Little short of the Triffids could be more dangerous than the exotic plants waging war on our native species.

ALIEN INVASION

It's little surprise that Japanese knotweed – with its heart-shaped leaves and delicate cream flowers – caught the eye of nineteenth century botanists visiting the Orient. Like many new and exotic arrivals, it captured the public imagination and was planted widely. But the Victorian passion for exotic plants, which brought hundreds of alien species to Britain, is one many ecologists now rue.

From central Asia came giant hogweed – tall, spiky with umbrella-like white flowers – and utterly unlike anything in Britain. Himalayan balsam, with its long green and red leaves and pink or purple flowers, was promoted as an inexpensive alternative to orchids.

Their cheap seeds were used in gardens across the country and the resulting plants thrived. No-one imagined they would become an ecological disaster on a par with the grey squirrel or Chinese mitten crab.

More than a century on, a handful of non-native plants are wreaking environmental havoc and costing landowners millions of pounds to tackle.

Thanks to dizzying growth rates, a lack of competitors and a terrifying ability to spread, these species are now ubiquitous and causing mayhem in the wild. Invasive plants are now believed to pose the leading threat to biodiversity, after human activity. Both Japanese knotweed and giant hogweed are deemed so problematic they are already controlled under law, while a review of regulations could see others added to the list.

Georgina Fellows, a biodiversity officer with the Environment Agency, says: "They cause a huge threat to our natural habitats. Each poses different problems but they are all notoriously difficult to deal with.

"The common characteristic is that they grow extremely fast, take over huge new territories each season and are very resilient. They are expensive to control and very difficult to get rid of completely."

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Whether they live on land or in water, invasive plants upset delicate ecosystems by starving native vegetation of light and key nutrients. Native species are overwhelmed and the outsiders take over. Insects that relied on the disappearing flora for food or as a place to lay eggs are inevitably affected and some may eventually become extinct.

About a third of plants introduced by the Victorians escaped over the garden wall and into the wild, but few became a problem. Those which did were well suited to local soil and climatic conditions, and able to spread quickly and easily. On land, giant hogweed, Japanese knotweed and Himalayan balsam have achieved almost total domination of swathes of Britain – favouring waterways, rail embankments, wasteland and brownfield sites.

Knotweed spreads through its roots, or rhizomes – a tiny two-millimetre fragment can sprout into a recognisable new plant in six days. It is common along rivers and waterways because tiny fragments are easily spread downstream on the current.

The others propagate by seed. Each hogweed flower sends 50,000 tiny seeds into the atmosphere to invade new territories – many land in rivers and are carried downstream. Each seed can lie dormant for up to 15 years. Balsam develops seedpods known as “jumping jacks” – which burst open with an audible pop and can fling their seeds up to 10 km away, with the assistance of the wind.

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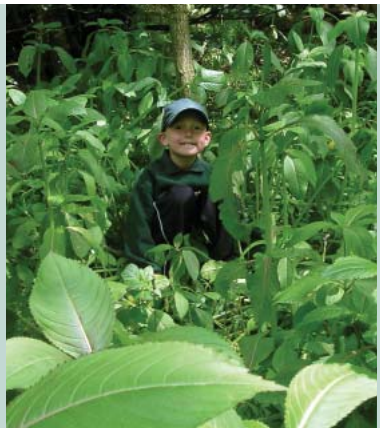
RIGHT AND MIDDLE:
CHILDREN ENJOY 'BALSAM BASHING'

FAR RIGHT:
HIMALAYAN BALSAM'S ATTRACTIVE FLOWERS
WERE POPULAR WITH THE VICTORIANS



Sarah Whitman, of Action Darwen Valley, says: "Environmentally, they're a disaster. They put on lots of vegetation over the summer, which dies back in winter, and both Hogweed and Himalayan balsam have shallow root systems.

"With few other plants given the chance to grow there's little to bind the soil, which leaves the ground susceptible to erosion. During storms or heavy rain, eroded riverbanks make flooding more likely."

Hogweed is of particular concern because its giant leaves and stems, which grow several metres tall, contain poisonous sap that irritates skin. Several children have already been severely hurt after playing with the plant, and it's just as dangerous to adults.

Sarah says: "It can result in third-degree burns and leave skin sensitive to sunlight for six years after contact. This is a big worry for us because hogweed is often found close to footpaths. I'd hate anyone to have a nasty accident."

These plants are wreaking environmental havoc and costing landowners millions of pounds to tackle.

Problem plants are not confined to dry land. Floating pennywort – a North American pondweed introduced by garden centres during the 1980s and still on sale – grows up to 20cm a day, suffocating other water plants and creatures. It grows happily in shallow, slow-flowing water such as canals and forms dense, interwoven mats of vegetation, which starve the water – and its natural inhabitants – of light, nutrients and oxygen. The weed also creates a flood risk by blocking the waterway.

Tommy Ratcliffe, of Winsford Angling Club in Cheshire, which fishes along the River Weaver, has watched the situation worsen each year.
He says: "It's horrendous. In 1999 there were one or two patches along our part of the river, but the following year there were 75. Since then it's gone up and up – one patch stretched across a distance of over 100m.

"We have 231 fishing positions on the river, but about 75 are unusable because of this weed.

"It is choking the life out of the river. I don't think we'll have much left in a couple of years."
As well as threatening our native flora, Japanese knotweed brings an additional challenge – one that is adding millions to the cost of regeneration. It has a dubious talent for exposing weaknesses in hard-engineered structures such as concrete, tarmac, brick walls and foundations. So serious is the problem that at least one knotweed colony is thought to have penetrated every 10 sq km of land in England and Wales.

Developers are legally required to tackle knotweed infestations in order to secure planning permission, and landowners must make sure it does not spread from their land – although they are not obliged to remove it. Knotweed and hogweed both fall under section nine of the Wildlife and Countryside Act 1981 – causing them to grow wild carries a possible two-year prison sentence. Their status as controlled waste means debris and contaminated soil must be collected and burned or disposed of at licensed landfill sites.

Dealing with these weeds is highly specialised work, largely carried out by entrepreneurial environmental companies, and is believed to cost Britain some £2 billion a year.

New techniques are being developed, and competition is fierce. Spraying with the herbicide glyphosate, which controls the weed and can be used near water, is relatively cheap but takes several seasons; precious time the construction industry cannot spare. Matt Montgomery, of Bury-based environmental consultants Leyden Kirby Associates, says: "It can take many years to tackle an outbreak in this way, which is more of a form of control than a real solution.

"The best way to get rid of knotweed is by digging it up and removing the roots and fragments from the soil. We sift the soil by hand and take the root down to a certain size.

"We then bury what's left below two metres of soil and go back the following year to check for re-growth. All the root pieces are then put in the incinerator."

Inevitably, this effectiveness costs money. With this kind of process, every square metre of knotweed produces at least three tonnes of landfill material at a cost of £100 per tonne. Sifting out the rhizomes costs about £10,000 for an area of 200 sq m. The high prices means those who develop cheaper methods could snatch valuable contracts.

Musketeers Environmental Ltd, in Ramsbottom, offers what it says is a more cost-effective, eco-friendly way to deal with infestations. The firm has worked on big projects for the Environment Agency, Highways Agency and Network Rail, among others and believes its involvement in a high profile new bypass in Cornwall will cut the budget by half a million pounds.

Owner Maxime Jay says: "We use a method that ensures we get every bit of the weed. We re-use what we excavate which reduces the volume of waste. "Where other methods would leave tens of thousands of tonnes, we may take less than 20 tonnes to landfill. This brings both cost and environment benefits."

Invasive plants are now believed to pose one of the leading threats to biodiversity.

Other developments include early stage research, being managed by Groundwork East Lancashire, which aims to suck up knotweed and put it through composting machines heated to 60 degrees, rendering the plant inert.

While the statutory demands concerning knotweed cause problems for developers, a lack of funding means many other species are left largely to conservationists. Little public money is available to help tackle the plants – and any campaigns tend to be short-term and their effects temporary.

In Lancashire's Darwen Valley, environmental staff manage hogweed spread as best they can, by cutting back plants at several sites a year before they come into seed. To do this they must wear full protective clothing.

Himalayan balsam is easier to deal with and many projects involve children and community groups. Gemma Tomlinson, of Action Douglas & Yarrow, holds annual 'balsam bashes' where youngsters from a local primary school help pull the weeds out by hand. She says: "They love it. They are helping us out and learning about the environment at the same time.

"The aim is not to get rid of balsam completely – we know that's unlikely. But we have to manage its spread or the land will be overwhelmed."

Saddleworth Parish Council, also in Lancashire, recently set aside £2,000 from this year's budget and the same from the next to help clear the pest from the banks of the River Tame.

Floating pennywort, too, is difficult to deal with. Official guidance warns vegetation should be cut away and immediately removed from the water. Any fragments left behind will grow into new patches and compound the crisis – something the Winsford anglers suspect may have occurred along the River Weaver.

While haphazard and piecemeal eradication work is taking place across the country, many working in this field agree a lack of clear strategy could be holding action back. Responsibility for invasive species is currently spread across several government departments and agencies and policy is inevitably uncoordinated. It's an issue that needs attention, admits the Environment Agency's Georgina Fellows.

"This is something which has been raised at quite a few conferences that I have been to over recent years," she says.

"All the agencies are giving advice on these weeds, but there is no overall strategy on control. That is definitely a weakness and needs to be looked at."

The idea is nothing new. A 2003 working group report commissioned by the Department for Environment, Food and Rural Affairs (DEFRA) raised similar points and called for something to be done to close the loophole. "It is necessary to focus the political responsibility for this issue by designating or creating a single lead coordinating organisation," it says.

A DEFRA spokeswoman says officials are now working to put an invasive species strategy in place but stressed the process was lengthy and would first have to include a consultation.

In a separate initiative, a review is likely to be carried out to decide whether more problem plants should be controlled under law.

NASTY STUFF

- Giant hogweed looks benign – like a giant version of the familiar cow parsley. But it is truly a giant problem, growing up to 5m tall in a single summer with leaves 1.5m wide, and producing 25cm wide exploding seed pods containing 1,500 seeds.
- Its sap contains a substance that makes the skin sensitive to sunlight, causing burns, swelling and painful blistering. Large, watery blisters usually appear 15 to 20 hours after contact with the sap and exposure to sunlight.
- Damaged skin heals very slowly and can develop a type of dermatitis that flares up in sunlight for which there is no straightforward treatment.
- If you come into contact with the sap, cover the affected area straightaway to reduce exposure to sunlight and wash it IMMEDIATELY and thoroughly with soap and water.

"This is a problem we do take very seriously," she says. "We are committed to reviewing how we deal with it to see whether there is any need to update the law or our approach.

"These plants are a real problem for the British countryside and we are keen to do what we can to help control their spread and limit the damage they are doing to our environment."

The wheels of government are notoriously slow but finally, over a century after they arrived, the battle against our alien invaders is gathering pace.

MORE INFORMATION:

www.environment-agency.gov.uk/subjects/conservation/840870/840894/840941/?version=1&lang=_e

www.netregs.gov.uk/netregs/processes/367839/?lang=_e

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