

Oil, Beer, and Snails - Sustainable Forest Management Means More than Just Wood

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There's more to a forest than just trees, a sentiment which is understood by many foresters around the world. In the following article, Dr. Antonio Brunori, PEFC Italy's National Secretary highlights some of the forest-products from medicines to food that can be developed and synthesised in forests, and aren't made of wood.

How Can we Shed Light on the Hidden World of Non-Wood Forest Products? Some Ideas from Italy

Developing the Italian Sustainable Forest Management certification scheme since 2001 has made me realize just how important non-wood forest products (NWFPs) are for rural and forest communities, in some areas much more than timber production itself. In many mountain areas, the economic aspect of chestnut production, truffle harvesting and mushroom picking, as well as hunting for large mammals or wild pigs, and further development opportunities linked to NWFP recreational activities, is still the most important factor supporting the income of forest owners and the welfare of rural populations in such marginal areas, especially in those mountain areas covered by coppice forests.



Yet, in the first years of the Programme for the Endorsement of Forest Certification (PEFC) schemes, the only forest products considered by the certification schemes were wood and cork. However, as soon as the Pan-European scheme became worldwide and the application field was enlarged – shifting from "wood certification" to "forest-derived products certification" – I began to work, together with Australian, Chilean, Brazilian, French, Spanish and Portuguese national PEFC schemes, to give NWFPs their proper place (on the same level as wood products) in the forest certification scenario.

The good examples from Forest Stewardship Council (FSC) certification found in Brazil (gum rubber from the gum tree and cashew nuts); Nepal (essential oils and aromatic herbs); Scotland, United Kingdom (venison) and, most recently (2008), bamboo in China and gin from the green pine cones of *Pinus sylvestris* in Belgium confirmed what we were proposing to the scheme itself, as well as to forest owners, forest managers and stakeholders. Consequently, in 2007 the PEFC system formalized the opportunity for NWFPs to be certified.

In the meantime, I had the opportunity to start collaborating with Dr Gian Antonio Battistel (of the Istituto Agrario di San Michele all'Adige, now Fondazione Edmund Mach, of Trento, Italy to undertake a national survey on NWFPs, financed by the Italian Ministry of Agricultural and Forest Policies. With this initiative, my love and surprise for this "hidden" world of NWFPs reached its highest point. We wanted to have confirmation of a feeling that NWFPs are more than just truffles and chestnuts, fungi and forest fruits. What we systematically found out, through a market survey first and field research afterwards, was incredible: we saw how much imagination was shown by forest owners and managers, and also how many applications such simple forest products can have.

Below are some of the most interesting and fascinating examples of the promotion and ingenious use of NWFPs in Italy.

Medicines from snails

In the region of Lazio we met an entrepreneur who produced phytotherapeutic products and who was now promoting snail products. Indeed, the land helix (*Helix pomatia* L.), or snail, has been used in medicine since antiquity and prepared according to several different formulae. The understanding of a snail's medicinal properties began during the time of Hippocrates (who proposed the use of snail mucus against 'protocle'), Pliny (who thought that the snail increased the speed of child delivery and was "a sovereign remedy to treat pain related to burns, abscesses and other wounds") and Galien (who recommended snails against Hydrops foetals).

The traditional use of snails for medicinal purposes had prompted this Italian entrepreneur to create snail-slime-based products (*mucus heliis pomatiae*), such as syrups and skin creams. The active ingredients of snail slime are *elicina* and *mucina*, which this manufacturer of phytotherapy products extracts through exclusive and innovative techniques that preserve their healing properties. The snail's syrup can alleviate annoying coughs and ulcers, while the slime-based cream relieves discomfort from acne, improves healing of wounds and smoothes wrinkles.

Only forest snails in the wild contain high levels of these active principles. Therefore, the snails are harvested in state-owned forests, mainly in high mountain areas that are uncontaminated and rich in aromatic herbs.

Fabric made of cork

On the island of Sardinia we met a lady who has created an innovative fabric made of tree bark extracted from the Cork Oak tree (*Quercus suber* L.). This kind of tree has its ideal habitat in the Mediterranean area and one of the highest qualities of cork can be found in Sardinia. Through a series of long and demanding phases, and after years of seasoning and sorting out the best kinds, the cork is treated and processed to produce a fabric and yarn. This process involves pressing the cork into thin sheets (of a few tenths of a millimetre) and then binding them to a backing (which may vary from cotton to viscose and silk), and subsequently subjecting them to a particular treatment involving the use of natural substances. It is a unique product, covered by patent protection in a large number of countries since 1999, and has the brand label of **Suberis®**.

This cloth is, basically, a revolutionary material: its perfect fusion between technology, creativity and nature has resulted in a fibre as light as silk and as soft as velvet, but at the same time that is stain resistant, anti-mite, scratch-resistant, waterproof and fireproof ... practically indestructible.

According to some professionals in the sector, cork cloth may end up replacing animal leather. In fact, some have already nicknamed it "vegetable leather", although it is in fact cheaper and more ecological than real leather. This fabric is used to produce clothes (jackets, trousers), accessories (bags, umbrellas, belts, bags), in furniture making (covers for chairs, armchairs and sofas) and in interior design.

The ancient "manna" gets a modern shape

On the island of Sicily we went looking for the South European flowering ash (*Fraxinus ornus* Linn.), a small tree that yields from its bark a sugary sap called manna. The term "manna" is extremely old and is applied to the saccharine exudence of a number of plants, e.g. *Quercus persica* (Oak Manna), *Alhagi maurorum* (Camelthorn), *Tamarix gallica* var. *mannifera* (Tamarisk Manna) and *Larix decidua* (Briançon Manna).

The history of manna is pieced together with historical references from the Bible, health manuals from ancient civilizations and references to the implements used to harvest it. Its medicinal qualities include its mild laxative effect and its natural sweetness for dietary purposes; its use in digestive alcoholic drinks and cosmetics has also been noted. It is sold locally at pharmacies and tobacco stores but, because of its biblical name and its wide range of medicinal uses, there are some commercial channels opening elsewhere.

Since Roman times, during the dry and warm season, the sap flows through a gash made with a special technique. Using a curved cutter on the vein of the tree trunk, the manna is left to drip for several days. The sap crystallizes and forms long clumps similar to stalactites. The juice is violet and very bitter when it drips, but on contact with the air and the strong Sicilian sun it dries and sweetens. The pieces that form on the lowest incisions, or the pieces that are collected on tiles placed under the tree, are less crystalline, more glutinous, and form moist adhesive masses of a dark brown colour. These are less valued.

One of the most problematic issues in the distribution and use of manna on an industrial scale is its poor hygienic condition. The solution to this problem was found with the

"invention" of "liquid manna", which permits a more hygienic and convenient use while maintaining manna's beneficial properties. Manna is bought from local forest harvesters, diluted in water, purified, filtered and packaged in bottles. This manna solution can be used in a variety of ways: as a sweetener, digestive, emollient, intestinal regulator, diuretic or laxative; and for detoxifying, refreshing and internal healing. The product has been patented.

Beers get forest "aromas"

In the Alpine area of the Dolomiti Friulane Natural Park, in the Friuli Venezia Giulia region of north-eastern Italy, a small brewery was striving to find its position in the local market and trying to connect its products to the local territory, rich in Alpine forests and awesome mountains. However, it was only when the brewer found the right mixture of yeast, pure spring water, pale and aromatic barley malts and wheat, noble European and American hops, fair-trade spices, and *Picea abies* bark, *Pinus sylvestris* twigs and *Pinus Mugo* buds that he found the key to success. Indeed, the fact that the needles and spruce bark or pine buds were coming from a PEFC-certified forest provided him with a marketing opportunity to sell his products.

These beers are brewed as other beers but have an additional marketing tool (the PEFC label) and an increased visibility because of the particular forest-derived aroma. Some forest owners developed other "forest beers" with local breweries, using chestnut as the fermentation agent, or truffles to provide a different aroma. These are yet more examples of imagination and entrepreneurial spirit resulting in the creation of really innovative NWFP activities.

Essential oils from sustainably managed forests

In the South Tyrol-Alto Adige region of north-eastern Italy, a new approach to the sustainable management of *Pinus Mugo* ecosystems, with the adoption of "mosaic cutting", has over time permitted the conservation of these important ecosystems, the wise recovery of important pasture areas, the increase of biodiversity and the revitalization of traditional production activities of Mugolio.

Mugolio has been produced for centuries at a local level for phytothermal baths (bagni di fieno) and for medicinal purposes (to heal lung illness). It is an essential oil derived from mountain pine (*Pinus Mugo*) twigs, wood and needles. It is extracted using a very easy mechanical system and can be considered a good example of integrated development at the territorial level.

The local action group (financed by European Union "Leader +" project funds) for the development of the Sarentino valley in the Alto Adige region, has been promoting Mugolio, which has resulted in the project's economic advantage in the cosmetic and tourist sectors. The product is also PEFC-certified because the oil is extracted from certified Mugo pine forests, which is a guarantee of the sustainability and traceability of the source.

The EU financial contribution and the PEFC label gives Mugolio international visibility, as well as providing local forest owners and farmers with a tool to market the products while maintaining traditional extraction techniques.

Tourism tied to mushroom picking

The last example is a tourist enterprise tied to mushrooms, namely the agri-tourist hotel "Funghi e Fate" on the central Apennine hills, based in Albareto (Emilia Romagna region), in the PGI (indicazione geografica protetta/protected geographic indication) certification zone called "Fungi di Borg taro". The activities of this agri-tourist country house rotate around the finding, picking, cooking and conservation of the *Boletus edulis porcini* mushroom. The owner has also created a "mushroom reserve" so that guests can get to know these products from forest to the kitchen.

Final remarks

There are many other success stories of using NWFPs in an innovative and imaginative way. There are also hundreds of cases – in both Italy and other countries – of NWFP-connected activities that, for a variety of reasons, lack the "last step" to make them successful, such as very small enterprises; higher harvesting costs for wild NWFPs versus cultivated ones; a low or basic knowledge of marketing tools; initial promotional costs; a market often driven by intermediaries who are not interested in giving visibility to producers; consumers' lack of knowledge of the wild/natural origin of NWFPs; and a lack of financial incentives among public and private institutions. Forest-related services (tourism, sport and trekking, adventure parks, etc.) also have their importance in many territorial contexts, but generally involve other types of enterprise capability often lacking in forest owners and managers.

More information and examples will be included in the final report of the research chaired by Dr Gian Antonio Battistel, which will be available in 2010.

Based on my recent experience in Italy, I believe that the key to the success of any NWFP initiative lies in the variety of factors linked to NWFP promotion and sale. I have also seen that a successful forest owner is a person who is able to promote NWFPs as a perfect blending of tradition and innovation.

I hope that this article will stimulate readers to generate more ideas that will benefit and shed light on the hidden potential of our NWFP world – ideas that will surely become easier when sipping a forest herb tea or enjoying a PEFC-certified "spruce" beer!

Dr Antonio Brunori has been Secretary General of PEFC (Programme for the Endorsement of Forest Certification schemes) Italia since 2001 and Editor-in-Chief of the magazine *AF – Agronomi e Forestali* (Professional Agronomists and Foresters) for the past nine years. He has also worked as a researcher in Israel and Brazil and as a technical journalist.

Further Information

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