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Japanese knotweed and the built environment

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Summary

Japanese knotweed (*Fallopia japonica*) is a fast-growing invasive plant with bamboo-like stems. It was introduced to the UK in the mid-nineteenth century as an ornamental plant in parks and gardens, but has since become a significant nuisance throughout the country as an invasive weed. It has been estimated that over 2% of development sites and 1.25% of residential properties in Great Britain are affected by the plant, amounting to tens of thousands of sites in total.

Given the anxiety that the plant can cause for homeowners, and the publication of new evidence relating to the physical effects of Japanese knotweed we were prompted to hold a one-off evidence session on the effect of Japanese knotweed in the 'built environment' of buildings, paving, drainage channels and outbuildings.

In this Report we find that the latest research suggests that the physical damage to property from Japanese knotweed is no greater than that of other disruptive plants and trees that are not subject to the same controls and do not have such a substantial 'chilling' effect on the sale of a property. However, Japanese knotweed has some distinguishing features that are relevant in this context. Japanese knotweed is particularly hard to eradicate compared with other plants, requiring multi-year treatment with herbicide or excavation. This is not the case with trees or plants such as buddleia. There is also an ongoing risk that the plant will regrow, either because it is only made dormant by herbicides or because fragments of the plant remain in the soil.

We conclude that there is surprisingly little academic research on the physical effects of Japanese knotweed in the built environment, despite the impact that the presence of Japanese knotweed can have on a property sale. We welcome the Environment Agency's offer to approach Defra and others with a view to ensuring that research is commissioned to fill knowledge gaps. We recommend that the Environment Agency should also convene a meeting with the major national Japanese knotweed remediation firms to explore how a national dataset could be assembled from this information and how companies could contribute to this on an ongoing basis to inform academic research which seeks to better understand Japanese knotweed.

A significant industry is built around controlling Japanese knotweed, but we were told that mortgage lenders in other countries do not treat the plant with the same degree of caution. We recommend that Defra commission a study of international approaches to Japanese knotweed in the context of property sales to further inform discussion of this issue, and report by the end of the year.

We recommend that the Law Society review the wording of the question in its Property Information Forms in consultation with the Royal Institution of Chartered Surveyors and others. In particular, it should consult with experts to determine whether the need to declare previous Japanese knotweed problems should expire if the plant has been treated by appropriate excavation and there has been no re-growth within a certain period. It should do this by the end of the year.

The existing RICS risk assessment framework for Japanese knotweed has ensured that in many cases lenders have the confidence to lend against properties affected by

Japanese knotweed, so long as there are funded treatment plans and insurance-backed guarantees covering the treatment in place. These can be expensive for homeowners looking to sell, but they often provide a route for the buyer to secure a mortgage.

The 'seven-metre rule' that forms part of the 2012 risk assessment framework is being used as a blunt instrument in some mortgage lending decisions. It does not reflect the latest scientific evidence. RICS itself notes that the framework is "no longer current", but in the meantime it is still forming the basis of mortgage decisions. This framework lacked a clear and comprehensive evidence-base and yet is causing significant problems to some house vendors and purchasers. A much more nuanced and evidence-based risk framework is urgently needed to reflect the latest thinking on the significance of Japanese knotweed, in relation to the size of the infestation, the distance from the property, and the potential risk of any damage. We are pleased to hear that following our evidence session RICS has convened meetings of stakeholders and influencers to update its 2012 assessment framework for Japanese knotweed to ensure that its policies reflect the most up-to-date evidence. We hope that RICS will complete this update as soon as possible and certainly no later than the end of this year.

The challenge of resolving disputes relating to Japanese knotweed is diminished if a more measured and evidence-based approach is taken to Japanese knotweed. Nonetheless, we conclude that, in most if not all circumstances, where disputes between landowners relating to the encroachment of Japanese knotweed persist these are not usually best resolved by means of litigation, which can be both expensive and protracted. We recommend that, in consultation with the Civil Mediation Council, the Government produce additional guidance on dealing with such disputes, recommending that mediation via an accredited mediator be normally used, subject to the agreement of the parties involved, as the initial route to resolution of the dispute if it offers value for money, while explaining that this would not prevent an aggrieved party from having recourse to litigation if efforts to achieve a mediated settlement do not succeed.

1 Introduction

What is Japanese knotweed?

1. Japanese knotweed (*Fallopia japonica*[1]) is a fast-growing invasive plant with bamboo-like stems. It has distinctive rhizomes[2] (underground structures that resemble roots) that can be more extensive than the above-ground portion of the plant. It was introduced to the UK in the mid-nineteenth century as an ornamental plant in parks and gardens, but has since become a significant nuisance throughout the country as an invasive weed.[3] It has been described by the Property Care Association, the trade association for specialists in problems affecting buildings, as "one of the most problematic plant species in the UK and Ireland".[4] It has been estimated that over 2% of development sites and 1.25% of residential properties in Great Britain are affected by the plant, amounting to tens of thousands of sites.[5] A 2010 report from CABI, a science-based not-for-profit organisation specialising in agricultural and environmental research, estimated that the total annual costs of Japanese knotweed in Great Britain were £166m per year (equivalent to over £200m in 2018 prices[6]), including the cost of treating the plant in the rail and road networks and property devaluation.[7]

2. Japanese knotweed is frequently discussed in the media in the context of property values, on the basis that the presence of this plant can cause difficulties in completing a sale (see Chapter 3). This arises from a popular perception that Japanese knotweed can cause significant damage to buildings, and some mortgage lenders have adopted strict no-knotweed policies which have resulted in prospective buyers withdrawing from a purchase (see Chapter 4). The invasive species consultancy Advanced Invasives described Japanese knotweed as "a menace to homeowners", as a result of the difficulties that it can cause for prospective buyers to secure a mortgage on the property.[8]

1 While we use the term 'Japanese knotweed' throughout this Report, we note the submission from Advanced Invasives which clarified that "Japanese knotweed is a term widely used to refer to both the specific species *Fallopia japonica var. japonica* (commonly; Japanese knotweed) and, quite confusingly, the four key invasive knotweed species in the UK collectively (Japanese knotweed, Dwarf knotweed, Giant knotweed and Bohemian knotweed—referred to as Japanese knotweed *senso lato* taxa)". See Advanced Invasives Limited (JKW0032) para 13.

2 More precisely, a rhizome is an underground plant stem which can produce both roots and shoots, and act as an energy store for the plant.

3 CABI, *The economic costs of invasive non-native species in Great Britain*, November 2010, p33

4 Property Care Association, *Code of Practice: Management of Japanese Knotweed*, April 2018

5 CABI, *The economic costs of invasive non-native species in Great Britain*, November 2010, p34–35

6 Using the Bank of England inflation calculator

7 CABI, *The economic costs of invasive non-native species in Great Britain*, November 2010

8 Advanced Invasives Limited (JKW0032) para 1

Figure 1: Japanese knotweed

Image copyright CABI

Our inquiry

3. Our Report focuses on the effects of Japanese knotweed in the 'built environment' of buildings, paving, drainage channels and outbuildings. Given the anxiety that the plant can cause for homeowners, and the publication of new evidence relating to the physical effects of Japanese knotweed (see Chapter 2), we issued a call for written evidence on the following issues:

- What scientific evidence exists on the effects of Japanese knotweed on the built environment;
- How the presence of Japanese knotweed in the UK affects mortgage lending decisions and property valuations;
- Whether mortgage lending decisions relating to the presence of Japanese knotweed are currently based on sound scientific evidence of its effects on the built environment; and
- What guidance for the sector currently exists, the impact of existing legislation, and how else evidence-based responses to the presence of Japanese knotweed can be encouraged.

4. We received over 30 written submissions during our inquiry. We also benefitted from a private briefing from Dr Dick Shaw, Country Director for CABI UK, to help shape our

initial call for evidence. We invited members of the public to tell us about their personal experience of Japanese knotweed, and received 14 responses. We held a roundtable discussion on Monday 21 January with a small number of individuals affected by Japanese knotweed and a solicitor who had represented clients in such cases, in order to inform our questioning of witnesses. We took oral evidence on Tuesday 22 January from knotweed researchers, remediation experts, a representative of the mortgage lending industry, and the Royal Institution of Chartered Surveyors. We are grateful to all those who contributed to our work.

5. While the focus of our Report is the effects of Japanese knotweed in the built environment, we note that the plant also has wider ecological effects. Where it becomes established, the tall dense summer growth and the mulch-like effect of dead leaves and canes in winter inhibits the growth of almost all other native plant species. It can also lead to problems with water drainage, since "if you have a large, dense stand [cluster of stems] of Japanese knotweed down the side of the river and high rainfall, the water rises in the river and the knotweed will hold it back, which will exacerbate flooding".[9] These effects, and the difficulties in controlling the plant, have led to a range of legislation relating to the spread and disposal of Japanese knotweed (see Box 1 for examples).

Box 1: A selection of relevant legislation

The wider ecological effects of Japanese knotweed are such that the disposal of the plant is subject to legislation, some of which is relevant to discussion of the effects in the built environment. In particular:

- Japanese knotweed is listed in Schedule 9 of the Wildlife and Countryside Act 1981[10]—this legislation makes it an offence to plant Japanese knotweed or cause it to grow in the wild. However, it is not illegal to have Japanese knotweed on private land and individuals do not have a legal obligation to remove or control Japanese knotweed on private land. There is also no requirement to report that Japanese knotweed is present on the land. Nevertheless, allowing contaminated soil or plant material from any waste transfer to spread into the wild could lead to a fine of up to £5,000 or a prison term of up to two years. Affected parties such as landowners of adjacent properties might also seek damages if Japanese knotweed is allowed to spread onto their property.

- Japanese knotweed is classed as 'controlled waste' and as such must be disposed of safely at a licensed landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.[11] Soil containing rhizome material can be regarded as contaminated and, if taken off a site, must be disposed of at a suitably licensed landfill site and buried to a depth of at least 5 metres. Section 33 of the Environmental Protection Act states that it is an offence to deposit, treat, keep or dispose of controlled waste without a licence.[12]

Case law relating to Japanese knotweed and the law of private nuisance is also developing in this area.

9 Conservation Land Services Ltd (JKW0022)
10 Wildlife and Countryside Act 1981, Schedule 9
11 Environmental Protection Act (Duty of Care) Regulations 1991
12 Environmental Protection Act 1990, s33

This Report

6. Our Report explores the latest evidence on the physical impacts of Japanese knotweed (Chapter 2). In Chapter 3 we consider the non-physical impacts of this plant in terms of treatment costs and the stigma associated with infestation. Chapter 4 discusses the information and guidance that mortgage lenders use to make decisions relating to Japanese knotweed. Finally, in Chapter 5 we consider the effect on homeowners and the difficulties encountered when Japanese knotweed is present on a neighbour's land.

2 Scientific evidence of the physical effects of Japanese knotweed

The latest peer-reviewed research

7. The Great Britain Non-Native Species Secretariat, which coordinates the approach to invasive plants and animals on behalf of Defra, the Scottish Government and the Welsh Government, stated that "Japanese knotweed is infamous for its ability to grow through hard surfaces, such as tarmac car parks *and building foundations*" (emphasis added).[13] The risk of damage of this sort is one of several reasons why Japanese knotweed can cause difficulties when buying or selling property. However, we were prompted to undertake our inquiry by the publication of new research which suggested that the physical effects of knotweed on buildings might not be as significant as previously believed.[14]

8. Research by Dr Mark Fennell, Professor Max Wade and Dr Karen Bacon published in July 2018 examined the physical effects of Japanese knotweed in comparison with other common plants. Their work (referred to below as Fennell *et al*) comprised three elements:

- a literature review;
- surveys of invasive species control contractors and property surveyors, regarding rhizome extent and observed damage to buildings; and
- an assessment of 68 derelict residential properties in three streets in northern England where the plant was found, representing "a close to 'worst case' scenario in terms of susceptibility to damage from unchecked plant growth".[15]

9. Professor Max Wade, one of the authors of the study, described the aims of the research as follows:

> The question was not, 'Does it cause damage to properties?' We recognise that it does. To put it into perspective, we were trying to answer the question, 'In relation to other plants, what damage does it cause?'.[16]

The research revealed that while Japanese knotweed could grow through tarmac, disrupt paving and exploit cracks in buildings, the same was also true of other plants that were not subject to the same concerns in the context of selling property. The research acknowledged the structural damage that Japanese knotweed (*F. japonica*) could cause but noted that this should not be considered any more of a risk than a range of other plants:

> While *F. japonica* is clearly a problematic invasive non-native species with respect to environmental impacts and land management, this study provides

13 GB Non-Native Species Secretariat website, "Our economy", accessed 26 February 2019.
14 Fennell et al. (2018), Japanese knotweed (Fallopia japonica): an analysis of capacity to cause structural damage (compared to other plants) and typical rhizome extension, PeerJ 2018
15 Fennell et al. (2018), Japanese knotweed (Fallopia japonica): an analysis of capacity to cause structural damage (compared to other plants) and typical rhizome extension, PeerJ 2018
16 Q27

> evidence that *F. japonica* should not be considered any more of a risk, with respect to capacity to cause structural damage in urban environments, than a range of other species of plant, and less so than many.[17]

The Property Care Association told us that this paper had "unquestionably opened a debate into the structural implications of Japanese knotweed where it grows close to buildings".[18]

10. However, our attention was also drawn to some limitations of this study. Advanced Invasives, a consultancy firm, noted that:

> The case study investigating property damage […] is restricted to three streets of derelict housing stock (built prior to 1900) located in northern England. Consequently, it is difficult to generalise to new build housing developments and older stock that is well maintained.

Conservation Land Services Ltd, a knotweed remediation firm, explained further that the use of Victorian properties in the case studies meant that "the houses were built before Japanese knotweed had established in the area and so would not be subject to the effects of Japanese knotweed growing underneath the structures or during their build".[19]

11. Advanced Invasives was also concerned that:

> [While] rhizome extension is reported as rarely extending more than four metres from above-ground plant growth, [the study] relies upon a small sample size of the contractor questionnaire and only considers relatively smaller knotweed stands [patches of Japanese knotweed] of limited area.[20]

Nevertheless, the company agreed that the typical effects of Japanese knotweed in terms of damage to buildings have been overstated previously, particularly in press coverage of the issue.[21]

12. Professor Wade described how, in the absence of high-quality research in this area, Japanese knotweed had developed a reputation for causing significant damage for buildings because of its ability to exploit existing cracks in walls:

> We have a tendency—you can see a number of photographs on the internet—to see Japanese knotweed as damaging a building because it is growing up through cracks. You think, "Goodness me, that looks terrible." However, on the site where we were working, you could see a number of buildings [of the same age] that had cracks and were clearly damaged, but that had no Japanese knotweed.[22]

17 Fennell et al. (2018), Japanese knotweed (Fallopia japonica): an analysis of capacity to cause structural damage (compared to other plants) and typical rhizome extension, PeerJ 2018
18 Property Care Association (JKW0010)
19 Conservation Land Services Ltd (JKW0022)
20 Advanced Invasives Limited (JKW0011)
21 Advanced Invasives Limited (JKW0011)
22 Q28

He concluded that "undoubtedly, trees are much more damaging and costly than Japanese knotweed. In terms of the built environment, buddleia[23] is much more damaging and costly, in my view".[24]

13. Nevertheless, we also heard concerns from the remediation firm Environet UK Ltd that the latest research could send the message that Japanese knotweed did not need to be treated, and that without a motivating force this invasive weed might be allowed to spread further.[25] We asked Professor Wade to clarify how worried a homeowner should be if they discovered Japanese knotweed growing in their garden. He summarised that "they should be seriously concerned. They have a problem, which they need to deal with".[26] Professor Wade elaborated that this was a concern due to the belief that knotweed could cause damage to the building and the consequence of that belief on the value of one's house.

Capacity for regrowth and difficulties in management

14. While Professor Wade compared the physical effects of Japanese knotweed to the damage caused by other plants, Dr Dan Jones, representing Advanced Invasives, felt that drawing comparisons between Japanese knotweed and trees was not appropriate since:

> controlling and managing Japanese knotweed will inevitably be quite a long-term process. Even following successful control, it is not necessarily dead. Once you have killed a tree for example, it is dead and the problem is removed. Japanese knotweed is quite different in that respect.[27]

He explained that this was because "the rhizome forms an extensive, resilient and persistent long-term energy store".[28] Indeed, we were told that Japanese knotweed could regenerate from a small fragment of rhizome,[29] and that there had been cases identified where "herbicide control appears to have killed the treated Japanese knotweed but in fact has put the rhizome into a dormant condition".[30]

15. Ben Lindley, representing Japanese Knotweed Ltd, gave us a vivid description of the problems associated with the difficulty of killing Japanese knotweed:

> After three or four years you could find no regrowth, but if you disturb the ground there could be elements of that underground rhizome that retain viability and, therefore it could regrow […] even after successful herbicide treatment.[31]

Dr Jones summarised that "in terms of chemical control methods, we are talking about long-term sustainable control, not eradication".[32]

23 *Buddleja davidii* is a common non-native invasive species of plant, but is not subject to the Wildlife and Countryside Act and its presence is not declared when selling property.
24 Q31
25 Environet UK Ltd (JKW0004)
26 Q2
27 Q5
28 Advanced Invasives Limited (JKW0032) para 6
29 Japanese Knotweed Solutions Limited (JKW0005)
30 Chartered Institute of Ecology and Environmental Management (JKW0024) para 5
31 Q66
32 Q68

16. Mr Lindley explained that another distinguishing feature was the way in which Japanese knotweed spreads:

> Buddleia and a tree will spread by seed, which has to have light and water to grow, whereas for knotweed the pathway is the rhizome.[33] Depending on the size and state of the rhizome, it can produce quite strong growth straightaway.[34]

Other sources of information

17. We were surprised to find that the Fennell *et al* study appeared to be the only published research on the question of the damage that Japanese knotweed can cause to buildings. Conservation Land Services Ltd explained that while there was a large volume of academic material on the biology and physiology of Japanese knotweed, there was "very little academic research published on the specific effects of Japanese knotweed on property and structure".[35] More broadly, Professor Wade suggested that there was a need to assess whether the current approach to Japanese knotweed was appropriate or having a desirable effect:

> Over the last few decades, UK business and industry, residents, houseowners and so on have spent millions and millions of pounds on Japanese knotweed. We have not stopped and said, "How are we getting on with this? What progress are we making? What can we learn about doing it better? Are we making progress? Are we going backwards?" Surely it is time that we thought about that.[36]

18. Two other relevant sources of information alongside the Fennell *et al* study are (i) Japanese knotweed remediation companies and (ii) expert testimony, which we explore in turn below.

Knotweed remediation firms

19. A significant industry has grown around the demand for treating Japanese knotweed, driven by mortgage lender requirements (see Chapter 4). Naturally, these remediation companies have a financial interest in this area, but we heard repeatedly that a wealth of relevant data is collected by them from building surveys, undertaken as part of their work, and that "this means there potentially exists a considerable amount of site-specific data which could be a valuable resource for any future study".[37] Indeed, data of this sort formed one part of the Fennell *et al* work (see paragraph 8).

33 Japanese knotweed does not produce viable seed in this country, and is spread by the transport of rhizome material—but this can include spread by water during flooding or via the sea as well as human transport of contaminated soil. See Qq40–42 for discussion.

34 Q8

35 Conservation Land Services Ltd (JKW0022)

36 Q23

37 Conservation Land Services Ltd (JKW0022) para 2.1. See also The Knotweed Company Ltd (JKW0014) para 1.3.

20. Japanese Knotweed Ltd, one of several remediation firms who wrote to us, presented an analysis of their own building survey data. They told us that if Japanese knotweed was within one metre of a structure there was a 29% chance that it would cause some damage, which was similar to buddleia.[38] We heard that this was similar to the overall findings of the Fennell *et al* study.[39]

21. Mr Lindley suggested that remediation companies could make their information available for others to analyse,[40] and Advanced Invasives proposed that a national dataset could be assembled by pooling information from a range of remediation companies:

> Such a dataset should include a UK-wide impact assessment of knotweed growth on built structures (including old and new build housing) and empirical investigation of knotweed growth rate and form under differing environmental conditions such as regional climate and soil types.[41]

22. Dr Mark Diamond, Head of Ecology at the Environment Agency, offered to approach the Department for the Environment, Food and Rural Affairs (Defra) to lead on ensuring that gaps in research were filled:

> There is a role for developing a cross-department partnership with academia and the sector. The Departments that I am thinking of are the [Ministry for Housing, Communities and Local Government], Defra and the Department for Transport, to look at a prioritised research programme to support rapid advance in the knowledge behind this. […] I can talk to Defra about starting that off, and the GB programme board on invasive non-native species.[42]

Expert testimony

23. Swansea is one of several parts of the UK that is particularly affected by Japanese knotweed. Sean Hathaway, Swansea Council's Environment Officer, told us that in two decades of experience with the plant he had only seen it penetrate the inside of a property on three occasions, which reinforced the message from the Fennell *et al* work that the physical effects may be overstated. Mr Hathaway recalled that:[43]

> One was just inside the wall, by the window, one was up through a cavity wall, and the other was just by a stairway, inside. That was about 10 years ago. It was dealt with very simply, by people using a standard herbicide from a qualified contractor. There were no problems.[44]

24. Ben Lindley explained that the plant was rarely seen penetrating the inside of buildings because "the natural path of knotweed finds the path of least resistance. Therefore it will not grow into properties if it can grow into normal soil".[45] More serious problems occur,

38 Qq7–13
39 Q14
40 Q32
41 Advanced Invasives Limited (JKW0011) para 24
42 Qq135–136
43 Qq16–20
44 Q20
45 Q26

however, "when on construction sites, they ignore Japanese knotweed and build straight over it", which can result in the plant "growing into properties through suspended or block-and-beam floors or through air vents".[46]

25. Mr Hathaway's view, in common with the Fennell *et al* study, was that "other species such as bamboo and buddleia cause more problems as do tree roots […] most of the established knotweed control companies agree that damage is over-exaggerated".[47] He added that "the only knotweed stories in the press are scare stories, mostly of houses not being marketable due to knotweed as opposed to being physically damaged".[48]

26. Finally, we note that the National House-Building Council (NHBC)'s latest technical note relating to Japanese knotweed stated that "although Japanese knotweed has a vigorous growth and can be difficult to eradicate, it has not been found to cause structural damage. It can grow through, and cause damage to, paved and tarmacked surfaces".[49] This reflects the evidence that we heard during our inquiry.

Conclusions

27. **The latest research suggests that the physical damage to property from Japanese knotweed is no greater than that of other disruptive plants and trees that are not subject to the same controls and do not have such a substantial 'chilling' effect on the sale of a property. This conclusion is supported by the experience of some experts in this area and data from Japanese knotweed contractors. Reactions to the presence of the plant should be in proportion with the actual risk of damage.**

28. **However, Japanese knotweed has some distinguishing features that are relevant in this context. Japanese knotweed is particularly hard to eradicate compared with other plants, requiring multi-year treatment with herbicide or excavation. This is not the case with trees or plants such as buddleia. There is also an ongoing risk that the plant will regrow, either because it is only made dormant by herbicides or because fragments of the plant remain in the soil.**

29. **There is surprisingly little academic research on the physical effects of Japanese knotweed in the built environment, despite the impact that the presence of Japanese knotweed can have on a property sale. Remediation companies collect a considerable amount of data relating to Japanese knotweed as part of their work, and several have indicated their willingness to share this information with others. We welcome the Environment Agency's offer to approach Defra and others with a view to ensuring that research is commissioned to fill knowledge gaps. *To support this, the Environment Agency should also convene a meeting with the major national Japanese knotweed remediation firms to explore how a national dataset could be assembled from this information and how companies could contribute to this on an ongoing basis to inform academic research which seeks to better understand Japanese knotweed. This would provide a useful resource for further research and an evidence base to inform guidance in this area. Meanwhile, Defra should consider adding the physical effects of Japanese knotweed to its "areas of research interest" document.***

46 Q26
47 Swansea Council (JKW0003)
48 Swansea Council (JKW0003)
49 NHBC, *Technical guidance: Japanese knotweed*, December 2016

3 Non-physical effects of Japanese knotweed

30. Alongside the physical impacts of Japanese knotweed, we also sought to understand the wider effects, arising from:

- fear and the reputation of the plant, leading to an effect on property valuation;
- the cost of treating Japanese knotweed;
- the loss of amenity when Japanese knotweed is present;
- potential liability for spreading Japanese knotweed to other properties; and
- ongoing stigma, and the requirement to declare whether a property is "affected by Japanese knotweed" when selling the property.

These effects will be particularly relevant to homeowners and developers, and could affect the desirability of a property, and therefore its value.

31. An overall impression of some of these effects was offered by the Crop Protection Association, who pointed to a 2017 survey of 100 individuals affected by knotweed. The survey found that:

- 15% saw a property deal fall through;
- 20% saw the value of their house drop; and
- 10% had to compensate someone or pay insurance claims.[50]

Fear and reputation

32. Sean Hathaway, representing Swansea Council, told us that "the problem caused by knotweed in relation to mortgages is not a physical problem caused by the plant but a perceived problem by the lenders caused by mis-information and fear".[51] That fear is reflected in—or, arguably, fuelled by—coverage of the issue in the press. Recent headlines include "Despairing family can't sell home—because of monster next door that grows eight inches a day, damages foundations and grows through brickwork",[52] and "Fearsome Japanese knotweed that grows eight inches a DAY leaves despairing couple's garden 'totally unusable'".[53]

33. While research indicates that the physical effects of Japanese knotweed may have been exaggerated in the past, the effects on property values appear to be real and significant. Advanced Invasives pointed to claims against neighbours made in legal cases as a source of information on this, with one noting that:

50 Crop Protection Association (JKW0008)
51 Swansea Council (JKW0003)
52 Daily Mail, Invasion of the alien knotweed!, 27 August 2017
53 Daily Mail, Dismay of the Triffids!, 2 June 2017

> Continued presence of Japanese knotweed, untreated, [the Claimant's] land close to the boundary with the claimants' land had the effect of reducing the current value of the claimants' land by 10%, from £800,000 to £720,000.[54]

They noted, however, that in many cases the effect will not be quantified since "buyers will simply reject those properties where knotweed is present".[55]

34. We asked witnesses why the presence of a plant with no greater ability to affect the built environment than others should have such an effect on property prices. John Baguley, representing the Royal Institution of Chartered Surveyors, explained that "public perception of the issue of Japanese knotweed is a key factor in the process of valuing property", and added that:

> You have to think about the extent of damage, the cost of repair, the cost of remediation and the ongoing nature of that work. […] trees are very much a one-off kind of repair work, whereas Japanese knotweed needs an ongoing plan, so does that have an impact on the buyer's decision to buy a property? The answer from chartered surveyors is that it does, so that translates into a potential impact on value.[56]

Treatment costs

35. Japanese knotweed is usually treated using herbicide or complete excavation of the plant and its rhizomes.[57] However, research is also currently being undertaken on biological control using natural predators of knotweed in Japan, including the plant louse (psyllid) *Aphalara itadori*.[58] While this approach could form part of a national long-term strategy for reducing the impact of Japanese knotweed, we were cautioned by Advanced Invasives that it was not currently suitable in a domestic setting for eradication.[59]

36. We noted in Chapter 1 that control using herbicides only puts the plant into a period of dormancy, from which it could potentially regrow in the future if disturbed. Nevertheless, this is a common form of management since, as Dr Jones noted, completely removing the plant by excavation is "an order of magnitude greater in cost" than treatment with herbicide.[60] According to RICS, the costs of treatment by herbicide (in December 2011 prices) were "between £2,000 and £5,000 in total for a typical three-bedroom semi-detached house".[61] When adjusted for inflation the equivalent figures in 2018 would be £2,400 to £6,000.[62] In the case of excavation, RICS noted that:

54 Advanced Invasives Limited (JKW0011) para 12 (quoting Smith v Line case).
55 Advanced Invasives Limited (JKW0011) para 12
56 Q77
57 For further information on treatment methods see CABI Japanese Knotweed Alliance, "Current methods of control in the UK", accessed 6 March 2019.
58 For further information on the use of psyllids and fungi to manage Japanese knotweed see CABI Japanese Knotweed Alliance, "The potential agents", accessed 6 March 2019.
59 Advanced Invasives Limited (JKW0032)
60 Q13
61 RICS, Japanese knotweed and residential property, 1st Edition, 2012, para 4.5.1
62 Using the Bank of England inflation calculator and rounding to the nearest £10.

> disposal costs range from £25 to £50 per tonne [£30 to £60 in 2018 prices] (not including landfill tax), with the result that excavation of even a relatively small Japanese knotweed infestation can cost several thousand pounds in waste charges alone.[63]

Treatment of Japanese knotweed has also cost the taxpayer considerable sums of money. The plant was discovered at the site of the Olympic Park in East London during building work for the 2012 Olympic Games and was widely reported to have cost £70 million to clear.[64]

37. Perhaps unsurprisingly, a significant knotweed remediation industry now exists, which in the past had become "a bit of gravy train", according to Professor Wade:

> I think the story goes back further to 1981 when the Wildlife and Countryside Act came in […] We were then told that, if you had rhizomes in any soil, because there was a risk you might spread it […] the [remediation] business grew and it became a bit of a gravy train. You only have to look at some of the adverts on the internet showing plants growing through concrete and so on. […] we have a mythology rapidly building up about the plant.[65]

On the other hand, Stephen Hodgson from the Property Care Association argued that remediation firms were simply responding to a market need, and that "If things are required to be done, does it not follow that [it] should be done well? The role of a trade association is to ensure that its members and everybody else can do that work well".[66]

Loss of amenity

38. Conservation Land Services Ltd explained that the presence of Japanese knotweed could result in a loss of amenity, since:

> where Japanese knotweed becomes present this places restrictions on what may or may not be done within the affected area. For example within a garden this may result in not being able to disturb the ground and so preventing areas of the garden being developed for paths, paved areas or any buildings such as garages or sheds, unless potentially expensive excavation control measures are put in place.[67]

Stigma and the requirement to declare when selling property

39. While there is no legal requirement for a landowner to treat Japanese knotweed if it is not causing a nuisance, the presence of the plant is expected to be declared when selling a property, seemingly with no upper threshold for how long ago this might have

63 RICS, Japanese knotweed and residential property, 1st Edition, 2012, para 4.2.2
64 See, for example Groundsure, Japanese knotweed, 2016, and The Telegraph, Knotweed: the unstoppable scourge of British gardens, 17 September 2016.
65 Q70
66 Q84
67 Conservation Land Services Ltd (JKW0022)

been.[68] The Law Society provides standardised property information forms for the seller to complete, which include questions on a range of issues. Property Information Form TA6 (for Freehold properties) includes the following question:

> Japanese knotweed is an invasive plant that can cause damage to property. It can take several years to eradicate. Is the Property affected by Japanese knotweed? If Yes, please state whether there is a Japanese knotweed management plan in place and supply a copy.[69]

40. Advanced Invasives told us that "the wording of the TA6 form is somewhat ambiguous, leaving scope for different interpretation of appropriate answers".[70] For instance, whether or not a property is "affected" by the plant could perhaps be disputed if all material had been removed by excavation, and the use of the word 'eradicate' is unclear given that treatment by herbicide leads to dormancy.

Liability for spread to other properties

41. Ben Lindley noted that allowing knotweed to spread to another property could create a liability under the law of nuisance, which can be "a major concern for property owners".[71] This is discussed further in Chapter 5.

Comparisons with approaches taken in other countries

42. While Japanese knotweed is present in many other countries and treated as an invasive weed, we were told that the presence of this plant does not seem to cause such difficulties when buying and selling properties abroad. Professor Wade compared the reaction in the UK with continental Europe, telling us that "they do not even have any laws that govern Japanese knotweed. They certainly have not over-reacted in the same way as we have with regard to properties and insurance".[72] He later clarified that the plant was not ignored in other countries, as it was known to have environmental impacts, but the presence in gardens did not prompt the same level of response.[73]

43. In contrast, Advanced Invasives argued that this was because attitudes to home ownership also differed in other countries:

> Homeownership in the UK is relatively high compared to many of the countries in continental Europe. Like-for-like, per unit housing costs are typically proportionately greater in the UK, and as a result, property market pressure is more acute. Therefore, while Japanese knotweed is present in many other European countries, historically it has less of an effect on the property market compared to in the UK.

68 See further discussion in Chapter 5.
69 Law Society, Property Information Form TA6. See also Form LPE1 for Leasehold properties.
70 Advanced Invasives Limited (JKW0032)
71 Q6
72 Q13
73 Qq25–26

Advanced Invasives have found evidence of Japanese knotweed increasingly impacting upon property transactions and associated processes along the eastern seaboard of North America, including in Brooklyn (New York State, US) and the City of Westmount (Montreal, Canada).[74]

Conclusions

44. **The presence of Japanese knotweed can affect the desirability of a property and therefore its valuation, even if the specific physical effects on buildings are not significantly different to other plants. If nothing else, land affected by Japanese knotweed is contaminated with material that has restrictions on disposal methods, makes development (e.g. extensions, garages) on the land more challenging, and comes with a risk of liability if the plant spreads to neighbouring properties. All of these factors will be unattractive to buyers to some extent. This alone might be sufficient to justify the inclusion of a question on Japanese knotweed in the Seller's Property Information Form, but not the significance attached to it in lending decisions.**

45. **A significant industry is built around controlling Japanese knotweed, but we were told that mortgage lenders in other countries do not treat the plant with the same degree of caution. This gives us reason to believe that the UK has taken an overly cautious approach to this plant, and that a more measured and evidence-based approach is needed to ensure that the impact is proportionate to the physical effects of the plant in the built environment.** ***We recommend that Defra commission a study of international approaches to Japanese knotweed in the context of property sales to further inform discussion of this issue, and report by the end of the year.***

46. ***We recommend that the Law Society review the wording of the question in its Property Information Forms in consultation with the Royal Institution of Chartered Surveyors and others. In particular, it should consult with experts to determine whether the need to declare previous Japanese knotweed problems should expire if the plant has been treated by appropriate excavation and there has been no re-growth within a certain period. It should do this by the end of the year.***

74 Advanced Invasives Limited (JKW0032)

4 Information and guidance to support lending decisions

Lending decisions prior to 2012

47. We heard that in 2009 many UK mortgage lenders became unwilling to lend on properties affected by Japanese knotweed, on the basis that it was proving too difficult to quantify the risk to the lender.[75] Stephen Hodgson, representing the Property Care Association (PCA), recalled that "ten years ago, we had a situation approaching mad panic and you simply could not get funding for affected properties".[76] Abbey National (now Santander) in particular had adopted a policy of declining all applications where Japanese knotweed had been identified by the valuer.[77] Philip Santo, a surveyor, told us that changes in lender policies led to "sensationalised press coverage" and "a corresponding vicious circle which still largely colours public perception and directly affects property values".[78]

The 2012 RICS risk framework

48. Significant progress was made in tackling this problem in 2012, when a working group under the auspices of the Royal Institution of Chartered Surveyors (RICS) was set up to produce an information paper, which included an "objective means of assessing property risk" to be applied by surveyors and used by lenders to inform their policies.[79] Arrangements were also made for a national representative body for the remediation industry to be set up to provide assurance of standards in treatment (with a specialist group under the aegis of the PCA subsequently established).[80]

49. The categorisation of risk in the 2012 framework used a distance of seven metres as its threshold for concern regarding the proximity of the plant to parts of the property. The level of risk was further broken down and categorised according to whether knotweed was visibly within this distance of the boundary of the property as a whole (i.e. including a garden, for instance), or was within that distance of habitable buildings. This is summarised in Table 1.

75 Philip Santo & Co (JKW0020)
76 Q75
77 Philip Santo & Co (JKW0020) para 2.7
78 Philip Santo & Co (JKW0020) para 2.8
79 Philip Santo & Co (JKW0020) para 3.3
80 Philip Santo & Co (JKW0020) para 4.1

Table 1: RICS Japanese knotweed risk assessment framework (2012)

Category	Descriptors
4	Japanese knotweed is within 7 metres of a habitable space, conservatory and/or garage, either within the boundaries of this property or in a neighbouring property or space; and/or Japanese knotweed is causing serious damage to outbuildings, associated structures, drains, paths, boundary walls and fences and so on. Further investigations by an appropriately qualified and/or experienced person are required.
3	Although Japanese knotweed is present within the boundaries of the property, it is more than 7 metres from a habitable space, conservatory, and/or garage. If there is damage to outbuildings, associated structures, paths and boundary walls and fences, it is minor. Further investigations by an appropriately qualified and/or experienced person are required.
2	Japanese knotweed was not seen within the boundaries of this property, but it was seen on a neighbouring property or land. Here, it was within 7 metres of the boundary, but more than 7 metres away from habitable spaces, conservatory and/or garage of the subject property.
1	Japanese knotweed was not seen on this property, but it can be seen on a neighbouring property or land where it was more than 7 metres away from the boundary.

Source: RICS, *Japanese knotweed and residential property*, 1st Edition, 2012

50. We heard that the 2012 RICS paper achieved a significant positive impact when it was published. Matthew Jupp, from UK Finance (which represents 98% of the mortgage lending industry), told us that "the paper from the RICS gave that comfort in enabling lenders to take a more understanding approach to Japanese knotweed".[81] Stephen Hodgson from the PCA highlighted how quickly Santander had then changed its approach after publication of the paper in 2012:

> Santander is a really good example. It was really flighty about the whole issue of Japanese knotweed. Once the paper and protocols were set up, it was one of the quickest organisations to turn its attitude around and say that, if treatment plans were in place and it was properly quantified, it was comfortable to lend.[82]

He also noted the impact of the paper on professionalising the remediation industry as "Before the publication of the RICS document, there was no framework for procurement". The process made clear that the industry needed "some standards around what it did and how it did it".[83]

81 Q98
82 Q98
83 Q98

Current lender attitudes

51. While the 2012 framework gave many mortgage lenders the confidence to offer mortgages to affected properties, we also heard that various restrictions still applied today. The RICS website states that:

> The majority of UK mortgage lenders will want to see evidence of a commitment by the owner of the property to fund, in advance, a long-term chemical treatment programme effective against Japanese knotweed, or provide instant eradication by way of excavation and removal. This is often referred to as a knotweed management plan.[84]

52. Matthew Jupp, representing UK Finance, told us that most lenders would moderate their response to the presence of Japanese knotweed according to the four levels of the RICS framework:

> In the run-up to this inquiry, I spoke to a number of lenders about their risk-assessment policies on Japanese knotweed. Most of them came back and said to me that at RICS levels 1 and 2—when knotweed is present at a neighbouring property, or present on the property but a fairly long distance away from the home—that would not be a concern for them at all; they would be happy to lend on that property. If it is at levels 3 and 4, which means that it is closer to the property, they would want to see some management plan in place.[85]

UK Finance's written submission provided some further detail on what lenders would expect to see at levels 3 and 4 in the RICS categorisation (see Table 1 above).

- A full assessment carried out, treatment plan put in place, and programme started;
- A transferable guarantee/warranty to be provided on the completion of work (backed by suitable insurance);
- Funds to cover the full treatment works to be paid upfront or held in an escrow account or similar;
- Insurance to be in place in case the firm carrying out the work goes into administration; and
- Treatment work to be carried out by a suitably-qualified person, usually a member of the Property Care Association (PCA) or Invasive Non-Native Specialists Association (INNSA).[86]

53. Advanced Invasives provided some further clarity on how this approach worked in practice:

> The more risk-averse lenders may still refuse a mortgage application outright, even where a treatment plan can be arranged. Many lenders will

84 RICS, "How to: Deal with Japanese knotweed", accessed 6 March 2019
85 Q96
86 UK Finance (JKW0015)

> only agree to lend after a full cycle of knotweed treatment is completed, creating the issue of a multi-year delay on buyers and sellers being able to raise mortgages and transact freely, even where treatment is planned.
>
> Others will lend on a case-by-case basis and only where a course of professionally applied herbicide treatment, which takes a minimum of three years, is supported with evidence of that treatment in a management plan, and the now standard provision of the insurance-backed-guarantee on the agreed work.

54. Professor Wade summarised that lenders' responses to Japanese knotweed was "disproportionate", and that "we are over-reacting to this plant".[87] Sean Hathaway, Swansea Council's Environment Officer, gave us an example of a lender not taking a proportionate approach:

> We had one recent problem where a local authority was treating knotweed on its land, which was over 60 metres from the [neighbouring] property and within a couple of metres of the boundary. The lender still insisted on a guarantee from a professional company, which I and the buyer and seller thought was completely over the top bearing in mind it was 60 metres away from the house. […] They were following guidelines, in that it was within 7 metres of the boundary […] The lender knew it had been treated, and was going to be treated in the future, but still took that over-the-top approach.[88]

55. Despite UK Finance's general assurances, Charles Lyndon Ltd, a firm of solicitors who have acted in cases relating to Japanese knotweed, provided some examples of lenders who had a blanket ban on lending on property affected by Japanese knotweed, such as Metro Bank.[89] We also heard through our roundtable discussion that HSBC had recently altered its policy in relation to Japanese knotweed to introduce new restrictions.

56. We wrote to Metro Bank and HSBC to ask them to clarify their positions. Metro Bank told us that "we do not as standard lend on properties which are affected by Japanese knotweed, nor where Japanese knotweed is within seven metres of the property", but that some cases could be considered "on an exceptions basis".[90] However, Metro Bank did indicate that it would be prepared to alter its position in response to any update from RICS to its 2012 paper, to ensure that Metro Bank's policy "remains in keeping with the latest industry best practice".[91]

57. HSBC told us that it had updated its policy in June 2016, when it "introduced tabulated distance criteria and relative acceptability to enable us to consider property valuations on a case by case basis".[92] Prior to this, HSBC would only lend "in the event of eradication supported by a guarantee". Tellingly, their response also indicated their reliance on the 'seven-metre rule' as the basis for their decision:

87 Q14
88 Q36
89 Charles Lyndon Solicitors (JKW0018). The Metro Bank website lists Japanese knotweed as "not accepted" in its mortgage lending criteria [accessed 4 March 2019]
90 Metro Bank (JKW0033)
91 Metro Bank (JKW0033)
92 HSBC (JKW0034)

> Current HSBC policy classifies any Japanese knotweed noted closer than seven metres to the property as unacceptable security. In practice, this presumes that Japanese knotweed is visible and growing in situ (otherwise a valuer would not see it to be able to record its presence).[93]

While HSBC also indicated its willingness to make use of any updated RICS guidance, the bank suggested that public perception would remain a key factor:

> RICS guidance on Japanese knotweed has been important to date and we look forward to considering any updated guidance. However, the judgement of the market itself upon the presence of Japanese knotweed has primacy in HSBC's assessment of lending security, and so long as the public's negative perceptions of Japanese knotweed remain, this must necessarily be adequately reflected in policy.[94]

The origins and evidence for the 'seven-metre rule'

58. Philip Santo, a surveyor who led on the 2012 information paper for RICS, provided a brief history of the 'seven-metre rule' as the threshold for concern, and how it came to form the basis of the RICS information paper:

> The [2006] Environment Agency publication, The Knotweed Code of Practice—Managing Japanese Knotweed on Development Sites,[95] referred to a [rhizome] radius of seven metres around a visible infestation, but this distance was regarded as conservative by most of the remediation representatives on the working group, who suggested the radius should be five metres; others preferred 'playing safe' by adopting a 10-metre radius. In the end it was concluded there was no evidence-based reason to adopt anything other than the seven-metre radius used by the Environment Agency and ultimately this was the distance adopted in the RICS Risk Categories Table.[96]

59. Professor Wade further traced the origins of the 'seven-metre rule' to a "throw-away remark" in a 1998 research paper:

> It says, "Rhizomes grow down [sic] to a depth of one metre, although they have been known to spread up to seven metres laterally." It does not even tell us whether it is the centre of the stand, the edge of the stand or whatever.[97]

60. The Fennell *et al* research which prompted our inquiry (see Chapter 2) explored whether there was evidence to support the seven-metre rule. The authors found that "the seven-metre rule is not a statistically robust tool for estimating likely rhizome extension. *Fallopia japonica* rhizome rarely extends more than four metres from above-ground plants and is typically found within two metres for small stands and 2.5m for large stands".[98]

93 HSBC (JKW0034)
94 HSBC (JKW0034)
95 Philip Santo & Co (JKW0020)
96 Philip Santo & Co (JKW0020)
97 Q45
98 Fennell *et al*. (2018), Japanese knotweed (Fallopia japonica): an analysis of capacity to cause structural damage (compared to other plants) and typical thizome extension. PeerJ 6:e5246; DOI 10.7717/peerj.5246

Advanced Invasives described the seven-metre rule as "a somewhat arbitrary threshold", and told us that refusal to lend on properties where knotweed was within seven metres of a habitable space was "an over-response to the actual issue of damage".[99]

Calls to update the RICS framework to reflect the latest research

61. While the RICS framework has clearly been highly influential and now forms the basis of many mortgage lenders' decision-making process, the RICS website currently states that "this document is no longer current but can be referred to as information".[100]

62. We heard many calls for the RICS framework to be updated in the light of the latest research in this area—and no submissions that argued that an update was unnecessary. Advanced Invasives complained that "the [2012 RICS] risk framework has been applied by surveyors practising more and more defensively […] to the extent that the presence of knotweed within seven metres of a habitable property boundary, often irrespective of any actual damage, is effectively stigmatising to a property".[101] They argued that the framework had become "a prescriptive label", whereby "many mortgage companies may automatically refuse to lend on properties within seven metres of a knotweed infestation".[102] This was despite the framework advocating "further investigation" by qualified surveyors in these categories, rather than determining that the presence was necessarily a problem (see Table 1). This reliance on seven metres as the threshold for concern was borne out by the responses we received from HSBC and Metro Bank (see paragraphs 56–57).

63. Stephen Hodgson, representing the Property Care Association, told us that the Fennell *et al* research was undertaken specifically to inform a potential review of the 2012 RICS paper:

> In 2016, at the request of the RICS, the PCA put together a bunch of proposed amendments to the guidance. The RICS looked at the amendments, which reduced that seven metres down to three metres as the first action area. It actually pushed back on that and said, "Where's your scientific evidence?" […] Even though there may have been a two-year delay, the point that we are at now is the direct result of that scientific evidence, which should now feed back into the review. A great deal of the work that would be required for the RICS to make that change already exists.[103]

64. Ben Lindley, representing Japanese Knotweed Ltd, told us that the seven-metre rule needed to be reassessed, but argued that this should reflect "the most common furthest extent" rather than either an extreme or an average:

> Where we find Japanese knotweed travelling furthest—it can go way beyond seven metres—is where there is a path of least resistance: a man-made situation, such as infilled service trenches and service runs. With light, natural sandy soil it can reach its furthest extent. If you look at all of our records, we would fall in line with the [Fennell et al study], in that the average lateral spread is about 1.5 metres for a small stand and 2.2 metres

99 Advanced Invasives Limited (JKW0011)
100 RICS, "Japanese Knotweed and Residential Property, 1st edition—no longer current", accessed 5 March 2019
101 Advanced Invasives Limited (JKW0011)
102 Advanced Invasives Limited (JKW0011)
103 Q105

> for larger stands. That is an average. If we are to assess how far rhizomes spread and identify a reasonable risk zone for that, you cannot work on the average but the most common furthest extent.[104]

When pushed for a figure he suggested that five metres might be more appropriate, but advocated an evidence-based approach to revising the risk framework.[105]

Calls for a more nuanced approach

65. Advanced Invasives called for a more nuanced framework to be created, based not only on the distance from the boundary or building but also soil conditions, paths that the plant could exploit (such as drainage channels and conduits), and the size of the infestation.[106] As Dr Jones explained:

> Clearly, a sprig of knotweed growing within 7 metres of your house or property boundary is not as problematic as 200 square metres of it growing 8 metres away. […] Stigmatising a property for having a tiny amount of knotweed growing in relatively close proximity either to the boundary or the house is clearly not the intent of the RICS guidance.[107]

66. Professor Wade noted that assessment frameworks for other types of problems were much more nuanced in comparison, and that assessments relating to Japanese knotweed should be similarly sophisticated:

> A tree specialist, approaching a property in terms of whether there is subsidence and so on, has a protocol that they will go through. What is the soil? What is the condition of the tree? What is the distance, and so on? What are the cracks? Are the cracks diagonal? Does the crack increase in width as you move away from it? All those things indicate that there is subsidence.[108]

67. Dr Jones also observed that older buildings constructed prior to the introduction of Japanese knotweed were less likely to suffer from physical damage than new-build properties that could have been built over a knotweed infestation, and argued that this aspect should be reflected in the lender's risk assessment:

> If we take the Victorian housing stock, if it was constructed around the time knotweed was imported it is not the same as building a new-build house on top of an existing Japanese knotweed stand. Fundamentally, those two are different in terms of construction and the likelihood of Japanese knotweed either coming up through the foundation or penetrating the structure.[109]

104 Q43
105 Q45
106 Advanced Invasives Limited (JKW0032)
107 Q45
108 Q32
109 Q58

68. Our witness from UK Finance suggested that the mortgage lending sector would be willing to take part in a review of the 2012 paper, and that an updated framework could be influential within the sector. He told us that "lenders are reliant on guidance from other bodies; we would very much like to see that [RICS] guidance updated […] We will be happy to be involved in a group looking at that".[110]

69. We pressed our witness from RICS, John Baguley, on whether it was willing to publish an updated paper:

> I think that there may be an impression that we are going to sit back and let time pass by, but we are not. I cannot give you a deadline for the creation, because that will be influenced by several factors, but I can give you the assurance that from the RICS perspective we will absolutely convene meetings to get people around the table to see where we need to be. […] The general public, buying public and the lending community have to have the best information available to them, so we will absolutely move with this.[111]

He referred to this process taking place "this year", and following our evidence session RICS told us that it had "convened two Leaders Forums". RICS explained what had been discussed at these meetings and possible changes:

> The Forums set about examining current guidance and approach and to consider next steps in terms of developing appropriate tools in the assessment and reporting of Japanese Knotweed to ensure reporting in a proportionate and consistent manner, taking into account the latest academic research.
>
> Following the first meeting, Forum members committed to developing alternative risk tools which would allow the assessment of damage and impact in a way which would not be entirely reliant on distance alone, rather to assess by way of the risk posed. RICS is now in possession of proposed methodologies and is considering next steps.[112]

Conclusions

70. **The existing RICS risk assessment framework for Japanese knotweed has ensured that in many cases lenders have the confidence to lend against properties affected by Japanese knotweed, so long as there are funded treatment plans and insurance-backed guarantees covering the treatment in place. These can be expensive for homeowners looking to sell, but they often provide a route for the buyer to secure a mortgage.**

71. **However, the 'seven-metre rule' that forms part of the 2012 risk assessment framework is being used as a blunt instrument in some mortgage lending decisions. It does not reflect the latest scientific evidence. RICS itself notes that the framework is "no longer current", but in the meantime it is still forming the basis of mortgage decisions. This framework lacked a clear and comprehensive evidence base and yet is causing significant problems to some house vendors and purchasers. A much more nuanced and evidence-based risk framework is urgently needed to reflect the latest thinking**

110 Qq93–94
111 Q130
112 Royal Institution of Chartered Surveyors (JKW0038). See also: Property Care Association (JKW0036) and Royal Institution of Chartered Surveyors (JKW0031)

on the significance of Japanese knotweed, in relation to the size of the infestation, the distance from the property, and the potential risk of any damage. We are pleased to hear that following our evidence session RICS has convened meetings of stakeholders and influencers to update its 2012 assessment framework for Japanese knotweed to ensure that its policies reflect the most up-to-date evidence. ***We hope that RICS will complete this update as soon as possible and certainly no later than the end of this year.***

5 Helping homeowners

72. The roundtable discussion that we held with individuals affected by Japanese knotweed when buying and selling their property underlined the difficulties that could be caused by reactions to the plant. This includes disrupted sales, diminished property value, and extended legal processes. One of our participants described their experience for us:

> Our property had been valued at £340,000 and we quickly realised that it now had a value of zero as no surveyor would advise a bank to lend on a property with untreated Japanese knotweed. Our potential buyers withdrew from the purchase—we expected this would happen. […] We then decided to have the Japanese knotweed excavated. The work and associated guarantees cost approximately £10,000. This was an incredible amount of money for us to have to find.
>
> […] We then found ourselves in a position of becoming landlords at our Japanese knotweed property [due to being unable to sell it]. This is something we had never intended to do and now means we have the responsibility of acting as a landlord, something we never wanted. […] We are not 'typical' buy to let landlords but a family that has been forced into this position—accidental landlords.
>
> The whole process has been time consuming, expensive, stressful and unnecessarily prevented another family from buying our home—blocking the market. […] The whole thing has been blown out of proportion. My house is a terrace built in the 1920s—there was no way a small plant had done or would do any damage to it at all.[113]

73. Similarly, Environet UK Ltd (a Japanese knotweed remediation firm) argued that "the significance of the human cost inflicted by Japanese knotweed should not be underestimated. We frequently have customers in tears and unable to sleep".[114]

Additional legislation?

74. We explored with witnesses whether there was a need for changes to existing legislation (see Box 1 for examples of current legislation) or new laws regarding Japanese knotweed. While some of the people we spoke to who had been involved in neighbour disputes argued that there was a need to introduce a duty to treat Japanese knotweed, the consistent message we got from others was that further legislation would be unhelpful. For instance, Advanced Invasives argued that:

> Additional legislation on the knotweed issue, particularly any suggestion that treatment of knotweed should be mandatory in all instances, irrespective of its actual impacts, is unnecessary and would further exacerbate the impacts on homeowners, despite the good intent of such legislation.[115]

113 Anonymised response to the Committee's call for personal stories relating to Japanese knotweed.
114 Environet UK Ltd (JKW0004)
115 Advanced Invasives Limited (JKW0032) para 16

75. Similarly, Professor Wade argued that new legislation was not needed since in many cases the presence of Japanese knotweed should not be considered to be a problem.[116]

76. Advanced Invasives summarised that the range of legal controls was a "patchwork" which was "confusing" and "lacks harmony", adding that:

> Overall, the effect of legislation, and the recent court cases centred on knotweed liability, is to increase the costs and risks arising from knotweed treatment programmes. For large landowners and public bodies in particular, undertaking effective knotweed treatment at the strategic scale, whilst minimising legal liability, is especially difficult without an authoritative and coherent source of scientifically valid treatment recommendations.

77. Environet UK Ltd was also not in favour of changing the law in this area, arguing instead that:

> Lending policies are perhaps the largest force motivating homeowners to tackle their Japanese knotweed. It is a far more powerful force than any blunt Statutory Instrument, which would be both difficult and costly to enforce.[117]

78. We were also alerted to the potential use of community protection orders as a mechanism for ensuring that knotweed causing a nuisance was treated. A Home Office factsheet explains that:

> The community protection notice can be used against individuals who are acting unreasonably and who persistently or continually act in a way that has a detrimental effect on the quality of life of those in the locality. The Anti-social Behaviour, Crime and Policing Act 2014 does not explicitly refer to Japanese knotweed or other, similar invasive non-native plants, as the new anti-social behaviour powers are intended to be flexible. However, frontline professionals can stop or prevent any behaviour that meets the legal test in the powers.[118]

79. The Chartered Institute of Ecology and Environmental Management provided a useful example of this being used in practice:

> Bristol City Council brought a case against MB Estate after it ignored a Community Protection Notice served by the Council in May 2017 requiring the company to remove an infestation of Japanese knotweed from a house in Horfield. The Council had received complaints from people at seven properties neighbouring the house. The company was fined £18,000 under the Anti-Social Behaviour, Crime & Policing Act 2014 at Bristol Magistrates' Courts on 4 December 2018. As well as the fine, the court ordered MB Estates to hire a specialist company to draw up a plan within 28 days to tackle the knotweed.[119]

116 Q65
117 Environet UK Ltd (JKW0004)
118 Home Office, Reform of anti-social behavioural powers
119 Chartered Institute of Ecology and Environmental Management (JKW0029)

Neighbour disputes

80. A common theme from the people that we spoke to who had been affected by Japanese knotweed was the difficulties arising from the plant being present on a neighbour's property rather than their own. In these cases, the plant might be within seven metres of their building or property boundary, and yet not within their direct control. The Knotweed Company Ltd explained that in some cases access to the neighbouring property was not possible or was refused, and that they had experience of "tenants or neighbours refusing access for us to make treatments using herbicides as a result of misleading press articles".[120]

81. Charles Lyndon Solicitors provided some further detail on this problem:

> A homeowner cannot treat neighbouring land without the agreement of the neighbouring landowner, to do otherwise would amount to trespass. This means there are a number of situations where homeowners have no way of treating the Japanese knotweed so as to allow their property to be appropriate security for a mortgage and have no legal route to force their neighbours to do so.[121]

They summarised a case that they had worked on that illustrated this problem:

> There is Japanese knotweed on her property and her neighbour's property, [but] because of the steepness of the garden it is impossible to dig out the Japanese knotweed without causing serious damage to structures. The Japanese knotweed on both properties is very established and experts cannot determine where it originated. The client has herbicide-treated her property and offered to treat her neighbour's property but her neighbour refuses to allow her to do so as she is concerned about the impact of the chemicals on her grandson's health. The client cannot have her treatment guaranteed unless her neighbour also treats so she has been unable to sell her house.[122]

Private nuisance

82. Case law is developing in this area which provides a means of recourse. Charles Lyndon Solicitors explained that:

> Under the law of private nuisance, an occupier of land (A) owes duties to occupiers of neighbouring land (B) with regards hazards occurring on A's land. It is accepted law that if Japanese knotweed encroaches from A's Land to B's Land and A does not abate the nuisance (in practice by treating the Japanese knotweed on both A's land and B's land), B will be able to bring a claim for an injunction compelling A to treat and for damages. However, the situation is difficult where the Japanese knotweed on A's land has not encroached onto B's land (and there is no imminent threat of it doing so) but

120 The Knotweed Company Ltd (JKW0014) para 3.1
121 Charles Lyndon Solicitors (JKW0018)
122 Charles Lyndon Solicitors (JKW0018)

> is within seven metres of B's property either because it has not encroached for some reason or there is no land for it to encroach onto which may often be the case for owners of flats who do not own any garden.[123]

83. Several of our witnesses told us about the difficulties that this route caused for homeowners. Sean Hathaway described taking legal action against a neighbour on the basis of nuisance was "quite a long, messy process",[124] and Stephen Hodgson from the PCA agreed that "the only real recourse for somebody living next to anyone with rampant Japanese knotweed is through the civil courts […] and that way lies chaos. We should not be in a position whereby we promote neighbour disputes in that way".[125]

84. John Baguley, representing RICS suggested that alternative approaches might make the process of resolving disputes easier:

> I do not know whether there is a tribunal scenario or some kind of halfway house, but it is about thinking about speed of enforcement, ease of redress and how you achieve that. The court system obviously works, but for the average person in the street to go through the court system is hard work.[126]

Disputes involving Network Rail

85. Advanced Invasives highlighted a particular issue where the neighbour in question was Network Rail:

> Knotweed may fall within the seven-metre proximity, yet homeowners will lack the access rights needed to arrange for treatment. On railway land in the UK, which is almost all managed by Network Rail, this is especially problematic; nationwide there is a large habitat often abutting private homes and this space is prone knotweed invasion.[127]

86. In 2018, two homeowners in south Wales successfully claimed damages in the County Court against Network Rail for allowing Japanese knotweed to encroach on their property.[128] The County Court judgment was upheld by the Court of Appeal, but on different grounds: a claim in private nuisance will not succeed just because of a reduction in the value of the claimant's property; however, it can succeed if the encroachment of knotweed, which can be described as a "natural hazard", reduces the claimant's ability to enjoy "the utility and amenity" of the property—that is, making it more difficult for them fully to use and enjoy the land.[129] Details of the case were presented to us by Charles Lyndon Solicitors.[130] The Law Society told us that "this ruling could act as a significant precedent and encourage litigation, particularly if a property is blighted by Japanese knotweed threatening to encroach from neighbouring land". Stephen Hodgson, representing the Property Care

123 Charles Lyndon Solicitors (JKW0018)
124 Q63
125 Qq148–149
126 Q152
127 Advanced Invasives Limited (JKW0011)
128 The Guardian, "Court upholds Welsh damages award over Japanese knotweed", 3 July 2018
129 Network Rail Infrastructure Ltd v Williams [2018] EWCA Civ 1514
130 Charles Lyndon Solicitors (JKW0018)

Association, explained that he understood that Network Rail had "learned a great deal from the case in south Wales and is engaging with homeowners and landowners when there are potential neighbour issues".[131]

87. The Law Society also noted that "if scientific studies demonstrate that Japanese knotweed is not as pernicious as thought, then the basis for this appeal court ruling may be subject to challenge or could reduce the risk of litigation".[132] Given that the conclusion of the latest research seems to be that the physical impacts of the plant are not as extreme as previously thought, this could leave homeowners in an unclear position.

88. Our discussions with individuals affected by Japanese knotweed who had experience of Network Rail identified the problem of the company not allowing recognised contractors to access their land for safety reasons, meaning that even when the plant was treated by Network Rail this was not recognised by mortgage lenders. Again, Charles Lyndon Solicitors provided a case study of this:

> The client offered to treat Network Rail's land, but they refused as they will not allow anyone other than their own contractors onto their land. This commonly happens with corporate or institutional landowners including local councils. She discussed the possibility of paying their contractors to treat the Japanese knotweed but, as their contractors are not a PCA registered firm, this would not solve the problem. The client is therefore unable to sell her small flat to buy a home with her husband.[133]

89. We wrote to Network Rail to ask them to clarify its position on this issue and suggest how this could be better resolved. Network Rail explained the actions it took to manage Japanese knotweed when it was identified on its land so as to stop it spreading to other parts of railway land and neighbouring properties. In March 2019, Network Rail told us that in the 2018–19 financial year so far it had treated "approximately 600,000 square metres of Japanese knotweed. At an average treatment cost of £2 per square metre, this equates to around £1.2m".

90. It also set out its treatment approach and the associated challenges relating to assurances sought by mortgage lenders:

> Our treatment methods are in line with the guidance published by the Environment Agency, as well as wider industry standards. As your letter correctly identifies, however, this work can only be carried out by our own teams or by approved contractors for safety reasons.
>
> While our suppliers and route teams are, of course, obliged to comply with the standards I mentioned above, they are currently unable to issue either insurance backed guarantees or an alternative equivalent formal assurance that Japanese Knotweed has been treated to the standard that mortgage lenders require.[134]

91. Network Rail acknowledged that the current situation was difficult for homeowners but explained that it could not meet the required mortgage lender standards as it, as a public

131 Q150
132 The Law Society (JKW0006)
133 Charles Lyndon Solicitors (JKW0018)
134 Network Rail (JKW0035)

sector organisation operating to managing public money guidelines, would be "unable to justify the additional cost that would be incurred by requiring our contractors (where they carry out this work) to provide insurance backed guarantees for the treatment".[135] Network Rail also explained that it had arranged a meeting with the Property Care Association to discuss these challenges later in March 2019.[136] The PCA and Network Rail explained that this meeting was held and that the challenges faced by Network Rail were discussed and a proposal to address them suggested.[137] Subsequent to the meeting "discussions between PCA and an insurance provider took place […] confirming a method of delivering insured guarantees could be negotiated". Network Rail elaborated on this solution in supplementary written evidence:

> Mr Hodgson [representing the PCA] agreed that Network Rail is not able to issue insurance backed guarantees due to the reasons outlined in point three of our original response to the committee. However, he did suggest that, were we to incorporate elements of the PCA's best practice into our own guidelines for Japanese Knotweed treatment, the PCA would be able to officially approve our methods. In turn, this would enable our neighbours to obtain insurance backed guarantees, subject to PCA discussions with insurance providers.[138]

Network Rail told us that it was currently updating its guidance "prior to submitting it to the PCA for review". Network Rail was also looking at "opportunities to enrol Network Rail staff and contractors involved in the treatment of Japanese Knotweed onto training courses supported by the PCA".[139]

92. Network Rail had already indicated in oral evidence to us that it was open to considering using a mediation approach to address Japanese knotweed complaints:

> We want our neighbours to feel that we do our best to work constructively and helpfully with them to tackle Japanese Knotweed and we try to always respond in a helpful, fair and consistent way to all complaints and claims. We're absolutely open to mediation, where appropriate, as a positive way to settle a complaint and we will continue to avoid any kind of legal action, wherever possible.

Network Rail also set out that since 1 November 2005 it had spent "£454,351.42 in legal cases related to Japanese knotweed". This figure related to 171 claims.

93. **The challenge of resolving disputes relating to Japanese knotweed is diminished if a more measured and evidence-based approach is taken to Japanese knotweed. Nonetheless, we conclude that, in most if not all circumstances, where disputes between landowners relating to the encroachment of Japanese knotweed persist these are not usually best resolved by means of litigation, which can be both expensive and protracted. *We recommend that, in consultation with the Civil Mediation Council, the Government produce additional guidance on dealing with such disputes, recommending that mediation via an accredited mediator be normally used, subject to the agreement***

135 Network Rail (JKW0035)
136 Network Rail (JKW0035)
137 Property Care Association (JKW0036) and Network Rail (JKW0037)
138 Network Rail (JKW0037)
139 Network Rail (JKW0037)

of the parties involved, as the initial route to resolution of the dispute if it offers value for money, while explaining that this would not prevent an aggrieved party from having recourse to litigation if efforts to achieve a mediated settlement do not succeed.

94. **We welcome the work that the Property Care Association and Network Rail have undertaken to identify solutions which enable Network Rail's neighbours to obtain insurance backed guarantees relating to Japanese knotweed on Network Rail's land.** ***Network Rail's revised guidance on this matter should be published no later than the end of 2019.***

Conclusions and recommendations

Scientific evidence of the physical effects of Japanese knotweed

1. The latest research suggests that the physical damage to property from Japanese knotweed is no greater than that of other disruptive plants and trees that are not subject to the same controls and do not have such a substantial 'chilling' effect on the sale of a property. This conclusion is supported by the experience of some experts in this area and data from Japanese knotweed contractors. Reactions to the presence of the plant should be in proportion with the actual risk of damage. (Paragraph 27)

2. However, Japanese knotweed has some distinguishing features that are relevant in this context. Japanese knotweed is particularly hard to eradicate compared with other plants, requiring multi-year treatment with herbicide or excavation. This is not the case with trees or plants such as buddleia. There is also an ongoing risk that the plant will regrow, either because it is only made dormant by herbicides or because fragments of the plant remain in the soil. (Paragraph 28)

3. There is surprisingly little academic research on the physical effects of Japanese knotweed in the built environment, despite the impact that the presence of Japanese knotweed can have on a property sale. Remediation companies collect a considerable amount of data relating to Japanese knotweed as part of their work, and several have indicated their willingness to share this information with others. We welcome the Environment Agency's offer to approach Defra and others with a view to ensuring that research is commissioned to fill knowledge gaps. *To support this, the Environment Agency should also convene a meeting with the major national Japanese knotweed remediation firms to explore how a national dataset could be assembled from this information and how companies could contribute to this on an ongoing basis to inform academic research which seeks to better understand Japanese knotweed. This would provide a useful resource for further research and an evidence base to inform guidance in this area. Meanwhile, Defra should consider adding the physical effects of Japanese knotweed to its "areas of research interest" document.* (Paragraph 29)

Non-physical effects of Japanese knotweed

4. The presence of Japanese knotweed can affect the desirability of a property and therefore its valuation, even if the specific physical effects on buildings are not significantly different to other plants. If nothing else, land affected by Japanese knotweed is contaminated with material that has restrictions on disposal methods, makes development (e.g. extensions, garages) on the land more challenging, and comes with a risk of liability if the plant spreads to neighbouring properties. All of these factors will be unattractive to buyers to some extent. This alone might be sufficient to justify the inclusion of a question on Japanese knotweed in the Seller's Property Information Form, but not the significance attached to it in lending decisions. (Paragraph 44)

5. A significant industry is built around controlling Japanese knotweed, but we were told that mortgage lenders in other countries do not treat the plant with the same

degree of caution. This gives us reason to believe that the UK has taken an overly cautious approach to this plant, and that a more measured and evidence-based approach is needed to ensure that the impact is proportionate to the physical effects of the plant in the built environment. *We recommend that Defra commission a study of international approaches to Japanese knotweed in the context of property sales to further inform discussion of this issue, and report by the end of the year.* (Paragraph 45)

6. *We recommend that the Law Society review the wording of the question in its Property Information Forms in consultation with the Royal Institution of Chartered Surveyors and others. In particular, it should consult with experts to determine whether the need to declare previous Japanese knotweed problems should expire if the plant has been treated by appropriate excavation and there has been no re-growth within a certain period. It should do this by the end of the year.* (Paragraph 46)

Information and guidance to support lending decisions

7. The existing RICS risk assessment framework for Japanese knotweed has ensured that in many cases lenders have the confidence to lend against properties affected by Japanese knotweed, so long as there are funded treatment plans and insurance-backed guarantees covering the treatment in place. These can be expensive for homeowners looking to sell, but they often provide a route for the buyer to secure a mortgage. (Paragraph 70)

8. However, the 'seven-metre rule' that forms part of the 2012 risk assessment framework is being used as a blunt instrument in some mortgage lending decisions. It does not reflect the latest scientific evidence. RICS itself notes that the framework is "no longer current", but in the meantime it is still forming the basis of mortgage decisions. This framework lacked a clear and comprehensive evidence base and yet is causing significant problems to some house vendors and purchasers. A much more nuanced and evidence-based risk framework is urgently needed to reflect the latest thinking on the significance of Japanese knotweed, in relation to the size of the infestation, the distance from the property, and the potential risk of any damage. We are pleased to hear that following our evidence session RICS has convened meetings of stakeholders and influencers to update its 2012 assessment framework for Japanese knotweed to ensure that its policies reflect the most up-to-date evidence. *We hope that RICS will complete this update as soon as possible and certainly no later than the end of this year.* (Paragraph 71)

Helping homeowners

9. The challenge of resolving disputes relating to Japanese knotweed is diminished if a more measured and evidence-based approach is taken to Japanese knotweed. Nonetheless, we conclude that, in most if not all circumstances, where disputes between landowners relating to the encroachment of Japanese knotweed persist these are not usually best resolved by means of litigation, which can be both expensive and protracted. *We recommend that, in consultation with the Civil Mediation Council, the Government produce additional guidance on dealing with such disputes, recommending that mediation via an accredited mediator be normally used, subject to the agreement of the parties involved, as the initial route to resolution of the dispute*

if it offers value for money, while explaining that this would not prevent an aggrieved party from having recourse to litigation if efforts to achieve a mediated settlement do not succeed. (Paragraph 93)

10. We welcome the work that the Property Care Association and Network Rail have undertaken to identify solutions which enable Network Rail's neighbours to obtain insurance backed guarantees relating to Japanese knotweed on Network Rail's land. *Network Rail's revised guidance on this matter should be published no later than the end of 2019*. (Paragraph 94)

Formal minutes

Wednesday 8 May 2019

Members present:

Norman Lamb, in the Chair

Bill Grant
Mr Sam Gyimah
Carol Monaghan

Draft Report (*Japanese knotweed and the built environment*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 94 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Seventeenth Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available (Standing Order No. 134).

[Adjourned till Wednesday 15 May at 9.00 am

Witnesses

The following witnesses gave evidence. The transcript can be viewed on the inquiry publications page of the Committee's website.

Tuesday 22 January 2019

Professor Max Wade, Technical Director (Ecology), AECOM, **Dr Daniel Jones**, Managing Director, Advanced Invasives, and Honorary Researcher, Swansea University, **Sean Hathaway**, Environment Officer, Swansea Council, and **Ben Lindley**, Sales and Marketing Director, Japanese Knotweed Ltd	Q1–73
Dr Mark Diamond, Head of Ecology, Environment Agency, **John Baguley**, Tangible Assets Valuation Director, Royal Institution of Chartered Surveyors, **Matthew Jupp**, Principal, Mortgages, UK Finance, and **Stephen Hodgson**, Chief Executive Officer, Property Care Association	Q74–154

Published written evidence

The following written evidence was received and can be viewed on the inquiry publications page of the Committee's website.

JKW numbers are generated by the evidence processing system and so may not be complete.

1 Advanced Invasives Limited (JKW0011), (JKW0032)

2 Charles Lyndon Solicitors (JKW0018)

3 Chartered Institute of Ecology and Environmental Management (JKW0024), JKW0029)

4 C J and Y Rattew (JKW0002)

5 Complete Weed Control Ltd (JKW0023)

6 Conservation Land Services Ltd (JKW0022)

7 Crop Protection Association (JKW0008)

8 Dr Rosemary Mason (JKW0001)

9 Environet UK Ltd (JKW0004)

10 Environment Agency (JKW0016), (JKW0028)

11 Francis Bernstein (JKW0027)

12 HSBC (JKW0034)

13 Japanese Knotweed Ltd (JKW0019), (JKW0030)

14 Japanese Knotweed Solutions Limited (JKW0005)

15 Metro Bank (JKW0033)

16 Network Rail (JKW0035), (JKW0037)

17 PBA Solutions (Landscape) Ltd (JKW0013)

18 Philip Santo & Co (JKW0020)

19 Phlorum Ltd (JKW0012)

20 Property Care Association (JKW0010), (JKW0036)

21 Royal Horticultural Society (JKW0017)

22 Royal Institution of Chartered Surveyors (JKW0007), (JKW0031), (JKW0038)

23 Swansea Council (JKW0003)

24 Swansea University (JKW0009)

25 The Amenity Forum (JKW0021)

26 The Grounds Care Group (UK) Ltd (JKW0026)

27 The Knotweed Company Ltd (JKW0014)

28 The Law Society (JKW0006)

29 UK Finance (JKW0015)

List of Reports from the Committee during the current Parliament

All publications from the Committee are available on the publications page of the Committee's website. The reference number of the Government's response to each Report is printed in brackets after the HC printing number

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Second Report	Brexit, science and innovation	HC 705
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Fifth Report	Biometrics strategy and forensic services	HC 800
Sixth Report	Research integrity	HC 350
Seventh Report	E-cigarettes	HC 505
Eighth Report	An immigration system that works for science and innovation	HC 1061
Ninth Report	Flu vaccination programme in England	HC 853
Tenth Report	Research integrity: clinical trials transparency	HC 1480
Eleventh Report	Evidence-based early years intervention	HC 506
Twelfth Report	Quantum technologies	HC 820
Thirteenth Report	Energy drinks and children	HC 821
Fourteenth Report	Impact of social media and screen-use on young people's health	HC 822
Fifteenth Report	Evidence-based early years intervention: Government's Response to the Committee's Eleventh Report of Session 2017–19	HC 1898
Sixteenth Report	'My Science Inquiry'	HC 1716
First Special Report	Science communication and engagement: Government Response to the Committee's Eleventh Report of Session 2016–17	HC 319
Second Special Report	Managing intellectual property and technology transfer: Government Response to the Committee's Tenth Report of Session 2016–17	HC 318
Third Special Report	Industrial Strategy: science and STEM skills: Government Response to the Committee's Thirteenth Report of Session 2016–17	HC 335
Fourth Special Report	Science in emergencies: chemical, biological, radiological or nuclear incidents: Government Response to the Committee's Twelfth Report of Session 2016–17	HC 561

Fifth Special Report	Brexit, science and innovation: Government Response to the Committee's Second Report	HC 1008
Sixth Special Report	Algorithms in decision-making: Government Response to the Committee's Fourth Report	HC 1544
Seventh Special Report	Research integrity: Government and UK Research and Innovation Responses to the Committee's Sixth Report	HC 1562
Eighth Special Report	Biometrics strategy and forensic services: Government's Response to the Committee's Fifth Report	HC 1613
Ninth Special Report	An immigration system that works for science and innovation: Government's Response to the Committee's Eighth Report	HC 1661
Tenth Special Report	Research integrity: clinical trials transparency: Health Research Authority Response to the Committee's Tenth Report	HC 1961
Eleventh Special Report	Quantum technologies: Government Response to the Committee's Twelfth Report	HC 2030