

Basic Permaculture

Programme for One-Day Course

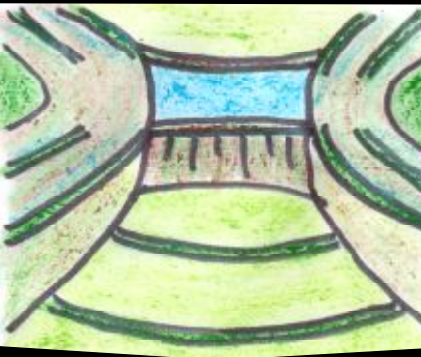
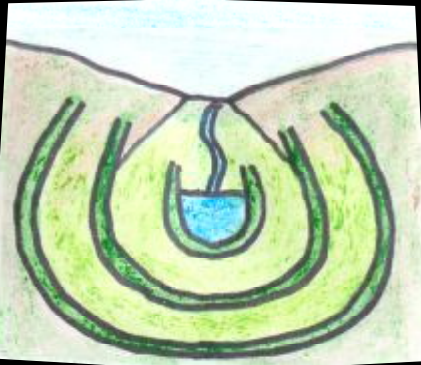
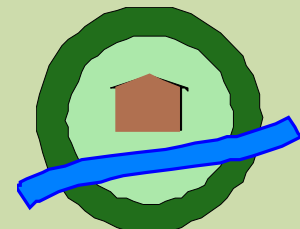
1. Presentation and discussion of the Permaculture ethics and attitudes
2. Presentation and discussion of the principles of Permaculture design
3. Lunch break
4. Presentation and discussion of Permaculture design projects
5. Short tea break
6. Site tour of potential projects and brainstorming of Permaculture design solutions
7. Closure

Presentation by
Ezio Gori ("Buzz")
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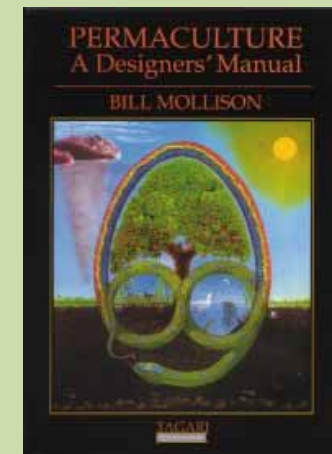
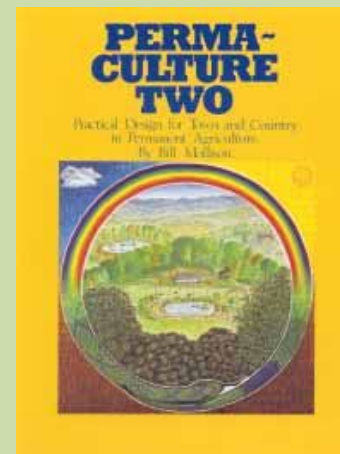
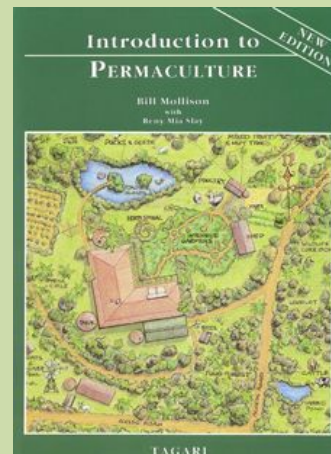
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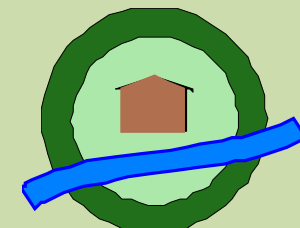
Permaculture

Permaculture (permanent agriculture) is the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability, and resilience of natural ecosystems. It is the harmonious integration of landscape and people providing their food, energy, shelter, and other material and non-material needs in a sustainable way. Without permanent agriculture there is no possibility of a stable social order. (Bill Mollison).

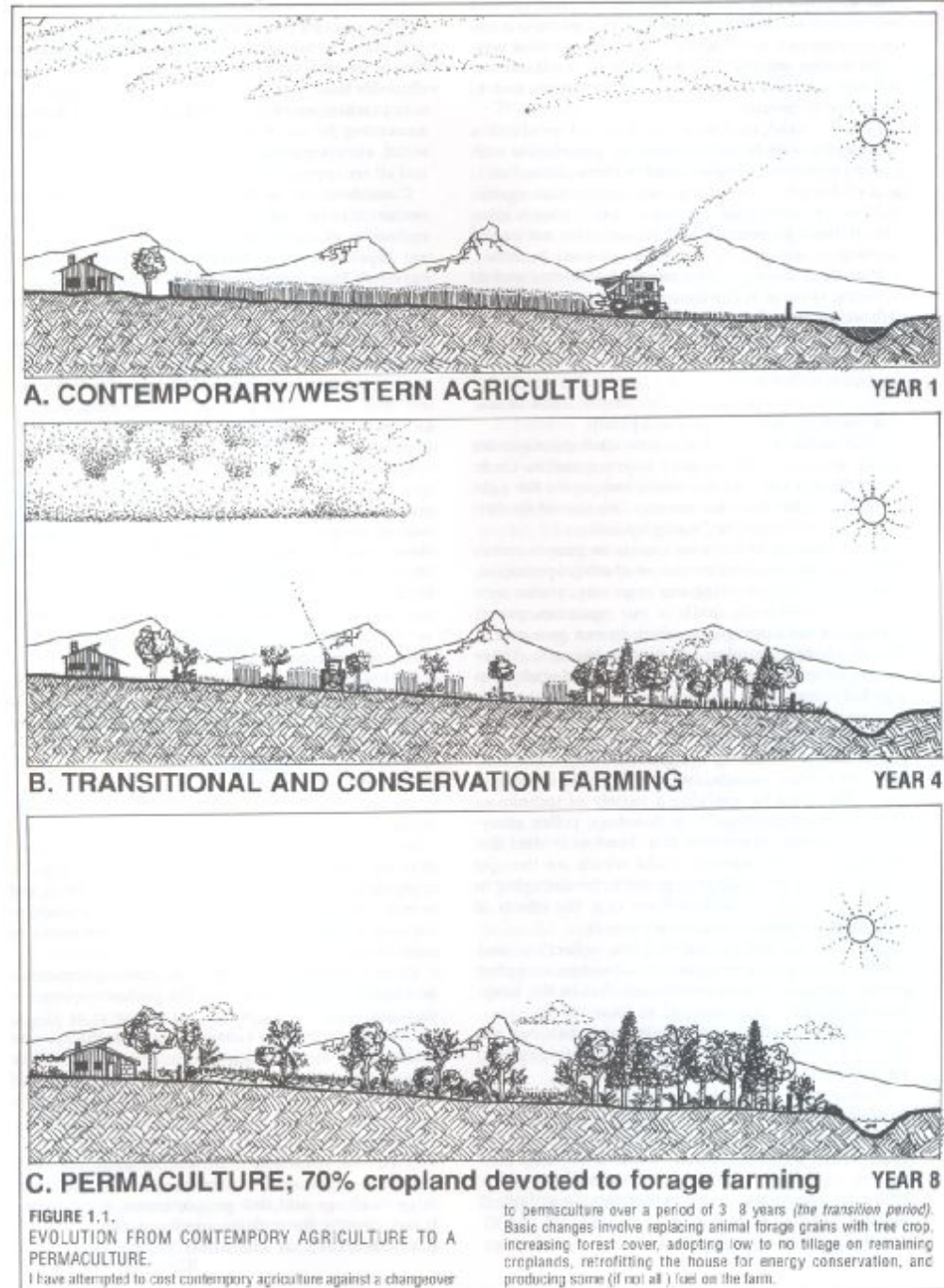


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From Conventional Agriculture to a Permanent form of Agriculture, hence Permaculture



From Conventional Agriculture to a Permanent form of Agriculture, hence Permaculture

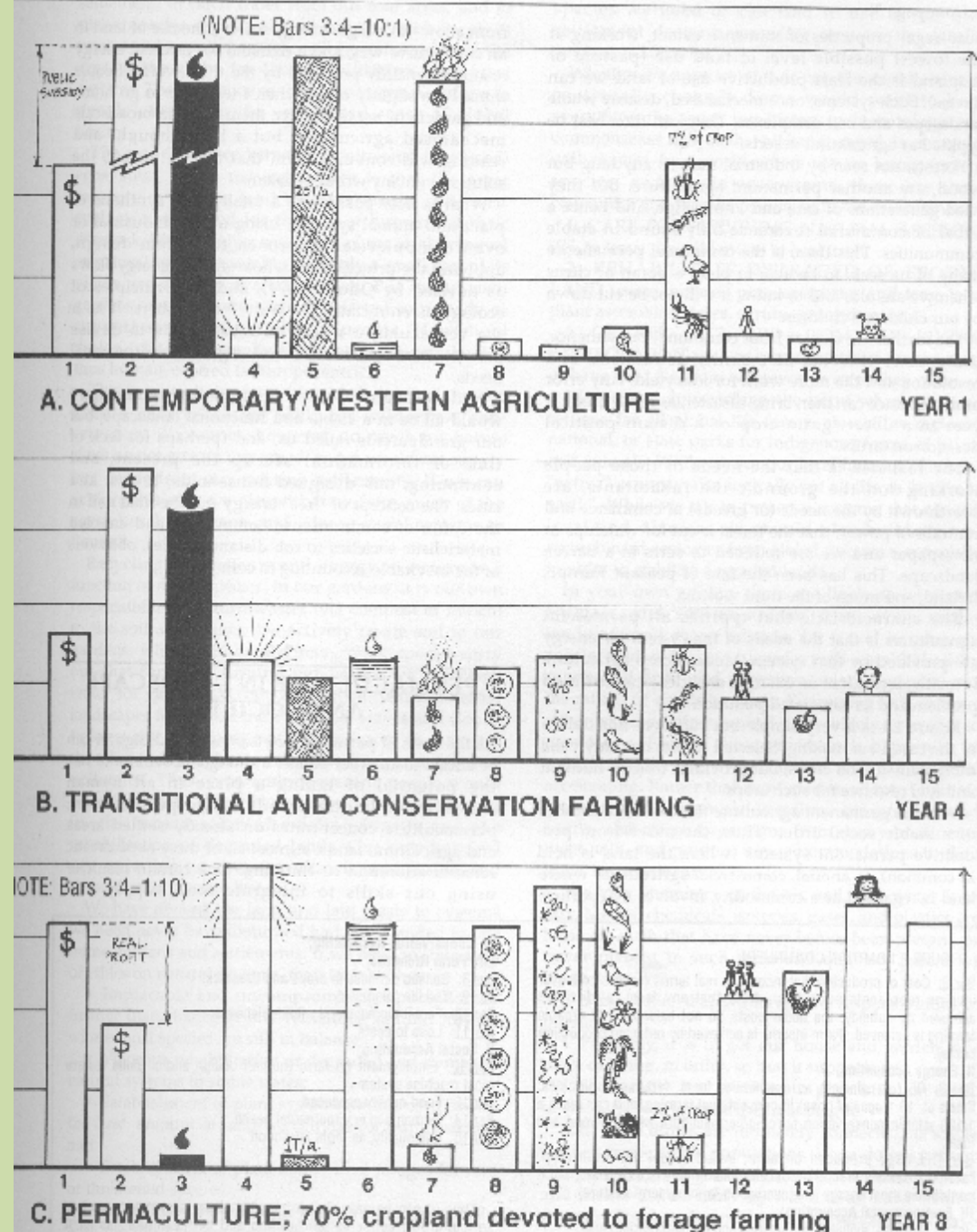


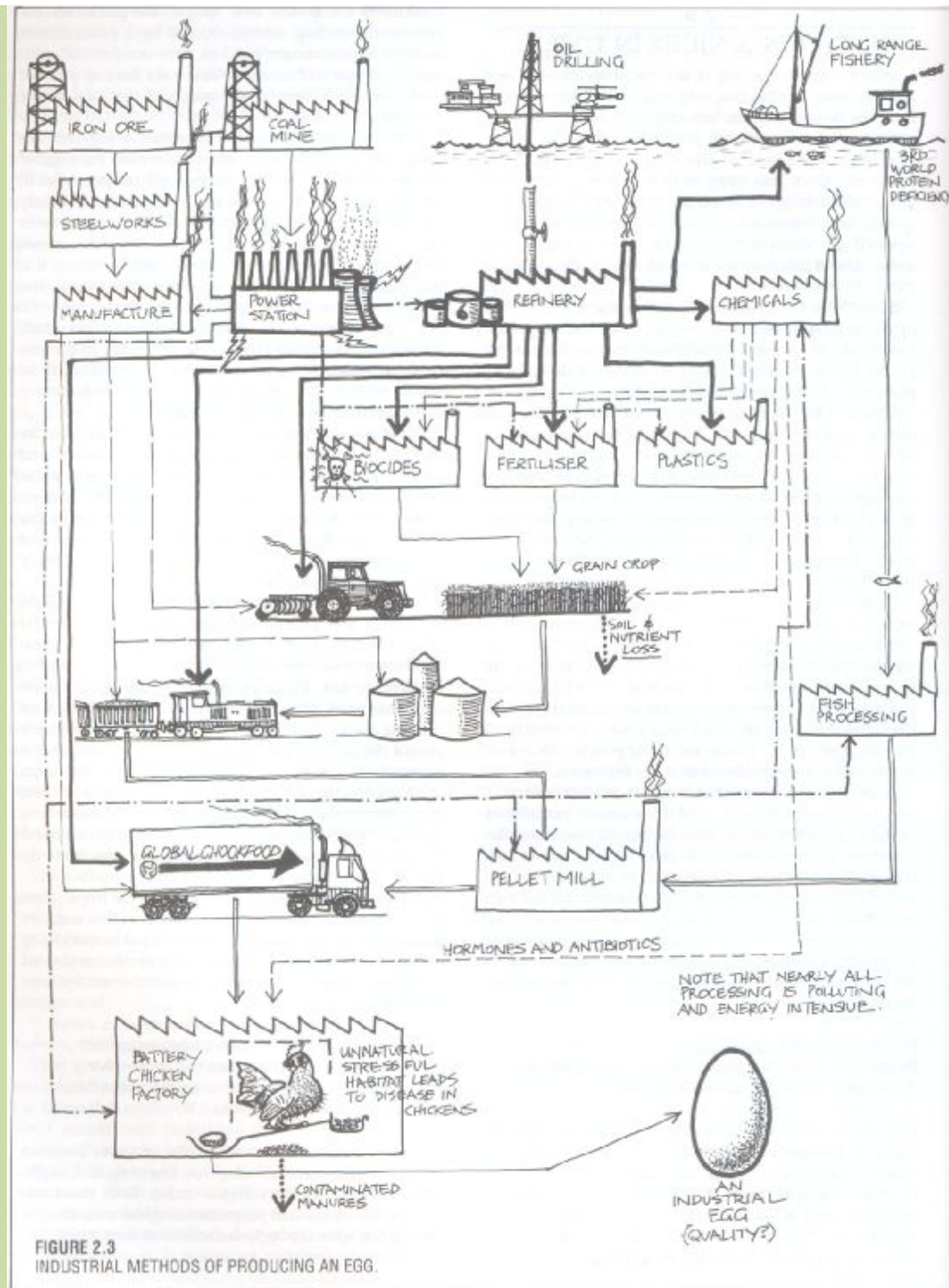
FIGURE 1.1 (Continued)
 ANNOTATIONS TO THE BAR DIAGRAM: ACCOUNTING THE COSTS OF FARMING.
 The accounting is in sections as follows:

1 Cash (Dollar) Accounting.

Bar 1: Income from total product on the farm.

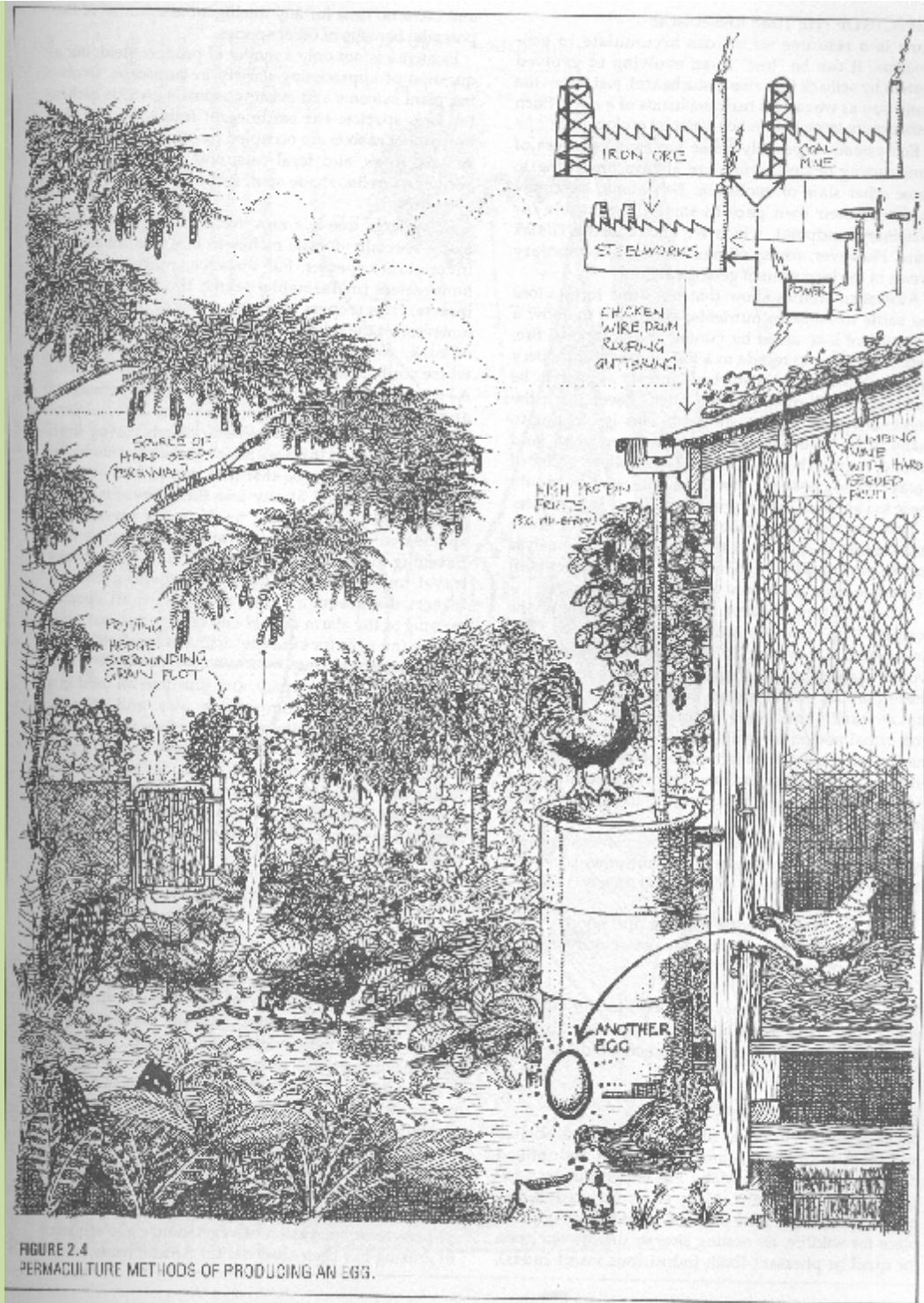
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The story of an Industrial Egg

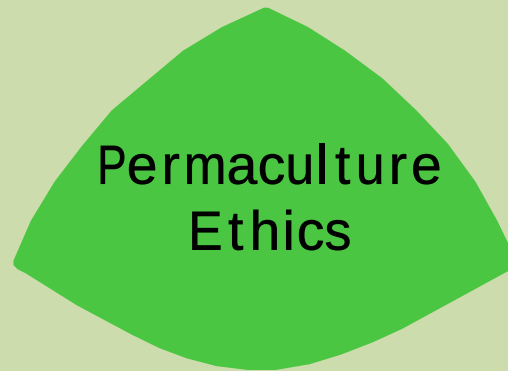


The story of a Permaculture Egg

Bill Mollison, Permaculture:
A Designer's Manual,



Foundations of Permaculture Design



Earthcare

Care of all living things, animals, plants, water, land and air.

Permaculture as a design system is based on natural systems. It is about working with nature, not against it – not using natural resources unnecessarily or at a rate at which they cannot be replaced. It also means using outputs from one system as inputs for another (vegetable peelings as compost, for example), and so minimising wastage.

Peoplecare

Providing for people's basic needs, and, promoting self reliance and responsibility.

People care is about looking after us as people, not just the world we live in. It works on both an individual and a community level. Self-reliance, co-operation and support of each other should be encouraged. It is, however, important to look after ourselves on an individual level too. Our skills are of no use to anyone if we are too tired to do anything useful! People care is also about our legacy to future generations.

Fairshares

Living within ones means and distribution of surplus resources and skills to achieve Earthcare and Peoplecare.

The fair shares part of the permaculture ethic brings earth care and people care together. We only have one earth, and we have to share it - with each other, with other living things, and with future generations. This means limiting our consumption, especially of natural resources, and working for everyone to have access to the fundamental needs of life - clean water, clean air, food, shelter, meaningful employment, and social contact.

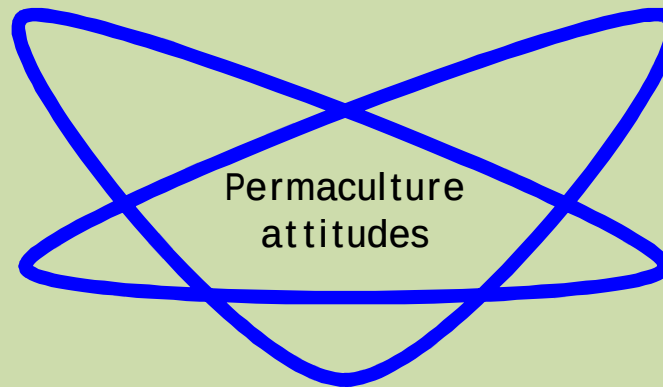
Work with nature not against

"Life is cooperative rather than competitive, and life forms of very different qualities may interact beneficially with one another and with their physical environment."

"(Permaculture) is a philosophy of working with rather than against nature; of protracted and thoughtful observation rather than protracted and thoughtless action.."

Everything gardens

Everything living thing
'gardens' or modifies
it's environment



Unlimited yield

Traditionally, 'yield' is thought of as quantity of material output (eg, amounts of potatoes, grain, etc) calculated against resources or effort put in, but there's no reason why we can't widen our definition to include information, lessons learned, experience, the health benefits of exercise and being outdoors, or even just plain fun... Within a permaculture design, we will constantly be finding new niches to utilise, new beneficial [guilds](#), learning new techniques, trying out fresh ideas, be gathering knowledge. By comprehending and copying natural systems, we can develop techniques in order to consciously multiply such opportunities...

The problem is the solution

It is how we look at things that makes them advantageous or not, or, as Bill Mollison once said, "You havn't got an excess of slugs, you've got a duck deficiency".

Minimum effort for
maximum effect

For example, when choosing a dam site, select the area where you get the most water for the least amount of earth moved.

Bill Mollison, Permaculture:
A Designer's Manual,

Permaculture Design Principles

Energy Efficient Planning

- Zone planning
- Elevation planning
- Sector planning

Resource Planning

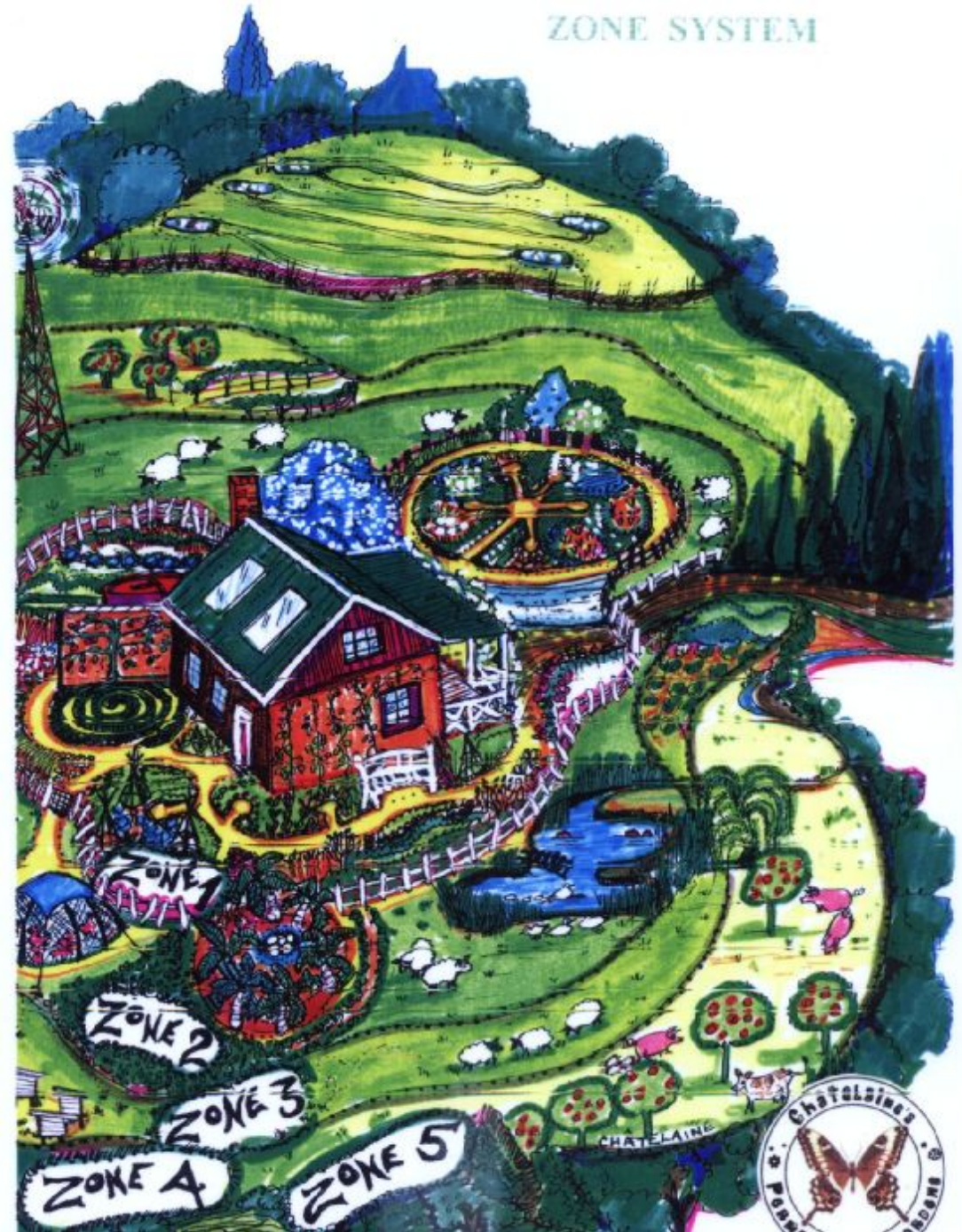
- Multiple function
- Natural energy
- Biological resource

Design Planning

- Relative location
- Microclimate
- Maximise edge
- Succession
- Diversity
- Pattern

PERMACULTURE

ZONE SYSTEM



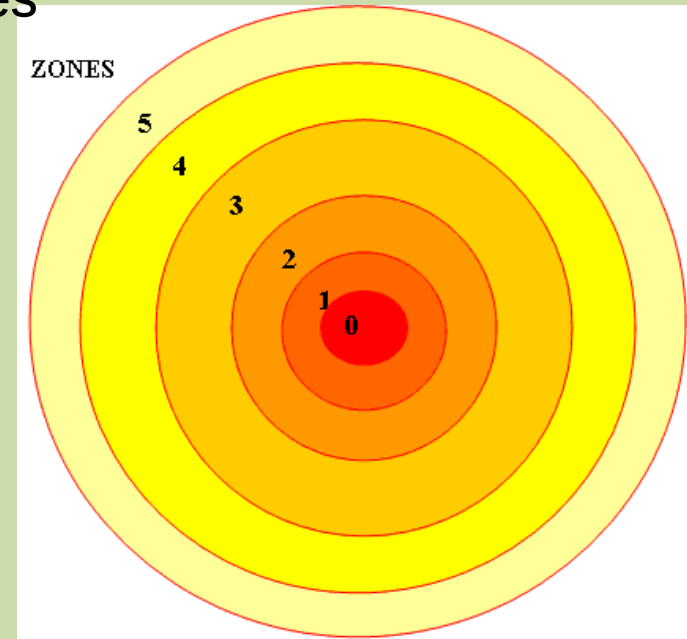
Energy Efficient Planning

Zone planning

Elevation planning

Sector planning

Permaculture Design Principles



Zone One: The Home Garden

- Regular daily visits.
- Within 6 meters or so of the house, in Zone 1, should be placed those elements that require close observation, frequent visiting, high work input or continual complex techniques.
- The aim of Zone 1 is to yield household self-sufficiency and climate control for the home. Zone 1 is also the first Zone that should be developed on your site.
- And so, elements such as rainwater tanks, the lemon tree, other dwarf or espalier-grown multi-graft fruit trees, chicken laying boxes, small ponds, culinary herbs, worm farm for recycling of household wastes, intensive, fully mulched vegetable beds of quick growing annuals, seedling raising areas, and small, quiet domestic animals like fish, rabbits and pigeons can be kept very close at hand within the home garden.

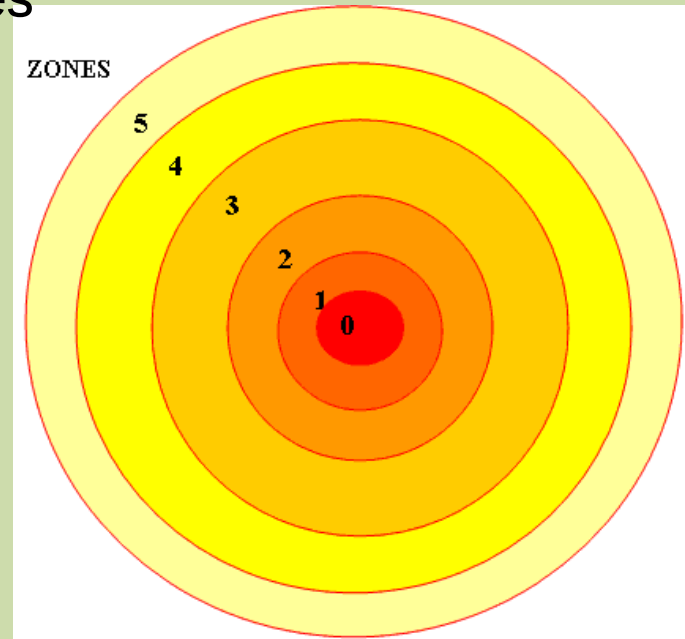
Energy Efficient Planning

Zone planning

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Permaculture Design Principles



Zone Two: The Home Orchard

- Attended every few days.
- Zone 2 is a little less intensively managed. Suitable elements to place here are spot mulched home orchards, longer cycle vegetables, main crop beds (for trading), and forage ranges for closely managed livestock such as poultry and milking goats or cows.
- Since they are visited daily for milking, feeding and supervising, the livestock and poultry shelters of Zone 2 often adjoin Zone 1.
- This Zone may be extended along frequently used paths through more outlying zones.

Zone Three: The Farm

- Attended weekly to monthly.
- Broader scale commercial crops, and animals raised for trade, along with natural trees, dams, windbreaks and barns belong.
- This area is managed with soil conditioning, green manure crops and manure from Zone 2.

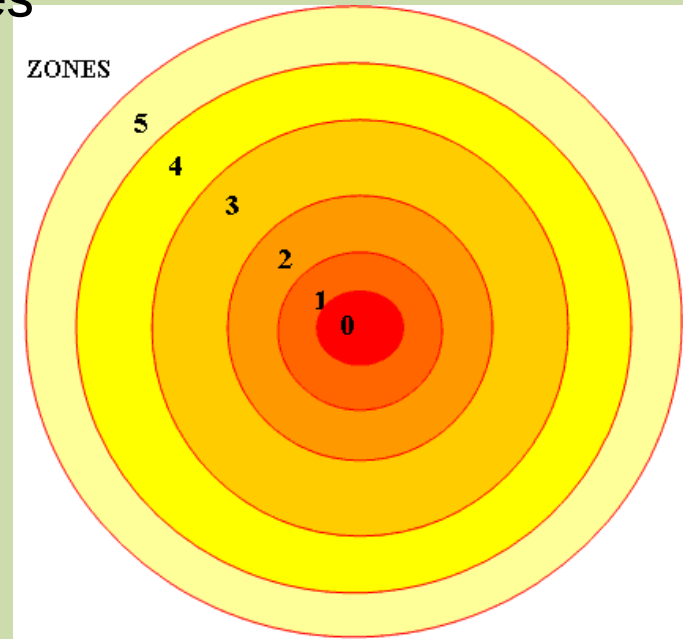
Energy Efficient Planning

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Permaculture Design Principles



Zone Four: Managed Forest

- Attended infrequently
- Hardy, self-care forests and woodlots that are visited infrequently for wood collection, log harvest and wild harvest belong in far flung corners of the property, and can act as buffers to protect Zone 5 wilderness areas.
- It may also be used occasionally to pasture animals.

Zone Five: Wilderness

- Visited occasionally for recreation and appreciation
- This is the component of the site left for nature.
- It comprises natural forest and native remnant and rehabilitated flora and fauna and can be linked to the home garden by a wildlife corridor extension.

Energy Efficient Planning

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Permaculture Design Principles

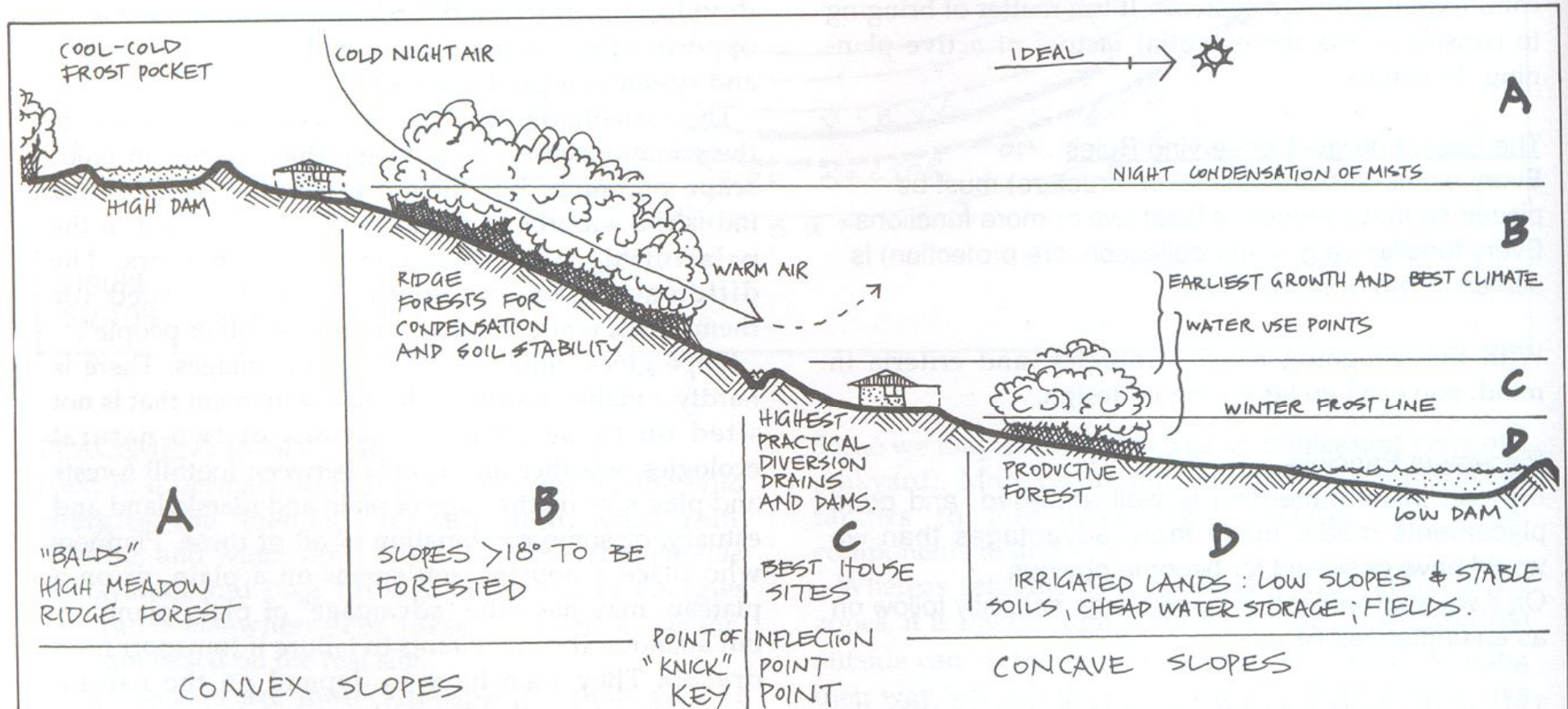


FIGURE 3.11

BROAD HUMID LANDSCAPE PROFILE.

Slope analysis and site planning in relation to aspect largely decide

the placement of access, water supply, forests, and cropland. Here we supply such analysis to a cool, humid region.

Energy Efficient Planning

Zone planning

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Permaculture Design Principles

The Sun's Energy

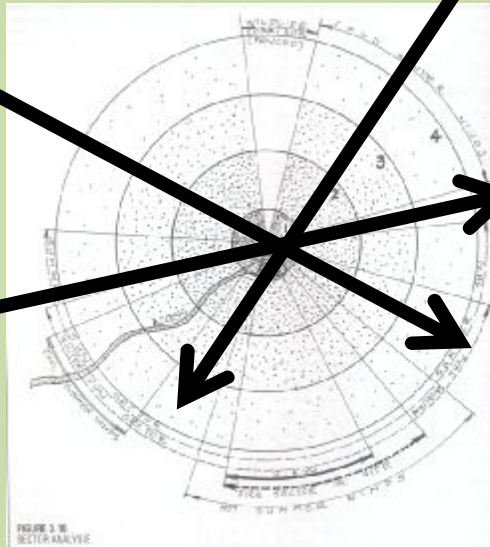
- The sun takes a different path across the sky during winter and summer, therefore assess summer sun sector and winter sun sector.
- Efficient home and site design takes advantage of this seasonal sun movement by capturing winter sun and excluding it in summer.

Wind Energy

- Site elements such as hedgerows, fodder systems, buildings and forests can be used as barriers to divert or block damaging winds. Similarly they can be arranged on your site to divert them to where they can benefit the site: towards wind turbines, or across ponds for evaporative summer cooling.
- Assess wind direction of ; - hot summer winds, cooling summer winds, cold winter winds, katabatic air flows.

The Energy of Fire

- Some site elements such as roads, stone walls, pig runs, dams, and fire retardant plants in wind break arrangements, fodder systems and orchard areas can be arranged on your site as a barrier to the fire danger sector to slow or block fire from important structures such as your home.
- Site components that increase the risk of fire, such as eucalypt woodlots, native vegetation areas, hay lofts and pine trees, should be sited away from central Zone infrastructure, and themselves be shielded from the fire sector by fire retardant barriers.



Energy Efficient Planning

Zone planning

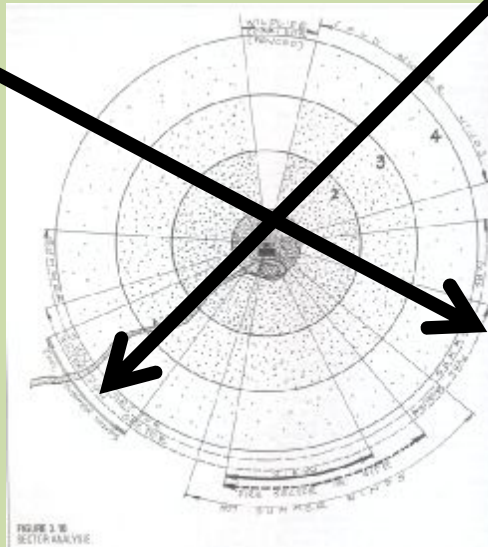
Elevation planning

Sector planning

Permaculture Design Principles

Wild Animal Energies

- Sites adjacent to a national wildlife park / natural conversation areas may be subject to influx of native and feral animal flows.
- Predator proofing :- for example, floating island in dam for geese; prickly hedges; toxic hedges, etc.
- Site pigeon towers away from the house, but adjacent to the orchards to *attract* large birds of prey, and so utilize their energies to repel wild parrots from our fruits and nuts.
- Site bat boxes adjacent to vegetable areas and within orchards.
- Establish lizard rockeries within vegetable growing areas to attract lizards that will control insects.



Water Energy

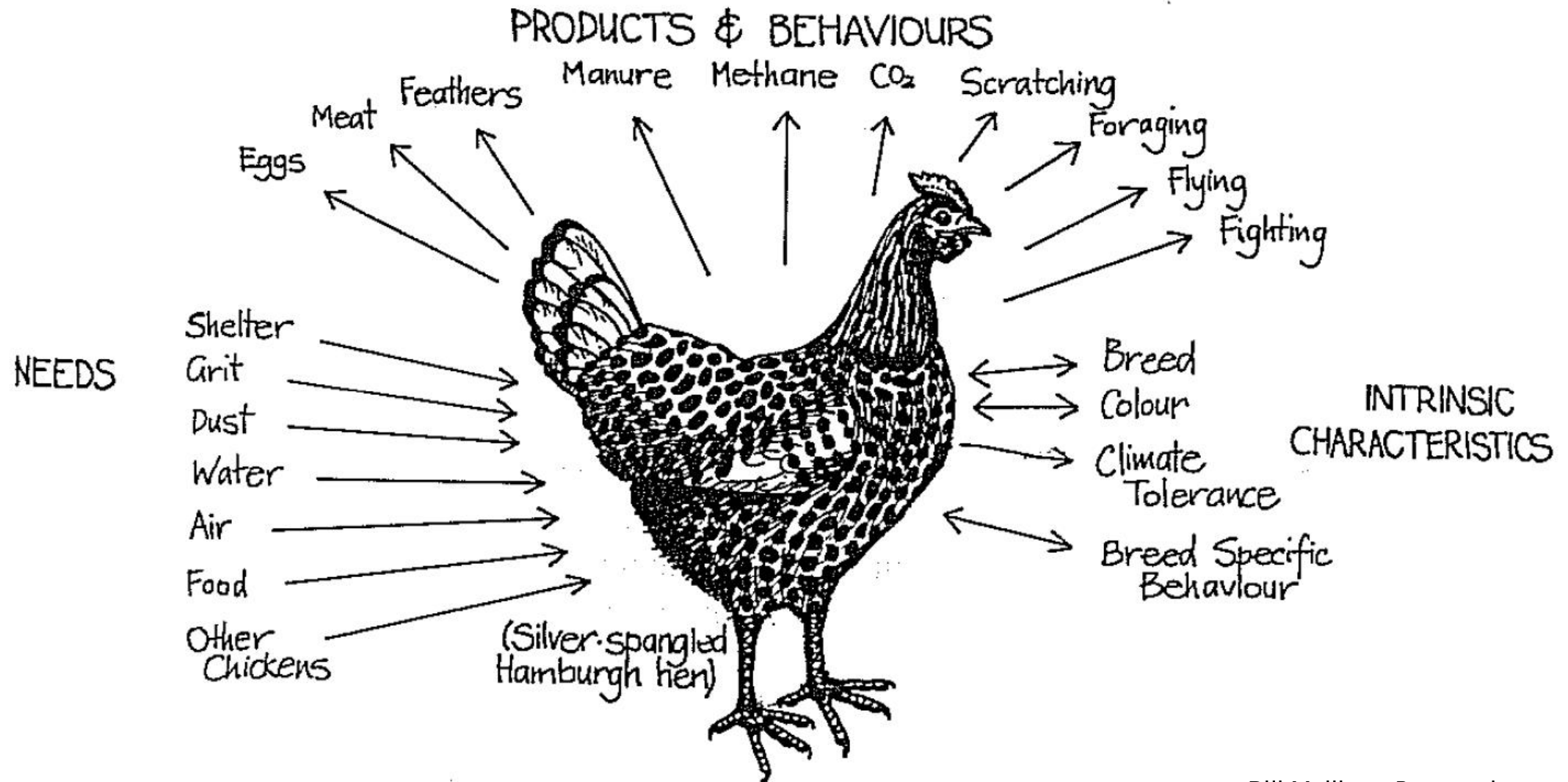
- Assess water catchments both within and beyond your property, storm watersheds, permanent creeks and swamplands, and, establish designs to capture and store water on site.
- Establish rainwater harvesting systems that use natural gravity flows.

Site all Design Components to Manage Incoming Energies of self sufficiency

The basic energy conserving rule in Permaculture landscape design is to place every element in your system so that serves more than one function, and have more than one element in place to serve each important function (eg. fire protection, water collection).

Resource Planning
Multiple function
Natural energy
Biological resource

Permaculture Design Principles



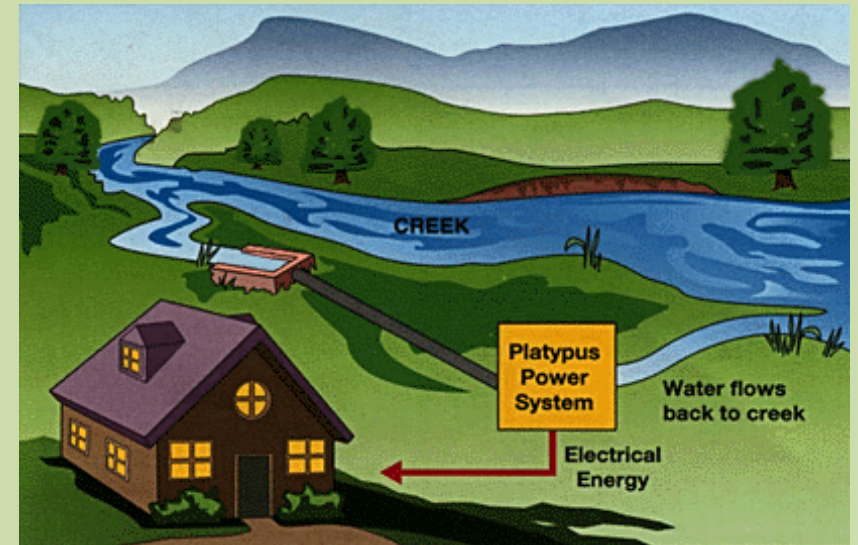
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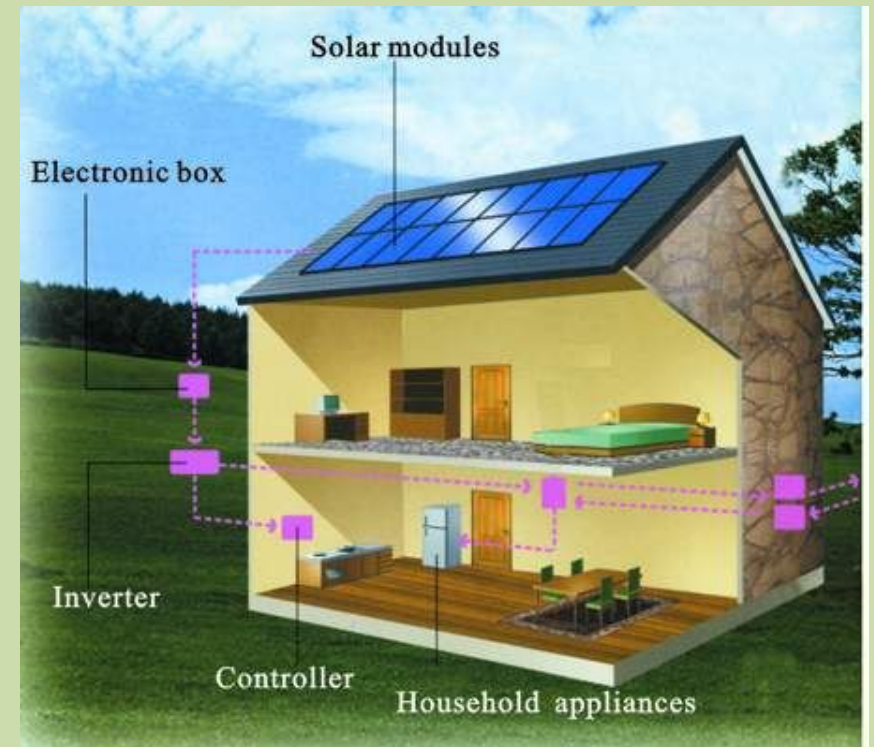
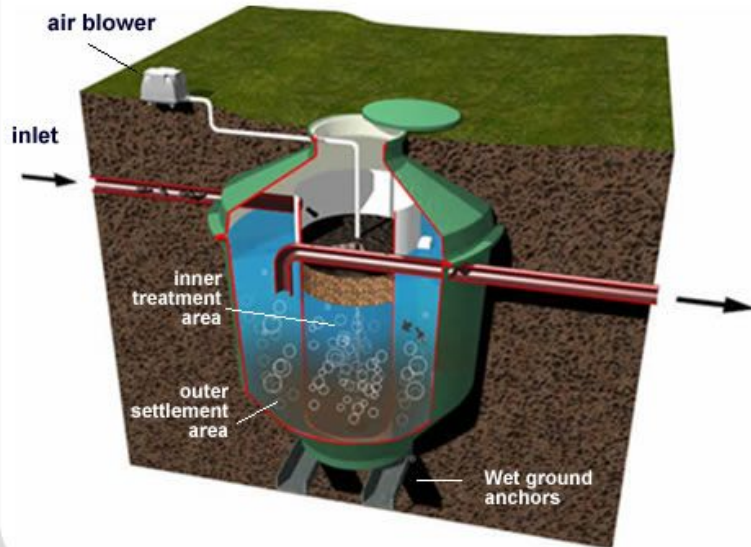
Wind energy

Micro-hydro



Biodigester

Solar energy



Resource Planning
Multiple function
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Permaculture Design Principles

Composting

Mulching

Vermiculture

Biodigestors

Ecological sanitation

Reedbeds

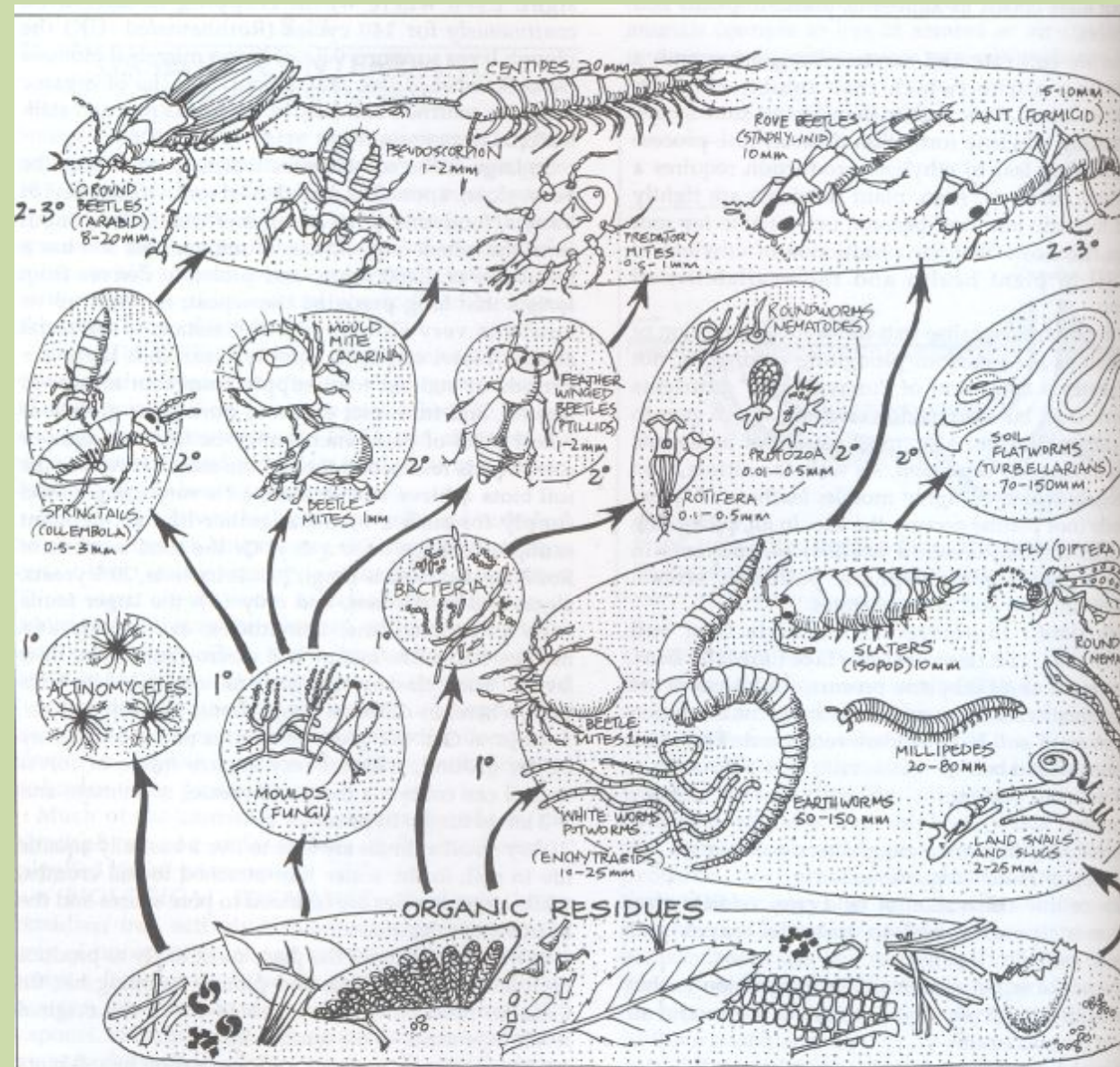


FIGURE 8.6
FOOD WEB OF A COMPOST PILE

Energy flows in the direction of the arrows; lengths in millimetres. 1 = first level consumers, 2 = second level, 3 = third level.

(After Daniel L.)

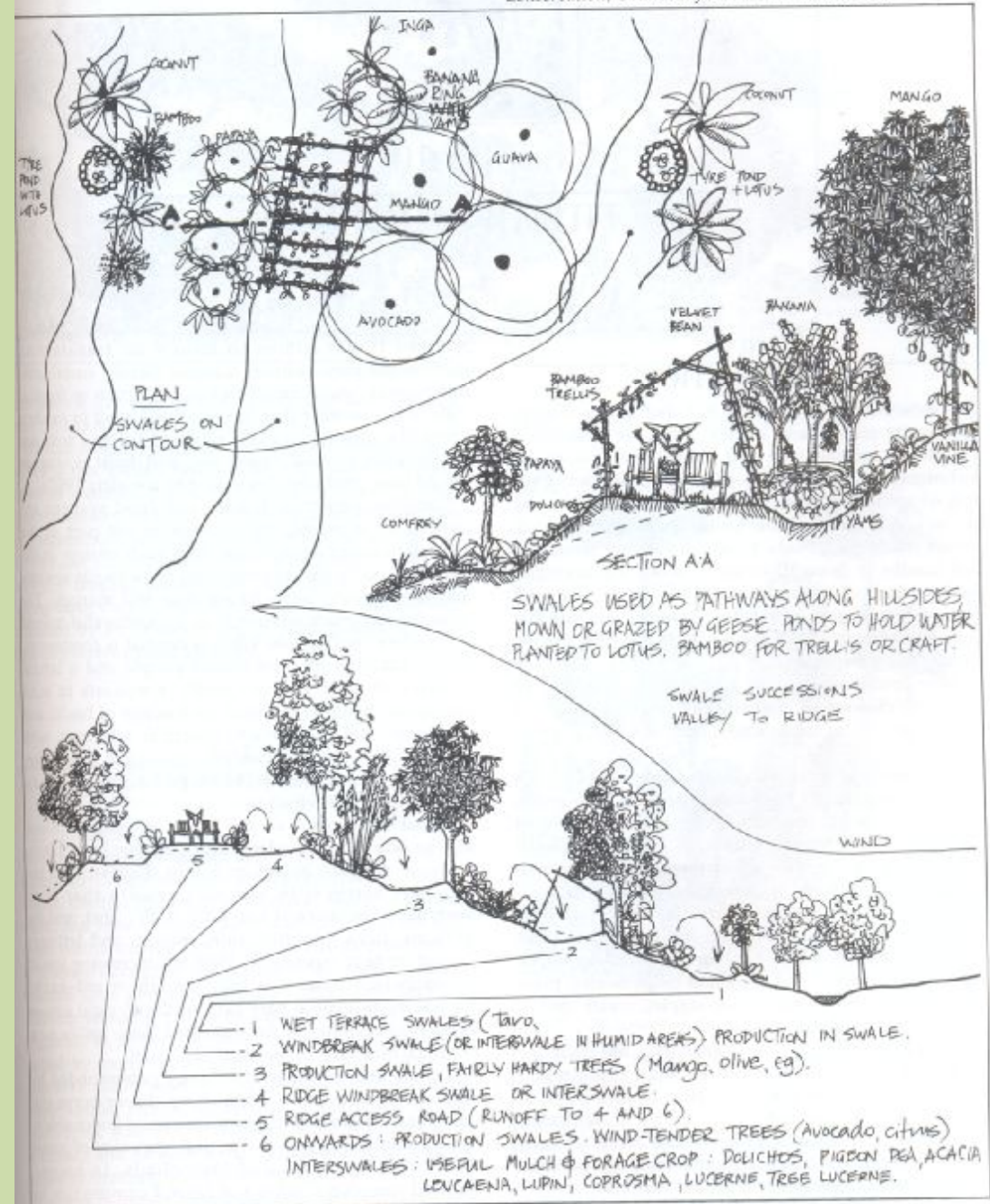
Bill Mollison, Permaculture:
A Designer's Manual,

Design Planning
Relative location
Microclimate
Maximise edge
Succession
Diversity
Pattern

Permaculture Design Principles

ourselves in past cycles, an expression of life preserved
or our education and guidance.

Schiechtel, Hugo, *Bioengineering for Land Reclamation and
Conservation*, University of Alberta Press, 1980.



Bill Mollison, *Permaculture:
A Designer's Manual*,

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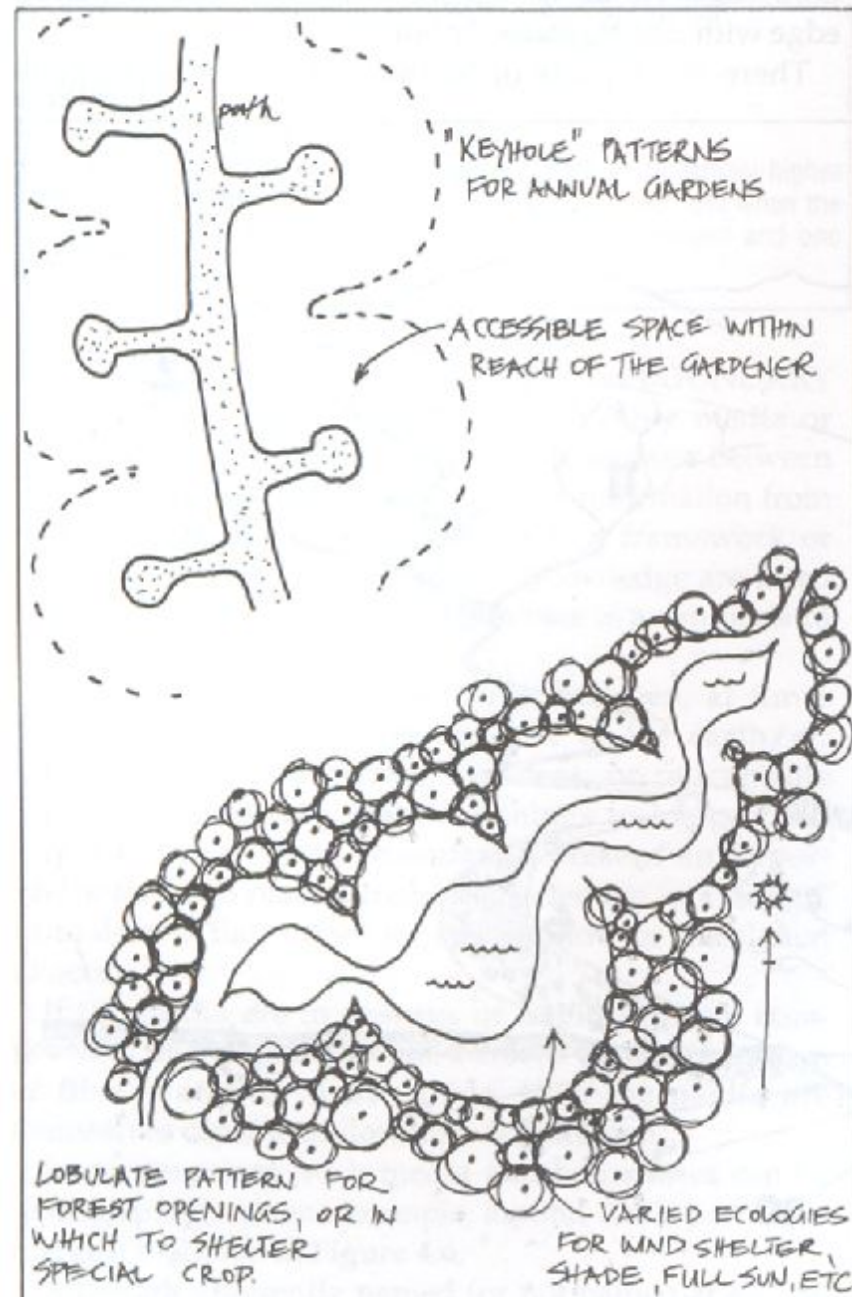
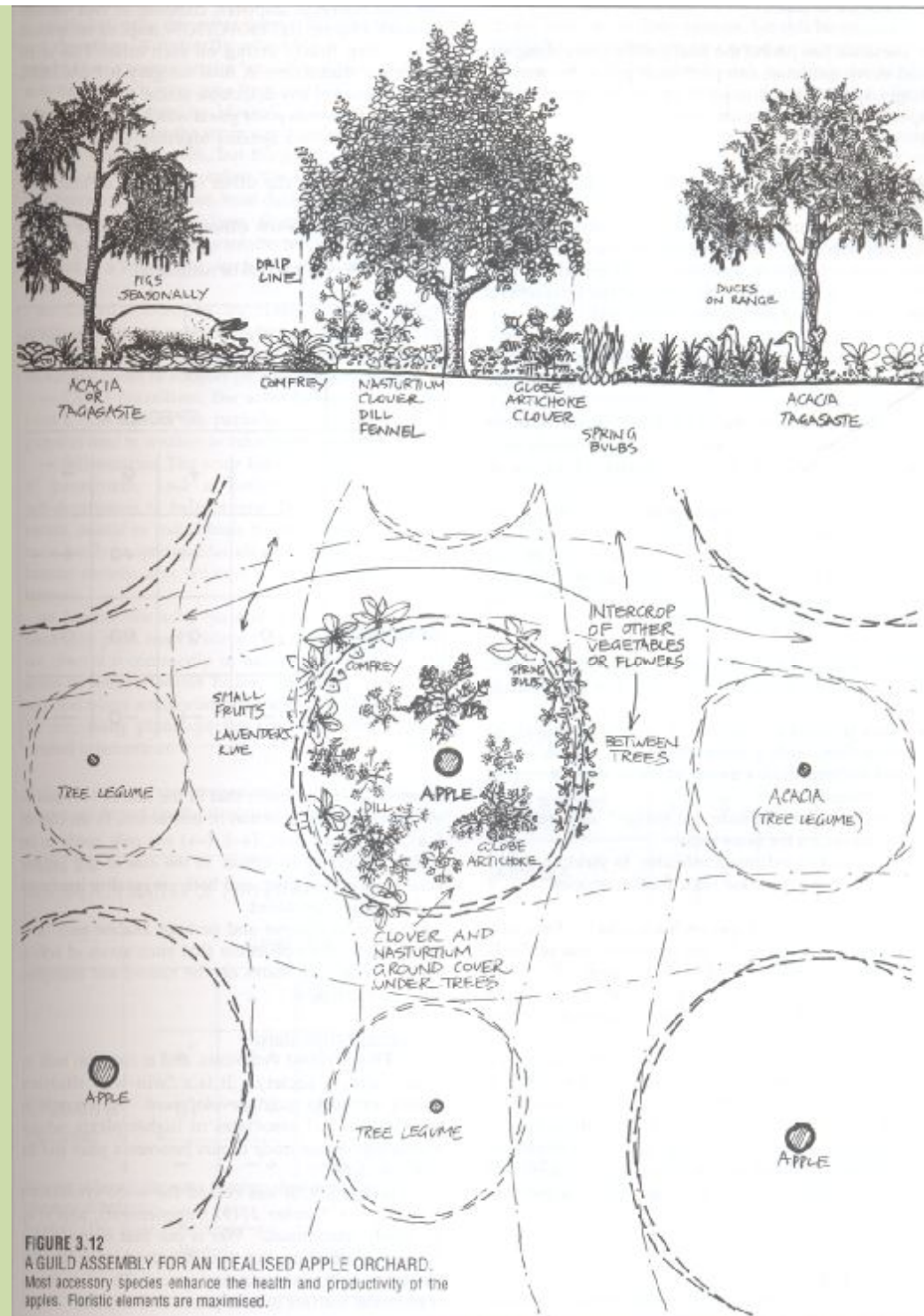


FIGURE 4.7

"Least path" design for home gardens, a keyhole pattern (common in nature) allows us to access garden beds most efficiently. Parallel paths take up to 50% of the area; keyhole beds <30% of the ground. (See also FIGURE 10.26 Gangamma's Mandala).

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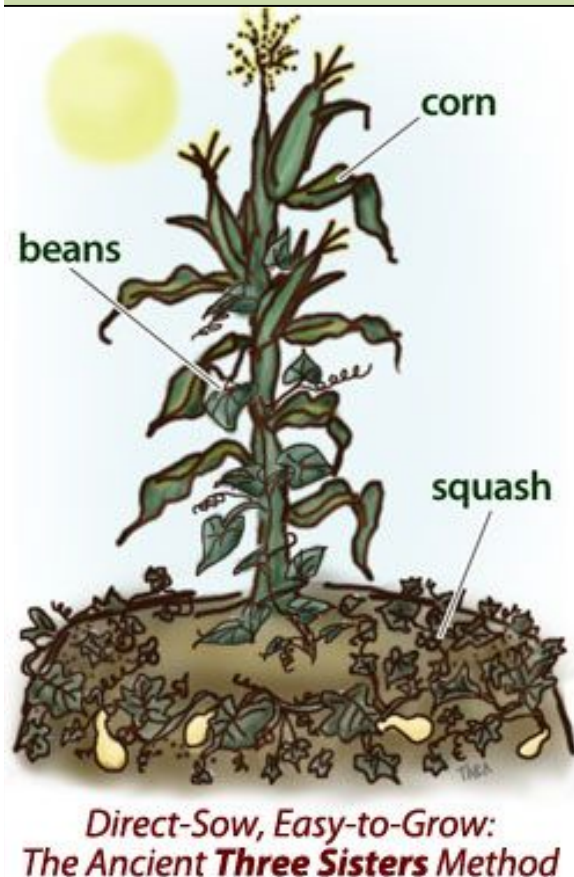
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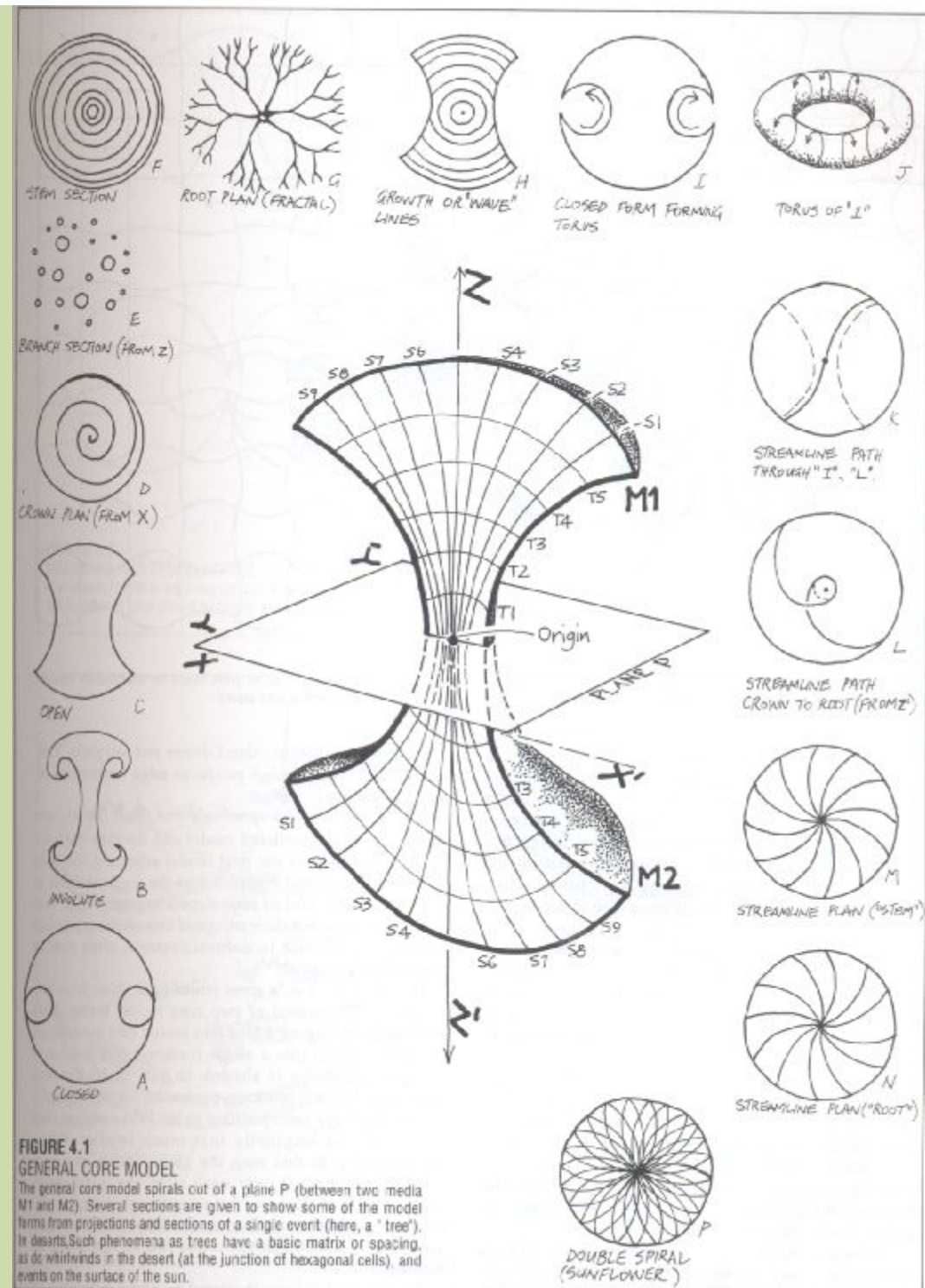
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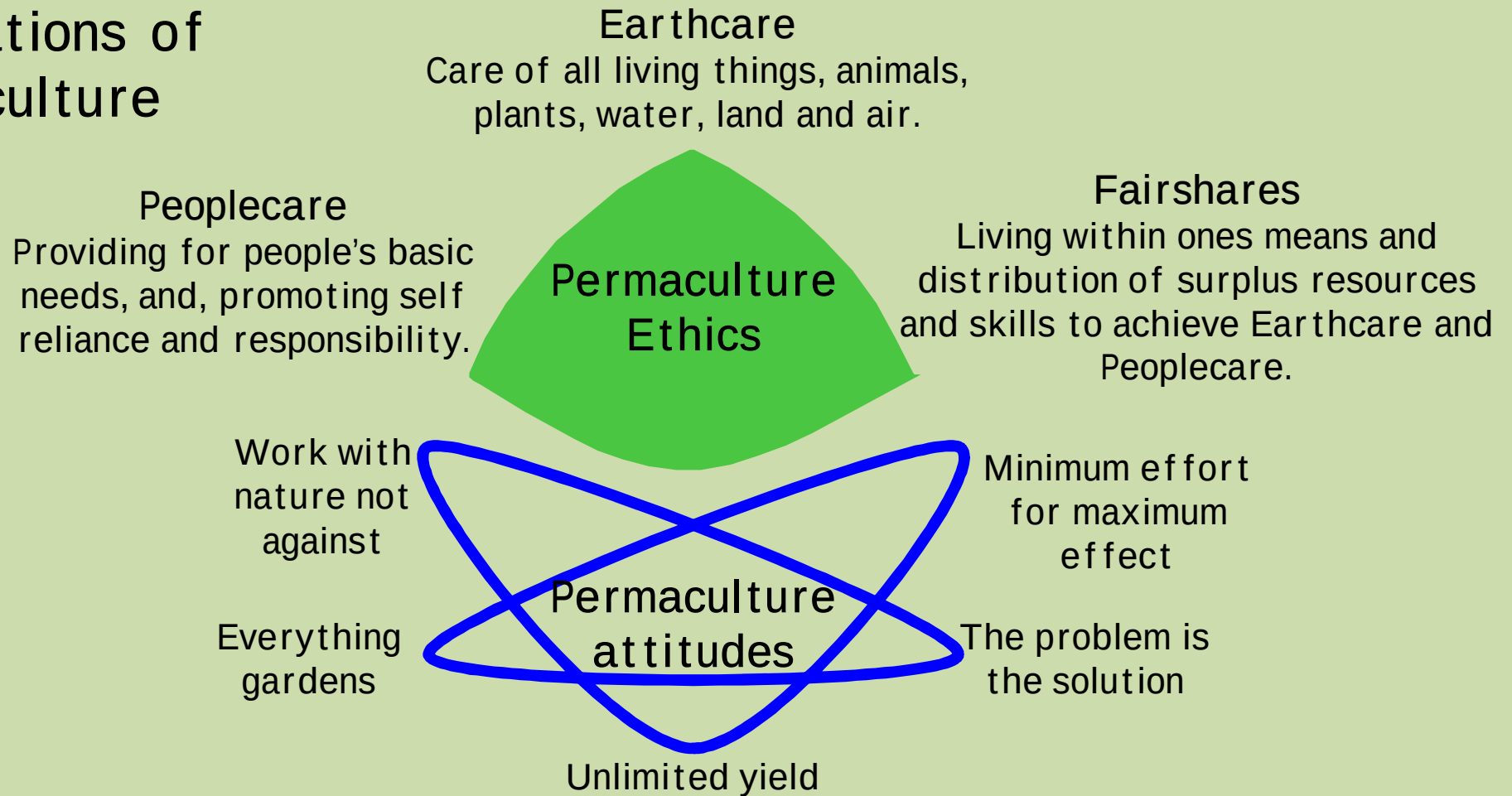
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Permaculture Design Principles



Bill Mollison, Permaculture:
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Foundations of Permaculture Design



Permaculture Design Principles

Energy Efficient Planning

Zone planning
Elevation planning
Sector planning

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Multiple function
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Dave Holmgren's Permaculture Principles

Permaculture Design Principles

- 1 Observe and Interact**
Beauty is in the eye of the beholder



- 2 Catch and Store Energy**
Make hay while the sun shines



- 3 Obtain a Yield**
You can't work on an empty stomach



- 4 Apply Self-regulation and Accept Feedback**
The sins of the fathers are visited on the children unto the seventh generation



- 5 Use and Value Renewable Resources and Services**
Let nature take its course



- 6 Produce No Waste**
*A stitch in time saves nine
Waste not, want not*



- 7 Design from Patterns to Details**
Can't see the wood for the trees



- 8 Integrate Rather than Segregate**
Many hands make light work



- 9 Use Small and Slow Solutions**
*The bigger they are, the harder they fall
Slow and steady wins the race*



- 10 Use and Value Diversity**
Don't put all your eggs in one basket



- 11 Use Edges and Value the Marginal**
Don't think you are on the right track just because it is a well-beaten path



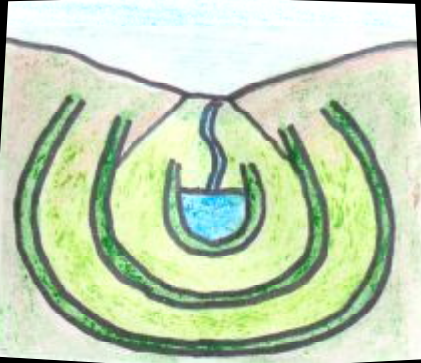
- 12 Creatively Use and Respond to Change**
Vision is not seeing things as they are but as they will be



From: David Holmgren (2002) Permaculture: Principles & Pathways Beyond Sustainability

Some examples of Permaculture strategies to use on small farms to boost yields

1. Increase water storage (ideally 12-20% of landscape) and usage in your landscape.
2. Utilize strategic land forming to conserve and optimize soil and water resources.
3. Recondition and fertilize your soils so they reach their productive potential.
4. Establish windbreak and forage forests (ideally 20-30% of landscape).
5. Establish wildlife corridors.
6. Value add through strategic processing and marketing.
7. Formation of community and financial cooperatives.
8. Low tillage cropping to save soil, energy, moisture and growing time.
9. Crop diversification strategies such as different species, genetically selected varieties, ripening-times, growing microclimates, trading relationships and forms of yield storage and preservation.
10. Overcoming cultural barriers to yield utilization such as irrational reluctance to keep poultry to make productive use of waste, slaughter excess stock for meat, or eat snails.





Some examples of Permaculture strategies to use on small farms to boost yields

11. Reduce competition by non-beneficial species.
12. Better integrated and strategic crop timing, harvest and utilization.
13. Increase the number of beneficial connections between elements (life forms, structures, etc) within the system, so that the products, behaviors and wastes of one can be utilized to create yield by others.
14. Encourage natural cycles. Life itself cycles nutrients giving opportunities more species to find niches and produce yield. Geese recycle grass as feces and feathers, which provide niches for fungi, bacteria, grass roots and foliage to flourish, re-metabolising it back into life.
15. Interrupting cycles (e.g. through drought and other climatic factors, the use of biocides, or extinction of a species) diminishes yield, reduces life (order) and increases entropy (disorder).