

## Invasive plants - history & terminology

Most of Britain was covered in ice thousands of years ago and only around 200 plant species were able to grow here. We now consider around 1,500 vascular plants to be native and at least that number to be non-native but established in the wild. So, what makes a plant native?

At the end of the last ice age, and up until around 8,000 years ago, Britain was connected to the rest of Europe by land. As the ice retreated northwards plants and animals living in the ice-free southern parts of Britain and Europe moved north, taking advantage of new land available to them. Britain was eventually separated from mainland Europe when rising sea levels (resulting from the ice melt) formed the English Channel. From then on, most plant species would no longer arrive in Britain of their own accord but would rely on being brought here by people.

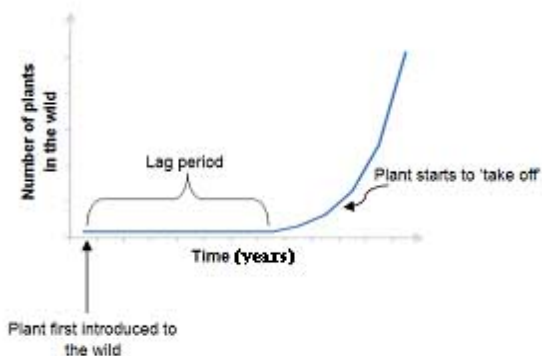
This 'closure' of the land bridge is the widely-accepted cut off point for determining which plants are native and which are considered to be non-native. Those arriving before the formation of the English Channel are 'natives'.

**'Non-natives':** Plants that were brought to Britain by people, either intentionally, including crops and ornamental garden plants, or unintentionally, for example by being inadvertently mixed with crop seeds or imported on wool.

Within this 'non-native' category it is common to distinguish between plants brought to Britain before 1500 AD (called archaeophytes - literally 'ancient plants') or after 1500 AD (neophytes - literally 'new plants').

This distinction roughly correlates (in Europe at least) with the rise of repeated long-distance cross-oceanic trade. In other words, when species started to be moved frequently across biogeographical barriers. So the plants and animals brought to Britain by the Romans and the Normans are archaeophytes, whereas those brought here from the Americas or the Far East are neophytes.

Archaeophytes include many arable plants that have declined substantially in Britain in recent years. Neophytes include many widely-cultivated garden plants. People who are concerned about invasive non-native species are usually most worried about neophytes. One reason for this is the breaching of those biogeographical barriers, and so the increased likelihood that native species will have no coping strategies to deal with the newcomers.



Another reason people are particularly wary of neophytes is the lag effect commonly displayed by invasive non-native plants (see diagram). Invasive non-native plants are often present in Britain for several years before 'taking off' and beginning to cause problems. Neophytes are more likely to still be in a lag phase than archaeophytes.

**'Invasive non-native:** Some plants grow rapidly, can produce many thousands of seeds, or can reproduce without seeds. They can colonize a habitat and quickly 'take over', displacing native plants by smothering them, out-competing them for resources, or even poisoning the soil around them so that other types of plants can no longer grow there. These are known as invasive non-native plants.

## Why do some plants become invasive?

Three key groups of factors commonly combine to enable a plant to become invasive:

- 1) In their natural ranges, invasive plants are often common but not problematic. Their extent is limited by pressures placed on them - for example from herbivores, fungal diseases and other plants that are able to compete with them for resources. When plants are placed in a new environment, these containing pressures are rarely transported too, giving the new plants an advantage over native plants which are still affected by their local pathogens and herbivores.
- 2) Invasive plants often have characteristics such as fast growth, prolific seed production and/or an ability to spread vegetatively (without the need for seeds), an ability to tolerate wide ranges of growing conditions (soil types or water pH, for example), and a range of ways in which seeds can be spread locally and over larger distances (say, by wind, water or animals). People are often instrumental in spreading invasive plants.
- 3) The environment that the new plant is placed in is in some way disturbed or damaged, providing the opportunity to invade. For example, in polluted water systems, more nutrients are available than can be used by the native plants present, giving the invading plants an opportunity to get established.

**Most non-native plants are not invasive and pose no threat to the countryside.** Plantlife has no desire to stop people selling, buying, using or growing these plants. What we are concerned about is the small number of invasive non-native plants that cost both the environment and the economy dear.

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 as 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.

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. Differentiating between plants we should worry about and those which are unlikely to ever be of concern is vital but difficult. Plantlife devised a 'Rapid Risk Assessment' screening process to help to assign a broad level of invasive threat to a non-native plant quickly (meaning that lots of plants can be assessed). Plants thought to have invasive potential can then be subject to more thorough invasive risk assessment. [Our report on this work will soon be downloadable from the publications page of our website.](#)

## What about native plants - can't they be invasive too?

Some native plants, for example, bramble and common nettle, have invasive characteristics and can cause problems for other native plants. Their dominance often comes about because we have altered habitats - by introducing more nutrients, for example - which these plants can exploit faster than other plants, or because we are no longer managing land appropriately. Plantlife believes that native invasive plants should be dealt with through active land management at the sites where they are causing problems.

There is evidence in pollen records that some of the plants we consider to be invasive non-native plants (like rhododendron and water fern) were present in Britain *before* the last ice age. These species died out in Britain during the last ice age and failed to recolonise naturally before the land bridge to mainland Europe closed. The ecosystems that evolved and established in Britain as the ice age ended do not include these species and so their reintroduction by humans can pose problems. The definition of a native species as one which either survived the last ice age, or recolonised naturally at the end of the ice age is generally accepted.