# Willows in the farming landscape: a forgotten eco-cultural icon

ROTHERHAM, Ian <http://orcid.org/0000-0003-2903-5760>

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ORIGINAL PAPER

# Willows in the farming landscape: a forgotten eco-cultural icon

**Ian D. Rotherham**[1]

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## Abstract

Recent studies have revealed a largely forgotten rural landscape in which *Salix* (willow) species were a characteristic, iconic, and utilitarian feature. In former wetlands, now largely removed by massive drainage schemes since the 1600s various willow species were distinctive features of the landscape and of major value to agricultural communities that inhabited those places. From lowlands to uplands across the British countryside willows dominated much wetter and more extensive landscapes. Remnant upland willow woods (now present as 'shadow woods') exist as isolated remnants in small wet habitats in an often desiccated landscape fragmented and drained. In the lowlands, especially former fenland areas, willows were present in extensive wet (carr) woodlands and in cultivated beds of withies or osier holts, and as coppices and pollards on boundaries and in field edges across the countryside. The economic driver of withy beds survived in the main English fenlands until the mid-twentieth century. Today these once extensive and important landscapes are mostly forgotten and derelict; and furthermore, the eco-cultural resource of the willows is currently under threat with unrecorded veteran trees being actively removed by farmers. This paper introduces the significance of the willow landscapes, the history of the eco-cultural resource, and the implications of neglect for future conservation.

**Keywords** Willow · *Salix* · Fenland · Coppice · Pollard · Withy · Eco-cultural landscape

## Introduction

Edlin (1947) stated that the main timber tree willows were White Willow (*Salix alba*) and Crack Willow (*Salix fragilis*). Woodward (1926) noted how the winding lowland river with old pollard willows was perhaps the quintessential image of the English countryside (see Fig. 1). Yet by the twenty-first century, this perception of the English fenland countryside has been largely lost. He also observed how willow was famed for its rapid growth and it is

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✉ Ian D. Rotherham
Ianrotherham36@gmail.com

[1] Emeritus Professor, Sheffield Hallam University, Sheffield, UK

**Fig. 1** Old pollarded willows in Somerset from the author's collection

this character that maybe led to the tree's oversight in surveys of ancient and veteran trees. Johnson (1867) described a particularly large specimen (called the Abbot's Willow) near Bury St Edmunds that was eight feet high but with a girth of nineteen feet. He also noted how most such trees become hollow at the relatively young age of thirty to forty years. Pollard White Willows and osier beds produced withies but as stated by Mitchell (1985), the practice had almost died out by the mid-1900s and the uncut poles grew out as big branches. When willows were pollarded they were cut at around 2.5 m height on a 'bole' and re-cut every few years which created a large woody 'head' bearing around twenty sprouts. A consequence of abandonment was that these large poles crowded onto the old pollard head, become too heavy for the bole, and thus break out. Mitchell (1985) also suggests that Crack Willow grows especially fast and that a 'hulk' with stem diameter of two metres or more may be only a hundred years old. He also noted the ability of these trees to reproduce and establish new, sometimes clonal, plants from broken branches and twigs.

White Willow was known as a pollard along lowland riversides since at least the thirteenth century (Wilkinson 1981) in particular was valued for its excellent timber and its rapid growth (Johns 1911). Wilkinson (1973) noted the importance of willows to the rural economy. The main osier-producing willows however, were the smaller species such as *S. viminalis*, *S. triandra*, and *S. purpurea* (Johns 1911). Planted along streams, rivers and drains, these produced withies and timber for poles and stakes (Ablett 1880). It is noted but briefly in landscape works such as Thomas (1983) and by writers on landscape and gardens such as Hadfield (1967). (See Figs. 2 and 3).

## Upland and western Atlantic zones of the British Isles

It is clear from current research that British willow-dominated landscapes were formerly much more widespread than they are today. Additionally, it is apparent from reviews of the literature that the roles of willow species in historic countryside are poorly known and

**Fig. 2** Veteran crack willow Staffordshire from Hadfield (1967)

**Fig. 3** Veteran white willow at Cradley Herefordshire from Hadfield (1967)

little understood. Research on shadow woods (Rotherham 2017) suggests that from upland zones to western lowlands in particular, woods dominated by *Salix caprea*, *Salix cinerea*, and hybrids were once commonplace. Little is known of the place of these woods in their agricultural landscape or of the cultural uses of these willows by local communities. Ecological research and associated approaches largely assume that upland willows are in effect degraded and short-lived successional communities (see Tansley 1939; Rodwell 1991, 1995, for example). Furthermore, volumes on British plant ecology and historical ecology often make little or no reference to willows (e.g. Ingrouille 1995). Ecologists tend to assume that willows are either cultivated or merely successional. Edlin (1947) for example, described White Willow (*S. alba*) and Crack Willow (*S. fragilis*) as, '*Rarely found in the wild they are common in the river valleys of the English midlands as pollard trees lining the sides of streams and ditches*.' Wilson (1850) on the other hand, notes White Willow as naturally abounding in moist situations in most parts of Britain. Wheeler et al. (1999) highlighted the biodiversity value of lowland wet woodlands.

Despite the above, preliminary investigations have identified clearly 'ancient' willows (*Salix* sp.) many centuries old. Indeed, archaeologists working in north-western Scotland suspect some of these trees may be well over a thousand years old (Jane Bunting, University of Hull, pers. comm.) but this suggestion still requires confirmation. Nevertheless, with a mix of large-scale land 'improvement' and a retraction of unenclosed moorland and bog (often former wooded commons) into much reduced upland and western outliers, this once extensive habitat has dwindled beyond recognition. A consequence of this situation is that these remarkable remnant sites are actively threated by ecologically-led but fundamentally mistaken conservation management whereby ancient willow woods are cleared in order to 'regenerate woodlands on site' (Danny Udall, Eastern Moors Partnership, Peak District, pers. comm.). Lack of awareness combines with ignorance of countryside history to threaten this deeply eco-cultural landscape.

Preliminary studies and expert stakeholder discussions have confirmed extensive and apparently ancient sites in western Atlantic zones such as Cornwall, Devon, west Wales, the Isle of Man, Ireland, and both north and west Scotland (Rotherham 2017).

## Lowland zones

In lowland zones, predominantly former fenlands, there were formerly extensive areas of willow beds (withies and osier holts) which were managed to produce coppice willow for functions such as basket making. In the past, to produce withies osiers were often 'coppiced' with new growth cut back each year to about one foot high with 'sharp-edged hooks' (Robinson 1875) (see Figs. 4 and 5), creating a 'stool' left to re-grow. The beds would have been weeded three to four times a year (Robinson 1875).

Small areas persist today and there are expanding markets for willow coppice for traditional osier crafts. However, most of the traditional osier plantations were lost to drainage from the 1800s into the mid twentieth century. Major withy production areas were the Cambridgeshire and East Anglian Fens, the Somerset Levels, the Thames Valley, the Trent Valley, and South Yorkshire. Evidence of former withy beds remains in field-names and place-names such as 'willow garth', 'osier holt', 'withy bed', and alder names such as 'owler' and 'carr' (e.g. Smith 1910; Jones 1973). Along with willow beds of the common osier (*Salix viminalis*) there are several species and hybrid cultivars of willows (generally

**Fig. 4** Osier cutting from Robinson (1875)

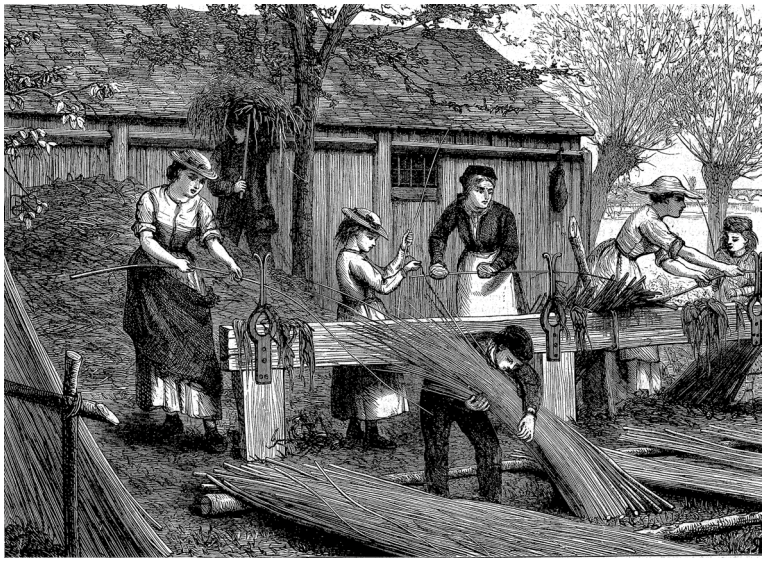

**Fig. 5** Osier peeling from Robinson (1875)

called osiers) grown for withy production; these include *Salix acutifolia*, *Salix daphnoides*, *Salix* × *mollissima*, *Salix purpurea*, and *Salix triandra*.

The second lowland occurrence of significant willows is of standard trees, coppices, and pollards of mostly White Willow (*Salix alba*) in fenlands, but also Crack Willow (*Salix fragilis*) in peripheral habitats. Again, these were an important part of the utilitarian landscape and provided wood for various functions. Veteran specimens occur on significant boundaries and some seem to pre-date the great drainage of the 1600s.

**Fig. 6** White willow in the farming landscape at Fishlake by Ian Rotherham

**Fig. 7** White willow in the farming landscape at Fishlake by Ian Rotherham

They have become important features of the lowland fen countryside (see Figs. 6 and 7) but with changing agricultural practice have fallen into disuse. Notable specimens and groups of trees occur in the now drained former fens such as East Anglia, the Cambridgeshire Fens (especially around settlements such as Ely where they line old drains

and watercourses), Somerset, lowland Yorkshire, and Lincolnshire for example. This final group of lowland willows in farming landscapes is the main subject of this paper.

## Methodology

The approach taken for this study involved literature review and research, and discussion with cross-disciplinary expert stakeholders across the UK and Europe (Rotherham et al. 2021). Alongside these were scoping field studies across the UK and preliminary detailed research in the uplands (Peak District) (Carter 2018), and the lowlands (South Yorkshire) (Rotherham et al. 2021) (see Fig. 8). These provided sample studies with location mapping and measurements of specimen trees using standard methodologies (English Nature 1998, 1999; Ancient Tree Inventory, undated).

For this paper, the research outputs focus on the lowland fen studies from a subsample area of Fishlake and Sykehouse parishes in Doncaster district. Within this study area a small number of select specimens were sampled and measured, owners and other stakeholders were interviewed, and an attempt was made to census the wider resource within these two parishes. This was achieved by carefully examining current aerial photographs, ground-truthing samples to then calculate the population, and assessment of threats to remnant willow populations. The field research generated succinct outputs to set the scene for both future studies and for urgent conservation efforts.

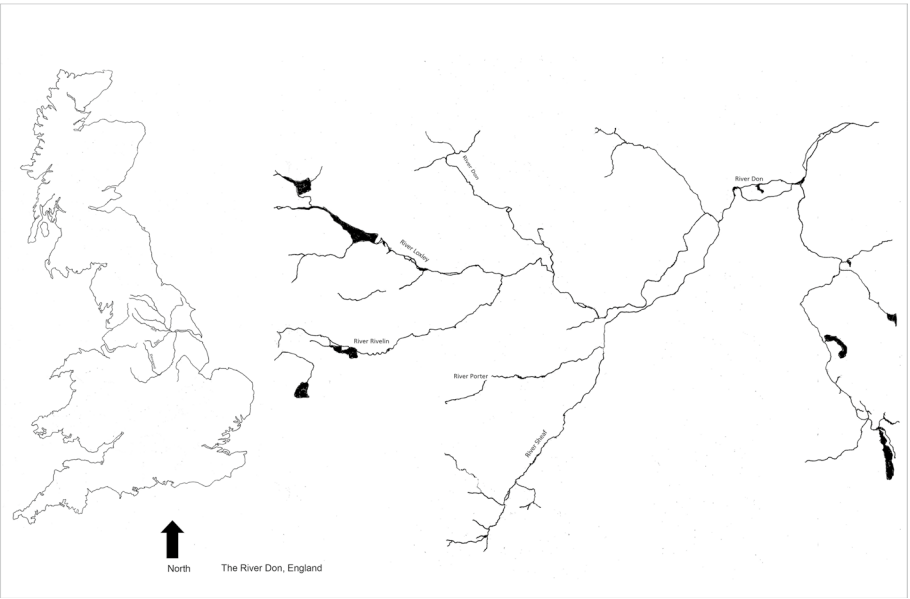


**Fig. 8** The South Yorkshire case study region

## Results

### Willows *Salix*

There are nineteen native willow species in the United Kingdom plus numerous subspecies, varieties, and hybrids (Mitchell 1974; Brendell 1985; Meikle 1984). Most willows are characterised by rugged criss-crossed bark, slender, agile branches and oval shaped or slender elongate leaves. It is believed that the generic name '*Salix*' may derive from Celtic *sal* meaning 'near' and *lis* meaning 'water' and related to their preference for wet habitats. Willows are fast growing but less recognised as ancient trees. Indeed, relatively few willows are formally recorded in the 'Ancient Tree Inventory' (https://ati.woodlandtrust.org.uk/), and generally, large size is attributed to fast growth rather than age.

However, closer observation confirms that many of the trees (uplands *S. caprea/cinerea*, and lowlands *S. alba/fragilis*), are veteran/ancient. The approach taken combines detailed inspection of tree size, form, and structure, and of landscape history/context. In the Fishlake and Sykehouse case-study, the willows in the area had typical veteran tree features such as wide, hollowed trunks, burrs, cavities, and dead branches.

The predominant willow in this study site is *Salix alba*, our most common willow species nationally. This large, fast-growing tree can be up to thirty metres in height at maturity and with a girth at breast height of around 3.5 m and with graceful ascending limbs. If pollarded or coppiced the trees are less tall. Young tree trunks and branches have a smooth grey appearance but as they age they develop a regular pattern of deep furrows and ribs within the bark.

White Willow leaves are lanceolate and with characteristic silvery-white appearance and downy white undersides. Together with location in prominent features in the countryside this makes them distinctive and striking in the landscape. Thriving in wet ground along rivers, streams and ditches and tolerating flooding and waterlogging, trees, male or female, produce creamy fluffy long catkins in spring.

### Historic uses of willow

A review of literature shows willows used historically by communities often directly dependent on natural resources found in their local environments. Thriving in wetland landscapes, the fast-growing willows which responded well to cutting, and white willow in particular with its flexible timber, were found to be well suited to harvesting for a range of purposes. Some of the earliest manufactured items were made from willow with examples such as prehistoric fishing nets or traps. Other products of willows included: energy (faggots, firewood, and charcoal), fodder (hence 'goat' willow), baskets, fish and eel traps, wattle-and-daub house walls, hurdles, coracles, rungs of ladders, handles of small tools, and even artificial limbs for war veterans. Willow bark was in demand for the tanning industry too. White willow, in particular, was valued as its timber is light and strong, has some degree of water resistance, and is easily carved. Crack Willow is the better timber as it is stronger and durable even under water (Johnson 1867). It was turned to make household and dairy implements (e.g. bowls and spoons) and favoured for making milkmaids' yokes for carrying buckets. More mundane uses were for gapping-up hedges either as planted stems or as woven tops after hedge-laying. For centuries, people have used the naturally occurring salicin found

in willow bark as a painkiller. Willows were integral to the survival and livelihoods of early communities. Especially in low-lying wetland landscapes, this is reflected in rural crafts and industries until the mid-twentieth century (Woods 1921; Fitzrandolph & Hay 1926).

Along with functional uses of willows, they are also deeply embedded in British culture through art and literature (Mabey 1996) and in herbal medical practice too (e.g. Grieve 1931; Wilson 1850; Syme 2014; Warren-Wren 1972; Wilks 1972). Yet despite this significance in biocultural heritage, willows and willow landscapes are largely overlooked by countryside historians and others. Hoskins for instance (1955), in his seminal 'The Making of the English Landscape' makes almost no reference to them.

## Pollarding and coppicing

Pollarding and coppicing are ancient tree management techniques used to harvest wood. Pollarding involves cutting a tree above the browsing height of livestock, typically at around three metres in height. It is commonly found in areas of wood-pasture or along boundaries where livestock routinely graze. Coppicing, on the other hand, involves cutting a tree at or close to ground level and typically found in managed (or historically 'protected') woodlands with new shoots of cut coppice protected from grazing damage. However, some willow species, osiers in particular, are grown as coppice in open fields with the stems harvested on annual, biennial, or longer cycles. This was a major industry historically with willow grown for basket-making and other craft industries, but has an additional modern counter-part in industrial biomass production. As they interrupt natural growth and decay cycles of the trees, both practices significantly prolong tree lifespan. Some trees including both willow and alders may also 'self-coppice' if damaged near ground level or re-grow from broken branches that touch the ground. Willows particularly crack willow (*Salix fragilis*), are also prone to collapse and natural regeneration to form so-called 'phoenix' trees. This same characteristic also means that freshly cut willow stems easily take root when planted and this is a means of both natural and artificial propagation.

However, if pollarding or coppicing are discontinued then the 'working' tree will re-grow without attenuation and is then described as 'lapsed' or 'retired'. The upright stems may continue to grow vigorously or else the tree may lose vigour and become vulnerable to collapse. If vigorous growth continues then the increasing biomass renders the tree top-heavy, unstable, and prone to fracture. Furthermore, like many coppices or pollards of a variety of species, conservation reinstatement of lapsed management may itself put the tree into shock and cause dieback. A compounding factor for these trees are part of a cultural landscape is that cessation of management also means that farmers will not have planted and nurtured a new, younger replacement population to come through. A danger is then a progressively declining and ageing willow resource.

Rackham (1986, 2003) notes that willows are mentioned in Anglo-Saxon charters and in the Fens are the most commonly named tree. He also states that pollard willows were recorded in medieval Cambridge in both the town fens and the open-fields. Other records include that for example, in Oxford, a 1301 inquest was held into the death of a schoolmaster who fell into the River Cherwell whilst cutting rods from a pollard willow with which to beat his boys.

### The lowland study region

The scoping research encompassed areas of the former Yorkshire fenlands (Rotherham 2010, 2013). Situated in the lower Don Valley floodplain and within the parishes of Fishlake and Sykehouse in Doncaster district, the landscape holds a remarkable collection of ancient pollard, coppice, and standard white willows.

The 1086 Domesday account records twenty-four households living in Fishlake (one of the largest settlements recorded in that area). The landscape has changed dramatically since then, most notably with the draining of the then Hatfield Chace by Vermuyden in the seventeenth century (Rotherham 2010, 2013). However, the landscape has always been wet and continues so today. The willow has always been integral to the area's history and now to its heritage.

## Case-study survey: Fishlake and Sykehouse in Doncaster district

### Willows

White Willow (*S. alba*) is the predominant species found in the case-study area and one of the most common willows found in Britain. It is a large, fast-growing tree, growing up to 30 m (unless pollarded) commonly with a girth of around 3.5 m as a mature tree (although the girth of one of the ancient willow trees recorded in the survey measured over 8 m). The White Willow (*S. alba*) is described as having graceful ascending limbs and its leaves are lanceolate and have a characteristic silvery appearance with white downy undersides. Young tree trunks and branches have a smooth grey appearance but as they age, they develop regularly patterned deep furrows and ribs within the bark. Trees are either male or female and in spring produce creamy fluffy long catkins. They thrive in wet ground, along stream- and ditch-sides, and can tolerate spells of flooding and waterlogging. It seems that willows are known for their fast growth habit but are perhaps less well known as ancient trees.

### Ancient willows

One reason for an interest in these relict trees is the absence of detailed information (e.g. Doncaster Council 2007). There is limited information available about the life span and potential age of large willow trees. Information from the local authority, Doncaster Metropolitan District Council Doncaster Council 2000) suggests that '*A willow tree of approximately 150—200 years old would represent an ancient tree for its species*'. Then, according to '*Veteran Trees: a guide to good management*' (1999, p148), '*The oldest willows are likely to be pollards or their successors i.e. bollings that have fallen apart or layered branches. Large groups of trees are often a single clone of ancient origin.*'

There may be anecdotal evidence from comments such as by travel writer and journalist, Arthur Harwood Brierley, who visited Fishlake in 1889. He described the willows at the time as, '*All the way alongside the road into Fishlake are the marketable willows or pollards—old, squab, knotted, carbuncular, lance-sprouting things, flourishing alike in the lush meadows in front of every farmstead, and in the steep bank of every*

*drain. It is easy for fancy to trace grotesque forms and faces in their knobbed and knotted barks, while the practical farmer sees in the boughs such forthcoming commodities as hedge-stakes, thatch pegs, and pea-sticks.* (Brierley 1899).

At a UK national level, ancient tree research and efforts have focussed on obvious old oaks, ashes, limes, beeches, and sweet chestnuts; willows are largely omitted and few coppices are recognised except for some well-known sweet Chestnuts and the occasional lime. The Woodland Trust's Species Guides do not feature any willows and nationally there are just a handful of willows recorded on the Woodland Trust's Ancient Tree Inventory Map. In terms of regional strategic recognition, there is no reference to ancient willows in the project area within the Humberhead Levels NCA profile (Natural England 2014). Reflecting the national context, no trees (willows or otherwise) are recorded in Doncaster Metropolitan Borough Council's Notable and Venerable Trees document which covers the parishes of Fishlake and Sykehouse (Doncaster Council 2000). Similarly, there are no ancient trees at all recorded for the study area in the Woodland Trust's Ancient Tree Inventory Map.

Feedback from stakeholders in the study area suggested that for many farmers willows are regarded as an untidy, weed tree. A consequence is the unnecessary removal of veteran trees from the landscape. So for example, in 2020, two ancient pollarded willow trees along the boundary of Doncaster House, the Diocese of Sheffield's former St Cuthbert Church Vicarage were deliberately damaged. This was because a contractor for the adjacent landowner planned to pull them down so by means of chains wrapped around the trees and breaking off limbs by tractor. In this instance, the alert Wardens of St Cuthbert's Church intervened and prevented any further damage. However, this does illustrate a serious and on-going threat to the tree heritage. These trees were also within the Fishlake Conservation Area and required formal consent to either prune or remove them. Across the wider study area, there were numerous accounts of old willows being intentionally removed.

**Fig. 9** Ancient pollard willow to show roadside dyke location at Fishlake by Ian Rotherham

**Fig. 10** Ancient pollard willow to show lapsed pollarding at Fishlake by Ian Rotherham

**Fig. 11** Ancient pollard willow at Fishlake to demonstrate the massive lapsed 'head' by Ian Rotherham

### Management condition in the survey area

From this sample study, it was clear that most ancient willows in the project area are lapsed, pollarded willows (see Figs. 9, 10, and 11). It is estimated that these trees have had no active management for at least fifty or sixty years, perhaps since the 1940s or 1950s. This would tie with a timeline for the agricultural intensification of the area in the post-Second World War period of abandonment of traditional management and a shift to mechanisation.

### Best practice willow management

The Veteran Tree Initiative's '*Veteran Trees: A guide to good management*' (English Nature 1999) provides guidance on management to return a lapsed ancient pollarded willow to management. This may be appropriate in order to safeguard its future but is potentially fraught with risk. Some interested landowners in the study area had experimented with conservation interventions.

In this case, the ancient pollarded willows at their Sykehouse farm were becoming top heavy. Around thirty years ago, the landowner recognised the problem and so tried several methods of taking the excess weight out of the tree crown. The approaches taken ranged from complete decapitation (which resulted in one tree responding well and another going into shock), to phased crown reduction, and phased pollarding, both successful. Nevertheless, the sample survey indicated many very large, ancient trees in overall poor condition and at risk.

## Veteran tree population estimation

### Tree surveys: girth measured at 1.5 m

Of the eight pollarded willows surveyed (excluding Tree 1 with a damaged trunk and Tree 9 that had collapsed), girth at 1.5 m ranged from 4.20 to 8.27 m and on average girth at 1.5 m was 5.42 m. The overall girth (all eight trunks combined) of Tree 4 (a coppice) was 9.4 m and individually the girth of the largest of the eight coppice trunks was 2.4 m.

### Tree surveys: ancient tree features

Of the eight pollarded willows surveyed, seven had fully (five trees) or partially (two trees) hollowed trunks. All ten trees surveyed had insect boreholes; two trees had burrs; and eight trees had cavities. Seven trees had significant bat and bird roosting potential and seven trees had extensive deadwood with saproxylic potential.

### Tree surveys: willow density analysis and population estimate

Thirty-two willow trees were censused in a 1.2 square kilometre sample area. Willow density in the sample area was 26.7 trees per km and the overall project area is approximately fifty square kilometres. Assuming even density across the entire project area, this would indicate a wider population of contain approximately 1,300 willow trees across Fishlake

and Sykehouse and many more across the wider Doncaster Metropolitan District. However, density of willows across the project area appears geographically uneven, with concentrations around villages and farmsteads. With this in mind, the total number may be fewer than 1,300 trees but it can be asserted with reasonable confidence that the project area contains hundreds of ancient pollarded willows.

### Value to wildlife

Trees are well known for their value to wildlife and willows are no exception. In spring for instance, 'pussy willow' (the abundant blossom of willows and sallows), is one of the most important early nectar sources found in these landscapes. The sugary liquid provides the necessary energy for insects such as bees to forage. Old trees in particular are immensely valuable to wildlife with the hollows and crevices, which develop on veteran trees providing shelter for roosting and nesting birds, bats and insects such as wild honeybees. The ancient willows examined during this contained abundant insect boreholes associated with wood-boring insects such as saproxylic beetles.

### Ancient and veteran willows in the landscape

An examination of literature, both current and historical, highlights the very limited attention given to willows in the landscape. Reference is given to some of the craft, industrial and commercial uses of willows but very little note made of their contribution to landscape character. Old pollarded willows for example, are taken as being part of the character of the Somerset Levels in west England and the East Anglian Fenland of eastern England. Osier beds and their uses are also noted in these same regions and in the valleys of for instance, the River Trent and the River Thames. However, beyond references in volumes on old and traditional crafts, there is little mention. In terms of the ecological and biodiversity literature, the willows are noted merely as successional 'weed' species or as trees, which are anthropogenic in origin i.e. they are planted but rarely occur in the wild (e.g. Edlin 1947).

However, a review of historical accounts and some limited fieldwork confirm the deeply eco-cultural nature of the lowland willow landscapes. It is clear that these trees were hugely important in the working agricultural landscapes of firstly the fenlands and then of the wet farming which followed the fenland drainage. Furthermore, the major abandonment of these veteran formerly working trees (See Fig. 12) occurred during the late twentieth century with the widespread transition to modern agri-industrial farming. Yet even today, where these trees occur (as shown in the figures) they are a dramatic part of the landscape character and of the tangible cultural heritage.

The research also revealed two other regions (the Vale of York (Smith 2005), and parts of the Cambridgeshire Fens (Anon. 2005; Doody 2015)) where there has been some recognition of the significance of the old willows, but in neither situation was it possible to bring a conservation project to any conclusion.

## Discussion

Brierley's 1899 article suggested that some of these trees were already very old 120 years ago. From the surveys and assessments it seems probable that some of the local willows in Fishlake and Sykehouse for instance, may be in excess of three or four

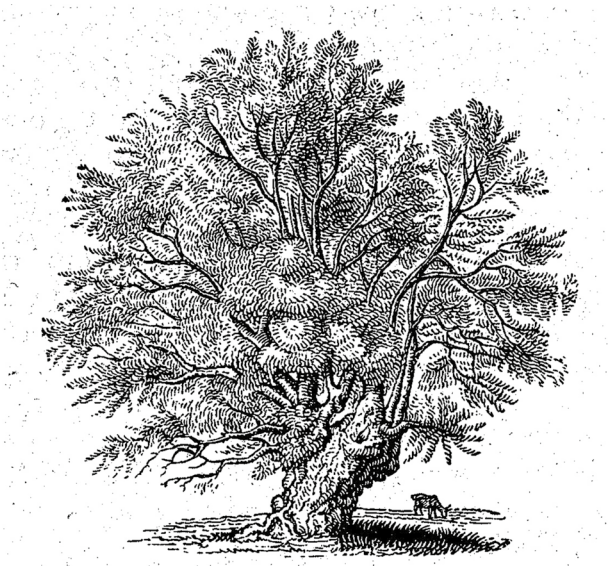

**Fig. 12** Old pollarded willow in Suffolk from Robinson (1883)

hundred years. Indeed, an initial survey indicates that some specimen trees are located on archaeological and landscape features that pre-date the 'Great Drainage' (Rotherham 2010) which began in the mid-1600s. This would provide indication of a minimum age for some of the trees of four hundred to five hundred years. The ability of many willow species to 'phoenix' when a primary trunk collapses means that given a degree of


**Fig. 13** Willow plantation by Jean Baptiste Camille Corot, Saint Catherine, France 1870s

landscape stability and continuity, the trees may form ancient clones. This still needs further research.

These ancient and veteran willows provide living, eco-cultural connections to history, heritage and culture of the region. They contribute significantly to regionally distinctive countryside character as a major biocultural resource and a rich wildlife habitat (See Fig. 13 from France for example). Pollarding and coppicing were traditional tree management techniques used to produce wood harvested for various purposes including faggot bundles for making floating causeways, cricket bats, coracles, milkmaid's yokes, baskets, wattle-and-daub structures, wicker screens, rungs of ladders, and small tool-handles and constructional work. Associated with these manufactures and uses there was a legacy of intangible cultural heritage bit much of this is now lost.

The short case study undertaken suggests that the Doncaster District (with the sub-sample area of Fishlake and Sykehouse parishes) may hold one of England's largest populations of ancient and veteran pollarded willows. The questions then arise as to how best to safeguard and nurture the future of this resource.

### Returning lapsed pollards to management

Many pollards fell out of managed use when their timber was no longer required and now stand as a landscape boundary feature. When they were in active management they may have been cut on a 'cut-and-come' again regime where selected stems were harvested for specific purposes and other stems allowed to grown on for other uses. With a lapse in management, this has probably resulted in uneven growth in size and number of boles on the pollard with decay and hollowing of the main stem. By careful survey and production of a cutting regime, some pollards can be brought back into management and re-invigorated so that the tree's life can be prolonged and the tree's integrity maintained. Using techniques such as phased crown reduction or phased pollarding to return a tree to traditional management may improve tree survival. This approach tries to mimic the old 'cut-and-come-again' management and re-balance the tree to reduce the stresses on its overall structure. However, re-pollarding a lapsed pollard is not always successful and can easily send the tree into shock leading to death. Sometimes, particularly where a tree has especially significant wildlife or other intrinsic value, it may be best to manage carefully a long-term decline rather than risking a failed attempt to re-manage it. A further issue is that once re-pollarding has begun it will need to be repeated every few years. This maybe possible for pure conservation outcomes for a limited number of trees but for a bigger population necessitates a genuine economic driver from the pollard produce. This will be a focus of future work in the study area.

## Conclusions

The initial case studies have confirmed that ancient willows in Britain are generally overlooked and their contributions to both upland and lowland traditional landscapes remain largely unappreciated. The review notes an awareness of White Willow (*S. alba*) around the Vale of York with a small project to record and to sample some veterans in this floodplain situation, but also that this did not result in any relevant policy or conservation actions. In the Cambridgeshire Fenlands around the Great Ouse, then there have been projects to highlight the significance and to positively conserve and enhance the willow populations. The

South Yorkshire (Doncaster District) case study research produced a number of outcomes noted below:

(1) Engaged local communities and raised awareness amongst stakeholders;
(2) Recorded ten sample veteran or ancient willows in a sub-sample area;
(3) Censused the wider population of ancient and veteran willows within the target sub-sample area with an indication of many hundreds such trees;
(4) Confirmed both pollarded and coppiced White Willows (*S. alba*) but also that almost all are 'lapsed';
(5) Guidance developed on recognising and assessing veteran or ancient willows and on possible management options.

Finally, the work has raised awareness amongst both local stakeholders at parish council levels and in the Doncaster Metropolitan District Council about the need and the potential to take these White Willows as an iconic marker trees for their historic farming landscape. There are plans to census the full willow population across the region and furthermore, to develop initiatives to conserve and enhance this in the future. This project will relate to the biocultural heritage of the region's farming but also look forwards to help address flood-risk, biodiversity loss, and climate change resilience in this vulnerable lowland landscape.

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## Declarations

**Conflict of interest** Author declares that he have no competing interest.

**Ethical approval** Not Available.

**Consent to participate** Not Available.

**Consent for publication** As sole author, I made substantial contributions to the conception or design of the work; the acquisition, analysis, and interpretation of data used in the work. I drafted the work and revised it critically for important intellectual content. I approve the version to be published; and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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