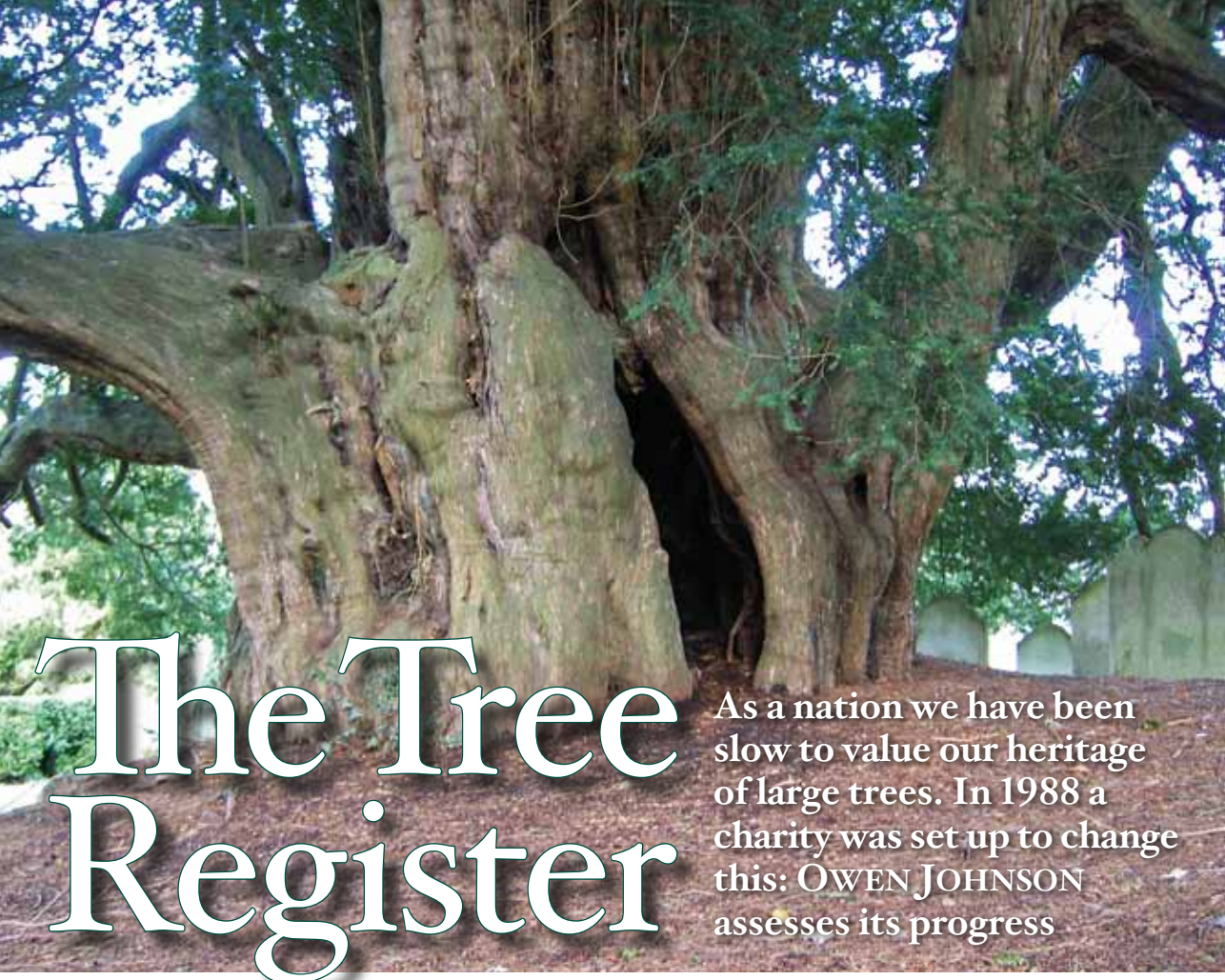

The Tree Register

As a nation we have been slow to value our heritage of large trees. In 1988 a charity was set up to change this: Owen Johnson assesses its progress

WE KNOW a great deal about birds in Britain: a Siberian vagrant, the weight of a pound coin, is unlikely to alight without some expert spotting and identifying it, and the news spreading in minutes across a wide network of enthusiasts. About Britain's spiders, in contrast, we know little: amateur entomologists continue to discover species new to science.

British surprises

Our knowledge of Britain's trees stands between these extremes. As trees are typically the largest and most conspicuous objects in our everyday environment, it has always startled me that the effort to map and catalogue them did not gain momentum sooner. As somebody who has spent much of his life hunting big and rare specimens, I also have reason to feel grateful that so many marvels still await discovery.

The yews in many English and Welsh churchyards, some of them older than the building itself, are perhaps the world's most remarkable population of ancient holy trees. Each will have been familiar to generations of parishioners, but it has fallen to me to formally record and measure many for the first time. Numerous English parishes have trees so big, so old, and so rich in associated wildlife that, if they grew in Belgium or France, each would be a national marvel worth travelling hundreds of kilometres to see. Here, hundreds of such trees continue to be 'discovered' each year.

This yew (*Taxus baccata*) at Hambledon church in Surrey has one of the largest girths in the country.

Previous measurers

As well as being generally the biggest and oldest, trees are the most individual of organisms. In the shape of each is written the accidents of its history and management and the particulars of the site and the soil. No two specimens can ever look the same, or be equally big. Hence there has always been an incentive to document the largest yet, the oldest of all. John Evelyn was the first author to collect together records of noteworthy British trees, in *Sylva* (1664). These included a yew at Brabourne church in Kent, larger, and so quite possibly older, than any tree alive in Britain today.

All photographs by Owen Johnson

The champion cider gum (*Eucalyptus gunnii*) at Sidbury Manor, Devon (left) is 26m high and 170cm thick. The tallest Douglas fir (*Pseudotsuga menziesii*) in Surrey (right) is 54m high.

Alan Mitchell, who in the three decades from 1954 worked for the Forestry Commission (FC) and found opportunities to visit and measure 108,000 notable trees in estates across Britain and Ireland, was the first person to get close to a definitive list of the biggest and best. The FC drew on his accumulated data to publish a booklet, *Champion Trees in the British Isles*, in 1985, which helped to formalize the concept of 'champions' as the tallest, or greatest-girthed, specimens of their kind. The most massive example is usually one or the other of these, though in a few cases will fall between the two. Determining a tree's true volume involves complex calculations which rarely get performed.

Mitchell and his associate Vicky Hallett (now Vicky Schilling) established The Tree Register of the British Isles as a charity in 1988. The Register curates his lifetime accumulation of statistics, along with all the available records from earlier generations of tree-measurers. Since 1994, computerization has made it much easier to access and sort the dataset. The Tree Register, as it is now called, contains 265,000 measurement sets for over 190,000 trees, scattered across 15,000 gardens, estates and parishes. The most productive recent undertaking has been the Ancient Tree Hunt, in which the Register collaborated with the Woodland Trust to make it easy for the public to measure, map and photograph old trees in their area.

The records

The Register's unspoken aim – it is still a long way off – is to maintain a record of every tree in Britain and Ireland which is notable for its rarity, its remarkable growth or stature, or its age and historic associations. Details of 42,000 'county champions' are now accessible online to Tree Register members. The charity remains completely independent, so is funded entirely by donations and membership subscriptions. Details of the other 150,000 trees can be obtained by contacting myself as the Registrar, although very occasionally, at the landowner's request, the exact location of a tree has to be disguised.

Although the Register continues to be associated primarily with the list of 'champions', all sorts of benefits accrue from drawing together such a range of statistics. You can use it to find the tallest Douglas fir (*Pseudotsuga menziesii*) in Surrey (54m tall in 2011, in Polecat Copse on the outskirts of Haslemere). But you can just as easily check for good examples of *Sorbus pallescens* L953 (at least eight thriving trees, in three collections – this collection number, by Roy Lancaster, seems to be a particularly worthwhile form). Or you can find out how many established trees of *Stewartia monadelpha* are known in Scotland (five, making this exquisite but under-appreciated species the commonest *Stewartia* so far north – either because it is genuinely tougher, or thanks more likely to accidents of availability in the past).

Rare trees

In the case of the rarest trees and the most recent introductions, it is relevant to know how many are being grown here and the limits to which they will survive. Some 27 tree taxa cultivated in British gardens are assessed by the International Union for the Conservation of Nature as 'Critically Endangered' in the wild. So there is especial value in keeping track of specimens of, for example, *Picea martinezii* from Mexico or *Pittosporum coriaceum* from Madeira. About 5,000 records include full details of source and origin in the form of collectors' numbers.

The database also serves as the British and Irish species list, which was published, for the first time, in the latest edition of *Champion Trees* (Johnson 2011). There are now ➤

more species of Australian tree being grown in English gardens (about 340) than there are species of tree native to the whole of Europe – a statistic which shows how accurately amassed information can constantly confound presuppositions.

Common trees

Exceptionally fine examples of commoner trees, besides being worth the visit in their own right, may have particularly good genes. These can be worth perpetuating clonally, in forestry or horticulture. Especially old trees need to be listed and mapped to ensure they are protected – a 500-year-old oak owes its existence to 20 generations of land managers, but can be removed by one man with a chainsaw in an hour. The presence of such trees may also support the survival of rare invertebrates associated with dead and decaying wood.

If landowners know that a tree is the only one of its kind in the region, or the largest in the country, they will probably be more keen to look after it. A Hungarian oak (*Quercus frainetto*), lurking among wild trees on the perimeter of Great Bookham Common in Surrey, was due to be felled in 2000 after being implicated a subsidence claim. When it was found to be the second biggest in Britain, the local authority felt able to protect it. However, The Tree Register does not directly involve itself in tree preservation disputes, since it relies on the goodwill of landowners to access the majority of the country's outstanding trees.

Geographical surprises

Each tree species has its own geography of growth, and by mapping the biggest and happiest examples of species which are particularly sensitive to drought or high temperature (such as Sitka spruce, *Picea sitchensis*) a detailed picture can be built up of local microclimates and how they may be changing. To analyse trends like this, a substantial dataset is needed, and there are over 800 Sitka spruces on the Register.

Sorbus pallescens at Benmore Botanic Garden in Scotland. This is a much earlier collection than Roy Lancaster's L953, but this one has the greatest trunk diameter (75cm) in Britain and Ireland and at 14m is the tallest in Scotland.

However, generalizations beget exceptions, and often the most delightful tree discoveries are good examples growing well outside the species' expected comfort zone. *Podocarpus salignus* is a beautiful broad-leaved conifer from the cloud-forests of the southern Andes. Consequently, it should prefer the northern and western extremities of Britain and Ireland. I have lived all my life on and off in Hastings, which is a far south-east as you can go, so when Tony Vincer announced to The Tree Register that he had one 20m tall in his back garden in the town, I felt sure that this was impossible. But Hastings is full of steep, moist, hidden ravines. Some of them face north, like the one behind the Victorian mansion where Tony's flat is, so they are sheltered from sea winds and shut out the sun for most of the year. So this *Podocarpus*, 19m tall with a single bole 71cm in diameter near the base, becomes the joint largest in Britain.

Improving records

One ongoing improvement to the database is the move to obtain GPS-generated grid references for each tree. Alan Mitchell was notorious for misspelling the sites where he recorded his trees, for placing them in the wrong counties, and for confining his location descriptions to cryptic utterances such as 'valley' and 'wood, N'. He had an amazing memory and knew how to relocate most his 108,000 trees. But now, after his death, the process of tracking them down again has become much more fraught.

Although many big gardens and some private collectors catalogue and label their trees, for many other concentrations of rarities The Tree Register provides the only information still current on what grows where. Sometimes the very existence of the collection can be forgotten. In 2006, studying half-hardy trees in the southwest with help from an

A specimen of *Podocarpus salignus* (left) in Hastings that eluded The Tree Register for many years and is now recognized as the joint largest in Britain. Planted by the Bolitho family in the early 20th century, this *Tetracentron sinense* (right) in Falmouth, Cornwall, is the tallest and thickest in Britain and Ireland.

RHS bursary, I visited the site of Penmere Manor in Falmouth, Cornwall. I knew that this had been a garden of the Bolitho family, who also planted Trewidden in Cornwall and Greenway in Devon. But I was unprepared for the wealth of rare trees which I found surviving in suburban gardens there, including a new champion for *Tetracentron sinense* and the only mature *Myrica faya* to be discovered on mainland Britain.

Volunteers

Although hundreds of volunteers are involved in The Tree Register, most of the fieldwork in recent years has been done by Aubrey Fennell (in Ireland) and myself (in Great Britain). This indicates some of the current Register's limitations. Very often, I find myself trying to identify really rare species, without being an expert in any particular genus. Although I have the Register's accumulated records to help me, finding notable new trees is often a matter of serendipity, and Britain is simply too big for one person to explore exhaustively.

Measuring

Recording a tree as 51m tall implies a confidence in the accuracy of the measurement of +/- 2%. This is at the limit of what can be achieved, without spending undue time in averaging multiple readings using the latest laser technology. The candidates for Britain's tallest tree, where accuracy matters most, have all been climbed in recent years by tree surgeons dangling tape-measures – the most reliable means of measuring them.

Novices tend to grossly over-estimate heights, because of high branches leaning out towards them when they try to sight at the true top. In the case of the girth, it is easy to misrepresent the relative size of a tree by failing to measure at the trunk's narrowest point, or failing to make clear that the measured figure was inflated by low forkings.

Up-to-date records

Champion trees tend to be unusually old for their kind. Of the 40,000 local champions on The Tree Register's website, an average of four or five are likely to die, blow down or be removed each day. In practice, of course, the losses are concentrated in periods of storm, frost, drought and flooding. Not many landowners inform The Tree Register when one of their trees is lost, so keeping it up-to-date is a matter of revisiting each locality as frequently as time allows – ideally, every 10 years or so.

Some champions, such as those in the historic collection at Werrington Park in Cornwall, have not been visited for many decades, because of the current owner's unwillingness to allow access. Fortunately, examples like this are rare.

Conclusion

Interest in old trees in particular has never been greater than it is today. The success of the Register as an independently-run but wide-reaching source of information is inspiring similar ventures abroad. Volunteers have so far organized two Europe-wide conferences to help share the charity's information and experiences.

The Tree Register's future, however, still depends on the willingness of volunteers to maintain it. Alan Mitchell's shoeboxful of hand-written measurement cards should survive in The Tree Register's archives at Royal Botanic Gardens, Kew, for centuries, little changed. But a digital record set will be obsolete, even unreadable, after a decade or two if it fails to keep pace with changing technologies.

Dr Owen Johnson has measured 60,000 trees and written *The Collins Tree Guide* (2004) and other books. He is Registrar for The Tree Register. www.treeregister.org

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