

## Chapter 1

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# INTRODUCTION

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### 1.1

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#### PERMACULTURE DESIGN PHILOSOPHY

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Although this book is about design, it is also about values and ethics, and above all about a sense of personal responsibility for earth care. I have written at times in the first person, to indicate that it is not a detached, impersonal, or even unbiased document. Every book or publication has an author, and what that author chooses to write about is subjective, for that person alone determines the subject, content, and the values expressed or omitted. I am not detached from, but have been passionately involved with this earth, and so herein give a brief vision of what I think can be achieved by anyone.

The sad reality is that we are in danger of perishing from our own stupidity and lack of personal responsibility to life. If we become extinct because of factors beyond our control, then we can at least die with pride in ourselves, but to create a mess in which we perish by our own inaction makes nonsense of our claims to consciousness and morality.

There is too much contemporary evidence of ecological disaster which appals me, and it should frighten you, too. Our consumptive lifestyle has led us to the very brink of annihilation. We have expanded our right to live on the earth to an entitlement to conquer the earth, yet "conquerors" of nature always lose. To accumulate wealth, power, or land beyond one's needs in a limited world is to be truly immoral, be it as an individual, an institution, or a nation-state.

What we have done, we can undo. There is no longer time to waste nor any need to accumulate more evidence of disasters; the time for action is here. I deeply believe that people are the only critical resource needed by people. We ourselves, if we organise our talents, are sufficient to each other. What is more, we will either survive together, or none of us will survive. To fight between ourselves is as stupid and wasteful as

it is to fight during times of natural disasters, when everyone's cooperation is vital.

A person of courage today is a person of peace. The courage we need is to refuse authority and to accept only personally responsible decisions. Like war, growth at any cost is an outmoded and discredited concept. It is *our* lives which are being laid to waste. What is worse, it is our children's world which is being destroyed. It is therefore our only possible decision to withhold all support for destructive systems, and to cease to invest our lives in our own annihilation.

#### The Prime Directive of Permaculture.

The only ethical decision is to take responsibility for our own existence and that of our children.

#### **Make it now.**

Most thinking people would agree that we have arrived at final and irrevocable decisions that will abolish or sustain life on this earth. We can either ignore the madness of uncontrolled industrial growth and defence spending that is in small bites, or large catastrophes, eroding life forms every day, or take the path to life and survival.

Information and humanity, science and understanding, are in transition. Long ago, we began by wondering mainly about what is most distant; astronomy and astrology were our ancient pre-occupations. We progressed, millenia by millenia, to enumerating the wonders of earth. First by naming things, then by categorising them, and more recently by deciding how they function and what work they do within and without themselves. This analysis has resulted in the development of different sciences, disciplines and technologies; a welter of names and the sundering of parts; a proliferation of specialists; and a consequent inability to foresee results or to design integrated systems.

The present great shift in emphasis is on how the parts interact, how they work together with each other,

how dissonance or harmony in life systems or society is achieved. Life is cooperative rather than competitive, and life forms of very different qualities may interact beneficially with one another and with their physical environment. Even "the bacteria... live by collaboration, accommodation, exchange, and barter" (Lewis Thomas, 1974).

#### Principle of Cooperation.

Cooperation, not competition, is the very basis of existing life systems and of future survival.

There are many opportunities to *create* systems that work from the elements and technologies that exist. Perhaps we should do nothing else for the next century but apply our knowledge. We already know how to build, maintain, and inhabit sustainable systems. Every essential problem is solved, but in the everyday life of people this is hardly apparent. The wage-slave, peasant, landlord, and industrialist alike are deprived of the leisure and the life spirit that is possible in a cooperative society which applies its knowledge. Both warders and prisoners are equally captive in the society in which we live.

If we question why we are here and what life is, then we lead ourselves into both science and mysticism which are coming closer together as science itself approaches its conceptual limits. As for life, it is the most open of open systems, able to take from the energy resources in time and to re-express itself not only as a lifetime but as a descent and an evolution.

Lovelock (1979) has perhaps best expressed a philosophy, or insight, which links science and tribal beliefs: he sees the earth, and the universe, as a thought process, or as a self-regulating, self-constructed and reactive system, creating and preserving the conditions that make life possible, and actively adjusting to regulate disturbances. Humanity, however, in its present mindlessness, may be the one disturbance that the earth cannot tolerate.

The Gaia hypothesis is for those who like to walk or simply stand and stare, to wonder about the earth and the life it bears, and to speculate about the consequences of our own presence here. It is an alternative to that pessimistic view which sees nature as a primitive force to be subdued and conquered. It is also an alternative to that equally depressing picture of our planet as a demented spaceship, forever travelling, driverless and purposeless, around an inner circle of the sun.

(J.E. Lovelock, 1979).

For every scientific statement articulated on energy, the Aboriginal tribespeople of Australia have an equivalent statement on life. Life, they say, is a totality neither created nor destroyed. It can be imagined as an egg from which all tribes (life forms) issue and to

which all return. The ideal way in which to spend one's time is in the perfection of the expression of life, to lead the most evolved life possible, and to assist in and celebrate the existence of life forms other than humans, for all come from the same egg.

The totality of this outlook leads to a meaningful daily existence, in which one sees each quantum of life eternally trying to perfect an expression towards a future, and possibly transcendental, perfection. It is all the more horrific, therefore, that tribal peoples, whose aim was to develop a conceptual and spiritual existence, have encountered a crude scientific and material culture whose life aim is not only unstated, but which relies on pseudo-economic and technological systems for its existence.

The experience of the natural world and its laws has almost been abandoned for closed, artificial, and meaningless lives, perhaps best typified by the dreams of those who would live in space satellites and abandon a dying earth.

I believe that unless we adopt sophisticated aboriginal belief systems and learn respect for all life, then we lose our own, not only as lifetime but also as any future opportunity to evolve our potential. Whether we continue, without an ethic or a philosophy, like abandoned and orphaned children, or whether we create opportunities to achieve maturity, balance, and harmony is the only real question that faces the present generation. This is the debate that must never stop.

A young woman once came to me after a lecture in which I wondered at the various concepts of afterlife; the plethora of "heavens" offered by various groups. Her view was, "This is heaven, right here. This is it. Give it all you've got."

I couldn't better that advice. The heaven, or hell, we live in is of our own making. An afterlife, if such exists, can be no different for each of us.

## 1.2

### ETHICS

In earlier days, several of us researched community ethics, as adopted by older religious and cooperative groups, seeking for universal principles to guide our own actions. Although many of these guidelines contained as many as 18 principles, most of these can be included in the three below (and even the second and third arise from the first):

#### The Ethical Basis of Permaculture

1. CARE OF THE EARTH: Provision for all life systems to continue and multiply.
2. CARE OF PEOPLE: Provision for people to access those resources necessary to their existence.
3. SETTING LIMITS TO POPULATION AND CONSUMPTION: By governing our own needs, we can set resources aside to further the above principles.

This ethic is a very simple statement of guidance, and serves well to illuminate everyday endeavours. It can be coupled to a determination to make our own way: to be neither employers nor employees, landlords nor tenants, but to be self-reliant as individuals and to cooperate as groups.

For the sake of the earth itself, I evolved a philosophy close to Taoism from my experiences with natural systems. As it was stated in *Permaculture Two*, it is a philosophy of working with rather than against nature; of protracted and thoughtful observation rather than protracted and thoughtless action; of looking at systems and people in all their functions, rather than asking only one yield of them; and of allowing systems to demonstrate their own evolutions. A basic question that can be asked in two ways is:

"What can I get from this land, or person?" or

"What does this person, or land, have to give if I cooperate with them?"

Of these two approaches, the former leads to war and waste, the latter to peace and plenty.

Most conflicts, I find, lay in how such questions are asked, and not in the answers to any question. Or, to put it another way, we are clearly looking for the right questions rather than for answers. We should be alert to rephrase or refuse the "wrong" question.

It has become evident that unity in people comes from a common adherence to a set of ethical principles, each of us perhaps going our own way, at our own pace, and within the limits of our resources, yet all leading to the same goals, which in our own case is that of a living, complex, and sustainable earth. Those who agree on such ethics, philosophies, and goals form a global nation.

How do a people evolve an ethic, and why should we bother to do so?

Humans are thinking beings, with long memories, oral and written records, and the ability to investigate the distant past by applying a variety of techniques from dendrochronology to archaeology, pollen analysis to the geological sciences. It is therefore evident that behaviours in the natural world which we thought appropriate at one time later prove to be damaging to our own society in the long-term (e.g. the effects of biocidal pest controls on soils and water).

Thus, we are led by information, reflection, and careful investigation to moderate, abandon, or forbid certain behaviours and substances that in the long-term threaten our own survival; *we act to survive*. Conservative and cautious rules of behaviour are evolved. This is a rational and sensible process, responsible for many taboos in tribal societies.

From a great many case histories we can list some rules of use, for example the RULE OF NECESSITOUS USE—that we leave any natural system alone until we are, of strict necessity, forced to use it. We may then follow up with RULES OF CONSERVATIVE USE—having found it necessary to use a natural resource, we may insist on every attempt to:

- Reduce waste, hence pollution;

- Thoroughly replace lost minerals;
- Do a careful energy accounting; and
- Make an assessment of the long-term, negative, biosocial effects on society, and act to buffer or eliminate these.

In practice, we evolve over time to various forms of *accounting for our actions*. Such accounts are fiscal, social, environmental, aesthetic, or energetic in nature, and all are appropriate to our own survival.

Consideration of these rules of necessitous and conservative use may lead us, step by step, to the basic realisation of our interconnectedness with nature; that we depend on good health in all systems for our survival. Thus, we widen the self-interested idea of human survival (on the basis of past famine and environmental disaster) to include the idea of "the survival of natural systems", and can see, for example, that when we lose plant and animal species due to our actions, we lose many survival opportunities. Our fates are intertwined. This process, or something like it, is common to every group of people who evolve a general earthcare ethic.

Having developed an earthcare ethic by assessing our best course for survival, we then turn to our relationships with others. Here, we observe a general rule of nature: that cooperative species and associations of self-supporting species (like mycorrhiza on tree roots) make healthy communities. Such lessons lead us to a sensible resolve to cooperate and take support roles in society, to foster an interdependence which values the individual's contributions rather than forms of opposition or competition.

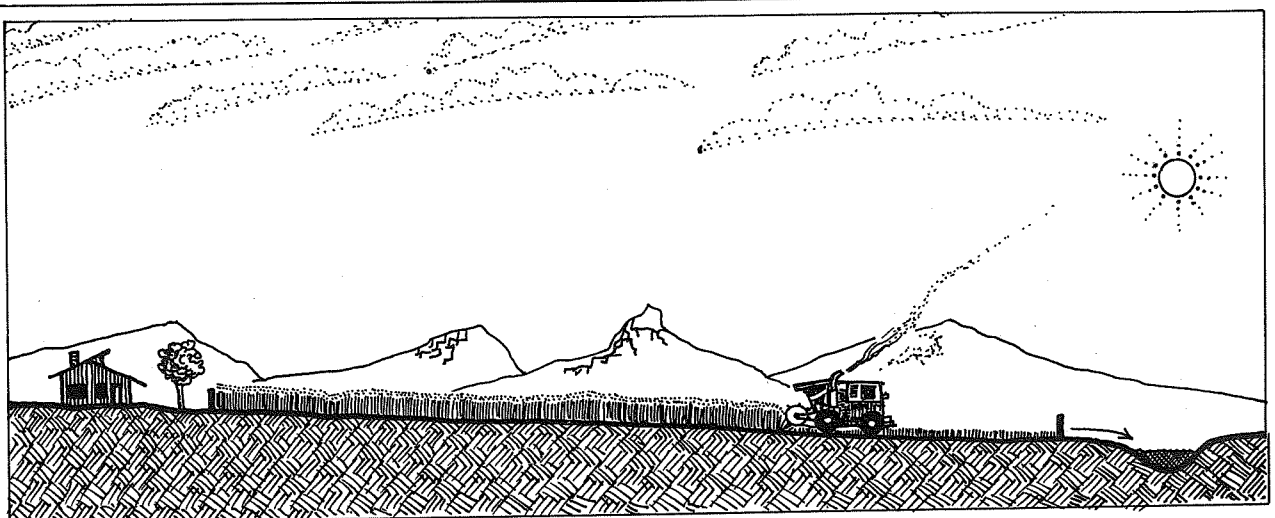
Although initially we can see how helping our family and friends assists us in our own survival, we may evolve the mature ethic that sees all humankind as family, and all life as allied associations. Thus, we expand *people care* to *species care*, for all life has common origins. All are "our family".

We see how enlightened self-interest leads us to evolve ethics of sustainable and sensible behaviour. These then, are the ethics expressed in permaculture. Having evolved *ethics*, we can then devise *ways to apply them* to our lives, economies, gardens, land, and nature. This is what this book is about: the mechanisms of mature ethical behaviour, or how to act to sustain the earth.

There is more than one way to achieve permanence and stability in land or society. The peasant approach is well described by King<sup>(6)</sup> for old China. Here people hauled nutrients from canals, cesspits, pathways and forests to an annual grain culture. We could describe this as "feudal permanence" for its methods, period and politics. People were bound to the landscape by unremitting toil, and in service to a state or landlord. This leads eventually to famine and revolution.

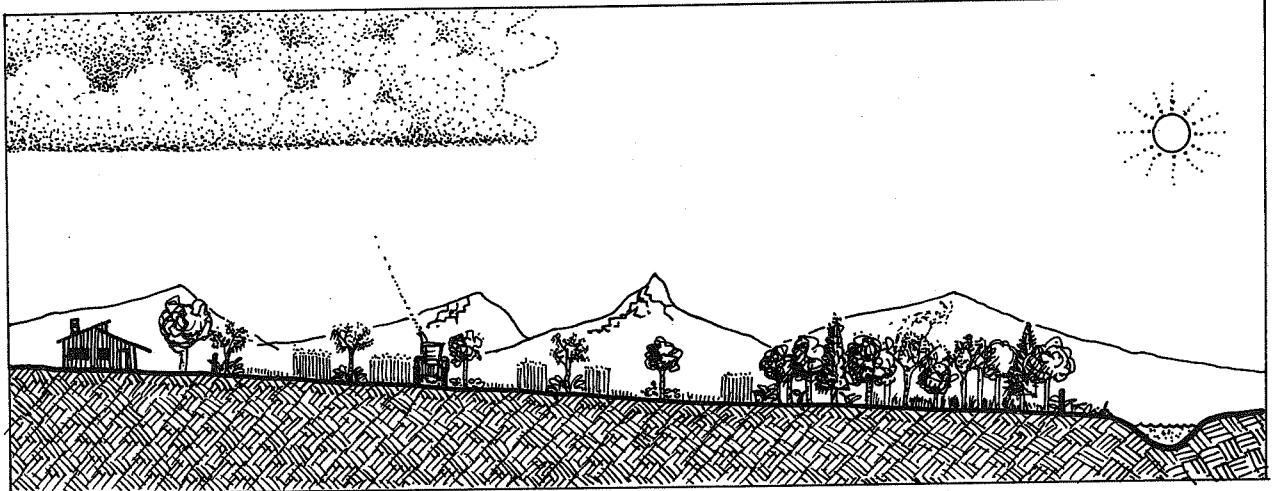
A second approach is on permanent pasture of prairie, pampas, and modern western farms, where large holdings and few people create vast grazing leases, usually for a single species of animal. This is best described as "baronial permanence" with

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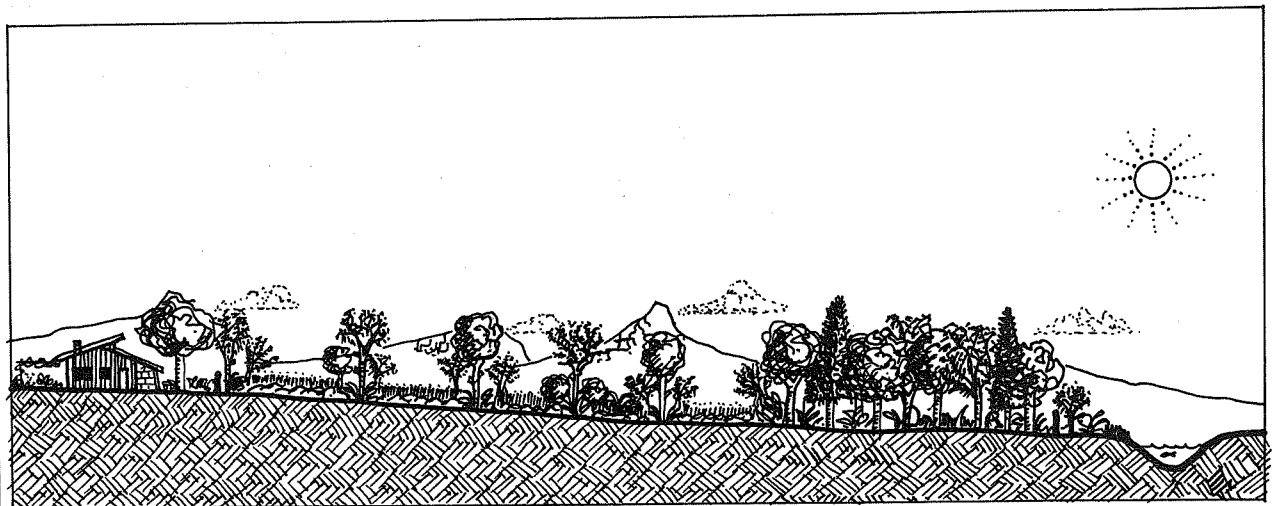
**A. CONTEMPORARY/WESTERN AGRICULTURE**

**YEAR 1**



**B. TRANSITIONAL AND CONSERVATION FARMING**

**YEAR 4**



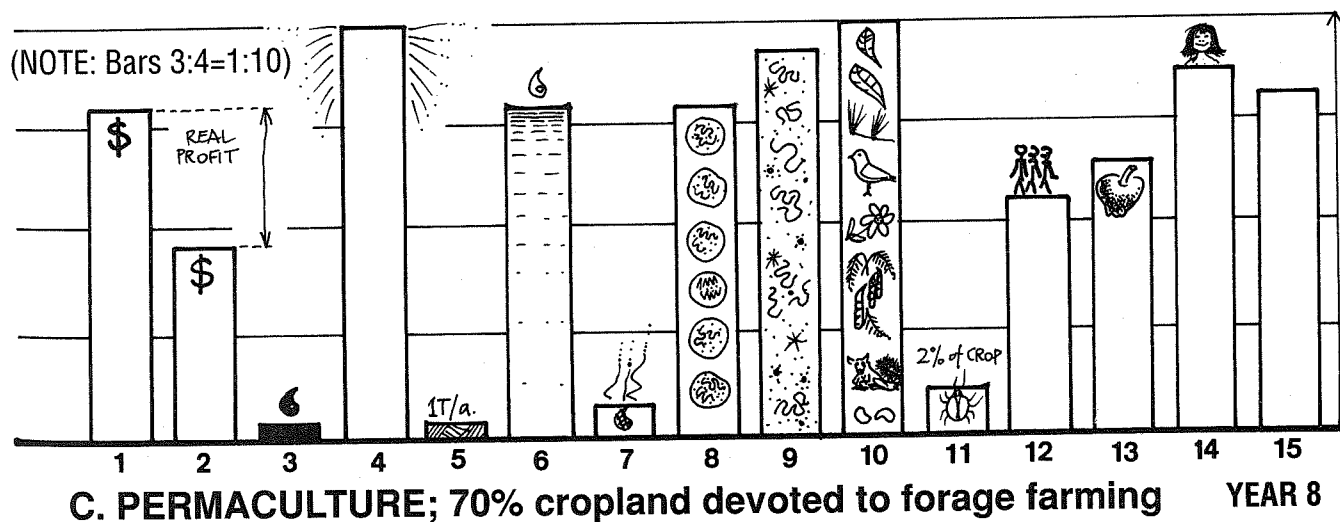
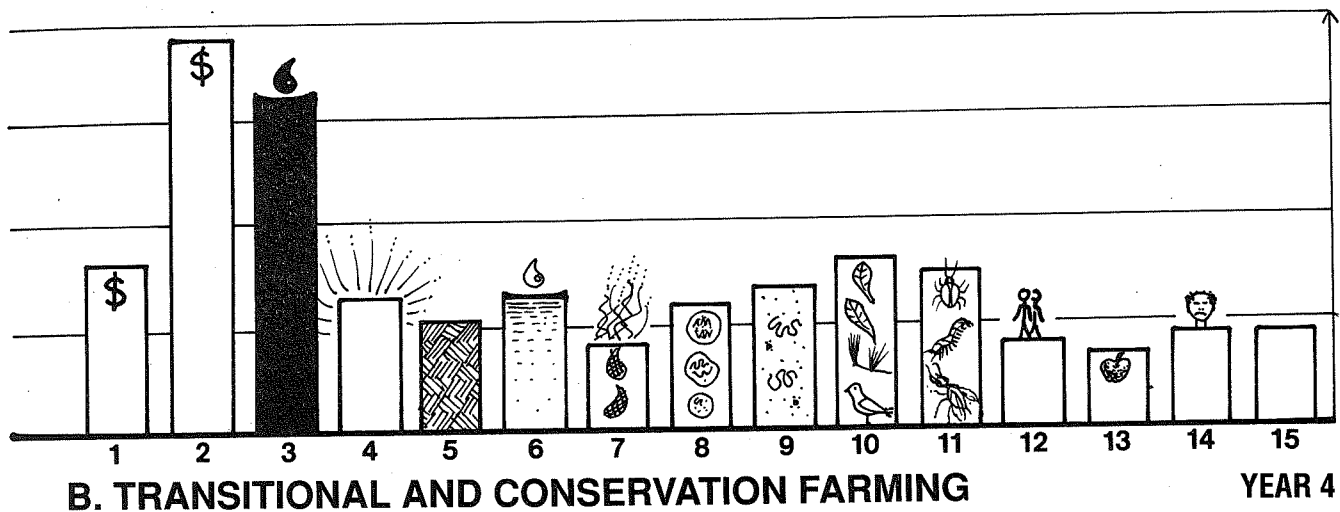
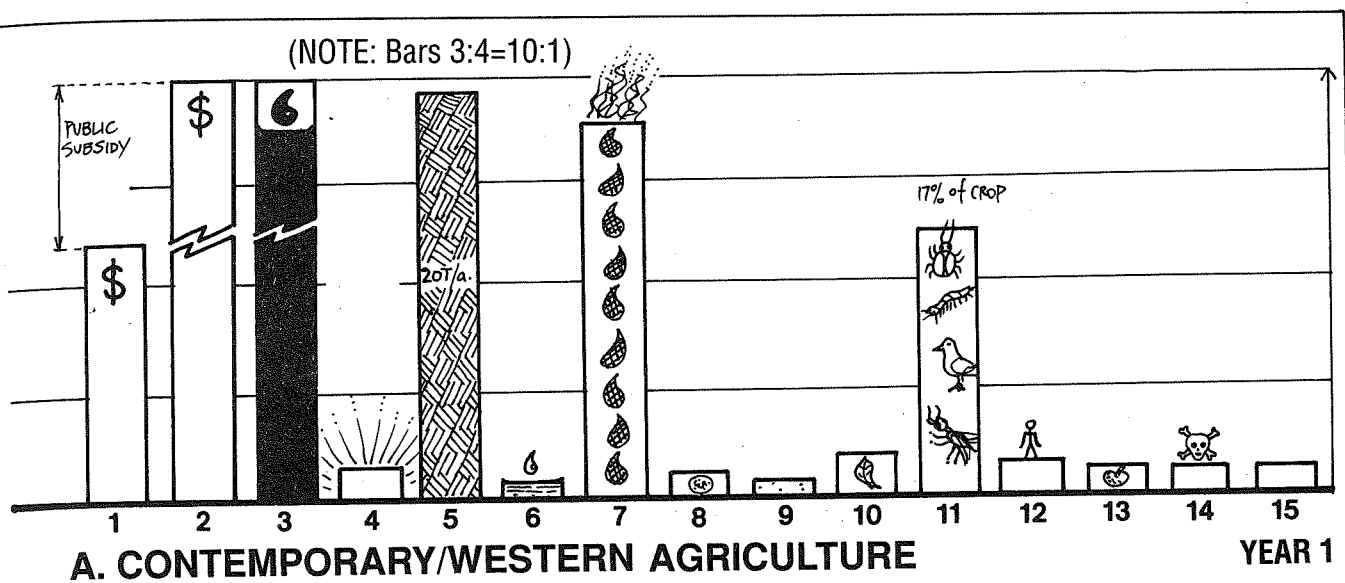
**C. PERMACULTURE; 70% cropland devoted to forage farming**

**YEAR 8**

**FIGURE 1.1.**  
EVOLUTION FROM CONTEMPORARY AGRICULTURE TO A  
PERMACULTURE.

I have attempted to cost contemporary agriculture against a changeover

to permaculture over a period of 3-8 years (*the transition period*). Basic changes involve replacing animal forage grains with tree crop, increasing forest cover, adopting low to no tillage on remaining croplands, retrofitting the house for energy conservation, and producing some (if not all) fuel on the farm.



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

**I Cash (Dollar) Accounting.**

Bar 1: Income from total product on the farm.

{continued next page....}

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near-regal properties of immense extent, working at the lowest possible level of land use (pasture or cropland is the least productive use of land we can devise). Such systems, once mechanised, destroy whole landscapes and soil complexes. They can then best be typified as agricultural deserts.

Forests, not seen by industrial man as anything but wood, are another permanent agriculture. But they need generations of care and knowledge, and hence a tribal or communal reverence only found in stable communities. This then, is the communal permanence many of us seek: to be able to plant a pecan or citrus when we are old, and to know it will not be cut down by our children's children.

The further we depart from communal permanence, the greater the risk of tyranny, feudalism, and revolution and the more work for less yield. Any error or disturbance can then bring disaster, as can a drought year in a desert grain crop or a distant political decision on tariffs.

The real risk is that the needs of those people working "on the ground", the inhabitants, are overthrown by the needs (or greeds) of commerce and centralised power; that the forest is cut for warships or newspaper and we are reduced to serfs in a barren landscape. This has been the fate of peasant Europe, Ireland, and much of the third world.

The characteristic that typifies all permanent agricultures is that the needs of the system for energy are provided by that system. Modern crop agriculture is totally dependent on external energies—hence the oil problem and its associated pollution.

Figure 1.1 is a very simple but sufficient illustration of the case I am making. Selected forests not only yield more than annual crops, but provide a diverse nutrient and fuel resource for such crops.

Without permanent agriculture there is no possibility of a stable social order. Thus, the move from productive permanent systems (where the land is held in common), to annual, commercial agricultures where land is regarded as a commodity, involves a departure

from a low- to a high-energy society, the use of land in an exploitative way, and a demand for external energy resources, mainly provided by the third world. People think I am slightly crazy when I tell them to go home and garden, or *not* to involve themselves in broadscale mechanised agriculture; but a little thought and reading will convince them that this is, in fact, the solution to many world problems.

What is now possible is a totally new synthesis of plant and animal systems, using a post-industrial or even computerised approach to system design, applying the principles of whole-system energy flows as devised by Odum (1971), and the principles of ecology as enunciated by Watt<sup>(13)</sup> and others. It is, in the vernacular, a whole new ball game to devise permaculture systems for local, regional, and personal needs.

Had we taught this approach from the beginning, we would all be in a stable and functional landscape, but our grandparents failed us, and (perhaps for lack of time or information) set up the present, and continuing, mis-designed households, towns, and cities. The concept of "free" energy put the final nail in the coffin of commonsense community, and enabled materialistic societies to rob distant peoples, oblivious of the inevitable accounting to come.

### 1.3

## PERMACULTURE IN LANDSCAPE AND SOCIETY

As the basis of permaculture is beneficial design, it can be added to all other ethical training and skills, and has the potential of taking a place in all human endeavours. In the broad landscape, however, permaculture concentrates on already-settled areas and agricultural lands. Almost all of these need drastic rehabilitation and re-thinking. One certain result of using our skills to integrate food supply and

(...FIGURE 1.1 CAPTION CONTINUED)

**Bar 2:** Cost of producing that income in real terms (excess cost over income represents subsidies. Note that any farm "profits" are achieved by subsidy; the dollar costs do not balance until organic farming is achieved. Farm income is achieved by reducing production costs).

#### II Energy Accounting.

**Bar 3:** Oil (or calories) as machinery, fuels, fertilisers, biocides. Starts at 10:1 *against* (loss) in conventional farming, and can reach a 1:120 *gain* in conservation farming/permaculture with firewood and fuels.

**Bar 4:** Energy produced on farm; includes fuel oils from crop, firewood, calories in food produced (solar energy is a constant, but it contributes most energy in conservation farming/permaculture).

#### III Environmental Accounting.

**Bar 5:** Soil loss; includes humus loss and mineral nutrient loss.

**Bar 6:** Efficiency of water use and soil water storage.

**Bar 7:** Pollution produced (poisoning of atmosphere, soils, water) by fuels, biocides, and fertilisers. Soils are created in conservation farming/permaculture, water conserved, and pollutants removed.

#### IV Conservation Accounting;

##### Life Form Richness.

**Bar 8:** Genetic richness in crops and livestock.

**Bar 9:** Soil life (biomass).

**Bar 10:** Forest biomass and wildlife richness.

**Bar 11:** Loss to pests.

##### V Social Accounting

**Bar 12:** Employment on farm (human design and/or skills replace most machine systems).

**Bar 13:** Food quality produced.

**Bar 14:** Human and environmental health.

**Bar 15:** Life quality, as "right livelihood".

Thus, it can be seen that a transition from contemporary western agriculture to conservation farming and permaculture has most benefits for people and to other life forms; farming can become energy productive; and farms can produce real income without public subsidy, in particular if farm products are already matched to local or regional demand.

settlement, to catch water from our roof areas, and to place nearby a zone of fuel forest which receives wastes and supplies energy, will be to free most of the area of the globe for the rehabilitation of natural systems. These need never be looked upon as "of use to people", except in the very broad sense of global health.

The real difference between a cultivated (designed) ecosystem, and a natural system is that the great majority of species (and biomass) in the *cultivated* ecology is intended for the use of humans or their livestock. We are only a small part of the total primeval or natural species assembly, and only a small part of its yields are directly available to us. But in our own gardens, almost every plant is selected to provide or support some direct yield for people. Household design relates principally to the needs of people; it is thus human-centred (anthropocentric).

This is a valid aim for *settlement design*, but we also need a nature-centred ethic for wilderness conservation. We cannot, however, do much for nature if we do not govern our greed, and if we do not supply our needs from our existing settlements. If we can achieve this aim, we can withdraw from much of the agricultural landscape, and allow natural systems to flourish.

Recycling of nutrients and energy in nature is a function of many species. In our gardens, it is our own responsibility to return wastes (via compost or mulch) to the soil and plants. We actively create soil in our gardens, whereas in nature many other species carry out that function. Around our homes we can catch water for garden use, but we rely on natural forested landscapes to provide the condenser leaves and clouds to keep rivers running with clean water, to maintain the global atmosphere, and to lock up our gaseous pollutants. Thus, even anthropocentric people would be well-advised to pay close attention to, and to assist in, the conservation of existing forests and the rehabilitation of degraded lands. Our own survival demands that we preserve all existing species, and allow them a place to live.

We have abused the land and laid waste to systems we need never have disturbed had we attended to our home gardens and settlements. If we need to state a set of ethics on natural systems, then let it be thus:

- Implacable and uncompromising opposition to further disturbance of any remaining natural forests, where most species are still in balance;
- Vigorous rehabilitation of degraded and damaged natural systems to stable states;
- Establishment of plant systems for our own use on the *least* amount of land we can use for our existence; and
- Establishment of plant and animal refuges for rare or threatened species.

Permaculture as a design system deals primarily with the third statement above, but all people who act responsibly in fact subscribe to the first and second statements. That said, I believe we should use all the

species we need or can find to use in our own settlement designs, *providing they are not locally rampant and invasive*.

Whether we approve of it or not, the world about us continually changes. Some would want to keep everything the same, but history, palaeontology, and commonsense tells us that all has changed, is changing, will change. In a world where we are losing forests, species, and whole ecosystems, there are three concurrent and parallel responses to the environment:

1. CARE FOR SURVIVING NATURAL ASSEMBLIES, to leave the wilderness to heal itself.

2. REHABILITATE DEGRADED OR ERODED LAND using complex pioneer species and long-term plant assemblies (trees, shrubs, ground covers).

3. CREATE OUR OWN COMPLEX LIVING ENVIRONMENT with as many species as we can save, or have need for, from wherever on earth they come.

We are fast approaching the point where we need refuges for *all* global life forms, as well as regional, national, or state parks for indigenous forms of plants and animals. While we see our local flora and fauna as "native", we may also logically see all life as "native to earth". While we try to preserve systems that are still local and diverse, we should also build new or recombinant ecologies from global resources, especially in order to stabilise degraded lands.

In your own garden, there are likely to be plants, animals, and soil organisms from every major landmass and many islands. Jet travel has merely accelerated a process already well-established by continental drift, bird migration, wind transport, and the rafting of debris by water. Everything will, in time, either become extinct, spread more widely, or evolve to new forms. Each of these processes is happening at once, but the rate of extinction and exchange is accelerating. Rather than new species, adapted hybrids are arising for example as palms, sea grasses, and snails, and micro-organisms from many continents meet, mix, and produce new accommodations to their "new" environments.

The very chemistry of the air, soil, and water is in flux. Metals, chemicals, isotopes, gases, and plastics are loose on earth that have never before been present, or never present in such form and quantity before we made it so.

It is my belief that we have two responsibilities to pursue:

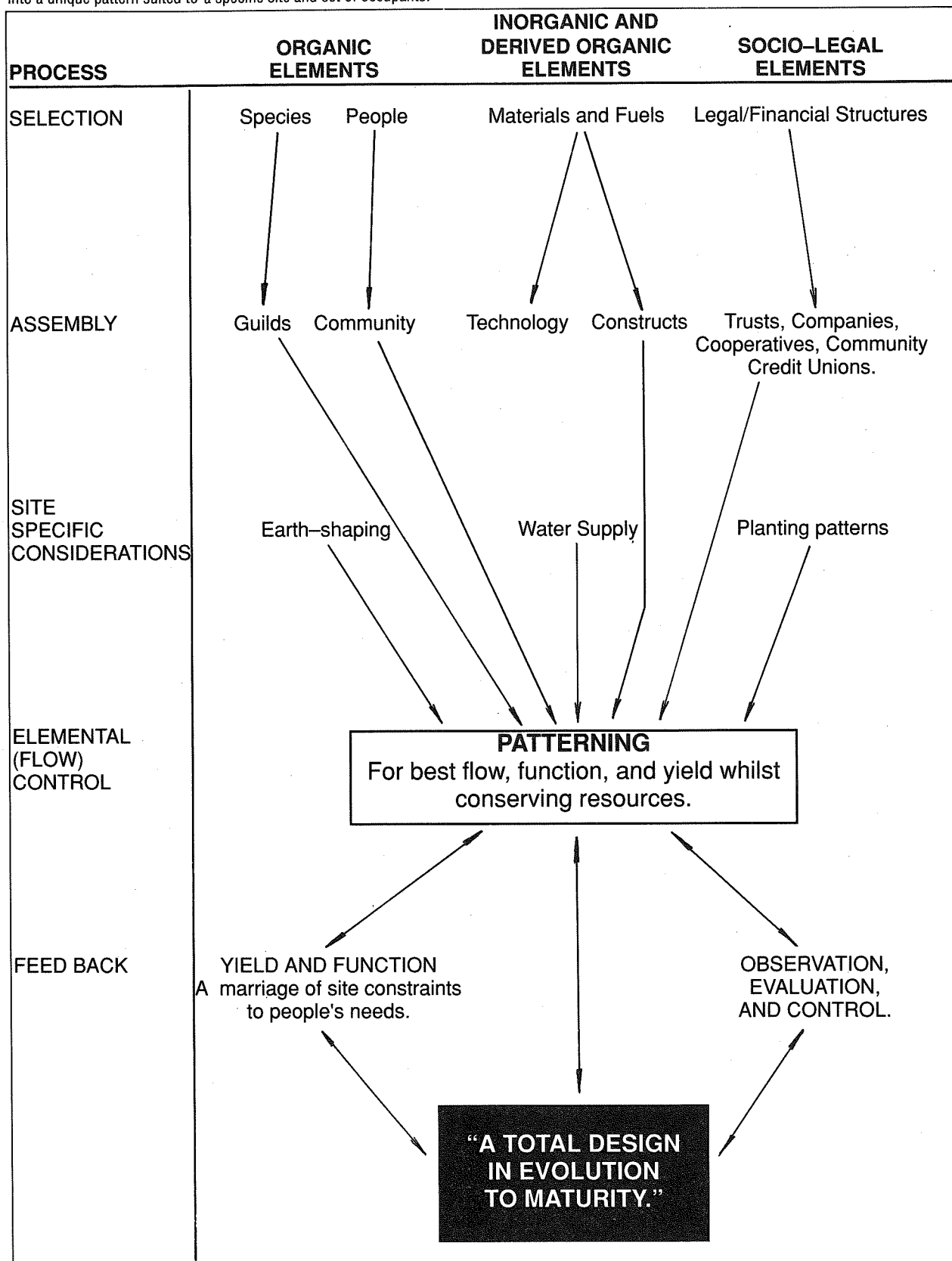
- Primarily, it is to get our house and garden, our place of living, in order, so that it supports us.
- Secondly, it is to limit our population on earth, or we ourselves become the final plague.

Both these duties are intimately connected, as stable regions create stable populations. If we do not get our cities, homes, and gardens in order, so that they feed and shelter us, we must lay waste to all other natural systems. Thus, truly responsible conservationists have gardens which support their food needs, and are working to reduce their own energy needs to a modest consumption, or to that which can be supplied by local



**TABLE 1.1**  
**PERMACULTURE DESIGN**

The result of a unique assembly of constructs, species, and social systems into a unique pattern suited to a specific site and set of occupants.





wind, water, forest, or solar power resources. We can work on providing biomass for our essential energy needs on a household and regional scale.

It is hypocrisy to pretend to save forests, yet to buy daily newspapers and packaged food; to preserve native plants, yet rely on agrochemical production for food; and to adopt a diet which calls for broadscale food production.

Philosopher-gardeners, or farmer-poets, are distinguished by their sense of wonder and real feeling for the environment. When religions cease to obliterate trees in order to build temples or human artefacts, and instead generalise love and respect to all living systems as a witness to the potential of creation, they too will join the many of us now deeply appreciating the complexity and self-sustaining properties of natural systems, from whole universes to simple molecules. Gardener, scientist, philosopher, poet, and adherent of religions all can conspire in admiration of, and reverence for, this earth. We create our own life conditions, now and for the future.

In permaculture, this means that all of us have some part in identifying, supporting, recommending, investing in, or creating wilderness habitats and species refuges. the practical way to proceed (outside the home garden) is to form or subscribe to institutes or organisations whose aims under their legal charter are to carry out conservation activities. While the costs are low, in sum total the effects are profound. Even the smallest garden can reserve off a few square metres of insect, lizard, frog, or butterfly habitat, while larger gardens and farms can fence off forest and wetland areas of critical value to local species. Such areas should be *only* for the conservation of local species.

Permaculture as a design system contains nothing new. It arranges what was always there in a different way, so that it works to conserve energy or to generate more energy than it consumes. What is novel, and often overlooked, is that *any* system of total common-sense design for human communities is revolutionary!

Design is the keyword of this book: design in landscape, social, and conceptual systems; and design in space and time. I have attempted a treatment on the difficult subject of patterning, and have tried to order some complex subjects so as to make them accessible. The text is positivistic, without either the pretended innocence or the belief that everything will turn out right. Only if we make it so will this happen.

As will be clear in other chapters of this book, the end result of the adoption of permaculture strategies in *any* country or region will be to dramatically reduce the area of the agricultural environment needed by the households and the settlements of people, and to release much of the landscape for the sole use of wildlife and for re-occupation by endemic flora. Respect for all life forms is a basic, and in fact essential, ethic for all people.

## 1.4

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