A Local Eco House Renovation

This series of articles follows the renovation of a local non-listed 1850s house to be close to carbon 'zero'

PART 6: GROWING YOUR OWN ENERGY; TRULY SUSTAINABLE WARMTH

Of all the elements of Mike & Debbie's renovation project, the decision to attempt to grow their own energy came only gradually. Other technologies built into the eco-renovation plan were rigorously researched and carefully integrated. All good brain work. The trees were different; this is a project of the heart.

The eco-house sits within a smallholding including a sloping field of tussock grass at the moor boundary. On old maps the field is named 'high intak'. At just less than two acres, the field has several small springs and, although never boggy, is clearly well watered even in dry years.

M&D wanted to plant more trees on the land to join up two areas of mature woodland and provide an improved wildlife 'corridor'. Chatting with friends gave rise to the idea of planting the trees for sustainable fuel too. This could be done by planting a coppice rather than simply planting the trees and letting them grow.

Coppicing makes use of the trees natural ability to regenerate when cut. Once the main trunk is cut (leaving the root bowl or stool intact) the tree will naturally throw up several new shoots. These are harvested (or coppiced) based on a cycle determined by the species of tree. Coppicing is an ancient form of sustainable tree harvesting and is still used. Examples are willow osiers for weaving, oak for charcoal manufacture and chestnut for laths.
Traditionally coppice was used for ship's planks, timber in Tudor housing, hurdles, fencing and tool handles as well as for smaller duties such as besoms and kindling. Memories of the ancient skill are evident when walking in mature woodland. A stand of trees, each with multiple trunks is a sign that this was once a coppice.

More recently short rotation coppice has grown in popularity and commercial viability for making chip for biomass boilers. Here willow, poplar and some grasses are harvested and processed into chips or pellets for directly feeding into boilers.

One friend provided osier whips (willow *Salix viminilis*) which were cut into 15 cm 'rods' and formed the first willow coppice. Setting it up was easy, the rods were pushed directly into the ground (buds facing up), then protected with recycled 'rabbit deterrent tubes'.

Another friend invited M&D to harvest alder and oak saplings from his land. A special Christmas present of oak saplings grown from acorns collected from underneath the great oaks in Harrogate were planted. The woodland planting for fuel was completed with a native tree collection from the Woodland Trust. This contained birch, hawthorn, small leaved lime (under threat in England from hybrid limes), rowan, beech and ash.

The trees made good progress in their first three years: The willows grew over three metres (above)

and the slower growing hardwoods are tough little trees (below). In the second year, a second species of willow coppice was planted (*Salix triandra* × *viminilis*) to diversify the plantation further.

The eco-house coppice is to provide logs for the wood burning stoves, rather than for chipping for biomass boiler feed. As the trees need to grow until they can be harvested for logs, a longer coppice cycle is required. Lanes of clear grass or 'rides' have been left between the blocks of planting to improve wildlife habitat. The variation in coppice cycles means that there should always be trees of habitat quality within the eco-house woodland. Also, as the eco-house uses a ground source heat pump as the main background heating, the wood burners will be fired up only on chilly evenings or when M&D want to relax in front of a real fire.

Even though there are over 400 trees in the eco-house coppice, it is amazing to realise that this could not support an average three bedroom house using only wood fuel. Such a home requires over 8 tonnes of wood fuel a year. The eco-house coppice may yield a tonne or so of seasoned timber a year. M&D expect to coppice most of the trees at least once in their lifetime; but are content to know that the wealth of species planted, if carefully managed, is capable of generating a self-sustaining source of energy for well over a century. Now that is getting closer to true sustainability.

The Firewood Poem

Beech wood fires are bright and clear
If the logs are kept a year,
Chestnut's only good they say,
If for logs 'tis laid away.
Make a fire of Elder tree,
Death within your house will be;
But ash new or ash old,
Is fit for a queen with crown of gold

Birch and fir logs burn too fast
Blaze up bright and do not last,
it is by the Irish said
Hawthorn bakes the sweetest bread.
Elm wood burns like churchyard mould,
E'en the very flames are cold
But ash green or ash brown
Is fit for a queen with golden crown

Poplar gives a bitter smoke,
Fills your eyes and makes you choke,
Apple wood will scent your room
Pear wood smells like flowers in bloom
Oaken logs, if dry and old
keep away the winter's cold
But ash wet or ash dry
a king shall warm his slippers by.

Celia Congreve
Believed to be first published in The Times *2 March 1930*

Footnote: Whilst the coppice planting was being undertaken, a project to improve the survival of the Yorkshire juniper was in full swing. An upland area of the field was reserved and M&D were delighted to welcome pupils, teachers and friends of Castleton School who helped plant twenty-five young juniper trees. These will never be coppiced but will hopefully enjoy their natural span at the head of the field and contribute to the re-establishment of this ancient species.

COPPICING PLAN

Tree	Cycle /years	Fuel Notes
Willow osier	5	Burns well only if properly seasoned. Dry for 1-2 years
Willow cross	7	Burns well only if properly seasoned. Dry for 1-2 years
Alder	7-9	Must be very well seasoned and split early to burn well
Rowan	8-10	Burns well
Hawthorn	8-10	Burns well
Silver Birch	10-15	Very good but burns quickly, mix with other woods
Lime	10-15	Not particularly good, mix with other woods
Ash	10-15	The best!
Beech	15-25	Must be well dried, then quite good
Oak	25-50	When seasoned, burns slowly, uniformly and well