based on the latest research. (IPBES & Larigauderie, 2025)

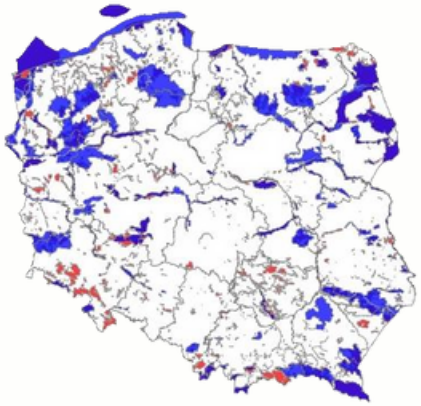
Challenges

Despite growing integration, several barriers still hinder effective communication between scientists and policy-makers, including:

- the use of scientific language that is not always accessible to policy actors,
- limited availability of environmental data for local authorities,
- insufficient use of scientific findings in the legislative process.

Practical Dimension – Protected Areas

By the end of 2008, Poland had designated 32.5% of its territory as protected areas (mainly under the Natura 2000 network), highlighting the importance of scientific knowledge in planning and establishing these areas(Posiedzenie Komisji Ochrony Środowiska, Zasobów Naturalnych i Leśnictwa et al., 2010) .



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