



The first hole gave a good measure of what the course had to offer in tree diversity and structure.

TREE surveys of this scope, structure and size will typically cover up to 150 acres (60 ha) of integrated sporting facility, often by default an ecologically rich environment. As such, they need to accommodate not only individual trees but also the wider landscape arena with collective consideration for playability, scenery and, of course, safety for players, the public and course maintenance staff. This particular golf course was established in the 1960s and the vast majority of its trees reflect this in age, size and species selection, although liberally sprinkled in parts with veteran oak and hornbeam as remnants of the farmland on which the course was built.

This was the first day of an exhaustive survey carried out by Brian Cole of Arborcare, the company contracted to do treework, and Colin Chambers, recently retired from a long and contributory career as a local authority tree officer, and now an independent arborist.

Brian and Colin were feeling their way while generously providing essential ARB with an insight into a survey which in anybody's money was a formidable task. Brian Cole told how the first priority was to ensure manageability of the task in hand, given that the golf course supports thousands of trees with extensive woodland flanking the fairways on a number of holes. "There is no existing map so we are starting from scratch," said Colin, while adding how this was not necessarily a bad thing because it allowed the team to impose its own method right from the start.

## Survey on a golf course – a feel for the trees

A HOT AND SUNNY JULY DAY AND DR TERRY MABBETT WAS OUT AND ABOUT ON A MID-HERTFORDSHIRE GOLF COURSE. NOT FOR A ROUND OF GOLF BUT WITH TWO ARBORISTS CONDUCTING A SURVEY PRIOR TO CARRYING OUT TREWORK ACROSS AN 18-HOLE MAIN COURSE AND ITS CONTIGUOUS 9-HOLE, 3-PAR FACILITY.

### POINTS OR 'POLYGONS'

So, armed with tablets equipped with tree survey software, we set off down the fairway of the first hole. We were soon to see what we were up against in diversity of species and structure, including broadleaf thickets of beech and turkey oak and groves of conifers including the ubiquitous leyland cypress, still a golf course favourite. Indeed, a line of leyland cypress presented the first potential hurdle with the team having to decide whether to record and plot each tree as an individual or as a 'polygon' of joined-up dots. Brian and Colin quickly agreed that where the tree canopies touch they should be plotted as a 'polygon'.

Next specimen was an 'old' crab apple (*Malus sylvestris*), probably not old enough to have pre-dated the course but, if planted when the facility was built, still some 60 years old, a good age for this tree. This enabled another core component of the survey method to be tried and tested – the so-called

'traffic light system' used to decide on the timing of future work, if any, as follows: green – OK; amber – requires work when budget allows; red – immediate work required. Colin gently probed suspect areas of the bole with a light hammer and they decided that this crab apple tree warranted an 'amber' designation.

On the way to the next hole we passed through an area which had been planted after the course was built and now comprised a group of various species including sycamore, Norway maple and common ash in a 'loose' woodland structure. Included was particularly tall ash, some 20 m in height, forced up by light restrictions caused by the canopies of adjacent trees. Brian pointed out how this ash and most trees in the group lacked lower branches and how this canopy structure is ideal for golf course trees.

### CHANGING PERSPECTIVES FOR PLAY

Next in line was a very short hole with a scenic view from the golf tee onto the green



A one-sided pine canopy and the result of crude pruning of conifers which get too big and bulky for inappropriate planting positions on the fairway and especially close to greens.



A veteran oak in the middle of the fairway showing marked canopy dieback, the cause of which was quickly identified and attributed to a basidiomycete (bracket) fungus infection at the collar of the tree.



Leyland cypress was plotted as a 'polygon' because the tree canopies were in contact.

just 87 yards down the fairway. Playability and not safety was clearly the constraint and would ideally require the opinion and judgement of a golfer as well as an arborist. That presented no problem because Brian Cole is a keen and accomplished golfer as well as being a well-qualified and experienced arborist. As we stood on the tee with the green in view, Brian pointed out the overhanging trees, sycamore and ash, which had completely changed the perspective and the playability of this hole since the course was constructed.

"When the course was built, this dedicated short hole was designed so that one good shot with a chipping/pitch wedge would see the ball onto the green. However, some 50–60 years of tree growth later the perspective has changed and the player is now forced to use a 5 iron to keep the ball low and roll it down the fairway and onto the green," said Brian. I asked him whether he would undertake extensive remedial work to revert to the original situation, go as far as felling

the trees, or leave as is. "There is no right or wrong answer to that question. Personally, from both the player's perspective and that of the arborist, I will recommend lifting the crowns and taking back the canopies two metres on each side of the tee."

There is an understandable penchant for planting conifers on golf courses due to their attractive canopies and year-round greenery; this course proved to be no exception. However, there are particular locations and positions along the course where it is generally inadvisable to plant evergreen conifers. These include within the fairway itself, especially near to golf greens, due to future problems for vision, views and playability as the trees grow and the canopies heighten and widen. And because then comes the next problem when greenkeepers, who are generally not arborists, try to reduce and thin conifer canopies and inevitably end up with grotesque-looking, one-sided trees of which there were a number, particularly pines, on this course. The only realistic option

is to fell these conifers which should not have been planted in such prominent positions on fairways and near to greens in the first place.

### IMPACT FROM WOODLAND

We were now well out onto the course with mature woodland flanking fairways and individual trees on the woodland margin clearly impacting on the course. Aggravating the situation was common ivy, with rampant growth across the woodland floor, up the boles and out along lateral branches of big mature trees, adding to their loading. Brian and Colin logged several large sycamores with lateral branches that would be taken off as a matter of priority before any branch failure onto the course could occur.

However, it was not long before we came across a real-life example of a woodland tree already impacting on the course, its playability and the safety of players. The extra weight and load-bearing caused by common ivy growing up the common ash tree and along its scaffold branches had clearly contributed to the fracture with the branch subsequently collapsing onto the golf course. Ironically the force had snapped the thick and woody ivy vines although the ash branch, though ruptured, had not detached completely and was hanging and still supporting living foliage. The offending branch was provisionally earmarked for immediate removal although in the end they decided to go one stage further and fell the tree which was leaning. Brian said it would be best all round for safety and future costs if the tree was felled now.

Further along the hole and close to the green was a willow, either a crack willow (*Salix fragilis*) or a white willow (*Salix alba*) [or a hybrid between the two species], and showing the scars of a previous, serious branch failure. Large crack and white willow trees are notoriously unstable with limbs that may look sound but in practice are nothing of the sort. Colin said that, in general, willows are best left alone because the attachment of fast new growth after major pruning is invariably unsound. Brian said they would balance up the pros and cons of what to do – take off the centre of the tree and the left side of the canopy close to the golf green; leave alone; or play it completely safe and take the tree down while leaving the stump for the benefits of biodiversity. The situation was noted and logged with the final decision deferred to the start of tree work.

### PRE-DATING TREE PROVENANCES

The next hole was also flanked by woodland of older provenance trees, more diverse in species compared with the ash/sycamore woodland on the previous hole. We saw dead English elm suckers showing that neither the tree (*Ulmus procera*) nor Dutch elm disease (*Ophiostoma novo-ulmi*) had really gone away. The days of English elm as a standard tree of any respectable age are long gone in Hertfordshire. English elm suckers may reach three or four metres in height before the bark becomes sufficiently thick to support the fungus-carrying elm bark beetle and which is essentially the end of all further growth.

Wych elm (*Ulmus glabra*) growing along the woodland edge was also showing classic symptoms of Dutch elm disease. The hardier native wych elm is more widely and frequently distributed in northern England and Scotland where cooler conditions do not favour elm bark beetle vectors, and as such Dutch elm disease is not so active or prevalent. In addition, wych elm was always considered to be somewhat more resilient to Dutch elm disease although this does not appear to have 'cut the tree much slack' in Hertfordshire.

Deeper into the woodland we found hornbeam trees, but relatively few in number considering this part of Hertfordshire is classic hornbeam country. Be that as it may they were extremely old pollards and the first real evidence of trees pre-dating construction of the course during the 1960s. However, we did not have to wait long for more evidence. Further along the fairway were a group of older oaks clustered around an ancient boundary ditch, according to Colin one of the few classic historic features still visible on the course.

We were now coming to the end of our 18-hole trek with the woodlands having disappeared and giving way to more open fairways with individual trees both old and new. We found a fairway veteran English oak with marked dieback of the canopy. The source of the trouble was quickly identified and attributed by Colin and Brian to a collar infection by a basidiomycete fungus with brackets still in evidence at the base of the tree. Though too dried out by the hot summer sun to accurately identify the causal pathogen, Colin said it could be a well-established *Fistulina hepatica* (beefsteak fungus) infection, the 'steak-like' brackets having been well-cooked by the summer sun. "We will need to think carefully about this one," said Colin, "given the veteran status of this English oak tree but also due to location and position in relation to play."

"If the tree was in woodland or even in the 'rough' there would essentially be no problem, but in the fairway could present safety problems especially if the fungal infection progresses and the canopy continues to die back," said Brian.

## PLANTING AND REGENERATION

Into the penultimate hole we came across a grove of large aspens (*Populus tremula*). Despite aspen occasionally occurring in semi-natural ancient Hertfordshire woodland it is not generally considered as a 'naturally distributed species' in this neck of the woods. These trees had clearly been planted, and not that long ago considering the fast growth rate of this native poplar.

Tree regeneration is not something automatically associated with carefully manicured golf courses, where tree planting is more likely to be the order of the day. However, just before completing what must



The 'old' crab apple tree was given an 'amber' designation – 'work required when budget allows'. In the picture is Brian Cole (left) and Colin Chambers (right).



Example of a woodland tree actually impacting on the course – scaffold branch on a common ash had fractured, with extra weight and load-bearing of common ivy growth undoubtedly adding to any existing weakness.



Ironically the force of the fracture had snapped the woody ivy vines but left the ash branch holding on and still supporting living foliage.

have been a three- to four-mile hike we came across a classic example of oak regeneration on a sizeable area of golf course 'rough' – rough grass species mixed with wild flowers. The final question, said Colin and Brian – "Is this woodland for the future or do we take it out and keep the area as classic golf course 'rough'?"

## PAR FOR THE COURSE IN HERTFORDSHIRE

Hertfordshire, immediately north of London, is the county authority most closely associated with new town development. Thriving settlements and developments at Stevenage, Hatfield and Welwyn Garden City are some classic examples. On the way home I thought about this in relation to the golf course I had just seen. Thinking about species selection of the hundreds if not

thousands of trees planted in the 1960s and now mature and in their prime, I could have been in any one of a number of green open spaces in these Hertfordshire new towns. If I had parachuted onto the golf course I think I would have instinctively known that I was slap-bang in the middle of 'new town Hertfordshire'.

Last but not least is a shrinking situation for biodiversity and wildlife. Living within peri-urban and suburban areas in the 21st century you can't help but be aware of the rapid reduction in biodiversity, including native butterflies, birds and small mammals such as the hedgehog. Whether or not the owners and custodians understand and appreciate it, their golf courses are often the last refuges for increasingly threatened wildlife, with trees as the framework and infrastructure for crucially important contemporary habitats and environments.

## References

A tree officer looks back to the future - Colin Chambers at Dacorum in Hertfordshire. essentialARB Summer 2016.  
Taking care of tall trees in tight places. essentialARB Summer 2017

