STT

# Newsletter

August 2026

(Formerly Men of the Trees following the work of Richard St Barbe Baker)

SEVERN TREE TRUST

**VISIT:** An informal stroll around some of the interesting trees of Shrewsbury will take place on **TUESDAY 18th AUGUST** meeting at **6.30pm** outside Shropshire Wildlife Trust HQ on Abbey Foregate car park (free parking after 6pm). Everyone welcome, hope to see some of you there. We might pop into a hostelry afterwards for those who require refreshments.

September visit: Gredington, Hanmer, again, on Saturday 12th September @ 2pm.

**Chairs corner,**
Our guide around BiFOR mentioned that, amongst all the other calibrations they take in the woodland, moisture levels at several inches below soil level were so small as to be insignificant. Some trees on the estate were obviously suffering. Another two weeks without rainfall has worsened the situation. I've been pumping water out of the old well for some time now. The road alongside has been traffic-lighted for weeks because as many as five Severn Trent articulated lorries are using the mains supply (ten inch diameter) in rotation to supply village reservoirs. Ground water levels are becoming problematic as is associated subsidence in some areas. It is only a matter of time before future housing developments will have to include boreholes for secondary water supplies. There must be some good news somewhere, well here it is.

Until a few years back STT had a meeting in August but because it often coincided with the Flower Show it was decided to have a summer break. And then the Show ended (perhaps never to return?) so this year the committee thought that we would have a tree walk around town one fine evening, at short notice so as to confirm the weather. The plan is to park on Abbey Foregate close to the Wildlife Centre and have a leisurely wander in the east end of town for about 90 minutes before having refreshments in a local hostelry. So watch out for a message mid-April. Everyone welcome.
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## Our visit to Bifor: Wednesday, 15th July 2026

We last made a STT visit to Bifor in July 2018. The project was fairly new and not much could be said then about its success or otherwise. Now, after nearly ten years

of operation, much has been learned and we were able to hear about the changes since those early beginnings.

This visit was a little different from our normal ones in that we had to go on a Wednesday morning otherwise there would have been no-one to show us around and explain things to us. So, fortunately, this fascinating visit drew in 15 members, all eager to learn what had been happening here in the last 8 years and our guide was the very knowledgeable Dr. Kris Hart.

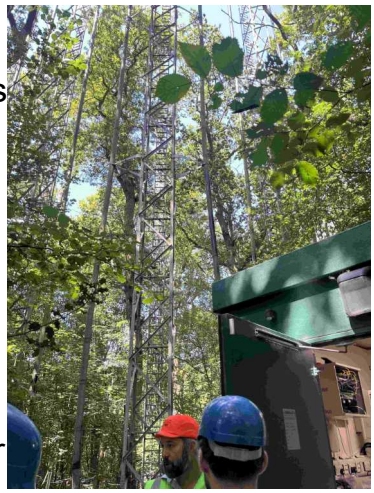

*Figure 1: The BIFOR project, Bifor. Towers for dispensing and monitoring CO2 into old forest woodland. Modern technology meets age old forest trees (photo Hughes)*

So what is Bifor about? The letters stand for the Birmingham University Institute of Forestry and the project is known as the FACE Project or the Free Air Carbon Dioxide Enrichment Project. I don't think I need to remind members about how photosynthesis operates in plants but for those who may have forgotten, very briefly trees take in Carbon Dioxide and Water and convert these to the sugary foods they need (the carbohydrates) and Oxygen which we need. Carbon Dioxide or $CO_2$ is a greenhouse gas and the fact that trees and other plants can take it from the atmosphere is a great plus when trying to ameliorate global warming. So this project is looking at how trees can take in greater quantities of $CO_2$ when there is likely to be more global warming in the future. As Kris told us as we entered one of the tree 'arrays', “we are now among trees of the future, we have created a future forest”.

Everything is monitored: temperature, rainfall, wind, soil, the amount of sap flowing in the trees. If there is a high wind and the $CO_2$ cannot be concentrated on the trees, it immediately switches itself off. The trees in each array are all broadleaved deciduous and all old-growth woodland. Most of the trees are Oak and Hazel and they receive enhanced $CO_2$ from rings of towers around each array emitting this gas from 32 different points. Each array has a central “control” tower which acts like a tree to draw in $CO_2$ as a tree would to measure the effects on the surrounding trees.

The costs of running this are immense. The whole project cost £15 million to instal and £2.5 million per year to run and is now funded up to at least 2031. But Kris insisted that we know that this money was not University money nor tax-payers' money. It had all been derived from philanthropic donors

Now at this point I have to say that out in the forest I was not easily able to hear what Kris was telling us – it's my hearing aids, don't you know !!!! Or the birds were singing so loudly !!! So I am extremely grateful to Angela Hughes who, with the help of her sister, found for me an excellent New Scientist article about this whole project. So I shall now quote from that.

“At present the world's forests absorb 7.6 million tonnes of $CO_2$ each year. Temperate forests, such as these in the UK, are responsible for almost half of that uptake. As pollution (including $CO_2$) increases, can we rely on trees continuing to be an efficient carbon sink, especially as by 2050 the atmospheric concentration of $CO_2$ will be 40% higher than it is today ? Bifor has been looking carefully to see how trees respond to these increases in $CO_2$. What should happen is that photosynthesis should increase so the trees taking in the additional $CO_2$ will product more sugars for themselves and more oxygen for us.”

“Thankfully, the results at Bifor so far are promising.”

During the number of years of Bifor operating, putting the trees in the arrays under elevated $CO_2$ conditions, “the mature oaks have increased their photosynthetic rate and are producing about 11% more wood each year compared with nearby trees under today's conditions.”

A similar experiment has been conducted among the Eucalyptus trees of Australia. This also began in 2017 but no link has been found between elevated atmospheric $CO_2$ and extra tree growth. Why?

Back to the New Scientist article: “The answer lies in the availability of nitrogen and phosphorus, key nutrients that enable trees to make use of excess $CO_2$. In Australia, the forest was limited by a lack of nutrients, but the Staffordshire site has plenty – thanks in part to fertiliser use on nearby farmland.” Dr. Rob MacKenzie of Birmingham University says that “everything about the results we have got so far is really down to the fact that the forest has sufficient nitrogen to utilise the carbon.”

“There is also emerging evidence that the mature oaks are deploying new strategies to secure their supplies of nitrogen. They are growing new root networks at a rapid pace to mine for fresh nitrogen reserves in the soil.” The team at Bifor has found that, because of this, the trees are conserving their supplies of nitrogen by releasing less of it through their roots and leaves into the soil.

This still represents a “remarkable shift in activity for middle-aged trees” says MacKenzie.

“Other shifts are afoot in the forest. The trees in elevated $CO_2$ conditions have more bitter chemicals in their leaves, which the research team suspects might be a sign they are investing more in their resistance to pests and diseases. There are also signs these trees might be recovering more quickly from short periods of heat stress, resuming photosynthesis activity before the control trees.”

But this might not be long-lasting when the nitrogen is used up. As the article tells us: “The trees under elevated $CO_2$ are drawing down this excess (nitrogen) now.....and in previous experiments performed on younger trees, nitrogen supplies have eventually dwindled leading to a slump in the rate of photosynthesis.”

Although these trials can simulate future $CO_2$ levels in the atmosphere, they can't simulate future weather. “Advancing climate change will bring more frequent and more intense heatwaves, droughts and floods.” These trials at Bifor can tell researchers of the trees' responses to these extreme weather events as they occur now “but it won't be an accurate reflection of the wilder, more extreme conditions the forests will face by 2050.”

Finally, the article tells us that wood is only a temporary carbon store and when the trees eventually die, the wood rots and the stored carbon is released back into the atmosphere.

“It would be foolish, therefore, to rely too heavily on forests as a climate saviour,' says MacKenzie, 'even if their increased photosynthesis rate is sustained, it only helps, it is not a solution.' “

A really fascinating article and a really fascinating morning of discovery. Between the two pieces of information, we learn a lot about what Bifor is trying to do and how much is being achieved. I knew nothing about the role played by nitrogen. It's almost unbelievable that this gas plays such an important role in carbon capture by trees.

Our morning didn't end there but I'll thank Doctor Kris here as he passed us on to his colleague to take us to the next part of the morning's activities, a report for which will follow thanks to Peter, our Chairman.....(*John Tuer)*

Our guide around BiFOR mentioned that, amongst all the other calibrations they take in the woodland, moisture levels at several inches below soil level were so small as to be insignificant. Some trees on the estate were obviously suffering. Another two weeks without rainfall has worsened the situation. I've been pumping water out of the old well for some time now. The road alongside has been traffic-lighted for weeks because as many as five Severn Trent articulated lorries are using the mains supply (ten inch diameter) in rotation to supply village reservoirs. Ground water levels are becoming problematic as is associated subsidence in some areas. It is only a matter of time before future housing developments will have to include boreholes for secondary water supplies. There must be some good news somewhere, well here it is.
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## Norbury Park

Norbury Park Estate was purchased by the current owners in 2009. 1,300 acres of the estate is mature woodland. Part of this is being used for a huge international experiment, in collaboration with Birmingham University's Institute of Forestry (BIFoR). It is a Free Air Carbon Dioxide Enrichment (FACE) experiment and is one of three so far established in natural ecosystems around the world. The BIFoR FACE experiment is in mature oak woodland. Atmospheric carbon dioxide concentrations in circular trial areas are being raised during the growing season each year. The target concentration is 550 ppm, which is the level predicted for the year 2045. FACE experiments allow research into the response of the whole woodland ecosystem to rising carbon dioxide levels.

Since 2009 the estate has embarked on a massive re-afforestation programme by planting trees on the poorer quality arable land. To date almost 400 acres of new woodland has been created and over half a million trees planted. More than a hundred different species have been planted, in mixed species plantations, with the aim of promoting in faster growth and better resistance to pests and diseases than in monocultures. The trees are initially planted at high densities, with the best and largest trees subsequently selected and encouraged by 'halo-pollarding' of the smaller surrounding trees, to reduce competition. This management technique is carried out on a 4-5 year rotation to leave a 1-2 meter canopy gap around the 'winning' trees allowing them ample room for growth and in the future to become high-quality sawlogs. The smaller pollarded and felled trees are used for timber, fire-logs and woodchip to fuel the estate's own biomass boilers and kiln.

In an associated project, the estate has established a seed orchard containing 109 different tree species from around the world. These species have been selected for their potential as alternative timber producers in the UK. In each case strains of the species have been planted that have superior timber-producing quality.

750 acres of the estate have been converted from arable to herbal leys, mob-grazed by cattle. The aim is to improve soil structure and sequester carbon.

## A Celebration of the life of David Pannett

11th February 1938 – 10th July 2026

David was a long time enthusiastic member of the Severn Tree Trust, here are some thoughts on his life and work.
David was a keen tree-grower and developed a fine collection of divers tree types in the garden at Bicton. A selection of branches from the trees was used to decorate the wicker coffin, a fitting tribute.
He was a natural pedagogue and loved explaining things to any audience he could find, this included his two sons who, in their eulogy, commented that family holidays tended to be rather like a geography field trip!

He liked to correct misapprehensions, (as he saw it) so his modification of ‘All Things Bright and Beautiful’ (see below) is typical of David.
David was a very enthusiastic geologist and geomorphologist with a particular interest in the Devensian glaciation in Shropshire and wrote a series of pieces on this for the Bicton newsletter.
Many people have memories of David in his overlarge khaki shorts when he helped run Bicton Nursery with his wife Jessica. He was, for a time assistant warden at Preston Montford Field Studies Centre. He was ahead of his time in his support of sustainability.
The choice of some of the music at the funeral is very apt – ‘What a Wonderful World’ (Louise Armstrong) and the closing music – ‘If I Can Help Somebody’ sung by Harry Secombe.
David Pannett – Interpreter, Educator, he really was a ‘one-off’.
Julie Kaye with thanks to Andrew Allott for much of the information on David.

**<u>All Things Bright and Beautiful</u>** – David’s version (this was sung, to the traditional tune by the attendees at the funeral)

Refrain
All things bright and beautiful,
All creatures great and small,
By selecting variation,
Evolution made them all.

Each little flower that opens,
Each little bird that sings,
Were products of selection,
That evolution brings.
Refrain

The purple headed mountains,
The rivers running by,
Are home to various life forms,
Which must adapt or die.
Refrain

The cold winds in the winter,
The burning summer sun,
Are forces of selection,
Evolving everyone
Refrain

All good things around us,
Evolved through ages long,
Now human care is needed,
To stop things going wrong.
Refrain