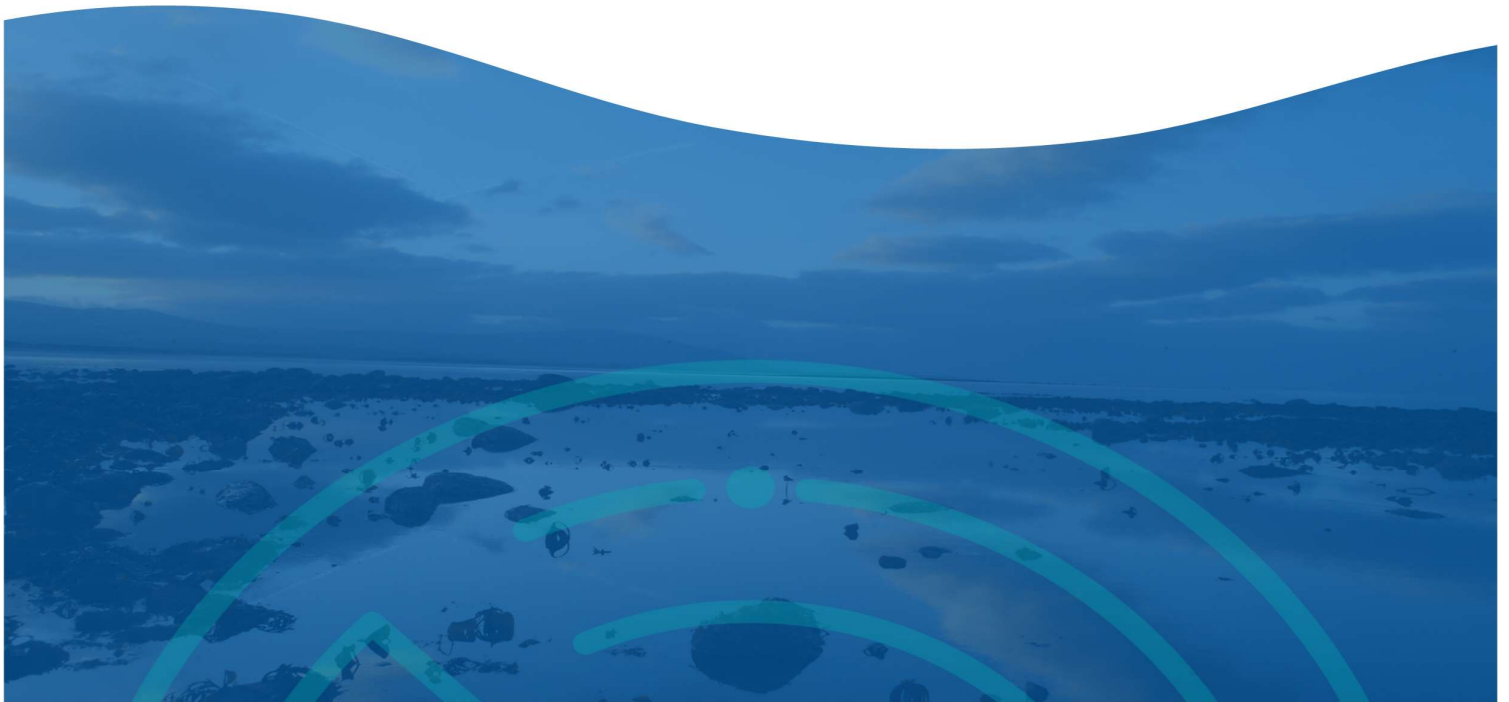


Invasive Species Surveillance and Monitoring in the Island of Ireland

Dr Hannah Tidbury & Dr Paul Stebbing

Non-technical Summary



Client: National Biodiversity Data Centre

Address: Beechfield House
SETU West Campus
Carriganore
Waterford
Ireland
X91PE03

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Project Director: Dr Paul Stebbing

Project Manager: Dr Hannah Tidbury

APEM Ltd
Riverview
A17 Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN

Tel: 0161 442 8938

Fax: 0161 432 6083

Registered in England No. 02530851

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Action is needed to establish clear governance, implement integrated monitoring, identify high-risk locations, and standardise data collection and sharing to strengthen invasive species surveillance and monitoring across the island of Ireland.

1 Context

Invasive species are a leading cause of biodiversity loss¹ and cost the island of Ireland over €261 million annually². They threaten ecosystems, human health, and the economy.

Effective surveillance and monitoring are critical to detect new invasive species introductions, enable rapid response, track trends in introductions and spread, determine the effectiveness of interventions, ensure compliance with legislation, and measure progress towards management targets.

The National Biodiversity Data Centre (NBDC) commissioned work to support the development and implementation of an integrated invasive species monitoring programme covering terrestrial, freshwater, and marine environments across the island of Ireland^{3,4}.

This summary outlines key messages, ongoing challenges, and recommendations, and supports the main project outputs.

2 Key message

- Invasive species monitoring is being conducted across the island of Ireland, but it is fragmented across jurisdictions and organisations and falls short of legal requirements -**
Numerous surveillance and monitoring initiatives, targeting or relevant to invasive species, are undertaken by many organisations across the island of Ireland. However, gaps exist in temporal and spatial coverage, especially at high-risk locations and sites, as well as for priority invasive species. Strong coordination and communication across organisations and jurisdictions are crucial to close gaps and deliver a comprehensive, effective monitoring system.

¹ IPBES. (2023). Summary for Policymakers of the Thematic Assessment Report on Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Roy, H. E., Pauchard, A., Stoett, P., Renard Truong, T., Bacher, S., Galil, B. S., Hulme, P. E., Ikeda, T., Sankaran, K. V., McGeoch, M. A., Meyerson, L. A., Nuñez, M. A., Ordóñez, A., Rahlao, S. J., Schwindt, E., Seebens, H., Sheppard, A. W., and Vandvik, V. (eds.). IPBES secretariat, Bonn, Germany.

² Kelly, J., Tosh, D., Dale, K., & Jackson, A. (2013). The economic cost of invasive and non-native species in Ireland and Northern Ireland. The Northern Ireland Environment Agency and the National Parks and Wildlife Service.

³ Tidbury, H., Houghton, R., Lintott, L., Rees, J., & Stebbing, P. (2026). Invasive Species Surveillance and Monitoring: A Comprehensive Review of Existing Programmes and Initiatives. A report commissioned by National Biodiversity Data Centre and completed by APEM Ltd.

⁴ Tidbury, H., Bullen, C., Lintott, L., Rees, J., Atkinson, S., & Stebbing, P. (2026). An Invasive Species Surveillance and Monitoring Framework for the Island of Ireland. A report commissioned by National Biodiversity Data Centre and completed by APEM Ltd.

2. **Broader environmental monitoring programmes present an existing platform to support invasive species monitoring** - Environmental monitoring programmes, such as those focussed on water quality, provide comprehensive spatial and temporal monitoring coverage of particular habitats. While these programmes have broader objectives and do not implement bespoke invasive species monitoring as standard across their environmental, spatial and temporal remit, they do have potential to detect invasive species. There is opportunity to maximise efficiency, close monitoring gaps, and strengthen early detection without duplicating effort by integrating standardised invasive species protocols into these existing statutory frameworks.
3. **Robust, evidence-based sampling design improves our ability to detect invasive species and track distribution and abundance trends. However, data to underpin sampling design is lacking, especially for the freshwater and terrestrial environments** - Several factors need to be considered in sampling design, including the risk of invasive species introduction into different sites. Data around invasive species pathway activity is needed to understand this risk but is lacking in some instances, thereby compromising optimisation of invasive species surveillance and monitoring across the island of Ireland.
4. **Invasive species data flow is complex and multifaceted, not all invasive species records are accessible and located on central repositories** – CEDaR and NBDC provide central hubs for invasive species data storage, as intended. However, some invasive species records are locked in local repositories, limiting their use in monitoring programme design and reporting. Collation of existing invasive species records and the development and implementation of effective and transparent data protocols is essential to enable robust, transparent monitoring and informed decision-making.

3 Ongoing challenges

Scale – Monitoring must cover a vast geographic area, spanning two jurisdictions and diverse environments, and incorporate invasive species with very different traits and habitats.

Shifting pressures – Climate change, variation in global trade, and evolving socio-economic factors result in increasing risk and complexity of invasive species introductions.

Data – While data collection is growing, accessibility and consistency in submission to centralised databases remain major obstacles, limiting effective monitoring and reporting.

4 Recommendations

1. Strengthen governance and cross-jurisdictional working

Robust governance and cross-jurisdictional working to underpin collaboration, reduce duplication, and ensure timely, effective and legally compliant monitoring across all environments.

Priority Actions

- i. Review existing governance structures to ensure they can meet the expanded scope and scale of monitoring requirements.
- ii. Identify Responsible Authorities and lead roles, initiating recruitment where necessary.
- iii. Enhance inter-jurisdiction coordination across Ireland and Northern Ireland, including incorporation of early warning systems.
- iv. Leverage existing communication channels rather than creating new ones—improve and integrate where needed for efficiency

2. Integrate invasive species monitoring into existing programmes

Integrating invasive species monitoring into existing statutory programmes will maximise efficiency, close critical gaps, and strengthen invasive species surveillance and monitoring.

Priority Actions

- i. Engage with key sectors and stakeholders to ensure awareness of existing programmes and aligned objectives.
- ii. Integrate invasive species monitoring into programme design where possible.
- iii. Share monitoring resources across sectors to reduce costs and improve data flow.
- iv. Develop and adopt standardised protocols for invasive species data collection and reporting (also see recommendations 4 ii and iv).
- v. Ensure standardised training of field teams to enable identification of invasive species.

3. Optimise Evidence-Based Sampling Design

INNS pathway activity data and analysis, to inform optimised sampling strategies, are crucial for robust, and cost-effective surveillance and monitoring.

Priority Actions

- i. Identify, and where possible implement, mechanisms (i.e. citizen science initiatives, research projects) to generate crucial data to inform pathway activity assessment and site prioritisation, especially in the terrestrial and freshwater environments.
- ii. Identify priority monitoring sites using pathway analysis and information on site vulnerability to impact.
- iii. Incorporate adaptive design principles to respond to emerging risks and shifting pressures (e.g., climate change, trade).

4. Improve data access and flow

Standardised data collection protocols and centralised reporting will ensure data accessibility, and improve transparency and accuracy of reporting and monitoring design.

Priority Actions

- i. Transfer all locally held invasive species records to CEDaR and NBDC to create an up-to-date, accessible dataset.

- ii. Develop and adopt standardised protocols for data collection building on existing frameworks where possible.
- iii. Promote transparency and collaboration through formal data-sharing agreements across organisations and jurisdictions.
- iv. Implement aligned reporting and data sharing protocols to streamline data flow and reduce duplication.
- v. Identify and invest in infrastructure needed to support efficient data exchange and storage.