



## Briefing 2

# Identifying potentially invasive plants

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## Summary

A new rapid risk assessment system has been used to roughly classify 599 non-native plants of which 92 are recommended 'critical for priority detailed assessment and another 55 species recommended as urgent and 72 classified as moderate risk. The report recommends that these rapid assessments are repeated from time to time. Critical terrestrial and aquatic species are listed at the end of this note

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This paper is taken from the summary to the Natural England report '*NECR053 - Horizon-scanning for invasive non-native plants in Great Britain*'. The full report is at: <http://naturalengland.etraderstores.com/NaturalEnglandShop/NECR053>

Invasive non-native species threaten biodiversity in Britain. Often, the environmental damage they cause is irreversible.

The *Invasive Non-Natives Species Framework Strategy for Great Britain (The Strategy)* calls for a preventative approach to be adopted *vis-à-vis* invasive species. This may require potentially invasive non-native plants to be banned from sale, prohibited from being planted in the wild, or eradicated from known sites in the wild.

A total of 1,867 non-native plant taxa (excluding marine species) were named in the 2005 audit of non-native species in England, and thousands more non-native plants are available to buy for use in gardens, landscaping and ponds. Yet invasive non-native plant species represent only a small proportion of our non-native flora. So for preventative action to be proportionate, determining which taxa warrant preventative action and which do not is imperative.

Predicting invasiveness cannot be done with complete accuracy and the potential for currently benign plants to become invasive as the climate changes adds to this challenge.

When attempting to determine a plant's invasive potential, identifying characteristics such as smothering growth-forms and prolific seed production is useful but not fool-proof as plants often behave differently when removed from their usual constraints. Evidence of invasive behaviour in natural and semi-natural habitats elsewhere can also be indicative of potential invasiveness, but given the time lags associated with many plant invasion histories this is not, in itself, robust either. However, used in combination, and with the added consideration of pathways of introduction and spread within Britain, a broad level of risk can be assigned with some confidence.

The current mechanism for identifying potentially invasive plants in Britain involves a detailed Risk Assessment process that is both time- and resource-intensive. This renders it inappropriate to apply to large numbers of taxa.

This project devised, trialled and implemented a rapid screening process designed to be applicable to larger numbers of plants. It is based on the Australian Weed Risk Assessment. The screening consists of 22 questions that relate to current status in the UK, evidence of weed status outside of the UK, undesirable (invasive) traits, reproduction, dispersal mechanisms, and persistence attributes.

The results can be used to help prioritise resources by indicating a shortlist of taxa for which more detailed assessment is considered imperative and/or prudent and a much longer list for which such assessment is deemed currently unnecessary.

Moves to restrict taxa highlighted in this study through a ban on sale are not justifiable without further assessment of the risks they pose.

A total of 599 non-native plants of potential invasive concern were assessed, of which:

- 92 are recommended for more detailed risk assessment as a matter of priority (ranked Critical);
- 55 are highly recommended for more detailed risk assessment (ranked Urgent);
- 72 are recommended for more detailed risk assessment (ranked Moderate Risk); and
- 380 are identified as requiring no further assessment at present (ranked Low Risk).

It is recommended that all plants screened are reviewed periodically to take account of emerging evidence and information, changes in climate and new horticultural varieties that become available which may, for example, be more frost-hardy than those currently available.

Freshwater and terrestrial plants were included in the study. In light of the differences in invasion histories typical of freshwater and terrestrial systems, these two groups of species were treated differently. Invasions by non-native species in freshwater habitats tend to take place at a much faster rate than invasions in terrestrial habitats. In comparison, plant invasions in terrestrial habitats are typically quite slow, particularly if they involve woody species and/or highly fragmented habitats.

Due to the speed of invasion in freshwater habitats, and the fact that many non-native invasive plants currently thought to be causing damage to the biodiversity of aquatic systems are ornamentals that have 'escaped over the garden wall', we decided that all commercially available non-native freshwater plants should be included in this study. The final screening was applied to 368 freshwater plants, over 90% of which are not currently known from the wild in Britain. In future it is recommended that *any* new aquatic taxa found to be on sale in Britain should be screened as soon as their existence is discovered.

In addition, produce contaminants ('hitch-hikers') should also be identified and subject to rapid screening.

Of the freshwater plants assessed, 33 were ranked Critical (9%); 26 Urgent (7%); 60 Moderate Risk (16%); and 249 Low Risk (68%). Of the terrestrial plants assessed, 59 were ranked Critical (25.5%); 29 Urgent (12.5%); 12 Moderate Risk (5%); and 131 Low Risk (57%).

Comprehensive Risk Assessments have been commissioned by the Non-Native Species Secretariat for 18 of the species screened in this study (at the time of submission): 13 of these were ranked Critical in the present assessment, 1 Urgent, 3 Moderate Risk and 1 Low Risk (giant salvinia *Salvinia molesta*). It is recommended that the remaining 201 Critical-, Urgent-, and Moderate Risk-ranked species should also be subject to full Risk Assessments.

With the publication of the screening method, additional aquatic taxa found to be on sale in Britain and a wider scope of terrestrial plants can now be screened by third parties. As it requires less than 30 minutes to assess each plant, it is hoped that this screening process can be further developed into a tool that proves useful to land managers and the horticultural trades, as well as policy makers. We recommend that the Rapid Risk Assessment is developed further if it is to be used more widely by non-native invasive experts, particularly with regard to the weighting of questions and the handling of uncertainty.

**Table 3** Critical-ranked freshwater taxa

**Latin name Common name**

<i>Azolla caroliniana</i>	Carolina mosquito fern
<i>Azolla filiculoides</i>	Water fern
<i>Cabomba caroliniana</i>	Carolina water-shield
<i>Crassula helmsii</i>	New Zealand pygmyweed
<i>Egeria densa</i>	Large-flowered waterweed
<i>Elodea callitrichoides</i>	South American waterweed
<i>Elodea canadensis</i>	Canadian waterweed
<i>Elodea nuttalli</i>	Nuttall's waterweed
<i>Equisetum scirpoides</i>	Dwarf horsetail
<i>Glossostigma diandrum</i>	
<i>Houttuynia cordata</i>	Lizard tail
<i>Hydrocotyle ranunculoides</i>	Floating pennywort
<i>Hydrocotyle sibthorpioides</i>	Lawn marsh-pennywort
<i>Juncus ensifolius</i>	Swordleaf rush
<i>Lagarosiphon major</i>	Curly Waterweed
<i>Lagarosiphon muscoides</i>	
<i>Limnobium spongia</i>	American spongeplant
<i>Ludwigia grandiflora</i>	Water primrose
<i>Ludwigia peploides</i>	Floating primrose willow
<i>Ludwigia repens</i>	Creeping primrose willow
<i>Micranthemum umbrosum</i>	Shade mudflower
<i>Myriophyllum aquaticum</i>	Parrot's-feather
<i>Myriophyllum elatinooides</i>	New Zealand watermilfoil
<i>Oenanthe javanica</i>	'Flamingo'
<i>Orontium aquaticum</i>	Golden club
<i>Peltandra virginica</i>	Green arrow arum
<i>Rotala rotundifolia</i>	
<i>Sagittaria latifolia</i>	Duck-potato
<i>Sagittaria sagittifolia</i>	subsp. <i>leucopetala</i>
<i>Saururus cernuus</i>	Lizards tail
<i>Typha gracilis</i>	Slender cattail
<i>Typha laxmannii</i>	
<i>Typha minima</i>	

**Table 4** Critical-ranked terrestrial taxa

**Latin name Common name**

<i>Acaena novae-zelandiae</i>	Pirri-pirri-bur
<i>Ailanthus altissima</i>	Tree-of-heaven
<i>Allium triquetrum</i>	Three-cornered garlic
<i>Buddleja davidii</i>	Butterfly-bush
<i>Cardamine raphanifolia</i>	Greater cuckooflower
<i>Chamaecyparis lawsoniana</i>	Lawson's cypress
<i>Cortaderia richardii</i>	Early pampas-grass
<i>Cotoneaster bullatus</i>	Hollyberry cotoneaster
<i>Cotoneaster conspicuus x dammeri</i>	( <i>C. x suecicus</i> )
	Tibetan cotoneaster
<i>Cotoneaster dammeri</i>	Bearberry cotoneaster
<i>Cotoneaster dielsianus</i>	Diels' cotoneaster
<i>Cotoneaster frigidus x salicifolius</i>	( <i>C. x watereri</i> )
	Tree cotoneaster
<i>Cotoneaster hjelmqvistii</i>	Hjelmqvist's cotoneaster
<i>Cotoneaster horizontalis</i>	Wall cotoneaster

*Cotoneaster lacteus* Late cotoneaster  
*Cotoneaster microphyllus* agg. Small-leaved cotoneasters  
*Cotoneaster prostratus* Procumbent cotoneaster  
*Cotoneaster rehderi* Bullate cotoneaster  
*Cotoneaster salicifolius* Willow-leaved cotoneaster  
*Cotoneaster simonsii* Himalayan cotoneaster  
*Cotoneaster sternianus* Stern's cotoneaster  
*Crocosmia paniculata* Aunt-Eliza  
*Crocosmia pottsii* Pott's montbretia  
*Crocosmia x crocosmiiflora* Montbretia  
*Cyperus eragrostis* Pale galingale  
*Disphyma crassifolium* Purple dewplant  
*Euphorbia amygdaloides* subsp. *robbiae*  
*Fallopia baldschuanica* Russian-vine  
*Fallopia japonica x sachalinensis* (*F. x bohemica*)  
*Hedera colchica* Persian ivy  
*Hyacinthoides hispanica x non-scripta* Spanish bluebell  
*Lamiastrum galeobdolon* subsp. *argentatum* Variegated yellow archangel  
*Laurus nobilis* Bay  
*Ligustrum ovalifolium* Garden privet  
*Lonicera japonica* Japanese honeysuckle  
*Lonicera nitida* Wilson's honeysuckle  
*Persicaria campanulata* Lesser knotweed  
*Persicaria wallichii* Himalayan knotweed  
*Petasites japonicus* Giant butterbur  
*Picea sitchensis* Sitka spruce  
*Pinus nigra* Austrian pine, Corsican pine  
*Prunus lusitanica* Portugal laurel  
*Pseudosasa japonica* Arrow Bbamboo  
*Pyracantha coccinea* Firethorn  
*Pyracantha rogersiana* Asian firethorn  
*Quercus cerris* Turkey oak  
*Quercus ilex* Evergreen oak  
*Quercus rubra* Red oak  
*Rhododendron ponticum x R. maximum* Rhododendron hybrid  
*Ribes odoratum* Buffalo currant  
*Robinia pseudoacacia* False-acacia  
*Rosa multiflora* Many-flowered rose  
*Rosa rugosa* Japanese rose  
*Rubus cockburnianus* White-stemmed bramble  
*Rubus tricolor* Chinese bramble  
*Sasa palmata* Broad-leaved bamboo  
*Sasaella ramosa* Hairy bamboo  
*Sorbaria sorbifolia* Sorbaria  
*Yushania anceps* Indian fountain-bamboo

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