

The Northern Forest

Breathe,
you've gone
green



As you read this, pause for breath. The average human being will inhale 250 million litres of air during their lifetime. Clean air, alongside clean water and healthy food, is an absolutely fundamental part of any healthy society.

More trees mean better health. Trees can clean the air, cool the temperature, quieten the noise and lighten your mood. Planting more trees means investing in our future health and cutting the future costs of health care too; it's also a strategy that benefits the most vulnerable in society.

Across the world however, we are moving rapidly in the wrong direction. There is mounting alarm that the quality of our air is failing and that, as a result, lives are being cut short. And many neighbourhoods, particularly in poorer areas, are feeling the brunt of this.

The Northern Forest is a partnership of:



Manchester
City of Trees



THE MERSEY
FOREST
more from trees



WOODLAND
TRUST

More trees, better health

Let's start with the positives. In the UK, a 2015 study commissioned by the Office for National Statistics estimated that there were 5,800 fewer respiratory hospital admissions, 1,300 fewer cardiovascular hospital admissions, 27,000 fewer life years lost and 1,900 fewer premature deaths – all as a result of pollution removal by plants. This resulted in an estimated saving of over £1 billion in avoided health costs in 2015 alone.¹

A report from the Royal College of Physicians (RCP)² suggests that around 40,000 deaths can be attributed to outdoor air pollution. Once you add indoor air pollution the toll climbs higher still. In their report, 'Every Breath You Take', the RCP states that air pollution is now an urgent cause for concern on public health and has been linked to cancer, asthma, stroke and heart disease, diabetes, obesity, and even to dementia.

And here's the real wake-up call in the report: we're breaching air quality limits set by the EU across a number of UK cities; the fact is there is no safe limit for these pollutants. The conclusion drawn by the RCP and others is that urgent action is needed, along with a new Clean Air Act, to halt the inexorable rise of air pollution.

In cities like Manchester, Liverpool, Sheffield, Hull and Leeds, airborne pollution comes largely from traffic and, more specifically, diesel engines. This pollution affects you

throughout your life but is particularly dangerous for babies in the womb and toddlers, as their growing heart, brain, hormone and immune systems can all be harmed. Older people and adults with long-term health conditions are also vulnerable.

Fairness is a factor. Pollution hits hardest those who live in deprived areas – where levels of air pollution are often higher.³ It affects those who live, learn or work near busy roads and those who, ironically, are least likely to own a car. Poor quality housing, lack of access to green space, lifestyle factors such as smoking, the stress of being on a low income and compounding conditions such as being overweight or obese all amplify the risk.

And all this comes at a cost. According to the RCP, costs from exposure to air pollution add up to more than £20 billion every year for business, insurance, social services, and most critically of course, the NHS. Planting more trees and protecting those that we already have is a key part of the solution. It's also considerably cheaper than waiting until ill health hits and seeing the impact on our hospitals and health centres; the NHS is stretched enough already.

Particulate matter (PM) is the microscopic particles that become trapped in the lungs of people breathing polluted air. It comes from a range of sources, but in our urban areas road traffic is the key culprit. Well-considered and planned urban trees can, according to one US study, reduce PM near a tree between 9% and 24%. It also found that trees can, on average, cool an urban area by 2°C.⁴

Large healthy trees have the greatest effect in terms of pollution removal



Another study in the UK explored how the leaves of roadside trees could radically cut pollution by absorbing particulates, even inside people's homes. The study team lined a terraced street with silver birch trees in planters and measured pollution levels (the tiny particulates known as PM1, PM2.5 & PM10) inside homes before and after the trees; they saw pollution levels in these homes drop by more than half after the roadside trees had been put in place.⁵

As ever, the right tree in the right place is the mantra to follow. Trees with 'hairy' leaves do a great job of cutting pollution, but care needs to be taken over creating dense canopies that could potentially stop particulates from dissipating. The so-called 'canyon effect', where pollution gets trapped by buildings alongside roads, can also be

eased by planting trees and vegetation, cutting nitrogen dioxide pollution by up to 40% and particulates by up to 60%.⁶

One case study from Chicago compared people living in flats both with and without a view of trees and grass. It found that a greener environment has many benefits including reduced stress in children, halved incidences of violent crimes and domestic violence, and an increased strength of community.⁷

More trees mean a stronger and healthier society. An increase in mixed-use, accessible areas of woodland will bring direct and immediate health benefits. Happier and healthier communities are ones where green space – and particularly trees – have a major part to play.

Trees can cut
outdoor and indoor
air pollution **by 50%**



Making life more liveable

Trees make life more liveable. Woodlands are restorative environments; they screen out noise, welcome large numbers of people and offer a range of activities from gentle to vigorous, including walking, cycling, nature trails and picnics.

Getting people active by greening their environment has to be a clear priority. Over the last two decades, obesity among adult men has increased from 13% to 27%. The figures are similar for women. By 2050 the forecast is 60% of men, 50% of women and 25% of children will be officially classed as obese. The resulting cost of this massive health problem has been forecast at £50 billion. Any measures to halt this trend will be hugely beneficial to public coffers and the wider economy.⁸

Greening our towns and cities will feed into a culture shift where more people, particularly in deprived communities, feel motivated to get out and get active in a woodland setting. This is already a well-established strategy throughout the community forests movement. From mental health and physical activity to the safety of the air we breathe, trees have a clear and urgent role to play in helping to address problems that have a profound social and economic impact. The Royal College of Physicians estimated that ambient air pollution causes approximately 40,000 premature deaths at an estimated social cost of £22.6 billion per year.⁹ When this figure is proportionately distributed for population, that could mean 2,000 premature deaths in Greater Manchester and 2,500 in Yorkshire due to air pollution.

The time to create a Northern Forest is now.

We can't do this on our own. This is a once in a lifetime opportunity and we need your support.

If you would like to get involved in delivering the Northern Forest – whether as a financial supporter, landowner, partner, or in any other way – please visit thenorthernforest.org.uk

Join us



Footnotes

1. Jack Philips (2017). The UK environment - fighting pollution, improving our health and saving us money. Available at: <https://www.ons.gov.uk/economy/environmentalaccounts/articles/theukenvironmentfightingpollutionimprovingourhealthandsavingusmoney/2017-10-02>
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3. Fecht, D. et al. (2015). Associations between air pollution and socioeconomic characteristics, ethnicity and age profile of neighbourhoods in England and the Netherlands. *Environmental Pollution* 198: 201-210.
4. The Nature Conservancy (2016). Planting Healthy Air. Available at: https://thought-leadership-production.s3.amazonaws.com/2016/11/07/14/13/22/685dccba-cc70-43a8-a6a7-e3133c07f095/20160825_PHA_Report_Final.pdf
5. Maher, B. A. et al. (2013). Impact of Roadside Tree Lines on Indoor Concentrations of Traffic-Derived Particulate Matter. *Environmental Science & Technology* 47(23): 13737-13744.
6. Pugh, T. A. M. et al. (2012). Effectiveness of Green Infrastructure for Improvement of Air Quality in Urban Street Canyons. *Environmental Science & Technology* 46(14): 7692-7699.
7. Faber Taylor, A. and Kuo, F. E. (2011). Could Exposure to Everyday Green Spaces Help Treat ADHD? Evidence from Children's Play Settings. *Applied Psychology: Health and Well-Being* 3: 281-303.
8. Department of Health (2011). Healthy Lives, Healthy People: A call to action on obesity in England. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213720/dh_130487.pdf
9. Royal College of Physicians and the Royal College of Paediatrics and Child Health (2016). Every breath we take: The lifelong impact of air pollution. Available at <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>