

# 2011 Annual Meeting of the Farm Woodland Forum @ Wakelyns Agroforestry



***Eco-functional intensification  
of orchards: forest gardens  
and the permaculture design  
approach***

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Permaculture Association  
[www.permaculture.org.uk](http://www.permaculture.org.uk)



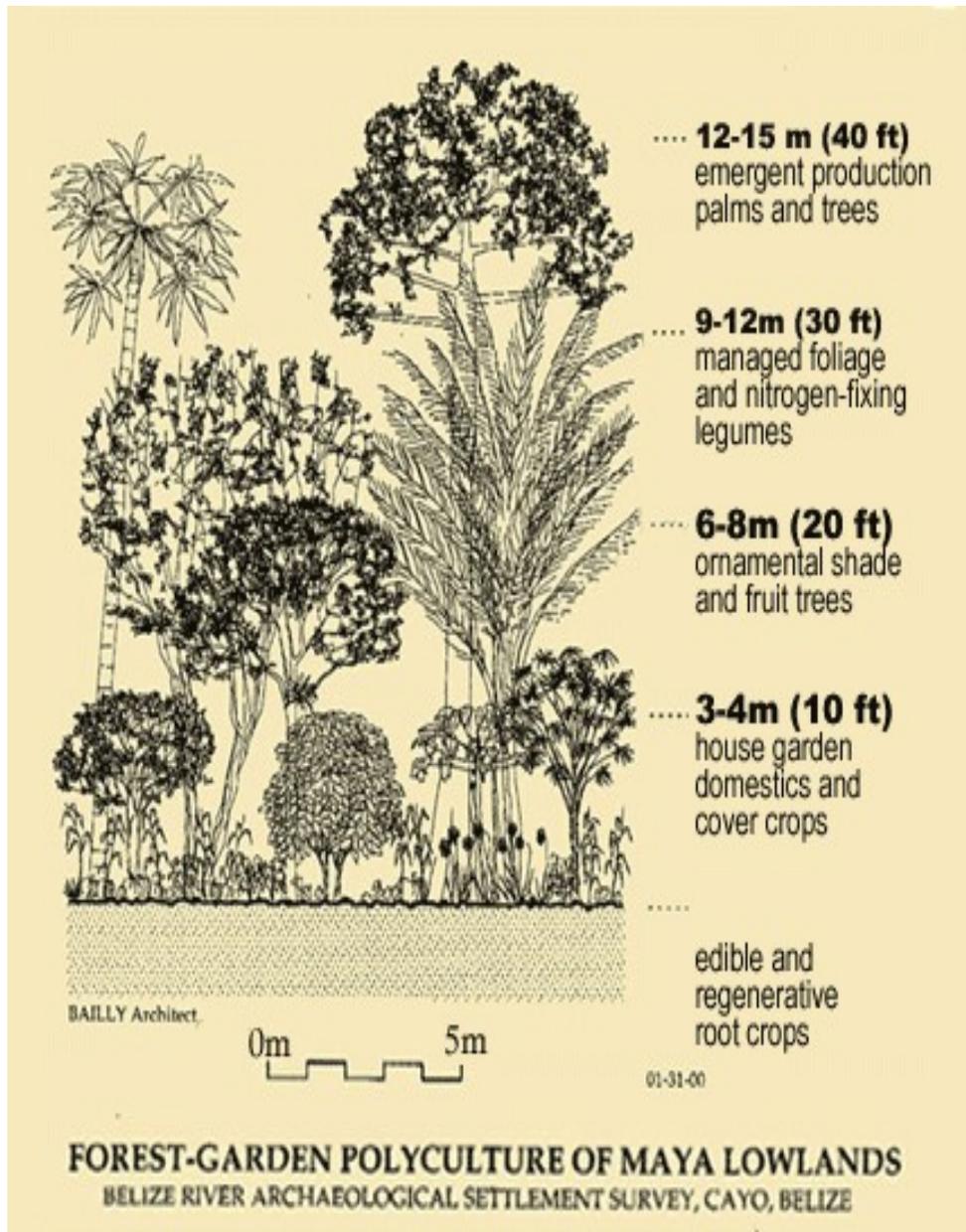
# Permaculture Association



**change your world**  
*with permaculture*

- Education and research charity.
- Membership scheme
- LAND project
- Research Advisory Board
- Diploma in Applied Permaculture Design
- International hub
- New networks in Scotland and Wales
- Information, advice, website

# Permaculture – ecological design

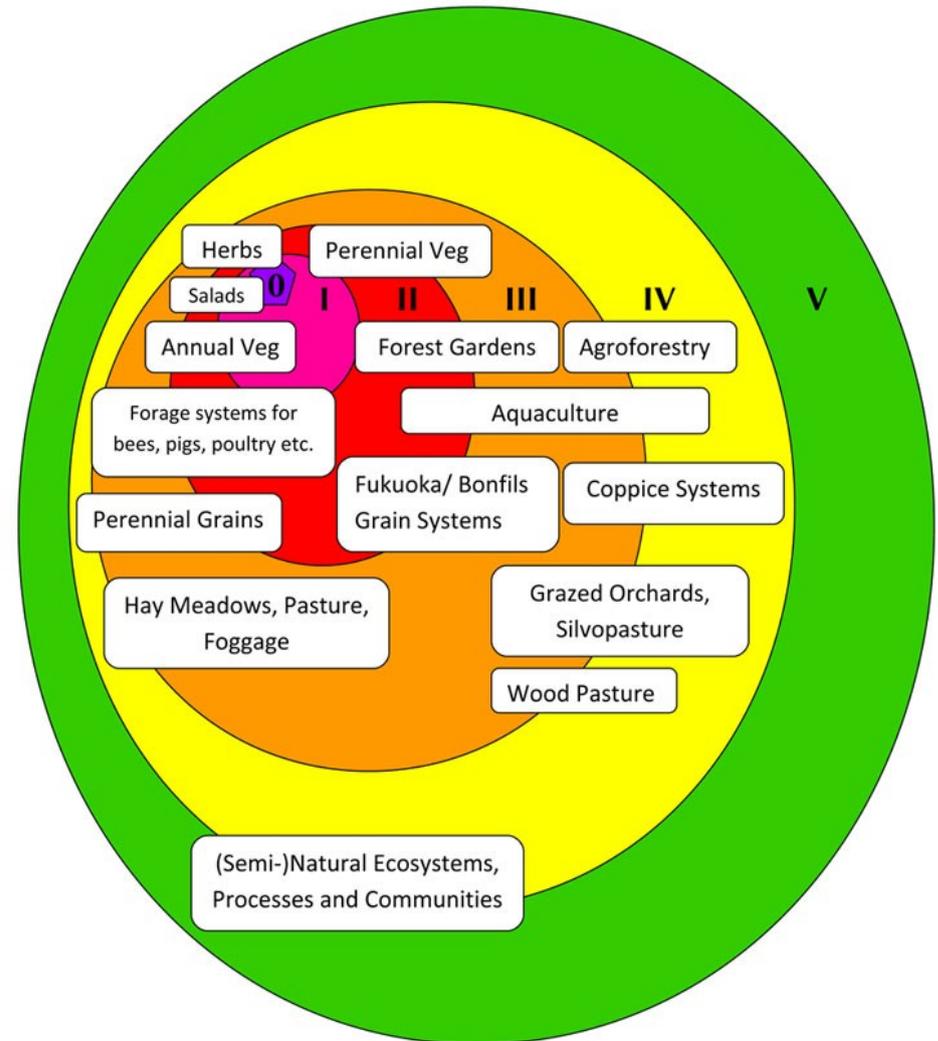


- From **Permanent-agriculture**
- Mollison and Holmgren influenced by ecologists, especially Howard Odum.
- Draws on traditional practices and modern science & technology.
- A design approach to creating agriculturally productive sustainable settlements.
- Permaculture seeks to make “eco-thinking” accessible to widest audience.

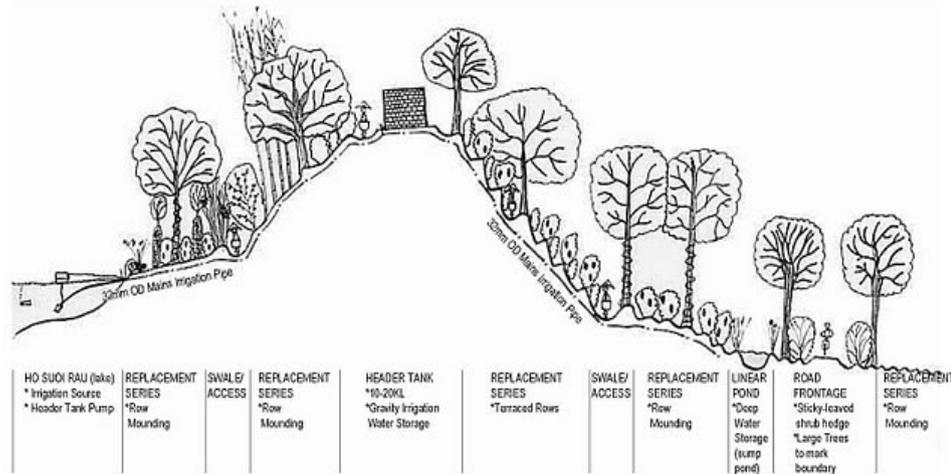
# Settlement as farm

- Permaculture seeks to design highly productive “edible landscapes.”
- Self-reliance and productivity starts at the back door (and on the roof!).
- Uses a system of 'zoning' to pattern different forms of production.
- Most intensive management within and near the home/settlement.
- Trees have a role in every zone.
- Forest gardens are a zone 2 element.
- Re-imagine farms as sophisticated polycultures within wild(er) wooded landscape
- We favour perennial polycultures.

## Polyculture practices & zones

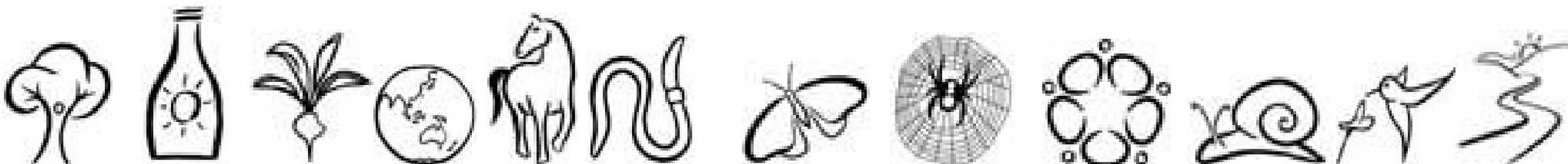


# Principles and design criteria



permaculture.biz SUSTAINABLE PROJECTS DESIGN PROJECT DEVELOPMENT EDUCATION ALL YOUR LAND NEEDS	client	EFFEM Inc.	date	4/14/4	priority	Mr. Nguyen Hung Linh - Suoi Rao Communa - Chau Duc Distriet		
	consultant	D.J.D	site Soui Rao Site Profile Concept Sketch			contours na projection nil scale rds page 1/1 A4 landscape		
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- Principles guide overall thinking.
- Combine ecological insights, systems thinking, and design directives.
- Ecosystem structure and process as template for cultivated ecosystems.
- Design process seeks to maximise beneficial relationships between elements.
- The design emphasis is on creating an ecosystem with maximum water, soil and plant resources.
- Species are chosen for range of functions.
- Observation helps shape appropriate system evolution.

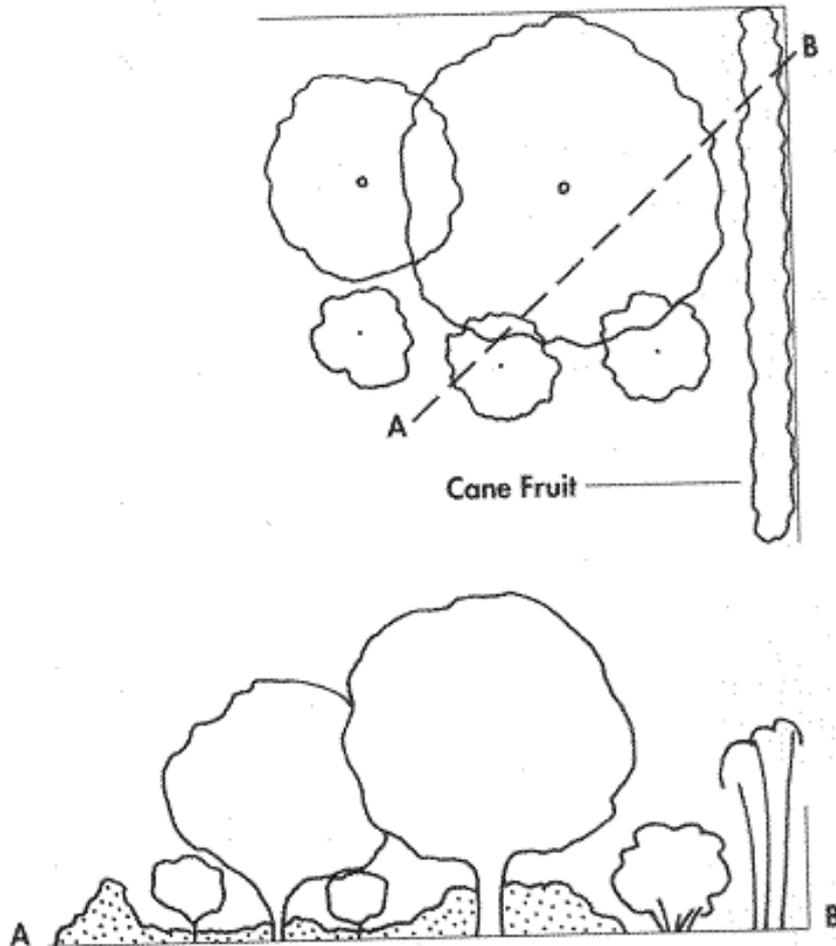


# Forest garden: description



“A forest garden is a designed agronomic system based on trees, shrubs and perennial plants. These are mixed in such a way as to mimic the structure of a natural forest - the most stable and sustainable type of ecosystem in a temperate climate.” Martin Crawford

# Forest gardens: background



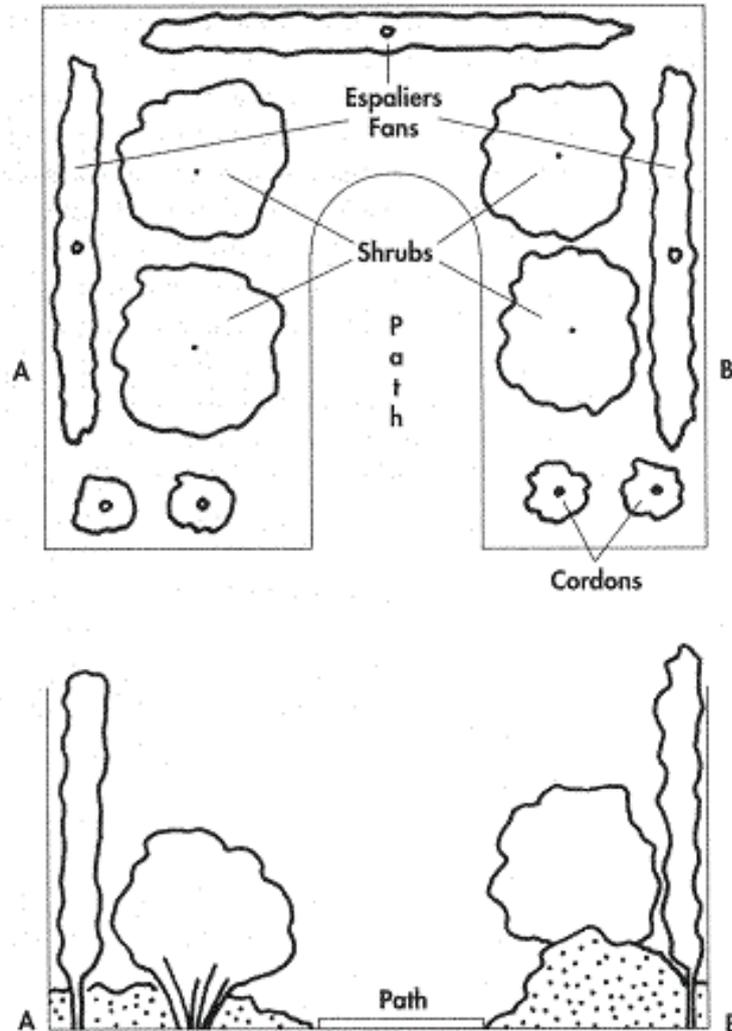
- Long tradition in the tropics.
- In cool temperate, more recent, with Robert Hart as pioneer.
- Martin Crawford (ART) is now the leading UK innovator.
- Focus is usually on home production rather than commercial.
- However practice can inform commercial scale.
- Forest Gardens starting to be used in commercial settings.

# Forest garden: aims



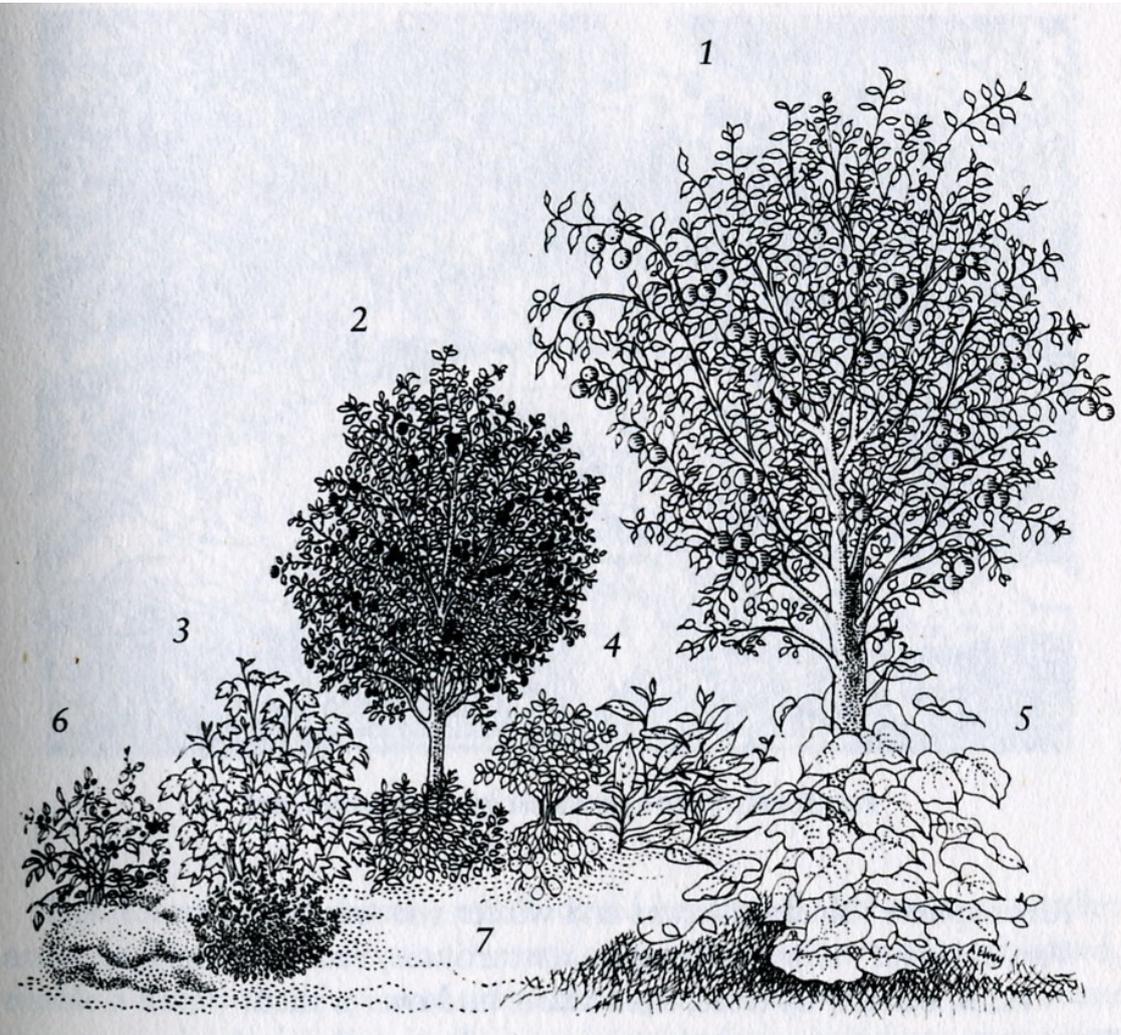
- To be biologically sustainable
- To cope with disturbances such as climate change.
- To be productive, yielding many different products.
- To require low maintenance.

# Forest garden: physical yields



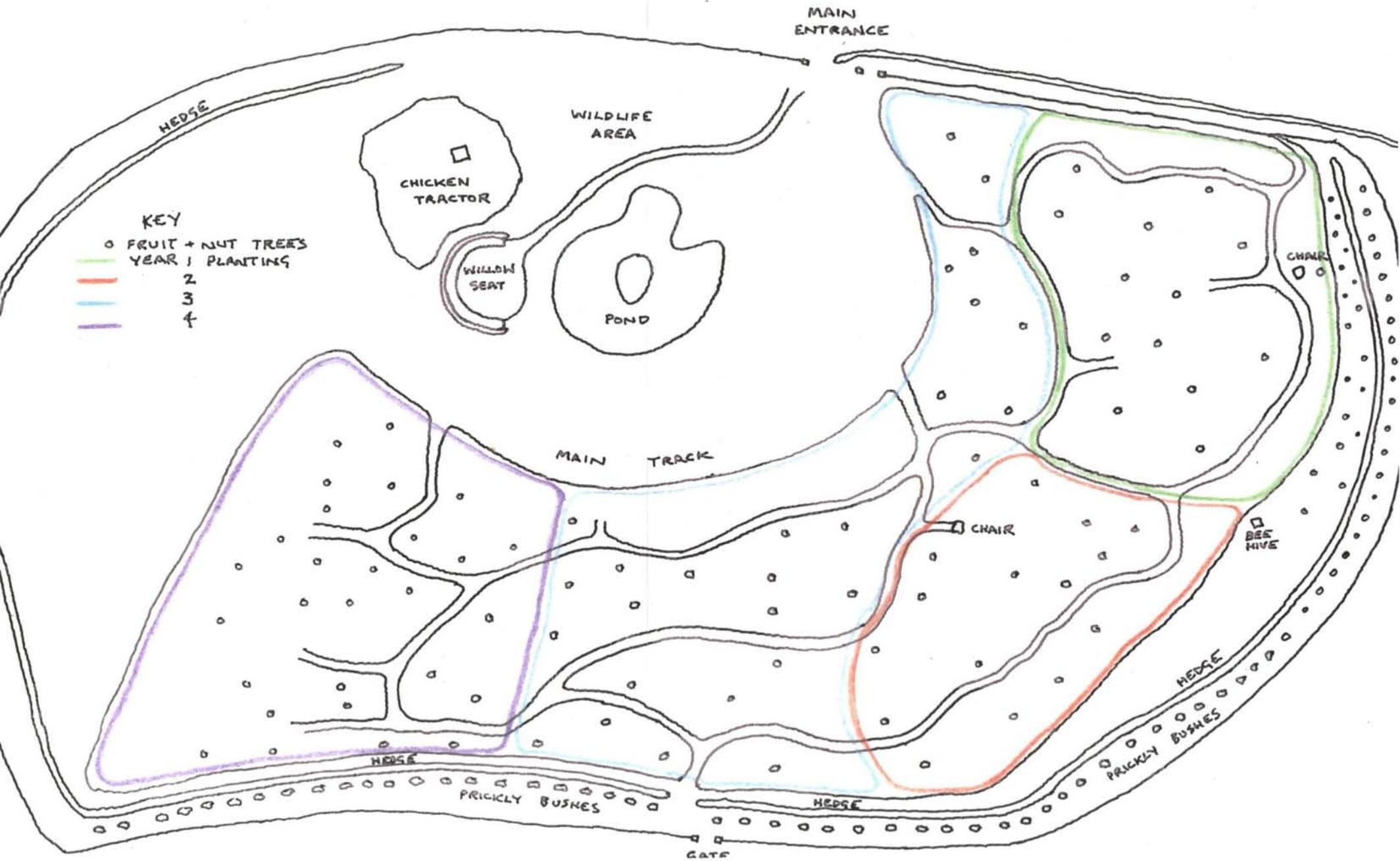
- fruits
- nuts
- edible leaves
- spices
- medicinal plants
- poles
- fibres for tying
- basketry materials
- honey
- fuelwood
- fodder
- mulches
- game
- mushrooms
- sap products

# Forest gardens: key features



- They mimic a young forest in structure.
- Up to seven layers: root, groundcover, herbs, shrub, small tree, canopy tree, climbers.
- Tree density is optimised.
- Inter-species interactions are maximised.
- Aim for permanently covered soil.
- Plants chosen as crop, mulch, nitrogen fixer, insect attractor, aromatics, dynamic accumulators, etc.
- Fertility is maintained by the plants.
- Forest Gardens tend to be very diverse.
- Design to maximise light penetration is key, edges used for light loving plants.
- Intensity of cropping means that they tend to be between 0.1 and 1 hectare in size.

# Example: Old Slenningford Farm





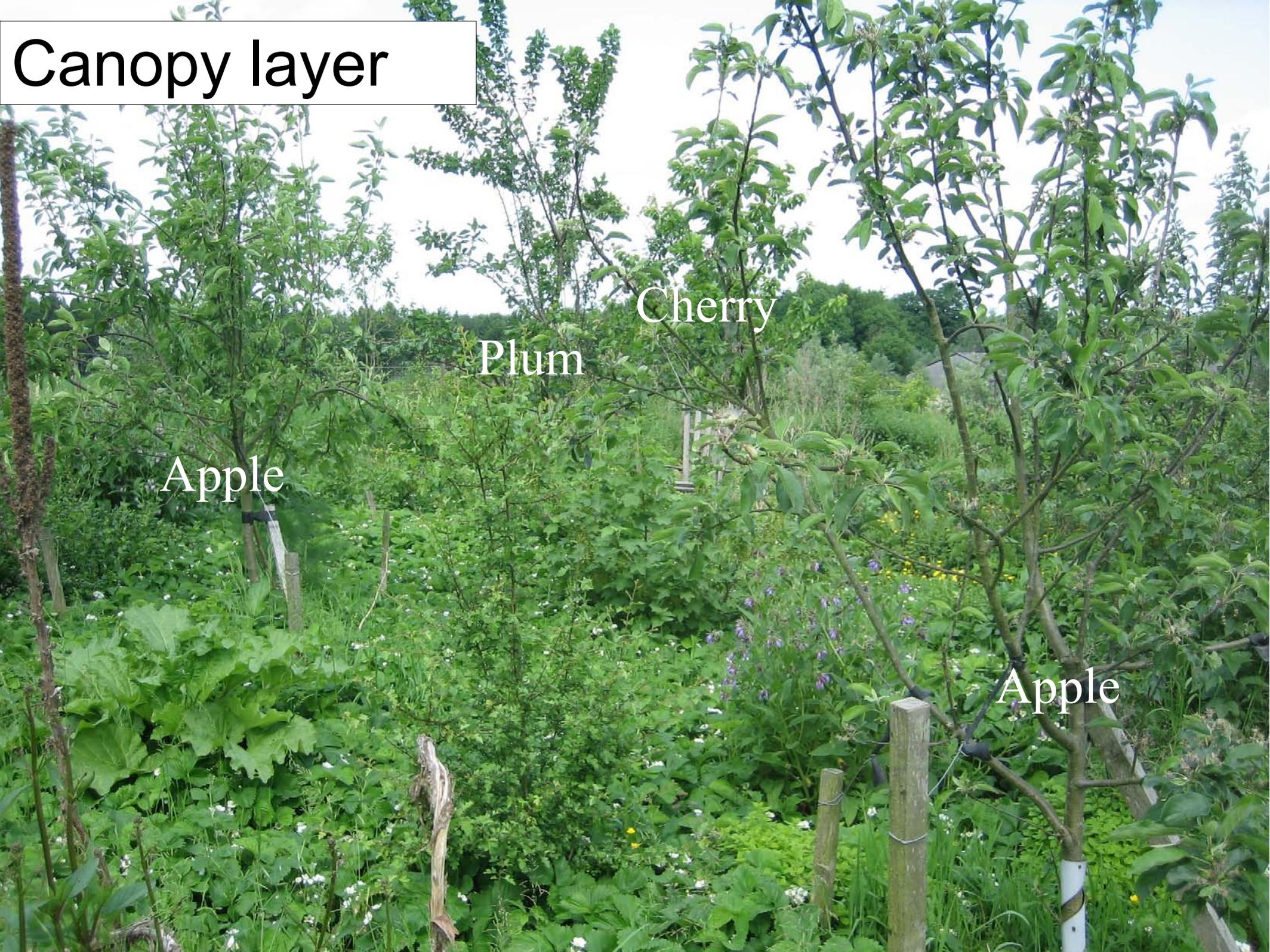
# Canopy layer

Apple

Plum

Cherry

Apple



Lower trees

Hawthorn



# Shrubs and bushes

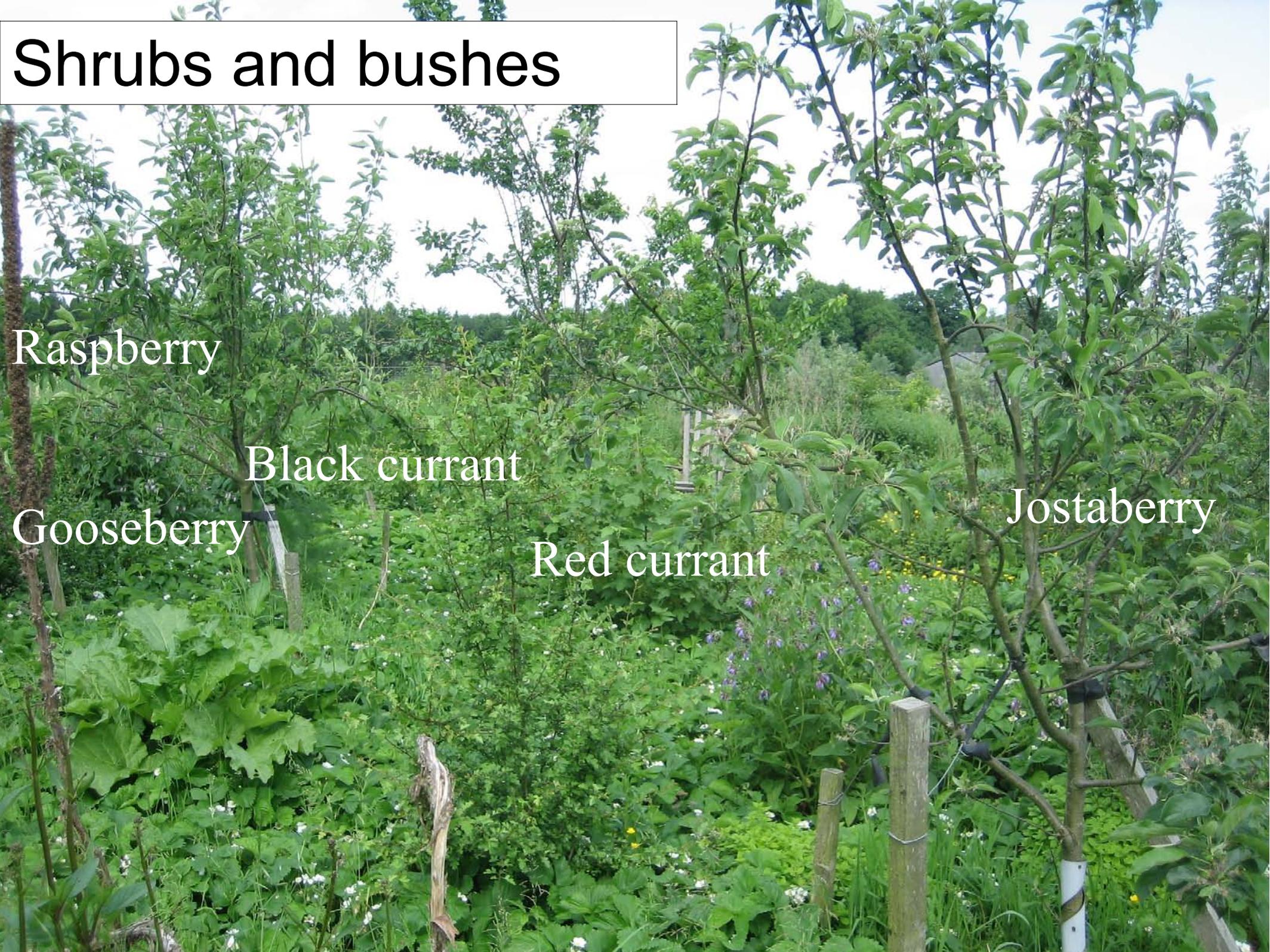
Raspberry

Black currant

Gooseberry

Red currant

Jostaberry



# Herbaceous

Great Mullein

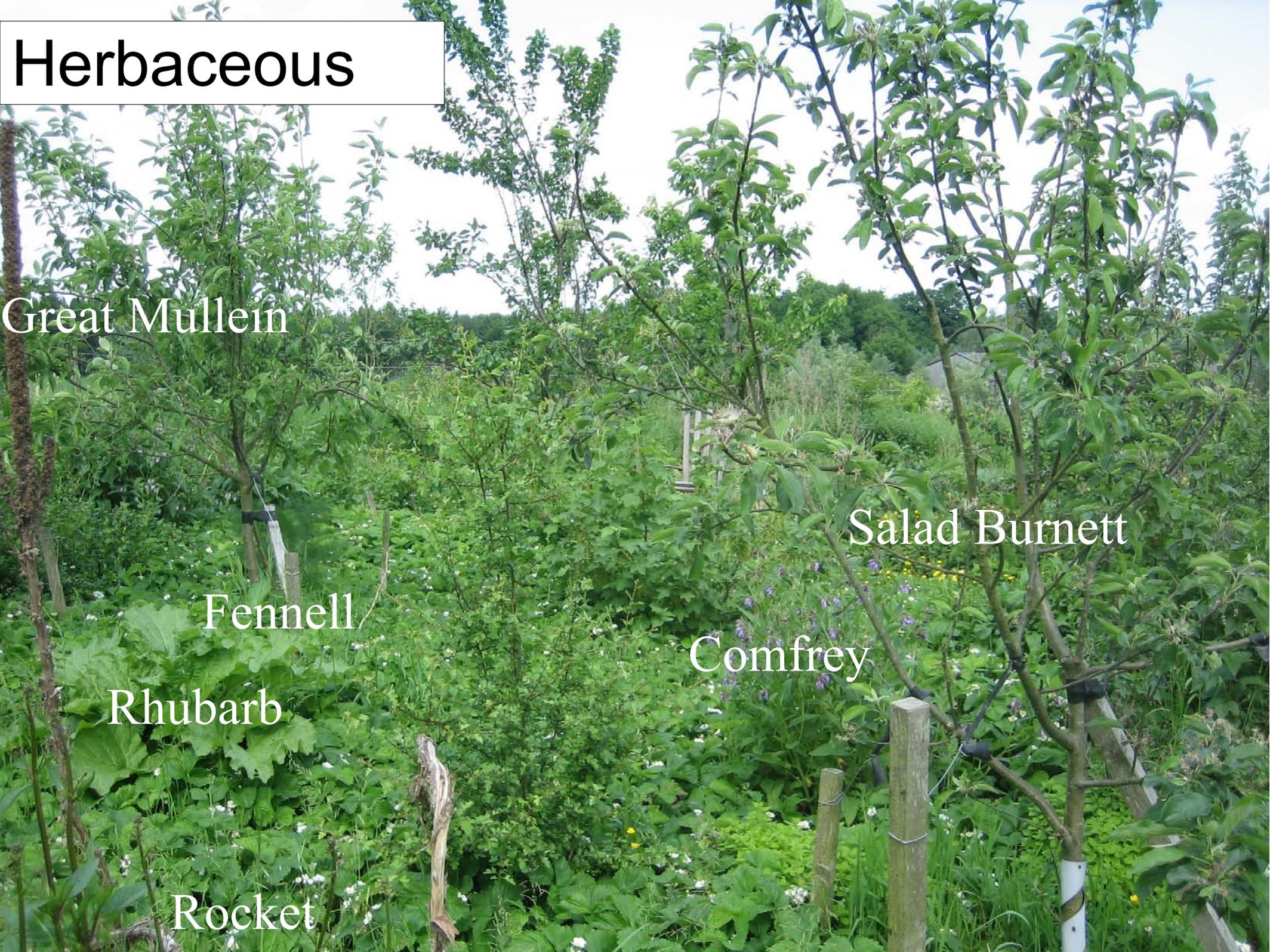
Fennel

Rhubarb

Rocket

Salad Burnett

Comfrey

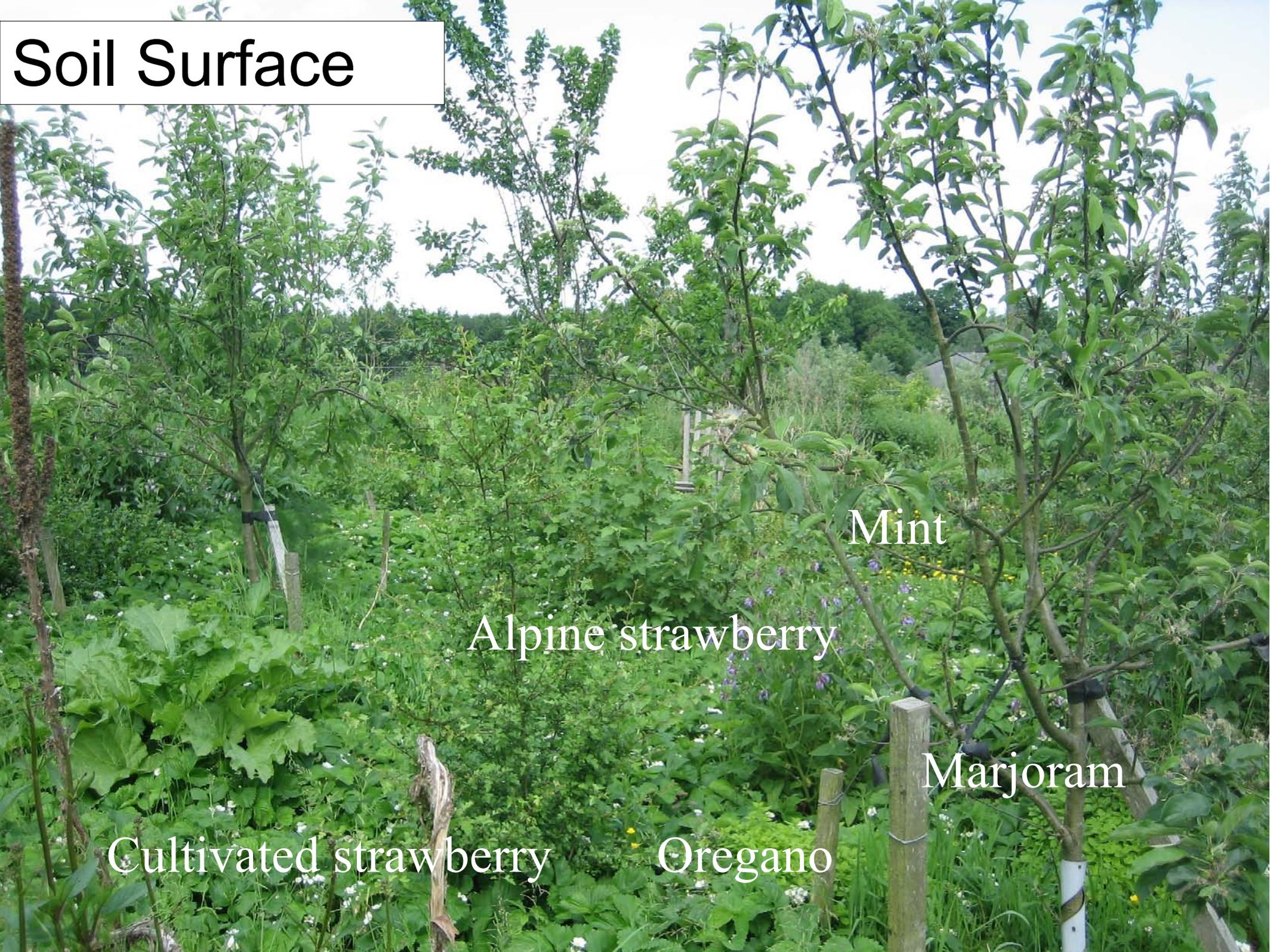


# Climbers



Nasturtium

# Soil Surface



Cultivated strawberry

Alpine strawberry

Oregano

Marjoram

Mint

# Bulbs and tubers

Jerusalem Artichoke

Wild Garlic





10m x 5m

24 varieties



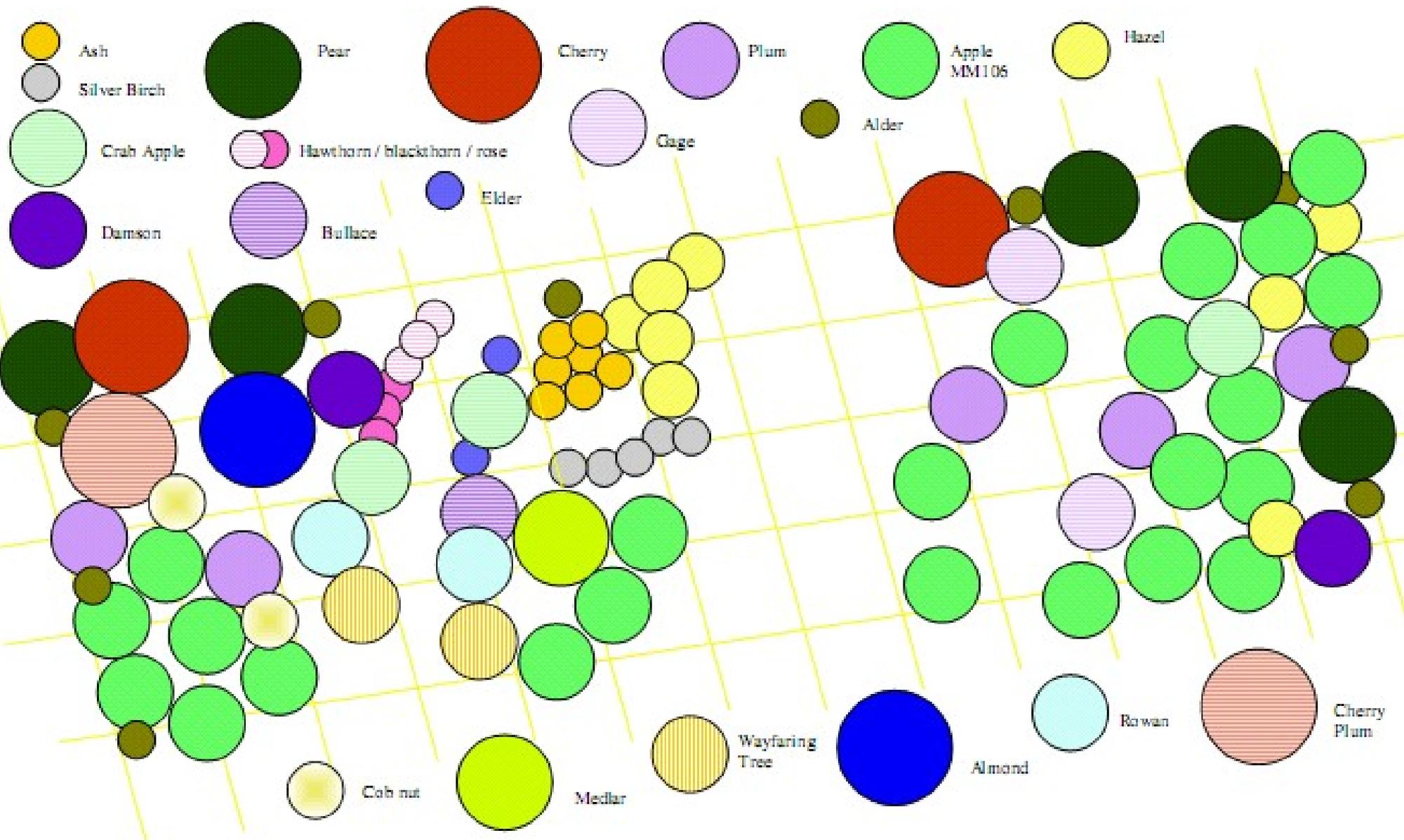
# Small example: my back garden



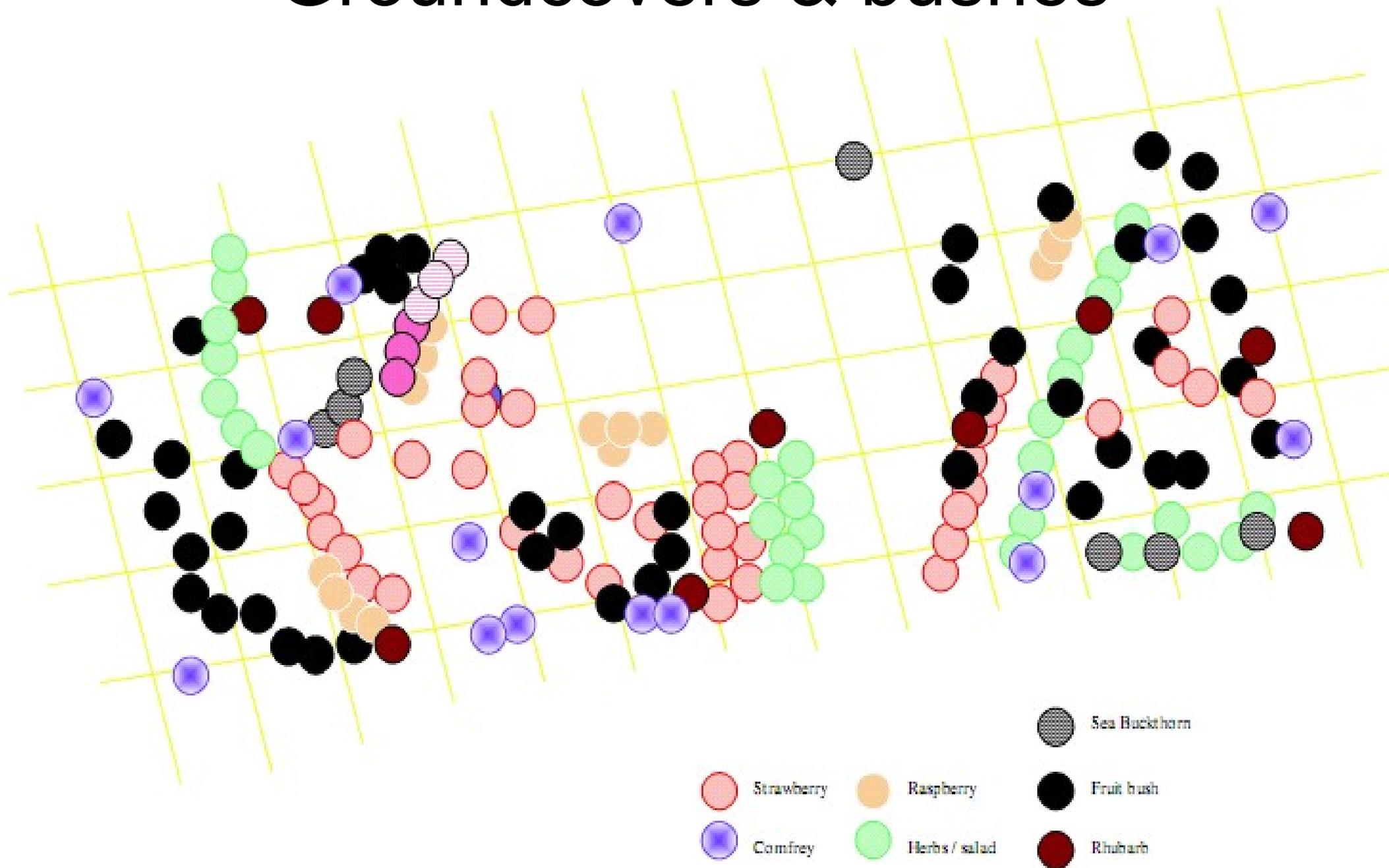
- Tiny backyard (6x8m)
- Plum and apple trees
- Redcurrants and jostaberries
- Perennial kale, lovage
- Sorrels, mints, lemon balm, salad burnett
- Asparagus
- Strawberries and sorrels, nepalese berries
- Thornless blackberries



# Tree plan

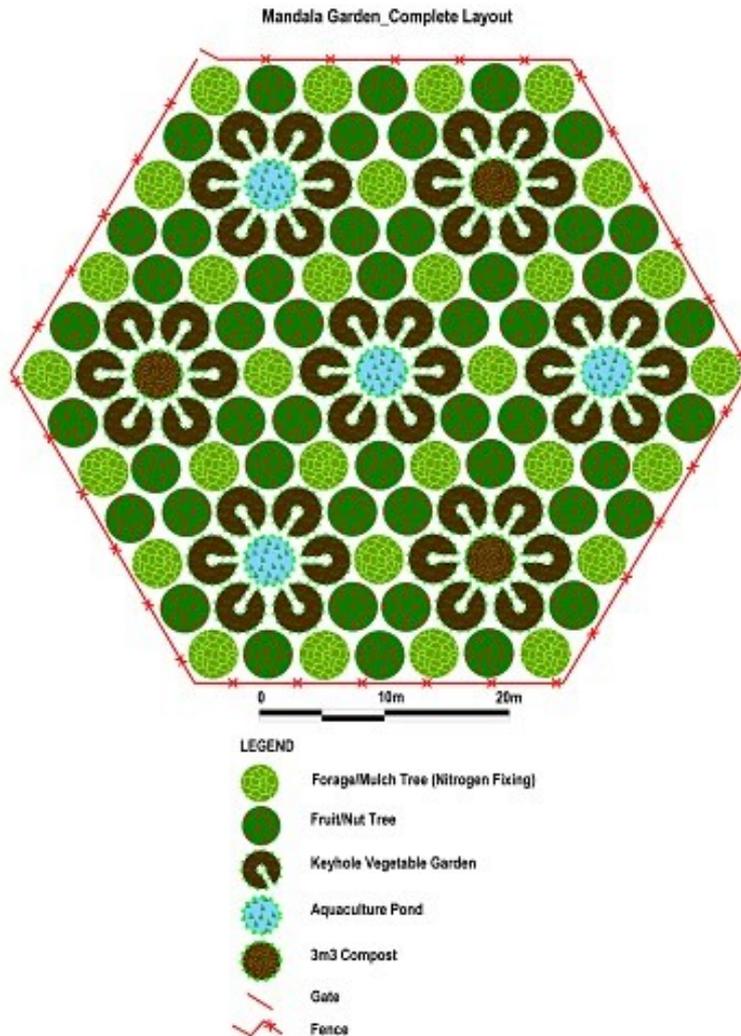


# Groundcovers & bushes





# Forest garden: trials



Modified Layout from 'The Permaculture Home Garden', Linda Woodrow, 1996, Penguin Books, Australia

- Started in the winter of 2010/11. Topsy turvy!
- Process uncovered 70 forest gardens planned for 2011 – approx. 3-400 in UK in total?
- 12 trial plots all planted in same season (to some extent)
- Collected baseline data (soil, wildlife, site survey, planting plan/species list, budget.)
- Will record yields in years 3,5 and 10
- Developing a working group and research qs!
- Analysed perceived benefits – over 30 given
- Aim to understand roles and yields of forest gardens, and test the benefits.
- Yield is understood in its widest sense: physical harvest, biodiversity, social and educational, etc
- Looking for research links and partners to extend the work. We need your expertise!
- Resources (books, links, courses) at:  
**[www.permaculture.org.uk/forestgardens](http://www.permaculture.org.uk/forestgardens)**

# Thanks and any questions?



- If you want to discuss forest gardens, our research trials or practical steps after the conference, please contact me via:
- [andyg@permaculture.org.uk](mailto:andyg@permaculture.org.uk)

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