

Online game changer for tree health?



Photos: M. Coleman.

Computer games that save trees! Is that even possible? That's the aim of scientists involved in the PROTREE project funded by the Tree Health and Plant Biosecurity Initiative, and they have a big challenge to meet, with new threats to tree health arising all the time.

A consortium of seven Scottish research institutes (Royal Botanic Garden Edinburgh; The James Hutton Institute; Forest Research; Scotland's Rural College, SRUC; University of Aberdeen; The University of Edinburgh; and Centre for Ecology and Hydrology) – working with games designers Hyper Luminal Games, have come up with CALEDON. The game falls within the survival strategy genre and aims to raise awareness of tree health problems, and communicate how we might go about ensuring trees are more resilient in the future.

Since the 1970s we have had an ever growing number of tree pests and diseases arriving in the UK. Sometimes they have spread under their own steam, but more often than not we humans unwittingly give them a helping hand through global trade. Infected timber and young trees slip through the net and before too long we have a new tree health problem on our hands.

Should we shut down trade to protect our trees? No. We can't ignore globalisation if we value shared prosperity. We do need to reduce risks as much as possible, be vigilant, and adopt strategies of forest and tree management that encourage resilience. Accepting that tree health problems are here to stay highlights the need for a step change in how we deal with this inevitable aspect of forestry.

So why use computer games to tackle tree health? The hope is that through a popular and engaging medium a wide range of people, including children, can be switched on to tree health and potential new approaches to dealing with the problems we face. Engaging a new generation of potential plant health professionals is a vital part of the solution. All too often the media portrays tree health as a disaster waiting to happen. The truth is more nuanced. In nature the diversity of species and genes means that populations cope with, and bounce back from, attack. What we need to do is acknowledge and work with the natural processes that keep trees healthy. Putting it another way we need to help nature to help itself.

What does this mean in practice? Our forestry is heavily reliant on single species plantations, often with limited genetic variation between individuals. The wisdom of old sayings is worth taking note of here as this is a case of putting all our eggs in what we hope will be one highly productive basket. Unfortunately, this approach is also an ideal incubator for pests and diseases. The solution is diversity, and the hope is that CALEDON will help to get that message across.

Educational games or 'games with a purpose' are a growing niche in the market. The trick is not to lose the fun factor. The best educational games maintain a balance of reality, meaning and play. In CALEDON the player is a forest manager responsible for keeping a forest healthy and productive. Although the game follows the popular survival model, this aspect of the game is switched around so that survival becomes

something that is all about the trees and not the player.

The information needed to make informed decisions is built into an encyclopaedia that players can consult at any point in play. Further information is presented as tips after each turn. In this way the game achieves education by stealth and players learn without even realising. In the process of managing their virtual forest it will also become apparent to players what works and what does not. It is hoped that the features of the game that make it like a simulation will give it application within the forestry sector. It has potential to enable people to learn about a range of pests and diseases and to appreciate the role of diversity in building resilience.

Another motivator in the game is money. Players can fell trees to generate income in order to be able to plant more trees and deal with problems that arise, such as pathogens or herds of deer. In this way the game gives a sense of the commercial side of forestry and the balancing of issues like financial sustainability and environmental benefit. As there is potentially so much to consider at each turn this is not a fast and furious game. Instead, the game is played at the pace determined by the player. As long as there is money in the bank a player can continue making management decisions and will only advance to the next turn when no more decisions are needed or the money has run out.

Today, a small number of scientists are battling a growing number of tree health problems. By combining gaming with education, to educate widely, as well as to encourage a new generation of plant health scientists, we can have hope for the future.

CALEDON is free of charge and can be played online at www.rbge.org.uk/caledon and is also available for iPad on the App Store.

[The Editor-in-Chief thanks Joanne Taylor for drawing this initiative to his attention.]

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