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The Tree Dilemma

Trees on golf courses; an issue on which everyone seems to have a view these days. And with the growing clamour for carbon sequestration, highlighted throughout the COP 26 meeting in Glasgow, golf clubs may well find themselves increasingly in the public gaze. This article explores the issues around trees on golf courses, and offers some suggestions on what clubs can do to make positive contributions to the climate change challenge we all face.

After all the media attention on COP 26 even the most blinkered golfer should now be aware that the world faces a major challenge from climate change. There is now broad international agreement that greenhouse gas emissions need to be significantly reduced, in parallel with efforts to mitigate impacts through carbon sequestration. This “Net Zero” approach will have little chance of success unless all sectors, including the leisure industry, become much better at reducing their environmental footprint.

Capturing Carbon

One of the most frequently proposed solutions is to sequester (or “capture”) carbon. And this is where trees come in. They capture and tie up huge amounts of carbon within their structure, with 1 hectare of ancient woodland sequestering the equivalent CO₂ each year as flying from London to Rome 13 times! Which is why forest clearance, such as in the Amazon Basin, is so damaging as CO₂ is released into the atmosphere by burning, thus adding to the atmospheric burden. In large part this explains the demands for safeguard of existing woodland, accompanied by planting of new ones.

However, afforestation is an unreliable way of permanently sequestering atmospheric carbon since trees need to stay growing for a long time to be effective carbon stores, and the timber they produce needs to be put to long term use to prevent the contained carbon from quickly going back into the atmosphere when it rots or is burned. Use of timber to make buildings can help, but is only really effective if the buildings have a long projected life span, and if all the wood is used. Sadly, something like half of the felled wood becomes sawdust or wood chips, which is often burnt or left to rot, thus significantly reducing the potential benefits. And timber needs to stay in use for a long time, including when repairs may be needed; in such cases, the timber needs to be recycled, or else the carbon is released again by burning or decomposition.

Long-term commitment

So where does that put us regarding golf courses? I hear suggestions that we should be planting a lot more trees on golf courses, to “make better use of these areas to sequester carbon”, and we all hear about numerous plans to plant new woodlands for the same purpose. Quite apart from the big issues around private ownership of most golf club land in the UK, and the major issues already caused by trees which are too close to greens and tees,

there are other relevant considerations too. For a start, carbon retention and sequestration doesn't really get going for at least 10 years after planting, and the trees then need to be maintained for at least 100 years to become effective carbon stores, so there needs to be a multi-generational commitment to woodland management and retention. And what happens to the trees when they start dying? Further, location of any woodland planting needs to be carefully considered, since it can cause ecological damage if it's done on areas of pre-existing habitat, such as heathland, wetland or grassland.

All golf club managers will be aware of the challenges posed by trees on golf courses. Left to their own devices, scrub and trees invade grassland areas and create problems for management of the playing surfaces and for pace of play. But can you differentiate between invasive species (birch is a good example) which spread quickly but tend to have short life spans, and longer-lived species such as oak and beech which exist for much longer? Personally, I'd much rather retain long-lived trees managed as specimens or as part of a woodland block, than encourage shorter-lived species which decompose more quickly, returning CO₂ to the atmosphere.

Tree consultant John Nicholson has written previously in these pages that most broadleaf timber is firewood because of its' poor quality, with sweet chestnut and poplar being even less desirable than oak or ash. He also notes that the situation has worsened in the southeast as a result of ash die back disease, meaning that the market is flooded with low grade timber, the value of which has dropped even further.

If you do need to cut down trees for safeguard of greens and tees, it's good practice to plant specimen trees elsewhere on the property, using appropriate species for the habitat you're putting them in, whilst also considering what you can do to sequester carbon in soils elsewhere on the golf course.

It's not just woodland

Soil sequestration probably offers considerably more opportunities to golf clubs than woodland plantings. Given how much grassland is managed by the golf industry, we need to look harder at how we can increase its' contribution to the net zero approach. For example, a wildflower meadow (even when cut for hay once a year) can store 3 tonnes of carbon or 11 tonnes of CO₂ per hectare per annum. So good management of roughs can make significant contributions towards the net zero objectives, and we should perhaps be trying harder to make these points to our critics. The beneficial impacts are even greater if the grass species are deep-rooted ones, such as fescues, since these are most effective at storing carbon. It's a bit more challenging for the playing surfaces where management is more intensive, and where use of fertilisers, herbicides and pesticides impacts significantly on overall carbon budgets through the carbon generated in their production and distribution. But again, clubs can make a difference here by moving towards a more sustainable approach which looks to find ways to significantly reduce their use of these products. Economics is likely to drive this change anyway, since nitrates, pesticides and herbicides don't currently have their embodied carbon cost included within their pricing, but this is likely to change in the future as political pressure leads to environmental costs becoming the responsibility of the producer. If such costs were incorporated, prices of these chemicals would more than

double; how would this affect your budgets? This seems to me to be yet another powerful driver towards adoption of a more sustainable approach to golf course management.

If you have existing good quality semi-natural habitat on your golf course, especially heathland, wetland or grassland, you are already making a significant contribution towards carbon sequestration, and you should aim to continue looking after them well. Such habitats store more carbon than do modern agricultural landscapes, and it's important to safeguard them since the carbon stocks they hold may have taken centuries to accumulate. This even applies to meadows that are cut down every year for hay, as they carry on absorbing CO₂ each time there's new growth, creating a rich soil full of carbon.

Achieving net zero greenhouse gas emissions by 2050 is now a statutory commitment for the UK, and natural environments can play a vital role in this through the very significant amounts of carbon which are locked up in soils and vegetation.

Sustainability is the key

Important as all this is, golf clubs can also make a significant contribution towards the net zero objective through looking hard at how they can improve sustainability across the whole range of their operations. The Golf Environment Foundation has been working hard over the past decade to help clubs understand how best to do this, covering things as diverse as waste management, energy efficiency, water use, supply chains and local community engagement, as well as the full range of greenkeeping activities. Many golf clubs have already seen the benefits of using this approach, and the GEO Foundation website gives access to a vast array of examples that you may find interesting and relevant. You can get access to this via <https://sustainable.golf/directory/>.

Golf is making a real effort to address its' environmental footprint, and has been doing so for at least the last 20 years, and there is a huge resource of information available to help club managers to engage positively. I feel pretty sure that the industry can expect increased levels of external scrutiny of what we do and how we do it in the years to come, so it would be wise for golf clubs to do all they can to show they're acting responsibly.