

# biodiversity



## TEACHERS NOTES



### natural inspiration

> This poster illustrates the close, but little appreciated, link between Scotland's biodiversity and our national culture, using as examples both our national emblem, the thistle, and the story of Robert the Bruce and the spider.

> The particular range of biodiversity present in any country or region has a major impact on the appearance of its landscape, but it also reflects the prevailing environmental conditions which, in turn, shape the human culture and economy of the area.

> These Teachers Notes explore these linkages further, and expand on the significance of the particular examples used.



The poster shows the distinctive head of the **spear thistle** (*Cirsium vulgare*), a common species of waysides and disturbed ground in Scotland, which has a strong claim as the plant in Scotland's national emblem. It also shows the species of **spider** (*Meriania*), which experts think may have inspired Robert the Bruce and which still lives commonly in damp caves and cellars today.



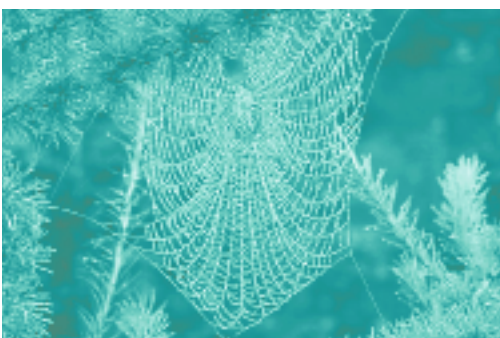
## A N A T I O N ' S I D E N T I T Y

### spiders and Robert the Bruce

> Legend has it that, when, around 1306, Robert the Bruce was the outlawed leader of a guerrilla war against the English and his fortunes were at a low ebb, he derived courage and hope from watching the patient, persevering way in which a spider spun its web. This gave him the inspiration to fight on and eventually win nationhood for Scotland.

> This story is a clear example of the cultural significance of biodiversity, and emphasises how no species should be dismissed as unimportant. And indeed the web that Robert watched the spider build is a remarkable achievement. It can contain more than 30 metres of silk, spun by the spider in less than a hour, purely instinctively – newly hatched spiderlings can spin a perfect web at their first attempt.

> But the real importance of spiders is as predators, controlling the population level of other invertebrates. One spider expert has estimated that there may be as many as 5 million spiders in a hectare of meadowland in the autumn. The total consumption of this many spiders has a very significant effect on the numbers of prey species – many of which would be regarded as pests by farmers or gardeners.



> The thistle (or thrissel) is an appropriate Scottish emblem: it is tough and tenacious, able to survive in the roughest countryside, spiny and well-armed – like a Highland clansman of old. Legend has it that thistles were adopted as our national emblem in the 11th century, when invading Danes landed on a beach infested with spiny thistles, and their resulting yells warned locals of their impending attack. Certainly, the thistle featured on Scots coins in 1470.

> This raises the question of *which* species of thistle is involved. It seems unlikely that it was the mis-named ‘Scotch thistle’ (*Onopordon acanthium*), which has nothing to do with whisky (the only thing that is Scotch) and is almost certainly not even native in Scotland. The most ‘Scottish’ species is melancholy thistle (*Cirsium helenioides*), which grows in hill pastures and is said to have invaded northern England from Scotland along cattle drove roads. The thistles that confronted the invading Danes were probably the spear or creeping thistles (*Cirsium vulgare* and *C. arvense*) of waysides and disturbed ground – and these would have been the most familiar thistles to medieval clansmen. Probably, though, they did not distinguish between the species and the emblem represents an archetypal prickly thistle.



The cotton or Scotch thistle.  
Andrew Gagg

## biodiversity quotes

> “Every country has three forms of wealth: material, cultural and biological. The first two we understand well, because they are the substance of our everyday lives. The essence of the biodiversity problem is that biological wealth is taken much less seriously. . . . The fauna and flora are also part of a country’s heritage, the produce of millions of years of evolution centred on that time and place, and hence as much a reason for national concern as the particularities of language and culture.”

EDWARD WILSON, *The Diversity of Life* (1992)

## > project ideas

> Gather as many examples as possible of the use of the Scottish thistle as an emblem.

Compare each representation with drawings of thistle species in a good illustrated flora. Is it possible to identify which species is depicted in each case?

> It could be argued that orb-web spiders capture and torture their prey in a cruel and ‘inhumane’ way. Prepare and stage a mock court, presenting the prosecution and defence cases for a spider being tried for “grievous bodily harm”

> Imagine that a message could be sent to an alien planet illustrating 10 Scottish species of plants and animals. Discuss which species to choose to best represent the varied nature of the Scottish countryside.

## a royal fish

> The vendace is a fish which may also have royal links with Robert the Bruce. Although he was probably born at Turnberry in Ayrshire, he spent much of his childhood around Lochmaben in Dumfriesshire. Perhaps he went fishing in the lochs there, catching one of the vendace for which Lochmaben was later to become famous (although some say the vendace was introduced there by Queen Mary in the 16th century).

> The vendace has only been recorded in Britain from the Castle and Mill Lochs at Lochmaben and two sites in the Lake District. At Lochmaben, it was once so plentiful that Vendace Clubs held an annual fishing festival for the species. Sadly the vendace – and the festivals – died out when the town's sewage began being discharged into Castle Loch early this century. By the 1970s, nutrient enrichment had also killed the last vendace in Mill Loch, but Scottish Natural Heritage is now seeking to re-establish the species in suitable lochs near Lochmaben, from fish bred from Lake District fish.



Vendace.  
*L Gill*

## LOCAL BIODIVERSITY

## local action plans

> As well as the Biodiversity Convention (see *The Variety of Life* Teachers Notes), governments at the Earth Summit also adopted a document called *Agenda 21*, which aims to involve local communities more in protecting their own environment. The government's biodiversity plan also recognised the need for local biodiversity plans, which identify actions needed to help conserve and enhance biodiversity within each local authority area. The plans can involve a wide range of people including landowners, conservation bodies, schools and industry. The RSPB, SNH and the Scottish Office are helping prepare guidance on how to produce local biodiversity action plans based on pilot studies in NE. Scotland, S. Lanarkshire, Orkney and Argyll & Bute.