

ORCHID SYSTEMATICS

Illustrating change

Despite the array of sophisticated cellular and molecular techniques available to plant biologists the traditional botanists' skills of observation, description and categorization have never been so important. When studying the effects of climate change on the world's flora or investigating the potential applications of a plant's complex secondary metabolism it is important that you know what plant you are looking at. An illustration of such a conjunction of modern concerns with traditional techniques comes in a series of papers by Michael Fay and colleagues from the Royal Botanical Gardens at Kew on orchid species in the British Isles soon to be published in *Curtis's Botanical Magazine*.

Curtis's Botanical has a long history, claiming to be the oldest continuously published scientific journal in the world. William Curtis, a botanist and apothecary at Kew, started the magazine in 1787 and it has been published continually ever since (although between 1984 and 1994 it bore the name *The Kew Magazine*). Possibly its most striking feature is that every paper is accompanied by a watercolour illustration of the species of plant being described (such as the painting by Gillian Barlow of the late spider orchid, *Ophrys fuciflora*, pictured).

Part of any description of a species should be its distribution, however this is far from static. In recent years the Botanical Society of Britain and Ireland (BSBI) has produced two major sources of data about the changes in plant species prevalence in Britain. In 2006



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BSBI brought out *Change in the British Flora 1987-2004* based on two intensive surveys some seventeen years apart. This showed a complicated pattern of winners and losers among the orchid species. The species that were declining in number were apparently the victims of changes in the characteristics of their habitats, particularly woodlands; the species that were on the increase seemed to have profited from their ability to colonize disturbed sites.

Last year the BSBI produced *A Vascular Plant Red List for England* assessing conservation status of plant series against the International Union for Conservation of Nature (IUCN) standards. Comparing these results with the 2004 survey shows again that some populations of orchids are increasing in number, although a greater proportion are declining with many close to extinction in England.

The papers being published by Fay and colleagues individually describe species of orchid that are relatively rare in Britain. Taken together though they give a view of how orchid populations are changing. The lady orchid, *Orchis purpurea*, for example is showing a resurgence with its range increasing northwards and westwards from its traditional stronghold in the south east of England, perhaps benefiting from current effects of climate change. By contrast the red helleborine, *Cephalanthera rubra*, only occurs at three sites and climate change seems likely to drive it out of England entirely. As for the late spider orchid, although it is rare — found at only five locations in the county of Kent — other members of the bee orchid genus are showing increases.

Systematic physical descriptions of individual species and surveys of their distribution in a single, relatively small country may seem old fashioned in this era of 'big data'. However, it is from detailed studies like those published by *Curtis's Botanical* that global pictures are assembled.

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