

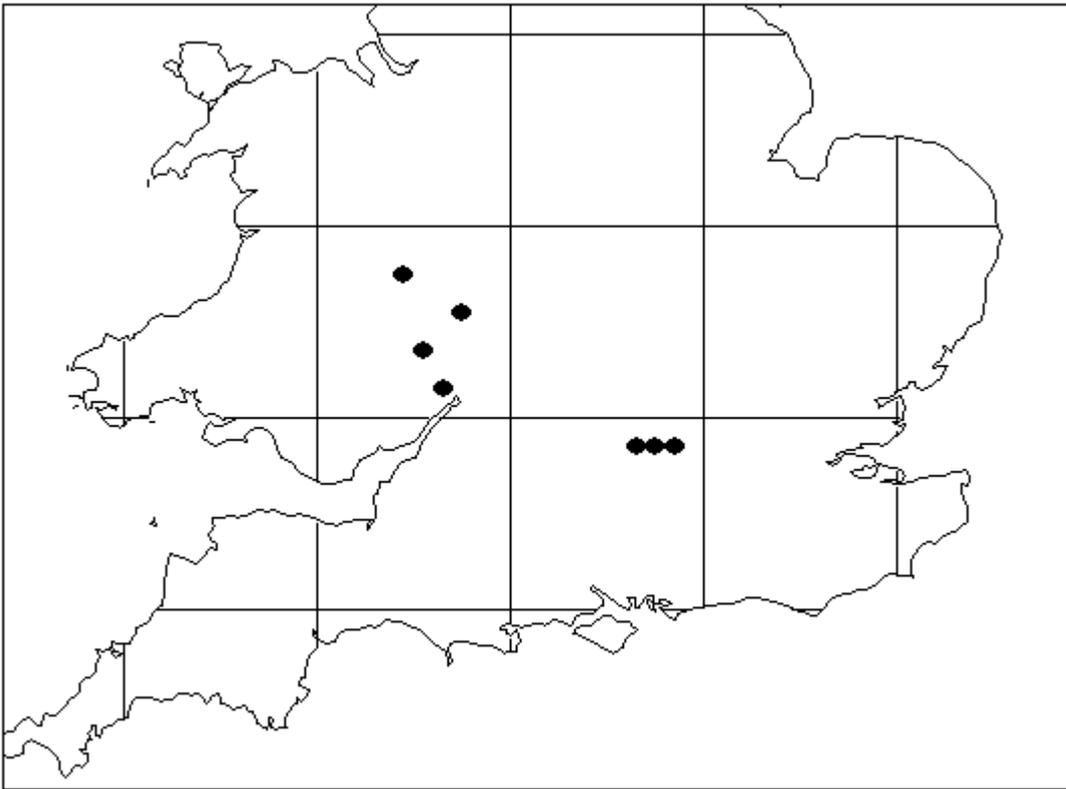
## The Ghost Orchid collection

The Welsh National Herbarium has a small but very precious collection of Ghost Orchids (*Epipogium aphyllum* Sw.); is this something to be proud of, or should they have been left in the wild? The answer lies in the collections which have been donated to the Museum and slugs.



Picture: The Herefordshire Ghost Orchid, 2009.

Ghost Orchids are amongst the rarest plants in Britain. They have been found in about 11 sites in the Chilterns and West Midlands in England, but such is the secrecy surrounding them that it is difficult to be sure exactly how many sites there are. They were first found in Britain in 1854 and were only seen 11 times before the 1950s. They were seen regularly in a few Chilterns sites between 1953 and 1987 but then disappeared and were regarded as extinct until one plant was discovered in 2009. In most sites they have only been seen once, and rarely for more than ten years in any one site.



Picture: Distribution map of Ghost Orchids in Britain (all records: data courtesy of Botanical Society of the British Isles 2013).

Ghost Orchids get their name from their creamy-white to pinkish-brown colour and their fleeting occurrences in dark, shaded woods. The colour results from the absence of chlorophyll, as they are parasites of fungi associated with tree roots, and they do not need to photosynthesise their own food. They spend most of their lives as rhizomes (underground shoots) in the soil or leaf litter of woodlands, and flowering shoots only occasionally appear above ground. Even then, their small size (usually less than 15 cm, rarely up to 23 cm) and unpredictable appearance between June and October means that Ghost Orchids are rarely seen.

Until recently, the only British specimen held by the Museum was a scrap of rhizome collected for Eleanor Vachell in 1926. Eleanor was determined to see every British

plant and her herbarium is one of the most comprehensive ever put together by a British botanist. She left her collection to the Museum when she died in 1949. The story of how the scrap was collected is given in her botanical diary:



Picture: Eleanor Vachell, c. 1930.

“28 May 1926. The telephone bell summoned Mr [Francis] Druce to receive a message from Mr Wilmott of the British Museum. *Epipogium aphyllum* had been found in Oxfordshire by a young girl and had been shown to Dr [George Claridge] Druce and Mrs Wedgwood. Now Mr Wilmott had found out the name of the wood and was ready to give all information!!!

Excitement knew no bounds. Mr Druce rang up Elsie Knowling inviting her to join the search and a taxi was hurriedly summoned to take E.V. [=Eleanor Vachell] and Mr Druce to the British Museum to collect the particulars from Mr Wilmott. The little party walked to the wood where the single specimen had been found and searched diligently that part of the wood marked in the map lent by Mr Wilmott but without success, though they spread out widely in both directions. ... Completely baffled, the trio, at E.V.'s suggestion, returned to the town to search for the finder. After many enquiries had been made they were directed to a nice house, the home of Mrs I. ?, who was fortunately in when they called. E.V. acted spokesman. Mrs I. was most kind and after giving them a small sketch of the flower told them the name of the street where the girl who had found it lived. Off they started once more. The girl too was at

home and there in a vase was another flower of *Epipogium*! In vain did Mr Druce plead with her to part with it but she was adamant! Before long however she had promised to show the place to which she had lead Dr Druce and Mrs Wedgwood and from which the two specimens had been gathered. Off again. This time straight to the right place, but there was nothing to be seen of *Epipogium*!

2 June 1926. A day to spare! Why not have one more hunt for *Epipogium*? Arriving at the wood, E.V. crept stealthily to the exact spot from which the specimen had been taken and kneeling down carefully, with their fingers they removed a little soil, exposing the stem of the orchid, to which were attached tiny tuberous rootlets! Undoubtedly the stem of Dr Druce's specimen! Making careful measurements for Mr Druce, they replaced the earth, covered the tiny hole with twigs and leaf-mould and fled home triumphant, possessed of a secret that they were forbidden to share with anyone except Mr Druce and Mr Wilmott. A few days later E.V. received from Mr Druce an excited letter of thanks and a box of earth containing a tiny rootlet that he had found in the exact spot they had indicated."

[Source: Forty, M. & Rich, T. C. G., eds. (2006). *The botanist. The botanical diary of Eleanor Vachell (1879-1948)*. National Museum of Wales, Cardiff.]



Picture: The scrap of Ghost Orchid rootlet in Eleanor Vachell's herbarium. Also attached to the specimen are Dr George Claridge Druce's (1924) account of it from *Gardeners Chronicle* series 3 volume 76, page 114 and two small sketches by Miss Baumgartner.

Eleanor shared the rootlet with her great friend Elsie Knowling, who also had a herbarium. Coincidentally, the two fragments have been reunited at the National Museum of Wales after being apart for 84 years with the following donation.

In 1953, Elsie's son Rex Graham stumbled across 22 Ghost Orchids in a Buckinghamshire wood, the largest colony of ever seen in Britain (Graham 1953). According to his obituary (Harley 1962), his first reaction to his greatest rediscovery was to calm his excitement with a pint of beer at the nearest inn, before hurrying back again to have another look. This was the first time that Ghost Orchids had been seen for 20 years and it made the national press. At the time Rex collected only three specimens, but over the next few years he collected more when they were found eaten off by slugs. Eventually Rex had four specimens for his own herbarium, to add to the scrap in his mother's herbarium. The Ghost Orchids were amongst the treasures in Graham & Harley herbarium, which was donated to the Museum by Ray Harley in 2010.



Picture: A 1953 Ghost Orchid collected by Rex Graham.



Picture: Press coverage of the 1953 Ghost Orchid discovery.

The third collection is particularly exciting as being our only specimen preserved in spirit (rather than being pressed and dried) so that the three dimensional structure of the flower can be seen. Dr Valerie Richards (formerly Coombs) was looking for wild orchids in the rain in Herefordshire in 1982! As she looked down trying not to slip, with the rain water dripping off her fringe and feeling rather out of sorts with the weather, there was the most unexpected, serendipitous discovery of her life, a single ghost orchid in a new site. When she took a local botanist to the site a few days later, a slug had eaten through the stem. She picked it up and took it home and preserved it in formalin like the zoological specimens she had been used to working with during her university days. The specimen was kindly donated to the Museum in 2013.



Pictures: The 1982 Herefordshire Ghost Orchid preserved in formalin.



Picture: Dr Valerie Richards.

The fourth and final collection resulted from the hard work and intuition of Mark Jannink combined with another hungry slug. Mark wondered if Ghost Orchids flowered more frequently after cold winters. He researched all previous Ghost Orchid discoveries - their preferred habitat, time of flowering and weather patterns - then staked out ten possible sites in the West Midlands, visiting them every two weeks throughout the summer of 2009, following the first cold winter for many years. Finally in September, he was rewarded with one diminutive specimen and welcomed it with a surprisingly restrained "Hello you - so there you are!". This find caused great excitement amongst botanists, as the Ghost Orchid had been declared officially extinct in 2005. Mark returned several times over the next few days as the plant gradually faded and 'browned', until the stem was once again eaten through by yet another slug. The remains were collected and pressed, and donated to our herbarium shortly after.



Picture: Mark Jannink.



Picture: The 2009 Ghost Orchid from Herefordshire.

So five of our seven British Ghost Orchids have been collected as a consequence of slugs, which are more of a threat than botanists. The Ghost Orchids are fully protected by law under the Wildlife and Countryside Act 1981 but nobody seems to have told that to the slugs!

We also have eight specimens from Europe, where Ghost Orchids are more widespread though still rare. One of our best specimens was collected by W. A. Sledge in Switzerland.



Picture: Swiss Ghost Orchids collected by W. A. Sledge in 1955.

You are welcome to visit the Welsh National

Herbarium to see the Ghost Orchids, but don't expected us to reveal where they were found! And please leave your slugs at home.

Tim Rich, Welsh National Herbarium

#### References

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- Harley, R. M. (1962). Obituary: Rex Alan Henry Graham. *Proceedings of the Botanical Society of the British Isles* 4: 505-507.

For further information on Ghost Orchids see:

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