The National Trust Branches Out with Autodesk MapGuide

Waddesdon Manor pioneers new tree management system

It's a sign of the times. Talk to Paul Farnell, head gardener at Waddesdon Manor, the National Trust property near Aylesbury and he may well discuss the weather, mulching and potting sheds as all good gardeners should. On the other hand, he's just as likely to tell you about his new IT system.

But before you wonder "is nothing sacred?" take note. It's planned that the new tree management system, based on Autodesk MapGuide, will help the team to gradually repopulate the parkland in the style of the original planting. It will also play a role in helping preserve some of the rarer species growing there, including some unusual maples and copper beeches and an excellent collection of pink chestnuts.

On a more prosaic note it will help ensure the gardens comply with health and safety obligations. And, it won't necessarily just be used to look after the trees. Eventually, the system may be used to reduce the £1/4 million per year spent on bedding plants by more accurately determining numbers needed and so eliminating waste.

Although the National Trust has its own IT system for cataloguing noteworthy trees and plants, Farnell believes that Waddesdon Manor is the first of the Trust's property to have a standalone application of this kind. *"We're only just learning its full capabilities, but by ensuring all the data we need is easy to find and interpret, we know it will enable us to respond to queries faster and prevent wasting time looking for information. In fact, we predict it will really allow us to work more efficiently and to move forward with our plans for the future,"* he says.

Waddesdon Manor was built by Baron Ferdinand de Rothschild in the late 19th century. The baron loved France and French art and so, with his French architect Destailleur and his landscape gardener Lainé, he built a Renaissance-style château in the Buckinghamshire countryside. He surrounded this with flamboyant gardens landscaped in typical high Victorian style with winding walks, hothouses, an aviary and panoramic views.

The manor and grounds were left to the National Trust in 1957 but by this time the garden was rundown and in disarray. However, in 1990 the present Lord Rothschild initiated an extensive restoration programme and the property is now managed and funded on the National Trust's behalf by the Alice Trust, named after Ferdinand's sister, Alice.

When the baron transformed the garden from farmland into sophisticated gardens and parkland he laid out avenues and plantations of trees. He chose species of trees and plants from across the British Empire and consequently Waddesdon Manor became known for its exotic collection.

However, now these trees are ageing and many have been lost over the last 100 years, especially during the big storms of the 1980s and 90s.

> *"We're only just learning its full capabilities, but by ensuring all the data we need is easy to find and interpret, we know it will enable us to respond to queries faster and prevent wasting time looking for information."*

Paul Farnell, Waddesdon Manor, Natural Trust property

Autodesk

The gardeners were no strangers to CAD. Previous tree surveys had involved drawing the trees in AutoCAD and recording size and other details. Farnell finally settled on a solution using Autodesk MapGuide, mainly because it was so straightforward.

Farnell explains that the gardening team had been talking about investing in an IT system to store information about their renowned tree collection for around three years, even before he came to Waddesdon. *"I know my predecessor looked at many off-the-shelf systems, but none of them would do exactly what he wanted,"* he says.

The gardeners were no strangers to CAD. Previous tree surveys had involved drawing the trees in AutoCAD and recording size and other details. Farnell finally settled on a solution using Autodesk MapGuide, mainly because it was so straightforward. It could read previous AutoCAD drawings and, importantly, would only take a small footprint on the central server and have minimal impact on the overall IT infrastructure.

"Now we are surveying the garden digitally and all the information will be put into a database using a special application called Ezytree," he says. *"MapGuide sits on top of this as a dynamic visual interface, enabling users to view and interrogate a map of the garden via the internet."*

All the trees are given an identity number. Information such as species, height, spread and crown size is recorded, plus other details such as when it was last worked on and what was done.

"We can even include digital images on the maps. Then, if the tree has a problem we can compare images taken at intervals and see if it has got worse. In this way we build up a real portrait of each tree," says Farnell.

Having all the important data about the trees in one centralised location serves many purposes. At the top of the agenda is health and safety. The system will flag up when a tree is due an inspection, ensuring that any threat of falling branches – or any instability in the tree itself – is promptly remedied.

"The system will cover at least two-thirds of what we have to do on this front. And because everything is audited, we have a digital trail of our actions, just in case we do face litigation at any time," says Farnell.

Farnell and his team have been working with Autodesk reseller, Allied Integrated Technologies (AIT) throughout the whole implementation and training process. Mark Spence of AIT explains that they have slightly customised the interface of MapGuide and included wizards to make interrogation even easier for anyone who should need the information quickly.

"Although MapGuide is simple to use, it has great functionality. It's far more than just a map – for example it can produce work schedules for the trees and reports. These can easily be copy and pasted into an Excel spreadsheet, if required," he says.

The new system will help the gardening team manage proactively too. *"Up until now, replanting has been done on an ad-hoc basis,"* he continues. *"We now want to take a more considered approach and gradually replant to the original scheme. We can now overlay MapGuide with OS maps to see where we've lost trees and then actually put new trees in at the same spots, ensuring that we are historically accurate."*

Using MapGuide, the team is setting up a gene base as part of the centralised data. *"When we call up a tree the system will first tell us if it's unusual. It will also say whether we've taken any cutting material, if so, how many plants of it we have in stock and if these are available for others. This way we can grow on from our unusual species and so ensure continuity,"* says Farnell.

Once the latest tree survey has been completed and the team has got used to using the new system, Farnell foresees that there is much more that can be done with MapGuide. For example, it could be used for planning the vast flower beds that are a feature of the garden. These include a massive restored parterre which holds around 50,000 bedding plants.

"Eventually we would like to use MapGuide to help us plot the beds and calculate the planting density and the exact numbers. This will help save wasted time, effort and costs, enabling us to put more back into enhancing and restoring the garden," he says.

We like to think Baron Ferdinand de Rothschild would approve.