

Retrofitting Canberra Gardens for climate change

Modified presentation - talk presented at
Xeriscape Garden March 2007

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Brittle Gum Design

Recommended Reading

- Mollison, Bill (1988) *Permaculture: a designers' manual*. Tagari Publications: NSW.
- *Sanctuary* magazine produced by Australian Technology Association www.ata.org.au
- Sorvig & Thompson (2000) *Sustainable landscape construction: a guide to green building outdoors*. Island Press.
- Sullivan, Chip (2002) *Garden and climate*. McGraw Hill: New York.
- Wrigley, Derek (2004) *Making your home sustainable* www.derekwrigleydesign.id.au
- www.aila.org.au/canberragarden

Changes to Canberra's climate

Temperature rise predictions

- By 2030: -0.4 - 2°C
- By 2070: 1 - 6 °C

Source: CSIRO

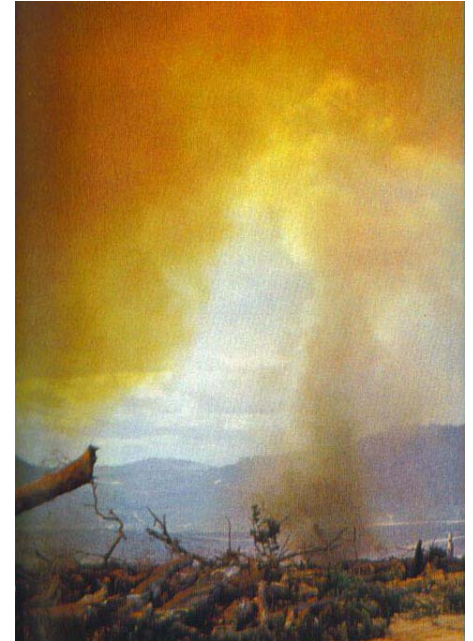
Recent data reported Canberra Times – rainfall reduced by 30% (to less than 450mm per annum) over next 20 years.



Results of hail storm, Civic.
February 2007.

Increased temperatures in South Eastern Australia may mean

- Less rainfall
- Increased evaporation
- Extreme weather events
 - Storms
 - Heatwaves
 - Droughts
 - Fires



Basic Principle



Favour living flexible materials ie plants over engineered or manufactured products.

From Sorvig & Thompson (2000)
Sustainable landscape construction

Grassless front garden, Hog garden.

Design Jennie Curtis

Responses - heat

1. Increase SHADE
2. Improve INSULATION
3. Create COOL ZONE or MINI-OASIS
4. Reduce HARD SURFACES
5. Use water resources efficiently



Biowall – Eco-living exhibition, North Watson. Design Strine Design. Landscape Architect Fay Hug.

1. INCREASE SHADE - Plant drought & frost hardy trees

- Plant trees to give shade in Summer on N, NW and W aspects of house
- Aim to shade walls followed by roof
- Plant shrubs or climbers to shade walls



Lagerstroemia (Crepe Myrtle) – provides multiple benefits to this medium sized development in Braddon

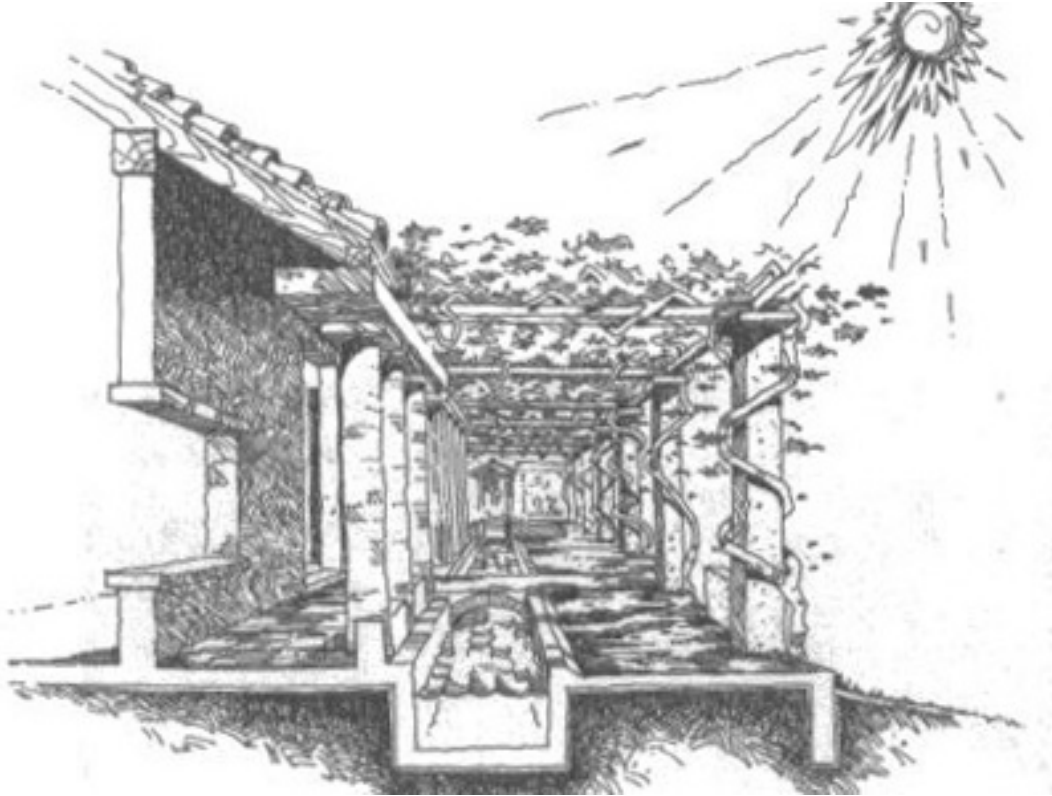
2. IMPROVE INSULATION

- Insulate house walls from hot summer sun (preferably with evergreens)



Burgess Garden, Watson.

3. CREATE COOL ZONE



From Sullivan, Chip
(2002) *Garden and
climate*

Lesson from history - Vine clad pergola & water channel, Pompeii – act as passive cooling device

CREATE COOL ZONE

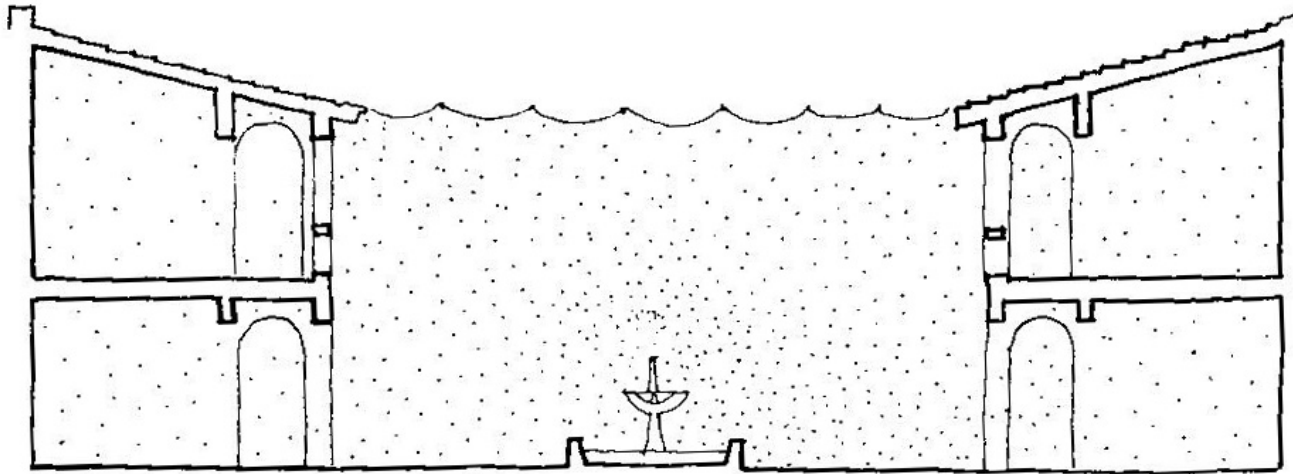


Image from
Reynolds,
John (2002)
Courtyards

Courtyard for hot climate

- Closely spaced multi-storey buildings
- Manual shading device eg shade sail or pergola & vine
- Use of water for evaporative cooling
- Use of permeable ground treatment

4. REDUCE HARD SURFACES

- Only pave where you SIT, STAND & WALK.
- Outdoor terrace – to seat 6 people – 3.6m x 3.6m.



5. USE WATER EFFICIENTLY

- Reduce plants with high water needs
- Improve soils with organic material
- Mulch well
- Install drip irrigation
- Use grey water

Selection of drought hardy plants displayed at Pialligo Plant Farm



USE WATER EFFICIENTLY

- Harvest water – swales, retention/detention ponds, rain gardens
- Wide range of benefits - protects waterways, habitat creation

Pond in Lawrence garden – 3 frog species, wide range of invertebrates



Responses - wind



Xeriscape
Garden.

- Plant windbreaks
- Use a range of fast (Acacia), medium and slow growing species.
- Choose plants with more than one function eg screening, habitat, aesthetic, windbreak, food producing

What else can I do in my
garden?

SUPPORT LOCAL FOOD PRODUCTION

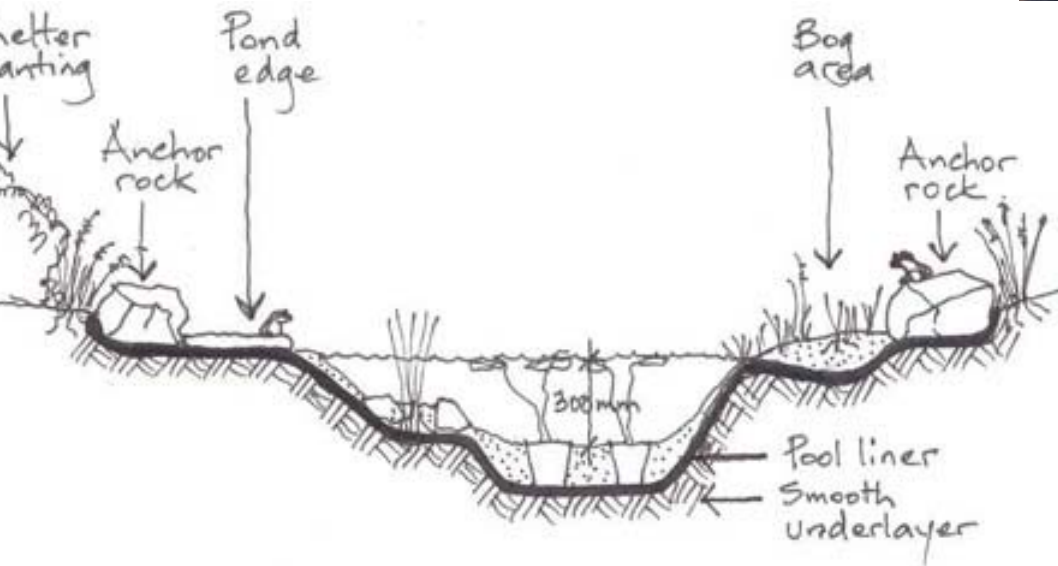
- Food miles – how far has your food travelled?
- Support slow food
- How much space?
 - Family of 3 (4.2 x 10 m) = swimming pool will produce around 500kg veges using high yielding heirloom varieties
 - Single person household (1x10)



Above:COGS, Plot at Dickson, Majura Community Centre.

PROVIDE HABITAT FOR SPECIES AT RISK

Bog areas in alpine areas at risk.



Carex gaudichaudiana near Hedley Tarn. Image from Costin (2000) *Kosciuszko Alpine Flora* p 67

Pond & bog diagram. Image Dianne Firth.

Conclusion

- PLANT TREES
- IMPROVE WATER EFFICIENCY
- GO ORGANIC



Happy Gardening!