Preparatory action on EU plant and animal genetic resources

Future Trees Trust

Overview

1. Objectives

Future Trees Trust (FTT) is a charity which aims at improving the timber quality of broadleaved trees planted in the UK and Ireland, concentrating on seven species: ash, birch, cherry, oak, sycamore, sweet chestnut and walnut. It aims at planting and commercialising better quality, faster growing and well adapted trees, in view of climate change and disease resistance. FTT also aims at improving the species' genetic quality and diversity to facilitate forest management and contribute to biodiversity. The objective of the case study is to explore the means developed to improve broadleaf tree species while maintaining genetic diversity within the species, and identify how the initiative is taken on and perceived.

2. Description of the case

Future Trees Trust (FTT) was founded in 1991 under the name British and Irish Hardwoods Improvement Programme (BIHIP), and started out as a group of scientists and foresters who were concerned about the extent of hardwood imported in the UK and Ireland. The reason for this was identified as the lack of genetic quality of trees grown in the UK and Ireland. Therefore, they decided to work on this topic on a voluntary basis. FTT has a long term view, and wishes to keep genetic diversity as broad as possible for adaptation and disease resistance purposes. There are 7 research groups (ash, birch, cherry, oak, sycamore, sweet chestnut and walnut) concentrating on developing breeding programmes for each species. These research groups are comprised of volunteer researchers from different areas in the UK and Ireland, who work in collaboration with foresters to carry out trials and create clonal and seedling seed orchards for reforestation purposes (cf. Figure 1).

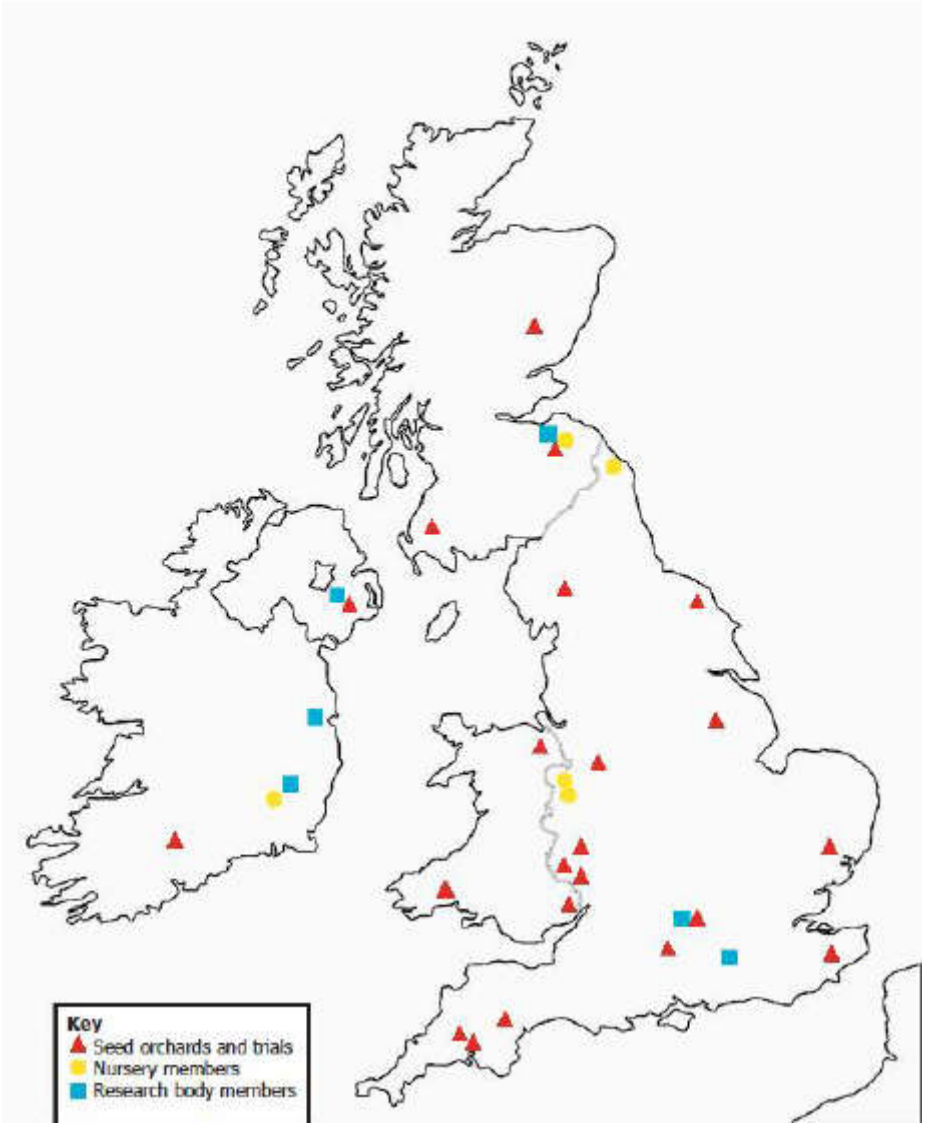

Figure 1: Map of the location of Future Trees Trust's members

In 2011, the first and currently only full time employee, the Development Officer, was hired in the aim of developing the charity and raising money to support it, which has proved successful. A research coordinator is also employed one day a week.

Analysis

3. Funding and support

FTT receives funding from four main sources:

- Public funding:
  - 25,000 GBP a year from the British Forestry Commission (which has gone up from 10,000 GBP), in the form of grants for specific research
  - 15,000 EUR a year from the Irish government
  - 13,000 GBP for the next 3 years by the Department for Environment, Food and Rural Affairs (DEFRA) in the UK, as FTT are involved in their Living Ash Project aiming at finding trees tolerant to ash dieback.
- Private charitable trusts: the main source of funding
  The Development Officer is in charge of finding the charitable trusts that are in the field of FTT, developing relationships with the representatives and adapting the application. The regularity and amount of the funds provided depend on the charitable trust.
- Corporate sponsorship:
  FTT is deploying a strategy with companies, by informing them that having their logo on their products will add value and give the company a better image. The tree guard providing company Tubex sponsored them for two years, but have now withdrawn.
- Book sales:
  A private donor gave FTT funds to translate a book on growing quality oak written in French, . Proceeds from the sale of the book come to FTT.

The total yearly income added up to 221,000 GBP in 2014, while it was 38,000 GBP in 2007. So far, the amount of money received has increased every year, but a plateau could soon be reached. The sustainability of the funding is an issue, as the yearly amount is not guaranteed and could fluctuate, which makes it difficult for FTT to engage in large long term projects.

However, it is difficult for FTT to find funds to cover operating costs (salary, phone bill, etc.), as this is not what interests donors, but it is essential to be able to carry out the work at FTT. Furthermore, as FTT is a charity, it is not eligible for research council funding. Another obstacle is the fact that understanding the work they are carrying out is difficult. It takes time to explain, finding a way for funders to quickly grasp FTT's work is a challenge. Once they understand, however, many funders are interested. Furthermore, there are many charitable trusts in the UK, and finding the most relevant one can be time consuming.

4. Positioning at local or regional level

FTT's work is cross-border as it is recognised by both the British and Irish governments. They are financially supported by the British Forestry Commission and the Irish Government, and some of the researchers involved in the work are part of these organisations. Therefore, the work carried out can be disseminated nationally in the UK and in Ireland. However, the results of FTT's actions cannot yet be perceived in the field by foresters as the testing stage is not complete for most species, and the improved material therefore cannot be commercialised for the time being. Therefore, many foresters express an interest in obtaining the improved broadleaved tree seedlings, but will only engage in FTT's work once

the trees are available on the market. Qualified material is available for cherry, birch and sycamore from clonal seed orchards in as yet small quantities and this material is being well received.

The main aim of the work carried out is to have the improved varieties available on the market in the form of tested seeds (highest grade of quality). This was achieved for the ash species (cf. Figure 2), but an outbreak of ash dieback meant that the work conducted for more than 20 years in orchards could not be put on the market. Therefore, there is an important disease risk factor in the work carried out by FTT.

Figure 2: Ash trial at Paradise Wood, Oxfordshire, England – 36 half sibling families originally in the trial, 66% of trees were taken out after rogueing

5. **Partnerships and networking** (in the EU, outside of the EU)

The volunteer researchers involved in FTT's work come from different backgrounds (e.g. researchers, foresters, nurseries) which allows the work to cover a wide range of aspects. However, they are spread across the UK and Ireland, which can sometimes lead to difficulties in terms of internal communication. To help coordination, there is a Chair for each of the 7 species, and species groups meet regularly to discuss the work. Furthermore, all the researchers know each other, as most of them have worked together on other projects in the field. In addition, there are 4 researchers (known as "secretaries") volunteering at FTT, and spread across the 7 species groups. Finally, a research coordinator helps towards bringing the work together.

Some of the members of FTT are involved in European projects, through e.g. EUFORGEN and COST Actions. This allows the charity to access information at EU level, and attend meetings for FTT's work to be visible. The EU Treebreedex[1] project was highlighted as very useful for FTT's work. It aims at developing at EU level a scientific and technical research framework in forest genetics and tree breeding. Thanks to the Forestry Commission, one of FTT's partners, two of FTT's ash trials will feature in the Treebreedex database, and will be available at EU level.

However, much of FTT's work goes unnoticed at EU level (e.g. only 7 ash trials were reported, while there are 26 in the UK). This is due to the lack of governmental bodies involved in FTT, as well as its size. The charity is considered as isolated as they are not part of a university or governmental body, and therefore it is difficult to have their voice heard at EU level.

One of the issues in terms of collaboration and exchange of information is that many of the meetings planned at FTT are in the South of England as this is where most of the work is carried out, which means that it is difficult for volunteers in e.g. Scotland or Ireland to attend. This issue is currently being tackled, with some meetings being held further North. Many people often ask for the planning of teleconferences to reduce the travelling costs. One meeting per year is financed by FTT's own means.

In addition, the fact that all researchers involved are volunteers means that the work for FTT is not a priority, and they must find time to carry this out outside of their work schedule, which can prove difficult. Determining the areas of expertise of each partner is essential to allocate the appropriate tasks to members so as to achieve the highest added value efficiently. The Development Officer is in charge of identifying priorities with researchers to tackle this.

FTT also collaborates with around 400 foresters, some are members of the charity, and who lend part of their land to carry out the trials, such as Paradise Wood in Oxfordshire (cf. Figure 3). However, property rights of the seeds within the stands are not always clear. FTT works with foresters to identify good quality trees, and also land of good quality to hold the trials and stands. Communication and exchange with foresters is essential to FTT's work. Indeed, the final output, i.e. better quality and faster growing trees , will be used by foresters. The main goal is to help foresters access improved material and being able to promote them.

[1] http://treebreedex.eu/

Figure 3: Oak tree trial in Paradise Wood, Oxfordshire, England – 56 half sibling families on the trial, planted in 2003 (12th growing season)

6. Communication

Raising awareness on the genetic quality and diversity issue of broadleaved trees is also part of FTT's responsibilities. This is carried out through joining organisations and the Development Officer attending events in relation to the domain such as the Treefest[2] in Gloucestershire. FTT is also part of the Tree and Design Action Group[3]. The major challenges identified were finding the opportunities and resources to attend such networking events, as not much time is allocated to this due to the fact that the Development Officer is the only full time employee.

FTT is also engaged in profile raising actions, through articles in journals (such as the Royal Forestry Society's[4] journal, mainly aimed at foresters), attending events and keeping their name in the press. In addition in 2013, together with partners, FTT wrote a strategy document called "A Future with Broadleaved Trees" which was launched at the House of Commons, and has helped their profile raising. These actions have shown positive results as FTT is starting to get invited to events and the profile is rising. The main challenge for this activity is allocating time and resources to it. Employing a full time person in charge of PR

[2] http://www.forestry.gov.uk/westonbirt-treefest
[3] http://www.tdag.org.uk/
[4] http://www.rfs.org.uk/

would be beneficial, as the activities associated with this job are currently a second priority, the first being the constant need for funding.

Foresters are generally receptive to these communication actions and would like to access the product, however as it is only just becoming available in small quantities as qualified seed, many people say that they will assist FTT once the product can be purchased. Therefore, new opportunities will arise for FTT once the tested seeds are on the market.

7. **Outputs and added value** (current and future)

The main output expected by FTT is to have tested seeds (highest quality) of improved broadleaved tree available to foresters on the market. These are created through seedling orchards which, as mentioned above, was achieved with ash, but due to a disease outbreak the results could no longer be used. Testing for sycamore and walnut has just started, but this process is costly and results are expected in 10 to 15 years. However, FTT does hold qualified seeds (third highest quality of material), produced through the creation of clonal seed orchards, which FTT has for cherry (cf. Figure 4), birch and sycamore, and are planting for chestnut. The remaining varieties are currently at a lower development stage. Once the improved material is launched on the market, the Development Officer will be in charge of promoting it. In addition, members of FTT will then perform an economic evaluation and compare this material to the unimproved one, so as to observe the difference in return on investment over time.

Figure 4: Cherry clonal tree trial in Paradise Wood, Oxfordshire, England

The sharing of knowledge is key in improving genetic diversity, and the range of people working together contributes towards that, as well as the dissemination of results. The fact that foresters and geneticists are involved in FTT brings added value to the work in terms of knowledge. In addition, the fact that the involvement is voluntary shows that there is an interest and dedication in improving the quality of hardwood species and whilst ensuring genetic diversity remains as broad as possible.

One of the main limits of FTT's activities is that there is a lack of data to back up their ideas, as trials take a long time to grow, and therefore they need to make parallels with what has been achieved with other fast growing species. This is an educational process. However, in the next 10 years, they will be able to collect more data as the trees grow so as to prove their statements. FTT's trials are currently at a development stage.

8. Sustainability

Working in the tree domain requires a long term vision, as trees take decades to grow, and the research results are not immediately visible. For instance, FTT has been working on improving broadleaved trees for 20 years, and results have just started to appear. This means that the sustainability of FTT's work is essential in order to achieve positive results.

The main challenges identified were the fact that the amount of funding received per year is difficult to predict and irregular as it mainly depends on private charitable trusts, and also finding new volunteer researchers. Indeed, contacts at universities are found through existing members, and a lecture is held every year at Bangor University in North Wales to try and enrol students in the initiative. However, many students are busy and when they find a job, they do not have sufficient free time to work at FTT on a voluntary basis. In addition, few universities now teach forestry in the UK and Ireland. Finding new researchers is a challenge for the sustainability of FTT as the current members are ageing.
The limited access to research papers was also mentioned as hindering FTT's development, as library facilities have restricted access, and FTT cannot afford to pay for the papers. Therefore, keeping up to date with the latest research undergone is difficult.

9. Upscaling and out-scaling

Working at a cross-border scale (UK and Ireland) has proved beneficial for the work. For instance, broadleaf forestry is limited in Ireland, and working with the UK has contributed to an improvement. Ireland underwent mass deforestation and genetic diversity was lost, the breeding programmes created by FTT help towards rebuilding this diversity.

Collaboration with the EU could benefit FTT in terms of building a more important knowledge base and receiving additional funds to develop current activities, but seeking this type of collaboration is not a current priority. EU funding for FTT's activities would help its development, especially considering the budget cuts that the Forestry Commission is currently facing in the UK. However, searching for EU funding is not carried out at FTT due to administrative burden. Furthermore, an application was once made but funding was refused due to the fact that FTT was too small to be eligible. Therefore, a change in the policy to allow smaller organisations to benefit from EU funding would allow FTT to develop

its activities. Further collaboration with stakeholders involved in EU activities such as EUFORGEN or COST Actions, would be beneficial, as they could explain the process of obtaining EU funding and help establish a cooperation between FTT and the EU.

Conclusions

STRENGTHS	WEAKNESSES
Multidisciplinary actors involved; Collaboration with governments; Diversity of the funding sources available; National and cross-border (UK and Ireland) scale of activities; Final output is in the economic interest of foresters and has environmental value.	Communication and coordination between members can be difficult; The lack of data currently available from the trials; Most of the work conducted for FTT is voluntary; Fluctuating amount of funding; The time required for trees to grow.
OPPORTUNITIES	**THREATS**
Rise in research interest around genetic diversity; Interest of foresters in trying to use improved varieties; Develop activities through EU funding.	Disease outbreaks, such as ash dieback; The lack of young people involved; Lack of visibility at EU level.

Future Trees Trust aims at creating improved broadleaved trees in the UK and Ireland. Collaboration between foresters and researchers within FTT allows the research to be applied, and to respond to the current needs of foresters in terms of tree genetic improvement. Furthermore, collaboration with national authorities broadens the actions that FTT can carry out. While the amount of funding available from year to year is uncertain, the diversity of the types of funds available for the charity multiplies FTT's chances of obtaining funds. In addition, the fact that two Member States (the UK and Ireland) are working together towards achieving FTT's goal allows for a valuable exchange of expertise. According to FTT's objectives, the use of improved broadleaved trees will not only improve the management and economic return for foresters, it will help towards broadening broadleaved tree genetic diversity.

However, the geographical distance between actors involved in FTT means that the coordination of research and communication can prove difficult. In addition, while the fact that work at FTT is done voluntarily shows that there is interest for tree genetic diversity and improvement in research, it also means that researchers cannot prioritise their work at FTT, which can hinder development. Furthermore, the long term vision required to work in the forestry domain means that results take time to appear, and currently FTT do not have results in the field to support the statements made.

The communication actions carried out by FTT have shown that foresters express an interest in using improved broadleaved tree species appropriate to their land, which leads to believe that once the trees will be available on the market, there will be a demand for them.

However, as was the case for the ash tree trial, FTT's work is at constant risk of a disease outbreak which could destroy the work carried out so far.

Annex 1 – List of interviewees

- Jo Clark, Research Coordinator at Future Trees Trust and Forestry Research Manager at the Earth Trust
- Brian Clifford, Irish representative of Future Trees Trust (volunteer), Forest Sector Development at the Department of Agriculture in Ireland
- Steve Lee, Programme Group Manager at Forest Research, in charge of conifers and broadleaved trees
- Tim Rowland, Development Officer and fundraiser, secretary and treasurer at Future Trees Trust

Annex 2 – List of references

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