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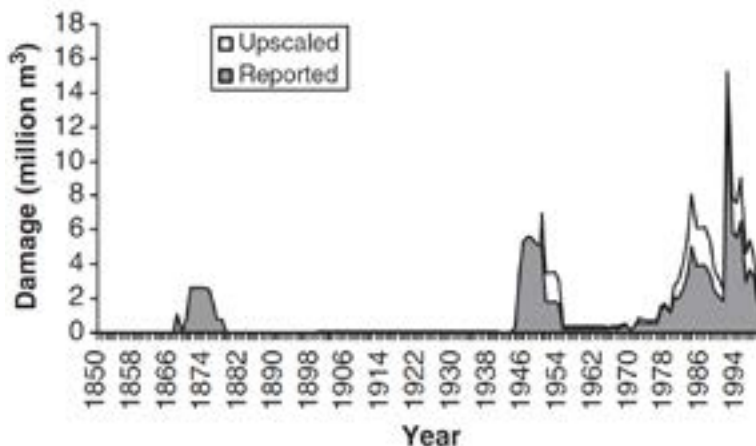
The Editor, *Irish Forestry*Re. *Ips typographus*

Sir,

I would like to draw the reader's attention to the recent discovery of *Ips typographus* (the eight-toothed spruce bark beetle - see Figure 1) in a woodland setting in Kent this winter. The discovery of a breeding population of the beetle was made by the UK Forestry Commission during a routine surveillance activity and is the first record of the species in the wider environment within the UK (GOV.UK 2018). Movement restrictions have been implemented on-site to limit the potential spread of the pest and the Forestry Commission are urging people to be vigilant and report any suspected sightings. *Ips typographus* is one of the most significant insect pests in European spruce forests and has been implicated in the largest kill of spruce trees per year ever recorded (Wermelinger et al. 2012). Epidemics of the bark beetle can encompass vast areas of forests (tens of thousands of km<sup>2</sup>) and outbreaks have been reported in Central Europe and Scandinavia since the 18<sup>th</sup> century (Schelhaas et al. 2003), with varying degrees of damage (Figure 2).



**Figure 1:** Adult *Ips typographus* are usually between 4 and 5.5 mm long, cylindrical, shiny and brown-black to black in colour. The elytra have four rear-facing teeth on either side. These bark beetles feed on and reproduce in the inner bark and phloem of trees but often hibernate in forest litter. Image credits: left-hand photograph, Udo Schmidt; right, stock image from L. Henrik.



**Figure 2:** Volume of wood damaged by bark beetles (mainly *I. typographus*) as reported in European countries during the period 1850–2000 and as scaled up for the entire European area for 1950–2000.

Outbreaks of this species have been linked to large-scale disturbances in Europe (as was the case with storm Lothar in 1990, Gudrun in 2005 and Kyrill in 2007; Wermelinger et al. 2012). At endemic levels, this pest reproduces in breeding material with little or no defences (such as windthrown trees). The increase in available breeding material following large storm events can facilitate population outbreaks (Marini et al. 2013). These outbreaks display high population densities, enabling the pest to overcome the defence capacities of living trees and cause mortality (Schroeder 2010). In fact, the salvage of windthrown trees directly following a storm is one of the main management strategies for the control of *I. typographus*. In the first place, to save the value of trees before their quality is degraded further by bark and ambrosia beetles and secondly, to minimise subsequent tree mortality by the bark beetle due to increased reproduction within the windthrown trees.

There is also evidence to suggest that trees grown on drought prone soils suffer more from bark beetle attacks (Christiansen and Bakke 1988). This means that projected increases in extreme weather events (such as droughts and storms) in the future as a result of climate change could enhance this pest's infestation ability. The primary host trees of this organism are spruce species (*Picea* spp.), however outbreaks have also been observed on firs (*Abies* spp.), pines (*Pinus* spp.) and larches (*Larix* spp.). This of course, has significance for Ireland, considering that Sitka spruce is the most economically important forestry species, making up almost 51% of the forest estate, while Norway spruce comprises a further 4%.

This pest species has been intercepted in the past at Irish ports on wood packaging material, which was immediately destroyed. In addition to this line of defence, DAFM

conduct annual surveys across a network of observation points throughout the country and to date, *I. typographus* has never been detected. Ireland currently has protected zone status recognised by the EU Plant Health Directive (Council Directive 2000/29/EC) (The council of the European Union, 2000). This means that coniferous wood with bark still intact cannot be imported into Ireland from EU countries where the bark beetles are known to occur, unless (1) the shipment is originating from an area free of the pest, (2) the wood is debarked, or (3) the wood has been kiln dried to below 20% moisture content and is marked “KD” (kiln dried). Two species of “protected zone” bark beetles are already known to occur in England, and as a result, the importation of coniferous wood with intact bark to Ireland is already prohibited.

Despite the worrying discovery of this pest by our closest neighbour, the aforementioned efforts will serve to minimise the risk of this bark beetle entering Ireland. Further work is also being carried out within the DAFM-funded FORM project<sup>1</sup> (Forest Management Research) to prioritise the assessment of the “risk of establishment” of this species within Ireland (both now and in a warmer future), as well as to identify targeted sampling sites across the country using climatic and biological data. It is important that forest professionals and users should be vigilant and aware of what to look out for (Figure 2). Such efforts are crucial to protecting future plant health and enhancing resilience within the forestry sector in a time of increasing uncertainty.

Yours faithfully,

Dr Catriona Duffy

## References

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<sup>1</sup> Project website: <http://form.ucd.ie/>

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