National Biodiversity Indicators

2020 STATUS & TRENDS

National Biodiversity Data Centre
A Heritage Council Programme

GBIF Global Biodiversity Information Facility

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An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

About the National Biodiversity Data Centre

The National Biodiversity Data Centre works to make biodiversity data and information more freely available in order to better understand and assist the protection of Ireland's biodiversity. Biodiversity data are a key requirement for understanding our natural surroundings, for tracking change in our environment and for gaining a greater insight on how we benefit from, and impact upon, the ecosystem goods and services provided by biological diversity; a national asset which contributes at least €2.6 billion to the Irish economy each year. One of the Strategic Objectives of the Data Centre is to facilitate and promote the use of biodiversity data to inform public policy and decision-making through data analysis, interpretation and reporting. The National Biodiversity Indicators have been developed to provide easy access to biodiversity data that can inform conservation policy and assist biodiversity reporting.

The National Biodiversity Data Centre was established as a programme of the Heritage Council in 2007 and is funded by the Heritage Council and the Department of Housing, Local Government and Heritage. The Data Centre is operated under a service level agreement by Compass Informatics Limited, an information and location technologies company focused on applications in natural resources and planning.

National Biodiversity Data Centre's website: www.biodiversityireland.ie
Ireland's mapping and data portal: maps.biodiversityireland.ie
Ireland's Citizen Science Portal: records.biodiversityireland.ie

Further information

If you require any further information regarding the National Biodiversity Indicators, please contact:

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1 Introduction

What is biodiversity?

Biodiversity refers to all the variety of life that can be found on Earth. Biodiversity can also refer to variability at a range of biological levels: genetic, species and ecosystem.

- Genetic diversity: the variation in genetic information within an individual, across individuals within a population, and across populations within a species.
- Species diversity: the variation in the number and abundance of species within a given area and across areas. Ireland has 31,500 species of which potentially another 8,500 have yet to be discovered.
- Ecosystem diversity: the variation in the number of ecosystem types (e.g. calcareous grasslands, fixed dunes or raised bogs) with a given area and across areas. Ireland has 117 terrestrial and freshwater habitats, and 23 seabed habitats.

What is a biodiversity indicator?

A biodiversity indicator reflects the current state, and change in state, of verifiable data that relate to biodiversity. The types of data that relate to biodiversity includes direct measures such as the number of endangered species and habitats, as well as indirect measures such as number of biodiversity-related policies implemented. This information provides an important source of evidence for reporting on biodiversity change, conservation action and informing conservation policy at national, European and global levels.

Why do we need National Biodiversity Indicators?

Multiple lines of evidence from different sources can be used to evaluate the relationship between actions to protect biodiversity and observed impacts, and progress towards attaining specific biodiversity targets. In combination with expert opinion, stakeholder consultation and case studies, indicators provide quantitative measures based on verifiable data that are objective, robust and minimise the subjectivity inherent in other approaches. Indicators can be used to:

- track changes in biodiversity and understand why it is changing;
- inform decision makers on appropriate goals, policies and actions to conserve and restore biodiversity;
- raise awareness and provide a valuable resource for the public on the status, trends, pressures and conservation actions relating to biodiversity;
- both track and report on effectiveness of policy decisions and actions taken nationally, and benchmark progress towards regional and global targets.

Who produces the National Biodiversity Indicators?

The National Biodiversity Data Centre was given responsibility for the development, collation and publication of the National Biodiversity Indicators in 2014. It produces and updates the indicators using data provided by its key partner organisations and in collaboration with the Department of Housing, Local Government and Heritage. Currently 62 of the 71 of indicators have been published on a dedicated website:

http://indicators.biodiversityireland.ie/

How data are collated and biodiversity indicators developed

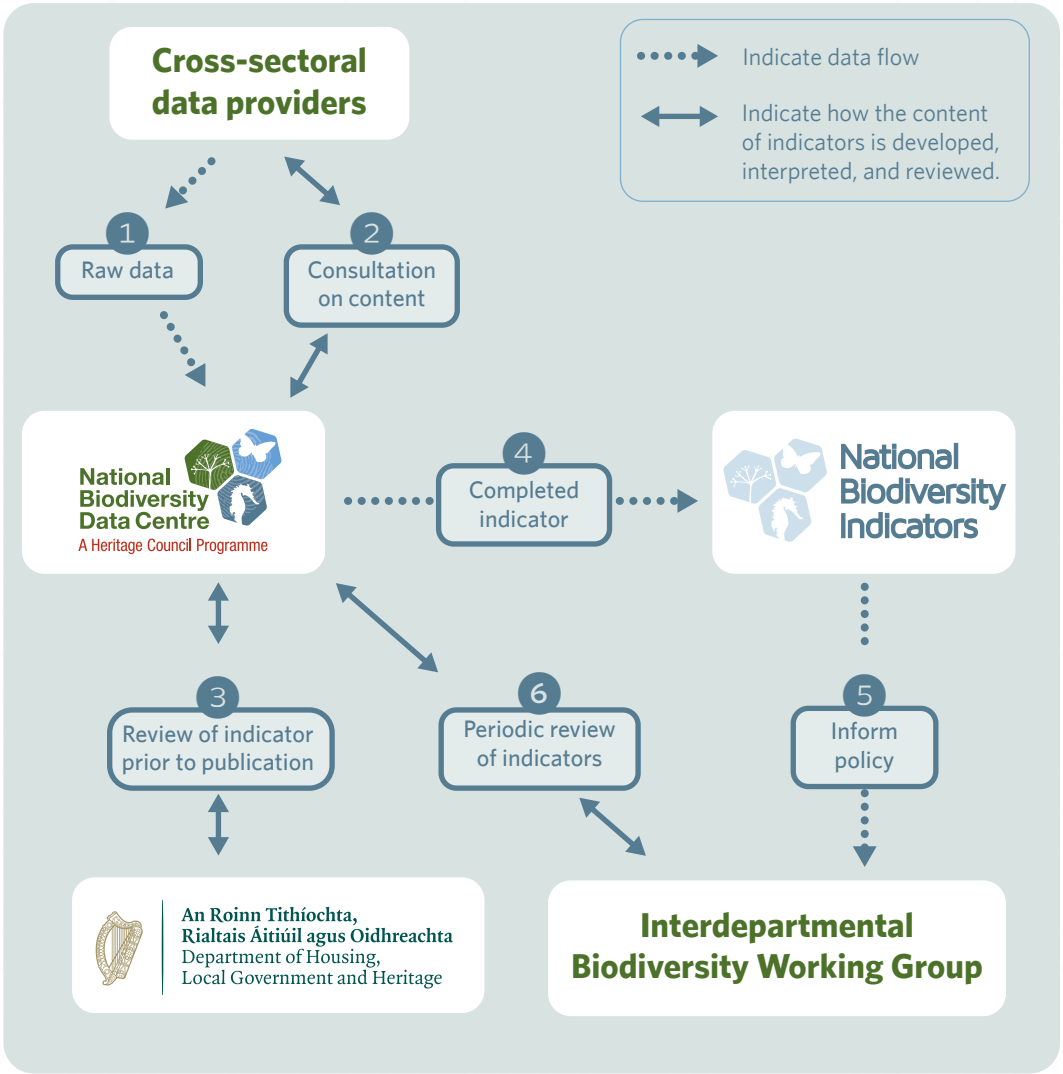
Cooperation across sectors has been key to the delivery of the indicators. The current set of indicators were developed from data provided by 33 organisations from both governmental and non-governmental sectors.

- An Taisce
- Bat Conservation Ireland
- BirdWatch Ireland
- Bord Iascaigh Mhara (BIM)
- Botanical Society of Britain and Ireland (BSBI)
- BT Young Scientist & Technology Exhibition
- Chartered Institute of Ecology and Environmental Management (CIEEM)
- Coillte Nature
- Department of Agriculture, Food and the Marine
- Department of Housing, Local Government and Heritage
- Department of the Environment, Climate and Communications
- Department of Foreign Affairs
- Department of Defence
- Environmental Protection Agency (EPA)
- Environmental Science association of Ireland (ESAI)
- European Parliament
- European Environmental Agency
- Forest Service
- Google
- Heritage Council
- Inland Fisheries Ireland
- International Union for Conservation of Nature
- Invasive Species Ireland
- Irish Water Uisce Éireann
- Irish Whale and Dolphin Group
- Kantar Media
- Local Authorities
- Marine Institute
- MothsIreland
- National Biodiversity Data Centre
- National Parks and Wildlife Services
- Revenue
- RuePoint

How often are the biodiversity indicators updated?

The original intention was for the indicators to be updated annually but following a review and based on the frequency of which data for some of the indicators becomes available, it was considered more appropriate to update the indicators every second year. The current set of indicators are based on data up to 31/12/2020.

Data flow and process for indicator development and review



2 Assessing Indicators

How the indicators are structured

An ideal set of indicators needs to be broad enough to address the full range of biodiversity issues, small enough to be manageable and simple enough to be applied consistently and affordably over long periods of time. In parallel, indicators need to meet national needs whilst also contributing to global processes and supranational reporting.

The current framework is structured around eight Focal Areas, representing 32 Headline Indicators supported by a total of 71 subindicators. The eight focal areas are:

- A Awareness of biodiversity
- B Status of biodiversity
- C Threats to biodiversity
- D Measures that safeguard biodiversity
- E Measures that mainstream biodiversity
- F Benefits derived from biodiversity and ecosystem services
- G Impacts on biodiversity outside of Ireland
- H Knowledge of Irish biodiversity

How to interpret indicator status and trends

The state of each indicator is illustrated using a traffic light system:

- **indicates a positive state;**
- **indicates an intermediate state;**
- **indicates a negative state;**
- **indicates an unknown state or insufficient data**

To provide an indicative assessment of change over time, the status of the indicator has been provided for the current (most recently available data), short- and long-term. The absolute length of time specified by short- or long-term depends on how frequently data becomes available for each indicator, but where not specified should be interpreted as status over the last five (short-term) or 10 years (long-term). More detail for each indicator is provided under 'Background' at http://indicators.biodiversityireland.ie/.

Caveats to interpretation

Some notes of caution when interpreting indicators:

- Indicators provide quantitative measures based on verifiable data that are objective, robust and minimise the subjectivity inherent in other approaches. However, it is not best practice to synthesise and interpret indicators in isolation, but ideally in combination with multiple other lines of evidence such as expert opinion, stakeholder consultation and case studies.
- As many of the National Biodiversity Indicators are relatively new, the long-term status for a majority subindicators is currently unknown.
- Interpretation can only be based on completed subindicators and this interpretation is likely to change with the ongoing delivery of subindicators.

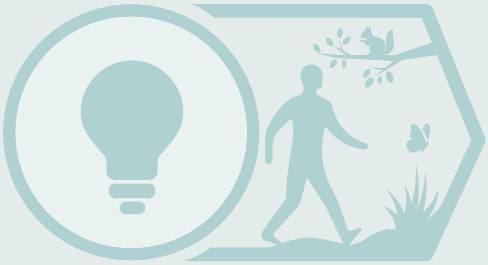
Summary

The current assessment is underpinned by 62 out of 71 subindicators identified to support the eight focal areas of the National Biodiversity Indicators: 21% of subindicators have a positive current assessment, 50% intermediate, 26% poor and 3% are of unknown status. It is evident to see that based on the current set of indicators the most positive statuses are in the focal areas of **A. Awareness of biodiversity** and **H. Knowledge of Irish Biodiversity.** The focal areas **B. Status of biodiversity** and **C. Measures that mainstream biodiversity** account for the highest number of 'poor' statuses across all time periods. Knowledge gaps are still prevalent in the focal area **F. Benefits derived from biodiversity and ecosystem services**, but work will continue to populate these indicators in the future.

Focal Area	Status	No. of subindicators		
		Current	Short-term	Long-term
A. Awareness of biodiversity	Good	4	5	4
	Intermediate	6	3	1
	Poor	0	0	0
	Unknown	0	2	5
B. Status of biodiversity	Good	0	0	0
	Intermediate	5	5	3
	Poor	4	4	4
	Unknown	2	2	4
C. Threats to biodiversity	Good	2	3	3
	Intermediate	4	2	2
	Poor	3	1	1
	Unknown	0	3	3
D. Measures that safeguard biodiversity	Good	2	3	3
	Intermediate	9	4	2
	Poor	1	2	1
	Unknown	0	3	6
E. Measures that mainstream biodiversity	Good	1	2	3
	Intermediate	1	3	0
	Poor	6	3	0
	Unknown	0	0	5
F. Benefits derived from biodiversity and ecosystem services	Good	0	0	0
	Intermediate	1	2	0
	Poor	1	0	1
	Unknown	0	0	1
G. Impacts on biodiversity outside of Ireland	Good	0	0	0
	Intermediate	2	1	1
	Poor	0	1	0
	Unknown	0	0	1
H. Knowledge of Irish biodiversity	Good	4	3	4
	Intermediate	3	4	2
	Poor	1	0	0
	Unknown	0	1	2

A. Awareness of biodiversity

Increasing awareness and appreciation of biodiversity promotes a willingness to make the behavioural changes required to protect and restore Irish biodiversity. Through increased capacity building, participatory planning and education, raising awareness of biodiversity and the ecosystem services creates the 'political will' for governments to prioritise resources for conservation.



Headline Indicator	Subindicator	Status		
		Current	Short-term	Long-term
A.1. Number of volunteers in biodiversity-related activities	A.1.i. Number of participants in annual citizen science-driven monitoring schemes	●	●	●
	A.1.ii. Trends in membership of biodiversity-related NGOs[1]	X	X	X
A.2. Trends in the knowledge of biodiversity	A.2.i. Trends on biodiversity in the Eurobarometer	●	●	●
	A.2.ii. Usage metrics of National Parks and Wildlife Service and National Biodiversity Data Centre websites	●	●	●
	A.2.iii. Number of biological records submitted to national citizen science-driven monitoring schemes	●	●	●
	A.2.iv. Level of use of biodiversity-related key words in print and online media	●	●	●
	A.2.v. Number of Irish-based searches for biodiversity-related key words using Google and other major search engines	●	●	●
A.3. Numbers in biodiversity-related educational programmes	A.3.i. Number of entries into the Biological and Ecological Category of the BT Young Scientist & Technology Exhibition	●	●	●
	A.3.ii. Number of school & community users/ visitors to the NPWS Education Centres	●	●	●
	A.3.iii. Number of schools achieving the 'biodiversity flag' in the Green-Schools programme	●	●	●
	A.3.iv. The number of third level environmental science courses	●	●	●

[1]Subindicator is under construction and therefore no status can be determined

Interpretation:

Based on the subindicators with data, good to intermediate status over the long term, with no significant change in the short-term.

Commentary:

Four of the ten completed subindicators have positive long-term trends, five have positive short-term trends and four have positive current trends.

A.1. Number of volunteers in biodiversity-related activities sub indicator (i) was populated for the first time this year and the data shows an intermediate current and short-term trend. This highlights that more volunteers are needed to take part in annual citizen science-driven monitoring schemes to ensure their continued success.

Subindicators supporting **A.2. Trends in the knowledge of biodiversity** show mixed improvement with the number of pageviews and new users to key websites markedly increasing, but overall internet search activity for the terms 'biodiversity', 'wildlife' or 'nature' remain largely unchanged. The reporting metrics for the level of use of biodiversity-related key words in the media has now been adapted to include online media and as such no short-term or long-term trend information is available.

A.3. Numbers in biodiversity-related educational programmes continues to expand with the number of entries to the Biology & Ecology section of the BT Young Scientist Competition now reaching a maximum, and almost 1,500 schools have now achieved a Biodiversity Flag under An Taisce's Green Schools Programme.

B. Status of biodiversity

If not effectively managed, the increasing demands on the natural environment will lead to losses of biodiversity. To ensure the sustainable development of Irish society the status of our wildlife and habitats needs to be periodically monitored to identify successful management practices and co-ordinate conservation efforts at local, regional and national levels.

Headline Indicator	Subindicator	Status		
		Current	Short-term	Long-term
B.1. Trends in the status of birds	B.1.i. Trends in the status of birds	●	●	●
B.2. Trends in the status of insects	B.2.i. Trends in the status of bees	●	●	●
	B.2.ii. Trends in the status of butterflies	●	●	●
B.3. Trends in the status of plants	B.3.i. Trends in the status of plants	●	●	●
B.4. Trends in threatened genetic resources	B.4.i. Status of rare breeds, cultivars and crop wild relatives	●	●	●
B.5. Trends in the status of threatened species	B.5.i. Proportion of total species assessed under various Red List threat categories	●	●	●
	B.5.ii. Number of Habitats Directive species with green, amber or red status	●	●	●
B.6. Trends in the status of habitats	B.6.i. Change in area of extent of semi-natural terrestrial habitats	X	X	X
	B.6.ii. Area forested with native species	●	●	●
B.7. Trends in the status of priority habitats	B.7.i. Number of Habitats Directive habitats with green, amber or red status	●	●	●
	B.7.ii. Number of freshwater habitats reported as 'Good Environment Status' under Water Framework Directive monitoring	●	●	●
	B.7.iii. Number of transitional and marine habitats reported as 'Good Environmental Status' under Marine Strategy Framework Directive monitoring	●	●	●

Interpretation:

Poor to intermediate status, no significant change in the short term.

Commentary:

There are no positive trends associated with subindicators within this focal area. Short-term declines have now been established for bee populations and long-term declines for butterfly populations. In addition to this, the Countryside Bird Survey Report 1998-2019 notes that although population increases of many species are evident in the population graphs for the last number of years, they should be viewed as the recovery of populations rather than increases. In terms of **B4 (Trends in threatened genetic resources),** the conservation status of the 181 crop wild relative species is currently unknown. Of the 170 breeds registered in Ireland, the risk status of 72 have been assessed with one breed now extinct, 17 critical and 26 endangered.

The priority species and habitat-based subindicators show intermediate and negative trends with 30% of species and 85% of habitats in an unfavourable status. Since the last reporting period, there was a 3.7% drop in the number of high or good quality rivers sites, which means that 47% of river sites are now of moderate to bad quality. There has been no change in the number of high or good quality lakes since the last reporting period, with less than half of monitored lakes in Ireland attaining good or high ecological status. Almost 60% of monitored transitional water bodies and 29% of monitored coastal water bodies are now of moderate to bad quality.

C. Threats to biodiversity

The most important drivers of biodiversity loss are habitat loss, habitat fragmentation, unsustainable exploitation, pollution and invasive alien species. These indicators track these drivers of biodiversity loss to support the development and implementation of strategies to reduce direct pressures on biodiversity.

Headline Indicator	Subindicator	Status		
		Current	Short-term	Long-term
C.1. Trends in habitat connectivity	C.1.i. Fragmentation of protected habitats	🟠	⚫	⚫
	C.1.ii. Change in land cover and land use	🟠	🟠	🟠
C.2. Trends in pollution impacting biodiversity	C.2.i. Number of Article 17 habitats' status affected by pollution	🔴	⚫	⚫
	C.2.ii. Number of Article 17 species' status affected by pollution	🔴	⚫	⚫
	C.2.iii. Number of pollution-derived fish kills reported by IFI	🟠	🟢	🟢
	C.2.iv. Quantity of contaminated soil sent for remediation	🟢	🟢	🟢
C.3. Trends in invasive alien species	C.3.i. Number of newly introduced invasive alien species	🔴	🔴	🔴
C.4. Trends in unsustainable resource use	C.4.i. Number of species which are not being fished sustainably	🟠	🟠	🟠
	C.4.iv. Water Exploitation Index	🟢	🟢	🟢

Interpretation:

Long term status is mixed but it's encouraging to see three positives statuses within this timeframe which shows threat mitigation is improving. The current status of many subindicators is intermediate or poor. This suggests either an increase in threats, or a decrease in the effectiveness of mitigation in the short-term.

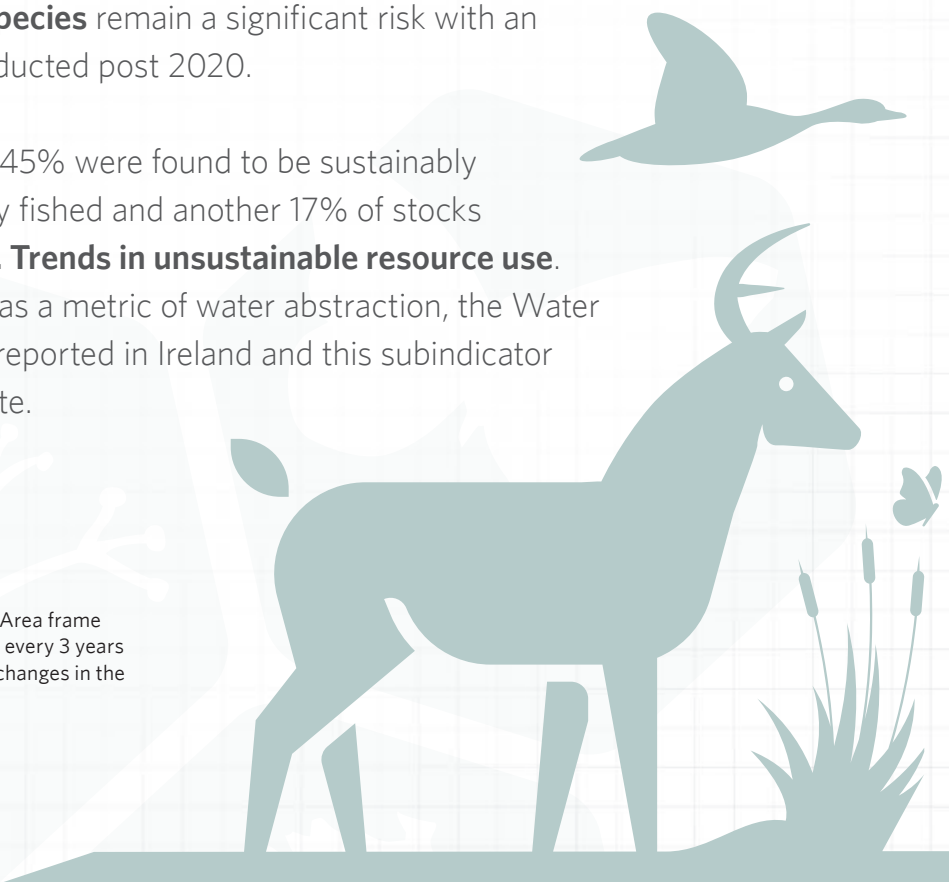
Commentary:

The current status for **C.1. Trends in habitat is intermediate**. Data for the fragmentation of protected habitats was included this year for the first time and as such the short-term and long-term statuses are not available. The LUCAS[2] surveys detected an increase in agricultural activity in 7% of points surveyed, and a 12% decline in 'unused and abandoned areas' from 2015 to 2018. Interestingly this was the opposite of trends observed from 2012 to 2015.

The status of **C.2. Trends in pollution impacting biodiversity** is mainly poor due to the high number of EU Habitat's Directive habitats and species being impacted by pollution.

C.3. Trends in invasive alien species remain a significant risk with an updated assessment to be conducted post 2020.

Out of 74 fish stocks assessed 45% were found to be sustainably fished, 38% were unsustainably fished and another 17% of stocks were of unknown status in **C.4. Trends in unsustainable resource use**. Due to uncertainty in its utility as a metric of water abstraction, the Water Exploitation Index is no longer reported in Ireland and this subindicator will be revised in the next update.



[2]LUCAS stands for the Land Use and Coverage Area frame Survey. This survey was carried out by Eurostat every 3 years since 2006 to identify land use and land cover changes in the European Union.

D. Measures that safeguard biodiversity

Information on the level of implementation of national and international biodiversity protection policies, and enforcement of biodiversity protection, is a necessary and critical step in supporting effective conservation and the sustainable use of natural resources.

Headline Indicator	Subindicator	Status		
		Current	Short-term	Long-term
D.1. Extent of protected areas	D.1.i. Extent of nationally designated protected areas (National Heritage Areas, National Parks, Nature Reserves)	●	●	●
	D.1.ii. Extent of internationally designated protected areas (Special Areas of Conservation, Special Protection Areas, Ramsar Sites)	●	●	●
	D.1.iii. Area covered by the Native Woodland Scheme	●	●	●
	D.1.iv. Extent and location of gaps in protection of designated habitats	●	●	●
D.2. Level of habitat conservation plans	D.2.i. Number of sites with detailed conservation objectives	●	●	●
	D.2.ii. Area of raised peatland habitat under active restoration plans	●	●	●
	D.2.iii. Level of monitoring of agri-environment schemes	X	X	X
	D.2.iv. Area of land managed as part of agri-environmental schemes	●	●	●
D.3. Level of control of invasive alien species	D.3.i. Area implementing invasive alien species management	X	X	X
D.4. Amount of funding for biodiversity conservation	D.4.i. Level of national expenditure on biodiversity	●	●	●
	D.4.ii. Amount of funding for biodiversity leveraged from EU LIFE Programme	●	●	●
D.5. Level of compliance-related actions	D.5.i. Number of professional ecologists and environmental managers	●	●	●
	D.5.ii. Number of successful prosecutions	X	X	X
	D.5.iii. Number of EU pilot requests or infringements	●	●	●
	D.5.iv. Number of relevant legislative instruments introduced	●	●	●

Interpretation:

Intermediate status, with no significant change in the short term.

Commentary:

The intermediate status of the subindicators in **D.1. Extent of protected areas** is due to the extent of terrestrial designated protected areas now being 16.8%. This figure is approaching the international targets of 17% by 2020, but only 1.32% of marine territory is designated, which is below the international target of 10% by 2020.

For **D.2. Level of habitat conservation plans,** 63% of Special Areas of Conservation (SACs) and 21% of Special Protection Areas (SPAs) have site-specific conservation objectives with generic conservation objectives in place for the remaining sites. The area of raised peatland under active restoration plans, and the area of land managed as part of agri-environmental schemes were populated for this first time this year with both showing intermediate current statuses.

Under **D.4. Amount of funding for biodiversity conservation**, government resources allocated to biodiversity protection and management was €241.7 million in 2018, 28% higher than the preceding five-year average and almost 1% below the 10-year average. In addition, the EU contribution to LIFE project funding in Ireland in 2018 was €6.34 million, reflecting an above average level of funding across the last five and ten year averages.

In addition, under **D.5. Level of compliance-related actions**, the membership of the Chartered Institute of Ecology and Environmental Management (CIEEM) has grown by 24% since 2018 with 14% of members attaining Chartered status.

E. Measures that mainstream biodiversity

Integrating biodiversity into decision making at local, regional and national levels will enable Irish society to appropriately assess the consequences of biodiversity loss and co-ordinate mitigation measures across levels of government.

Headline Indicator	Subindicator	Status		
		Current	Short-term	Long-term
E.1. Number of biodiversity-related policies, strategies and related instruments	E.1.i. Area covered by measures developed in the Rural Development Plan for Ireland for the protection and enhancement of ecosystem services and biodiversity	●	●	●
	E.1.ii. The number of Local Authority Biodiversity Action Plans in place and in development.	●	●	●
	E.1.iii. Number of government policies, programmes and legislation with a statement on biodiversity duty	●	●	●
	E.1.iv. Number of biodiversity-related Memoranda of Understanding between the Department of Housing, Local Government and Heritage and other public bodies	●	●	●
	E.1.v. Level of compliance with the Urban Waste Water Treatment Directive	●	●	●
	E.1.vi. Number of plans and programmes implemented with strategic environmental assessments	●	●	●
E.2. Number of cross-sector guidance documents published	E.2.i. Number of biodiversity-related guidance documents published	●	●	●
E.3. Number of biodiversity-related personnel in national and local government agencies	E.3.i. Number of Biodiversity Officers in Local Authorities	●	●	●

Interpretation:

Intermediate to poor status, declining in the short-term.

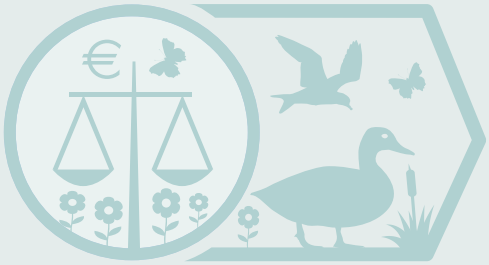
Commentary:

The negative status subindicators in this Focal Area are largely due to the **E.1. Number of biodiversity-related policies, strategies and related instruments**. For E.1.v. (Level of compliance with the Urban Waste Water Treatment Directive), despite a drop in the number of large urban areas failing to meet EU standards in the last number of years, the waste water collected in these sites account for 54% of all waste water collected in Ireland's public sewers. **E.1.i (The area covered by measures developed in the Rural Development Plan for Ireland for the protection and enhancement of ecosystem services and biodiversity)** was populated for the first time this year and shows a positive short-term status and an intermediate current status. This highlights that although there has been improved uptake in recent years, more land needs to be registered under the schemes to ensure long term progress.

There is also a lack of progress on the number of government policies with a statement on biodiversity duty and biodiversity-related Memoranda of Understanding across public bodies. In addition, the number of Biodiversity Officers across Local Authorities remains low.

F. Benefits derived from biodiversity and ecosystem services

Valuing biodiversity and ecosystem services in terms of their economic, intrinsic, health or cultural value allows society to fully appreciate the benefits from, and losses to, biodiversity and the ecosystem services it provides.



Headline Indicator	Subindicator	Status		
		Current	Short-term	Long-term
F.1. Economic benefits derived from biodiversity and ecosystem services	F.1.i. Area of organic farms	●	●	●
	F.1.ii. Yield produced or extent of area of crops pollinated by pollinators	X	X	X
	F.1.iii. Number of farms or amount of money provided to farmers in Natura subsidies for biodiversity conservation	X	X	X
F.2. Level of regulating services from intact ecosystems	F.2.i. Extent of area available for carbon sequestration (e.g. forested areas, peatlands, etc.)	X	X	X
F.3. Level of well-being benefit	F.3.i. Number of licences issued for leisure fishing	●	●	●
	F.3.ii. Number of visitors to Irish National Parks	X	X	X

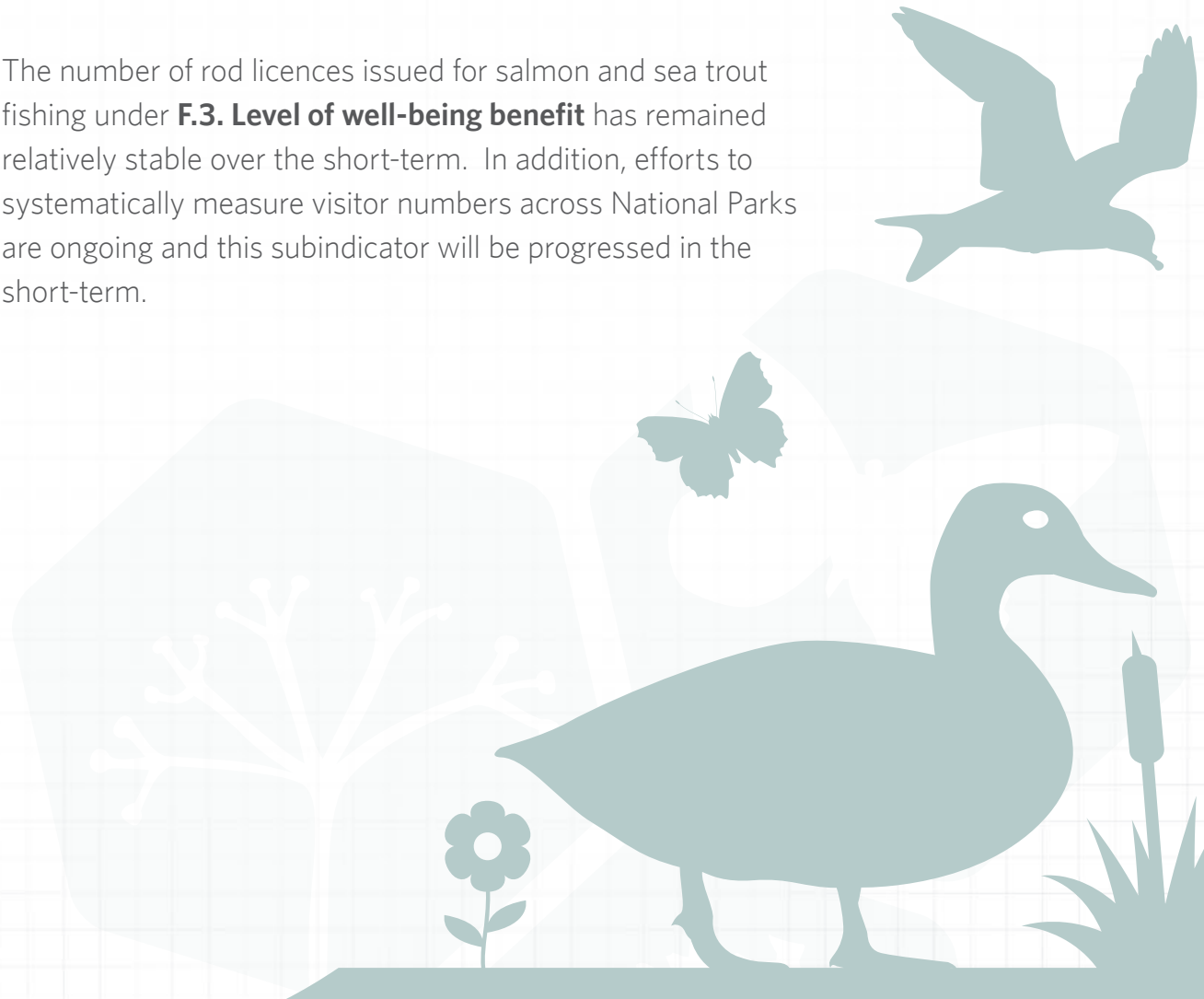
Interpretation:

Unknown status, unknown change in status.

Commentary:

As evidenced by **F.1. Economic benefits derived from biodiversity and ecosystem services** and **F.2. Level of regulating services from intact ecosystems**, significant knowledge gaps remain in an Irish context regarding natural capital and the valuation of ecosystem services. **F.1.i. (Area of organic farms)** was populated this year for the first time and data shows a poor short-term and current status. This due to the share of organic farming as a percentage of total utilised agricultural area in Ireland (1.63%) falling well below the European Union average (8.5%).

The number of rod licences issued for salmon and sea trout fishing under **F.3. Level of well-being benefit** has remained relatively stable over the short-term. In addition, efforts to systematically measure visitor numbers across National Parks are ongoing and this subindicator will be progressed in the short-term.



G. Impacts on biodiversity outside of Ireland

Implementing measures to protect and restore biodiversity at a national level can also support international initiatives to conserve biodiversity outside of Ireland. Only through coherent international collaboration can efforts at national levels upscale to produce geographically broad and long-term positive outcomes for biodiversity.

Headline Indicator	Subindicator	Status		
		Current	Short-term	Long-term
G.1. Trends in resource mobilisation	G.1.i. Expenditure on international biodiversity and ecosystem services conservation	●	●	●
G.2. Rate of compliance with CITES regulations	G.2.i. Number of seizures made of illegally imported natural products	●	●	●

Interpretation:

Intermediate status, with no improvement in the short-term.

Commentary:

Under **G.1. Trends in resource mobilisation**, the volume of aid provided under the 'Rio marker' for biodiversity by Ireland via the Irish Aid programme in the Department of Foreign Affairs decreased from the high of USD$ 47.19 million in 2016 to USD$ 36.79 million.

The intermediate status of the subindicator under **G.2. Rate of compliance with CITES regulations** remains unchanged and updated data will be made available in the next update.

Additional subindicators will be developed under this Headline Indicator once Ireland ratifies the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization, a supplementary agreement signed by Ireland in 2012 to the 1992 Convention on Biological Diversity.

H. Knowledge of Irish biodiversity

Increasing public interest in biodiversity has been accompanied by growth in research and ecological monitoring, by both citizens and professionals, generating increasing volumes of biodiversity data. When effectively managed, these data underpin evidence-based conservation policy and land management at local, regional and national levels.

Headline Indicator	Subindicator	Status		
		Current	Short-term	Long-term
H.1. Trends in improving data holdings	H.1.i. Number of biological records held on biodiversity by the National Biodiversity Data Centre	●	●	●
H.2. Trends in existing knowledge gaps	H.2.i. Number of habitats and species for which status categories given as "unknown"	●	●	●
	H.2.ii. Number of gaps filled that were identified in the "State of Knowledge, Ireland's Biodiversity 2010"	●	●	●
H.3. Trends in the data-driven biodiversity publications	H.3.i. Number of species atlases produced	●	●	●
	H.3.ii. Number of Red Lists produced	●	●	●
	H.3.iii. Number of papers published on Irish biodiversity	●	●	●
H.4. Trends in monitoring programmes and assessments	H.4.i. Number of regular monitoring/surveillance programmes in place and survey results published	●	●	●
	H.4.ii. Number of assessments of the economic value of Ireland's biodiversity	●	●	●

Interpretation:

Good to intermediate status, continued improvement in the long term.

Commentary:

Sustained growth in **H.1. Trends in improving data holdings** is evidenced by the 4.4 million records representing 16,600 species managed by the Biodiversity Data Centre. Of the 47 knowledge gaps identified in the "State of Knowledge, Ireland's Biodiversity 2010", 10 are complete, 15 in progress and 8 initiated under **H.2. Trends in existing knowledge gaps**. The second subindicator in this focal area is also positive with the number of priority habitats and species of "unknown" status reducing from 11 in the 2013 EU Habitats Directive report to 7 in 2019 report.

The long-term status for **H.3. Trends in the data-driven biodiversity publications** is still positive regarding species atlases published, but progress on the number of Red Lists produced has slowed in the short-term.

In **H.4. Trends in monitoring programmes and assessments**, the subindicator relating to the number of regular monitoring programmes was populated for the first time this year. The current positive status was substantiated by the 120 monitoring programmes active in 2020, however growth in the monitoring schemes will need to be evident to ensure short- and long-term success. The number of assessments of the economic value of Ireland's biodiversity dropped from 2018 to 2019 but increased again in 2020.

4 Next Steps

The National Biodiversity Indicator programme is being constantly reviewed and the following steps will be underaken in the short-term:

- Seven indicators were populated with data for the first time this year and four had a change to their reporting metrics. It is hoped that the number of indicators not currently populated will further reduce in the next update.
- Continue to engage with the National Biodiversity Forum and Biodiversity Working Group to facilitate iterative reviews of the National Biodiversity Indicators and strengthen linkages between stakeholders and data providers.
- In light of future policy requirements, a review of the National Biodiversity Indicators will occur prior to the next update which is expected in 2023.

Further information

Dr. Michelle Judge, Data Manager with the National Biodiversity Data Centre has responsibility for the management and updating of the National Biodiversity Indicators. If you require any further information regarding the National Biodiversity Indicators, please don't hesitate to contact us using the below details:

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