Chapter 4 - Making Best Use of Limited Space

David Holmgren: So I'm making best use of limited spaces is another big theme in their built chapter. There's also a lot of controversial stuff even in these chapters because there's a whole chapter on wood energy. I'm a great advocate of wood as a sustainable energy source, and it's obviously very controversial in terms of localized pollution risk.

Some people would see also in terms of. Wait a minute. Where's the wood supply coming from and I have sort of a lifetime of work as an advocate of wood as a renewable energy that would not be in any way controversial in Sweden, Austria, Germany, Finland, Japan where they have sensible management of forests, and these issues are - wood energy is a huge part of the renewable energy me.

Like if the Dandenong's was in Europe, it would be a massive net exporter of energy based on district heating plants. Just thinning the forest that is constantly growing at huge rates. In fact, our forests are growing at rates way above the rates of European forests, but because we have this bloody terrible history of being unable to get our act together to manage forests possibly we've sort of got an either sort of rape it or we don't touch it sort of thing and it's a great tragedy in this country. And most people said no, let's not go there. We won't talk about wood energy and that also means that the household level people are losing the basic skills of fire and yet we know in really difficult futures people will again burn stuff whether it's the furniture or greenwood.

To keep warm if the electricity is not on so just competence in a backyard rocket stove where you can cook if the gas or the electricity is not working is basic survival skills, but it's if people are familiar with it. Then there's a greater chance that needing to do it then it will be safer pollution-free less burns and injuries.

Burning down the house. We know this from where we live in Hepburn Springs because all of the house fires occur from tourists leaving logs in the open fire or in one case recently taking the logs out of the fire and putting it back in the wood box. You know, like this is serious disabilities. We are creating on a gigantic scale and to say, oh, well wood's old-fashioned polluting bad, we won't go there.

Is unrealistic, it's better to redevelop a culture of sensible safe and appropriate wood use. And see that's another one of my soapbox. It's so the biological field of course is perhaps one that a lot of us are passionate about and I love this photo of from anyway* girl in Ballarat who's involved in the Ballarat permaculture guild and the guinea pigs on the lawn under the hills clothes hoist next to the gardens. It sort of says a lot in that photo but growing food at that urban scale and down at the garden agriculture scale. Basically, it's where humans rather the machines do the work and that food growing being important for

resilience is no longer a weird idea like it was in the 90s because of this huge grassroots interest in food security, food sovereignty. But in the process of doing it, sometimes we get over-enthusiastic in the permaculture movement that we've got all that solved. We haven't. There is a whole lot of issues ranging from wildlife in the backyard that sort of takes all the food. How do you manage that through to how do we manage soil mineral balances? This is one example of a design of an aviary poultry run and orchard that includes chook house storage as all part of an integrated design because these problems are certainly right through suburbia, especially with possums and birds and there's a chapter Wildlife by and beyond design because of course wildlife is also a positive as part of our garden agricultural system. There's a whole lot of case studies on the Retrosuburbia website.

There's four in the book, one of them the Plummery run by Kat Lavers. Its 271 square meter block very small in Northcote, and there's a 115 square meters of garden and that's that. She's a permaculture teacher, sustainability coordinator who runs the smart garden program for Hobson's Bay City Council. It's not like permaculture for dummies, you know, and not putting down her clients, but the fact that she's actually helping them troubleshoot. What's exactly happening with their worm farm, you know, getting better, getting the details, right so things work for people and her big thing personally is household production.

And these are her production figures from that 115 square meter garden and you can see you know, 250 kilos of fruit, of veggies and other things rising to 355kgs. And she thinks the future potential of the site fully developed and really humming is about half a ton of food. So this numeracy about these things is not the only thing that's important, but it is important when we start to think about can these sorts of systems actually produce significant amounts of food to feed population.

And of course, we're talking about thousands and thousands of these small systems aggregated together do have this huge potential but her advice is just keep getting a little bit better each year at what you do because she says there's so many Australians and the vast majority of Australians have some interest in food gardening and start but often that tails off and they give up because the results aren't as rewarding as they had hoped.

So one of the things we've tackled in the book is of course trying to understand plant nutrition and it is complex and when we're intensively growing food, especially vegetables on a small space there's a whole lot of things that don't automatically work well.

Using the analogy of the picnic basket to understand the role of calcium the way it makes other nutrients through improved structure, whereas when that's not there all the nutrients are packed together and inaccessible and the poor little plant is actually starting to eat the basket itself and ends up osmotically absorbing lots of aluminium and iron that's in abundance in the soil. Whereas when it's all free and accessible it's doing really well so that simple idea that. The calcium is not just there because the plant needs a certain amount of calcium in it. It's there to make available all of the other elements and that's why L brick called calcium, the queen of the elements. Father's of course phosphorus. The king of the elements phosphorus is the thing that enables legumes to fix nitrogen and is the basis of all of.

Life structures. So those issues aren't automatically easily understood and they don't necessarily stop people starting off growing food, but I want to mention people who are men who are shown in the book Matt and Sabar who used to live at Lilydale in a rented property and they did full elements soil testing on the side, but before they started a garden that their landlord said had to be put back to lawn when they finish because they were growing so much of their own food that they wanted to be sure that that was minerally balanced, nutrient dense food. And I thought that was really amazing and I said it was worthwhile going to that expensive test for even just rental in a short space for their amazing yields of produce.

Another theme in the book that's very relevant to this part of the world is tree containment options because one of the things I indicate caution about is the idea that forests, even if their food forests, are the natural way for us to provide for a diet for people most efficiently.

The role perennials play are important and central to permaculture. But actually we should be eating a higher proportion of vegetables in our diet than fruit and inevitably a tree that has woody structure has a lot more energy and resources are invested in that than vegetables that virtually become all a hundred percent food.

Now that's like almost permaculture blasphemy that I've just added but this balance between how quickly a site, especially with water and nutrients and high rainfall climate like this gets taken over by woody and leafy biomass. We've got this fantastic jungle, where's the food to eat? So we have to balance and contain that this diagram shows just some of the options for knock of containing that balance between say a vigorous figure Mulberry, that might be a great fantastic food producing tree, but left to its own devices, you know, just grows and takes over the garden. So as well as lopping to cut the top back there's lift pruning to let the sun in; there's also root pruning.

There's trenches filled with wood chips that can be allow regular root pruning with raised beds. And of course, there's wicking bed shat are actually separate and so are not in root competition because you've got nutrient water competition and sunlight, other big things when we get to big evergreen trees. And this is actually our place where I broke all of my rules by planting big eucalypts on the street, but I did the logging plan before and worked out that it wouldn't shade any future house across the road and it's south.

To our system and data we are getting to the point now after managing these trees for 25 years that we're considering the logging plan in a lot of places. Of course around here where people are dealing with that as a huge obstacle.

One of the other case studies in the book Richard Telford who is actually the book designer. His tiny property that he bought is a shack, the cheapest house in Seymour, Central Victoria. It had a shack on it and one giant red gum. Not an ancient tree actually just a regrowth on a good bottom land site and it was this big there. It is. The neighbours had wanted to see it go; they even contributed to actually the cost of bringing the tree down and then Richard turned all of that into timber which was built into the house

modification adaption. And all of that wood for years was also feeding their outside fire and inside wood heater. So that creative reuse that those of you who saw the Aussie street presentation and obviously that's a theme of it and it's a tricky issue but we can see there's a lot of sites in the Dandedongs where either we need to say. This is a site where people need to live. And we should get rid of the large evergreen trees that are incompatible with that in terms of solar access, PV power, food production, bush fire safety and even physical safety or we should say no this is a forest site and people should leave. You know because really having a house in under mountain ash trees that big is not sustainable really in the long term. It's a lovely place to be. In the summer in the cool, but you know what is ones real and it's viable in our current society but it's not sustainable in the long-term.

So there are difficult decisions in relation to those things. But part of that is if we do take trees down that we make the best use of them and obviously this durable wood is also if we think of that as carbon sequestration when we burn wood, its carbon neutral because the tree has taken up the carbon and then it's cycling back when we build it into a building.

We extend the life of that carbon in durable form and it's a major part of the ecological building seen in Europe where they strongly focus on using as much wood as possible. In buildings that they plan to last for 250 years to actually store that carbon in built form.

Obviously a tree like a red gum, which is a naturally durable tree in the forest appropriately managed and protected from catastrophic Bushfire can be there for 500 years or possibly even a thousand years and in the right location. That's obviously the best thing that we can think of those trees.