

# Inquiry Response



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## **Invasive Species (Environmental Audit Committee)**

**30 April 2019**

The Chartered Institute of Ecology and Environmental Management (CIEEM), as the leading membership organisation supporting professional ecologists and environmental managers in the United Kingdom and Ireland, welcomes the opportunity to comment on this inquiry.

CIEEM was established in 1991 and has approaching 6,000 members drawn from local authorities, government agencies, industry, environmental consultancy, teaching/research, and voluntary environmental organisations. The Chartered Institute has led the way in defining and raising the standards of ecological and environmental management practice with regard to biodiversity protection and enhancement. It promotes knowledge sharing through events and publications, skills development through its comprehensive training and development programme and best practice through the dissemination of technical guidance for the profession and related disciplines.

CIEEM is a member of:

- Environmental Policy Forum
- IUCN – The World Conservation Union
- Professional Associations Research Network
- Society for the Environment
- United Nations Decade on Biodiversity 2011-2020 Network

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## **1. How well is the UK and its overseas territories managing the impact of invasive species and controlling the risks of further invasion?**

**This answer relates to the UK only.**

- 1.1 Progress has been made in recent years with horizon scanning<sup>1</sup>, awareness raising<sup>2,3</sup> and central information hubs, such as provided by GB non-native species secretariat (GBNNS)<sup>4</sup>. There have also been numerous control programmes, some which have been very successful such as mink<sup>5</sup> and ruddy duck control<sup>6</sup>.
- 1.2 The GB Invasive Non-native Species Strategy (2008 and updated in 2015) provides a sound strategic framework to manage the impact of invasive species and control the risks of further invasion. Disappointingly, awareness of the Strategy is low, especially in UK business and industry. Although the London Invasive Species Initiative's plan mirrors the strategy, this is not the case in other regions.

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<sup>1</sup> Roy, H.E., Peyton, J. & Aldridge, D.C. et al. (2014). Horizon-scanning for invasive alien species with the potential to threaten biodiversity in Great Britain. *Global Change Biology*, 20, 3859-3871.

<sup>2</sup> Invasive species week <http://www.nonnativespecies.org/index.cfm?sectionid=132>

<sup>3</sup> Be Plant Wise campaign <http://www.nonnativespecies.org/beplantwise/>

<sup>4</sup> GB non-native species secretariat <http://www.nonnativespecies.org/home/index.cfm>

<sup>5</sup> Bryce, R., Oliver M.K., Davies, L., Gray, H., Urquhart, J. & Lambin, X. (2011). Turning back the tide of American mink invasion at an unprecedented scale through community participation and adaptive management. *Biological Conservation*, 144, 575-583.

<sup>6</sup> Eradication of Ruddy Ducks in the UK to protect the White-headed Duck <http://www.nonnativespecies.org/index.cfm?pageid=244>

- 1.3 A result of low awareness is poor coordination and efficiency. It is unusual in ongoing control programmes for agencies to work together, including local authorities, property developers, transport and the Environment Agency.
- 1.4 Despite well-targeted efforts by the GBNNSS, implementation of biosecurity is weak. Over £1 billion worth of live plants are imported into the UK every year, the majority without biosecurity measures. It is difficult to implement preventative measures when scheduled species can be purchased readily in stores and over the internet. The promotion and use of native plants would greatly reduce the risks of importing invasive species and pathogens. A pathway assessment would be valuable in targeting resources effectively.
- 1.5 Early detection and surveillance are not currently translated into alerts and rapid response, and are reliant on voluntary input from naturalists, botanists, entomologists etc. which has inherent risks.
- Besides American bullfrog and Asian hornet, we are not aware of any successful responses that can be considered rapid as in the Strategy. We are not aware of a process by Defra whereby an alert can be responded to effectively and efficiently. Monitoring is also poor: although we have distribution data of where species have been present, negative occurrences are rarely recorded.
- Inaction often occurs because the responsibility for carrying out control falls between stakeholders. Accountability and resources available must be clearly divided in the initial stages of invasion to prevent further establishment.
- 1.6 Considerable resources are being expended on mitigation, control and eradication, but it is often not possible to determine success. Eradication is a tall order, of which, there are few instances.
- Due to a lack of recognised risk assessment methods, mitigation and control are influenced by perception. For example, millions of pounds have been spent on Japanese knotweed because of the myth that it grows through concrete and damages buildings, and the unintentional impact of legislation.
- Professional bodies, such as the Property Care Association (PCA), are helping raise standards in invasive species management and control. A risk-based system of management is in development by the PCA but this is likely to be for Japanese knotweed only.
- 1.7 Progress has been made with increasing awareness, however understanding is poor, particularly of the need to tackle pathways being as important as controlling species. More work is needed on information exchange regarding the management of the spread of INNS and emerging threats.
- 1.8 The revision of Schedule 9 of the Wildlife and Countryside Act must be completed and built on better understanding of the importance of risk assessment in selecting species to schedule, or move to a Scottish model (Wildlife and Natural Environment Act (Scotland) Act 2011) which presaged the EU IAS Regulation. Having increasingly disparate legislation across the UK is detrimental for dealing with INNS.
- 1.9 Efforts by the British Ecological Society to achieve a joined-up approach to research through its Invasion Science Group should be supported more widely. A forum comprising the BES's Invasion Science Group, CIEEM, Invasive Weed Control Group (PCA) and British Pest Control Association would have real value in identifying research needs.

**2. Of those that are already in the UK, which invasive species are posing the greatest harm to:**

- a. human health;**
- b. animal health;**
- c. plant health and biodiversity.**

**a)**

2.1 Giant Hogweed is an ongoing problem with the sap causing blistering of the skin on contact. It continues to expand in many areas, also adversely affecting plant diversity. The Oak Processionary Moth, whose hairs are irritants to human skin, is also likely to spread further.

**b)**

2.2

- American mink has caused a catastrophic loss of water voles in Britain.
- Brown rats and hedgehogs on Scottish islands have impacted internationally important seabird populations.
- North American signal crayfish continue to detrimentally impact the status of water bodies and spread disease to native crayfish populations. Killer shrimp harm native shrimp and fish species through predation.
- Aquatic invasive plant species detrimentally impact fish populations through clogging water bodies and deoxygenation.
- The New Zealand flatworm is widespread, especially in Scotland and northern England, with impacts on higher trophic levels that feed on earthworms as well as soil drainage and nutrient cycling. More than fifteen other invasive flatworms are already in Europe.

2.3 Other invasive species which have an impact on animal health include: Asian hornet, quagga mussel and Himalayan balsam.

**c)**

2.4 Many invasive non-native species (INNS) impact biodiversity, with the more impactful appearing to be Himalayan balsam, New Zealand pigmyweed, Reeve's muntjac, signal crayfish and feral geese.

- *Rhododendron ponticum* reduces numbers of earthworms, birds, plants and regenerative capacity of a site, reducing biodiversity<sup>7</sup>.
- Winter Heliotrope (*Petasites fragrans*) is spreading throughout Britain and Ireland, particularly on banks and roadsides, outcompeting native vegetation<sup>8</sup>. There is a need to investigate effective ways of management and control.
- False-acacia is currently uncommon in the wild, however it is spreading rapidly in urban areas, particularly along railway lines<sup>9</sup>.
- Aquatic INNS can impact the status of water bodies, for example in Scotland, the presence of species such as Leathery Sea-squirt (*Styela clava*) caused a downgrading of

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<sup>7</sup> <https://www.forestresearch.gov.uk/research/management-of-upland-native-woodlands/rhododendron-control/>

<sup>8</sup> Booy, O., Wade, M. & Roy, H. (2015) *Field Guide to Invasive Plants and Animals in Britain*, Bloomsbury Publishing, p.81.

<sup>9</sup> <https://www.plantlife.org.uk/uk/discover-wild-plants-nature/plant-fungi-species/false-acacia>

57 water bodies from high status to good. Nine water-dependent Special Areas of Conservation were in unfavourable condition in 2008 because of the presence of aquatic or riparian INNS<sup>10</sup>.

- 2.5 It is important that this inquiry considers the impact of invasive marine species, although their ecological effects can be difficult to assess. A report for Natural England suggested areas such as Morecambe Bay SAC and the Exe Estuary SPA were particularly susceptible to colonisation<sup>11</sup>. The spread of invasive marine species can also be unpredictable.
- 2.6 Other invasive species which have an impact on plant health include the Asian longhorn beetle and the Zig-zag sawfly.

### **3. What are the risks of invasive non-native species migrating to the UK from future climate change?**

- 3.1 We are already seeing range expansion and a rise in species numbers thriving outside their native environments. Many species will move northwards as temperatures rise<sup>12</sup>. Increased occurrence of high flow events is also likely to increase spread due to the high dispersal capabilities of many invasive species and their ability to rapidly colonise areas of bare sediment<sup>13</sup>. There is often uncertainty around impacts due to a 'lag phase' between introduction and rapid spread which varies from species to species.
- 3.2 Migration of INNS brings a risk of competition with native species and new diseases in humans, plants and animals.
- 3.3 Climate change will also affect the spread of INNS in the marine environment. However, it is important to differentiate between species whose ranges are expanding as a result of climate change, for example plankton species in the North Sea<sup>14</sup>, and those where introduction by humans is exacerbated by its effects, such as the Chinese mitten crab<sup>15</sup>. Decisions on policy relating to invasive marine species should distinguish between these.

### **4. What actions should the UK take to mitigate the risk, or adapt to, climate migrations of invasive species?**

- 4.1 We need a truly rapid response system which is managed by professional invasive species specialists. There is currently a strong reliance on voluntary groups dealing with INNS which is a challenging task that needs to be undertaken by those trained and competent to carry out the work. There is a role for volunteer input but it needs to be employed on a concerted basis linked to professional expertise.

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<sup>10</sup> SEPA (2013) *Managing Invasive Non-Native Species in Scotland's Water Environment: A Supplementary Plan to the River Basin Management Plans*, Scottish Government. Available at:

[https://www.sepa.org.uk/media/37362/managing-invasive-non-native-species\\_plan.pdf](https://www.sepa.org.uk/media/37362/managing-invasive-non-native-species_plan.pdf)

<sup>11</sup> <http://publications.naturalengland.org.uk/publication/5091100843311104>

<sup>12</sup> Kelly, R., Leach, K., Cameron, A., Maggs, C.A., Reid, N. (2014). Combining global climate and regional landscape models to improve prediction of invasion risk. *Diversity and Distributions*, 2014; 20, 884-894.

<sup>13</sup> Van der Wal, R., Truscott, A., Pearce, I.S.K., Cole, L., Harris, M.P. & Wanless, S. (2008). Multiple anthropogenic changes cause biodiversity loss through plant invasion. *Global Change Biology*, 14, 1428-1436.

<sup>14</sup> e.g. <https://academic.oup.com/icesjms/article-abstract/76/1/104/5127715>

<sup>15</sup> See <https://www.iucn.org/theme/marine-and-polar/our-work/international-ocean-governance/managing-invasive-species>

- 4.2 A relationship between the horticulture industry and INNS managers should be established to:
- assess the risk of “new” plants being brought into the UK to establish and become invasive;
  - identify potential invasive plant species in gardens using feedback from gardeners;
  - further raise awareness amongst gardeners about the risks associated with some garden plants.
- 4.3 Programmes of habitat restoration for post-INNS management are needed.
- 4.4 Climate changes may allow non-native species that are already present to establish and become invasive. For example, Pacific oysters (*Crassostrea gigas*) were introduced to UK aquaculture when temperatures were considered cold enough to prevent reproduction, however, recent increases have resulted in spread beyond shellfish farms to both estuarine and open coast habitats<sup>16</sup>. Efforts should also focus on assessing the invasive potential of present non-native species.

## **5. Where should the four nations prioritise resources to tackle invasive species?**

- 5.1 The UK must prioritise early warning (EW) and rapid response (RR) – prevention is much more effective than control. Eradication is usually only feasible if detected at the early stages of invasion. As mentioned in paragraph 4.1, trained professionals are required to implement EW and RR.
- 5.2 Sufficient funding for research is required to better understand and manage introduction pathways and the impacts of INNS. Well-established risk assessment processes would enable resources to be appropriately targeted.
- 5.3 As Local Authorities are under pressure to deal with INNS, they should be given the role of coordinating management, liaising with statutory agencies and the private sector. Through planning applications, they have a unique position to achieve a proactive approach. The City and County of Swansea provides a good starting point. Local Authorities should be provided with financial resources to control and manage invasive species and support landowners.
- 5.4 UK business and industry should be involved in the Strategy to ensure their resources are targeted effectively. CIEEM, PCA and British Pest Control Association are important in bridging this gap and bringing business and industry into the INNS community.
- 5.5 Continued awareness raising with the public is needed, so they can act as eyes on the ground and are clear who to report sightings too. Initiatives such as the ‘Check-Clean-Dry’ approach should continue. Policing of Schedule 9 of the Wildlife and Countryside Act is difficult due to the proximity of gardens to ‘wild’ areas, further increasing the need for awareness raising with the public.
- 5.6 There is currently no legal definition of ‘wild’ in England and Wales. Legislation should be updated to make it an offence to spread INNS anywhere.

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<sup>16</sup> Matt Slater, Cornwall Wildlife Trust, verbal report at SW Marine Ecosystems Conference 2019

- 5.7 Strong regulation, such as that shown by the Noxious Weeds Act (1936)<sup>17</sup>, along with enforcement, is necessary to prevent further introductions from the horticultural industry.
- 5.8 Eradication programmes can be very expensive and resource intensive. Measures used must be backed by evidence, and programmes prioritised to ensure they have the greatest impact on the INNS.

## **6. How can the risk of trade and future trading relationships bringing non-native invasive species to the UK be mitigated?**

- 6.1 This depends on the type of INNS. For species brought into the UK unintentionally:
- Changes in trade partners could increase risk of marine invertebrate from “new” seas. Ship ballast water is a significant medium of transporting non-native species<sup>18</sup>. Ships carrying ballast water must comply with the IMO’s ‘International Convention for the Control and Management of Ships’ Ballast Water and Sediments’ and implement Ballast Water Management Plans.
  - The rate of terrestrial invertebrate invasion may increase significantly if trade deals are made with new countries and markets.
  - Given the known migration routes across and from Europe, it is unlikely that there will be a significantly increased risk of freshwater invertebrate invasion.
- 6.2 For INNS that are knowingly brought into the UK, there are unlikely to be significant changes in the risk associated with trade as vertebrate pathways are mainly releases/escapes and plants come mostly via horticulture.
- 6.3 An assessment across the various taxa should be undertaken to determine the greatest risks, and resources should be directed accordingly.
- 6.4 Risk can be mitigated through banning/restricting the sale of high-risk species, increased checks at points of entry, increasing public awareness and working with industry to prevent illegal imports.

## **7. How effective have the European Union’s Invasive Alien Species Regulations been at addressing and tackling invasive species?**

- 7.1 It is too early to determine effectiveness in the UK. While it has been commended for providing a common framework for combating invasive species, concerns include the need for cross-border coordination and a central agency to allow for dedicated governance tools, including financing<sup>19</sup>.
- 7.2 The IAS Regulation list of Invasive Alien Species of Union Concern only lists one marine species, the Chinese mitten crab (*Eriocheir sinensis*)<sup>20</sup> and this is because of its spread into

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<sup>17</sup> *Noxious Weeds Act 1936*, Republic of Ireland. Available at:

<http://www.irishstatutebook.ie/eli/1936/act/38/enacted/en/html>

<sup>18</sup> Molner et al. (2008) Assessing the global threat of invasive species to marine biodiversity, *Frontiers in Ecology and the Environment*, 6(9),485-492

<sup>19</sup> Tollington et al. (2015) Making the EU Legislation on Invasive Species a Conservation Success, *Conservation Letters*, 10(1), 112-120.

<sup>20</sup> [http://ec.europa.eu/environment/nature/pdf/IAS\\_brochure\\_species.pdf](http://ec.europa.eu/environment/nature/pdf/IAS_brochure_species.pdf)

freshwater habitats. It has also been noted that the list only accounts for 3% of INNS believed to be in Europe<sup>21</sup>.

## **8. In the event of EU exit, how should the UK establish its replacement for the European Commission's scientific forum to update the species list of concern?**

- 8.1 The EU list is based on structured evidence. It would be essential to transfer EU list decisions, that are appropriate given our unique geography, into our legislation.
- 8.2 The GB Programme Board is in place to develop a vision for addressing non-native species issues in Britain, agree priorities and a delivery programme, coordinate research and ensure the exchange of information amongst key agencies and sectors<sup>22</sup>. The GBNSS co-ordinates actions across England, Wales and Scotland<sup>23</sup>, including the development of risk assessments for alien species<sup>24</sup>.
- 8.3 The Non-Native Species Action Group (NNSAG) and the Statutory Group on Non-Native Species (SGNNS) were set up in Scotland to ensure effective policy coordination and implementation, oversee the use of new statutory powers and coordinate work between statutory bodies with specific responsibilities in Scotland for non-native species.
- 8.4 The resources and support currently available for these roles should be assessed, and if necessary, existing roles can be modified to replace the forum's remit, with proper resourcing.
- 8.5 The United Kingdom Technical Advisory Group (UKTAG) regards invasive species as a major obstacle to meeting Good Ecological Status as required by the Water Framework Directive (WFD)<sup>25</sup> and has produced a list of alien species, both freshwater and marine, classified according to their level of impact<sup>26</sup>. The WFD must not be weakened in the future and the bodies set up to ensure its implementation must continue to be funded and supported.

## **9. How should the UK work with the European Commission and others internationally to reduce the risk of invasive species?**

- 9.1 This must be a coordinated approach, ensuring there is a framework for sharing information. Links with academic institutions are essential as there is ongoing research on impacts and control of INNS. Research must influence policy development.
- 9.2 Dealing with INNS is an international issue and the UK must continue to play its role. We have a responsibility to ensure continue to have regard to the biosecurity of our neighbours in continental Europe.

## **10. Additional Comments**

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<sup>21</sup> <https://ieep.eu/news/is-the-eu-s-new-invasive-alien-species-regulation-set-for-success>

<sup>22</sup> <http://www.nonnativespecies.org/index.cfm?pageid=49>

<sup>23</sup> <http://www.nonnativespecies.org/home/index.cfm>

<sup>24</sup> e.g. <https://secure.fera.defra.gov.uk/nonnativespecies/downloadDocument.cfm?id=1743>

<sup>25</sup> <http://www.nonnativespecies.org/index.cfm?sectionid=116>

<sup>26</sup> <http://www.wfduk.org/resources/classification-alien-species-according-their-level-impact-revised-list>



- 10.1 More research into the cost of INNS is needed to fully establish direct and indirect costs, as well as potential benefits of non-native and INNS<sup>27</sup>.
- 10.2 The Environmental Audit Committee reports on its website that invasive alien species cost the UK "almost £2 billion a year". We are unsure of the source of this estimate and suggest that it is published.
- 10.3 While INNS are a hugely important issue for biodiversity and the economy, interactions between native species will also change with changing climates. Bracken and gorse, for example, may spread further into uplands with the increase of their upper altitude limits. Management prescriptions must adapt with changing conditions to allow for control of these species.

We would be happy to provide further information on this topic. Please contact Jason Reeves (CIEEM Head of Policy and Communications) at [JasonReeves@cieem.net](mailto:JasonReeves@cieem.net) with any queries.

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<sup>27</sup> Williams *et al* (2010) The Economic Cost of Invasive Non-Native Species on Great Britain. CABI, Wallingford. Available at: <http://www.nonnativespecies.org/index.cfm?pageid=258>