



## Here today, here tomorrow?

Horizon scanning for invasive non-native plants



## Invasive non-native plants:

# what's big the deal?

**Invasive non-native species are considered to pose one of the greatest threats to biodiversity and the economic-wellbeing of our planet. The problems caused by invasive non-native plants can affect our lives, for example by reducing crop yields, producing skin-burning sap or increasing risks of flooding.**

Dealing with the problems caused by invasive species costs our economy around £2 billion every single year. Much of this money is spent on containing spread and limiting further damage rather than eliminating the problem altogether, eradication now being considered unattainable for a number of invasive species that are already widespread.

Invasive plants damage natural habitats too. They can reduce the light and heat reaching lower-growing plants, alter rates of nutrient cycling, or (in freshwater systems) cause large fluctuations in oxygen availability, all of which can be harmful to other plants and animals. Invasive non-native rhododendron *Rhododendron ponticum*, for example, poisons the soil around it so that other plants cannot grow there. Over time it often becomes the only plant growing in an area. Like a number of invasive non-native plants, rhododendron provides little food for our native animals so when it takes over a habitat the space for our wildlife to live in and eat from is diminished.

Invasive plants compete with other plants for light, space and nutrients, often suppressing native species. The environmental damage caused by invasive non-native plants can be irreversible. At Lound Lakes on the Norfolk/Suffolk border a threatened native fern, pillwort *Pilularia globulifera*, has been lost whilst the invasive New Zealand pigmyweed *Crassula helmsii* now flourishes. This same invasive plant is thought to have led to the loss of the great crested newt *Triturus cristatus* at a pond in Dorset. Britain's population of the great crested newt is internationally important and it is a protected species. The threat posed by New Zealand pigmyweed is considered so great that some ponds are being filled in by conservationists upon its arrival as a preventative measure intended to minimise damage to other nearby ponds and streams.



Front cover image: Invasive parrot's-feather spreads into the New Forest Important Plant Area affecting the rare native fern pillwort. © Trevor Renals



▲ Our internationally important Atlantic Woodlands are being damaged by invasive non-native plants. © Su Cooper/Plantlife

### Sites In Peril - pages 4-7

In the first part of this report we profile a selection of 20 Sites In Peril – areas that are threatened, or already being damaged, by invasive non-native plants. The selection includes a number of outstanding hotspots for botanical diversity as well as the homes of some of our endemic plants and animals (species that live nowhere else on earth). Sites of Special Scientific Interest, National Nature Reserves, National Parks, Special Areas of Conservation, and Ramsar sites are all affected.

There are hundreds of sites across Britain where problem plants are present. Curly waterweed *Lagarosiphon major* (often sold as *Elodea crispa*), for example, is found in 392 10km squares in the UK (it could be present at one or several sites within each 10km square), and New Zealand pigmyweed is recorded from 582 10km squares.

The impact of invasive plants varies from site to site. At times it is the social and financial impacts that are most felt, for example when anglers can no longer fish in a river swamped by invasive plants or when the arrival of such plants mean land managers are hit with additional management costs. At other times – including at some of the Sites In Peril

described here - the very existence of plant and animal species may be at stake.

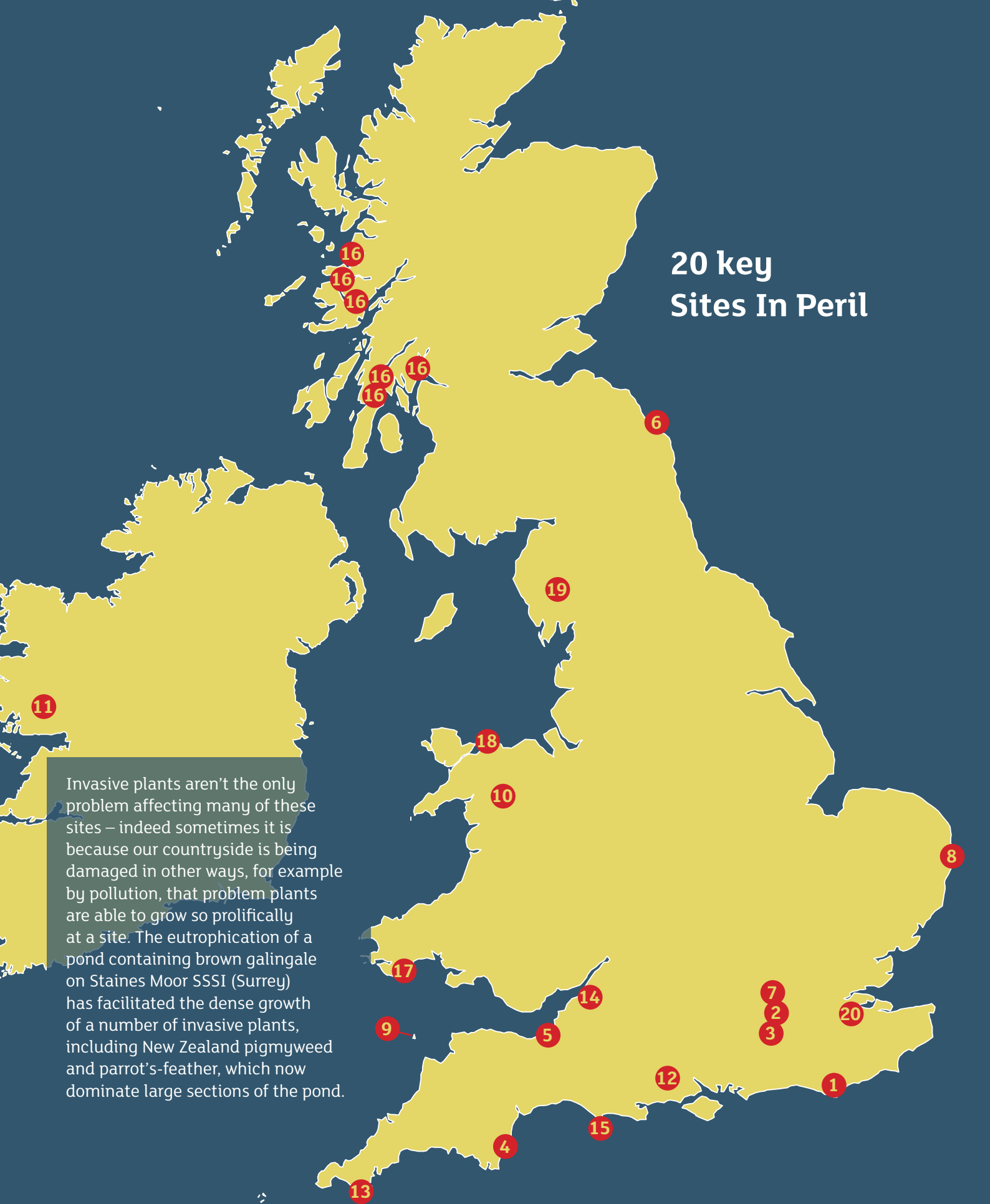
Regardless, the most cost effective and least environmentally damaging approach to solving the problems caused by non-native invasive plants is by preventing them from escaping into the wild in the first place. But over 70,000 different types of non-native plants are grown in Britain and only a small number of these are likely to cause damage to wildlife and the countryside. Imposing restrictions on all these plants would be unfair and disproportionate.

### Horizon scanning for new invasive plants - pages 8-18

In the second part of this report we describe research undertaken to try to identify which non-native plants may become invasive in the future. This section provides a summary of the more detailed report *Horizon scanning for invasive non-native plants in Great Britain*, which is available online from Natural England's or Plantlife's website, or upon request.

Plantlife considers a number of non-native plants to be on the brink of becoming invasive in Britain and a selection of these are highlighted in this section as 'Ones to watch' (pages 10-11).

# 20 key Sites In Peril



Invasive plants aren't the only problem affecting many of these sites – indeed sometimes it is because our countryside is being damaged in other ways, for example by pollution, that problem plants are able to grow so prolifically at a site. The eutrophication of a pond containing brown galingale on Staines Moor SSSI (Surrey) has facilitated the dense growth of a number of invasive plants, including New Zealand pigmyweed and parrot's-feather, which now dominate large sections of the pond.

**Threat status of plants in Britain using international IUCN criteria**  
**Critically Endangered** - considered to be facing an extremely high risk of extinction in the wild  
**Endangered** - considered to be facing a very high risk of extinction in the wild  
**Vulnerable** – considered to be facing a high risk of extinction in the wild  
**Near Threatened** - close to qualifying for or is likely to qualify for a threatened category (Vulnerable/ Endangered/ Critically Endangered) in the near future

## 1 Pevensey Levels

Invasive floating pennywort *Hydrocotyle ranunculoides* can grow up to 20cm per day. Together with New Zealand pigmyweed *Crassula helmsii* it now smothers 45km of the intricate network of ditches and waterways in this area of lowland grazing meadows that is home to two thirds of our native aquatic plant species, including Endangered greater water-parsnip *Sium latifolium* and Critically Endangered sharp-leaved pondweed *Potamogeton acutifolius*. In areas of heavy infestation the invasive plants virtually eliminate all other plants. This is particularly worrying as greater water-parsnip is already one of the fastest declining plants in Britain and the fen raft spider

*Dolomedes plantarius* - one of several rare and Endangered invertebrates of the area - relies on native plants for its nursery webs. Livestock can also suffer as invasive plants can make water appear as solid ground.



A sheep struggles through invasive floating pennywort

## 2 Surrey Commons

The invasive aquatic plants New Zealand pigmyweed *Crassula helmsii*, parrot's-feather *Myriophyllum aquaticum*, and water fern *Azolla filliculoides* have infested a number of ponds containing Critically Endangered starfruit *Damasonium alisma*, Vulnerable brown galingale *Cyperus fuscus*, and Near Threatened pillwort *Pilularia globulifera* - some of Britain's rarest plants. Many sites have now been dredged and chemically sprayed in an attempt to rid them of the invasive problem plants.



Invasive parrot's-feather

## 3 West Clandon

After 60 years of dramatic population decline, the Endangered broad-leaved cudweed *Filago pyramidata* has become one of our rarest plants. It is now known from just eight sites in Britain, including West Clandon in Surrey. West Clandon is also plagued by invasive buddleia (butterfly-bush) *Buddleja davidii*. New management has been agreed to help keep the buddleia under control and give the cudweed a fighting chance.



Invasive buddleia

## 4 Torbay Limestones

The autumn squill – Portland spurge *Scilla autumnalis-Euphorbia portlandica* fescue grassland at Torbay Limestones is one of the rarest habitats on earth, covering just 22 hectares (53 acres). It supports around 35 nationally rare, scarce and threatened native plants. Highly fragmented and plagued by invasive scrub, this is one of the top botanical Sites In Peril in the country. Evergreen oak *Quercus ilex*, shrubby scorpion-vetch *Coronilla valentina* subsp. *glauca* and Jerusalem sage *Phlomis fruticosa* are being removed in a costly programme in an attempt to save this unique habitat (pictured).



## 5 Somerset Levels

A number of invasive plants have been found, presumed dumped in the wild, in this area over the past few years. Most recently two plants considered by many to be possible invaders of the future (they are already invasive in other, warmer countries), water hyacinth *Eichhornia crassipes* and water lettuce *Pistia stratiotes*, were found growing along a 500m stretch of the King's Sedgemoor



Potentially invasive water lettuce

Drain. The first record of water primrose *Ludwigia* was from here too. The area appears to be a hotspot for illegal dumping of unwanted invasive plant matter in the wild, and invasive plants are now a significant threat to this internationally important landscape.

## 6 Lindisfarne

The beautiful and internationally important sand dunes and mudflats of Lindisfarne are the only place on earth where the Endangered orchid Lindisfarne helleborine *Epipactis sancta* lives. For some years efforts have been underway to protect Lindisfarne from invasive pirri-pirri-bur *Acaena novae-zelandiae*, thought to have arrived here attached to wool imports. Removal techniques tried to date include digging, pulling, smothering, applying herbicides, rotoburying, grazing, burning and even dragging a carpet (for the burs to stick to) behind a quad bike. As a much visited gem of the north east, tourists are unwittingly assisting the plant to spread as the burs stick to shoes and clothing. So far, the invasive potential of this plant has not been recognised in law.



Lindisfarne helleborine

## 7 South Buckinghamshire Commons

Critically Endangered starfruit *Damasonium alisma* was restricted to just three native sites in Britain by 1990, following decades of decline. The remaining populations, now confined to south Buckinghamshire, are threatened by invasive New Zealand pigmyweed *Crassula helmsii*. Adverse weather conditions over the past few years have meant the limited seasonal window of opportunity to try and tackle the invasive plant has been missed. There is now probably only one site where starfruit is regularly found.



Starfruit

## 8 The Broads

Large stands of floating pennywort *Hydrocotyle ranunculoides* are being tackled in the Norfolk and Suffolk Broads National Park in the hope that it can be prevented from causing widespread damage across our largest protected wetland. Rapid response is the most effective action once invasive plants are found at a site, but some plants like New Zealand pigmyweed *Crassula helmsii* are extremely difficult to control even then. At Lound Lakes, once home to pillwort *Pilularia globulifera*, three lakes are now heavily infested with invasive pigmyweed. A recent botanical survey found no pillwort whatsoever.



Invasive New Zealand pigmyweed

## 9 Lundy Island

Invasive species are often particularly damaging when they arrive on islands where ecosystems have developed in isolation. The stakes can be high where endemic species have evolved, and Lundy Island in the Bristol Channel is no exception. The threat from rhododendron *Rhododendron ponticum* to the endemic Vulnerable Lundy cabbage *Coincya wrightii* and its associated endemic invertebrates is being managed by a rhododendron eradication programme.



Invasive rhododendron

## 10 Bala Lake/Llyn Tegid

Wales is the UK's stronghold for the rare floating water-plantain *Luronium natans*, a UK BAP priority species which occurs in Bala Lake. Although not yet also present, New Zealand pigmyweed *Crassula helmsii* is found in a private pond upstream of the lake. The owner of the pond is reluctant to control the spread of the pigmyweed and it therefore presents a real and uncontrollable risk to the health of this important habitat and its rare flora.



Floating water-plantain

## 11 Lough Corrib

Invasive curly waterweed *Lagarosiphon major* has taken over large sections of Lough Corrib, Ireland's second largest lake. Lough Corrib is of significant conservation importance. However, where once there were meadows of stoneworts (plants that are indicators of a healthy freshwater system), now there is just curly waterweed. Prior to the invasion, Lough Corrib supported one of the most extensive stonewort beds in Ireland. Amongst the techniques trialled to remove the invasive plant is the use of black geotextiles which block out light and suppress plant growth. Curly waterweed is widely sold (often labelled 'pond oxygenator' or by the incorrect Latin name *Elodea crista*) and is almost ubiquitous in garden ponds. As such, it is almost inevitable that more and more freshwater habitats will be affected by this invasive plant.



Invasive curly waterweed

## 12 Breamore Marsh

Home to the rare brown galingale *Cyperus fuscus*, Breamore Marsh (Hampshire) became one of the first and most botanically important sites in the country to be plagued by non-native water primrose *Ludwigia* when it was discovered in summer 2009. In France water primroses are causing huge problems. An eradication attempt against invasive *Ludwigia* is being made in Britain as so few sites are affected at the moment. Early intervention offers the most realistic chance of success once an invasive plant has made it into the wild. In spite of two chemical treatments the invasive plants are still flourishing at Breamore. Further treatment at the site is planned.



Invasive water primrose

## 13 The Lizard

Lizard Point is home to the endemic wild asparagus *Asparagus officinalis* subsp. *prostratus* (Endangered), long-headed clover *Trifolium incarnatum* subsp. *molinerii* (Vulnerable) and prostrate broom *Cytisus scoparius* subsp. *maritimus* (Near Threatened). All are now threatened by the invasive hottentot-fig *Carpobrotus edulis* and three-cornered garlic *Allium triquetrum*, although areas of the cliffs are being cleared of the invasive plants. The area is also home to the chough *Pyrhocorax pyrrhocorax* – a bird trying to make a comeback in England. Choughs need areas of bare ground, so ground-smothering Hottentot-fig could pose a threat to their recolonisation progress if it is not managed.



Invasive Hottentot-fig

## 14 Avon Gorge

With its unique assemblage of threatened calcareous plants, including rarities such as honewort *Trinia glauca*, Vulnerable Bristol rock-cress *Arabis scabra*, hutchinsia *Homungia petraea*, Vulnerable round-headed leek *Allium sphaerocephalon* and Near Threatened dwarf mouse-ear *Cerastium pumilum*, Avon Gorge has a lot to lose from the presence of non-native invasive evergreen oak *Quercus ilex*, cotoneasters *Cotoneaster microphyllus* agg. and laurustinus *Viburnum tinus*. Recent work has done much to free areas of these invaders, but the inaccessibility of many sites makes work difficult and costly.



Round-headed leek

## 15 Portland

Portland demonstrates how much lower plant interest is at stake due to invasive non-native plants. It is one of the richest coastal limestone sites for lichens in the whole of the British Isles with over 220 species recorded, of which four are found nowhere else in Britain and 11 are Red Listed. Its bryophyte flora is also extensive with 137 species including five Red List species. The nationally rare and Vulnerable liverwort blackwort *Southbya nigrella* is at the northern edge of its range in southern Britain. Portland supports



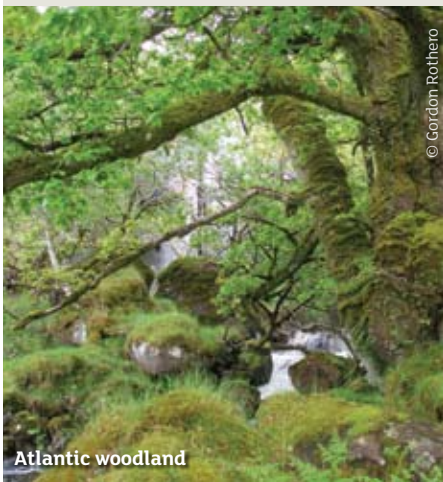
Blackwort

© Brian Edwards

90% of the UK population of blackwort but it is directly threatened by invasive non-native cotoneaster which is now established at Portland and appears to be spreading. Invasive non-native buddleia *Buddleja davidii* has also become established here.

## 16 Atlantic Woodlands

Many lower plants and fungi – arguably Britain’s most important contribution to global biodiversity – are particularly at risk from invasive non-native plants. Rhododendron *Rhododendron ponticum* can cause severe impoverishment of bryophytes and lichens. Declines in bryophyte and lichen diversity in Scotland’s Atlantic Woodlands where rhododendron has formed dense cover have been observed. Some ravines infested with rhododendron have completely lost their riparian bryophyte communities. Without



Atlantic woodland

© Gordon Rothero

better management of rhododendron in our Atlantic woodlands some of the best moss and liverwort communities in Europe may be lost. Twenty four top botanical sites in the Atlantic Woodland Important Plant Area that are being damaged by rhododendron have been identified.

## 17 Lydstep Head

Populations of the Vulnerable liverwort green blackwort *Southbya tophacea* at Lydstep Head in the Pembrokeshire National Park have declined following encroachment by small-leaved cotoneasters *Cotoneaster microphyllus* agg. The liverwort is now restricted to a single very narrow path on the site and removal of cotoneaster is required to prevent shading of the remaining colonies. Only a handful of sites in the UK support the liverwort.



Invasive cotoneaster

© Crown Copyright 2009. © BNNSS

## 18 Great Orme

Several non-native cotoneasters - mainly *Cotoneaster horizontalis*, *C. integrifolius*, *C. conspicuus* and *C. sternianus* - along with strawberry-tree *Arbutus unedo*, Turkey oak *Quercus cerris* and evergreen oak *Quercus ilex* are invading areas of this internationally important limestone headland where nationally and locally threatened native plants occur. Native plants that are threatened include wild cotoneaster *Cotoneaster cambricus*, goldilocks aster *Aster linosyris*, spotted cat’s-ear *Hypochaeris maculata*, dwarf



Dark red helleborine

© Andrew Gagg/Plantlife

mouse-ear *Cerastium pumilum*, Nottingham catchfly *Silene nutans*, hairy-fruited cornsalad *Valerianella eriocarpa*, and dark-red helleborine *Epipactis atrorubens*. In several sites Nottingham catchfly has been completely eradicated by invading red valerian *Centranthus ruber*.

## 19 Lake District

Several invasive non-native plants are already affecting the Lake District National Park. New Zealand pigmyweed *Crassula helmsii* is found in a number of the waterbodies, including Coniston, Grasmere and Windermere. Grasmere’s fragile reedbeds are also being taken over by American skunk-cabbage *Lysichiton americanus*. High visitor numbers, especially by those using the lakes for water activities and recreation, means that accidental spread of aquatic invasive plants is highly likely. A new strategic approach to tackling invasive species is now being co-ordinated across the whole of Cumbria in an effort to maximise the impact of limited resources. A strategic approach to dealing with affected sites and invasive plant threats is desperately needed at a national level too.



Lake District National Park

© Sue Nottingham/Plantlife

## 20 Ranscombe Farm

The calcareous woodland at Ranscombe boasts an impressive diversity of woodland ground flora, including the Endangered lady orchid *Orchis purpurea*, Endangered man orchid *Orchis anthropophora* and Vulnerable fly orchid *Ophrys insectifera*. Yet efforts to open up the woodland canopy to restore calcareous wood pasture – a rare habitat on chalk – are being thwarted by sycamore *Acer pseudoplatanus* which seeds into any opening that is created. Although sycamore was introduced here in the 16th century, is now spread across Britain, and is often accepted as ‘part of the furniture’, its presence is still problematical in some of the country’s top botanical hotspots.



Man orchid

© Andrew Gagg/Plantlife

## Horizon scanning:

# preventing invasion by new problem plants

**The most cost effective and least environmentally damaging approach to solving the problems caused by non-native invasive plants is by preventing them from escaping into the wild in the first place. This may require potentially non-native invasive plants to be banned from sale, prohibited from being planted in the wild, or eradicated from known sites in the wild.**

Although the damage caused by invasive non-native plants is real and burgeoning, problem plants represent a small sub-set of the 70,000 or so non-native plants available to buy in Britain. The majority of these non-native plants are unlikely to cause environmental damage now or in future, and we don't want to unnecessarily curb trade or the enjoyment of plants by gardeners and pond-keepers. But the impact that the few highly invasive non-native plants have on sites throughout Britain is not cancelled out by the minimal impact of the majority. So how can we hope to differentiate between plants we should worry about and those which are unlikely to ever be of concern?

The current mechanism used to try to identify potential invasive plants of the future in Britain involves a time-consuming detailed risk assessment process. This makes it inappropriate to apply to large numbers of plants.

Plantlife devised a 'Rapid Risk Assessment' screening process for quickly assigning a broad level of invasive threat to a non-native plant. We applied the process to almost 600 plants that are grown or sold here or are already present but not yet widespread in the wild. The system is based on the Australian Weed Risk Assessment\*, a process that has been well-received internationally as a tool for identifying invasive threats.

By recommending a shortlist of plants for which the more detailed risk assessment is considered imperative and/or prudent and a list of plants for which such assessment is deemed currently unnecessary, the Rapid Risk Assessment screening process can help policy-makers to prioritise limited resources. Given the rapid nature of the screening process, plants identified as potentially invasive do not warrant trade or planting restrictions based on this assessment alone.

\* Pheloung, P.C. (1995) *Determining the weed potential of new plant introductions to Australia*. Australian Weeds Committee Commissioned Report & Pheloung, P.C., Williams, P.A., & Halloy, S.R. (1999) A weed risk assessment model for use as a biosecurity tool evaluating plant introductions. *Journal of Environmental Management*. 57(4): 239-251.





## Rapid Risk Assessment screening questions

Question	Maximum score
Q1. What is its rate of spread in the UK?	4
Q2. To what climate is the plant suited?	3
Q3. Is it an environmental weed in natural and valued habitats/designated sites?	4
Q4. Has the plant become naturalised where grown (globally)?	2
Q5. Does the plant have a history of repeated cultivation (and associated introductions) in the UK?	2
Q6. Is the plant naturalised beyond its native range?	2
Q7. Is it a congeneric weed?	2
Q8. Is it unpalatable to grazing animals (including for reasons of toxicity/spines/thorns)?	1
Q9. Can it tolerate a wide range of soil conditions (within the aquatic or terrestrial system)?	1
Q10. Does it have a climbing or smothering growth habit, and/or form dense thickets?	4
Q11. Does/can it produce viable seed in the UK?	1
Q12. Does/can it reproduce by vegetative fragmentation?	2
Q13. What is its minimum generative time (years)?	1
Q14. Are propagules (likely to be) dispersed unintentionally (plants growing in heavily trafficked areas)?	1
Q15. Are propagules (likely to be) dispersed intentionally by people?	1
Q16. Are propagules (likely to be) dispersed as a produce contaminant?	1
Q17. Are propagules adapted to wind dispersal?	1
Q18. Are propagules water dispersed?	1
Q19. Are propagules bird/other animal dispersed?	1
Q20. Does the plant have prolific seed production?	1
Q21. Is there evidence that a persistent propagule bank is formed (at least 1 year)?	1
Q22. Does it tolerate or benefit from mutilation/cultivation/herbicides?	1

### Of the 599 non-native freshwater and terrestrial plants that have already been assessed by Plantlife and the Freshwater Biological Association (under a contract from Plantlife):



92 are given a 5-star 'Critical' ranking: Plantlife recommends as a matter of priority that they are subject to the more detailed risk assessment, as commissioned by the GB Non-Native Species Secretariat;



55 are ranked 'Urgent' (4 star): Plantlife highly recommends they are subject to the more detailed risk assessment;



72 are ranked 'Moderate Risk' (3 star): Plantlife recommends they are subject to the more detailed risk assessment; and



380 are ranked 'Low Risk' (1 star): no further assessment is considered necessary at present.

**Ranks assigned to each plant are listed on pages 13-18.**

Information about the selection of plants included in this study, as well as a more comprehensive analysis of its findings, can be found in our detailed report *Horizon scanning for invasive non-native plants in Great Britain*, produced for and published by Natural England. Copies of this report can be downloaded from [www.plantlife.org.uk](http://www.plantlife.org.uk) and [www.naturalengland.org.uk](http://www.naturalengland.org.uk) or are available upon request.

The Rapid Risk Assessments make no consideration as to the volumes of specific plants in the horticultural and aquatics trades. As the likelihood of introduction and establishment in the wild will probably be greater for plants that are most widely sold compared to those with low volumes of trade, such information should be taken into account when more comprehensive risk assessments are conducted.

# Ones to watch

Plantlife believes these plants are on the brink of becoming invasive in Britain, but they have been overlooked in recent legislative changes that aimed to provide better protection for the environment from invasive species.



© RPS Group PLC

## **False-acacia** *Robinia pseudoacacia*

False-acacia is extensively planted in Britain and spreads mainly by suckering. Although it is currently uncommon in the wild it is showing alarming signs of spreading in disturbed, ruderal habitats (for example on railway lines). Its rapid spread, suckering nature, spiny, impenetrable habit when established, and its ability to regrow when cut down mean that it is a major cause for concern. In France and Italy the tree is freely establishing in woodlands, much as sycamore has done here. We have the ability to control it in the wild in Britain at the moment, but it is likely to become a major established pest in the coming decades.



© Crown Copyright 2009, GBNNSS.

## **Evergreen oak (holm oak)** *Quercus ilex*

An evergreen tree used in parks, churchyards and large gardens, evergreen / holm oak is now regenerating freely in parts of south and east England. It has become established in a range of key botanical sites particularly on dry limestone and chalk sites in coastal Britain. It has also achieved more localised establishment within heathland areas.



© Crown Copyright 2009, GBNNSS.

## **Himalayan knotweed** *Persicaria wallichii*

This plant has been grown in cultivation but is less popular today than in the past. It is still present in some gardens and is still available commercially from some nurseries. As with similar plants (like Japanese knotweed *Fallopia japonica*), this large plant, reaching up to 2m tall, becomes established on stream sides, hedge banks, woodland edges, roadsides, railway banks and waste ground. There it grows into extremely dense stands that out-compete all native vegetation.



© Kristian Peters

## **Large-flowered waterweed** *Egeria densa*

This submerged aquatic plant is very popular in the freshwater aquarium trade. Plants are often discarded into the wild once they out-grow their tanks. It seems introductions as a result of dumping in the wild are continuing, and there is great fear that if our climate warms even slightly, the plant will 'take off', outcompete native plants and clog up waterways and drainage systems. Large-flowered waterweed flowers only in warm water conditions – it was seen in flower for the first time in Surrey in 2006, having been recorded in the wild since 1950. Conservationists in Cornwall are now dealing with infestations of the plant in the wild.



'Critical' ranking: Plantlife recommends they are subject to the more detailed risk assessment as a matter of priority



'Urgent': Plantlife highly recommends they are subject to the more detailed risk assessment



© RPS Group PLC

**Pickerelweed**  
***Pontederia cordata***

This plant is extremely popular in water gardens where it is grown as a submerged or marginal plant in pools and ponds or as a bog plant. It is very widely available to buy. These large, vigorous plants grow up to 1m tall and often out-grow their space in garden pools and ponds; they are then sometimes discarded into the wild. It is likely that some populations also arise by deliberate planting in the wild – for example by anglers wanting to 'improve' fishing ponds (no doubt without realising the problems the plants may cause).



© Crown Copyright 2009, GBNNSS.

**Pirri-pirri-bur**  
***Acaena novae-zelandiae***

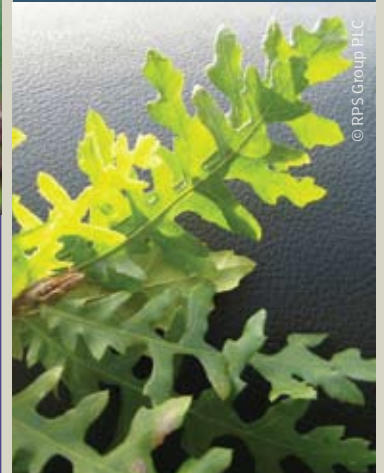
Originating from Australia and New Zealand, this plant is spreading in Britain and has become established at many important wildlife sites. Introduction is mainly through the dumping of garden material in the wild. From there its hooked burs mean it is easily spread by sheep and other animals. It becomes especially invasive when it establishes on cool, damp cliffs and upland habitats – often the very types of site where threatened native plants occur.



© RPS Group PLC

**Tree of heaven**  
***Ailanthus altissima***

This deciduous tree, originally from China, is very widely planted – in gardens, streets, parks and public spaces. As well as getting into the wild by seed dispersal from growing trees, it is also spread by the dumping of excess material. Like rhododendron, this plant prevents other vegetation from growing in the surrounding area by releasing toxic compounds. Attempts to control it by cutting result in more vigorous growth. It is not yet known to be causing problems at sites of botanical interest here, but in some countries where it has already caused many problems, it is called the 'tree of hell'.



© RPS Group PLC

**Turkey oak**  
***Quercus cerris***

Turkey oak is a deciduous tree that has been planted in woodlands, estates, large gardens, in parks and along roads. It has now naturalised and is spreading into calcareous grassland and heathland. It has been recorded from a large number of important nature conservation sites. Although many of these reports are of small numbers of the tree at the moment, Turkey oak will undoubtedly continue to colonise open grassland and heathland areas, becoming a major nuisance in years to come.

## Recommendations:

1. All 5\*, 4\* and 3\* plants should be subject to a comprehensive risk assessment, as commissioned by the GB Non-Native Species Secretariat, without delay;
2. Any additional freshwater non-native plant and all marine plants found to be traded in Britain should be subject to the Rapid Risk Assessment, as should all produce contaminants ('hitchhikers');
3. All plants screened should be reviewed periodically to take account of emerging evidence and information, changes in climate, and new horticultural varieties that become available as these may be hardier than the plant varieties screened here;
4. Any development of this scheme should give greater consideration to the weighting of questions and the handling of uncertainty (see the full report for more details);
5. A simple checklist should be devised, potentially based on the Rapid Risk Assessment questions, to help horticultural traders make more informed decisions over the sourcing and growing of non-native plant commodities.

## Limitations of the screening process

**Predicting plant invasiveness cannot be done with complete accuracy:** there will always remain the risks of declaring a plant to be low risk which then goes on to become invasive (a 'false negative' result), or declaring a plant to be higher risk when it does not become invasive (a 'false positive' result).

This Rapid Risk Assessment process provides a horizon scanning service which can be used to help prioritise resources by recommending a shortlist of plants for which more detailed assessment is considered imperative and/or prudent. Due to its rapid nature, it cannot be used to 'blacklist' traded plants before further research is undertaken. To reduce the risk of false negative results, a precautionary principle was applied which errs on the side of caution. This will increase the likelihood of false positive results.



# Rapid Risk Assessment ranking

Latin name*	Common name	Star rating
<i>Abies grandis</i>	Giant fir	★
<i>Abies procera</i>	Noble fir	★
<i>Acaena novae-zelandiae</i>	Pirri-pirri-bur	★★★★★
<i>Acer cappadocicum</i>	Cappadocian maple	★
<i>Acer saccharinum</i>	Silver maple	★
<i>Acorus calamus</i>	Sweet flag	★★★★
<i>Acorus gramineus</i>	Slender sweet flag	★
<i>Acorus gramineus</i> 'Pusillus'	Miniature sweet flag	★★★
<i>Aesculus carnea</i>	Red horse chestnut	★
<i>Aesculus indica</i>	Indian horse chestnut	★
<i>Ailanthus altissima</i>	Tree-of-heaven	★★★★★
<i>Alchemilla mollis</i>	Garden lady's-mantle	★★★
<i>Alisma parviflora</i>	American water-plantain	★★★
<i>Allium subhirsutum</i>	Hairy garlic	★
<i>Allium triquetrum</i>	Three-cornered garlic	★★★★★
<i>Alnus cordata</i>	Italian alder	★★★★
<i>Alocasia x amazonica</i>	Amazon lily	★
<i>Alocasia cucullata</i>	Chinese taro	★★★
<i>Alocasia odora</i>	Upright elephants ears	★
<i>Alocasia plumbea</i>	Elephant ear	★
<i>Alpinia zerumbet</i> 'Variegata'	Pink porcelain lily	★
<i>Alstroemeria aurea</i>	Peruvian lily	★★★★
<i>Alternanthera reineckii</i>		★
<i>Alternanthera sessilis</i>	Sessile joyweed	★
<i>Alternanthera</i> 'Sunset'		★
<i>Alternanthera tenella</i>		★
<i>Alyssum saxatile</i>	Golden Alison	★
<i>Amaranthus bouchonii</i>	Indehiscent amaranth	★
<i>Amaranthus hybridus</i>	Green amaranth	★
<i>Ambrosia artemisiifolia</i>	Ragweed	★
<i>Ambulia aromatica</i>		★
<i>Ammania gracilis</i>	Large ammania	★
<i>Ammania senegalensis</i>		★
<i>Ampelodesmos pliniana</i>		★★★★
<i>Amsonia hubrichtii</i>	Hubricht's bluestar	★
<i>Amsonia orientalis</i>	Eastern bluestar	★
<i>Amsonia tabernaemontana</i>	Eastern bluestar	★
<i>Anemone blanda</i>	Balkan anemone	★
<i>Anemopsis californica</i>	Yerba mansa	★
<i>Anthemis punctata</i>	Sicilian chamomile	★
<i>Anubias afzelii</i>		★
<i>Anubias angustifolia</i>		★

Latin name*	Common name	Star rating
<i>Anubias barteri</i>		★
<i>Anubias caladiifolia</i>		★
<i>Anubias callos</i>		★
<i>Anubias coffeefolia</i>		★
<i>Anubias congensis</i>		★
<i>Anubias gigantea</i>		★
<i>Anubias gracilis</i>		★
<i>Anubias hastifolia</i>		★
<i>Anubias heterophylla</i>		★
<i>Anubias lanceolata</i>		★
<i>Anubias nana</i>	Dwarf anubias	★
<i>Aponogeton capuronii</i>	Corkscrew lace plant	★
<i>Aponogeton crispus</i>		★
<i>Aponogeton distachyos</i>	Cape-pondweed	★★★
<i>Aponogeton elongatus</i>		★
<i>Aponogeton fenestralis</i>		★
<i>Aponogeton henkelianus</i>	Narrow-leaved lace plant	★
<i>Aponogeton krauseanus</i>		★
<i>Aponogeton longiplumulosus</i>		★
<i>Aponogeton madagascarensis</i>		★
<i>Aponogeton natans</i>		★
<i>Aponogeton rigidifolius</i>		★
<i>Aponogeton siamensis</i>		★
<i>Aponogeton ulvaceus</i>		★
<i>Aponogeton undulatus</i>		★
<i>Araucaria araucana</i>	Monkey-puzzle	★
<i>Aruncus dioicus</i>	Buck's-beard	★
<i>Arundo donax</i>	Giant reed	★★★★
<i>Aucuba japonica</i>	Spotted-laurel	★
<i>Azolla caroliniana</i>	Carolina mosquito fern	★★★★★
<i>Azolla filiculoides</i>	Water fern	★★★★★
<i>Bacopa caroliniana</i>	Giant babies tears	★★★
<i>Bacopa lanigera</i>		★
<i>Bacopa monnieri</i>	Coastal water hyacinth	★
<i>Bacopa myriophylloides</i>	Fine-leaved water-hyssop	★
<i>Bacopa rotundifolia</i>	Disk water-hyssop	★★★
<i>Barclaya longifolia</i>	Orchid lily	★
<i>Bassia scoparia</i>	Summer-cypress	★
<i>Baumea rubiginosa</i>	Soft twig	★
<i>Berberis darwinii</i> x <i>empetrifolia</i>	Darwin's barberry	★
<i>Berberis gagnepainii</i>	Gagnepain's barberry	★
<i>Berberis julianae</i>	Chinese barberry	★



'Critical' ranking: Plantlife recommends they are subject to the more detailed risk assessment as a matter of priority



'Urgent': Plantlife highly recommends they are subject to the more detailed risk assessment



'Moderate Risk': Plantlife recommends they are subject to the more detailed risk assessment



'Low Risk': no further assessment is considered necessary at present

\* In some cases the name listed is a trade name / name under which a plant is sold rather than a fully-recognised botanical name.

Latin name*	Common name	Star rating
<i>Berberis thunbergii</i>	Thunberg's barberry	★★★★
<i>Bergenia crassifolia</i>	Elephant-ears	★
<i>Beta vulgaris</i> subsp. <i>cicla</i>	Root beet	★
<i>Bidens connata</i>	London bur-marigold	★
<i>Blyxa aubertii</i>	Bamboo plant	★★★★
<i>Blyxa japonica</i>		★
<i>Bolbitis heteroclita</i>	El nino fern	★
<i>Bolbitis heudelotii</i>		★
<i>Brachyglottis monroi</i>	Monro's ragwort	★
<i>Brachyglottis</i> 'Sunshine'	Hedge ragwort	★
<i>Brunnera macrophylla</i>	Great forget-me-not	★
<i>Buddleja davidii</i>	Butterfly-bush	★★★★★
<i>Buddleja davidii</i> x <i>globosa</i>	Butterfly-bush (B. x weyeriana)	★
<i>Buddleja globosa</i>	Orange-ball-tree	★★★★
<i>Cabomba aquatica</i>	Fanwort	★
<i>Cabomba caroliniana</i>	Carolina water-shield	★★★★★
<i>Cabomba furcata</i>	Red Cabomba	★
<i>Calla palustris</i>	Bog arum	★★★★
<i>Caltha introloba</i>	Alpine marsh-marigold	★
<i>Caltha leptosepala</i>	White marsh-marigold	★★★★
<i>Caltha natans</i>	Floating marsh-marigold	★
<i>Caltha palustris</i> subsp. <i>polypetala</i>	Giant kingcup	★★★★
<i>Caltha palustris</i> var. <i>barthei</i>		★★★★
<i>Caltha palustris</i> var. <i>radicans</i>		★★★★
<i>Caltha sagittata</i>		★
<i>Campanula portenschlagiana</i>	Adria bellflower	★
<i>Campanula poscharskyana</i>	Trailing bellflower	★★★★
<i>Canna tuerckheimii</i>		★
<i>Cardamine corymbosa</i>	New Zealand bitter-cress	★★★★
<i>Cardamine lyrata</i>	Chinese ivy	★★★★
<i>Cardamine macrophylla</i>	Large-leaved cuckooflower	★★★★
<i>Cardamine raphanifolia</i>	Greater cuckooflower	★★★★★
<i>Carex muskingumensis</i>	Musk sedge	★★★★
<i>Ceratochloa carinata</i>	California brome	★★★★
<i>Ceratopteris cornuta</i>		★
<i>Ceratopteris thalictroides</i>	Sumatra fern	★
<i>Chamaecyparis lawsoniana</i>	Lawson's cypress	★★★★★
<i>Chamaecyparis nootkatensis</i>	Nootka cypress	★
<i>Chionodoxa forbesii</i>	Glory-of-the-snow	★
<i>Chionodoxa sardensis</i>	Lesser glory-of-the-snow	★
<i>Chladophora aegagrophila</i>	Marimbo	★
<i>Chlorophytum bechettii</i>		★
<i>Chlorophytum</i> 'Pongol Sword'		★
<i>Conyza sumatrensis</i>	Guernsey fleabane	★
<i>Cordyline australis</i>	Cabbage-palm	★
<i>Cornus alba</i>	White dogwood	★★★★
<i>Cornus mas</i>	Cornelian-cherry	★
<i>Cortaderia richardii</i>	Early pampas-grass	★★★★★
<i>Cortaderia selloana</i>	Pampas-grass	★★★★
<i>Corydalis cheilanthifolia</i>	Fern-leaved corydalis	★
<i>Cotoneaster atropurpureus</i>	Purple-flowered cotoneaster	★
<i>Cotoneaster bullatus</i>	Hollyberry cotoneaster	★★★★★
<i>Cotoneaster conspicuus</i>	Tibetan cotoneaster	★★★★

Latin name*	Common name	Star rating
<i>Cotoneaster conspicuus</i> x <i>dammeri</i>	Tibetan cotoneaster C. x suecicus	★★★★★
<i>Cotoneaster dammeri</i>	Bearberry cotoneaster	★★★★★
<i>Cotoneaster dielsianus</i>	Diels' cotoneaster	★★★★★
<i>Cotoneaster divaricatus</i>	Spreading cotoneaster	★★★★
<i>Cotoneaster franchetii</i>	Franchet's cotoneaster	★★★★
<i>Cotoneaster frigidus</i> x <i>salicifolius</i>	Tree cotoneaster	★★★★★
<i>Cotoneaster hjelmqvistii</i>	Hjelmqvist's cotoneaster	★★★★★
<i>Cotoneaster horizontalis</i>	Wall cotoneaster	★★★★★
<i>Cotoneaster lacteus</i>	Late cotoneaster	★★★★★
<i>Cotoneaster microphyllus</i> agg.	Small-leaved cotoneasters	★★★★★
<i>Cotoneaster obtusus</i>	Dartford cotoneaster	★
<i>Cotoneaster prostratus</i>	Procumbent cotoneaster	★★★★★
<i>Cotoneaster rehderi</i>	Bullate cotoneaster	★★★★★
<i>Cotoneaster salicifolius</i>	Willow-leaved cotoneaster	★★★★★
<i>Cotoneaster simonsii</i>	Himalayan cotoneaster	★★★★★
<i>Cotoneaster sternianus</i>	Stern's cotoneaster	★★★★★
<i>Cotula coronopifolia</i>	Buttonweed	★★★★
<i>Crassula helmsii</i>	New Zealand pigmyweed	★★★★★
<i>Crinum calamistratum</i>		★
<i>Crinum erubescens</i>	Swamp lily	★
<i>Crinum natans</i>		★
<i>Crinum thaianum</i>		★
<i>Crococsmia paniculata</i>	Aunt-Eliza	★★★★★
<i>Crococsmia pottsii</i>	Pott's montbretia	★★★★★
<i>Crococsmia</i> x <i>crococsmiiflora</i>	Montbretia	★★★★★
<i>Crocus chrysanthus</i>	Golden crocus	★
<i>Crocus speciosus</i>	Bieberstein's crocus	★
<i>Crocus tommasinianus</i>	Early crocus	★
<i>Crocus vernus</i>	Spring crocus	★
<i>Cryptocoryne affinis</i>		★
<i>Cryptocoryne alba</i>		★
<i>Cryptocoryne aponogetifolia</i>		★
<i>Cryptocoryne balansae</i>		★
<i>Cryptocoryne beckettii</i>		★
<i>Cryptocoryne bullosa</i>		★
<i>Cryptocoryne ciliata</i>		★
<i>Cryptocoryne cordata</i>		★
<i>Cryptocoryne cordata</i> var. <i>cordata</i> 'Blassii'		★
<i>Cryptocoryne crispatula</i> var. <i>tonkinensis</i>		★
<i>Cryptocoryne crispulata</i> var. <i>balansae</i>		★
<i>Cryptocoryne griffithii</i>		★
<i>Cryptocoryne griffithii</i> x <i>C. cordata</i> var. <i>cordata</i>		★
<i>Cryptocoryne hudoroi</i>		★
<i>Cryptocoryne lingua</i>		★
<i>Cryptocoryne longicauda</i>		★
<i>Cryptocoryne minima</i>		★
<i>Cryptocoryne moehlmannii</i>		★
<i>Cryptocoryne nurii</i>		★
<i>Cryptocoryne parva</i>		★
<i>Cryptocoryne pontederiifolia</i>		★
<i>Cryptocoryne pygmaea</i>		★

Latin name*	Common name	Star rating
<i>Cryptocoryne retrospiralis</i>		★
<i>Cryptocoryne scurillis</i>		★
<i>Cryptocoryne striolata</i>		★
<i>Cryptocoryne thwaitesii</i>		★
<i>Cryptocoryne undulata</i>		★
<i>Cryptocoryne usteriana</i>		★
<i>Cryptocoryne walkerii</i>		★
<i>Cryptocoryne wendtii</i>		★
<i>Cryptocoryne x willisii</i>	Dainty water-chalice	★
<i>Cryptomeria japonica</i>	Japanese red-cedar	★
<i>Cupressus macrocarpa</i>	Monterey cypress	★
<i>Cyclamen coum</i>	Eastern sowbread	★
<i>Cyclamen hederifolium</i>	Sowbread	★
<i>Cymbalaria pallida</i>	Italian toadflax	★★★★
<i>Cyperus albostrigatus</i> 'Variegatus'		★★★★★
<i>Cyperus alternifolius</i>	Umbrella plant	★
<i>Cyperus eragrostis</i>	Pale galingale	★★★★★
<i>Cyperus haspan</i>		★★★
<i>Cyperus helferi</i>		★
<i>Cyperus involucratus</i>	Umbrella plant	★
<i>Cyperus papyrus</i>	Papyrus	★
<i>Cyperus prolifer</i>	Dwarf papyrus	★
<i>Cyperus rotundus</i>	Purple nut sedge	★★★★★
<i>Cytisus striatus</i>	Hairy-fruited broom	★★★
<i>Darmera peltata</i>	Indian-rhubarb	★
<i>Deutzia scabra</i>	Deutzia	★
<i>Didiplis diandra</i>	Water hedge	★
<i>Disphyma crassifolium</i>	Purple dewplant	★★★★★
<i>Dulichium arundinaceum</i>	Common three-way sedge	★
<i>Echinochloa crus-galli</i>	Cockspur	★
<i>Echinodorus amazonicus</i>	Amazon sword	★
<i>Echinodorus andreuxii</i>		★
<i>Echinodorus argentinensis</i>		★★★
<i>Echinodorus berteroi</i>	Upright burhead	★★★
<i>Echinodorus bleheri</i>	Amazon sword	★
<i>Echinodorus bolivianus</i>	Bolivian sword plant	★
<i>Echinodorus chrileni</i>		★
<i>Echinodorus compacta</i>		★
<i>Echinodorus cordifolius</i>	Creeping burhead	★★★
<i>Echinodorus grisebachii</i>		★
<i>Echinodorus harbich</i>		★
<i>Echinodorus harbii</i>		★
<i>Echinodorus horemanii</i>		★
<i>Echinodorus horizontalis</i>		★
<i>Echinodorus</i> 'Imperial'		★
<i>Echinodorus</i> 'Ipica'		★
<i>Echinodorus</i> 'Kleiner Bar'		★
<i>Echinodorus latifolius</i>		★
<i>Echinodorus magdalenis</i>		★
<i>Echinodorus</i> 'Marble Queen'		★
<i>Echinodorus martii</i> ( <i>E. major</i> )		★
<i>Echinodorus midi fleur</i>		★
<i>Echinodorus mitchii</i>		★
<i>Echinodorus</i> 'Oriental'		★

Latin name*	Common name	Star rating
<i>Echinodorus ozelot</i>		★
<i>Echinodorus paniculatus</i>		★
<i>Echinodorus parviflorus</i>		★★★★
<i>Echinodorus quadricostata</i>	Chain sword	★
<i>Echinodorus</i> 'Red Flame'		★
<i>Echinodorus</i> 'Red Rubin'		★
<i>Echinodorus</i> 'Red Vein'		★
<i>Echinodorus</i> 'Rose'	Indian red sword	★
<i>Echinodorus scaber</i>		★
<i>Echinodorus schlueteri</i>		★
<i>Echinodorus schlueteri</i> 'Leopard'		★
<i>Echinodorus tenellus</i>	Pygmy chain sword	★★★★
<i>Echinodorus tricolor</i>		★
<i>Echinodorus uruguayensis</i>		★★★★
<i>Echinodorus uruguayensis</i> x <i>E. portoalegrensis</i>		★
<i>Echinodorus x barthii</i>		★
<i>Echinops exaltatus</i>	Globe-thistle	★
<i>Echium pininana</i>	Giant viper's-bugloss	★★★★★
<i>Egeria densa</i>	Large-flowered waterweed	★★★★★
<i>Eichhornia azurea</i>		★
<i>Eichhornia crassipes</i>	Water hyacinth	★★★★
<i>Eichhornia diversifolia</i>		★
<i>Eleocharis dulcis</i> variegated	Chinese water-chestnut	★★★
<i>Eleocharis vivipara</i>	Umbrella hairgrass	★
<i>Elodea callitrichoides</i>	South American waterweed	★★★★★
<i>Elodea canadensis</i>	Canadian waterweed	★★★★★
<i>Elodea nuttallii</i>	Nuttall's waterweed	★★★★★
<i>Equisetum camtschaticense</i>	Himalayan horsetail	★
<i>Equisetum hyemale robustum</i>		★
<i>Equisetum hyemale</i> var. <i>affine</i>		★★★
<i>Equisetum japonicum</i>		★★★
<i>Equisetum ramosissimum</i> var. <i>japonicum</i>	Branched horsetail	★★★
<i>Equisetum scirpoides</i>	Dwarf horsetail	★★★★★
<i>Erigeron glaucus</i>	Seaside daisy	★★★
<i>Erigeron karvinskianus</i>	Mexican fleabane	★★★★★
<i>Eriocaulon cinereum</i>	Ashy pipewort	★★★
<i>Eriocaulon</i> 'Guangzhou'		★
<i>Eriocaulon setaceum</i>	Pipewort	★
<i>Euphorbia amygdaloides</i> subsp. <i>robbiae</i>		★★★★★
<i>Euphorbia characias</i>	Mediterranean spurge	★
<i>Eusteralis stellata</i>		★★★
<i>Fallopia baldschuanica</i>	Russian-vine	★★★★★
<i>Fallopia japonica</i> x <i>sachalinensis</i>	Hybrid Japanese knotweed	★★★★★
<i>Fatsia japonica</i>	Fatsia	★
<i>Forsythia suspensa</i> x <i>viridissima</i>	Forsythia	★
<i>Galanthus caucasicus</i>	Caucasian snowdrop	★
<i>Galanthus elwesii</i>	Greater snowdrop	★
<i>Galanthus ikariae</i>	Green snowdrop	★
<i>Galanthus plicatus</i>	Pleated snowdrop	★
<i>Gaultheria mucronata</i>	Prickly heath	★★★★★
<i>Genista hispanica</i>	Spanish gorse	★
<i>Geranium endressii</i> x <i>versicolor</i>	French crane's-bill	★★★★★

Latin name*	Common name	Star rating
<i>Geranium ibericum x platypetalum</i>	Caucasian crane's-bill	★
<i>Geranium macrorrhizum</i>	Rock crane's-bill	★
<i>Glossostigma diandrum</i>		★★★★★
<i>Glossostigma elatinooides</i>		★★★
<i>Gratiola officinalis</i>	Hedge hyssop	★★★
<i>Griselinia littoralis</i>	New Zealand broadleaf	★
<i>Gunnera tinctoria</i>	Giant-rhubarb	★★★★
<i>Gymnocoronis spilanthoides</i>	Senegal tea plant	★★★
<i>Hebe brachysiphon</i>	Hooker's hebe	★
<i>Hebe dieffenbachii</i>	Dieffenbach's hebe	★
<i>Hedera colchica</i>	Persian ivy	★★★★★
<i>Helianthus annuus</i>	Sunflower	★
<i>Helleborus argutifolius</i>	Corsican hellebore	★
<i>Helleborus orientalis</i>	Lenten-rose	★
<i>Hemianthus callitrichoides</i>	Pearl grass	★
<i>Hemianthus micranthemoides</i>	Nuttalls' mudflower	★
<i>Hemigraphis colorata</i>	Purple waffle	★
<i>Hemigraphis exotica</i>		★
<i>Heteranthera bettzinckiana</i>		★
<i>Heteranthera dubia</i>	Buffalo grass	★
<i>Heteranthera zosterifolia</i>	Stargrass	★
<i>Heuchera sanguinea</i>	Coralbells	★
<i>Holodiscus discolor</i>	Oceanspray	★
<i>Hottonia inflata</i>	Featherfoil	★
<i>Houttuynia cordata</i>	Lizard tail	★★★★★
<i>Hyacinthoides hispanica x non-scripta</i>	Spanish bluebell	★★★★★
<i>Hyacinthus orientalis</i>	Hyacinth	★
<i>Hydrangea macrophylla</i>	Hydrangea	★
<i>Hydrocleys nymphoides</i>	Water poppy	★
<i>Hydrocotyle leucocephala</i>	Brazilian pennywort	★
<i>Hydrocotyle novae-zelandiae</i>	New Zealand pennywort	★
<i>Hydrocotyle ranunculoides</i>	Floating pennywort	★★★★★
<i>Hydrocotyle sibthorpioides</i>	Lawn marsh-pennywort	★★★★★
<i>Hydrocotyle variegata</i>		★
<i>Hydrocotyle verticillata</i>	Whorled marsh-pennywort	★★★
<i>Hydrotriche hottoniiflora</i>		★
<i>Hygrophila angustifolia</i>	Willow hygro	★
<i>Hygrophila corymbosa</i>	Starhorn	★
<i>Hygrophila costata</i>		★
<i>Hygrophila difformis</i>	Water wisteria	★
<i>Hygrophila lacustris</i>	Gulf swampweed	★★★
<i>Hygrophila polysperma</i>		★
<i>Hygrophila rosae australis</i>		★
<i>Hygrophila rosanervis</i>		★
<i>Hygrophila salicifolia</i>		★
<i>Hygrophila thailand stricta</i>		★
<i>Hygroyza aristata</i>		★★★
<i>Hypericum forrestii</i>	Forrest's tutsan	★
<i>Iberis sempervirens</i>	Perennial candytuft	★
<i>Ilex aquifolium x perado</i>	Highclere holly	★
<i>Iris ensata</i>	Japanese iris	★
<i>Iris laevigata</i>	Japanese water iris	★★★

Latin name*	Common name	Star rating
<i>Iris orientalis</i>	Turkish iris	★★★★
<i>Isoetes japonica</i>		★
<i>Isoetes velata</i>		★
<i>Juncus 'Curly Gold Strike'</i>		★
<i>Juncus decipiens 'Curly-wurly'</i>		★
<i>Juncus ensifolius</i>	Swordleaf rush	★★★★★
<i>Juncus 'Goldstrike'</i>		★
<i>Juncus repens</i>	Lesser creeping rush	★
<i>Juncus xiphioides</i>	Iris-leaved rush	★★★★
<i>Kerria japonica</i>	Kerria	★★★
<i>Kniphofia uvaria</i>	Red-hot-poker	★★★★
<i>Kniphofia x praecox</i>	Greater red-hot-poker	★★★★
<i>Lagarosiphon major</i>	Curly waterweed	★★★★★
<i>Lagarosiphon muscoides</i>		★★★★★
<i>Lagenandra ovata</i>	Malayan sword	★
<i>Lagenandra thwaitesii</i>		★
<i>Lamiastrum galeobdolon</i> subsp. <i>argentatum</i>	Variiegated yellow archangel	★★★★★
<i>Laurus nobilis</i>	Bay	★★★★★
<i>Lavandula angustifolia x latifolia</i>	Garden lavender	★
<i>Lemna minuta</i>	Least duckweed	★★★★
<i>Ligustrum ovalifolium</i>	Garden privet	★★★★★
<i>Lilaeopsis brasiliensis</i>	Brazilian microsword	★
<i>Lilaeopsis mauritiana</i>		★
<i>Lilaeopsis novae-zelandiae</i>		★
<i>Limnobia laevigatum</i>	Amazon frogbit	★
<i>Limnobia spongia</i>	American spongeplant	★★★★★
<i>Limnophila aquatica</i>	Red temple	★
<i>Limnophila aromatica</i>	Giant ambulia	★
<i>Limnophila conferta</i>		★
<i>Limnophila gigantea</i>		★
<i>Limnophila heterophylla</i>		★
<i>Limnophila hippuroides</i>		★
<i>Limnophila sessiliflora</i>	Asian ambulia	★
<i>Lindernia grandiflora</i>	Blue moneywort	★★★
<i>Lindernia rotundiflora</i>		★
<i>Lobelia erinus</i>	Garden lobelia	★
<i>Lonicera caprifolium x etrusca</i>	Perfoliate honeysuckle	★
<i>Lonicera involucrata</i>	Californian honeysuckle	★
<i>Lonicera japonica</i>	Japanese honeysuckle	★★★★★
<i>Lonicera nitida</i>	Wilson's honeysuckle	★★★★★
<i>Lonicera pileata</i>	Box-leaved honeysuckle	★★★★
<i>Ludwigia arcuata</i>		★
<i>Ludwigia brevipes</i>	Long beach primrose	★
<i>Ludwigia glandulosa</i>		★
<i>Ludwigia grandiflora</i>	Water primrose	★★★★★
<i>Ludwigia helminthorrhiza</i>		★
<i>Ludwigia inclinata</i>		★
<i>Ludwigia inclinata verticillata</i> 'Pantnale'		★
<i>Ludwigia latifolia</i>		★
<i>Ludwigia ovalis</i>		★★★
<i>Ludwigia peploides</i>	Floating primrose willow	★★★★★
<i>Ludwigia perennis</i>		★



Latin name*	Common name	Star rating
<i>Ludwigia repens</i>	Creeping primrose willow	★★★★★
<i>Ludwigia x kentiana</i>	Hampshire-purslane	★★★
<i>Lupinus arboreus</i>	Tree lupin	★★★★
<i>Lupinus arboreus x polyphyllus</i>	Tree lupin (L. x regalis)	★★★★
<i>Lysichiton americanus</i>	American skunk-cabbage	★★★
<i>Lysichiton camtschaticensis</i>	Asian skunk-cabbage	★
<i>Lythrum virgatum</i> 'Dropmore Purple'	Purple loosestrife 'Dropmore Purple'	★★★
<i>Marsilea crenata</i>		★
<i>Marsilea quadrifolia</i>	European water clover	★
<i>Marsilea hirsuta</i>	Rough water clover	★★★
<i>Mayaca fluviatilis</i>	Green mayaca	★★★
<i>Mayaca sellowiana</i>		★
<i>Mayaca vandelli</i>		★
<i>Mentha cervina</i>	Hart's pennyroyal	★
<i>Micranthemum umbrosum</i>	Shade mudflower	★★★★★
<i>Microsorium latifolius</i>		★
<i>Microsorium pteropus</i>	Java fern	★
<i>Mimulus cupreus x guttatus</i>	Scarlet monkeyflower	★
<i>Monochoria hastata</i>		★
<i>Monosolenium tenerum</i>		★
<i>Morus nigra</i>	Black mulberry	★
<i>Myriophyllum aquaticum</i>	Parrot's-feather	★★★★★
<i>Myriophyllum elatinoides</i>	New Zealand water-milfoil	★★★★★
<i>Myriophyllum hippuroides</i>	Western milfoil	★★★★
<i>Myriophyllum matogrossense</i>		★
<i>Myriophyllum pinnatum</i>		★★★★
<i>Myriophyllum propinquum</i>		★★★★
<i>Myriophyllum propium</i>		★★★★
<i>Myriophyllum 'Red Stem'</i>		★★★★
<i>Myriophyllum tuberculatum</i>		★
<i>Nelumbo nucifera</i>	Indian lotus	★
<i>Neobeckia aquatica</i>	Lake cress	★
<i>Nesaea crassicaulis</i>		★
<i>Nicandra physalodes</i>	Apple-of-Peru	★
<i>Nicotiana glauca x forgetiana</i>	Sweet tobacco	★
<i>Nicotiana glauca</i>	Red tobacco	★
<i>Nigella damascena</i>	Love-in-a-mist	★
<i>Nomaphila siamensis</i>		★
<i>Nomaphila stricta</i>		★
<i>Nomaphila variegata</i>		★
<i>Nothofagus nervosa</i>	Dombey's beech	★
<i>Nothofagus obliqua</i>	Roble	★
<i>Nuphar advena</i>	Beaver lily	★
<i>Nuphar japonicum</i>		★★★
<i>Nymphaea mexicana</i>	Banana water lily	★
<i>Nymphaea odorata</i>	Fragrant water lily	★★★
<i>Nymphaea odorata</i> subsp. <i>tuberosa</i>		★★★
<i>Nymphaea odorata</i> var. <i>minor</i>	Lesser fragrant water lily	★
<i>Nymphaea pubescens</i>	Purple water Lily	★★★
<i>Nymphaea tetragona</i>	Pigmy water lily	★★★★
<i>Nymphaea zenkeri</i>	Red tiger lotus	★
<i>Nymphoides aquatica</i>	Banana plant	★★★

Latin name*	Common name	Star rating
<i>Oenanthe javanica</i> 'Fleming'		★★★★★
<i>Olearia macrodonta</i>	New Zealand holly	★
<i>Orontium aquaticum</i>	Golden club	★★★★★
<i>Ottelia ulvifolia</i>		★
<i>Oxalis exilis</i>	Least yellow-sorrel	★
<i>Oxalis latifolia</i>	Garden pink-sorrel	★★★★
<i>Paeonia officinalis</i>	Garden peony	★
<i>Papaver atlanticum</i>	Atlas poppy	★
<i>Parthenocissus inserta</i>	False Virginia-creeper	★★★
<i>Parthenocissus quinquefolia</i>	Virginia-creeper	★★★★
<i>Paulownia tomentosa</i>	Foxglove-tree	★
<i>Peltandra sagittifolia</i>	Spoonflower	★
<i>Peltandra virginica</i>	Green arrow arum	★★★★★
<i>Persicaria campanulata</i>	Lesser knotweed	★★★★★
<i>Persicaria wallichii</i>	Himalayan knotweed	★★★★★
<i>Petasites japonicus</i>	Giant butterbur	★★★★★
<i>Petunia axillaris x integrifolia</i>	Petunia	★
<i>Phacelia tanacetifolia</i>	Phacelia	★
<i>Phalaris paradoxa</i>	Awned canary-grass	★
<i>Philadelphus coronarius</i>	Mock-orange	★
<i>Philadelphus x virginalis</i>	Hairy mock-orange	★
<i>Photinia davidiana</i>	Stranvaesia	★
<i>Phyllanthus fluitans</i>	Red root floater	★
<i>Physalis peruviana</i>	Cape-gooseberry	★
<i>Picea sitchensis</i>	Sitka spruce	★★★★★
<i>Pinus contorta</i>	Lodgepole pine	★★★★
<i>Pinus nigra</i>	Austrian pine, Corsican pine	★★★★★
<i>Pinus strobus</i>	Weymouth pine	★
<i>Pistia stratiotes</i>	Water lettuce	★★★
<i>Pittosporum tenuifolium</i>	Kohuhu	★
<i>Platanus x hispanica</i>	Oriental plane	★
<i>Pogostemon helferi</i>		★
<i>Polypogon viridis</i>	Water bent	★
<i>Pontederia cordata</i>	Pickeralweed	★★★★
<i>Pontederia lanceolata</i>		★
<i>Populus trichocarpa</i>	Western balsam-poplar	★
<i>Proserpinaca palustris</i>	Mermaid weed	★★★
<i>Prunus lusitanica</i>	Portugal laurel	★★★★★
<i>Prunus serrulata</i>	Japanese cherry	★
<i>Pseudofumaria alba</i>	Pale corydalis	★
<i>Pseudosasa japonica</i>	Arrow bamboo	★★★★★
<i>Pterocarya fraxinifolia</i>	Caucasian wingnut	★
<i>Pyracantha coccinea</i>	Firethorn	★★★★★
<i>Pyracantha rogersiana</i>	Asian firethorn	★★★★★
<i>Quercus cerris</i>	Turkey oak	★★★★★
<i>Quercus cerris x suber</i>	Turkey oak (Q. x crenata)	★
<i>Quercus ilex</i>	Evergreen oak	★★★★★
<i>Quercus rubra</i>	Red oak	★★★★★
<i>Ranunculus limosella</i>	Mud buttercup	★
<i>Rheum x hybridum</i>	Rhubarb	★
<i>Rhododendron luteum</i>	Yellow azalea	★★★
<i>Rhododendron ponticum x R. maximum</i>	Rhododendron hybrid	★★★★★
<i>Rhus typhina</i>	Stag's-horn sumach	★★★

Latin name*	Common name	Star rating
<i>Rhynchospora colorata</i>	Star sedge	★
<i>Ribes odoratum</i>	Buffalo currant	★★★★★
<i>Robinia pseudoacacia</i>	False-acacia	★★★★★
<i>Rosa ferruginea</i>	Red-leaved rose	★★★★
<i>Rosa 'Hollandica'</i>	Dutch rose	★★★
<i>Rosa multiflora</i>	Many-flowered rose	★★★★★
<i>Rosa rugosa</i>	Japanese rose	★★★★★
<i>Rosmarinus officinalis</i>	Rosemary	★
<i>Rotala indica</i>		★
<i>Rotala macrandra</i>		★
<i>Rotala rotundifolia</i>		★★★★★
<i>Rotala wallichii</i>		★
<i>Rubus cockburnianus</i>	White-stemmed bramble	★★★★★
<i>Rubus tricolor</i>	Chinese bramble	★★★★★
<i>Rumex cristatus</i>	Greek dock	★
<i>Sagittaria 'Bloomin Babe'</i>		★
<i>Sagittaria filiformis</i>	Threadleaf arrowhead	★
<i>Sagittaria graminea</i>	Grassy arrowhead	★★★★
<i>Sagittaria latifolia</i>	Duck-potato	★★★★★
<i>Sagittaria lileopteris</i>		★
<i>Sagittaria platyphylla</i>		★★★
<i>Sagittaria sagittifolia</i> subsp. <i>leucopetala</i>		★★★★★
<i>Sagittaria subulata</i>	Narrow-leaved arrowhead	★★★★
<i>Sagittaria teres</i>	Slender arrowhead	★★★★
<i>Salix x calodendron</i>	Holme willow	★
<i>Salvinia auriculata</i>		★
<i>Salvinia cucullata</i>		★
<i>Salvinia molesta</i>	Giant salvinia	★
<i>Salvinia natans</i>		★★★★
<i>Salvinia oblongifolia</i>		★
<i>Samolus valerandi</i> subsp. <i>parviflorus</i>	Water pimpernel	★★★
<i>Sasa palmata</i>	Broad-leaved bamboo	★★★★★
<i>Sasaella ramosa</i>	Hairy bamboo	★★★★★
<i>Saururus cernuus</i>	Lizards tail	★★★★★
<i>Saururus chinensis</i>	Lizards tail	★★★
<i>Schoenus pauciflorus</i>		★★★
<i>Scilla bifolia</i>	Alpine squill	★
<i>Scilla siberica</i>	Siberian squill	★
<i>Sedum kamtschaticum</i>	Kamchatka stonecrop	★
<i>Sedum spectabile</i>	Butterfly stonecrop	★
<i>Selaginella wildenowii</i>		★
<i>Senecio inaequidens</i>	Narrow-leaved ragwort	★
<i>Senecio squalidus</i> x <i>viscosus</i>	Oxford ragwort	★
<i>Sequoiadendron giganteum</i>	Wellingtonia	★
<i>Sisyrinchium striatum</i>	Pale yellow-eyed-grass	★
<i>Solanum physalifolium</i>	Green nightshade	★
<i>Sorbaria sorbifolia</i>	Sorbaria	★★★★★
<i>Sorbaria tomentosa</i>	Himalayan sorbaria	★
<i>Sorbus hybrida</i>	Swedish service-tree	★
<i>Sorghum halepense</i>	Johnson-grass	★
<i>Spiraea alba</i> x <i>douglasii</i> ( <i>S. x billardii</i> )	Pale bridewort	★
<i>Spiraea alba</i> x <i>salicifolia</i>	Billard's bridewort	★★★

Latin name*	Common name	Star rating
<i>Spiraea cantoniensis</i> x <i>trilobata</i>	Himalayan spiraea	★
<i>Spiraea douglasii</i> x <i>salicifolia</i>	Lange's spiraea	★★★★
<i>Stachys byzantina</i>	Lamb's-ear	★
<i>Stenotaphrum secundatum</i> variegatum	St. Augustine grass	★
<i>Symphoricarpos microphyllus</i> x <i>orbicularis</i>	Snowberry	★★★★
<i>Symphytum 'Hidcote Blue'</i>	Creeping comfrey	★
<i>Syngonium podophyllum</i>	Nephtytis	★
<i>Syngonium 'Red Knight'</i>		★
<i>Thalia dealbata</i>	Powdery alligator-flag	★★★
<i>Thalia geniculata</i>	Swamp lily	★★★★
<i>Thuja plicata</i>	Western red-cedar	★★★★
<i>Tonina fluviatilis</i>		★
<i>Trapa natans</i>	Water chestnut	★★★★
<i>Trichocoronis rivularis</i>		★★★
<i>Trichomanes javanicum</i>		★
<i>Tristagma uniflorum</i>	Spring starflower	★
<i>Tulipa gesneriana</i>	Garden tulip	★
<i>Typha gracilis</i>	Slender cattail	★★★★★
<i>Typha laxmannii</i>		★★★★★
<i>Typha minima</i>		★★★★★
<i>Typha shuttleworthii</i>		★★★
<i>Typhonodorum lindleyanum</i>		★
<i>Utricularia gibba</i>	Humped bladderwort	★★★★
<i>Utricularia sandersonii</i>		★★★
<i>Vallisneria americana</i>		★★★★
<i>Vallisneria asiatica</i>		★★★★
<i>Vallisneria natans</i> var. <i>natans</i>		★★★
<i>Vallisneria rubra</i>		★
<i>Vallisneria spiralis</i>	Tape grass	★★★★
<i>Vallisneria tortifolia</i>		★★★
<i>Verbascum densiflorum</i>	Dense-flowered mullein	★
<i>Vesicularia dubyana</i>		★
<i>Vesicularia ferriei</i>	Weeping moss	★
<i>Vesicularia montagnei</i>	Christmas moss	★
<i>Viburnum rhytidophyllum</i>	Wrinkled viburnum	★★★★
<i>Viola x wittrockiana</i>	Garden pansy	★
<i>Yucca recurvifolia</i>	Curved-leaved Spanish-dagger	★
<i>Yushania anceps</i>	Indian fountain-bamboo	★★★★★
<i>Zantedeschia aethiopica</i>	Altar-lily	★

# Invasive plants and the law

Some invasive plants are listed on Schedule 9 of the Wildlife and Countryside Act - which makes it an offence to plant them, or otherwise cause them to grow, in the wild. The plants listed differ in England/Wales and Scotland. The plants currently on the Schedule are:

## England and Wales

All species of the genus *Elodea* (waterweeds)  
(including Canadian waterweed *Elodea canadensis*  
& Nuttall's waterweed *Elodea nuttallii*)  
Californian red seaweed *Pikea californica*  
Curly waterweed *Lagarosiphon major*  
Duck potato *Sagittaria latifolia*  
Entire-leaved cotoneaster *Cotoneaster integrifolius*  
*Fallopia japonica* x *Fallopia sachalinensis* (a hybrid knotweed)  
False Virginia creeper *Parthenocissus inserta*  
Fanwort (Carolina water-shield) *Cabomba caroliniana*  
Few-flowered leek *Allium paradoxum*  
Floating pennywort *Hydrocotyle ranunculoides*  
Floating water primrose *Ludwigia peploides*  
Giant hogweed *Heracleum mantegazzianum*  
Giant kelp *Macrocystis pyrifera*, *M. angustifolia*,  
*M. integrifolia*, *M. laevis*  
Giant knotweed *Fallopia sachalinensis*  
Giant rhubarb *Gunnera tinctoria*  
Giant salvinia *Salvinia molesta*  
Green seafingers *Codium fragile*  
Himalayan cotoneaster *Cotoneaster simonsii*  
Hollyberry cotoneaster *Cotoneaster bullatus*  
Hooked asparagus seaweed *Asparagopsis armata*  
Hottentot-fig *Carpobrotus edulis*  
Indian balsam *Impatiens glandulifera*  
Japanese kelp *Laminaria japonica*  
Japanese knotweed *Fallopia japonica*  
Japanese rose *Rosa rugosa*  
Japanese seaweed *Sargassum muticum*  
Laver seaweeds (except native species) *Porphyra* species  
Montbretia *Crocasmia* x *crocosmiiflora*  
New Zealand pigmyweed *Crassula helmsii*  
Parrot's-feather *Myriophyllum aquaticum*  
Perfoliate Alexanders *Smyrniium perfoliatum*  
Purple dewplant *Disphyma crassifolium*  
Red algae *Grateloupia luxurians*  
Rhododendron *Rhododendron ponticum*  
Rhododendron *Rhododendron ponticum* x *Rhododendron maximum*

Small-leaved cotoneaster *Cotoneaster microphyllus*  
Three-cornered garlic *Allium triquetrum*  
Variegated yellow archangel *Lamium galeobdolon*  
subsp. *argentatum*  
Virginia creeper *Parthenocissus quinquefolia*  
Wall cotoneaster *Cotoneaster horizontalis*  
Water fern *Azolla filiculoides*  
Water hyacinth *Eichhornia crassipes*  
Water lettuce *Pistia stratiotes*  
Water primrose *Ludwigia grandiflora* / *Ludwigia uruguayensis*  
Yellow azalea *Rhododendron luteum*  
Wakame *Undaria pinnatifida*

## Scotland

Californian red seaweed *Pikea californica*  
Curly waterweed *Lagarosiphon major*  
False-acacia *Robinia pseudoacacia*  
Fanwort *Cabomba caroliniana*  
Few-flowered leek *Allium paradoxum*  
Floating pennywort *Hydrocotyle ranunculoides*  
Giant hogweed *Heracleum mantegazzianum*  
Giant kelp *Macrocystis pyrifera*, *M. angustifolia*,  
*M. integrifolia*, *M. laevis*  
Giant salvinia *Salvinia molesta*  
Green seafingers *Codium fragile tomentosoides*  
Hooked asparagus seaweed *Asparagopsis armata*  
Hottentot-fig *Carpobrotus edulis*  
Japanese kelp *Laminaria japonica*  
Japanese knotweed *Fallopia japonica* (*Polygonum cuspidatum*)  
Japanese seaweed *Sargassum muticum*  
Laver seaweeds (except native species) *Porphyra* species  
New Zealand pigmyweed *Crassula helmsii*  
Parrot's-feather *Myriophyllum aquaticum*  
Shallon *Gaultheria shallon*  
Water fern *Azolla filiculoides*  
Water hyacinth *Eichhornia crassipes*  
Water lettuce *Pistia stratiotes*  
Wakame *Undaria pinnatifida*

## Credits

**Report written and compiled by** Sophie Thomas (Plantlife).

**Rapid Risk Assessments undertaken by** Trevor Dines (Plantlife), Andy Byfield (Plantlife) and The Freshwater Biological Association (under a contract from Plantlife).

**Photograph credit** (page10) 📷 = Image used under a Creative Commons licence: Attribution-Noncommercial-Share Alike 2.0 Generic

**Design layout by** Andrew Evans



Registered Office

14 Rolleston Street, Salisbury, Wiltshire, SP1 1DX. UK

Tel: +44 (0) 1722 342730 Fax: +44 (0) 1722 329035

[enquiries@plantlife.org.uk](mailto:enquiries@plantlife.org.uk)

[www.plantlife.org.uk](http://www.plantlife.org.uk)

### Speaking up for the nation's wild plants

Plantlife International - The Wild Plant Conservation Charity is a charitable company limited by guarantee.

Registered in England and Wales, Charity Number: 1059559

Registered in Scotland, Charity Number: SC038951

Registered Company Number: 3166339. Registered in England and Wales.

ISBN: 978-1-907141-39-3

© 2010



With grateful thanks to The John Ellerman Foundation, the Esmée Fairbairn Foundation and Natural England. The scoring of aquatic plants against agreed criteria was undertaken by the Freshwater Biological Association on a contract from Plantlife.

Printed on 100% recycled paper