Written evidence submitted by the Red Squirrels United partnership

1. Red Squirrels United (RSU) is a four-year partnership programme consisting of eight organisations funded through EU LIFE and the National Lottery Heritage Fund. RSU aims to safeguard nine red squirrel (Sciurus vulgaris) stronghold populations across England, Wales and Northern Ireland and achieves this through landscape scale control of the invasive non-native grey squirrel (Sciurus carolinensis) to prevent them entering habitats occupied by red squirrels. The programme also aims to expand red squirrel populations in several project areas and works to raise awareness of the conservation issues faced by our native red squirrel and facilitate community engagement.

2. The RSU partnership is primarily concerned with the grey squirrel from an invasive non-native species perspective. Therefore, our written submission is focussed on this individual species and its associated impacts and issues.

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

3. Invasive non-native species have been a recognised issue for many years and are globally well known for detrimentally effecting environmental, economic and societal systems. They cause substantial biodiversity impacts through disease transmission, predation or by outcompeting native species (Holmes et al. 2019) and can cause wide spread disruption to native ecosystems. It is estimated that invasive non-native species cost the UK at least £1.7 billion per annum but the current level of resourcing to tackle existing and potentially new threats is inadequate. Several invasive non-native species, such as the grey squirrel are so widespread that they are more abundant than native species (Mathews et al. 2018). Since the grey was first introduced to England in 1876 and Ireland in 1911, they have spread across much of the UK causing widespread issues. Grey squirrels outcompete red squirrels for food and resources and transmit the squirrelpox virus which is generally harmless to grey squirrels, but invariably fatal to red squirrels. Once infected, red squirrels often die from dehydration or starvation within one to two weeks.

4. Grey squirrels also cause severe damage to broadleaf timber production through bark stripping with species such as beech, hornbeam and oak being particularly susceptible. Research by the Forestry Commission (Mayle et al. 2007), indicated that up to 5% of trees damaged by grey squirrels may actually die, and many more will have degraded timber value through stem deformation, rot and broken tops caused by bark stripping. Defra estimates annual economic impacts of between £6 and £10 million due to grey squirrel damage of timber crops (Defra 2014).

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1 The Wildlife Trusts, Forest Research, Newcastle University, Northumberland Wildlife Trust, The Wildlife Trust for Lancashire, Manchester and North Merseyside, The Wildlife Trust of South and West Wales, Red Squirrels Trust Wales and Ulster Wildlife


5. RSU welcomes the Invasive Non-Native Species (Enforcement and Permitting) Order 2019 implementing the provisions of Regulation 1143/2104 which came into effect on 1 January 2015 and looks forward to an opportunity to provide input to the grey squirrel species action plan (grey squirrels are one of the 26 listed animal species requiring such a plan). The widespread distribution of grey squirrels may mean that UK eradication is unfeasible due to resourcing and practicality but RSU firmly believes that ongoing landscape level control and management of grey squirrels is the only currently viable mechanism to safeguard and protect our remaining red squirrel populations. This should be prioritised and resourced accordingly. Incentivising land management schemes and grants for landowners/land managers to undertake grey squirrel management would be welcomed as much of the effort to control grey squirrels and preserve red squirrels is currently undertaken by volunteers. At present these schemes are not structured well enough to facilitate landscape level control and smaller woodland/landholding owners may feel the effort needed to secure such grants or the expenditure incurred for compliance outweighs any financial gain.

Of those that are already in the UK, which invasive species are posing the greatest harm to:
   a) human health;
   b) animal health;
   c) plant health and biodiversity.

6. Grey squirrels can carry zoonotic diseases such as Lymes disease and Lymphocytic coriomeningitis mammarenavirus (LCMV) which may have the potential to disrupt human health although the full impacts of this have not yet been quantified.

7. The grey squirrel poses the greatest threat to the survival of the red squirrel in the UK. Since their introduction in England (1876) and Ireland (1911) the red squirrel has been extirpated from much of its native range (see Figure 1) through resource competition and disease transmission.

8. The estimated economic cost of grey squirrel damage of timber crops is between £6 and £10 million. Grey squirrels are highlighted as the biggest threat to native broadleaf timber production generating a degree of reluctance to plant native broadleaves despite the benefit these tree species bring to native biodiversity.
9. Estimates believe current grey squirrel populations to be between 2.5 and 3 million grey squirrels whilst only approximately 140,000 red squirrels remain. The majority of the red squirrel population is in Scotland with other populations located in northern England, Wales and Ireland with island populations upon Anglesey, the Isle of Wight and Brownsea Island in Dorset. These red squirrel populations are maintained by ongoing efforts from members of the conservation community, volunteer effort and landowners/land managers through active management to remove or reduce grey squirrel populations in the area or through natural barriers to grey squirrel incursion such as the Isle of Wight.

10. Grey squirrels outcompete red squirrels for food and resources leading to depressed breeding rates, higher red squirrel kit mortality, malnutrition and starvation. Grey squirrels can replace red squirrels within 15 years of invasion in broadleaf woodlands, but evidence shows that red squirrel populations sympatric with grey squirrels carrying the squirrelpox virus can decline up to 25 times faster than red squirrels sympatric to grey squirrels who are not (Collins et al. 2014)\(^6\) significantly accelerating the rate of replacement.

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

11. RSU’s response is primarily focussed on the ongoing impacts of the grey squirrel as a long-term resident invasive non-native species in the UK. As such this question is out of our remit to address.

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

12. Stronger biosecurity measures along with robust systems to identify potentially invasive species and mitigate their ability to migrate into the UK are required. Preventing incursion by invasive non-native species must be a priority and the use of climate scenario modelling to identify potential species of concern, habitat suitability and incursion pathways are critical to inform this process. Robust ‘early warning’

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systems to identify any such incursions are key as are 'rapid response' management plans to address any incursions and resulting impacts.

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

13. As highlighted previously in this submission, the economic impacts of invasive non-native species are estimated to cost the UK approximately £1.7 billion per annum with grey squirrel timber damage estimated at between £6 to £10 million annually. Economic impact alone would suggest that the grey squirrel is a priority invasive non-native species to tackle even without consideration of the detrimental impacts upon the red squirrel. Yet, funding for managing invasive non-native species projects has been harder to obtain.

14. Successful funded invasive non-native species management projects, such as RSU, Saving Scotland’s Red Squirrels and the Scottish Invasive Species Initiative, have an overarching coordination role with the ambition of long-term management. Consortia and networks such as these provide essential training, support, sharing of best practise and community engagement that smaller groups cannot achieve on their own. RSU has been successful in supporting the establishment of five new community action groups in Northern Ireland, one in North Wales and directly and indirectly supports or engages approximately 20 community groups across the whole project area. Relationships are also in place with the broader volunteer community across the UK, Europe and internationally which facilitates knowledge sharing, lesson learning and further best practice. Yet there is no foreseeable long-term funding available for this to continue. This central coordination cannot be self-sufficient and needs adequate resourcing for the action of conservation and community groups to have maximum benefit.

15. Investment in long term management will have enormous gains and prevent organisations competing for the same limited opportunities. Commitment to long term action will allow such projects to realise their aims, which is not currently achievable under three to five-year funding cycles where gains and progress can be diminished or lost when the funding ends. Funders anticipate new projects with new (often time limited) branding for different communities and are often not keen to support continuous ongoing activity. However, activities such as grey squirrel control is both long term and ongoing and requires continual resourcing. Thus, the current funding landscape does not meet the requirements of the need on the ground.

16. Funding sources are often regionally or country specific and many do not support cross boundary working. However, species do not respect man-made borders, and this can diminish the effectiveness of the work being undertaken. For example, RSU works to manage grey squirrel populations in the north west in Northern Ireland but the same degree of control does not take place across the border in the Republic of Ireland meaning that grey squirrels continue to migrate into the area necessitating ongoing control to safeguard the red squirrel population there.

17. Joined up landscape level funding approaches utilising a consortium style approach would be beneficial and perhaps allow approaches to manage several invasive non-native species under a unified framework. This should also apply to land management schemes which as previously highlighted are not structured well enough for landscape level projects. In Wales for example, if the resources allocated to grey squirrel control in mid-Wales through the Glastir Woodland Management Scheme had been pooled to support a landscape scale approach rather than allocated via individual contracts to landowners to use as they saw fit, the impacts and results could have been much greater. A landscape scale approach would
maximise resource and intelligence gathering and prevent a ‘silied’ approach which has categorised the management of invasive non-native species in the UK to date.

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

18. Robust risk assessments should be undertaken along with stringent biosecurity measures to assess the impact of allowing a given species into the UK. This should take place along with regular and ongoing assessments to identify species carrying potential risks or threats to native biodiversity and plans put into place accordingly.

19. However, several invasive non-native species such as the grey squirrel are already present in the UK and causing detrimental impacts to native species and ecosystems. The impacts of such species should not be overlooked based on population density, length of time the species has been established or the range it covers. Long term management of such species is a vital part of the UK conservation effort if we are to preserve native species such as the red squirrel.

How effective have the European Union’s Alien Species Regulations been at addressing and tackling invasive species?

20. For grey squirrels, the impact of the regulation would be questionable due to lack of resource or general support for managing grey squirrel populations. An action plan for this species under the enforcement and permitting order has not yet been developed. However, having the regulation in place provides a legal framework and support to the case for action when undertaking control of invasive non-native species.

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

21. The GB Non-Native Species Secretariat has a vital role to play along with the Joint Nature Conservation Commission as the UK’s scientific authority at CITES. The GB NNSS should be resourced appropriately to enable it to upscale and undertake this role effectively.

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

22. It is crucial for the UK to continue to work with the European Commission and the international community to manage and mitigate the risks of invasive non-native species. As previously highlighted species do not respect man made borders and strong communication and intelligence sharing is critical. At present the red squirrel is neither classed as an endangered nor a European protected species. However, colonisation of mainland Europe by grey squirrels and the loss of red squirrels is a real threat. Grey squirrels were first introduced to Italy in 1948 and are displacing red squirrels in a similar pattern to that observed in the UK. If allowed to spread, grey squirrels have the potential of becoming a European forest pest species and are likely to replace the native red squirrel in large parts of its range (Lurz et al 2001)7. Great Britain and Ireland are islands with defendable boundaries. In this scenario, the red squirrel population in the UK could become the last remaining red squirrel stronghold.

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