

Help Beat the Eight-Toothed Spruce Bark Beetle

Fred Toft explains the risks of the eight-toothed spruce bark beetle (*Ips typographus*), shares insights into the collaborative work happening to help manage this pest, and appeals for your help.

As a woodland owner, staying informed about threats to your trees is crucial for maintaining healthy forests and protecting your investment. One pest you need to know about is *Ips typographus*, commonly known as the eight-toothed spruce bark beetle. This beetle represents a significant threat to spruce trees across Great Britain (Figure 1).

What is *Ips typographus*?

Ips typographus is classified as a Quarantine Pest in the UK, meaning we're legally obligated to act against any findings to prevent its establishment. This beetle (Figure 2) specifically targets spruce species and could have devastating effects on the forestry sector if it becomes established.

The numbers speak for themselves: spruce makes up 60% of the conifer crop across Great Britain, with a total estimated value of £2.9 billion per annum (Defra, 2023) and supports thousands of jobs across the country (Forest Research, 2024). This includes economic, social and environmental benefits, with around £350 million annually coming from timber revenue alone (Defra, 2023). In 2018, a breeding population of *Ips typographus* was found in Kent (Blake et al., 2024). Eradication of the beetle in southeast England is ongoing.

How does the beetle arrive in the UK?

Evidence shows that outbreaks since 2018 have resulted from natural dispersal – essentially, beetles being blown



Figure 1. Fred Toft (right) in the field inspecting susceptible spruce for *Ips typographus* with Phil McGovern (left) from *Ips typographus* project team. (Photo: Crown copyright)

over by the wind from continental Europe, where the pest is native, during favourable weather conditions. There's currently no evidence of the pest spreading within the UK or impacting healthy spruce trees domestically.

Using extensive pheromone trap transects through France, Belgium, and England, scientists have been able to track the beetles' movements. Their data show a clear pattern: populations radiate outward from outbreak hotspots in the Ardenne region (Belgium) toward southeast England, with beetle numbers decreasing the farther they are from these outbreak hotspots in Europe. This confirms that cross-Channel aerial dispersal is a viable pathway for this pest's invasion in southeast England (Inward et al., 2024).

Work is also being undertaken to explore methods to trap the beetles at varying altitudes using aircraft and helium balloons. This will help to understand how far the species can travel using wind-assisted dispersal.

Weather conditions increase risk

Recent extreme weather patterns and a changing climate have created concerning conditions for spruce in southeast and eastern England. The combination of heavy rain and waterlogging throughout 2024, followed by the driest spring in 69 years in 2025, are considered to be key causes for putting lowland spruce on clay soils under significant stress.

This stress is critical because it can reduce resin pressure in trees – their main defence mechanism against bark beetle attack. Stressed spruce with low resin pressure become vulnerable targets for *Ips typographus* and are highly susceptible to infestation, making vigilant monitoring and proactive management more important than ever.

Reducing the risk of establishment

Collaboration between the Forestry Commission, Forest Research and the Department for Environment, Food and Rural Affairs is helping to manage and reduce the risk of *Ips typographus* establishing in the UK. A series of innovative methods are being used to help fight this invasive pest.

Demarcated area and restrictions

To prevent establishment of *Ips typographus*, a demarcated area covers southeastern and eastern England, providing robust detection and eradication measures (Figure 3). Within this area, restrictions apply to planting, felling, stacking and the movement of spruce material. All felling, movement, stacking and planting of spruce is subject to authorisation from the Forestry Commission (Forestry Commission, 2025a).

If your woodland is in this region, we actively encourage the proactive management or removal of spruce and to



Figure 2. A close-up of the eight-toothed spruce bark beetle (*Ips typographus*) boring into the bark of a spruce tree after peeling back the bark to reveal infestation. (Photo: Crown copyright)

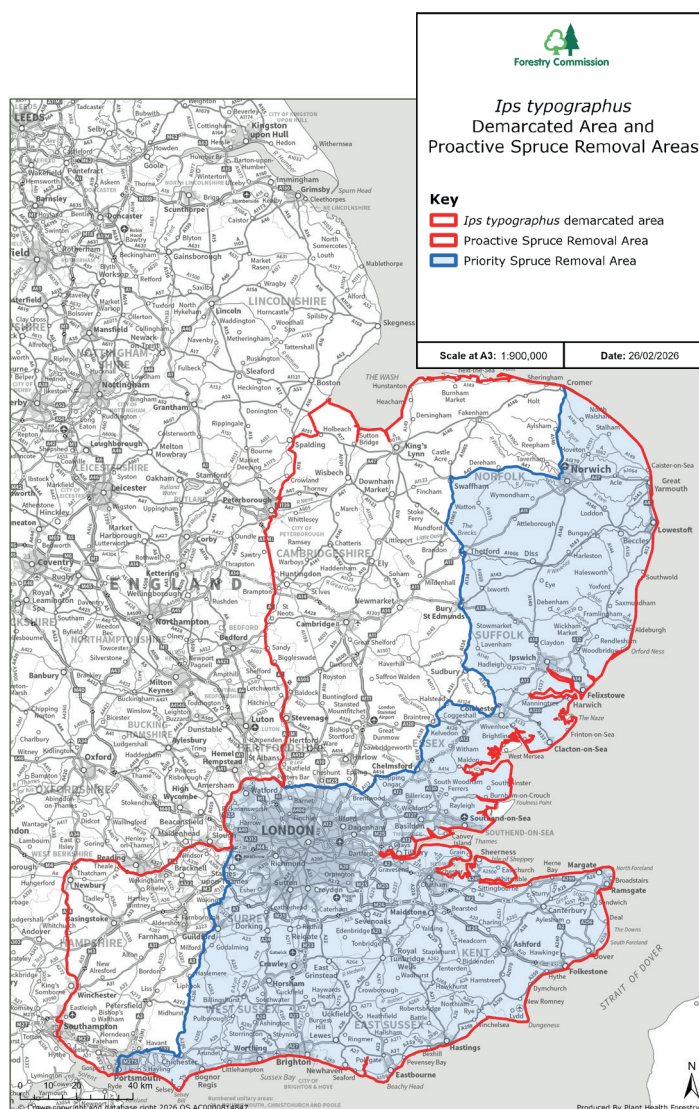


Figure 3. Map of the *Ips typographus* demarcated area (red outline), including the Proactive Spruce Removal Area and the Priority Spruce Removal Area.



Figure 4. Dr Imogen Cavadino-Phillips, *Ips typographus* Project Manager at Forest Research, installing a pheromone trap as part of the citizen science project. (Photo: Crown copyright)

replace these trees with non-susceptible tree species (Forestry Commission, 2025a). This approach significantly limits the potential for the pest to establish and can protect not only your woodland but the broader forestry industry too.

Cutting-edge surveillance and research

The fight against *Ips typographus* involves sophisticated monitoring systems. Since 2018, 81 spruce woodland-focused aerial surveillance flights have covered over 135,000 hectares of spruce in the nation's forests. This total hectareage includes areas re-flown in different seasons to monitor for decline. During the 2024/25 season alone, surveillance identified over 1,200 sites requiring ground inspections – a 154% increase from the previous season – although only a very small proportion of these result in detection of outbreaks.

The demarcated area was expanded in June 2024 following the discovery of outbreaks in East Anglia. Within the expanded zone, restrictions on spruce management came into effect, prompting rapid adaptation by the forestry sector. As a result, there was a 143% increase in requests for authorisation inspections – a significant rise that my team, along with the wider Plant Health Service, managed effectively without compromising ongoing *Ips typographus* surveillance or other priority pest surveys.

Our extensive pheromone trapping networks monitor over 700 trap locations across Great Britain, including a

citizen science project with the Sylva Foundation where volunteers monitor traps on their land. From across all the pheromone trapping networks Forest Research processed over 8,000 samples during the 2024/25 season (Figure 4).

We are keen to recruit more volunteers for the citizen science network. If you are willing to host a pheromone trap in your spruce woodland, please consider joining our national monitoring project run by the Sylva Foundation to help prevent the potential spread of *Ips typographus* (Sylva Foundation, 2025).

“This beetle specifically targets spruce species and could have devastating effects on the forestry sector.”

Innovation in detection methods

Exciting developments in detection technology are enhancing our capabilities to help stop the establishment of *Ips typographus*. Forest Research is developing prototype traps that could photograph beetles

in real-time, potentially revolutionising early detection (Figure 5). Partners contributing to these efforts include CENSIS and the University of Cambridge.

Detection dogs represent another innovative approach (Figure 6). These specially trained dogs can identify indirect scents of *Ips typographus*, including beetle frass (excrement or debris left by beetles) and artificial pheromone. They're currently undergoing trials and could significantly improve movement inspections within the demarcated area for spruce material.

Drone surveillance adds another layer to our monitoring capabilities, providing highly repeatable datasets to

detect changes over time and identify symptomatic trees requiring investigation.

How can woodland owners help?

The role of woodland owners in preventing establishment of this pest is crucial. Check the health of spruce trees on your land, particularly identifying stressed, recently fallen and snapped trees. Take immediate action to remove these vulnerable trees and any surrounding susceptible material by chipping, burning or debarking. If the woodland is based in the demarcated area and you would like to fell or move spruce material off-site, or stack spruce material on-site, you will need prior authorisation from the Forestry Commission's Plant Health Team in addition to a felling licence (Forestry Commission, 2025b). Any enquiries about felling licensing requirements should be made to the local Forestry Commission Woodland Officer before carrying out any operations.

The best time to look out for adult beetles is in the spring and summer, when the temperature rises above

20°C. Signs to look out for include 2-3 mm circular holes in the bark called entrance and exit holes, and distinctive larval gallery systems that the beetles create under the bark in the phloem (Figure 7). To help you identify what trees to target and the signs to be aware of, the Forestry Commission has produced an informative video '*Ips typographus*: beat the beetle' that can be viewed on YouTube.

Woodland owners and managers should be vigilant for signs of this beetle at all times. If they suspect signs of *Ips typographus*, they should report it immediately using TreeAlert (Forest Research, 2025). It's also helpful if they submit TreeAlerts if a stand of spruce shows signs of windblow, decline or stress – as an inspection will help our eradication strategy.

“The role of woodland owners in preventing establishment of this pest is crucial.”

Financial support available

Grants are available to help manage or fell spruce trees, restock woodland and maintain newly planted trees. This includes support available in the Tree Health Pilot (Forestry Commission, 2025d) to fell affected spruce trees following receipt of a Statutory Plant Health Notice (Forestry Commission, 2025c), as well as through proactive management for removing spruce that could become infested which fall within the Proactive Spruce Removal Area in southeast England (Figure 3).



Figure 5. Dr Max Blake, Head of Entomology at Forest Research (right) demonstrating a prototype trap to a cameraman during an *Ips typographus* project visit by the BBC. (Photo: Forest Research)



Figure 6. Willow, the detection dog, undergoing training to identify *Ips typographus* scent on a spruce log stack. (Photo: Paws For Conservation)



Figure 7. Signs of the presence of *Ips typographus* include: (left) 2-3 mm entrance and exit holes in the bark and (right) the distinctive linear larval gallery systems they leave underneath the bark. (Photos: Crown copyright)

Proactively managing trees to remove the risk of infestation within the Proactive Spruce Removal Area can:

- Maximise ways timber can be used and also maximise timber revenue.
- Provide more time to plan (woodland owners would have requirements and deadlines to meet if *Ips typographus* was identified and they were issued with a Statutory Plant Health Notice).
- Reduce risk of future infestations and tree health impacts.

The Spruce Site Assessment grant, launched in 2025, is designed to support landowners in the Proactive Spruce Removal Area to assess their woodland, understand the amount and condition of spruce present and plan for potential proactive felling and restocking.

The Forestry Commission has also introduced improved rates and a wider area of eligibility for the proactive removal of spruce under the Tree Health Pilot. Woodland owners and managers in the newly extended Proactive Spruce Removal Area that do not have *Ips typographus* can apply

to fell the spruce and restock in accordance with the conditions of an associated felling licence. There are two levels of funding available depending on the level of risk in your area:

- If your woodland is located in the Priority Spruce Removal Area, the grant will now cover 80% of felling costs.
- For woodlands that fall in the rest of the Proactive Removal Area, 40% of felling costs can be claimed.

These improved rates no longer consider the revenue from selling on the timber, which means woodland owners will receive significantly more money for taking proactive action.

“Stay informed, stay vigilant and don’t hesitate to report any concerns through TreeAlert.”

Effective eradication of *Ips typographus*

I’m pleased to say that there’s good news to share. We have successfully eradicated *Ips typographus* from all 13 outbreak sites identified in 2021, with further outbreaks identified in 2022 under review. This achievement demonstrates that our policy approach and operational activities are working effectively.

Following the removal of spruce trees, outbreak sites are continuously monitored for three years, with extensive surveillance showing no ongoing presence of breeding beetles. Analysis of pheromone trap catches from these eradication sites reveals significantly lower beetle numbers compared to nearby spruce forests. This confirms successful eradication of breeding beetles at these sites.

There is still much more work to be done. *Ips typographus* continues to be caught in pheromone traps even on sites without spruce, due to wind-assisted dispersal from outbreaks on the continent. Ongoing proactive management and the removal of spruce in areas vulnerable to pest incursions is essential if we are to sustain this success story.

Looking ahead

Current research suggests further incursions may occur while continental populations of the beetle remain high, and when warm, dry weather conditions are present. However, our comprehensive surveillance network, rapid response capabilities, and ongoing research provide robust protection against establishment during this window of opportunity to beat the beetle.

By working together, government agencies, researchers and woodland owners and managers can protect Great Britain's valuable spruce forests from this significant threat. Continued vigilance and cooperation remain essential to maintaining this success.

The key point to remember is that early detection and rapid response is key to preventing *Ips typographus* from establishing. Stay informed, stay vigilant and don't hesitate to report any concerns through TreeAlert.

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