


Invasive Alien Species in the Republic of Ireland

Policy recommendations for
their management

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Invasive Alien Species in the Republic of Ireland: Policy recommendations for their management

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Key Recommendations

The following key policy recommendations for invasive alien species (IAS) management in the Republic of Ireland (referred to as Ireland henceforth) are proposed:

- 1 Establish a suitably resourced, single lead Division that is responsible for Invasive Alien Species (IAS) management in Ireland, working under the aegis of the National Parks and Wildlife Service (NPWS).
- 2 Establish an All-Ireland IAS Forum.
- 3 Develop a national Biosecurity Strategy for Ireland.
- 4 Provide appropriate resources, training and support in relation to IAS for our national Customs services at ports/entry points throughout Ireland.
- 5 Produce comprehensive Management Plans for IAS currently in Ireland, along with Contingency Plans for IAS expected to arrive in the future (based on horizon scan exercises).
- 6 Develop a surveillance programme to regularly monitor water bodies for the presence and status of IAS.
- 7 The new IAS legislation for Ireland that will come into force in 2021 must be implemented and enforced by the responsible agency.
- 8 Develop national IAS education and awareness programmes in Ireland.
- 9 Harness community involvement and support to ensure the long-term sustainability of national and local IAS and biosecurity programmes.
- 10 Significantly increase the level of research and management funding into IAS.

Introduction & rationale

Invasive Alien Species (IAS) are global threats to the environment, native biodiversity, biosecurity, the economy, and animal, plant and human health. As an island, Ireland has the opportunity to prevent myriad IAS arriving and establishing. It is acknowledged in the literature that IAS which become established on islands impact native island fauna and flora much more so than on continental land masses, therefore, it is predicted that Ireland may suffer particularly severe consequences. Compounding the known impacts of IAS on biodiversity, a new economic analysis of IAS in Ireland, carried out for this research for the Water Forum (the Forum henceforth) project¹, indicates potentially enormous management and eradication costs.

The likely annual cost to the economy will be €26.5 billion per year by 2030 for all IAS, with aquatic and semi-aquatic IAS alone costing over €3.8 billion per year, should successful management interventions not be introduced. Recognising the urgency of developing management strategies for IAS in Ireland, a recent Irish EPA funded all-Ireland research project on *Prevention, Control and Eradication of Invasive Alien Species*² (Lucy et al 2021) established a suite of practical management strategies for IAS in Ireland. Furthermore, the Forum commissioned the current research to address policy gaps surrounding management of IAS in Ireland¹. This document presents recommendations for changes in governance and policy that will, if implemented, radically improve IAS management on the island of Ireland and significantly reduce the enormous forecasted economic costs.



Figure 1a. Underwater image of Curly waterweed (*Lagarosiphon major*) in Lough Corrib, Cos. Galway/Mayo.

In recent decades, the implementation of IAS management in Ireland and throughout Europe has been fragmented and uncoordinated. As a consequence, IAS from many areas of the world have been introduced and are causing significant ecological and economic damage. Examples include the Curly waterweed (*Lagarosiphon major*) (Figures 1a & 1b), which impacts fisheries and other amenities in large natural lake systems (e.g. in Lough Corrib), the Asian clam (*Corbicula fluminea*) (Figure 2a & 2b), which threatens many of Ireland's large river systems (e.g. in the Rivers Shannon, Barrow, Foyle), the European Salmon fluke (*Gyrodactylus salaris*), which threatens the entire wild salmon industry in Ireland, the Pacific Stalked sea squirt (*Styela clava*), which impacts aquaculture and marine habitats, and many more IAS are predicted to arrive³. Increased international travel and trade across the world has led to exponential increases in IAS globally, with the rate of new IAS introductions set to increase over the next decades. Indeed, many of the most problematic IAS in Ireland arrived in the last 20 years, and significant numbers of new, high impact IAS are predicted to reach Ireland in the next 10 years³. Moreover, recent estimates are for thousands of new IAS to invade across Europe, with devastating environmental and economic consequences¹.



Figure 1b. Scuba divers among dense floating canopy of Curly waterweed (*Lagarosiphon major*) in Lough Corrib, Cos. Galway/Mayo.

In an effort to coordinate action to tackle IAS issues across Europe, the EU Regulation (1143/2014) on IAS was introduced in 2015. At the core of this legislation are, currently, 66 named IAS of Union concern *i.e.* species that threaten all Member States (MS) in the EU and all MS are obliged to prevent and manage these IAS with respect to their introduction and spread. In Ireland, the principal piece of legislation dealing with IAS is included in the EC (Birds and Natural Habitats) Regulations 2011 (SI 477). This lists plants, animals and vector material that are subject to restrictions under this legislation. Similar legislation dealing with IAS is in force in Northern Ireland (NI), much of which is included in the Wildlife Order (NI) 1985 and the Wildlife and Natural Environment Act (NI) 2011, and the transposed EU legislation following Brexit.

Reviewing the management of IAS in Ireland

It is clear that the management of IAS, and particularly aquatic species, is complex and that it is virtually impossible to eradicate introduced species that have become established. Moreover, with aquatic IAS it can be difficult to detect them at an early stage of invasion because they are often under water and obscured from view.

Thus, when tackling established IAS infestations (e.g. Curly waterweed in Lough Corrib, Figures 1a & 1b, or Asian clam in the River Barrow, Figures 2a & 2b), sustained efforts and funding over many years are commonly required. Such efforts may reduce or maintain the infestations at manageable proportions and at least partially protect native species, habitats, ecosystem functioning and socio-economics. The urgent need to prevent incursions into Ireland in the first place is highlighted.



Figure 2a. An individual Asian clam (*Corbicula fluminea*) in the River Barrow, S.E. Ireland.

Responsible bodies and governance of IAS in Ireland

The National Parks and Wildlife Service (NPWS) is the responsible agency for IAS in Ireland, working alongside DAERA/NIEA in Northern Ireland (NI). However, NPWS has not been able to meet its operational objectives in respect of IAS in recent years, either under national regulations (SI 477) or the EU Regulation, because it is, and has for years, been chronically under-resourced, as identified in the terms of reference for the current strategic review of NPWS. As a result, there has been a lack of implementation and enforcement of the regulations that specifically target IAS.



Figure 2b. A dense bed of Asian clam (*Corbicula fluminea*) in the River Barrow, S.E. Ireland (right).

Thus, whilst significant penalties exist for breaching IAS legislation, prosecutions are rare. This has not been helped by the fact that one of the two Regulations in SI 477 that specifically deal with IAS (Regulation 50, prohibiting dealing in and keeping listed IAS) has not yet been signed into law. This is because any measures with implications for trade or the internal market require the approval of other MS and the Commission. Unfortunately, IAS management can easily conflict with trade as IAS may be either marketed directly or introduced as 'hitchhikers' in trade pathways – hence the hold-up in legislation. A further difficulty for the NPWS is the fact that no funding is provided by the EU to help it to implement and enforce the EU Regulation. It is hoped that the strategic review of NPWS will address the urgent need for increased resources to tackle IAS in Ireland.

Another problem relating to IAS in Ireland is that the legislation is deemed to be 'complex, evolving and difficult to interpret', according to a recent Technical Guidance document on IAS management, produced by Transport Infrastructure Ireland. This is decidedly unhelpful, particularly for those who wish to uphold the laws relating to IAS. It is to be hoped that, when the new IAS legislation for Ireland is signed into law in 2021, it is far more user friendly, interpretable and actionable than the previous national legislation.

IAS and pathways of introduction and spread in Ireland

Major pathways for the introduction and spread of IAS in Ireland include deliberate release, escapees, transport stowaways, and contaminants.

Understanding these pathways and adopting good biosecurity practice at ports and potential invasion hubs will reduce the level of new incursions and spread of IAS on the island of Ireland. The EU Regulation obliges MS to carry out comprehensive analyses of pathways and to identify those that require priority action. Due to lack of resources available to NPWS, no Pathway Action Plans have yet been completed for IAS in Ireland, although two are currently being worked upon. The new report prepared for the Forum¹ refers to a number of pathways that require urgent attention, including border porosity and illegal imports (e.g. via internet sales), deliberate releases by anglers and aquarists, sales from garden centres and pet shops, and aquaculture hitchhikers, among others. Furthermore, coordination with NI on IAS issues is urgently required, as such species can be donated in either geo-political direction.

Implementation of good biosecurity practice

Few government departments or state/semi-state agencies in Ireland promote or legislate for the adoption and implementation of good biosecurity practice among their staff and contractors to stop the introduction and spread of IAS.

This is the case even though the River Basin Management Plan for Ireland (2018-2021) and the National Biodiversity Action Plan (2017-2021) both state that national biosecurity guidelines or plans will be developed for relevant state bodies. Examples of critical lack of biosecurity at ports in Ireland and other points of entry are highlighted in the full report prepared for the Forum, which also identifies international good practice that could be implemented¹.



Figure 3. Water Pennywort (*Hydrocotyle ranunculoides*)

Education, awareness and communication

Currently, there are no national IAS education and awareness programmes in Ireland, meaning that stakeholders and members of the public that are interested in learning about IAS or biosecurity have no structured guidance.

Environmental issues and their mitigation clearly benefit from educational exposure and awareness campaigns, alongside citizen science (e.g. climate change, plastic pollution, 'leave no trace'). The availability of informed IAS education and awareness programmes builds capacity and skills among participant groups, to the ultimate gain of ongoing or proposed IAS projects. Community involvement in national or local IAS awareness and management programmes not only ensures ongoing support in terms of local manpower and resources, but also ensures the long-term sustainability of these projects. To not actively engage with communities and stakeholders (e.g. in schools, clubs, environmental groups) in respect of IAS issues is to miss out on a continued source of support and assistance. This is a bottom-up, grassroots strategy that has a shared vision and a sense of collective ownership.



Figure 4. Biosecurity Guidance from National Biodiversity Data Centre

A proactive response is needed to IAS incursions

The limited responses to IAS incursions into Ireland has led to higher management costs, significant adverse environmental impact, and potential missed opportunities (e.g. for eradication of localised infestations).

Additionally, the lack of development and availability of adequate practical tool boxes (e.g. rapid eradication methods²) to effectively tackle IAS once detected is a significant shortfall. Examples of tool boxes already exist, but have not yet been implemented due to lack of governance and funding¹. Chronic under-funding of IAS management in Ireland is clearly a cause of such failings, and the new economic analysis presented in the research report¹ clearly indicates that increased and sustained funding for IAS has huge potential to avoid catastrophic IAS environmental impacts and economic costs in future.

Recommendations

Based on commissioned research and a review of relevant literature¹, the following key policy recommendations for invasive alien species (IAS) management in the Republic of Ireland are proposed:

1. Establish a suitably resourced, single lead Division that is responsible for IAS management in Ireland, working under the aegis of NPWS.

This Division must be appropriately resourced, have a clear statutory responsibility for IAS, and be solely dedicated to IAS issues. Adequate and sustained funding will be required if this Division is to have any chance of succeeding in the complex and long-term battle against IAS. This Division will develop a coherent and coordinated national policy on IAS management and biosecurity between government departments, scientific and environmental institutions, NGOs, stakeholders and the public, as well as with responsible agencies and stakeholders in Northern Ireland (NI).

2. Establish an All-Ireland IAS Forum.

Similar to the Invasive Species Ireland (ISI) project, which operated between 2006 and 2013, this joint North-South forum will report to the responsible agencies for IAS in Ireland and NI. It will bring together national and international IAS experts, scientists, policy makers, practitioners, and stakeholders to advise both jurisdictions regarding IAS and biosecurity management on the island of Ireland. It will build on the success of the ISI project and the highly successful work conducted by the Non-native Species Secretariat in Great Britain (GB NNSS). This forum should also prioritise and communicate actionable IAS management strategies.

3. Develop a national Biosecurity Strategy for Ireland.

This strategy must draw heavily upon existing Biosecurity Strategies that have been prepared and successfully implemented in other countries, most prominently New Zealand. This would drive the production and implementation of practical biosecurity guidelines for government departments and other relevant agencies

throughout Ireland. It could make it legally binding for goods, such as works machinery or leisure craft, entering the country to be accompanied by a national biosecurity declaration form. In addition, it would provide and promote clear biosecurity campaigns, protocols, codes of practice, and other pertinent materials for use by all stakeholders. Focus on delivering meaningful and proactive IAS interventions is critical.

4. Provide appropriate resources, training and support in relation to IAS for our national Customs services at ports/entry points throughout Ireland.

It is clear that Customs staff in Ireland are inadequately resourced and trained to tackle the major problems relating to IAS coming through Irish ports. Furthermore, there is no focus directed by the hard-pressed Customs staff on the issue of IAS. In order to present an effective deterrent to the entry of IAS, the Customs Service would require a significant number of additional, specifically trained staff and ancillary resources. There is currently no plan to make such a dedicated service available for the Republic of Ireland. We can learn from international examples how to implement such effective biosecurity for Ireland.

5. Produce comprehensive Management Plans for IAS currently in Ireland, along with Contingency Plans for IAS expected to arrive in the future (based on horizon scan exercises).

These plans will clearly identify the communication processes and lines of responsibility that will operate to effectively manage and/or eradicate targetted IAS. They will also detail the resources (funding, expertise and materials) that will be available to achieve the desired goal. They will highlight the importance of early warning and rapid response in the armoury targetted against IAS and develop

the necessary protocols and tool boxes to effectively manage these species. These need to be developed for use by trained personnel in government departments and related agencies, and for use by key stakeholders and local communities. Early warning is key to rapid response, and tool boxes need to be developed and made available to recognise early incursions and react swiftly.

6. Develop a surveillance programme to regularly monitor water bodies for the presence and status of IAS.

A surveillance programme should be established to regularly monitor water bodies for the presence and status of IAS. Key sites, already monitored for Water Framework Directive sampling, should be identified for surveillance. Other sites related to pathways of spread, (e.g. marinas and angling sites) should also be identified.

7. The new IAS legislation for Ireland that will come into force in 2021 must be implemented and enforced by the responsible agency.

There is little point having robust legislation on the statute books if it does not act as an effective deterrent to those who may disregard or bypass it. Lack of action, enforcement and prosecutions must be urgently addressed.

8. Develop national IAS education and awareness programmes in Ireland.

These programmes will be prepared in consultation with communication specialists and sociologists to ensure that key messages relating to IAS and biosecurity achieve their maximum impact with their target audiences. A broad objective of the programmes will be to achieve attitude and behavioural change

among stakeholders regarding IAS, and the implementation of good biosecurity practice. A range of comprehensive IAS/biosecurity training courses dedicated to the specific needs of different stakeholders (e.g. government department and related employees, staff at garden centres, pet shops) should be delivered.

9. Harness community involvement and support to ensure the long-term sustainability of national and local IAS and biosecurity programmes.

The availability of committed, informed and trained community (and stakeholder) groups will provide necessary resources (e.g. citizen science, volunteers, IAS champions) to assist with IAS monitoring, surveillance, early warning, rapid response, control, management, and biosecurity. International practices can inform practical action on the ground in Ireland.

10. Significantly increase the level of research and management funding into IAS.

With estimated annual IAS costs to Ireland by 2030 of €26.5 billion (all IAS) and €3.8 billion (aquatic IAS), proactive research and management spending is urgently required. Far more quantitative information is required on the effects that IAS have on native habitats and species, the effect that climate change will have on IAS spread/impact, and on the development of methods to control and eradicate targeted IAS. Such research spending is economically justified in that relatively small investment now will avoid these enormous costs in the future. This funding is urgently required and must be sustained in the long-term by inclusion in relevant annual budgets *via* exchequer funding.

References

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3. Lucy, F.E., Davis, E.,... Caffrey, J.M., Coughlan, N.E., ... Dick, J.T.A. et al. (2020) *Horizon scan of invasive alien species for the island of Ireland*. *Management of Biological Invasions*, 11(2): 155-177. <https://doi.org/10.3391/mbi.2020.11.2.01>

