

Designing from patterns to details



Zones and Sector Analysis

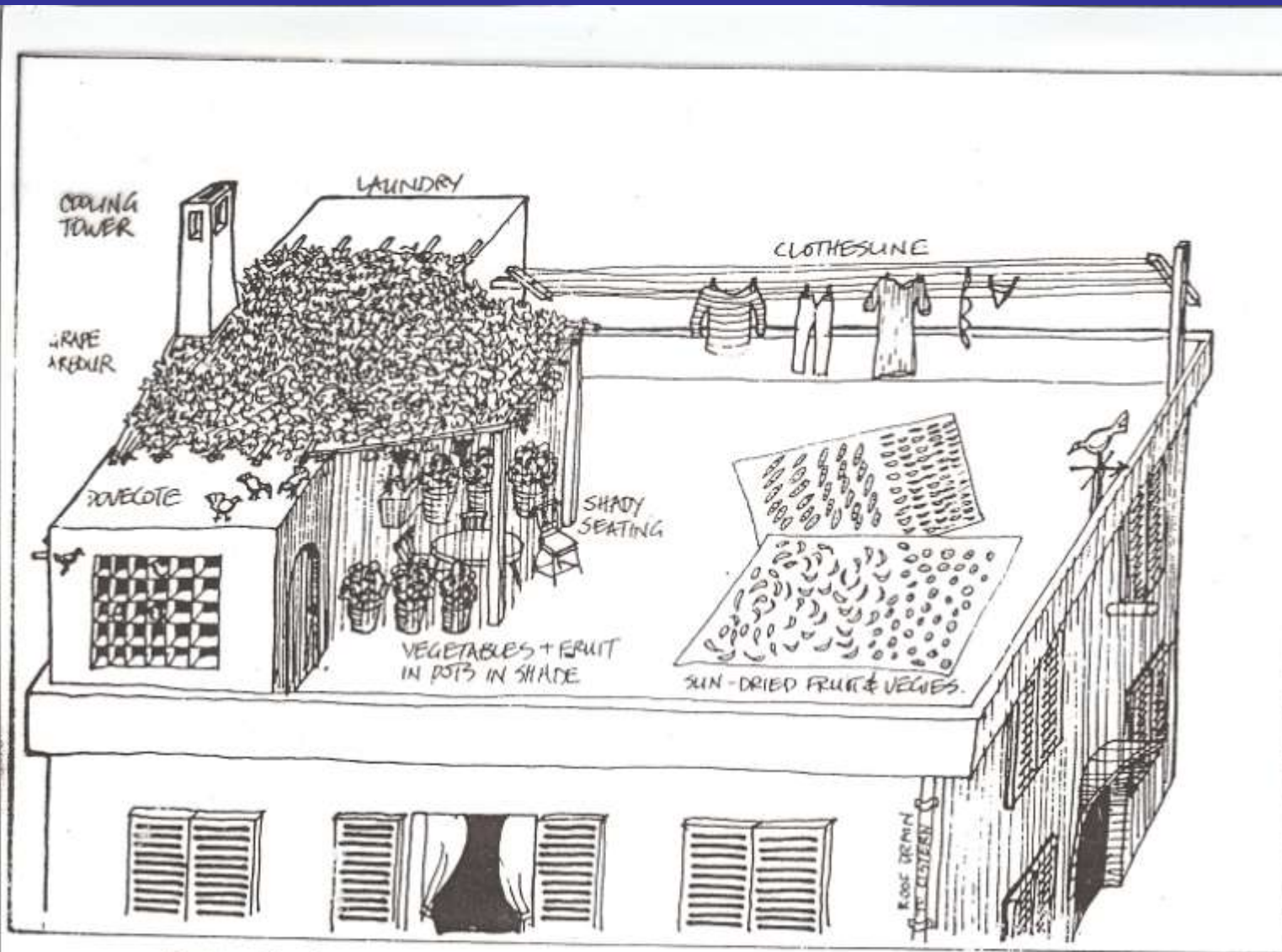
Site specific



The Food Forest early 80's

The Food Forest ~ 2002

Anywhere- any size



Rooftop "furniture" of hot-dry climates, where houses are often joined and there is little or no yard available. Many yard functions therefore take place on the roof.



2005



Sectors and Zones is about:

‘Stocktake’ and documenting

Placement of elements

→ energy flow



Sector analysis

Understanding and planning for the wild energies which *fall on, or travel through* a property

They need to be mapped and documented eg:

- Fire danger
- Cold or damaging wind sector
- Desired and unwanted views
- Winter and summer sun angles
- Reflection from ponds and lakes
- Flood prone areas
- Frost pockets and flows
- Noise



Zones

Energy *on* site-

people, time, machinery, waste, fuel

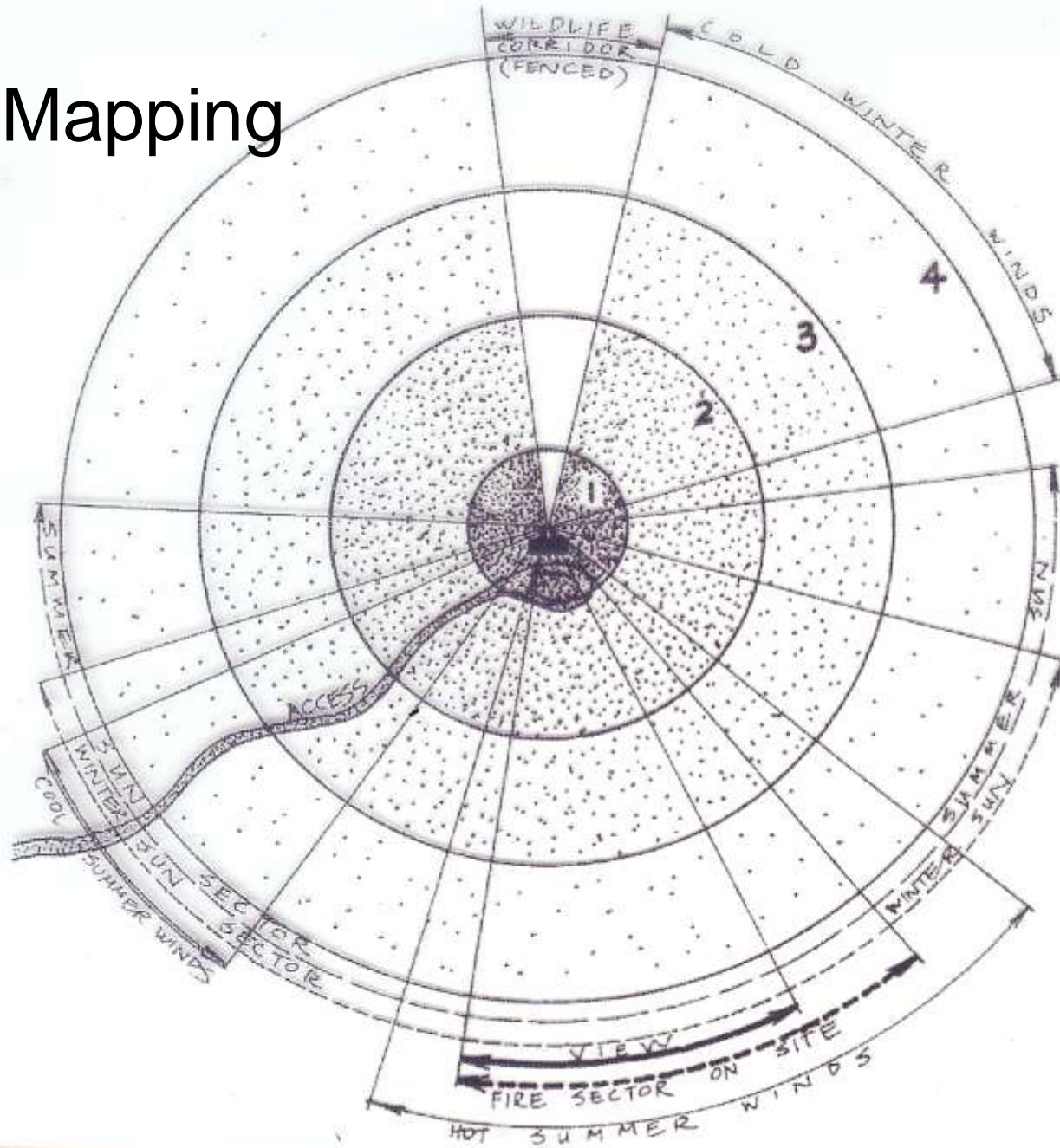
Placing elements according to how much we use them, how often we need to maintain or harvest them and how much energy and water they use.

Work from the 'backdoor' out.

Zone 0 – Zone 5



Mapping



From: Introduction to Permaculture, Bill Mollison & Reny Slay

Sector analysis

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Sectors :

‘Stocktake’ and documenting

→ energy flow





Sector analysis

Sun

Wind

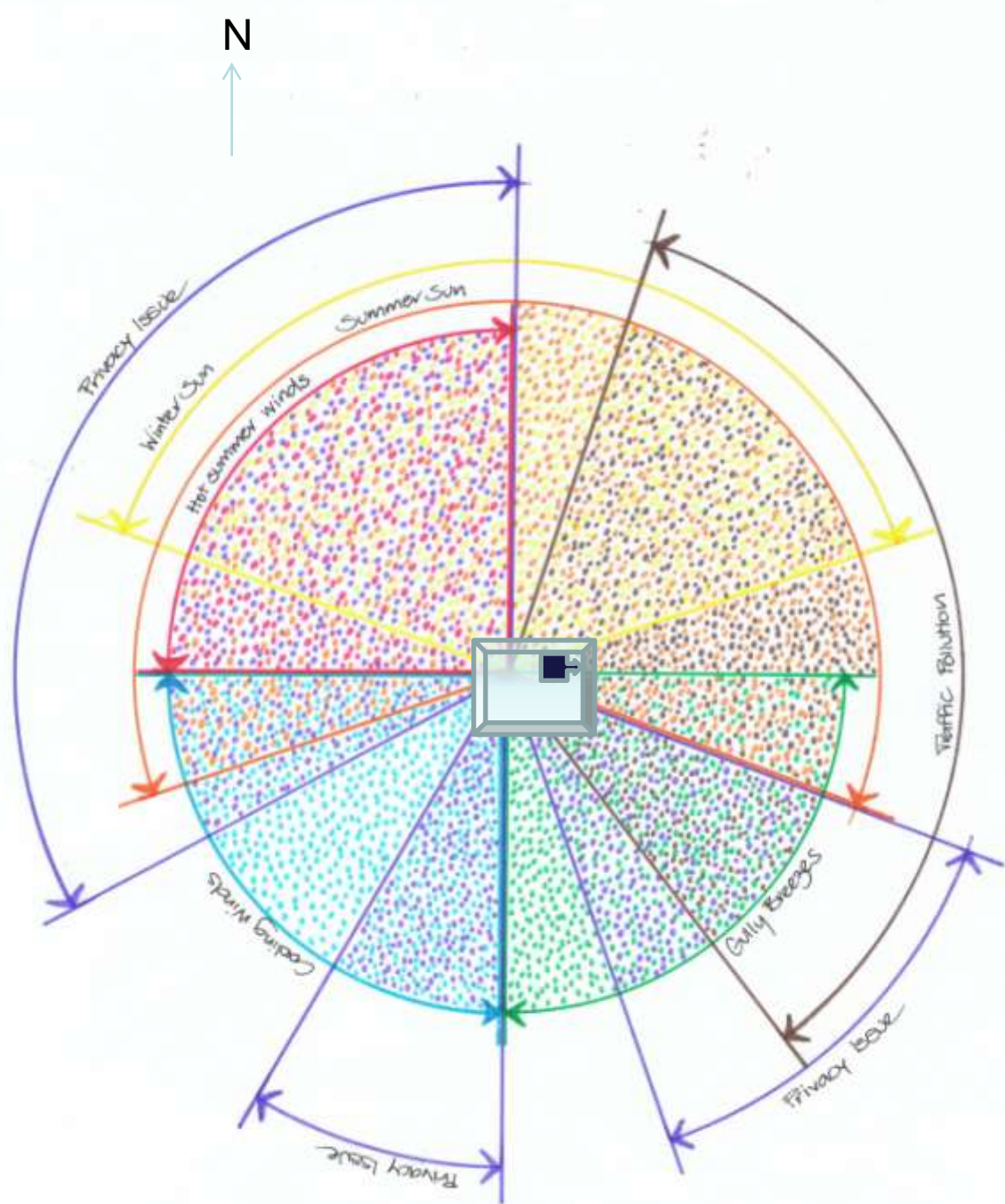
Gully Breezes

Fire

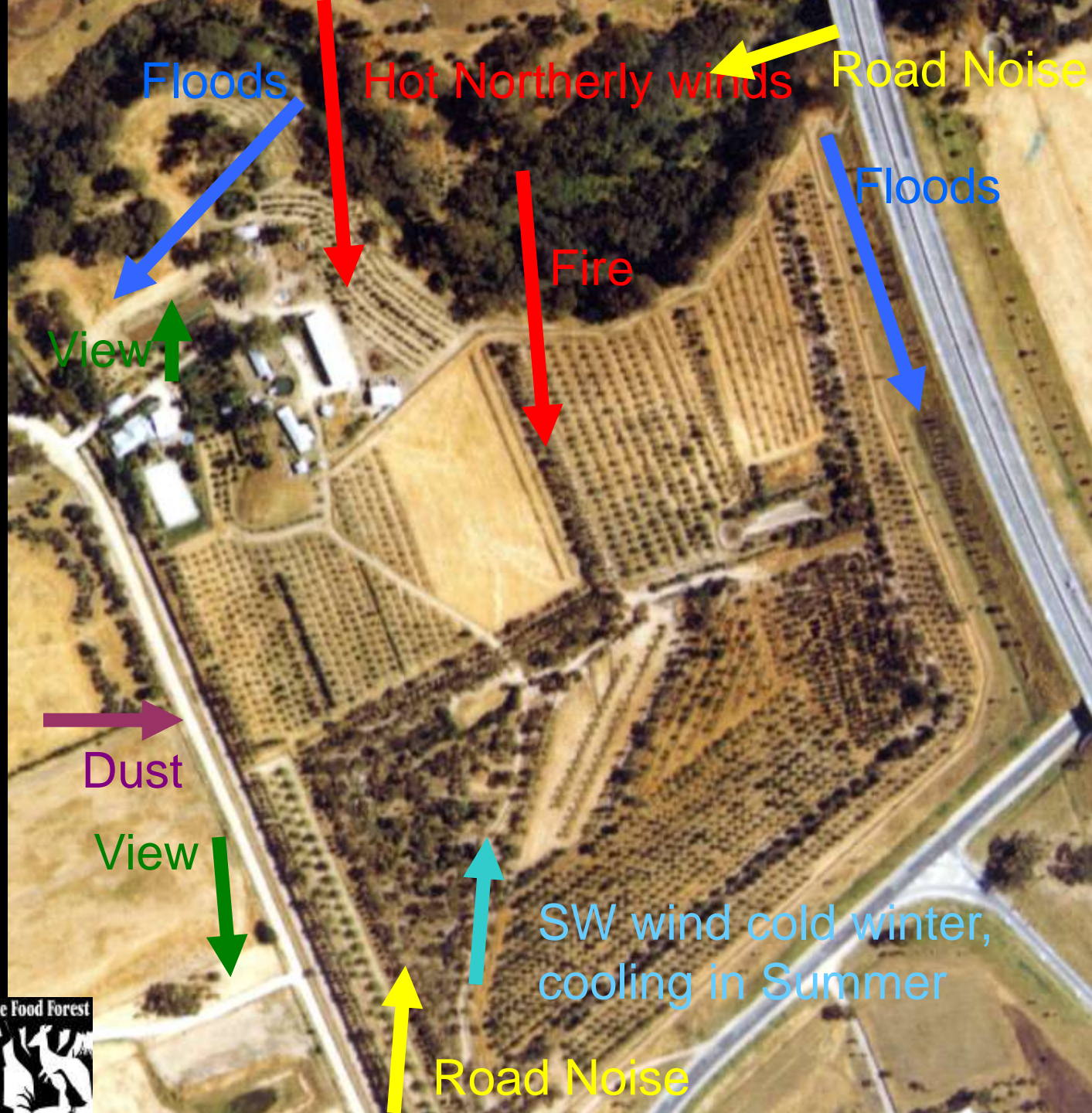
View

Privacy

Noise



Sector map by Rachel/Sonia/Luci/Matt's



Sectors at TFF

Energy on or through a place:

- Sun
- Wind
 - Cooling
 - Hot

Fire
Water
Noise

Frost
View
Spray drift
Dust



Understanding Sun Angles

Winter sun warming up the concrete slab....



In Summer eave overhang prevents the sun getting in



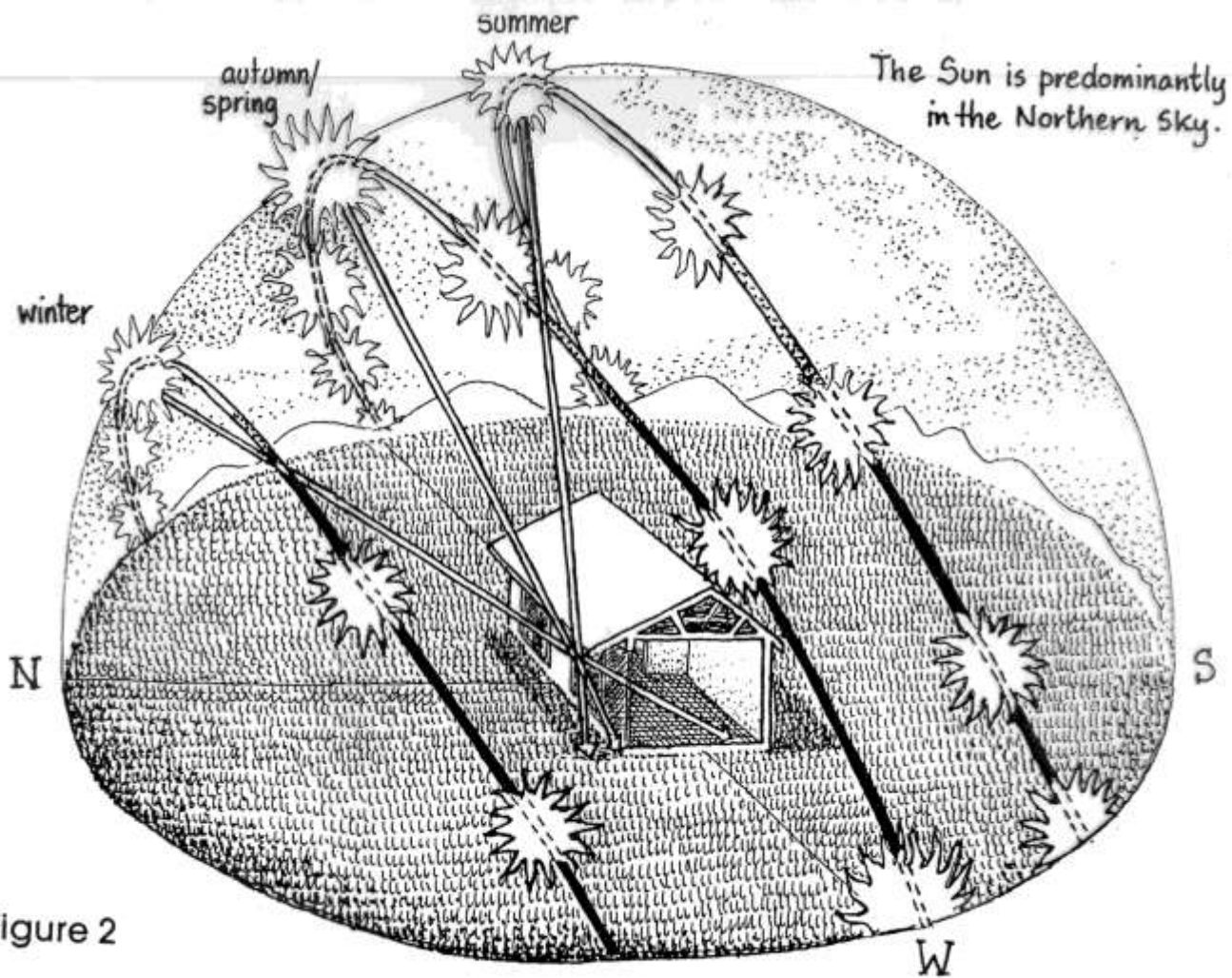
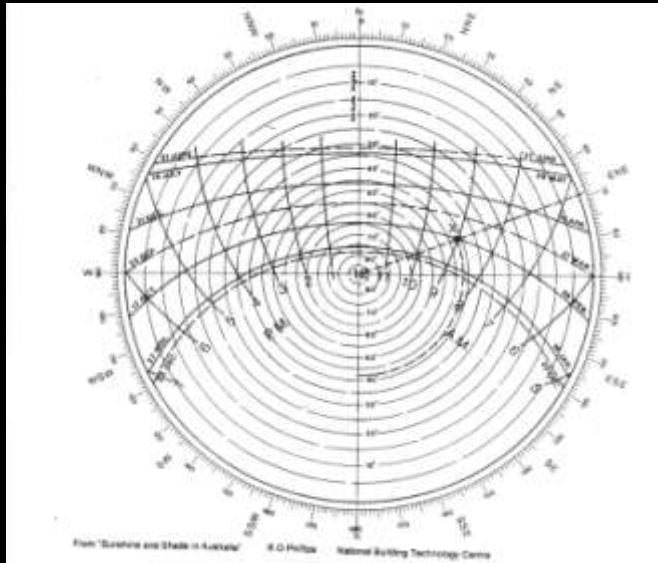


Figure 2

Sunpath Diagram- Adelaide



SUN PATH DIAGRAM

In the study of sunshine and shading solar charts can provide valuable information about the sun's position at any time of the year to determine the nature of appropriate shading. The first step is to use a chart for the latitude of the place required, in the case of Adelaide it is latitude 35° south as per the diagram.

The heavy curved lines indicate the sun's path for the dates shown.

These are crossed by lines indicating the time of the day.

The intersection of a path line with an hour line will therefore represent the sun's position at a given time on a certain date.

The graduated circle around the circumference of the chart indicates the azimuth (where the sun is relative to north).

The thin concentric lines indicate the altitude (how high the sun is above the horizon).

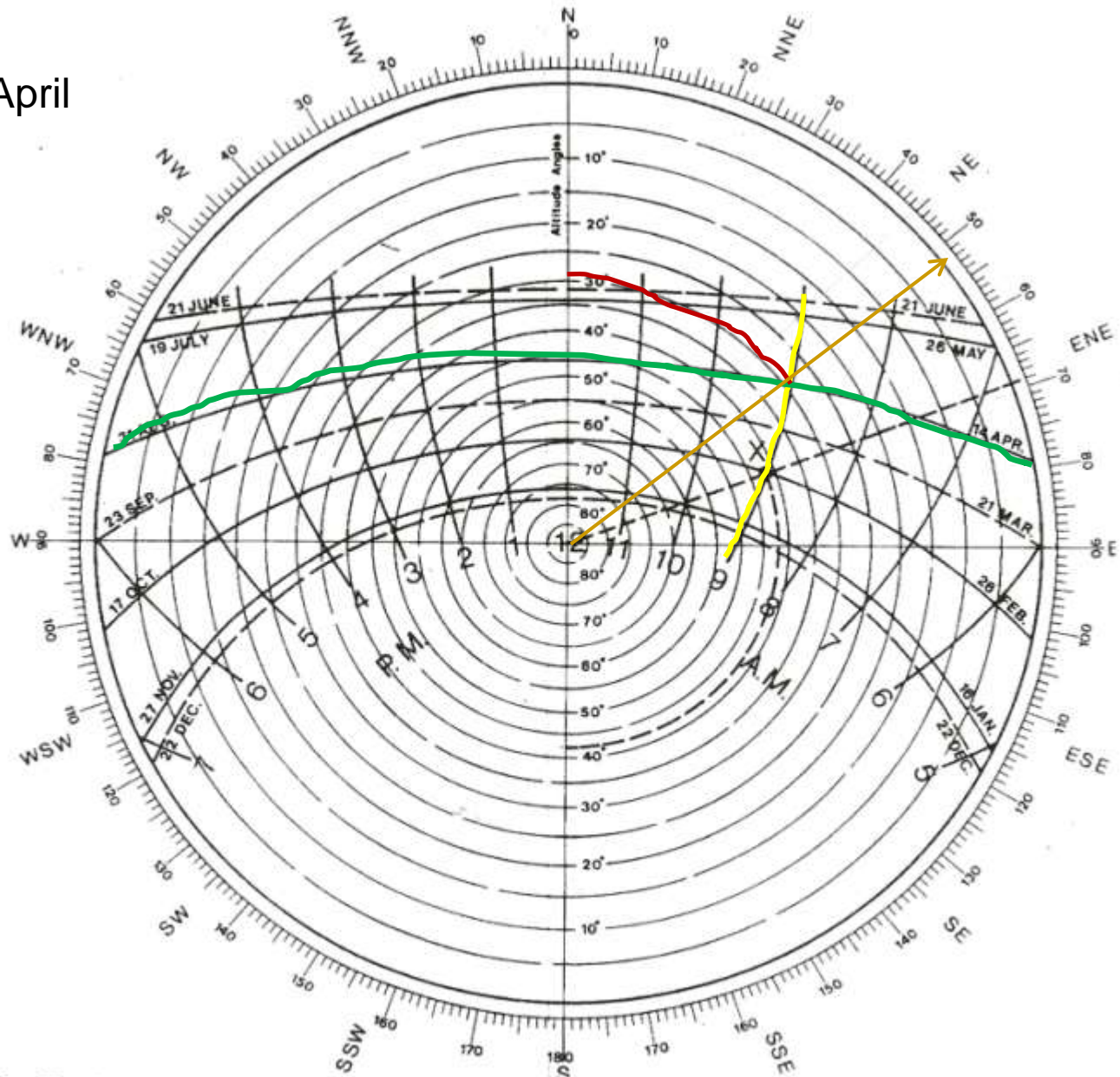
Where the sun's path line meets the edge of the diagram indicates sunrise and sunset.

For example: In the diagram the point 'X' represents the sun's position at 9:00am on 26 February (and 17 October) at latitude 35° south. The sun is 69° east of north, at an altitude of 42° above the horizon.

From this diagram the sun's position and sun shading requirements for a north, east and west facing wall or window can be determined. (For buildings at different angles a further more complex calculation using a protractor overlay is required).



14 April



From "Sunshine and Shade in Australia"

R O Phillips

National Building Technology Centre



Shadows by building

3pm July 22

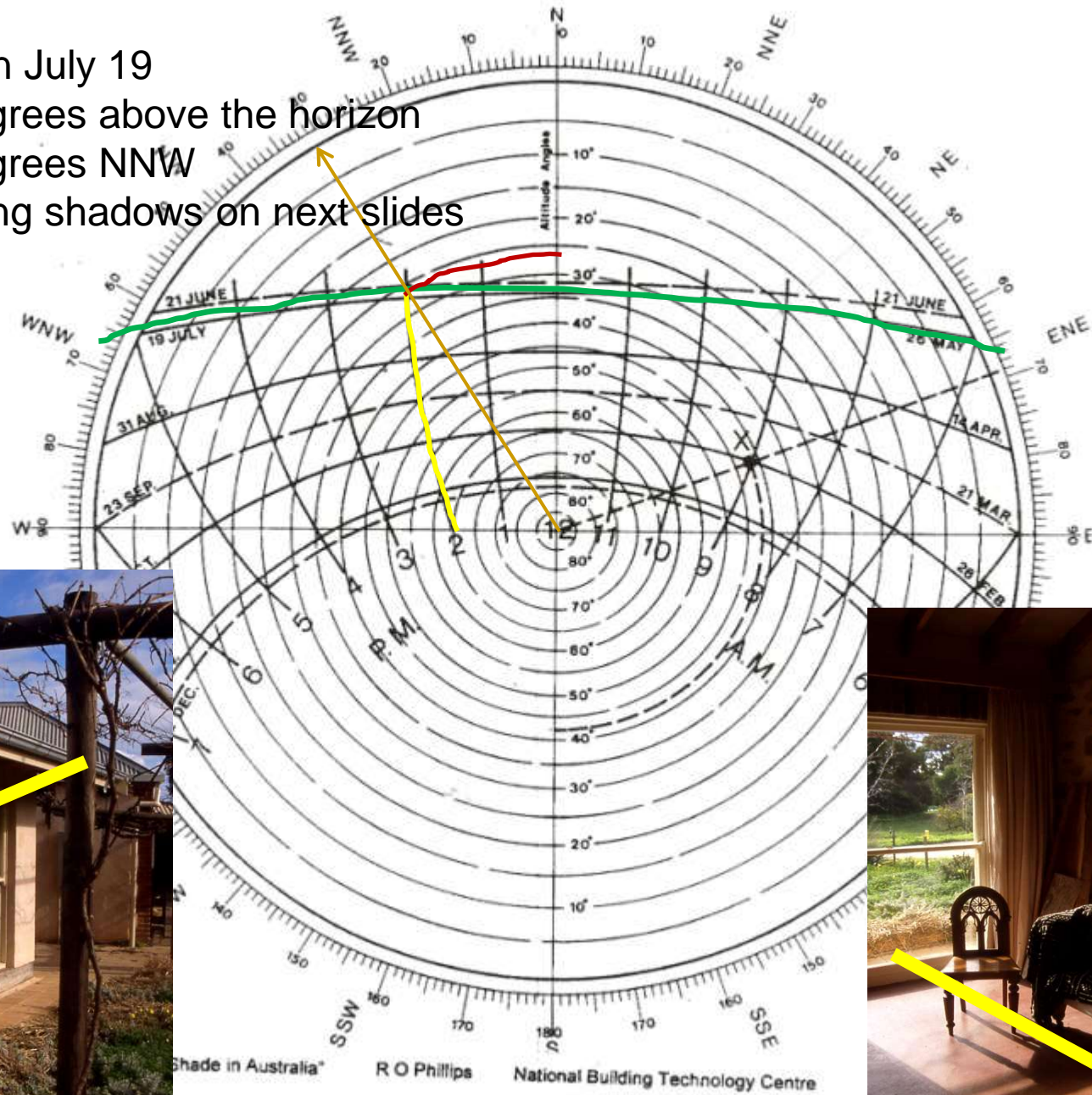


Shadows by tall tree

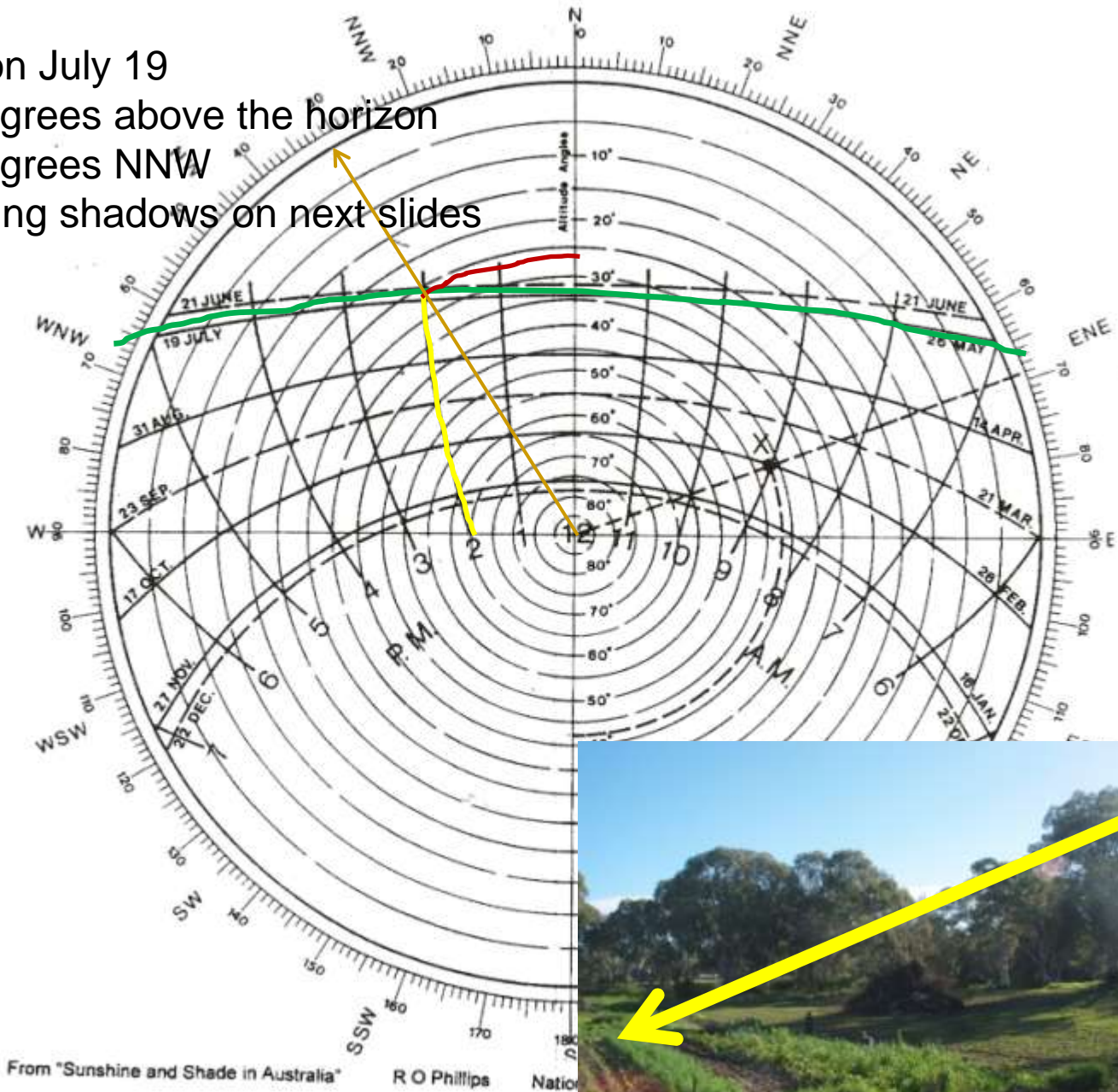
3pm July 22



Sun on July 19
27 degrees above the horizon
32 degrees NNW
Causing shadows on next slides



Sun on July 19
27 degrees above the horizon
32 degrees NNW
Causing shadows on next slides



Understanding theoretical information



Fire risk



Vegetation



March 2010- 600m East of TFF



Fires Jan 2015

11,500ha in the Adelaide Hills in first 30hrs

From TFF, 3 Jan 5.30 pm

From TFF, 4 Jan 5pm



The Pinery Fire- Nov 25, 2016

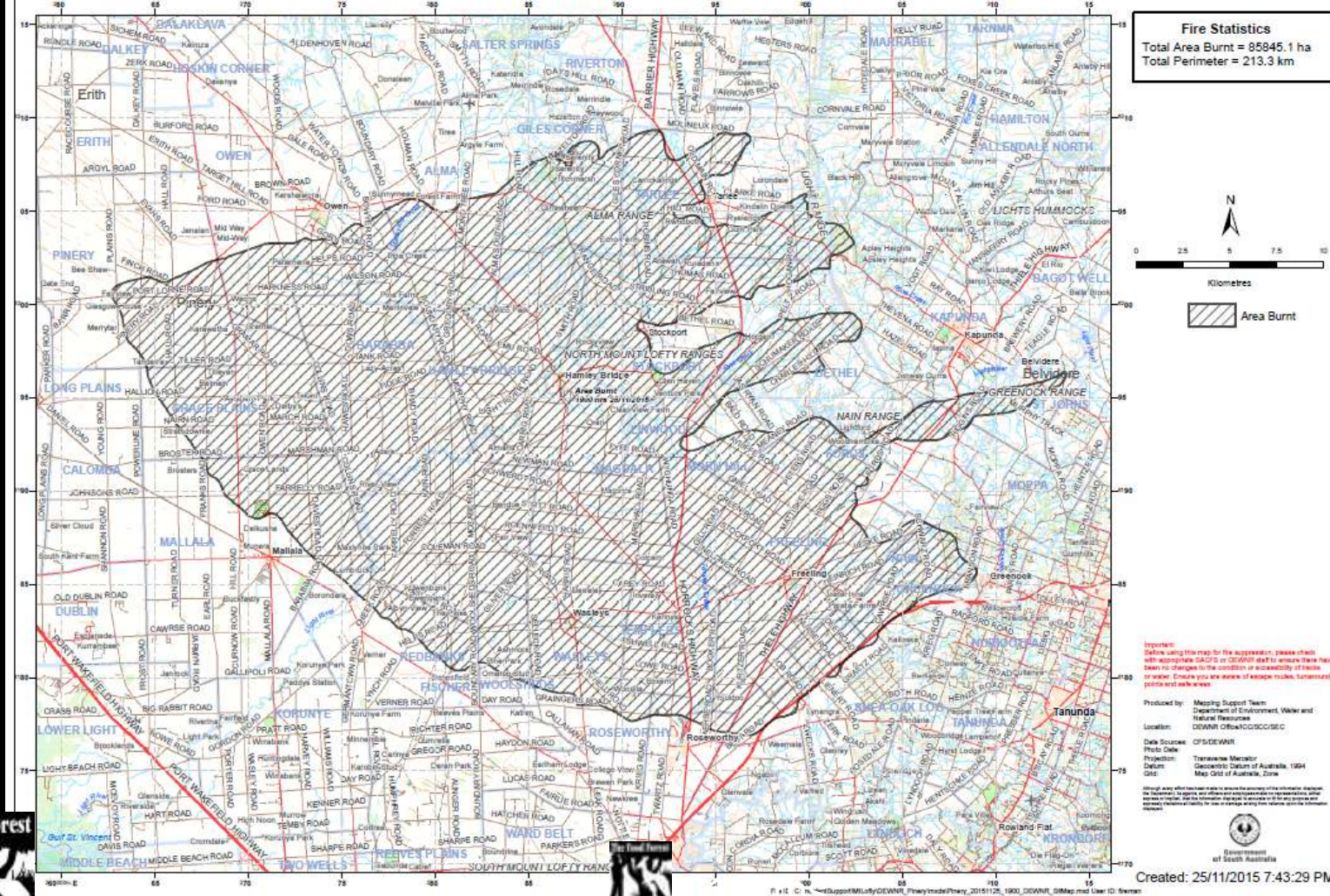


25 Nov 2015

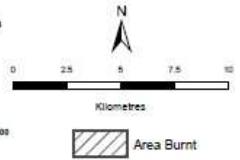
Weather forecast
34 degrees: strong winds. varying directions
Fire extreme

Statistics
85,845Ha burnt in 7hrs
213km perimeter
Fires moved at ~80km /hr

Pinery Fire - Situation Map - 1900 hrs 25/11/2015



Fire Statistics
Total Area Burnt = 85845.1 ha
Total Perimeter = 213.3 km



Area Burnt

Important:
Before using this map for the suppression, please check with appropriate SACD or DEC/DNR staff to ensure there have been no changes to the condition or availability of basins or water. Ensure you are aware of escape routes, structural points and safe areas.

Produced by Mapping Support Team
Department of Environment, Water and Natural Resources
Location: DEWNR Ofc@DSCC/SEC
Date Source: CFS/DEWNR
Photo Date: 25/11/2015
Projection: Transverse Mercator
Datum: Geocentric Datum of Australia, 1984
GSD: Map Of Australia, Zone 50E
Created: 25/11/2015 7:43:29 PM





Flood entry points

revegetation/forestry
vegetables

recycling
olive grove
food processing
tank
studio

walnuts

windbreak

Gawler Bypass

hios

wattle

canary island pines

experimental

carobs

mistachios

er Drive



Flood 2005 Nov 8

Vegie garden 10.50am



Washing away, 12 noon



Flood 2005-View from the house 3pm





5 Nov 2005



8 Nov 2005



Floodable forest
planted in 1997
after 1992 floods

...which flooded 11
years later in 2005

Species selection

Pruning

Note: No buildings!



Erosion- reading the landscape



Debris



Silt deposit



Logs moving



Caught...



Damage



View to the hills we want to retain from the house



Dust



10 seconds later....



Road Noise



Sectors is about:
'Stocktake' and documenting

→ energy through

(Observe and interact)



Zone planning



Placing elements according to:

- how much we use them
- how often we need to maintain or harvest them
- how much energy and water they use.

Zone Zero

- The house
- the way the house is arranged, cooking is done, finances are managed and dreams realised
- the arrangement of the family and the way it lives
- the space in your mind where creative design occurs

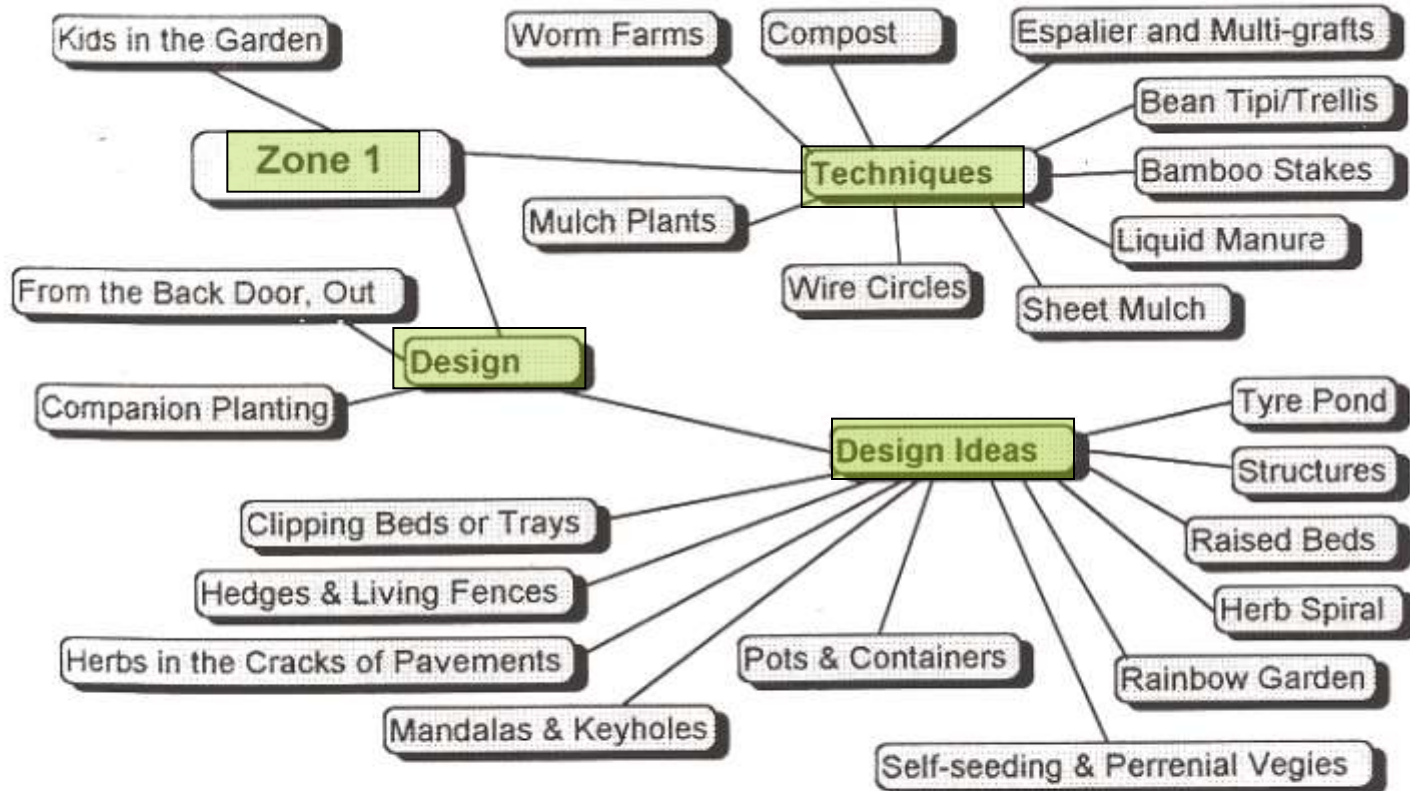


Zone 1

- Is closest to the house.
- It is most intensively-used area and typically contains annual gardens, herbs, workshop, glasshouse, storage areas, a few small frequently used trees eg a lemon tree.
- The area uses much water, mulch and manure and is highly productive.
- No animals



Zone 1



from you can have your permaculture and eat it too.

From the back door



Zone 2

- A little further out from the house
- Is also intensively managed with fruit trees, berries and herbs in multi-layered food forests.
- Drip irrigation is used and poultry are integrated into the system.
- It is an area requiring regular management and uses significant amounts of mulch, manure and water.





Zone 2- Fruit trees



Zone Three

- low-maintenance orchards, dryland field crops and pastures,
- larger animals: geese, sheep and wallabies for wool, meat, down, milk etc.
- Minimal irrigation may be used.
- Windbreaks and hardy tree crop plantings for wind speed control .
- Spot manuring/mulching



Hardier animal- hardier orchards



...but still needs management!



Zone Four

- minimally managed
- dryland and only small amounts of trace elements and manure are used, usually to establish plantings.
- It has forest and agro-forest for timber and firewood and miscellaneous production (eg resins, wattle seed), pastures and hardy animals



Coppiced woodlot for timber



10T Fire wood stacked & drying for winter use



WEED CONTROL

Soft footed animals:
Less soil compaction



Bettongs eat soursob bulbs & revegetate



Wallabies are good weed grazers too

Zone Five

- unmanaged and contains much of the indigenous flora and fauna.
- It is a haven for native species and a biodiverse balance-tank
- a place to get close to nature, to hunt or possibly...to be hunted!



Zone 5

Insert : different shot

Kookaburras

Lizards

Snakes

Kingfishers

spiders



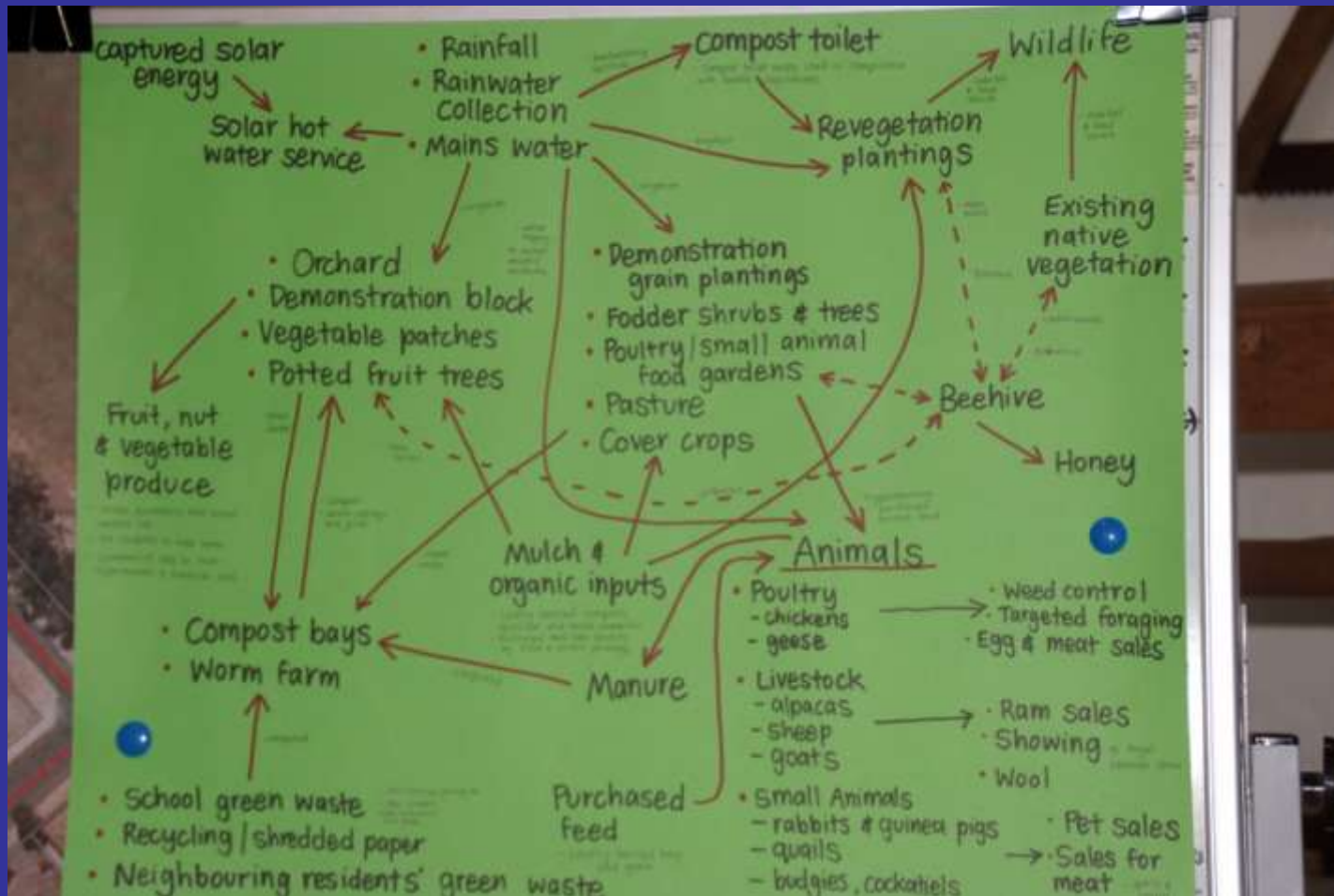
Zones:

Placement of elements by us

→ logic & energy flow

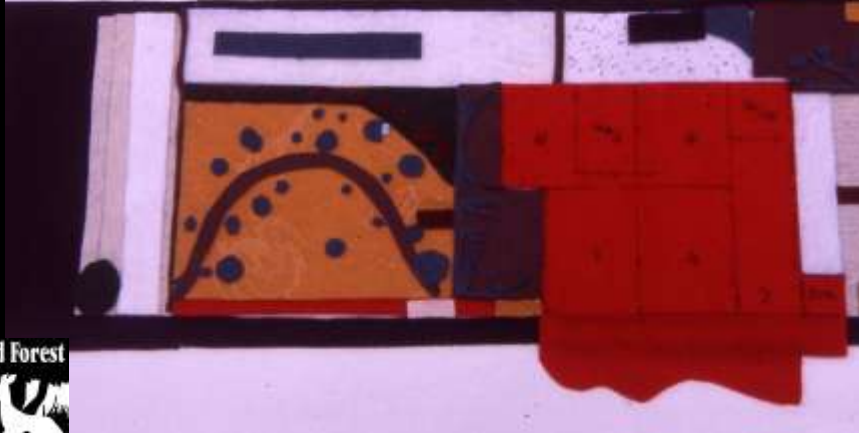


Inter-relationships inputs-outputs









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