CropHealth Advising & Research
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To | Date

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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

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 & www.owendell.com/watershed.html & www.portlandonline.com/bes/ & http://bayfriendlycoalition.org/ & www.epa.gov/owow/watershed/wacademy/its.html

a) Green Roofs

- Resources

www.greenroofs.com & www.greenroofs.org & 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 & www.perviouspavement.org/ & www.owendell.com/perviouscon.html
Pervious Concrete Pavements, Paul D. Tennis & others, Portland Cement Association, 2004 (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.sustainablesources.com/ & www.harvesth2o.com & www.rainwaterharvesting.org
www.dmoz.org/Science/Environment/Water_Resources/Rainwater_Harvesting
www.harvestingrainwater.com/ Brad Lancaster, rainwater harvesting expert
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 & 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

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 & www.peakoil.net & www.theoildrum.com & www.peakoil.org
"The Party's Over", Richard Heinberg

a) Integrated Pest Management

- Resources

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

b) Organic Maintenance

- Resources

Ecological Landscaping Association, www.ecolandscaping.org
Organic Landscape Alliance, www.organiclandscape.org
Seattle Tilth, www.seattletilth.org
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 & www.permaculture.net & www.permaculture.org & www.pathtofreedom.com
www.ecohood.info & 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)
    - CO_2 eating cement
        - carbon-negative cement (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 & Earth Architecture, www.eartharchitecture.org & Greenbuilder source book, http://sustainablesources.com/ & www.buildinggreen.com & www.greenbuildingpages.com & Living walls 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 & www.ser.org

f) Meadows

- can be used to replace lawns / traffic tolerant

- Resources

www.greenleenursery.com & www.losethelawn.com & www.lawnreform.org/ & Audubon Society article, www.audubon.org/bird/at_home/pdf/AAHPA-21-32-Lawn.pdf