THE NATIVE BLACK POPLAR IN SOMERSET, PARTICULARLY IN TAUNTON DEANE

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SUMMARY

The numbers and distribution of the Native Black Poplar are described for Taunton Deane in the context of Somerset as a whole. Relations with environmental factors are discussed and proposals for conservation made.

KEYWORDS

Native Black Poplar, conservation, tree wardens.

INTRODUCTION

A national survey of the Native Black Poplar, Populus nigra var. betulifolia (as in Meikle (1984)), was carried out in the 1970s by E. Milne-Redhead (Milne-Redhead,1990), who recorded about 1,000 standard trees. This confirmed the tree as rare and concluded that it appeared doubtful whether any native Black Poplars had been planted since 1850. As the species has a life expectancy of about 150 years, this implies that most existing trees are now approaching the end of their lives.

The Native Black Poplar has always been considered a tree of river flood plains, often planted to mark boundaries, and which can sprout up spontaneously by water. The species is dioecious, that is male and female flowers occur on different trees. The females produce a mass of downy seeds in June, which can cause blockage problems, so usually only males are planted and females are rarely tolerated. So, there are few females present in the landscape and the species has had to rely on vegetative propagation from broken branches and suckers, and artificial planting. Although once the species was widespread in southern Britain, in more recent years the hybrid forms of the black poplar have become more popular for planting as they produce a more reliable crop. As a consequence, the species has declined considerably and those trees that remain tend to be old and in declining health. Experts estimate that this magnificent tree could become extinct in twenty years.

Existing, but mostly unconfirmed, records of Black Poplars in Somerset suggest about 350 trees, concentrated around the levels, the Channel coast and very particularly in Taunton Deane. Since the launch of a Taunton Deane Rare Tree Survey in August 1993, the Taunton Deane Tree Wardens and other volunteers have been hunting for specimens

of the rare and majestic Native Black Poplar (Populus nigra var. betulifolia). By the end of January 1995, 182 trees were located. In March and April 1995, a re-survey of these trees was carried out to confirm identification of individual trees, to establish their sex and to discover additional information about the tree and its habitat to help in the fight for its conservation.

The aim of re-survey of the trees within Taunton Deane was to gain new and valuable information to assist future plans to conserve this species in the local area, but also to provide help to other areas of the country. Survey questions included those on the form of the tree and, in particular, its habitat. Habitat information and its dependence on water would be important in locating new areas to survey and for establishing new planting sites.

Also explored was the tree's relationship with ivy and mistletoe. Although ivy has no direct effect on the health of the tree, it can sometimes indicate poor health and neglect and accelerate decline. Mistletoe is commonly found in the crowns of hybrid black poplars, but there was no record of its presence on the native form. The new national survey of mistletoe by English Nature prompted the query as to whether it does actually occur on it at all.

SURVEY METHODS

All Tree Wardens and volunteers were asked to complete a simple survey sheet for each tree and to take a twig sample (where possible) so confirmation of the species could be checked by experts. All referees were those used by the Somerset Environmental Records Centre. The survey questions had a choice of possible answers to make analysis easier.

RESULTS

Of the 182 trees, 18 were found either to have been incorrectly identified or to be no longer present on site. And 12 trees were not re-surveyed in the time available. The results from the remaining 152 trees were examined for trends. During the survey period, another 29 trees were located, although these were not included in the results shown here, but now bring the total to 193 trees.

The most disappointing result to arise from the survey was that all the trees were male. There is still hope that a female can be located within Taunton Deane, so that a breeding population can be established in the wild. A similarly-sized population in Clwyd has just one female. Tables of the actual numbers yielded by this survey can be found in Appendix 1.

LOCATION (Fig. 1)

Although the Black Poplar is considered to be a flood plain tree, only 70 out of the confirmed 152 trees were actually found on the plains of the river Tone. The remainder were on the edges of the Quantock and Blackdown Hills. Trees were found in three distinct landscape areas, as listed below. The records were concentrated in the centre, east and south of the region. Although volunteers searched the north and west areas, these areas yielded few results.

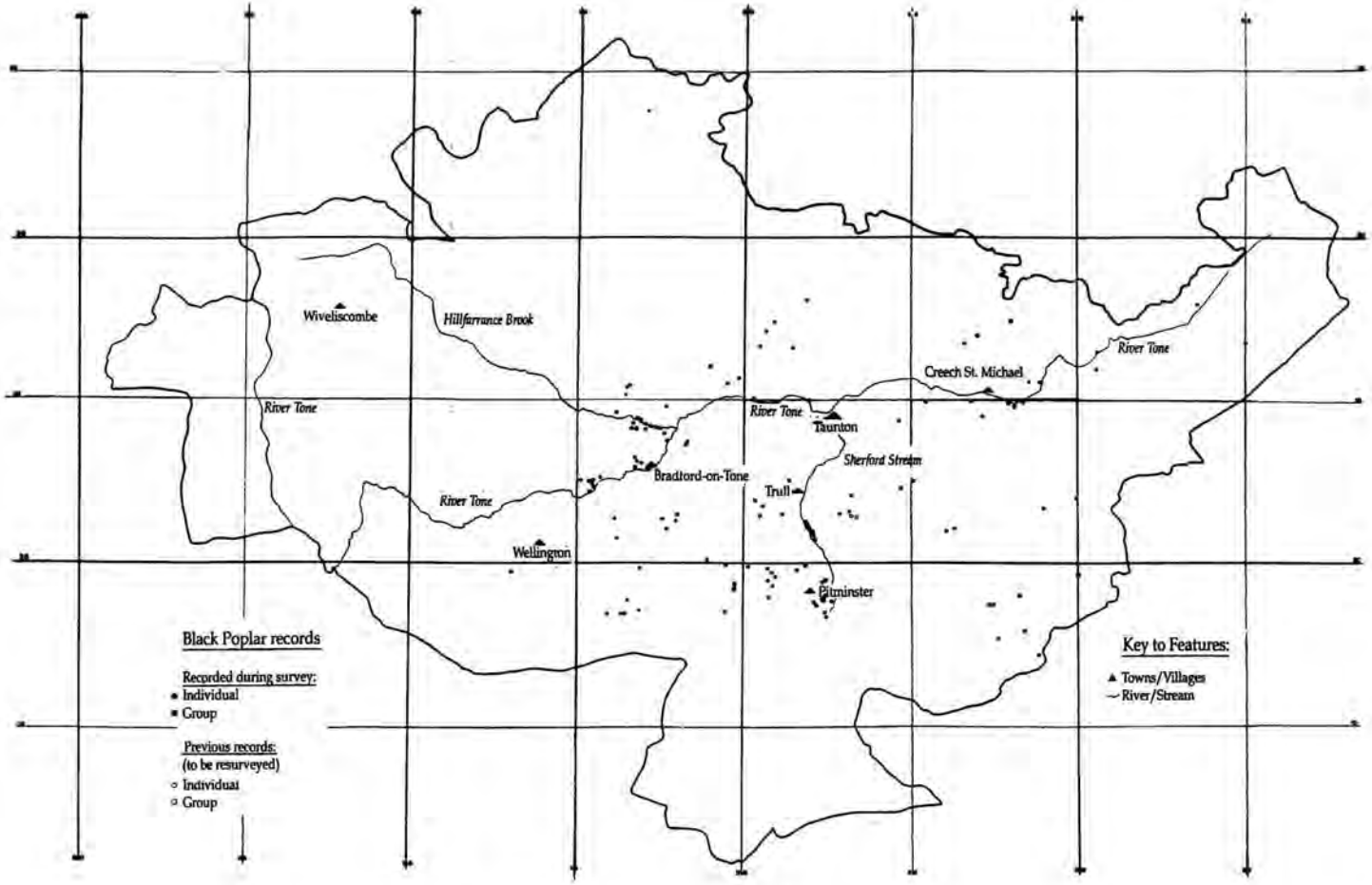

Fig. 1 Distribution map of Black Poplar records, 1995.

The Flood Plain (70 trees)
The most typical of the areas for this species. The characteristics were distinctly different for those east and west of Taunton, however, often reflecting diverse land use. The area to the east has less pasture land than the west, and fewer hedges. In the east, the trees are more likely to be near or by ditches and streams, and rarely close to the river. Here, 80% were isolated specimens, that is, not within sight of another tree, implying that the trees are spread more thinly. In contrast, two thirds of the trees in the west are beside the river or a stream and over 90% are at least within sight of another, revealing a more 'clumped' effect.

Low Vale (37 trees)
This is the area just outside the flood plains, on the edges of the hills, through which run the numerous streams from the hills heading towards the river Tone. There is a higher proportion of trees on arable land and more found away from water than in the other areas. However, most of the trees that are found beside ponds are in the low vale. 54% are in groups, often in pairs. There is also a high proportion of standards (53% compared with the average of 24%).

Blackdown Scarp (45 trees)
The steep scarp slope has numerous small streams springing up along its length and 86% of the trees are found along these and their associated ditches. 70% of the trees are found in hedges and/or on banks. Only 20% are completely isolated, with a number being found singly though within sight of another.

HABITAT

Because of the tree's enormous size, it is not really surprising that 90% of the trees are found away from houses. Most of these are found on pasture land, often in fields with good hedges. The presence of maintained hedges can indicate an owner sympathetic to the presence of trees. 30% are actually on a hedge line.

90% of the trees are beside or near water, usually the river or streams, but also ditches and farm ponds, probably confirming its preference for waterside, but perhaps showing where the ground is too wet to be used for more useful crops.

FORM

Three forms of the tree were recorded: standard, forked and pollards. The pollards are most common (53%) reflecting the long-standing tradition of management for this species. The standards are rarer (21%). The forked trees (those having two or three main limbs from a low fork) are an intermediate form which may have stemmed from a standard that had been damaged earlier in its life or from an old pollard that has lost many of its limbs. The high proportion (26%) of forked trees could indicate a common cause, perhaps a disease or being struck by lightning, that creates this form.

Some differences were found between these forms. A typical standard has a good lean and grows beside flowing water. It often is in declining health. A typical pollard is fairly upright, not as restricted to the waterside, grows on pasture land and often on a boundary. This may reflect a tendency for pollards to originate from planted trees. As expected, the forked trees tend to show a trend intermediate between the other two forms.

CONGREGATION

Recognising how close together the trees occur can be useful in future survey work. In this survey, almost half (47%) were within falling distance of another tree, perhaps showing how the trees were planted in groups, grew up from suckers or were seedlings from a singleton. Another third were within sight of at least one other tree. These may be marking a single boundary line. This 'clumping' trend certainly indicates how the tree seem to congregate in suitable habitats, and may also indicate areas of ownerships where the tree was traditionally retained and managed.

IVY AND MISTLETOE

Thankfully, ivy was found to be no great problem. The trees that did have a lot of ivy on the trunk or high in the crown tended to be growing in hedges. In this survey, no tree was found to have mistletoe, even when nearby hybrid black poplars did, indicating that the native form is not a natural host for mistletoe. This factor could be useful in identification of the species, that is that a tree with mistletoe is unlikely to be native.

FUTURE PLANS

What use can be made of this gathered information? How can it be used for the conservation of the species both locally and nationally?

New Survey Areas
Establishing what the species likes makes it easier to target the most likely areas in which to continue the search. Following the courses of rivers and streams would be promising. The distinct lack of records from the west of the region may indicate the tree's preference for alkaline water rather than acid water, like the streams in the west running off the Brendon Hills. Other local areas that are more likely habitat are the east end of the Blackdown scarp around West Hatch and on the slopes of the Quantocks around Bishops Lydeard. Of course, the search for a female will continue.

Nursery Stock
The formation of small local nurseries with selected stock will be an important part of a programme of new planting. It is important to keep track of the parentage of each cutting, with preference given to trees grown from cuttings whose parent is close to the new planting site. Planting should be encouraged on land where trees already exist, to provide replacement trees in due course, and also to stimulate the owner's interest in the existing trees. Planting should also be encouraged on land where there is suitable habitat but where no black poplars presently grow, making sure that the tree would be allowed to grow to maturity unhindered.

If a female tree is found locally, there is also a potential for forming groups of breeding trees, but caution must be taken to ensure that the female is not located so that the fluff could cause a nuisance (and thus that the tree might be prematurely felled) and that no hybrid black poplars are growing nearby to pollute the native stock.

Monitoring
Now, with this baseline data, there is a means of watching the progress of existing trees as they age and decline. The existing network of Tree Wardens will be valuable as a

means of watching over specific trees and monitoring any changes. Many of the trees surveyed were also photographed and these photographs should be used as a permanent record; subsequent pictures will show any changes in a tree's health.

The survey has also highlighted the most important factors for recording purposes, and a new survey sheet can be drawn up to reflect this. Periodically, the gathered data can be re-analysed to look for any new patterns of loss or need for management.

Maintenance

Until newly planted trees have become established in the landscape, it is important to maintain the existing stock, not just as a source of new cuttings but also as a constant reminder of the reason why this large tree is so important to the landscape. Some of these existing trees would benefit from management to prolong their lives. This should be encouraged, for example, with offers of grant aid. Already the five old pollards on Trull Green have been re-pollarded with the help of a grant from Taunton Deane Borough Council.

CONCLUSION

The survey has shown the number, location and sex of the trees in Taunton Deane. It has shown clearly the types of habitat in which the tree grows and where new planting could take place. It has also shown the need for continued search for females from which to maintain local genetic diversity, and for a concerted programme of conservation.

APPENDIX 1

Included here are the results for the 152 confirmed Black Poplars covered by the survey of March and April 1995. Some of the totals are less than 152 because of incomplete survey forms

LOCATION

The three landscape types used in the survey cover the following parishes (number of trees in brackets):

Flood Plain (East)
- Creech St Michael (8)
- North Curry (2)
- Ruishton (2)
- Stoke St Gregory (2)
- Taunton (1)

Flood Plain (West)
- Bradford-on-Tone (14)
- Norton Fitzwarren (3)
- Nynehead (26)
- Oake (12)

Low Vale
- Kingston St Mary (1)
- Staplegrove (6)
- Stoke St Mary (4)

Trull (17)
Pitminster (north) (3)
West Buckland (north) (6)

Blackdown Scarp
Bickenhall (3)
Curland (5)
Orchard Portman (2)
West Hatch (4)
Pitminster (south) (26)
West Buckland (south) (5)

OVERALL TOTALS

Location		
Flood Plain	70	46%
Low Vale	37	24%
Blackdown Scarp	45	30%
Total	152	
Form		
Standards	32	21%
Forked	40	26%
Pollards	80	53%
Total	152	
Lean		
Upright	61	40%
Slight	54	36%
Definite	34	23%
Fallen	2	1%
Total	151	
Damage		
None	15	10%
Slight	59	39%
Moderate	54	36%
Severe	23	15%
Total	151	
Habitat		
Urban	13	9%
Rural:		
Arable	9	6%
Pasture	108	71%
Both	14	9%
Other	8	5%
Total	152	
Hedging		
With	103	75%
Without	34	25%
Total	152	

Boundary		
Hedge	48	32%
Bank	25	16%
Other	6	4%
None	73	48%
Total	152	
Proximity to Water		
Beside/in	109	72%
Near	27	18%
No water	16	10%
Total	152	
Form of Water		
River	39	28%
Stream	63	45%
Ditch	25	18%
Pond	12	9%
Total	139	
Ivy		
None	55	37%
Little	52	35%
Lot	21	14%
High	22	14%
Total	150	
Congregation		
Individual	32	21%
Within sight	49	32%
Within group	71	47%
Total	152	

CORRESPONDENCES

Various correspondences between these different factors were carried out, in particular how these factors varied between location (i.e. Flood Plain, Low Vale and Blackdown Scarp) and forms (i.e. standard, forked and pollards).

Correspondence Between Location and Form

	Standard	Forked	Pollards	Total
Flood Plain	10	22	38	70
Low Vale	17	6	14	37
Blackdown Scarp	5	12	28	45
Totals	32	40	80	152

Correspondences with Location

(FP=Flood Plain, LV=Low Vale, BS=Blackdown Scarp)

Habitat

	FP	LV	BS
Urban	4	6	0
Rural:			
Arable	4	4	1
Pasture	54	22	33
Both	3	2	8
Other	4	3	2
Totals	69	37	44

Boundary

	FP	LV	BS
Hedge	13	7	23
Bank	4	5	13
Both	2	5	9

Proximity to Water

	FP	LV	BS
No water	4	9	3
Near	15	6	7
Beside/in	52	23	34

Type of Water

	FP	LV	BS
River	28	10	1
Stream	25	11	27
Ditch	24	2	11
Pond	3	6	2

Congregation

	FP	LV	BS
Individual	16	7	9
Within sight	21	10	18
Within group	33	20	18

Comparison Between East and West Flood Plain

Form

	EFP	WFP
Standard	1	9
Forked	4	18
Pollards	10	28
Totals	15	55

Habitat

	EFP	WFP
Urban	1	3
Rural:		
Arable	1	3
Pasture	8	46

Both	2	1
Other	2	2

Hedging

	EFP	WFP
With hedges	5	48
Without hedges	8	4

Boundary

	EFP	WFP
Hedge	6	5
Bank	0	3
Both	0	2

Proximity to Water

	EFP	WFP
No water	2	2
Near	4	11
Beside/in	10	42

Type of Water

	EFP	WFP
River	2	26
Stream	5	20
Ditch	7	4
Pond	0	3

Congregation

	EFP	WFP
Individual	12	4
Within sight	3	18
Within group	0	33

Correspondences with Form

(S=Standard, F=Forked, P=Pollard)

Lean

	S	F	P
Upright	3	11	47
Slight	16	20	18
Definite	12	8	14
Fallen	1	1	0

Damage

	S	F	P
None	1	3	11
Slight	12	14	33
Moderate	12	17	25
Severe	7	5	11

Habitat

	S	F	P
Urban	3	4	5
Rural:			
Arable	4	3	2

Pasture	21	24	63
Both	1	5	8
Other	3	4	1

Boundary

	S	F	P
Hedge	2	10	34
Bank	1	6	17

Proximity to Water

	S	F	P
No water	2	3	11
Near	7	3	17
Beside/in	23	34	52

Type of Water

	S	F	P
River	12	8	19
Stream	13	20	30
Ditch	1	6	18
Pond	4	5	3

Ivy

	S	F	P
None	17	15	23
Little on trunk	10	15	27
Lot on trunk	3	4	14
High in crown	2	6	14

Congregation

	S	F	P
Individual	6	10	15
Within sight	12	10	28
Within group	14	20	37

REFERENCES

Meikle, R.D. (1984). *Willows and Poplars of Great Britain and Ireland*. Botanical Society of the British Isles, London.

Milne-Redhead, E.W.B.H. (1990). 'The BSBI black poplar survey, 1973–88', *Watsonia*, **18**, 1–5.

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