

Permaculture: *retrofitting the suburbs* *for energy descent*

by David Holmgren



Peak Oil & Permaculture Australian Tour Spring 2006

What Is Permaculture ?

A design system for
sustainable living and land use

Based on universal ethics
and design principles

A grass roots and
international movement
of practitioners, designers
and organisations

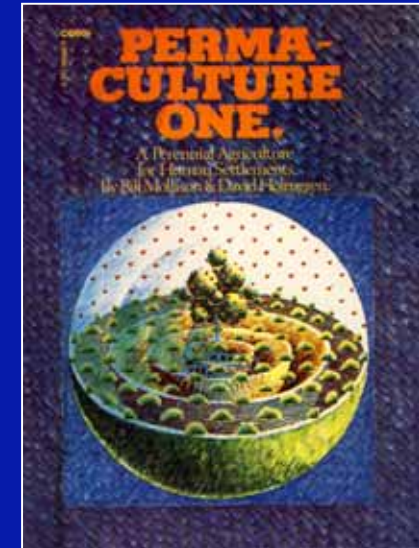
An empowering process for
reclaiming our place in nature



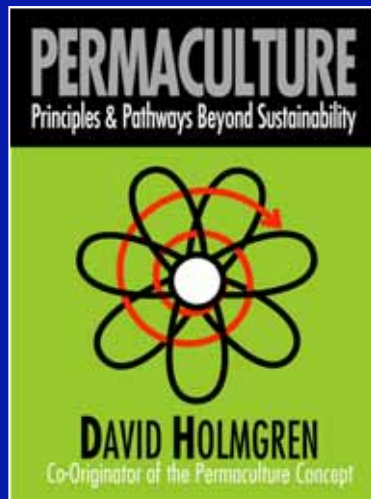
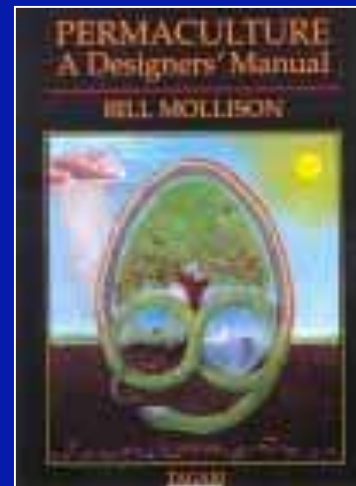
Permaculture: the history

Permaculture One (1978)

Bill Mollison & David Holmgren

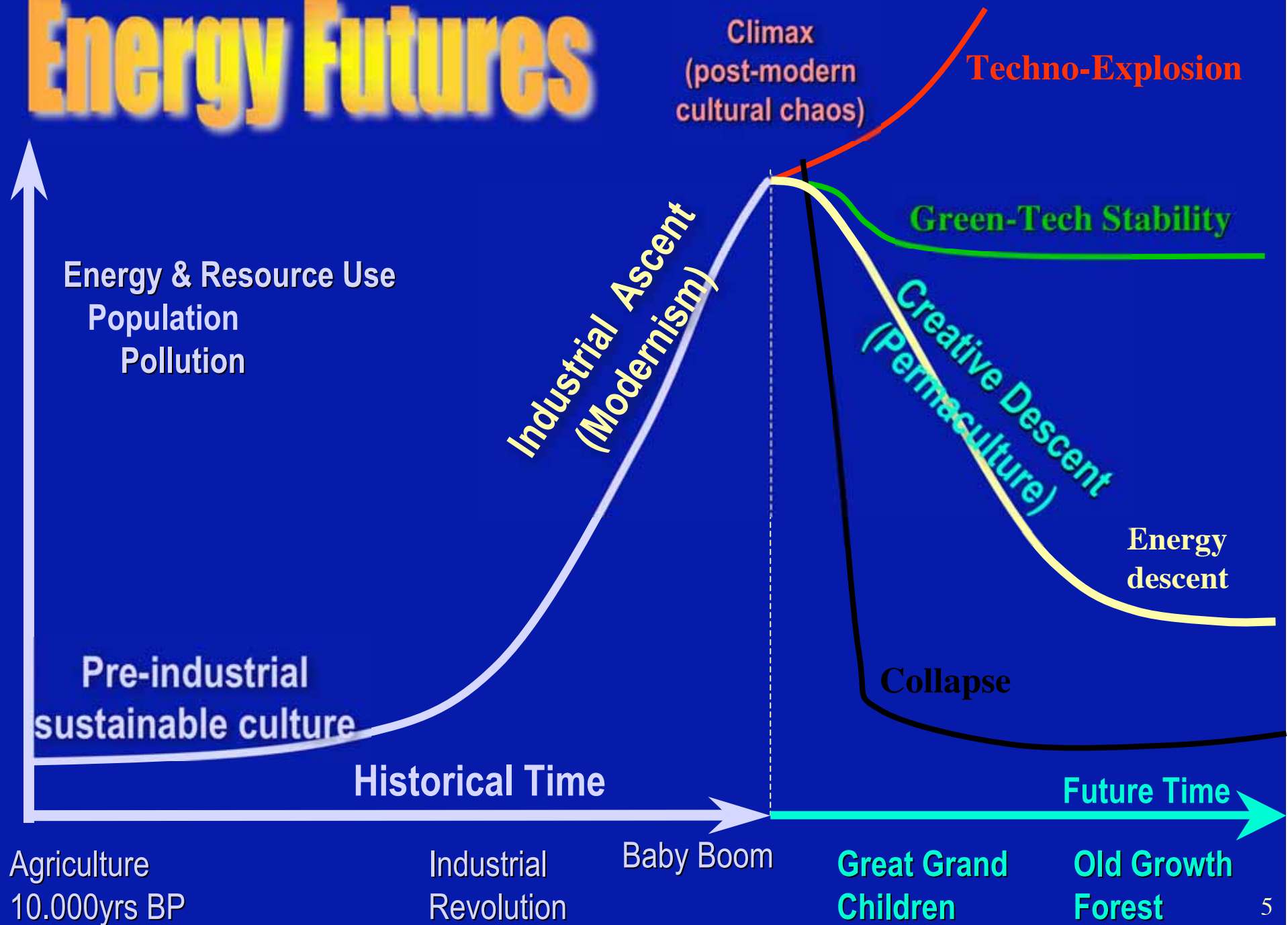


Permaculture: A Designers' Manual
(1988) Bill Mollison



Permaculture: Principles and Pathways Beyond Sustainability
(2002) David Holmgren

Energy Futures



How will we cope with the energy descent future?



Gardening for Food security, Health & Conservation



Kitchen garden raised beds Melliodora



Garden greens & vegetables,
greenhouse tomatoes



Harvesting pears



Potatoes: staple food
from the garden

Organic soil fertility building & maintenance



Living soil; the basis of food security



Worm Farming



Mulching potatoes with cut grass



Hot Composting

Seasonal Food Culture

Pasta making with children



Sun drying fruit



Bottled fruit in earth cellar
Planinca eco community Slovenia



Working with animals: yields & ecological services

Black Australorp poultry; old breed suited to free range systems



Milking goats: healthy food & living



Ducks in garden pond: suburban Sydney

Tree crops: a perennial agriculture

Fungi: food from recycling biomass

Pistachio nuts, Food Forest,
South Australia



Shitake mushrooms on oak
Swalmann Netherlands

Water and nutrient harvesting



Galvanised
rainwater tank,
Melliodora



Compost toilet, Food Forest, South Australia



Gravel reed bed treating
grey water; Fryers Forest

Passive solar design & natural materials

New Construction Melliodora:
Mud brick thermal mass floors
& load bearing walls,
Salvaged timber flooring & joinery

Eco retrofit CERES Melbourne
attached greenhouse



Energy from wastes and forest thinnings



Austrian wood pellet furnace/solar central heating cabin, Kinsale Ireland



Melliodora wood supply for cooking & hot water
(gas back up for cooking)

Frugal transport solutions

Motorbike “prime mover”
Vietnam
Photo Darren Doherty

Chinese electric bicycle



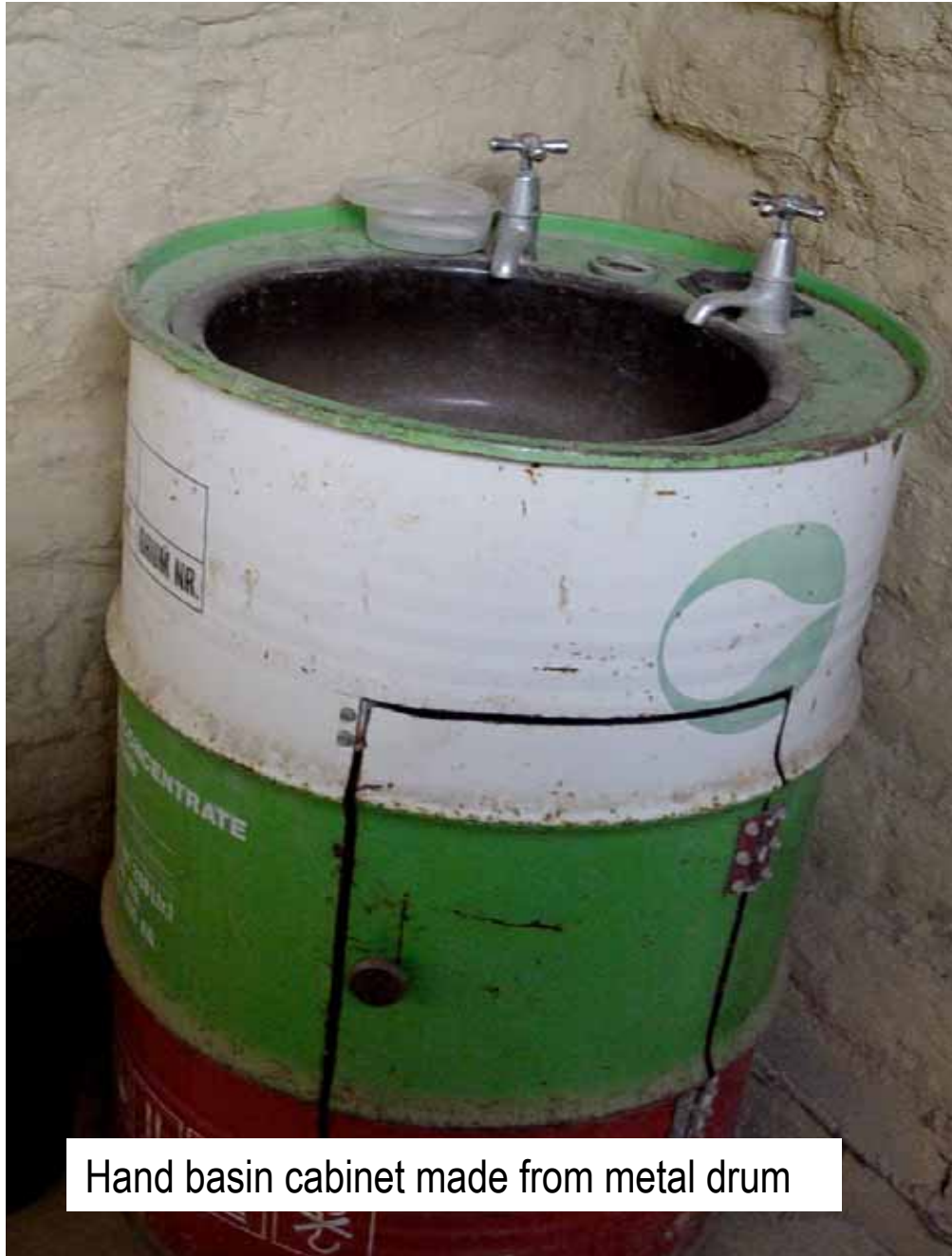
Wood gasifier powered ute Finland



Carpooling & Hitchhiking



Creative Reuse & Recycling



Hand basin cabinet made from metal drum



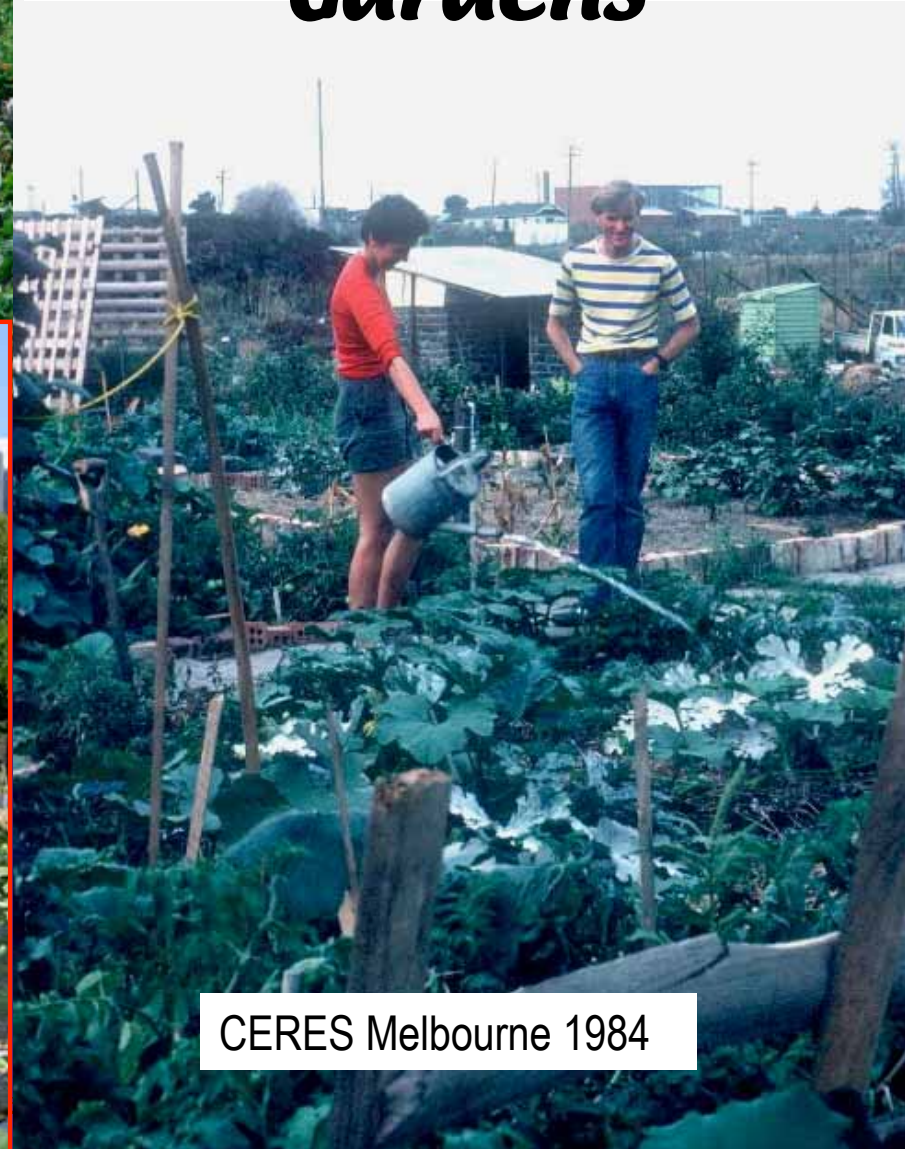
New fashion clothes made from recycled fabrics Olympia, USA

Fairview Gardens
Santa Barbara
USA 2005



Northy St Brisbane 2003

Urban Agriculture & Community Gardens



CERES Melbourne 1984

New ways of Trading & Finance



Community Supported Agriculture



LETS
local
currency



**WWOOF
Australia**



**Willing Workers On
Organic Farms Australia**

New ways of sharing land

- Ecological building
- Common infrastructure
- Community governance



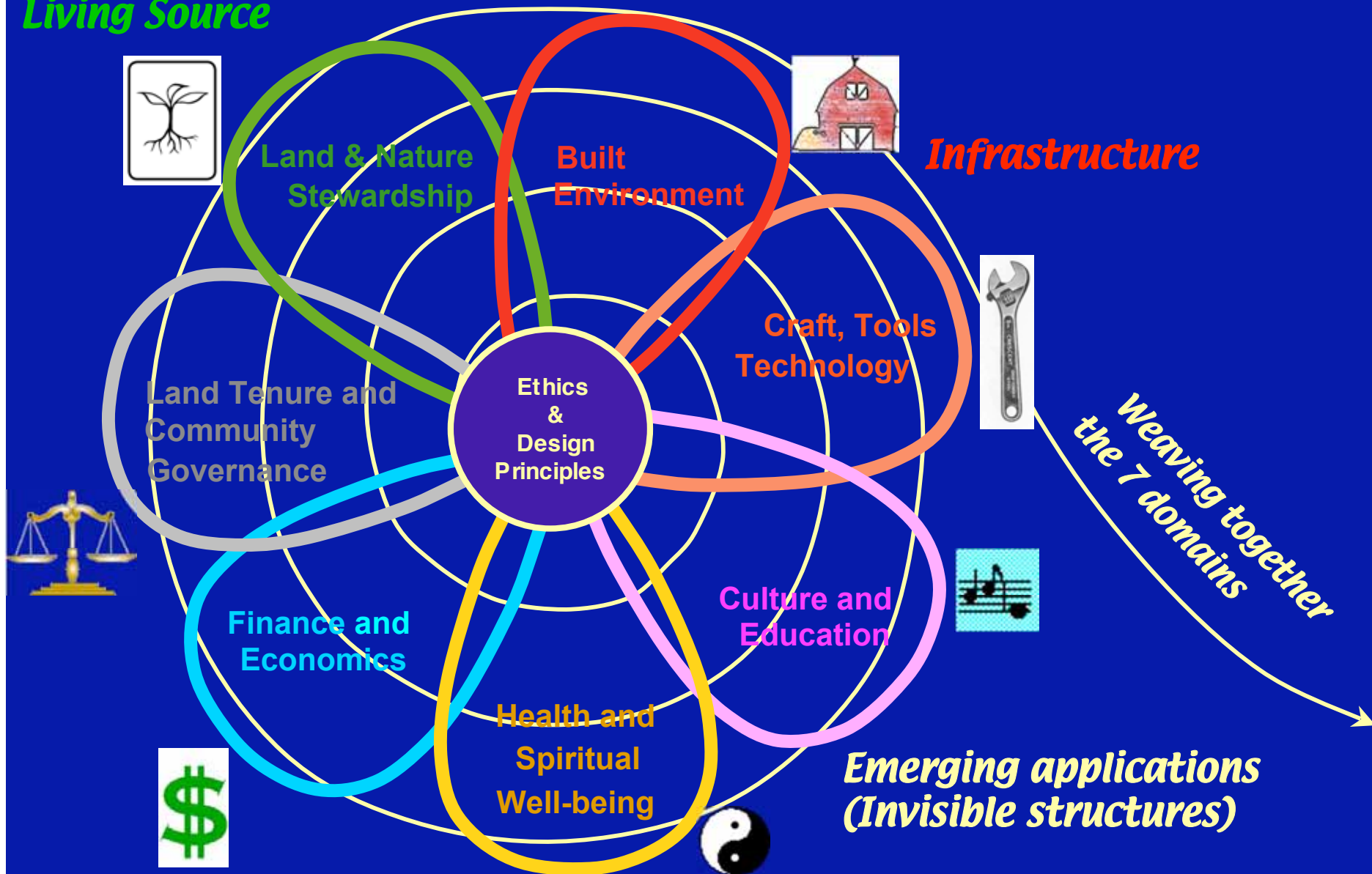
Village Terrace
Co-housing at
Earthaven N. Carolina



Earthsong Co-housing
Community,
Auckland N.Z.

Seven Domains of Permaculture Action

Living Source



Can Permaculture Design save the Suburbs?

1. Understand the history and obstacles
2. Read the landscape and resources
3. Sidestep the obstacles, grasp the opportunities
4. Turn the problem into the solution

Lets start at the beginning



Suburbia in the 1950's

The typical elements of suburban living

- **Single income (\$250/week in today's money)**
- **Housewife & three children**
- **120 m² house on 1/4 acre block (1000m²)**
- **House proud self reliance & domestic frugality**
(Vegies, fruit trees, chooks, the septic and lawn)
- **Consumer icon of cleanliness, leisure and mobility**



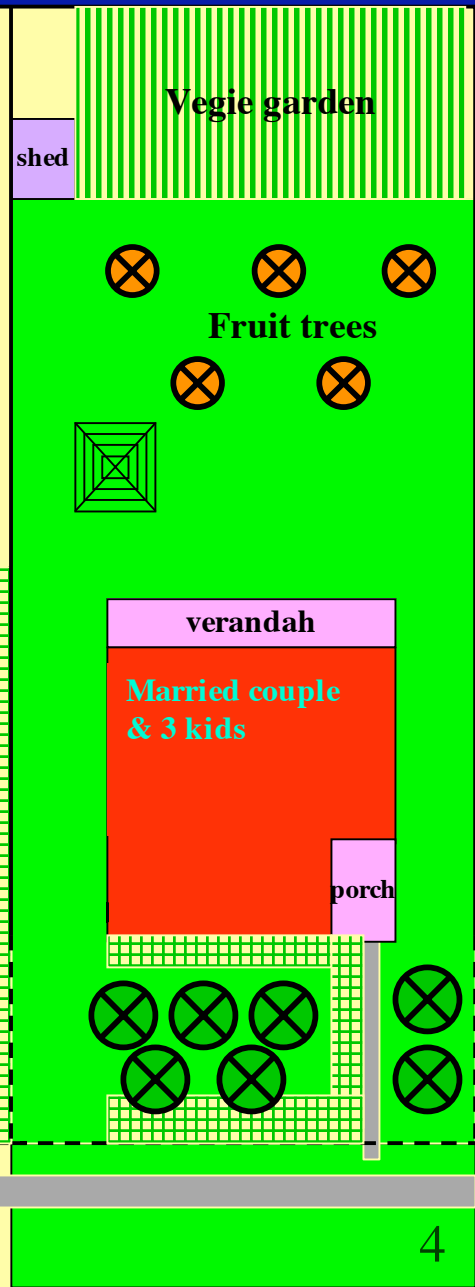
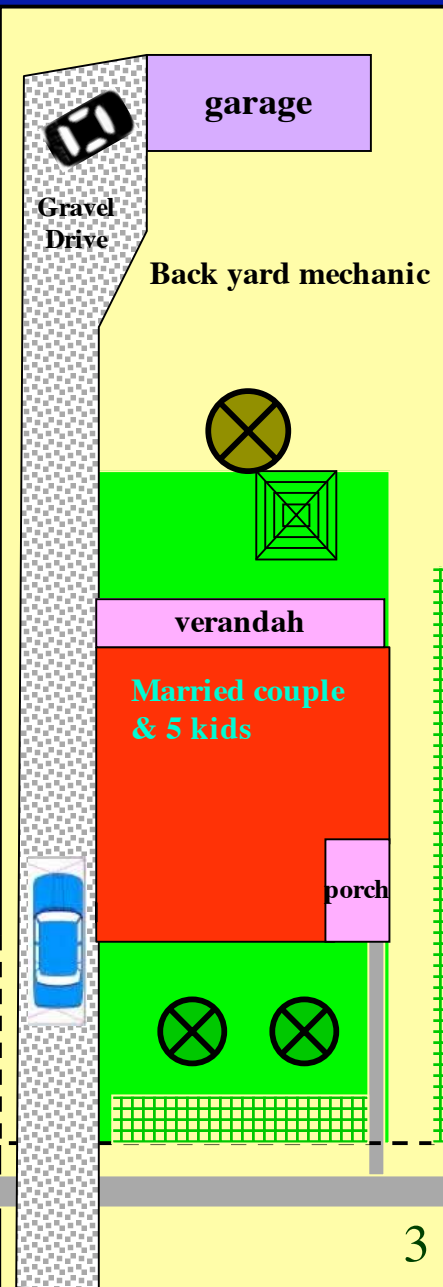
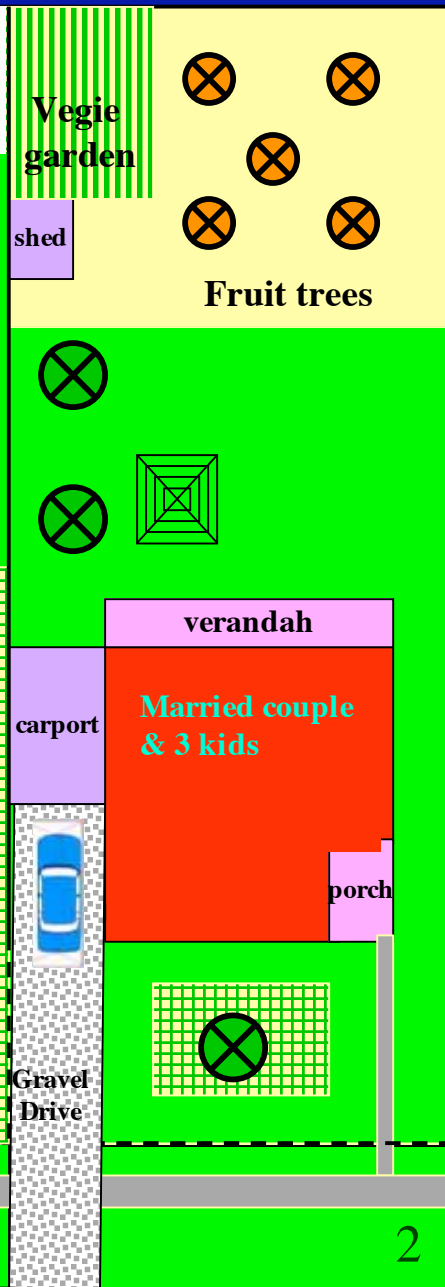
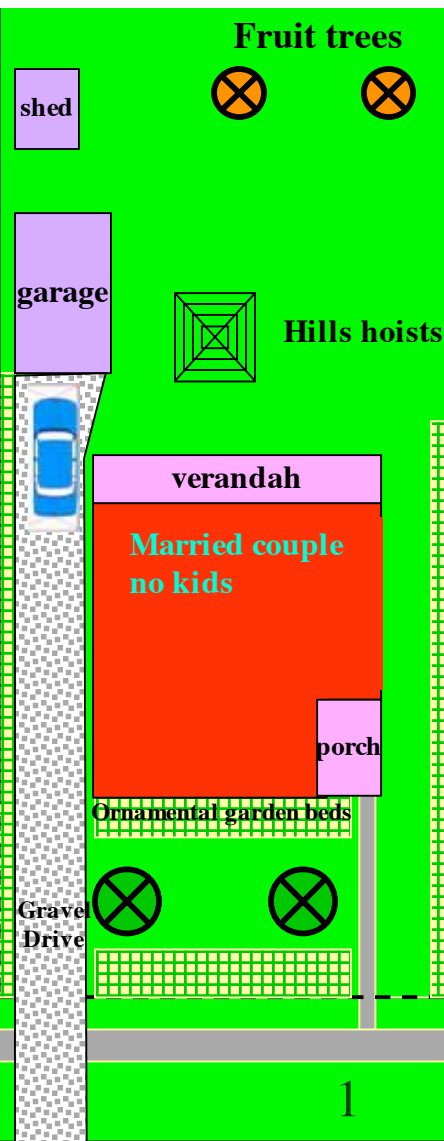
Foundations For Growth of Suburbia

The post war economic boom of the 1950's

- Cheap and abundant fossil fuel and timber
- Australia & NZ riding on the sheep's back (wool \$2.40/kg)
- War service homes and low interest rates
- Public infrastructure for suburban growth
(Sealed roads, power, water and sewerage)



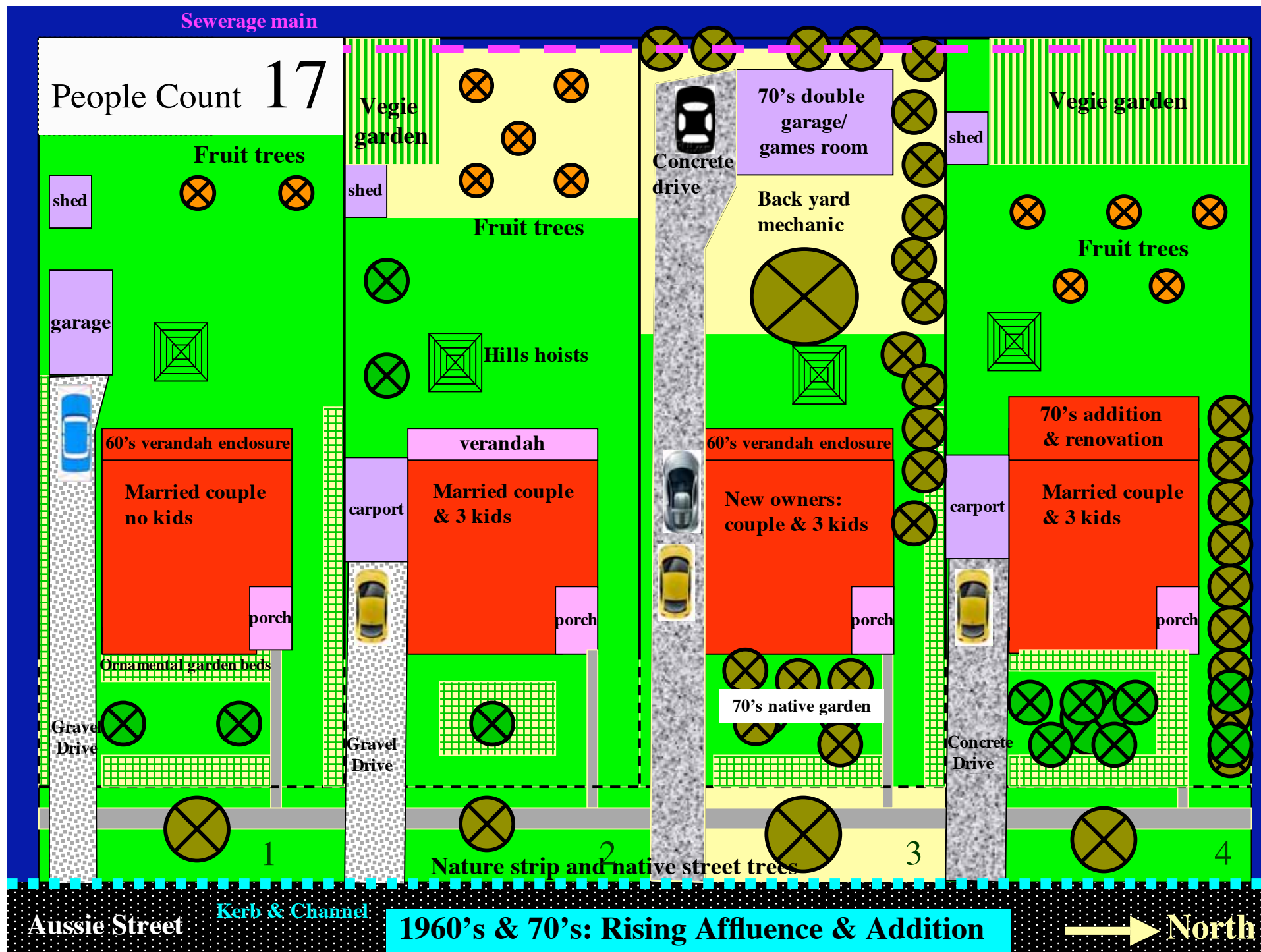
People Count 19



Aussie Street (bitumen)

1950's: The Golden Age of Suburbia

→ North



Sewerage main

People Count 17

Vegie garden

Fruit trees

shed

garage

60's verandah enclosure

Married couple
no kids

porch

Ornamental garden beds

Gravel Drive

1

shed

Fruit trees

Hills hoists

verandah

Married couple
& 3 kids

carport

porch

Gravel Drive

2

Nature strip and native street trees

Concrete drive

70's double
garage/
games room

Back yard
mechanic

60's verandah enclosure

New owners:
couple & 3 kids

porch

70's native garden



shed

Vegie garden

Fruit trees

70's addition
& renovation

Married couple
& 3 kids

porch

Concrete Drive

3

4

Aussie Street

Kerb & Channel

1960's & 70's: Rising Affluence & Addition

→ North

Problems with Suburban Growth

Urban sprawl

- Poor use of public infrastructure (sewerage)
- Car based transport
- Loss of agricultural land



Problems with Suburban Growth

Dysfunctional Economics

- Unproductive capital investment
- Speculative land values
- Declining household production (food, crafts etc)
- Household debt and consumer addiction



Problems with Suburban Growth

Dormitory suburbs

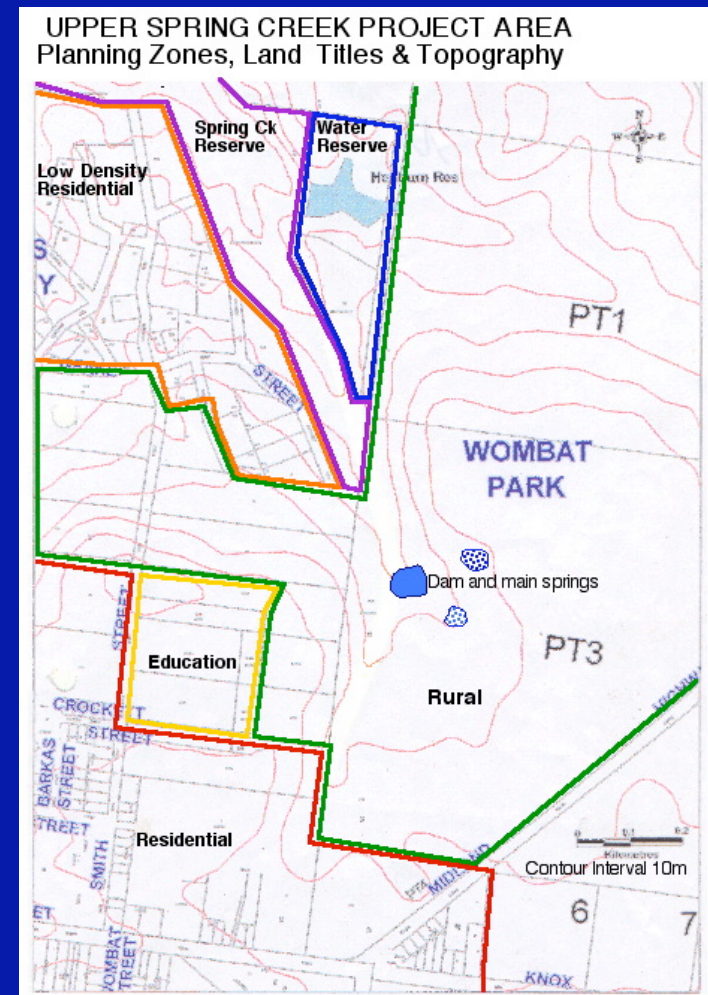
- Declining household size
- Empty houses and streets
- Lack of community & increased crime



Conventional Responses

Planning Regulations to encourage increasing density

- Smaller house blocks (500M²)
- Dual occupancy infill development
- Medium density redevelopment
- “Urban villages”



Conventional Responses

Lifestyle responses

- Holidays away
- Live out; the mobile lifestyle
- The renovation obsession
- Move to inner city: apartment living
- Move to country living
(the super suburb)



Conventional Responses

Environmental responses

- Improved public transport
- Building insulation and energy efficiency
- Urban green space, water sensitive urban design
- Native landscaping for water conservation & biodiversity



People Count 11

Unirrigated mown grass

garage

Elderly couple

Gravel Drive

carport

Elderly couple
Moving to nursing home

Concrete drive

Fruit trees

Concrete drive

70's double
garage/
games room

Empty nest
baby boomers
retiring to Qld

70's native garden

Native street trees

1990's infill development
180m² brick veneer

Young working
couple, no kids

Concrete drive
& garage

70's addition
& renovation

Separated
working
mother & 2
teenage kids

Storm water
Detention tank
Drip irrigated
ornamental
garden

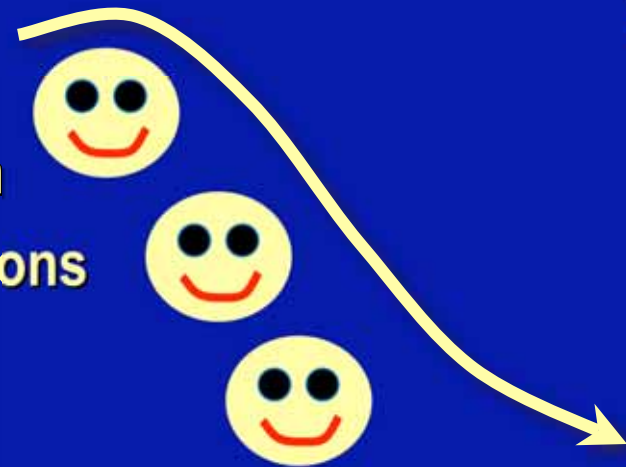
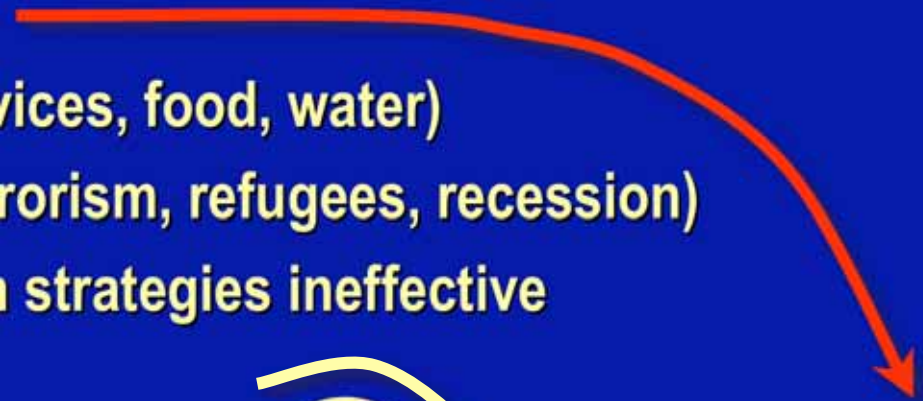
Aussie Street Kerb & Channel

1990's: Ageing & Infill

North

What if available energy is in decline?

- **A falling energy base**
 - Expands the problems (services, food, water)
 - Brings problems home (terrorism, refugees, recession)
 - Makes current urban design strategies ineffective
- **Positives of energy descent**
 - Drive creative adaption and innovation
 - Help overcome obsessions and addictions
 - Renew community spirit and solidarity



Suburban Prospects ?

The End of Suburbia or the Retrofit of Suburbia?

- Home based work, telecommuting, cottage industry
- Extended families, lodgers and shared households
- Fertile soils, water supply & infrastructure for urban agriculture
- Recycle of storm water and human waste
- City Farms, CSA's, Farmers Markets

Lets paint the picture



People Count 15

Unirrigated mown grass

Orchard/chook run

Metal workshop/
PV grid feedback

1990's infill development
180m² brick veneer

Young working
couple, no kids

Greywater
Reedbed

Grape
pergola

Passive solar
12 sq eco-addition

Concrete drive & garage

CSA chook tract
veg production

Shade
House
& Kiwi
vine

Nursery

Elderly couple

Young couple
& baby

Baby boomer couple
young adult son

Boarder: single
mother & baby

70's addition
& renovation

Separated working
mother & 2 teenage
children

Nut trees

G/house

G/house

Nursery
stock

Herb/perennials

70's native garden

Storm water
Detention tank

Native street trees

1

2

3

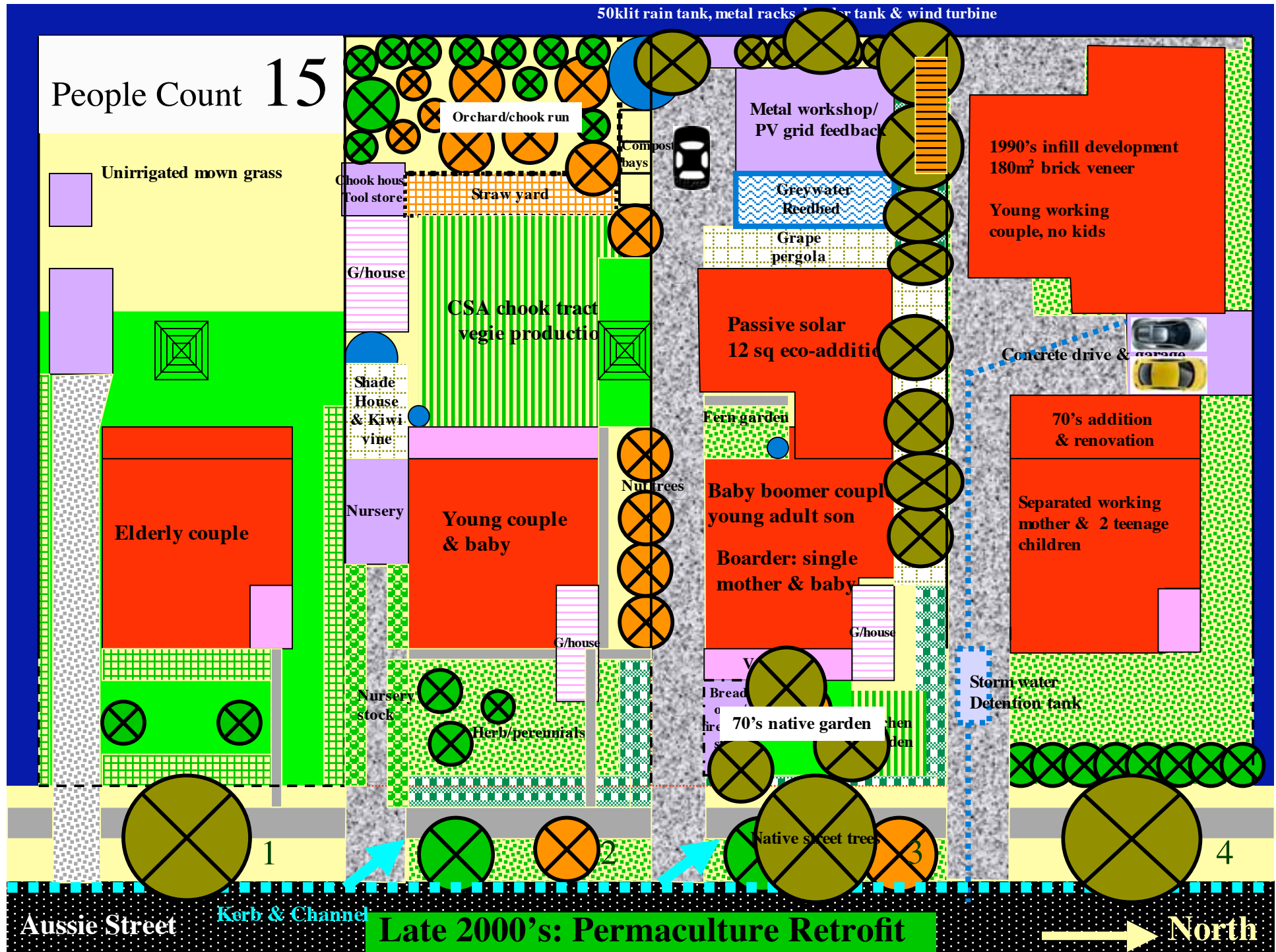
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Aussie Street

Kerb & Channel

Late 2000's: Permaculture Retrofit

North



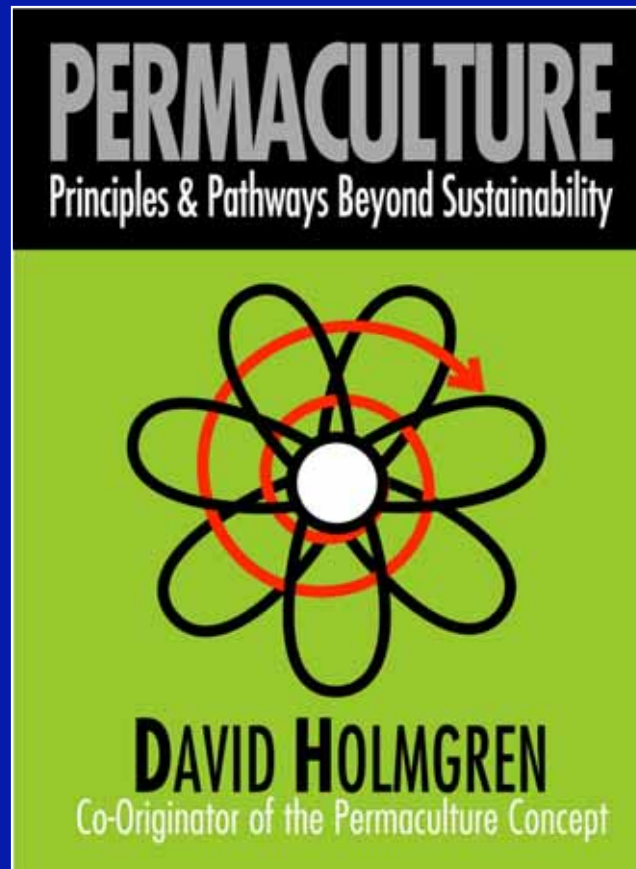
Kick starting Relocalisation



- Network for inspiration and information
- Get producing and support local producers
- Involve kids and their friends
- Make contact with neighbours, barter
- Review needs, reduce consumption
- Share your place: take in a boarder
- Share your car: carpool and pick up hitch hikers
- Creatively work around regulatory impediments
- Pay off the debt / work from home
- Retrofit for the future, not speculative gain

Permaculture

Solutions for the Energy Descent Future



Resources for understanding Energy Peak and Descent

- Energy Bulletin www.energybulletin.net
- *The Party's Over: Oil, War and the Fate of Industrial Societies*
by Richard Heinberg New Society Publishers 2003
- *Permaculture: Principles & Pathways Beyond Sustainability*
by David Holmgren www.holmgren.com.au
- *Fuelling the Future* conference, Kinsale Ireland
<http://www.fuellingthefuture.org/>
- Thomas St Clayton Food Garden Campaign
<http://thomasstreet.info>