

Native Black Poplar

Greater Manchester has one of the largest populations of native black poplar in Britain.

Ecology

Native black poplars (*Populus nigra* subsp *betulifolia*) in the wild are usually found in wet areas and floodplains, typically along side streams and rivers. They are characterised by their large, often leaning and ungainly appearance with massively arching, down-curved branches and heavily burred trunks. In the past they have been frequently pollarded but this practice has since lapsed. In the spring, the male and female trees produce red and green catkins respectively. Although generally neater in appearance, hybrid black poplars are often mistaken for the now rare native black poplar.

In Greater Manchester the tree's tolerance to industrial pollution has meant that it was widely planted as an urban tree (known as the 'Manchester Poplar') in the late nineteenth and early twentieth century and until recently survived almost anywhere. The largest specimen in Greater Manchester is

up to 25m high and just over 1m in diameter at breast height.



Manchester Poplar's in Trafford Park showing 'classic' leaning habit

A virulent disease, diagnosed as poplar scab *Venturia populina*, has infected a majority of Greater Manchester's native black poplar and the current trend is that once infected, the tree will die within 5 years. An action plan is needed for native black poplars because of their national rarity and the fact that although planted, Greater Manchester has the highest

concentration of native black poplar in the United Kingdom. This coupled with the fact that poplar scab is decimating this internationally important population means urgent attention is required.



Venturia populina infected shoot and leaves

The main management intervention in Greater Manchester is pollarding or pruning. This has usually been initiated for safety reasons as large limbs often become very fragile.

Priority habitat description

Optimum habitats are riverside and floodplain locations although they exist in Greater Manchester in a wide variety of urban locations.

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Current status and distribution

International

Black Poplar in the aggregate sense, is widely distributed but increasingly scarce through much of mainland Europe reaching into central Asia and North Africa. The subspecies within mainland Europe is generally accepted as being different from that in the UK, namely *Populus nigra* subsp *nigra*. *Populus nigra* subsp *betulifolia* is found in Britain, Ireland and on the fringe of Western Europe whereas *P. nigra* subsp *nigra* is found throughout the remainder of Europe. There is still some confusion surrounding the taxonomy of black poplar within Europe with some authors describing three European subspecies.

National

There are estimated 7,000 recorded native black poplars in Britain, chiefly occurring south of a line from the Mersey to the Humber estuaries. Many of these are believed to be genetic clones, so there are probably considerably fewer distinct genotypes. The tree has wild population strongholds in Shropshire, Cheshire, the Vale of Aylesbury and Suffolk. The vast majority of the trees have reached maturity and there has been very little planting of new trees until recently. Female trees are particularly rare, with an estimated 400 nationally. Seed

germination is restricted to the unvegetated banks and bars of low intervention river systems. Britain's well-managed rivers have lacked suitable habitats for centuries. Consequently, the current population reflects former planting preferences rather than any natural distribution pattern, and it is not surprising that genetic diversity is low.

Greater Manchester

Within Greater Manchester the native black poplar survives at the northwestern limit of its natural range. It has been so extensively planted that there are probably as many trees in Greater Manchester and surrounding areas as there are in Britain's wild population.

The tree is likely to originate from a single cutting of a male tree and is therefore effectively all clones. There are no known female trees in Greater Manchester. A very rough approximation by Red Rose Forest puts the Greater Manchester population at between 5000-7000 trees in 2000, but by 2005 almost half of these had been felled due to disease. They are found across the conurbation with the greatest concentrations in the east and north where airborne pollution was at it worse and the highest concentration of nineteenth century industry was found. Whilst widely planted, most trees are now found in parks, cemeteries and urban green space.

Legal

Black poplars receive the same protection as all other wild plants in the UK through the Wildlife and Countryside Act, 1981. Therefore, they may not be uprooted without permission of the landowner. The felling of trees may be prevented by Tree Preservation Orders (on the basis that the trees are healthy, have amenity value and for there to be a known threat). Black poplars are also



Felled diseased trees at Broadhurst Park, Manchester

within the list of point-scoring species used in assessing hedges under The 1997 Hedgerow Regulations. The Forestry Act 1967 and subsequent acts; require a felling license to be obtained from the Forestry Commission if more than 5 cubic metres of timber are felled within any calendar quarter. There are numerous exemptions to this but the legislation does provide some level of felling control. Within recent amendments to the

Habitat Regulations, there is now a greater emphasis to demonstrate that best practice is being adhered to in relation to bats and other species during felling operations. As many mature native black poplars possess potential roosting sites, these regulations may afford the tree additional protection than previously.

Factors affecting the species

International

Climatic change, an ageing and declining population and the lack of genetic diversity are all considered threats to the conservation of native black poplar within its European range.

National

- ◆ Shortage of female trees
- ◆ Climate Change and effects, such as storm damage, drought
- ◆ Ignorance as to their presence
- ◆ Loss of both natural river systems and unstable floodplain sediments results in an absence of suitable habitat for natural regeneration

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- ◆ Possible hybridisation of native black poplar with non-native poplar hybrids
- ◆ The widely dispersed population makes site based conservation more difficult
- ◆ Removal of hedgerows and trees, which grow within them
- ◆ Felling of trees for development or safety concerns
- ◆ Emergence of a virulent form of poplar scab in Northern England

Greater Manchester

Increased awareness of the importance of Manchester Poplar within the wider native black poplar population.

- ◆ Extremely limited genetic diversity
- ◆ Greater Manchester's outbreak of poplar scab.
- ◆ Wetter, warmer spring weather favouring scab development.
- ◆ There are no known female trees in Greater Manchester.

- ◆ Negative image of tree due to unsightly appearance of dead trees (due to poplar scab) and cost of removal

Climate change and the warmer wetter winters, lack of cold periods in winter and earlier onset of spring may assist poplar scab. This may also assist other diseases such as poplar leaf spot and rusts which can further weaken trees in poor health due to scab. Lack of genetic diversity and sexual reproduction will continue to be a problem.

Current actions

National

- ◆ National Seminars held by UK Black Poplar Conservation Group
- ◆ Production of Native Black Poplar BAP's for many areas notably Cheshire

Greater Manchester

- ◆ Press and publicity including TV
 1. Poplar scab and its implications for Black Poplar
 2. Royal Botanic Gardens, Kew Press Release
 3. Tree killer threatening to wreck landscape
- ◆ Production of Information Sheet

Manchester Black Poplar Disease

- ◆ New test planting of 100 trees of different genetic clones within Greater Manchester in 2005 and 2009 (*Red Rose Forest*)
- ◆ Manchester Leisure survey of Manchester Poplar (Manchester City Council)
- ◆ Metrolink Survey of Manchester Poplars (*RRF*)
- ◆ Manchester site visits by Dr David Rose of Forest Research (*RRF*)
- ◆ Mersey Valley Countryside Wardens in partnership with the Environment Agency have planted around 100 black poplars at Stenner Millgate LNR.

Objectives and targets

National

There are no national BAP objectives and targets, but the Black Poplar Conservation Group has prepared the following 2001 draft national targets for the species.

- ◆ To locate existing trees
- ◆ To safeguard existing trees

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- ◆ To increase the number of black poplars by developing a diverse age structure by planned planting
- ◆ To inform and educate landowners and managers about black poplars and to raise public awareness
- ◆ To ascertain, maintain and increase the genetic variability
- ◆ To seek protection through the planning system
- ◆ To adopt Best Practice Guidelines on planting and pollarding published by the UK Black Poplar Conservation Group.

Greater Manchester

Objective	Target	Quantity	Target Date
Increase the genetic diversity of native black poplar	Plant new trees in riverside locations that include a mix of male and female trees, to encourage sexual reproduction, and genetic make-up. Record all planting site locations on GIS. Also record planting material source or clonal type.	180 trees	2010

Proposed actions

Site and Species Safeguard

1. Establish a site list of local stool beds and nurseries that could supply native black poplar propagation material. LA's, RRF. 2009
2. Investigate feasibility of establishing stool bed of different genetic material within Greater Manchester LA's, RRF. 2009
3. Identify suitable locations in each local authority for new black poplar planting LA's, RRF, GMEU, EA. Ongoing
4. Facilitate planting of suitable sites with a mixture of sexes and genetic make-up. LA's, RRF, EA. 2009

Advisory

1. Disseminate simple disease and tree recognition sheets across relevant Greater Manchester organisations. **LA's, RRF. 2009**

Future Research and Monitoring

1. Support Forest Research in establishing the particular strain of *Venturia* infecting Black Poplars and reasons for the recent virulent outbreak. **All BAP Partners**

2. Keep a record of any surveys of native black poplar undertaken by partners as well as any areas of poplar removal that have been noted. In particular, record location of any female trees. **RRF. Ongoing**

3. Survey native black poplar plantings carried out in 2005 within Red Rose Forest recording survival, condition and any signs of poplar scab. **RRF. 2009**

4. Record location, source and clonal type of any new plantings. Ensure disease monitoring of any new poplar plantings is advised to site managers in order to prevent further planting of susceptible types. **All BAP partners. Ongoing**

Communication and Publicity

1. Maintain list of interested organisations and individuals. **RRF. Ongoing**

2. Produce yearly status report on BAP targets/actions. **RRF. Ongoing**

3. Liase with Cheshire's Native Black Poplar group regarding their BAP progress **RRF. Ongoing**

4. Raise awareness of the ecological and cultural significance of Manchester's native black poplar. **All BAP Partners. Ongoing**

Lead partners

EA	Environment Agency
GMEU	Greater Manchester Ecology Unit
LA's	Local Authorities
RRF	Red Rose Forest

Best practice guidelines

(Extracts taken from 'The Black Poplar - Ecology, History and Conservation' by Fiona Cooper)

Strategic management of existing trees

Much of Greater Manchester's native black poplar are located in public open spaces, near roadsides or other boundary features and have been severely affected by poplar scab. In most instances, the needs of the tree have to be balanced alongside other objectives by site managers. The approach

taken by Manchester City Council in their Manchester Poplar Strategy seeks to find a way forward given the recent and rapid decline in the condition of the native black poplar. The Strategy puts forward some recommendations for managing the spread of poplar scab and for managing the tree population. These include:

- ◆ Maintaining the healthiest trees
- ◆ Enabling selective felling/pollarding works to be carried out
- ◆ Allow for those trees in remote or inaccessible areas to deteriorate naturally in order to encourage biodiversity

Other site factors affecting tree health

As with other tree species, native black poplar can be affected by changes in the soil or water table levels. Compaction of the rooting area and fires beneath the canopy will also adversely affect the tree. Grazing animals should be separated from trees and ploughing should be restricted, where possible, to outside the rooting zone.

Pollarding and Tree Surgery

The practice of pollarding trees has maintained and in some instances extended the life of some native black poplars. However, care should be taken when

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pollarding a tree for the first time (or after many years since the last pollarding) as the tree may not recover or fail to re-shoot from



Avenue of Manchester Poplars

around the cut surface. The age and condition of the tree needs to be considered – a mature tree in poor condition may struggle to recover from the work. In Greater Manchester, most native black poplars are over mature and in a less than healthy state. In 2003 and 2004 many infected trees were pollarded in Manchester in an attempt to limit the spread of the disease and save them by stimulating new growth. Unfortunately, the results to date have not been good with many trees dying and others producing poor growth which is still succumbing to the disease.

New pollards can be created when the girth of a young sapling reaches about 15 to 20cm. The tree is cut usually between 2 and 4m from the ground to allow new growth to

sprout. Re-pollarding of young trees can be done on a 3 to 5 year cycle whereas for larger trees this can be extended to 10 to 15 years. There is obviously a management and cost commitment to maintaining any pollards.

Planting Stock

In practice, planting stock should be sourced from other areas as opposed to using Manchester Poplars (although local) which are considered to be the same clone and susceptible to poplar scab. Any planting of native black poplar should not use cuttings from trees that show poplar scab symptoms. Ideally a mixture of male and female and different clones should be planted at any one site. This should improve the chances of trees reaching maturity and producing viable seed.

Studies have shown that man has moved native black poplar genotypes around the country a great deal with the same clones occurring large distances apart. The Manchester Poplar genotype can also be found in Sussex, Essex, Suffolk, West County, Ireland and the coast of Holland. The natural pattern of distribution has already been interrupted. It is important to plant a range of genotypes to produce a more varied population, better equipped to cope with natural and man-made stresses. In order to check that new plantings remain disease free, trees should be monitored for signs of

poplar scab. Should a particular clone or source prove to be susceptible, and then further planting of that source should be reviewed.

Planting location considerations

As mature native black poplars can have large, spreading crowns they are not suited to small spaces. They should also be sited away from structures, boundaries, roads, drains or underground services. Care should be taken when siting trees in public areas or near paths, as the tree will become brittle with age. Site managers should also be aware that females produce large amounts of fluffy seed. In order to mimic natural distribution patterns, planting sites ideally should be within river valley floodplains or wetland areas.

Poplars are not shade tolerant and the planting site should have an open aspect. Trees should be planted singly or in small groups rather than covering larger areas. The Environment Agency should be contacted prior to any tree plantings within 8m of a riverbank top.

Propagation and planting methods

Planting can be carried out using hardwood cuttings between 25cm and 1.5m in length. The best time for taking cuttings appears to be during February or March although this can be done anytime when the tree is

dormant. Hardwood cuttings should be taken from growth made in the previous summer. When planted, they should be placed with at least half their length in the ground. Cuttings can also be grown in containers, in a mixture of sand and soil, which should be kept damp. Once rooted, they can be planted out after their first year. If a regular supply of cuttings is needed, a stool bed can be set up. The use of seed for propagation is not recommended due to the ability of the species to hybridise with other poplars and uncertainty of seed origins. As with all tree planting, weed or grass control is important during the first few years. Likewise, young trees should be protected from any browsing or grazing animals.

Impact of invasive species

Compared to the extensive and damaging effects of poplar scab, the impacts of alien species are relatively small. The prevalence of dense stands of Himalayan balsam, Japanese knotweed or rhododendron along river banks and nearby habitats may have some negative effect on potential germination of native black poplar seed. However, other factors such as the lack of females and lack of suitable habitat are more critical.

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Links to relevant BAP's

Reedbed

Wet Woodland

Bats

Marshy Grassland

References

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- ◆ Cheshire Region Biodiversity Partnership, *Native Black Poplar Local Biodiversity Action Plan*
- ◆ Williams, J (Manchester City Council) (2007) *The Manchester Poplar Strategy*
- ◆ Cottrell, J (2004) *Conservation of Black Poplar (Populus nigra L.)* Forestry Commission Information Note 57

Further information

- ◆ Jones, M. (2004) *Management and Planting Guidelines, Native Black Poplar, Populus nigra betulifolia*. 1st Edt. Craven Design & Print Ltd.

- ◆ BSBI web based database of taxa, literature and cytology (<http://rbg-web2.rbge.org.uk/BSBI/>)

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