



## StarTree in Italy

*With every StarTree study tour comes a new surprise, as Emma Chapman explores mushrooms.*

I left Italy with an unlooked-for aversion to cultivated mushrooms. Fungi turn low-grade plant material into high-grade food and are a good source of protein and minerals. I have long thought of supermarket mushrooms as a benign product. Fifty kilometres across the plain from Padua, I found myself in two large industrial complexes which challenged this idea.

The first produced button mushrooms. The substrate was some kind of rough compost, to be sure. But the structure they were grown in was a large building in which a broad, windowless corridor opened onto a double row of big, rectangular steel vaults. Within these were rows of racks of huge steel trays, with an occasional overalled employee, perched on a small platform, picking them. The atmosphere was controlled, very humid, and disturbingly mouldy. I would not have wanted to spend my working time there. The embodied energy of those steel structures, and the transport energy for bringing those big loads of compost to this centralised site, weighed heavy on my mind. And it weighed heavy on the land: so much infrastructure to support a single, sterilised monoculture.

The second industrial complex, just down the road, was lighter weight

but also quite depressing. Through a wire security fence, rows of big tunnels stood in a tarmacked field, looking for all the world like a military airbase. They were, in fact, opaque, insulated polytunnels, filled with rows of stacked cubes. Each cube was a plastic-wrapped block of compressed wood shavings, with white or yellow oyster mushrooms emerging from holes on every side. The atmosphere was less oppressive than that in the compost sheds, but still very controlled: once or twice our group was hurried out quickly, so they could close the doors and keep in the carefully misted air.

### Industrial systems vs ecosystems

I suddenly understood just what a fine habitat surrounds the small-scale log-based cultivation I have experienced in Scotland. Logs inoculated with saprophytic fungi can be left maturing in a shady spot, forming an intrinsic part of the woodland or garden, then covered against the attentions of slugs and snails only for the short time when they are actually fruiting. It would be a tough call to make a viable larger-scale food production system this way, but now more than ever I understand the reasons for trying to make it possible.

The next enterprise we visited, a major distributor of wild fungi, was

equally vast, though more obviously based on non-wood forest products (NWFPs). In Scotland, where we have since conducted a modest survey of our equally modest mushroom supply chain, 'major' means buying from perhaps a few dozen pickers<sup>1</sup>. In Italy, 'major' means big, very big. Paganini Funghi process 1,500 tonnes of wild mushrooms per year, much of it coming from Eastern Europe and being shipped in bulk across Europe.

We moved on from these mass-market mushroom visits, to the Euganei Hills regional park, a volcanic region which rises abruptly from the Venetian plain. There, in the Casa Marina visitor centre, we were treated to a lunch of local produce, much of it with a wild harvest element, and afterwards to a feast of presentations about local innovation. Here the theme was smallness: small companies, and small-scale innovations. A beehive entrance which counts the foraging bees in, and counts them back, designed to give all kinds of remote information to the beekeeper<sup>2</sup>. Gorgeously shiny stainless steel equipment for micro distillation of essential oils<sup>3</sup> and small-scale brewing<sup>4</sup>. A food dehydrator that sounded so well-designed and energy efficient that I decided to buy one<sup>5</sup>. The forest tourism and education cooperative that hosted our visit<sup>6</sup>. And then, with yet another take on



NWFPs, there was the presentation about one company's efforts to change a small piece of Italian law – one which currently prevents the selling of a tiny kind of food for human consumption...

### And finally, the starter...

If I left Italy with an aversion to eating mushrooms, I also gained an urge to add insects to my diet. The lunchtime *hors d'oeuvres* were part of the education. It might be misleading to call them 'appetizers', because they consisted of crickets and mealworms, more or less vividly exposed in all their deep-fried glory. They were interestingly normalised when placed in small cups with similarly deep-fried potato crisps; utterly blatant against a plain background of pale, white semolina.

High in protein, minerals and beneficial fats, insects could potentially be products of a mixed forest ecosystem, and are increasingly being promoted as a low-impact food source for the planet's vast human population. Yet, as with mushrooms, insects could also be farmed on an industrial scale, with little respect for the creatures involved or the wider environment, and all the problems that can bring. More research is definitely required... but any small-scale mealworm-growing experiments on my part will have to wait until the bulk of StarTree work is past! (The company, 'Smart Bugs', is so new that it does not have a website yet.)

Above, left to right: Insects - a low-impact food of the future?; Oyster mushrooms growing in rows of stacked cubes; Chanterelles in the forest; Growing button mushrooms at supermarket scale. Photos: Emma Chapman, except for the image of Chanterelles, which was taken by David Baird and is used under a Creative Commons Attribution License.

### Supply chains

Back in Scotland, StarTree work has finally begun venturing away from the desktop. In autumn 2014, we surveyed the mushroom supply chain. In December, we held interviews to explore commercial wild harvesting practices. We would like to facilitate more dialogue between landowners, gatherers and conservationists, and the resulting knowledge of the realities of wild berry picking in Tayside have given a very useful starting point – thanks again to all the people involved, some of whom read this Journal.

As I write, we are in the final stages of a brief survey of the honey supply chain in Scotland. As with many parts of the StarTree data gathering, it would take a months-long project to really do this justice, but what we have been able to learn in the short time available has been fascinating. Some of the enterprises involved, especially the bee farmers and part-time beekeepers, have been hugely generous with their time and data, and we are hoping to repay at least the hobby (or, more accurately, 'vocational!') beekeepers by distilling some results into an article for a beekeepers' magazine. We are also anticipating a bit of international collaboration with StarTree partner Llais y Goedwig, who have conducted a parallel study on honey production in Wales.

Meanwhile, we are developing plans for some practical 'Action Research' with the Scottish Working Woods label and the Scottish Wild Harvests Association. The work is endless, multifaceted, and made much

lighter for me by the arrival of a new colleague – Toni Dickson, who is with us till the end of August 2015.

### StarTree sector report

Early in 2015, the StarTree consortium will be publishing the results of its first two years of data collection. At some 140 pages, the report is a weighty but still very interesting read. If you would like to see it please let us know and we will post you a link to it. The report will also be published on the StarTree section of the RS website.

[reforestingscotland.org/projects/startree](http://reforestingscotland.org/projects/startree)

### Notes and References

1. Since our survey of Scotland's wild mushroom supply chain was modest, we know it was incomplete. Indeed, one beekeeper mentioned an enterprise we had never encountered! If you know of any wild harvesting operations in Scotland, do let us know, as we are always trying to widen our knowledge.
2. [www.melixa.eu](http://www.melixa.eu)
3. [www.inherba.it](http://www.inherba.it)
4. [www.albrigliuigistore.com](http://www.albrigliuigistore.com) (no English translation)
5. [www.tauroessiccatori.com](http://www.tauroessiccatori.com) (no English translation)
6. [www.coopterradimezzo.com](http://www.coopterradimezzo.com) (no English translation)

*Emma Chapman is Reforesting Scotland's Project Manager for StarTree. For copies of the StarTree report or to tell us about Scottish wild harvesting operations E: [startree@reforestingscotland.org](mailto:startree@reforestingscotland.org)*