

To

Date

Tuesday, January 17, 2012

5 pages from *Sonja Peters*

**2011 Sustainable Landscaping for Professionals**



The Okanagan Xeriscape Association sponsored the conference, which was held February 18 in Kelowna.

[www.okanaganxeriscape.org/index.htm](http://www.okanaganxeriscape.org/index.htm)

About 55 people attended, mostly landscape architect, landscape maintenance companies and insulation companies, City and School district employees, University instructors.

**Summary – Owen Dell, Santa Barbara, CA (<http://owendell.com/index.html>)**

- Owen spent the day talking about the current trends in sustainable landscape industry.
- 3 topics were discussed:
  - watershed friendly landscaping, saving water in the landscape, fossil-free landscaping.
- The Triple Bottom Line
  - Environment / Society / Economy - everything we do should meet all 3

**1) Watershed Management**

- Green roofs, permeable pavement, water harvesting, bioswales and constructed wetlands.
- Permeable pavement (pervious or porous paving) is a type of hard surface that allows rainfall to percolate to an underlying reservoir, where it is filtered and removed.
- Water harvesting techniques: dry steam bed, underground gravel-filled percolation chambers, above-ground or buried cisterns, gray water systems.
- Bioswales: a channel that uses a natural biological system the absorbs and treats runoff water, greywater or effluent water.

**2) Saving Water in the landscape**

- Eliminated high water use plants, mulching, using drip irrigation, using rain sensors, water less frequently, grouping plants on water need

**3) Fossil-free Landscaping**

- Integrated Pest Management, food not lawns, organic maintenance, sustainable buildings, meadows, saving water in the landscape

## **TRENDS IN SUSTAINABLE LANDSCAPE INDUSTRY**

### **1) Watershed Friendly Landscaping**

- Examples are: permeable pavement, green roofs, dry streambeds, bioswales, constructed wetlands rain gardens, harvest water from roofs, percolation ponds

- Resources

[www.treepeople.org/trees](http://www.treepeople.org/trees) & [www.owendell.com/watershed.html](http://www.owendell.com/watershed.html) & [www.portlandonline.com/bes/](http://www.portlandonline.com/bes/) & <http://bayfriendlycoalition.org/> & [www.epa.gov/owow/watershed/wacademy/its.html](http://www.epa.gov/owow/watershed/wacademy/its.html)

#### **a) Green Roofs**

- Resources

[www.greenroofs.com](http://www.greenroofs.com) & [www.greenroofs.org](http://www.greenroofs.org) & [www.earthpledge.org/gr](http://www.earthpledge.org/gr)

Planting Green Roofs and Living Walls, Nigel Dunnett & Noel Kingsbury, Timber Press, 2004

#### **b) Pervious Paving**

- pervious concrete, decomposed granite, crushed rock, Turf Block™, soil paving, mulch

- Resources

[www.concreteresources.net](http://www.concreteresources.net) & [www.perviouspavement.org/](http://www.perviouspavement.org/) & [www.owendell.com/perviouscon.html](http://www.owendell.com/perviouscon.html)

Pervious Concrete Pavements, Paul D. Tennis & others, Portland Cement Association, 2004 ([www.cement.org](http://www.cement.org))

#### **c) Water Harvesting**

- Definition: practice of catching and storing rainwater for landscape irrigation or potable use.

- Examples:

- dry stream bed: can slow down runoff / allow water to percolate to the roots of plants

- underground gravel-filled percolation chambers: can direct water into the water table

- above-ground or buried cisterns can hold water for later use in the dry season

- gray water systems and constructed wetlands can bio-filter water from house

- Resources

<http://rainwater.sustainablestudies.com/> & [www.harvesth2o.com](http://www.harvesth2o.com) & [www.rainwaterharvesting.org](http://www.rainwaterharvesting.org)

[www.dmoz.org/Science/Environment/Water Resources/Rainwater Harvesting](http://www.dmoz.org/Science/Environment/Water/Resources/Rainwater_Harvesting)

[www.harvestingrainwater.com/](http://www.harvestingrainwater.com/) Brad Lancaster, rainwater harvesting expert

[www.oasisdesign.net/greywater/createanoasis/](http://www.oasisdesign.net/greywater/createanoasis/) Art Ludwig, grey water expert

Okanagan Basin Water Board is working on a grey water recycling plan

#### **d) Bioswale**

Definition: vegetated drainage channel which accepts, absorbs and treats runoff water, graywater or effluent water, using natural biological systems and processes.

#### **e) What's a Constructed Wetland?**

Definition: a lined waterway planted with vegetation that is capable of purifying water.

- used to detoxify urban, agricultural or industrial runoff / can provide habitat for wildlife

- Resources

[www.lowimpactdevelopment.org/raingarden\\_design/whatisaraingarden.htm](http://www.lowimpactdevelopment.org/raingarden_design/whatisaraingarden.htm) & [www.raingardennetwork.com/](http://www.raingardennetwork.com/)

## **2) Saving water in the Landscape**

- eliminate high water use plants and excess lawn areas
- replace thirsty plants with drought tolerant species
- mulch
- convert sprinklers to drip
- install a rain sensor to prevent watering during rainy periods
- reprogram controller regularly to adjust for weather changes
- water less
- group plants according to water need
  - divide the irrigation system into zones
  - separate valves for: High vs. low water use plants
    - Sunny vs. shady areas
    - Windy vs. sheltered areas
    - Heavy vs. light soils
- check irrigation distribution uniformity

### **a) Drip Irrigation**

- use a grid system (12"-18" o.c.)
- pressure compensating emitters on slopes
- in-line vs. pop-in emitters
- always filter & regulate pressure
- for a design guide see:  
[www.toro.com/irrigation/res/lowvolume/literature/dripline\\_design\\_guide.pdf](http://www.toro.com/irrigation/res/lowvolume/literature/dripline_design_guide.pdf)

### **b) Controllers: Water-saving Features**

- independent programs
- long run times
- multiple start times
- long calendars (30 days or more)
- non-volatile memory
- rain shutoff
- diagnostic circuitry

### **c) Smart Controllers**

- monitor actual conditions and water accordingly
- goal is to replace water that has been used
- soil sensing vs. ET based
- historical ET vs. Real-time ET

### **3) Fossil-free Landscaping**

- we currently need alternatives to: PVC Pipe, plastic furnishings, concrete paving, chemical fertilizers, pest management, importing materials, landscape lighting, importing water onto a site, water-intensive plantings, lawn, ornamental plants (food-bearing crops)....
- use electric tools over gas-powered tools, use alternative fuel sources (biodiesel, propane, electric, hybrid), downsize vehicles, backyard vegetable gardens (zero food miles)
- use Integrated Pest Management, use alternative building and hardscape materials, replacing lawns (meadows, food crops), use organic maintenance

#### **- Resources**

[www.endofsuburbia.com](http://www.endofsuburbia.com) & [www.peakoil.net](http://www.peakoil.net) & [www.theoil drum.com](http://www.theoil drum.com) & [www.peakoil.org](http://www.peakoil.org)  
"The Party's Over", Richard Heinberg

#### **a) Integrated Pest Management**

#### **- Resources**

BioIntegral Resource Center, [www.birc.org](http://www.birc.org)  
IPM Practitioners Association, [www.ipmaccess.com](http://www.ipmaccess.com)  
Biological Urban Gardening Services (BUGS), [www.organiclandscape.com](http://www.organiclandscape.com)  
Pesticide Action Network North America, [www.panna.org](http://www.panna.org)  
University of California IPM Hotline, [www.ipm.ucdavis.edu/](http://www.ipm.ucdavis.edu/)

#### **b) Organic Maintenance**

#### **- Resources**

Ecological Landscaping Association, [www.ecolandscaping.org](http://www.ecolandscaping.org)  
Organic Landscape Alliance, [www.organiclandscape.org](http://www.organiclandscape.org)  
Seattle Tilth, [www.seattletilth.org](http://www.seattletilth.org)  
[www.terranovalandscaping.com](http://www.terranovalandscaping.com)

#### **c) Food not Lawns**

- Grow food locally
- Permaculture system: Permaculture is sustainable land use design. It aims to create stable, productive systems that provide for human needs while harmoniously integrating the land with its inhabitants.

#### **- Resources**

[www.permacultureactivist.net](http://www.permacultureactivist.net) & [www.permaculture.net](http://www.permaculture.net) & [www.permaculture.org](http://www.permaculture.org) & [www.pathtofreedom.com](http://www.pathtofreedom.com)  
[www.ecohood.info](http://www.ecohood.info) & [www.pathtofreedom.com/](http://www.pathtofreedom.com/)

#### **d) Sustainable Buildings**

- consider the origin and fate of materials
- minimize on-site and off-site impacts
- favor living systems and choose natural materials first
- make efficient use of resources
- use on-site or local materials to reduce shipping
- build to last
- choose reused, recycled, renewable materials first, virgin materials last if at all
- use heritage materials
- tap the waste stream
- choose non-toxic materials and processes
- choose materials that don't need to be painted or finished
- select low embodied energy materials
- lock up carbon
- use less!
- all waste is food
- cement – sustainable types
  - smog eating cement: Photocatalytic cement absorbs pollutants ([www.italcementigroup.com](http://www.italcementigroup.com))
  - CO<sub>2</sub> eating cement
    - carbon-negative cement ([www.calera.com/](http://www.calera.com/))
    - magnesium oxide (<http://novacem.com/>)
    - lock up carbon from coal-fired power plants
    - mineralize atmospheric carbon (“sky mining”) (Skyonic)

#### **- Resources**

Calearth, [www.calearth.org](http://www.calearth.org) & Earth Architecture, [www.eartharchitecture.org](http://www.eartharchitecture.org) & Greenbuilder source book, <http://sustainable-sources.com/> & [www.buildinggreen.com](http://www.buildinggreen.com) & [www.greenbuildingpages.com](http://www.greenbuildingpages.com) & Living walls [www.verticalgardenpatrickblanc.com](http://www.verticalgardenpatrickblanc.com) & Sustainable Landscape Construction, J. William Thompson & Kim Sorvig, Island Press, 2000

#### **e) Restoration and reclamation**

- for developers, property owners, and government

#### **- Resources**

[www.ecologicalrestoration.info](http://www.ecologicalrestoration.info) & [www.ser.org](http://www.ser.org)

#### **f) Meadows**

- can be used to replace lawns / traffic tolerant

#### **- Resources**

[www.greenleenursery.com](http://www.greenleenursery.com) & [www.losethelawn.com](http://www.losethelawn.com) & [www.lawnreform.org/](http://www.lawnreform.org/) & Audubon Society article, [www.audubon.org/bird/at\\_home/pdf/AAHPA-21-32-Lawn.pdf](http://www.audubon.org/bird/at_home/pdf/AAHPA-21-32-Lawn.pdf)