

Fighting the Flimflam: Urban Tree Canopy Targets and the Lies of the Low-Maintenance Landscape

BCRPA Parks Professional Pathways
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UBC Botanical Garden



"Let's Plant More
Trees"



Celtis occidentalis

1. Is the site appropriate for planting?
2. Are the plants chosen/available appropriate to the site?
3. Will there be

Ecosystem Services

- increase biodiversity
- provide refuge, habitat and food for wildlife
- display autumn colour
- make shade
- create humidity
- purify air
- produce oxygen
- sequester carbon
- reduce erosion (slow rainfall and hold soil in place)
- make attractive flowers, fruits, leaves, branches or bark

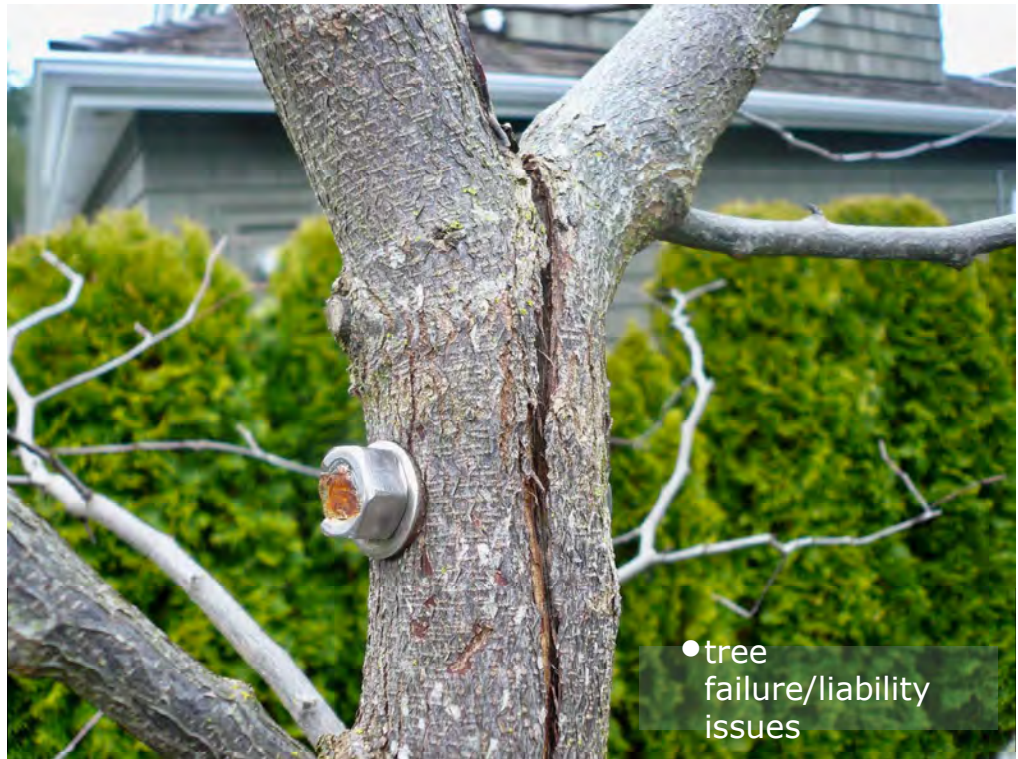
Ecosystem Services


- provide connections with human history and culture
- provide psychological and medicinal benefits
- have intrinsic value (natural wonders)
- provide shelter
- improve water infiltrability in soil
- improve soil organic matter with leaf litter
- increase soil biodiversity
- enhance summer cooling (reduce the heat island effect) (trees)
- reduce wind
- provide screening

Socio-Cultural Services

- improve landscape aesthetic
- produce flowers/fruits
- increase property values
- engender civic pride







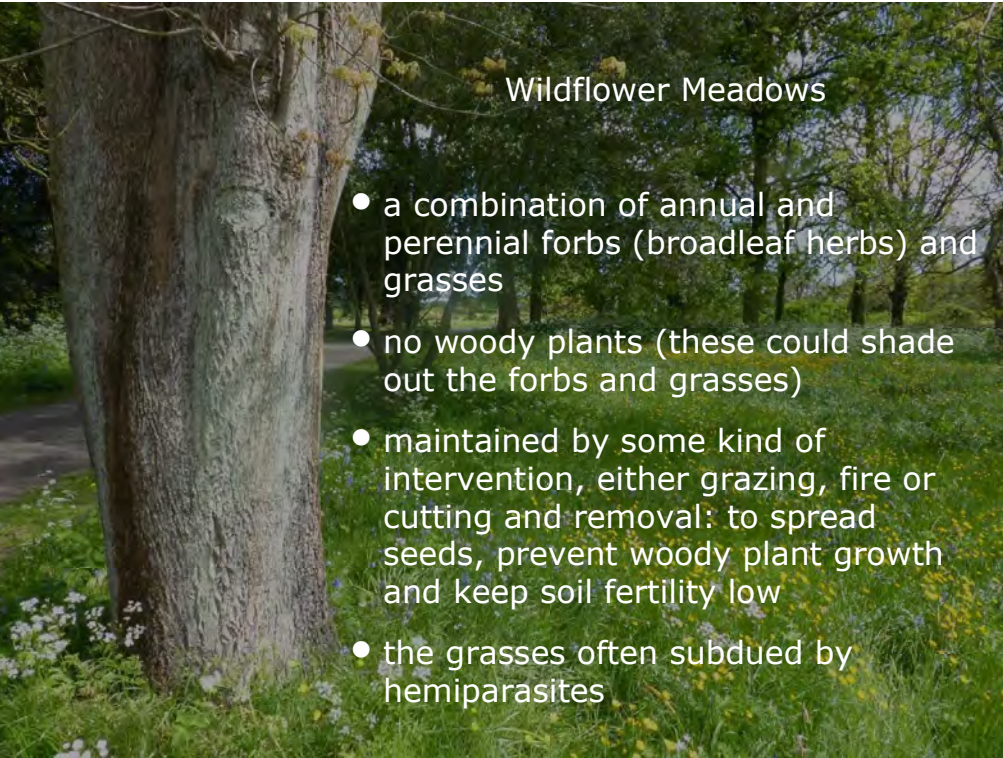
What do People
Want?

Herbaceous Borders!



Wildflower
Meadows!

photo: David Tarrant



Wildflower Meadows

- a combination of annual and perennial forbs (broadleaf herbs) and grasses
- no woody plants (these could shade out the forbs and grasses)
- maintained by some kind of intervention, either grazing, fire or cutting and removal: to spread seeds, prevent woody plant growth and keep soil fertility low
- the grasses often subdued by hemiparasites



Castilleja laevisecta



wildflower meadow



wildflower meadow



Garry Oak Meadow
Garden,
UBC Botanical Garden



Garry Oak Meadow
Garden,
UBC Botanical Garden





Arctostaphylos uva-ursi
easy ...



Arctostaphylos columbiana
not so easy ...



Dicentra formosa
summer and winter
deciduous



Vaccinium ovatum
'Thunderbird'
evergreen and tasty



Acer circinatum



Rubus bifrons



Rain Gardens

will it rain?



Rain Gardens

winter rain!



Rain Gardens

Cornus sericea
Matteuccia
struthiopteris
works in the shade



Mulch

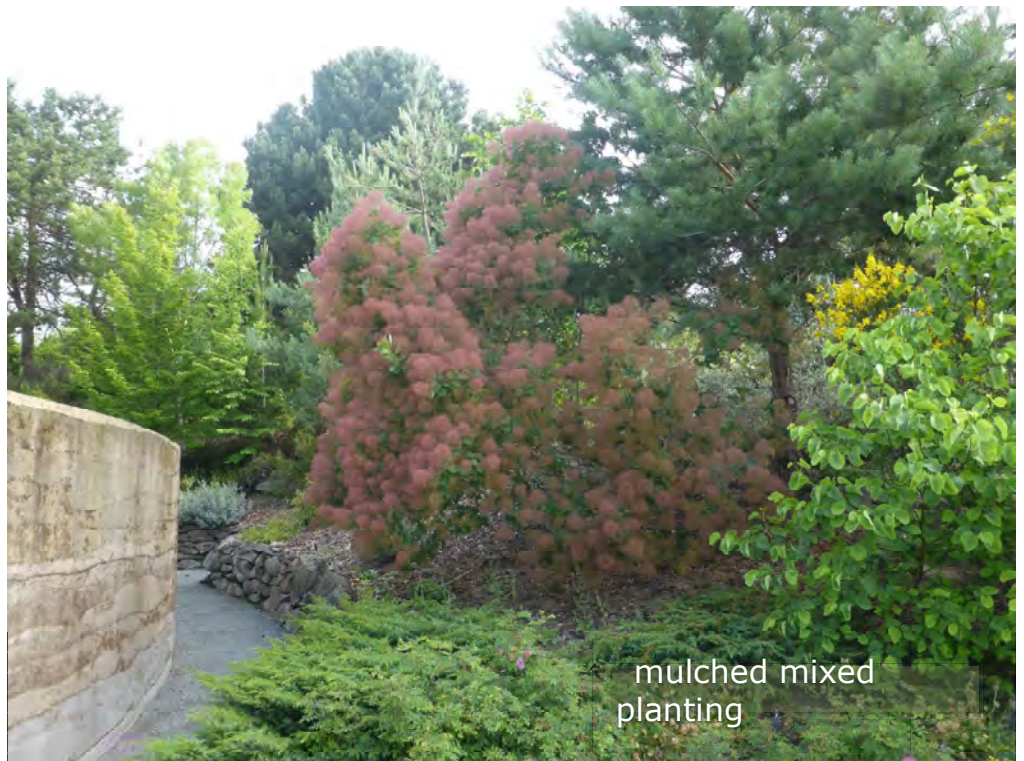
mulch everything



mulch circle



mulched mixed planting





Cercidiphyllum japonicum



Thuja occidentalis
'Smaragd'
Thujas need water!



Fraxinus americana
barely



Cercidiphyllum japonicum

Causes of Drought Stress

- dry soil (obviously) (no moisture available to roots)
- root damage (damaged roots are unable to extract moisture from soil)
- compacted or waterlogged soil (root function may be impaired by lack of available oxygen)
- freezing (moisture cannot move to roots)
- extreme vapour pressure deficit (transpiration cannot keep up with demand from the atmosphere)
- salinity (water moves away from roots to the soil, because osmotic potential of the soil is greater than that of the

What are the Best Trees?



Ulmus minor subsp. *sarniensis*



Gymnocladus dioica



Celtis choseniana



Pseudotsuga menziesii



Pinus nigra



Acer macrophyllum



Acer griseum



biodiversity vs. resilience



Quercus cerris



Nyssa sylvatica



Quercus
robur



Liriodendron
tulipifera



Ginkgo
biloba



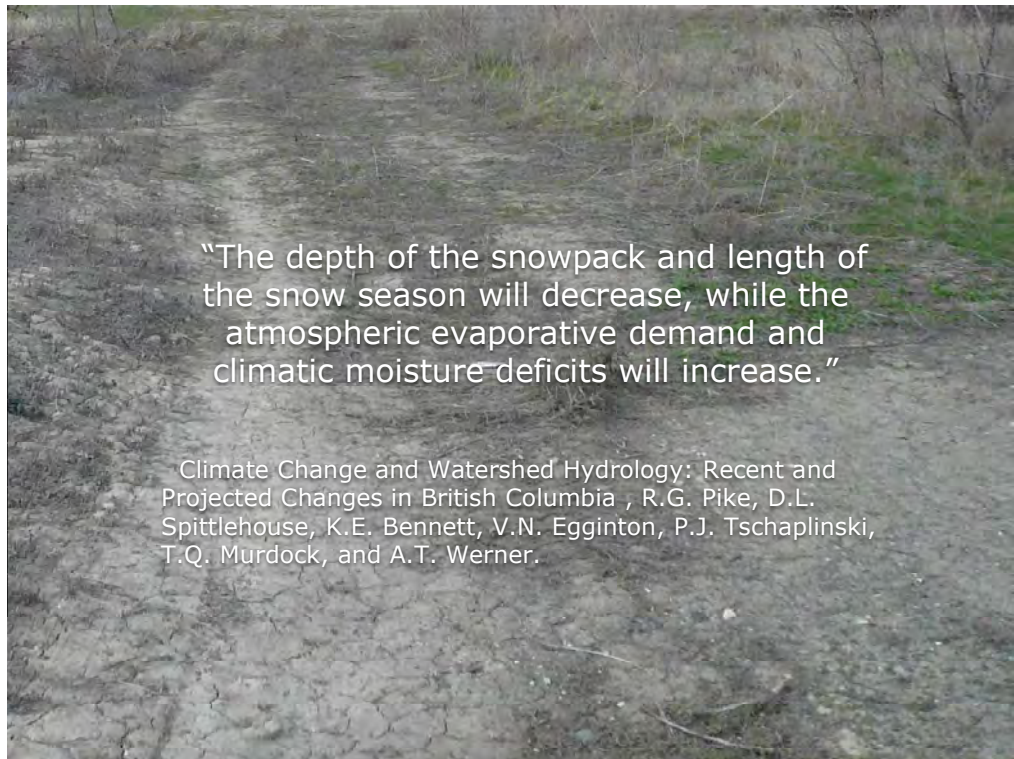
Tilia americana
'Redmond'



Cercidiphyllum japonicum
a seedling



Eucommia ulmoides
Acer x freemanii 'Jeffersred' (Autumn Blaze)



"The depth of the snowpack and length of the snow season will decrease, while the atmospheric evaporative demand and climatic moisture deficits will increase."

Climate Change and Watershed Hydrology: Recent and Projected Changes in British Columbia , R.G. Pike, D.L. Spittlehouse, K.E. Bennett, V.N. Egginton, P.J. Tschaplinski, T.Q. Murdock, and A.T. Werner.



Stage 4 Water Restrictions:

all use of water for any purpose other than drinking, food preparation and personal hygiene is strictly prohibited



What Can We Do?

1. Educate stakeholders on the value of biodiversity
2. Enhance and maintain plant diversity
3. Plant for the site conditions
4. Incorporate maintenance needs in budgets
5. Use mulches
6. Prioritize water for trees and only water deeply and infrequently

