

One Tree Per Child Bristol Report 2019/2020



Bristol City Council's One Tree Per Child (OTPC) project began in 2015 with the aim of planting one tree for every primary school aged child in the city equivalent to 36,000 trees. This target was exceeded by 2016 when over 39,500 trees were planted across the city. The project has continued to plant 6,000 trees per year, one for every pupil starting school each year, with over 60,000 trees planted to date. OTPC aims to teach children about the value of trees through assemblies and practical sessions, and to give every child the chance to plant a tree and see it grow.

This report covers the OTPC project between April 2019 and April 2020. Tree planting took place in 26 sites across Bristol planting 6,546 trees. This report highlights the tree planting locations, our volunteer and education programmes and project funding.

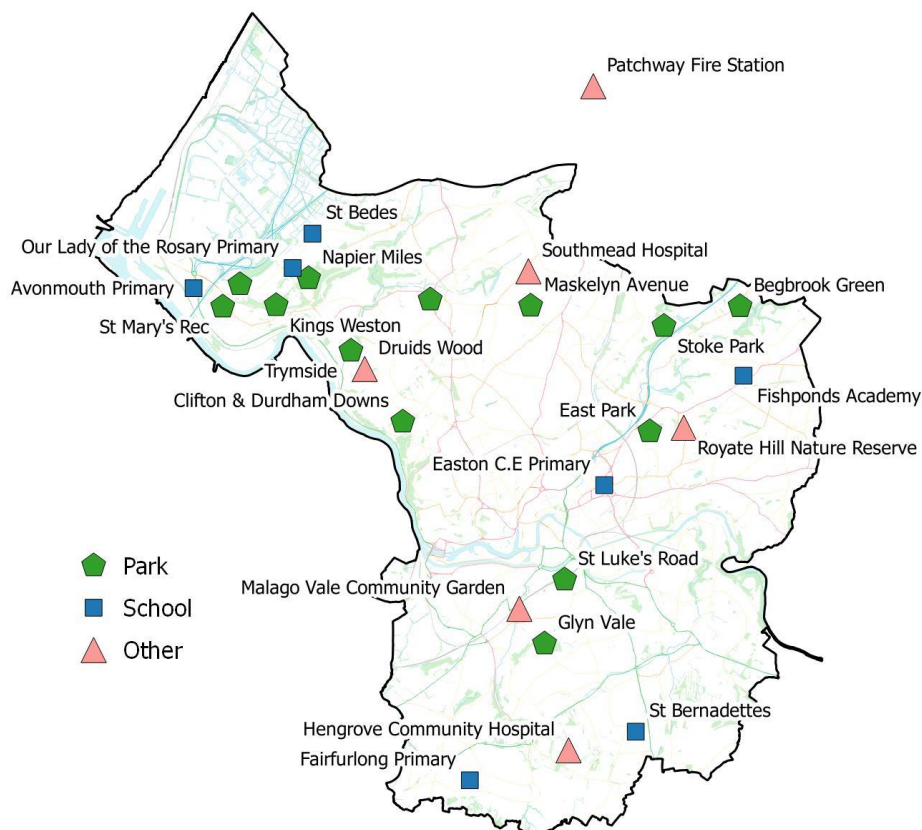
Bristol's One City Plan includes a target to double tree canopy in the city by 2046. Included in this report for the first time is a look at the contribution OTPC is making towards increasing Bristol's tree canopy.

For copies of previous OTPC reports see <https://www.bristol.gov.uk/museums-parks-sports-culture/one-tree-per-child>

Planting locations

This year OTPC planted at 26 sites across Bristol including 15 new woodlands, 4 new forest school areas in primary schools and 1 community orchard.

Most tree planting was in Council parks and green space (over 60% or 4,006 trees). The rest were planted in school grounds (24%) or non-council land such as hospitals and community gardens (14%).



OTPC project sites in the 2019-20 season

OTPC 2019-20 tree planting in numbers:

6,546 Trees planted including:

- 15 woodlands
- 76 fruit trees
- 1,543 trees on school grounds
- 4 forest school areas
- 1 community orchard
- 64 volunteer days
- 43 schools received education about trees

Types of tree planting



A typical woodland planting scheme at East Park with small 'whips' planted 2 metres apart

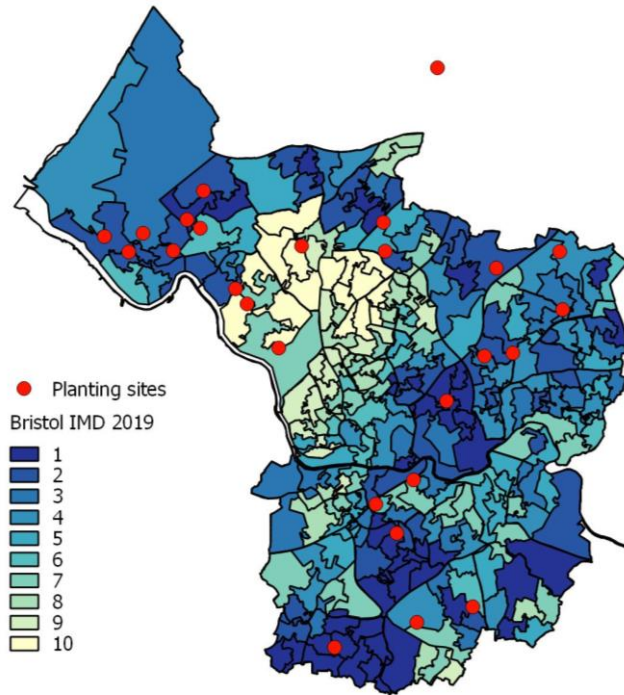


A typical 'specimen' tree planted in open space with a wire mesh guard and wooden stakes

Targeting planting to areas with the greatest need

We aim to plant trees where communities are more disadvantaged and where tree cover is lower. Looking at areas according to their Index of Multiple Deprivation (IMD) scores provides an insight into how well the planting is targeted towards disadvantaged communities.

The map below shows the spread of planting sites compared with the IMD range across the city. This map shows that the OTPC planting has been generally carried out in areas of the city with lower IMD scores (i.e. those with higher levels of deprivation).



Distribution of OTPC sites compared with the Index of Multiple Deprivation (IMD)

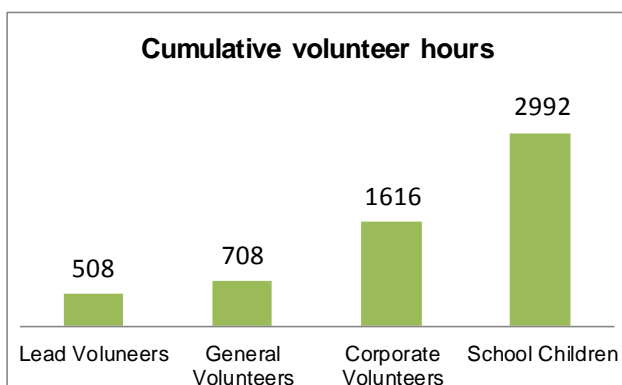
Volunteer programme

OTPC is grateful for the fantastic support of our volunteers, without whom we could not plant and look after such a large number of trees. We are particularly thankful to the small group of lead volunteers who put in a huge amount of effort and are committed to attend on a regular basis.

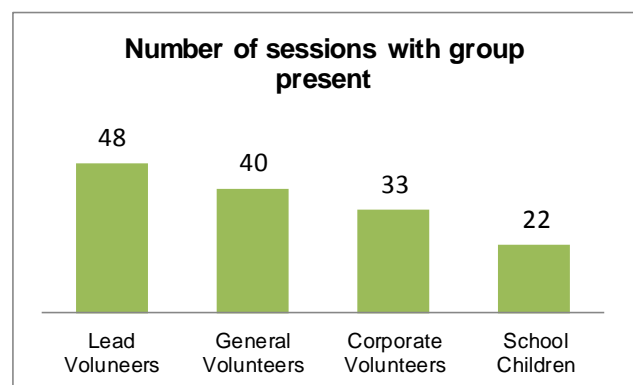
OTPC would also like to thank the Bristol Tree Forum for their help with fundraising, planting and promoting the project.

The OTPC volunteer programme is divided into two distinct ‘seasons’ with tree planting occurring between November and early April, and general tree maintenance and aftercare taking place from late April to October. A regular volunteer day is held on Wednesdays for the core volunteers and other members of the public to help with tree care or planting. In addition, the programme is regularly supported by corporate volunteers who join the normal volunteer day or arrange an additional session for larger groups.

A total of 64 volunteer days were held during the 2019-20 season, including 31 tree planting days and 33 tree maintenance days. More than half (33) of the days were supported by a group of corporate volunteers and 22 days had the help of school pupils (see graph below). School children and corporate volunteers made up the majority of the volunteer hours. Our lead volunteers, and many general volunteers, regularly return to help the project.



Total number of hours that volunteers contributed to the 2019-20 OTPC volunteer programme



The number of volunteer maintenance and planting sessions attended by each volunteer group

We are grateful to the support from the following organisations:

Barton Willmore, Bishop Flemming, Bristol City Council, Bristol Energy, Bristol Tree Forum, Chadwick Nott, Compushare, Curtins, DHL, Gallagher, Hargreaves Lansdown, Huxley Engineering, KNect365, Mapfre, Ministry of Defence, Parmenion, Sanlam, Sapling Spirits, Skanska, SustainIt Solutions, Teleperformance, Trees for Cities, Turner and Townsend, University of Bristol, University of West England, Valuation Office Agency, Woodland Trust.

Education programme

In 2019-20 we supported 22 tree planting events involving children and delivered tree-based education sessions in 43 primary schools. Our school education programme included 38 assemblies, 48 workshop sessions and occasional educational visits, including school visits to Blaise Nursery and Blaise Castle Estate. Our schools' education programme was severely impacted by the COVID-19 and hence, with regret, this prevented access into schools from March 2020.

The project has developed the pilot started in 2019 to take OTPC to secondary schools. We have been working with older children and developing the 'Carbon Catchers' ambassador scheme where secondary age children plant trees on their school sites or nearby and through project staff help deliver peer-to-peer learning in primary schools. This year we worked with Oasis Brightstowe, City Academy, Ashton Park School and St Bede's Catholic College.

The project received a £5,000 grant from the Woodland Trust (via the People's Post Code Lottery) to develop web and tree based educational resources, including two complementary projects for Key Stage 2 linked to the National Curriculum.

One project gives children an in depth knowledge of the benefits of trees and gives children the opportunity to design a promotional poster about their favourite tree benefit whether this be carbon capture, habitat creation or pollution control.

The second project allows teachers to work with students to look at the comparative benefits and suitability of trees for different functions and urban environments. The children can then plot the most appropriate tree in and around their schools and commuting routes with the best ideas actually being implemented using money delegated to communities from the planning process.

Fundraising

One Tree Per Child is incredibly grateful for the financial support of the following organisations.

3,469 trees planted by OTPC during 2019/20 are dedicated to One Tree Per Employee – reflecting the support of business organisations wishing to support tree planting on behalf of their employees. See Replant Bristol campaign and fund at <https://forestofavontrust.org/replant-bristol>

Sponsor / grant fund	Amount donated
Bristol Energy	£20,448
One Tree Per Employee – via Forest of Avon Trust	£18,529
Highways England	£14,650
Urban Tree Challenge Fund - Forestry Commission	£2,089
Sapling Spirits	£2,000
Eunomia	£1,722
Trees for Cities	£790
Knowle West Alliance	£100
Hargreaves Lansdown	£75
Total raised	£60,403

Tree Canopy cover

Bristol's 'One City Plan' includes the target to double Bristol's tree canopy by 2046 (https://www.bristolonecity.com/wp-content/uploads/2020/01/One-City-Plan_2020.pdf).

The total land area of Bristol is approximately 110km² and the 2019 iTree-Eco survey calculated that approximately 13km² or around 12% of the city has tree canopy cover.

The projected tree canopy contribution of the 6,546 trees planted by OTPC during 2019-20 is 0.03km² which represents a 0.027% increase in the canopy cover of the city.

Note: this figure is a projection – based on the assumed size of trees when mature – see method below.

Woodland planting was responsible for just over double the canopy contribution of specimen trees. Given there were 63 specimen trees and over 6,000 woodland trees this demonstrates the enormous difference in the potential for increasing the canopy cover of the city from using woodland planting schemes to individual trees which are able to grow much larger and increase their canopy size considerably.

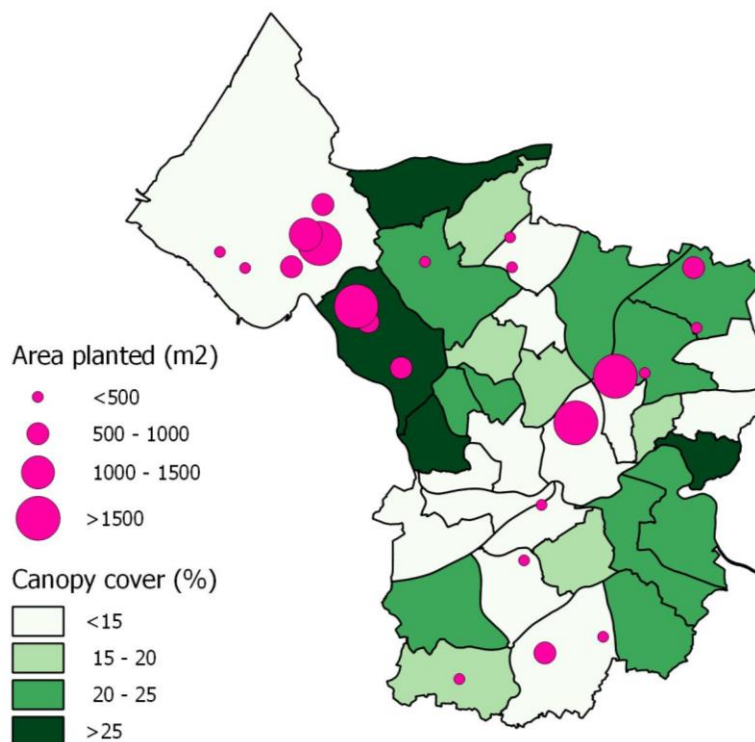
The projected canopy contribution of the OTPC 2019-20 woodland and specimen planting and the increase in canopy cover relative to the baseline canopy size in 2019

	Projected tree canopy (km ²)	% of total area of Bristol	% increase relative to canopy size in 2019
Woodland planting	0.02	0.02	0.16
Specimen Planting	0.01	0.01	0.07
Total	0.03 km²	0.03%	0.23%

Local canopy cover

The map below shows each ward in the city according to its percentage canopy cover, as calculated by the iTree survey conducted by Bristol Tree Forum in 2018 using satellite imagery.

The map shows that many tree planting schemes were in areas of low canopy cover.



The area of trees planted at each of the OTPC planting locations compared with the percentage canopy cover for each of Bristol's wards (Source: <https://bristoltrees.space/trees/treecover-map>)

OTPC Tree Canopy Contribution Method

Tree canopy has been defined as the area occupied by a trees crown taking a 'birds- eye' view.

Trees planted by OTPC fall into three main categories: woodland, hedgerow and individual 'specimen' trees.

For woodlands and hedgerows it is assumed that their overall canopy will be the same size as the boundary of the area planted. For example, if 2,500 trees are planted at 2 x 2 metre spacing, the total area is 1 hectare.

When planting individual trees we need a different approach to estimate 'canopy contribution,' as each tree has the potential to spread and grow. For such trees, canopy can be estimated by assuming their crown diameter when mature. As data to project tree canopy cover is limited, an estimated canopy diameter for a range of tree species was taken using information from the Royal Horticultural Society and the Missouri Botanical Garden. The figures for canopy diameter at maturity are derived from data for the potential spread of each species. The age at which the tree will reach this size differs by species, but generally ranges from 50 to 100 years.

Each species was categorised from 'very small' to 'extra large', and the area was calculated using the midpoint of the canopy diameter in each range. The resulting area (see table below) was multiplied by the number of specimen trees in that category to calculate their projected canopy contribution.

Classification of tree species according to their canopy diameter at maturity.

Tree Size	Crown Diameter	Tree Canopy Area (m ²)
Very small	<5m	9.6
Small	≥5<10m	44.2
Medium	≥10<15m	122.7
Large	≥15<20m	240.5
Extra Large	≥20m	397.6

Conclusions

This analysis demonstrates the stark difference between planting woodlands and hedgerows compared with planting individual trees if the goal is to maximise canopy cover. Although the numbers of trees in a hedge or wood may be high, the overall canopy area is limited to the planting area. For example the large hedgerow planted at Canford Park contained 720 trees but the canopy contribution is just 270m², slightly more than the potential canopy cover of one large specimen tree (see table above).

Given that the canopy projection for specimen trees represents potential size in ideal conditions and does not factor in the failure of any of these trees it is likely to be an over estimate.