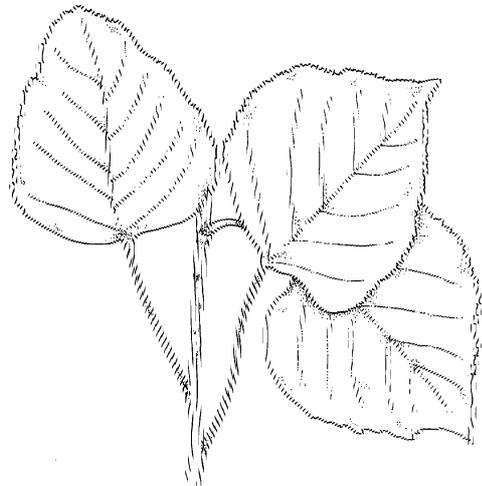


# Species Action Plan for Sussex

## Black Poplar *Populus nigra* ssp *betulifolia*



### I. Introduction

#### Habitat requirements & ecology

The Atlantic form of black poplar *Populus nigra* subspecies *betulifolia* is a tree of wet woodland and forested floodplain. In Britain these habitats have been steadily removed since Neolithic times, through land drainage and woodland clearance, and the black poplar remains as an occasional tree of field, hedgerow and bankside. The persistence of black poplar in the landscape is due largely to its utility as a timber tree and it was widely cultivated until the mid 19<sup>th</sup> century, when more productive hybrid strains were introduced from abroad.

The black poplar is historically a significant tree in Britain and once played a substantial role in local economies and culture. In some parts of the country it was used in traditional village tree dressing events and spring fertility festivals. Black poplar timber is particularly shock and fire resistant and it was widely used in wagon bottoms, for scaffolding, fenceposts and in the roofs of buildings. The typical cultivation practice was to cut and plant truncheons from local, usually male, trees. Female trees were less favoured because they produce copious amounts of fluffy seed. Virtually all black poplars remaining in Britain date from before 1850, as very few have been planted since that time. Those poplars that are now commonly planted in the UK are invariably of hybrid stock.

The black poplar is a robust, broadly rounded tree, which can grow to a height of 30 metres, with a crown of 20 metres and a trunk diameter (at breast height) of up to 250cms. Mature trees are most easily recognised from a distance, especially in winter. They often lean at an angle and have dark grey deeply furrowed bark usually interrupted by large woody swellings or bosses. The crown is typically spreading, and old(er) trees often have down-curving branches upswept at tips. Young leaves generally open in late April and are pale green, occasionally tinted bronze at first and have a distinct aroma. Mature leaves are mid-green, and variable in size and shape, but they usually have a cuneate base, and the leaf is longer than it is wide. The leaf margins are serrated but teeth are usually not hooked. Petioles have no glands at apex.

The black poplar is dioecious and catkins appear before the leaves. The male catkins are crimson and appear in late March/early April. Female catkins, which are yellow-green,

appear shortly afterwards. Black poplars can live for over 250 years and there are historical records of extant individuals dating back to before 1715 (White, 1993).

### **Current distribution in Europe, UK and Sussex**

In Europe, the Atlantic form of black poplar is confined to Britain, Ireland, Northern France and parts of Western Germany. The boundaries of the distribution of this subspecies from the continental type species *Populus nigra*, are indistinct due to naturalisation, and have been much obscured by artificial cultivation (White, 1993).

Black poplar is considered to be native to Britain (Stace, 1991) and most trees are found south of a line from the Mersey to the Humber estuaries, with a few scattered individuals occurring as far north as the River Tees (Milne-Redhead, 1990; Durham WT, 2000). The black poplar is widely spread within this range but latest estimates indicate that there are less than one hundred clones and some 7000 individuals. The greatest concentration of black poplars occurs in the Aylesbury Vale, which holds approximately half of the British population. There are concentrations in the low hundreds along the River Severn and in Somerset, Suffolk and Shropshire.

In Sussex, thirty three individual trees have so far been identified (Penfold pers.com.). Although the number of black poplars in the county is low, it is likely that this population is significant on a national scale as it contains an unusually high female to male ratio (Le Ray, 1999) of approximately 1:1.

### **Legal and conservation status**

The unauthorised intentional uprooting of any wild plant species, which includes black poplar, is prohibited under the Wildlife and Countryside Act (1981).

In some areas of England individual black poplar trees are protected by Tree Preservation Orders, though with few exceptions, not in Sussex.

Black poplar is one of only three tree species included within the European Forest Genetic Resources Programme (EUFORGEN). This is a collaborative programme among European countries aimed at ensuring the effective conservation and sustainable utilisation of forest genetic resources. Funding for this programme comes from participating countries operating through networks such as the *Populus nigra* network, whose first meeting was held in 1994.

There have been recent calls to designate ancient trees as Sites of Special Scientific Interest (Green, 2001).

## **2. Current Factors Causing Loss or Decline**

### **Habitat degradation**

Loss of suitable habitat, through agricultural improvement, river and floodplain development and wetland drainage schemes, mean that very few areas now provide suitable conditions for the natural regeneration of native black poplar.

### **Demography**

The majority of surviving native black poplars are approaching the end of their natural life spans. Outside of recent conservation programmes, there have been few new plantings in the last 150 years and virtually no new non-hybrid seedling development.

## **Taxonomy**

Difficulties in distinguishing native from hybrid black poplars have caused problems in establishing the exact status of the tree. It has also increased the risk that non-native hybrid seed/whips may be sold and planted in error.

## **Genetic diversity**

Lack of genetic diversity is a potential problem, as this species may now be particularly vulnerable to chance extinction events. The genetic analysis that has been undertaken to date suggests that individual trees across Europe are all very closely related, and lack much DNA distinction between trees.

## **Poor natural sexual regeneration**

Seedlings of black poplar are very uncommon, not so much because of the lack of fertile seed but because the conditions for germination on the very limited range of sites is rarely suitable. The short-lived windblown seeds need to fall onto ground that is kept both bare and wet and free of competition from the end of June until October. Any flooding or drought (more common now that much land is drained) occurring during this period causes seedlings to perish. Where conditions do allow seedlings to germinate these are likely to be hybrids, as pollen contamination from cultivated varieties is probable.

## **3. National Species Action Plan**

An un-adopted National Species Action Plan for black poplar has been written by English Nature (Spencer, 1994) and is currently under-review by the Vale of Aylesbury Black Poplar Working Group.

The Keys Proposals for Action and Recommendations put forward in the English Nature plan are:

- Map, record and monitor the localities of all remaining black poplars in Britain
- Provide trees of local provenance for planting
- Maintain the genetic diversity of black poplar stocks within the UK
- Establish nursery stocks across the country with trees of known and verified origin
- Establish a procedure for recording the origins and placement of recently planted trees
- Campaign to protect the tree from unnecessary destruction, by local authorities and others
- Encourage the planting of black poplar in restored floodplain woodland and in denser stands in small blocks in some areas, e.g. river meanders
- Avoid planting, especially dense stands, where inappropriate, e.g. where this will undermine the historical value of the site
- Encourage black poplar plantings, particularly in new landscapes such as parts of new developments or land restoration schemes
- Encourage English Nature, Forestry Authority, Environment Agency and others to undertake sympathetic management of black poplar trees and their habitats
- Encourage the publication of material to raise the profile of the species
- Encourage the production of educational resource material for national and local distribution
- Encourage research on the genetic diversity of black poplar
- Seek funding for initiatives from Forestry Authority and others

#### **4. Current Action**

The status of the black poplar in Britain was first assessed by the Botanical Society of the British Isles in a survey carried out from 1973-78 (Milne-Redhead, 1990) but its endangered status was not recognised until 1993 (White, 1993). The plight of this species was highlighted in that year by the Daily Telegraph newspaper in their 'Help save our biggest tree from the chop' campaign, with the result that several hundred unknown trees were reported.

A National Black Poplar Group was originally set up by the Forestry Commission. More recently, the Vale of Aylesbury Black Poplar Working Group has been renamed the National Black Poplar Working Group, Technical. The group largely consists of landmanagers and practical workers and works in conjunction with academics to promote the national conservation of the species.

A clone bank of black poplars has been built up by the Forestry Commission and currently 100 accessions are being held (for security reasons) at three separate sites. A number of local Black Poplar Species Plans have been produced (e.g. Essex WT, 1999; London BP, 1999; Worcestershire WT, 1999) and several nursery stocks of local provenance black poplars have been established in a number of counties.

Several pamphlets and articles on black poplars have been produced in the last ten years, of particular note are 'The Native Black Poplar: A Species in the Ghetto?' (Mabey, 1996) and 'Native Poplars and the Restoration of Floodplain Forests' (Tabbush, 1996). Leaflets on the planting and aftercare of native black poplar and management guidelines for existing trees have recently been produced (Clennett, 1998; Le Ray, 1999; Noakes, 1999; Tavender, 1999)

In Sussex, Frances Abraham and Frank Penfold convened the first county meeting on Black Poplars in February 1994. (Penfold, 1996). As a result of this meeting arrangements were made with the Royal Botanic Gardens under which a stool-bed for Sussex black poplars was to be provided and managed at Wakehurst Place. To date cuttings from all 33 verified Sussex black poplars have been collected and are being grown on at Wakehurst; including cuttings from the now dead tree No. 6 (Sheffield Bridge). Stools from each tree are now productive and to date (2001), over 1000 cuttings have been transplanted in various sites across the county.

After being recognised as a possible black poplar, each tree in Sussex is verified by a referee, (currently C. Clennett of RGB Wakehurst), and a register of all extant trees and plantings is currently maintained by the Sussex Otters and Rivers Partnership Officer. This register contains details of the location, measurements, sex and ownership of each tree. It is maintained as a confidential document and is communicated to the Biological Records Centre at Woods Mill regularly.

In May 1997 the Sussex black poplar project was formally constituted as a Working Group of the Sussex Wildlife Trust, and several organisations are now represented on it (see Appendix 1.). This Group currently meets twice annually.

#### **5. Objectives**

1. To arrest the decline and then expand the number of black poplar trees of varied ages in Sussex
2. To ensure appropriate and sympathetic management of watercourses, wetland habitats and hedgerows for black poplar in Sussex
3. To plant, where appropriate and possible, individual and stands of local provenance black poplars in each Sussex catchment
4. To provide a nursery stock of local provenance black poplars in Sussex
5. To use the black poplar as a flagship species for good riparian and wetland habitat

### **Objective 1.**

#### **To arrest the decline, maintain and expand the number of black poplar trees in Sussex**

To achieve this objective the distribution of extant black poplars in Sussex needs to be identified, and this to some extent has already been achieved. Currently 33 individual trees have been accepted in Sussex and this figure is likely to represent a significant proportion of the existing population. The next step is to protect these extant trees, where possible, and to support these individuals through new planting of local provenance stock. Cuttings from each of the Sussex trees have been collected and these are now being grown on at RBG, Wakehurst. The collection of cuttings from any newly identified trees and the planting of rooted whips from the stocks at Wakehurst is currently being undertaken by the Sussex Otters and Rivers Partnership Officer and others on behalf of the Sussex Black Poplar Working Group.

### **Objective 2.**

#### **To ensure appropriate and sympathetic management of watercourses, wetland habitats and hedgerows for black poplar in Sussex**

Guidelines for best practice for watercourse engineering, riparian land management and hedgerow management should be promoted. These practices should be adopted by all authorities, agencies, relevant landowners and organisations with responsibilities for management of these habitats across Sussex.

### **Objective 3.**

#### **To plant, where appropriate and possible, individuals and stands of local provenance black poplars in each Sussex catchment**

Using the local provenance stock currently being provided by RBG Wakehurst suitable sites for the planting of black poplars should be identified within each river catchment. Plantings should range from:

- individual specimen, isolated trees
- small groves of trees in appropriate places
- significant wet woodland plantations/restoration

### **Objective 4.**

#### **To provide a nursery stock of local provenance black poplars in Sussex**

The current nursery stock of black poplars is provided by RBG Wakehurst. The commitment to maintain this stock runs until 2004. Efforts should be made to secure the long term preservation of the existing stock. In the future nursery stock may need to be made available elsewhere and this will require protocols of certification to check and maintain authenticity and provenance of trees.

### **Objective 5.**

#### **To use the black poplar as a flagship species for good riparian and wetland habitat**

Black poplar has a good public image and a local cultural heritage. By promoting the conservation of this species, with its associated habitat requirements, a variety of other animal and plant species will be directly and indirectly benefited.

## **6. Targets and Costs**

**This Species Action Plan is now archived**

## **7. Potential**

The demographic profile and number of black poplars extant in Sussex in the early 1990s suggests that this species was declining to extinction in the county. Active conservation measures during the last six years have begun to reverse this decline and recently new plantings have taken place in most Sussex river catchments. The age structure of the Sussex population is however very unbalanced, with two distinct cohorts, those over 150 years old and those 5 years old or younger. To ensure a more even distribution of age structure, and to avoid reaching low populations again in another 150 years, it is essential that planting of black poplar continues into the foreseeable future.

While planting is likely to be the only secure method of assuring the survival of black poplar in Sussex, larger plantings of mixed stands of male and female trees should also be encouraged. In addition, initiatives which propose the re-instatement of wet-woodland or the planting of trees along waterways should in general be encouraged as these will provide opportunities for natural asexual black poplar reproduction. In the meantime to maintain the black poplar in Sussex, stands of existing and isolated individual trees should be supported by the planting of local provenance rooted cuttings whenever appropriate and possible.

## **8. Action plan**

**This Species Action Plan is now archived**

## **9. Monitoring/Review**

This Plan is a working document. It is proposed that the Sussex Black Poplar SAP Working Group continue to meet on a six monthly basis to assess and monitor the implementation of this Plan. Concurrent with this meeting, the Plan will be reviewed by the Lead Agency (SWT) in conjunction with the Sussex Biodiversity Partnership and updated and amended as necessary.

It is proposed that in the first instance veteran and newly planted black poplars are checked in 2002 to ascertain health and current condition. Provision will be made for subsequent monitoring, to follow at longer cycles.

### **Funding**

There are potential funding opportunities for black poplar conservation work from a variety of sources including English Nature, Environment Agency as well as Countryside Stewardship and other agri-environmental schemes.

## 10. References

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### 10.1 Bibliography

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## **11. Consultation**

A number of organisations and individuals were asked for comments on the first draft of this SAP, including:

Arun District Council  
Environment Agency (Sussex Area)  
Dolphin Ecological Surveys  
South East Water  
West Sussex County Council  
East Sussex County Council  
Western Rother Valley Project  
Sussex Biodiversity Records Centre  
Royal Botanic Gardens, Wakehurst  
Sussex Wildlife Trust  
Botanical Society of the British Isles  
Vale of Aylesbury Black Poplar Working Group  
National Black Poplar Working Group, Technical  
Frank Penfold  
Frances Abraham  
Andrew Phillips (Sussex Biodiversity Partnership Officer)

## **12. Appendices**

### **1. Sussex Black Poplar Working Group list of representatives:**

Royal Botanic Gardens, Wakehurst  
Environment Agency  
Western Rother Valley Project  
Sussex Otters and Rivers Partnership  
West Sussex County Council  
Sussex Wildlife Trust  
Dolphin Ecological Surveys  
Sussex Downs Conservation Board  
Arun District Council  
Botanical Society of the British Isles  
East Sussex County Council  
Frank Penfold  
Arthur Hoare  
Frances Abraham  
Paul Harmes  
Dr Alan Knapp

### **2. Contacts for advice**

Advice on black poplar conservation and sympathetic habitat management of waterways and wetlands in Sussex for this species can be obtained from:

Sussex Wildlife Trust

Head of Conservation, Woods Mill, Henfield, West Sussex BN5 9SD  
Tel. 01273 492630

Environment Agency (Sussex Area)  
Conservation Team, Saxon House, Little High Street, West Sussex BN11 1DH  
Telephone: 01903 215835

Sussex Otters and Rivers Partnership Officer  
The Lodge, Arlington Reservoir, Berwick, Polegate, East Sussex BN26 6TF  
Telephone: 01323 870810

Grant information can be obtained from the above contacts and also from:  
Farming and Wildlife Advisory Group  
Plumpton College  
Lewes  
East Sussex BN7 3AE  
Telephone: 01273 891190

### **3. Best practice procedures for planting, aftercare and management of existing black poplars can be found in:**

- a) *Planting and after care of native black poplar*. Written by Chris Clennett of Royal Botanic Gardens, Wakehurst on behalf of the Sussex Black Poplar Working Group.
- b) *The Black Poplar (Populus nigra var. betulifolia). Management Guidelines for Existing Trees*. Written by Margaret Noakes of the Aylesbury Countryside Management Project. Copies of these leaflets are available from the Sussex Wildlife Trust, Sussex Otters and Rivers Partnership and from Farming and Wildlife Advisory Service.

### **4. Glossary of abbreviations used:**

BSBI = Botanical Society of the British Isles  
DEFRA = Department for Environment, Food, and Rural Affairs  
DETR = Department of Environment, Transport and Regions  
Durham WT = Durham Wildlife Trust  
EA = Environment Agency  
Essex WT = Essex Wildlife Trust  
FRCA = Farming and Rural Conservation Agency  
FWAG = Farming and Wildlife Advisory Group  
HA = Highway Authority  
HAP = Habitat Action Plan  
IDBs = Internal Drainage Boards  
LAs = Local Authorities  
London BP = London Biodiversity Partnership  
RBG = Royal Botanic Gardens  
RVP = Rother Valley Project  
SAP = Species Action Plan  
SBPWG = Sussex Black Poplar Working Group  
SOARP = Sussex Otters And Rivers Partnership  
SxBRC = Sussex Biodiversity Record Centre  
SWT = Sussex Wildlife Trust  
Worcestershire WT = Worcestershire Wildlife Trust

### **5. Acknowledgements**

The Sussex Otters and Rivers Partnership would like to thank all those individuals and organisations who have assisted so far in the production of this Species Action Plan.