



3<sup>rd</sup> **Turning a New Leaf** Conference  
Friday, December 4, 2009  
George Washington University, Washington, DC

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## **WELCOME ADDRESS**

**Marcy Damon, Chair, CCLC Founding Board**

Good morning! Welcome and thank you all for coming to the Chesapeake Conservation Landscaping Council's 3<sup>rd</sup> **Turning a New Leaf** Conference. My name is Marcy Damon, chair of the CCLC. I am also Grassroots Restoration Coordinator with the Chesapeake Bay Foundation in Annapolis, MD.

First of all, I want to thank Adele Ashkar with the College of Professional Studies and the George Washington University's Landscape Design Program for co-sponsoring this conference. Having held our previous conferences in Maryland and Northern Virginia, we wanted to bring our biennial conference this year to Washington, DC and it seemed like a good fit, joining our two organizations to promote conservation landscaping in the region. Several teachers and student volunteers from the Sustainable Landscapes Program are participating today. Adele will tell us more about GW's program in a few minutes.

Interest is growing in Conservation Landscaping, as evidenced by you, an audience of over 250, (and the 500 attendees at our previous 2 conferences) but there's still much work to be done.

As an example, I was contacted recently by a homeowner in a waterfront community near Annapolis who was told by her Homeowners Association that she had to remove most of the Bay-Wise certified landscape that she installed 14 years ago and replace 2/3 of it with turf grass, as prescribed by the neighborhood covenants. There's clearly something wrong with this picture when we know that in the Bay watershed, pollution amounts from development and stormwater sources are the only ones that are increasing, while all others, including agriculture and sewage treatment plants, are declining. More education is definitely needed (along with a little agitation).

We know that's what you'll get from the expert speakers and presenters we've lined up today: both inspiration and practical information you can use in your businesses, schools, communities, non-profits, govt. agencies to continue the good work you are doing. There will be many opportunities throughout the day for you to network with experts, colleagues, and friends.

**A quick word about the CCLC:** we are an all-volunteer organization whose mission is to promote the principles of conservation landscaping to professionals in the horticultural, design and development fields, as well as to the general public. The CCLC was formed in 2003 as an initiative of Adkins Arboretum on Maryland's Eastern Shore. Its official members consist of about 20 dedicated individuals who work in business, non-profits and government and serve on our founding board. They are listed at the top of the attendee list in your packet. We are always looking for new board members with ideas, energy and some time so please join us.

We have some exciting news to share: as of last week, CCLC is now a designated 501 C 3, public charity and as such, all donations to CCLC are tax-deductible. We hope that with our new status,

we can become financially sustainable, expand our outreach, take on new projects, and eventually have a paid staff. Did you know that there is a donor button on our website?

Some CCLC accomplishments since our last conference in 2007 include:

- Installation of a rain garden exhibit as part of the US Botanic Garden's One Planet, Ours! Exhibit
- Successful field days in Maryland and Virginia, showcasing sustainable landscaping and low-impact development techniques
- A landscaping contest that drew 28 entries, and the first place finishers won free registrations to this conference. (They are Betsy Washington representing the Lake Barcroft Homeowner's Association, and Beth Knox of Greener than Green Gardens)

And we revised the ***Conservation Landscaping Guidelines: The Eight Essential Elements of Conservation Landscaping*** material on our website.

Over the next year, we will:

- be holding more field days and the landscaping contest (information is in your packet and further details will be posted on our website)
- we'll consider creating a paid-membership program that would include a directory of professional services
- of course, we'll start planning for our next conference in 2011

#### Recognition of sponsors and conference staff and volunteers

We want to thank the following:

Meredith Giontsos, Lily Rea, Jason Moore and staff at Media and Public affairs building and Zev Lewis at the Marvin Center. They have been a pleasure to work with

And thanks to:

Sylvan Kaufman, conference coordinator and former CCLC Chair.

Whole Foods and Chesapeake Bay Roasting Company for donating the continental breakfast and coffee.

Kara Crissey with Good Earth Gardening for the flower arrangements for the stage and registration tables.

Lastly, we'd like to thank our major conference sponsors:

#### At the Silver Leaf Level:

- VA Department of Game and Inland Fisheries
- U.S. Environmental Protection Agency

#### At the Bronze Leaf Level:

- Association of Professional Landscape Designers (VA, MD, DC chapter)
- Bluewing Environmental Solutions and Technologies
- Cavano's Perennials
- EcoDepot LLC
- North Creek Nurseries
- Octararo Native Plant Nursery
- Old Castle/Balcon
- Olney Gardens and Pogo Tree Experts
- Pinelands Nursery
- Sylva Native Nursery
- VectorWorks

At the Green Leaf Level:

- Bartlett Tree Experts
- The Kane Group Landscape Architects
- Montgomery County Dept. of Environmental Protection

Adele Ashkar, director of GW's Landscape Design Program and Meghan Chapple-Brown, director of GW's Office of Sustainability will tell you more about GW's sustainable landscape program and GW's campus commitment to sustainability.

Welcome Adele and Meghan.

**WELCOME ADDRESS**

**Adele Ashkar, Director, George Washington University Landscape Design Program**

It is wonderful to see this many people gathered together around this most crucial issue of our times, SUSTAINABILITY. I urge us all to use this day as a time to meet each other, to network, and to share our knowledge, our experience and our passion for the stewardship of our planet. It is so important for each one of us to understand where we sit in the global conversation about sustainability: we sit at every home's doorstep, at the grass roots of individual awakening to the imperative of Reduce-Reuse-Recycle-Redesign.

At GW, we have embarked on many initiatives in sustainability, and I'd like to share with you only the initiatives that our Landscape Design Program has been involved with (after all I have only 10 minutes).

In summer 2007 we launched a new graduate certificate program in Sustainable Landscapes, and we hit the ground running, with a first cohort of 16 students. The program is a one-year, 15 credit certificate that serves to complete a master's degree for our landscape design students, but is also available to practicing landscape designers. It combines weekend courses with online

courses, so it can appeal to those who live outside of our area (so think about joining us; there is a brochure in your packet).

In our courses, we stress best management practices in conservation landscaping, in:

- The use of **native plants**
- The **eradication of invasive species**
- The creation of **wildlife habitats**
- The **holistic approach to stormwater runoff**: its harvesting, detention and infiltration
- The **conservation of energy, waste reduction**
- The promotion of **edible landscapes**
- And most importantly, the **integration** of all these elements into our **conceptual design** process: sustainability is not an afterthought or an option – it's integral to our thinking.

If you have looked at the Chesapeake Conservation Landscaping Council's website, you will have noticed that the governing goals that I just cited for our program are very closely aligned with their ***Conservation Landscaping Guidelines: The Eight Essential Elements of Conservation Landscaping***. So I hope it is obvious to all that our conference today represents a natural partnership.

I'd like to introduce to you Meghan Chapple-Brown, Director of GW's Office of Sustainability. In her short tenure at GW, Meghan has been instrumental in many campus and outreach initiatives, and I have had the pleasure of working with her and with our students on a couple of great projects on campus -- our first green roof which has just celebrated its first year; and a student-designed, student-run community garden that was installed this fall.

Allow me to quote our University President Knapp when he first introduced Meghan to us: "Meghan Chapple-Brown brings the skills and experience that will help the University achieve its aspiration of becoming a model of sustainability in the greater Washington area and a national leader in this area among institutions of higher learning," said Dr. Knapp. "She will coordinate and extend the efforts already underway across the University to increase efficiency, reduce waste, and build a commitment to environmental stewardship into the fabric of our institutional culture."

### **Marcy Damon following Keynote Speaker The Honorable Anthony Williams**

As a thank-you gift, we'd like to present you with a signed copy of Professor Doug Tallamy's wonderful book, ***Bringing Nature Home***. We understand that you are an avid bird watcher so this book will come in handy. It will tell you what native trees and shrubs to plant that will attract insects and caterpillars – which is a good thing – because they in turn are eaten by our resident and migratory birds.

One native oak supports over 500 species of insects, the non-native Bradford Pear supports 1 species, and 1 pair of nesting bluebirds need 300 caterpillars a day to raise their brood successfully.

Happy reading, happy birding, and thank you again!

## KEYNOTE ADDRESS

### *D.C.'s Green Initiatives*

#### **The Honorable Anthony Williams**

The Keynote address was a loosely structured rumination by the former mayor of Washington, DC around three major points:

- Dominance of built environment in cities and the important role of landscape professionals in developing sustainable practices within cities.
- Loss of a sense of place, no significant differentiation among American cities
- City as a public realm and subsequent citizen responsibilities of stewardship

The speaker began with a brief history of American cities and his work with LSE Cities Programme and its recent meeting in Barcelona in 2004. The project brings academics, professionals, and members of government to different cities to discuss the city and information is available online:

[www2.lse.ac.uk/.../Press%20Release%20-%20European%20Mayors%202004.pdf](http://www2.lse.ac.uk/.../Press%20Release%20-%20European%20Mayors%202004.pdf)

According to the speaker, cities are entering a third cycle of growth and renewal. The first cycle followed the Chicago World's Fair around 1900 and investment in cities grew along with their populations. The second cycle in the life of cities was flight from inner cities during and after the era of the Interstate Highway Act (1957), during which time inner city populations were diminished by about 50% across the United States. The newest phase in these cycles of urban growth and change will occur in the 21<sup>st</sup> century: "We are entering the century of cities. 1900, 25% of world's population lived in cities. In another 20-25 years, 40-45% will live in the city," declared the speaker. The figures suggest that cities will affect dominant environmental impacts in terms of (a) carbon emissions and (b) habitat destruction.

The speaker underlined how cities and their corresponding grey infrastructure contributed significantly to habitat destruction. He used the example of the District of Columbia's stormwater sewage system and life in the Anacostia River. In the 1970's city officials thought the best practice for storm and sanitary sewers was to separate them in a massive underground reservoir containing both lines. Recent evidence points to overflow as the District's population increases and the carrying capacity of the system in severe rain events is reached. The former mayor pointed out that landscape professionals could really change the conversation with regard to the engineered dumping in the Anacostia watershed by pointing out the importance of vegetative stormwater practices. Since 60% of the runoff south of Florida Avenue is in the hands of one owner, the Federal government, Williams pointed out that potential for greening the city to better handle stormwater could serve both the city's needs and as a model for other cities.

Williams continued by describing the increasingly monotonous urban and suburban landscape across America. In the new century, cities face the dilemma of distinguishing what is important to their identity with what they think they need to harmonize with every other city. Many places look increasingly alike "in a monotonous horrible way in my personal estimation," exclaimed the speaker. He criticized modern American cities for attempting to create uniform built

environments that evidence national standards rather than rationalizing and using best practices from other cities to support internal administration such as payroll systems. Williams advocates more investment in the distinctive characteristics of cities. The District of Columbia is uniquely important for landscape professionals because its distinctiveness is tied to its greenness. Trees are unique to the capital city and should be treasured. The speaker praised Betty Casey's donation of \$50 million to ensure the future of the District's urban tree canopy via the Casey Trees Foundation. Ecological landscaping also provides economic benefits for the city such as increased real estate value.

The former mayor concluded his comments by discussing the importance of the city as a public realm. During his tenure as Mayor of Washington DC, 3500 to 4000 citizens attended his Mayor-Citizen Summits to describe their visions for the public realm. The problem of city pollution might be addressed by landscape professionals in the same manner – that of concerned citizens who believe that ecological design can significantly alter the future of the public realm for the better. His dream for cities is that we leave things better for the people who follow, because a clean city is very unique and can provide identity and definition for its inhabitants. He believes citizen professionals should and will come together for better cities.

[ Summary by Divya Kumar]

## **TRACK A: SUSTAINABLE LANDSCAPE DESIGN: MAKING BEAUTIFUL PRACTICAL**

### **Session A1. *Sustainable Sites Initiative and the Design Process***

**Nancy Somerville, President and CEO, ASLA**

The Sustainable Sites Initiative (SSI) is a partnership between ASLA, the US Botanic Garden and the Ladybird Johnson Wildflower Center to create the first voluntary system to evaluate sustainable landscape design, construction, and maintenance. The US Green Building Council is lending its support to this project and anticipates incorporating the Initiative metrics into future versions of LEED. The Initiative's primary goal is to create guidelines, benchmarks and a rating system to guide designed landscapes toward ecological sustainability.

Why this new effort when LEED already exists? Although LEED has done an enormous amount to push the public understanding for buildings, they only begin to address sustainability for the site and landscape. Also, you cannot receive LEED certification for landscapes that do not surround a building. The US Green Building Council behind LEED is supportive of the effort and sees the ASLA as filling a gap with the Sustainable Sites Initiative. In fact, many of the metrics in SSI are based on LEED system guidelines.

Why educate professionals involved with green industries? Things that are "green" are not necessarily sustainable. Not all outdoor practices are necessarily good for the environment. Some statistics argue the point. Although 98% of adults care about the environment in terms of energy-saving or sustainable practices, only 58% use at least one sustainable practice in their yards or gardens. That figure drops when you look at garden-owner behavior more closely. Only 11-15% of garden owners plant only natives or practice water-wise gardening.

SSI is composed of 51 credits and 15 prerequisites. The credits cover areas similar to the CCLC's ***Conservation Landscaping Guidelines: The Eight Essential Elements of Conservation Landscaping***. The SSI Framework looks at ecosystem services – what does a natural landscape with no human intervention provide to the ecosystem – to develop its guidelines for designed landscapes:

- regulates global and local climate
- regulates water supply
- controls erosion
- mitigates against hazard
- provides food
- provides refuge and habitat
- contains cultural, educational and aesthetic values
- treats and re-uses decomposed waste

The LEED certification has been effective because it provides a way to show that a building is certified, encouraging positive competition. But SSI will also create a body of knowledge that can be applied broadly outside of certification process.

SSI plans to

1. Enrich LEED metrics when appropriate
2. Create a separate Sustainable Sites certification system
3. Develop Guidelines available for use without certification

*Guidelines and Performance Benchmarks 2009* report is available for download along with a shorter document *The Case for Sustainable Landscapes* on the SSI website: <http://www.sustainable sites.org/report/> A call for Pilot Projects will be open until February 15 and will attempt to rate projects that are already in process for use as examples and to revise analysis. The Pilot Project Phase lasts for two years. After public comment, a Reference Guide will be published with the target date of 2012.

## Q & A

*Are there any professional requirements for the pilot project team members?*

No.

*Will SSI certify these projects?*

Yes. All pilot projects will receive certification. We are talking about getting the certification process done by GBCI which is the group who certifies LEED projects.

*Will SSI guidelines eventually be incorporated into LEED?*

While the USBGC has been a terrific partner, it would take member approval to incorporate SSI into LEED. So, that is not a done deal.

*Do we have legislative changes making sustainable guidelines mandatory? For example, will SSI guidelines be incorporated into building codes rather than just being a voluntary accreditation system?*

The International Codes Council is working on a green building code for Green Buildings and they do communicate with the ASLA and the EPA. Alternatively, the ASLA is working on federal legislation directly to develop policies within federal government that could serve as a model for green building and now sustainable sites.

*How much do you know about creating economic incentives for people to do this?*

ASLA is trying to collect that data, although we do not have a thorough library of where incentives are available. So, we are not there yet.

*What have you done to incorporate economic payback into the argument?*

SSI discusses economic benefits of sustainability in its shorter publication: *The Case for Sustainable Landscapes*. We continue to gather that kind of data from federal and university-based research.

[Summary prepared by Divya Kumar]

**TRACK A: SUSTAINABLE LANDSCAPE DESIGN: MAKING BEAUTIFUL PRACTICAL**  
**Session A2. *Sustainable Design in Practice and Developing Performance Landscapes***  
**Faye Harwell, Founding Director, Rhodeside and Harwell Landscape Architects**

The purpose of sustainable design practices is to provide a set of techniques that are applicable in scale from the garden to the large office complexes, and that incorporates ecological benefits and has a sense of place. Ms. Harwell uses design concepts learned as a student of renowned landscape architect Ian McHarg.

Ms. Harwell illustrated the evolution of performance landscapes by presenting a number of projects she had worked over the past 20 years. Twenty years ago the concept of sustainable design and the methods used to implement were new and not widely accepted. The products on the market to fit the concepts were limited. In addition, clients were often hesitant to adapt the new techniques

One of her first projects was the Alexandria Library completed in 1995. Stormwater and roof runoff were managed through the use of large-scale rain gardens. The concept was based on the idea that water runs downhill. Since then the concept of developing in a manner that eliminates negative environmental impact and relates people with the natural environment has become the norm. New techniques have evolved over the past 20 years.

Later projects such as Four Mile Run in 2004 used many more techniques reflecting the changes in acceptance and advances in methods. Four Mile Run was a large scale project designed to transform a highly-impacted stream into a community asset. Four Mile Run is located in a highly urban area and success was based on understanding the existing conditions and past changes. It was also very complex because it involved inter-jurisdiction coordination between the City of Alexandria and Arlington County.

Ms. Harwell recommended that anyone wanting to develop their own technical toolbox should begin with LEED 2.2 or the Sustainable Sites Initiative. The Sustainable Sites Initiative is an [interdisciplinary effort](#) by the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center and the United States Botanic Garden to create [voluntary national guidelines and performance benchmarks](#) for [sustainable land design, construction and maintenance](#) practices. Not every technique fits every project. The key is to select the tools that fit the site (landscape and ecology), the intended use and that water runs down hill.

Other examples of projects that illustrate sustainable design and performance landscapes mentioned in the presentation include:

- National Aquarium in Baltimore
- Branch Brook Park, Essex County, NJ – Park renovations restoring Branch Brook designed by the Frederick Law Olmstead firm
- DC Artwalk, 2006

- Irving Street, 2008 (on-hold) – Creating extensive green roofs, roof gardens and streetscape

[Summary prepared by Debbie Weller]

## **TRACK A: SUSTAINABLE LANDSCAPE DESIGN: MAKING BEAUTIFUL PRACTICAL**

### **Session A3. *Green Roofs and Living Walls***

**Michael Furbish, Furbish Company**

#### **I. INTRODUCTION**

Mr. Furbish introduced his presentation with a brief history of his company and how he came to be known as an expert in living roofs. From a grand vision of being a developer of sustainable neighborhoods, he fell into an opportunity to install a green roof and since this was a new concept (at least in the U.S.), he quickly became recognized as an expert in spite of the fact that he was new to the business. From a systems engineering perspective he was intrigued with the idea that the efficient, no waste life cycle of a plant could improve the performance of a building.

The conventional building industry is based on these assumptions:

1. Energy is cheap
2. Natural systems can be adapted to human impact
3. Climate is stable
4. Natural systems can be regulated to reduce risk

The realization that all mankind is striving to live like the U.S.; we would need 4-5 Mother Earths to provide the needed natural resources to support this demand. This means a “train wreck” is inevitable. Mr. Furbish’s personal goal is to mitigate against this future.

Implementing “appropriate technologies” is the goal and is definite as “to enhance local capacity to meet local needs.”

The solution is the simplest technology that will get the job done. A shorter feedback loop means less impact if there is a malfunction in the system.

#### **Technology of a Plant**

- Self erecting
- Self sufficient (makes it own food)
- Nonpolluting
- Waste=food
- Beauty

#### **Ecoservices of a Plant**

- Stormwater management
- Energy efficiency
- Nutrient sequestering
- Heat island effect
- Erosion control
- Air quality
- Habitat creation

- Beauty
- Air quality

## II. GREEN ROOFS

### A well-kept secret

**4” green roof medium will handle 70% of the water retention of rainfall.**

### Benefits of Green Roofs

1. Stormwater management (retains 60-70% of rainfall)
  2. Cuts temperature ½ on a summer day, reducing heat in a building
  3. Extends life of roof
  4. Reduces energy use (note has not insulating value in the winter)
  5. Wildlife habitat
  6. Beauty
- Installation requires diligence about achieving fast coverage with vegetation with goal of 80-90% by first year.
  - Uses nonnative growing medium and nonnative plants that can withstand harsh conditions.
  - Cost of living roof determined by size (scale), pitch, accessories, logistics.
  - Maintenance is 15-50 cents/square foot.
  - Uses rubber roof which is not a new technology.
  - The future of roof gardening: urban farming; greenhouse production.
  - Current cost of green roofs is too high with a 200-250% mark up.

### III. BIOFILTERS are designed for interior use to remove VOCs (toxic chemicals), photoremediation

Plants are grown on a wall hydroponically with no soil. The wall is connected to the HVAC system so the “returns” pull air through the biofilter.

1 square foot of wall filters 100 cubic feet.

Requires artificial lighting.

### **Benefits of Biofilters**

- Natural indoor air filter
- No pollutant accumulation
- Reduces HVAC load
- Aesthetic

### **IV. VEGETATED RETAINING WALLS**

A concrete structure covered with plants.

Government agencies like the systems.

Current source is a fabricator in St. Louis. Furbish is trying to produce the product locally.

Applications: shorelines, highways

No reinforcement required.

Footer is designed by a geotech engineer.

Drainage system is behind wall.

No irrigation.

Drain pipe not necessary.

Modular construction.

[Summary prepared by Ellie Altman]

## **TRACK B: SELLING GREEN: BUSINESS MODELS, PLANNING AND MARKETING**

### **Session B1. Panel. *Business Models***

**Luke Jessup, Father Nature Restorative Landscaping, Wheaton, MD**

**Jeff Potter, J&G Landscape Design; President, Landscaping Contractors Association**

**Carla Thomas, Nature by Design, Alexandria, Virginia**

**Overview:** Several companies discuss how their business models meet growing demand for green services.

#### **Presenter: Luke Jessup, Father Nature Restorative Landscaping**

Luke started his small restorative landscaping company two years ago to offer conservation landscaping services to create “healing natural spaces, for all walks of life, one yard at a time.” When Luke launched the business, he had limited business skills, no tools or truck, and limited time. He started small and focused on three things: 1) incorporating his values; 2) educating himself; 3) educating others. As his business grew, he formed alliances with others in the eco-business to share tools, info & employees. He developed a limited staff, each with specific skills and responsibilities (i.e. plant specialist, design specialist, “tough guy,” business end (payroll, taxes, etc.). Luke’s diverse background heavily influenced his business model: art-loving family, landscaping “grunt work,” preschool work, and particularly wilderness survival. His services reflect this background: stonework, habitat restoration, edible plants & gardens (“Gardens of Eat’n”), natural play areas (“nature forts”), water solutions, etc. The services naturally blended: water solutions are addressed with permeable & sustainable hardscaping (salvaged); meadow habitats increased edible garden production and IPM benefits; etc.

#### **Presenter: Jeff Potter, J&G Landscape Designs; President, Landscaping Contractors Association**

J&G Landscaping is a 20-year-old design/build firm that incorporates conservation into its services with attractive, environmentally friendly solutions. Jeff’s business also started small: P/T and “paid for with his check from Safeway.” J&G has implemented several projects at Brookside Gardens (Wheaton, MD), including: reflection terrace to remember 2002 sniper victims; rain garden; permeable paving; etc. J&G also implements a number of projects to address water issues (i.e. rain gardens, permeable paving), varying from small spaces to very large scale.

#### **Presenter: Carla Thomas, Nature by Design native nursery (Alexandria, VA)**

Carla & her husband developed the idea for an environmentally-responsible garden center after tiring of visiting nurseries marketing invasive plants and ecologically destructive products with staff who were usually unable to answer questions on native plants or sustainable, ecologically beneficial gardening. Despite having no related professional experience (backgrounds in software & finance), they started a landscaping company with a small nursery, learning landscape design along the way. They focused on native plants to address specific issues: deforestation leading to loss of native species, decrease of predators, the pollinator crisis, the “green” industry’s reliance on chemicals and pesticides, prevalence of invasive exotics, a loss of ecosystem balance. They rely on IPM – they have never sprayed, never had a “stop sale” order. A visiting inspector

commented that native nurseries have far less pest problems than conventional nurseries. They decided to focus on education when they were getting questions like: “I planted a beautiful butterfly garden and terrible caterpillars are eating the leaves –what should I spray?”; “We have too much shade & want grass to grow-do you remove trees?”; “What is the proper way to prune a Bradford pear tree?” They decided to focus on: 1) great signage; 2) edibles (permaculture); 3) five steps to great soil (leaving leaves); 4) explaining successful symbiotic relationships (i.e. seasonal defoliating caterpillars (i.e. forest tent caterpillars) actually performing a beneficial service at height of heat). Their marketing reflects their philosophy: “*Stop! Don’t Kill Your Lawn! Let Us Kill It For You!*” and “*Fungus, Insects, Dead, Rotting Plants? We Sell Them All!*”

## Q&A

*What training & skills did you find most useful?*

- J&G: Learned from those with other skill sets (i.e. designers teaching contractors)
- Nature By Design: In some cases, training & skills can be a liability (i.e. traditional landscaping programs). Need more sustainable landscape design & ecology programs.
- Father Nature: Wilderness survival training provided great skills, understanding & appreciation. Collaborating with others in business extremely helpful

*What will push conservation landscaping to the forefront?*

- J&G: It is moving forward, it’s just all so new
- Nature By Design: Homeowners associations & garden clubs are a missing link – target them for education
- Father Nature: Community-involved programs like Montgomery County’s Rainscapes program are excellent ways to reach the public, increase marketing of CL services. Tax incentives for native, conservation plantings: invasive plants cost \$20+billion/yr for control

*What business skills are necessary for success?*

- J&G: Don’t be afraid to charge for your time
- Nature By Design: Do not focus on conventional advertising
- Father Nature: Know your true costs – start with what you need to make and go backward

*Tips for finding employees?*

- J&G: Look for contractors in your area who share your values, understand big picture
- Nature By Design: Craigslist – affordable; young, progressive thinking people
- Father Nature: Utilize freelancers, part-timers, share with collaborating businesses

[Summary prepared by Julie Dieguez]

## **TRACK B: SELLING GREEN: BUSINESS MODELS, PLANNING AND MARKETING**

### **Session B2. *Selling Green in a Tough Economic Climate***

**Stan Serson, EnviroCenter, Jessup, MD**

1. What is “green?”
  - a. Respect for self, others, the environment.
2. The World Resources Institute rates companies in their “greenness” via its World Ecosystems Services Review. For example, a forest provides these services, among others:
  - a. Carbon storage,
  - b. carbon sequestration,
  - c. oxygen creation,
  - d. soil creation,
  - e. erosion prevention,
  - f. cooling.
3. As humans, we must not only slow down our impact on the planet, but start making active improvements, or “giving back”
4. We are exceeding earths’ “carrying capacity.”
5. Workers see the opportunity to work in a “green” building as a differentiator.
6. Some “green building” adaptations include:
  - a. Green roofs,
  - b. Natural lighting
  - c. Green screens for shade
  - d. Correct site orientation (put the shade overhangs on the southern exposure side, not the northern one!)
  - e. Plant for shade
7. Stan has coined a term, “Agrotecture,” to capture the notion of growing food inside buildings.
8. The next phase of green buildings will be “net zero” resource use. Going beyond that, a site could be, for example, a “negative stormwater” emitter – it would capture and infiltrate stormwater from adjacent sites.

[Summary prepared by Kathi Mestayer]

**TRACK B: SELLING GREEN: BUSINESS MODELS, PLANNING AND MARKETING**  
**Session B3. *Marketing Green: The Magic of Marketing***  
**Eric Eckl, Water Words That Work**

Do you remember?

- Story in Washington Post from this morning (most did not)
- Ad on gas pump at last fill-up this week (most did not)
- Sponsors of this morning's NPR show (most did not)
- Crying Indian – what did he want? (1972) (most remembered pollution clean up)
- How to finish sentence, "Please don't \_\_\_\_\_" (1982) (most knew 'squeeze the Charmin)

What's changed? Proliferation of media. Yet even in early 1900's, John Wannamaker pointed out that half of advertising is wasted; just don't know which half. Fact: most marketing is wasted and fails. This was always so and is getting worse.

**Key point: Match messages to your audience and match medium to your audience.**

Part 1 – Identify the audience

So who is your audience? We tend to tailor messages to ourselves regardless of whether intended audience is similar. For example, in a 2002 Virginia Tech survey, 'What is a watershed?' only 52 % answered correctly. This shows that using the word "watershed" in messages will not reach everyone. Correct answer in science vocabulary was linked to higher education; male; white race; English as first language; rural or suburban residence.

Advice to reach the audience: don't use "our" words to start the conversation. Percentage of people "like us" in the U.S. (with environmental focus) is very small in terms of interest, education, etc. Everyone has their own life story that impacts receptiveness to messages. Marketing balances broad patterns of behavior with individuals who will do what they do.

Exercise: attendees divided into groups, worked on identifying audience demographics.

Exercise: attendees in groups tried to match the message with the audience. The message is found at [www.epa.gov/greenkit/landscape.htm](http://www.epa.gov/greenkit/landscape.htm). Ranked which demographic will best get the message.

The point: We need to match message to others, not to ourselves. For example, how would Hannah Montana react to our message? Pretend to be not "I" but others; e.g., middle aged woman working two jobs.

Be aware a strong factor is high stress, some may not be listening. Some patterns of behavior do exist, so that's the starting point for figuring out the message. There are advantages to starting with the people who do get your message.

## Part 2 -- Matching the medium to the audience

To get 'bang for the buck,' target a medium that attracts audience you want to reach. For example, drug for high cholesterol would be marketed on 60 Minutes, not Nickelodeon; Armed Forces recruitment on Spike TV, not Oprah.

Say goodbye mass media, hello "non point source information." There are thousands of choices; how to match them?

Exercise 3: attendees in groups selected which media to use for particular audiences.

Visualize audience rather than deliver messages "I" want and use mediums "I" like. If you form a clear picture of who you are trying to reach, you will waste less money.

New Media:

- Google advertising – low cost, low waste – only pay for hits
- Facebook – especially reach young marrieds
- Words "tips" or coupons" on the ads have a higher click rate
- Internet ad – run 5 versions for 2 weeks to see which gets the hits

Advertising budget

- 15% for evaluation; don't overproduce
- 15% for getting it out
- 15-20% for producing/pre testing

Whet their appetite. Just provide a bit of information and people will ask for more. Give too much, people will shut down. We tend to give too much, too many big words, too fast because we are excited they are interested.

Direct mail has been found to be most effective at targeting an audience. One piece of mail has higher rate of success than TV or billboards.

[Summary prepared by Carol Jelich]

## **TRACK C: GETTING IT DONE WITH LOCAL GOVERNMENTS**

### **Session C1. Panel. Case Study: Corsica River**

**Lee Edgar, Engineer, Queen Anne's County, Maryland**

**Bob McGrory, Town Manager, Centreville, Maryland**

**Overview:** Activities done in partnership with local, state, and federal government to improve the impaired status of the Corsica River in Queen Anne's County, Maryland are discussed.

**Presenter: Lee Edgar, Queen Anne's County, Maryland Department of Public Works**

#### ***Environmental Site Design: Advancing Conservation Landscaping***

Brief history of stormwater management:

1950s – Pond detention

1972 – EPA Clean Water Act passes

1984 – Maryland Critical Area laws enacted

1990 – NPDES Design Manuals

2007 – Maryland Stormwater Management Act

To improve the control of storm water run-off, and thereby to help clean our rivers and bay, the Maryland legislature passed the Storm Water Management Act of 2007. For a project to be grandfathered under current regulations it must have fully approved sediment control and storm water management plans by May 4, 2010. *[post-conference update: legislation being considered in the Spring 2010 session could modify this law.]*

Environmental Site Design (ESD) is defined in Chapter 5.0.3 of the Act – to integrate site design, natural hydrology, smaller nonstructural controls on small lots. ESD is designed to be used on small lots.

Types of ESD: Rain gardens, rain barrel/cistern, permeable pavers (porous concrete), more.

Pavers are the only practice designed to treat rain at its source, rather than collect runoff. They can provide a safe walking surface in cold weather. Share infrastructure /stormwater management (SWM) costs (incorporate with natural costs for paving, don't need extra SWM practices). Not a typical brick sidewalk – costs more but SWM benefits offset. Set on stone base, not concrete. Permeable pavers cost more, have indirect benefits though they can be hard to quantify. Queen Anne's County is using pervious concrete. LEED certification – indirect benefits include outreach.

Green roof – not in Queen Anne's County yet. DC has the second most green roof coverage behind Chicago.

Bioswale and vegetated swale. Bioretention cell, cross between rain garden & swale.

Stormwater planter – contained planter, organic filter, flow-through planter.

Green alleys in Chicago with pervious planting are a great model (information on Internet, access with search engine).

Getting it done – installing on government property encourages installation on small single lots subject to SWM regulations. County doesn't have resources to enforce with developers, who may view as burden, don't do it fully and completely. Sad example: developer had to put in a rain garden; homeowner took

plants elsewhere on property and filled in the rain garden with soil. Focus on outreach and education, encouraging them to embrace ESD as an asset to the property. Landscaping community can sell it. . Enforcement and education are key.

#### Case examples:

Organic filter, on Kent Island, common single lot practice in Queen Anne's County. County encourages homeowners to get landscapers to make it aesthetically attractive. Filter includes has stone for SW storage, filter cloth.

River Walk Rain Garden –Installed at county public library in Centreville. Collects SW from parking lot, 1/3 of roof. Partnership included state funding; DPW engineered; Master Gardeners designed planting; volunteers planted. Educational as well as functional; helps sell rain gardens to library visitors. Garden received several awards.

Capitalizing on ESD regulation change advances CCLC's *Eight Essential Elements of Conservation Landscaping*, promotes awareness, increases public acceptance. Sell with aesthetics and enhanced property value to ensure success. Embrace ESC as asset. If it is not required now in your area, it will be. Be the first to be the expert on it; sell as your advantage over other landscape professionals.

#### Q&A

*Who enforces the law?*

MDE writes the regulations and delegates enforcement authority to local jurisdictions.

*For projects installed on private property, does county do the maintenance or the property owner?*

Case by case; both are done.

**Presenter: Robert McGrory, Town Manager, Town of Centreville, Maryland**

#### ***Corsica River Watershed: Impervious Surface and Urban Tree Canopy***

Corsica River, a 34-square-mile watershed, was declared a state targeted watershed by Governor Ehrlich's administration. A 3-year EPA "319" grant was awarded by the state DNR to undertake model fixes and measure results. The project involves many stakeholders and partners. Queen Anne's County government is mandating practices, while Town of Centreville is promoting voluntary compliance.

Protecting the watershed – in 2004 a Watershed Restoration Action Strategy (WRAS) was developed which formed the basis for funding actions in the watershed. The watershed is 80 percent agriculture, 20 percent "urban" which includes the town. The town is dealing with their 20 percent share of the pollution into the river through stormwater retrofits and upgrading the wastewater treatment plant.

Funding sources include MDA (EPA 319), DNR (waterway improvement), SHA (TEP) municipal fee in lieu of donations.

Potential funding sources include 2010 trust for residential projects, Maryland Heritage Areas Authority, e.g. War of 1812 heritage funding.

#### Funded activities

- Capacity building – EPA 319 grant pays for a Watershed Manager position.
- Data development – McCrone, a local engineering firm, has donated GIS services for mapping
- Stormwater management
- Programmatic changes: -- WRAS; pet waste management; tree canopy increases; LID practices
- Education and outreach

GIS – used to locate urban nonpoint sources; lot coverage.

Residential rain garden program – under grants, rain gardens are installed on residential property. Residents of new subdivision have participated and are enthusiastic. This is a great gateway to reach residents regarding other watershed issues.

Of 1,563 acres in the Town, 18 percent is impervious surface – roads, buildings, parking, driveways. Of 23,000 acres in the Corsica River watershed, 36 percent is impervious surface.

Stream health has been assessed and is over 30 percent degraded.

Plans are to upgrade SW ponds with habitat projects, funded by state Department of Natural Resources.

The Town of Centreville has three drainage areas. As the largest waterfront property owner, it is important for the Town to set an example for effective SWM.

Projects include:

- Planting trees on a public works yard. Under an agreement with the adjacent property owner, town installed SW structures on his property as well. TEP funds three-fourths of SWM installation.
- Managing coastal plains outfalls with the installation of stepped pools at cost of \$72,000.
- Constructing wooded wetlands. Tree canopy cover currently 25 percent, working towards 35 % with a mix of voluntary and mandatory requirements for planting.

The Town also participates in various education and outreach activities, such as an annual Corsica River Awareness Day, radio spots, and flyers. Campaigns include, for example, pick up pet waste to benefit the river.

Reference web sites –

[www.corsicariver.org](http://www.corsicariver.org)

[www.townofcentreville.org](http://www.townofcentreville.org)

[www.mccrone-inc.com](http://www.mccrone-inc.com)

[www.thinkagis.com](http://www.thinkagis.com)

[www.corsicariverconservancy.org](http://www.corsicariverconservancy.org)

[www.dnr.state.md.us/download/bays/cr-strategy.pdf](http://www.dnr.state.md.us/download/bays/cr-strategy.pdf)

[Summary prepared by Carol Jelich]

## **TRACK C: GETTING IT DONE WITH LOCAL GOVERNMENTS**

### **Session C2. Panel. *Local Government Incentive Programs and Technical Assistance***

**Jennifer Guillaume, District of Columbia Department of Environment**

**Ann English, Montgomery County, Maryland Department of Environmental Protection**

**Aileen Winqvist, Arlington County, Virginia**

**Ron Bowen, Anne Arundel County, Maryland Department of Public Works**

**Moderator: Pam Rowe, Montgomery County, Maryland**

**Overview:** This session detailed the different programs undertaken by four area jurisdictions (DC, Montgomery County, Maryland, Anne Arundel County, Maryland and Arlington County, Virginia) to educate homeowners in green practices and in some cases offer them financial incentives for home improvements which deal wisely with stormwater.

#### **Presenter: Jennifer Guillaume, District of Columbia**

River Smart Homes is a district-wide program giving incentives to homeowners who want to reduce stormwater runoff. "Clean Water Starts in Your Yard."

Background: They want to reduce stormwater runoff and recharge groundwater. The impervious area in DC is huge. Over 34 miles of rivers do not allow swimming due to pathogens caused mainly by sewer overflow and urban runoff. One-third of DC land is federal land, giving DC a smaller tax base. It is difficult to coordinate with the federal government to do work on these lands. Residential properties are the biggest land use in DC, and the slowest areas to be redeveloped. Thus reaching individual homeowners is key to stormwater management.

Problems: 35% of homeowners do not have cars in DC, and rain barrels don't fit on bikes. People are reluctant to disconnect their downspouts. Until recently, plumbers had to disconnect a downspout.

The Program: DC residents can enroll in the program online or by calling. Program staff conduct a stormwater audit and make recommendations. One-on-one site assessment works well. The homeowner selects which practices they want to install. The program may match them with non-profit partners, including such as Casey Trees for tree installation; DC Greenworks rain barrels; Alliance for the Chesapeake Bay for rain gardens. Many backyards don't have space for a rain barrel. A financial credit is given for installing shade trees and rain barrels. Not completely free; homeowners pay about ten percent of cost.

There is high interest in the program. Over 1200 homeowners are interested. Over 400 audits have been completed. They are working to set up a marketplace so homeowners don't have to wait to make desired improvements. They made a list of contractors. Homeowners can get estimates from the contractors. The program does day-long trainings for contractors, teaches them about Bayscapes, etc. Homeowners pay the contractor directly for improvements, and then the credit is taken off their bill.

Web site: <http://ddoe.de.gov/riversmarthomes>

#### **Presenter: Ann English, Montgomery County, Maryland**

Montgomery County, Maryland is located at the headwaters of the Potomac River. The county has a Rainscapes Program. They conduct outreach workshops and training on rain barrels and rain garden design. There are rebate incentives in most of the county. They are trying to quantify the benefits from these programs. They also do programs for landscape contractors.

Background: 30-40% of impervious surface is from roofs. Driveways are also a problem. They want to reduce runoff, pollutants and recharge groundwater.

The Program: The residential program gives a rebate of up to \$1200. Commercial limit is \$5,000. People pay up front for improvements, then after inspection they are rebated. The program wants to treat a minimum of a 1.5 inch storm. Improvements may cost only \$400-500 if homeowner did the work rather than a contractor.

Conservation landscaping: they give \$500 per property for converting 500 square feet of turf to 75% native plantings.

Tree canopy rebate: up to \$600 per property, \$200 per native canopy tree giving shade.

Permeable pavers: \$1200 per property, if converting an existing hardscape.

Green roof: \$1200 per property for a green roof on an existing roof covering at least a quarter of the roof. Must be installed by a contractor. New construction actually adds to impervious surface so they don't rebate for it.

Rain barrel: \$200 per property if it holds 200 gallons.

Cistern: \$500 for a cistern capturing 250 gallons (for external irrigation only).

Drywells: \$300 per property.

All participation must be voluntary.

The program is targeting neighborhoods in which contractors will install rain gardens from template designs. Homeowners can add to the template at their own cost.

Training programs: They teach people about rain barrels, rain gardens, etc. Make and take rain barrel workshops – bring a big car to haul it away! Rain garden program –learn basics and plants to use, site design help. A list of designers is provided if they want help. Contractor training – contractors are taken to see a rain garden installed, learn how to assess a property.

People who do business in Montgomery County are also welcome, don't have to live there. Funding for incentives comes from a portion of property taxes. The goal is to reduce runoff to zero.

Q&A

*Why exclude new construction green roofs?* Because with new additions, impervious surface is added. This is still under discussion.

**Presenter: Ron Bowen, Anne Arundel County, Maryland**

Background: 65% of their impervious surface is private property, whether residential or commercial.

The Program: They seek to help people understand where Anne Arundel County fits in the Chesapeake Bay watershed, and that what goes into their stream will go into the bay.

The county identifies and trains community leaders who go back into their communities and engage others: watershed stewards. Watershed stewards conduct public education and coordinate action – e.g. doing projects on private property – rain gardens, etc.

Certification course has been developed in tandem with professionals and educators. Professionals, local government and academy staff train people. They are trying to reach citizens, organizations and businesses. They are currently working to form a nonprofit advisory board after running the program for three years, to become self-supporting. Advisory board is working on 501(c)3 status, finding funding, awarding grants,

They provide ongoing professional education for these stewards – networking opportunities, workshops, etc. Support professionals give training support, technical assistance and have formed a speakers bureau. The program has created a small army of engagement and involvement.

They will create a toolbox of knowledge – how-to guides. They are working to consolidate resources to a manageable number. The Executive Director of the Watershed Stewards Academy will maintain a library of resources.

There were about 32 in the original class. Amazing bunch of people. They will reduce the next class size.

Other activity in Anne Arundel County: a new stormwater management tax credit. This is a credit against property tax. 10% of material and installation cost per year over 5 years. So, up to 50% credit. Maximum credit \$10,000. No credits for projects required under law. They must maintain the improvements or county can collect the credit given plus 20%.

Online handout: Stormwater Management Tax Credit form (posted).

**Presenter: Aileen Winqvist, Arlington County, Virginia**

Green workshop series started in 2007. They do 30-40 workshops each year on home, garden, stormwater and energy. Very hands on. No financial rebate program yet.

The Program:

*Rain barrel program.* Partnering with Arlington, Alexandria, and Fairfax Counties. Make and take workshops- \$50 per barrel, 40 people per workshop. Pre-made barrels - \$60 per barrel and up to 150 people per workshop. Anyone can come. Workshops are 90 minutes long. They recruit volunteers and give them a free rain barrel. Partner with businesses and Scout troops.

To date, they have sold 2000 rain barrels. 33% of people have completed a survey. 78% of people install their barrel, and 91% are satisfied. 85% of people wanted a rain barrel for water conservation, 41% want water for dry periods, 37% wanted to reduce runoff. Most people don't know how much water comes off their roofs. After taking a workshop, 71% redirect their downspouts.

*Rain garden workshops.* Six held to date. Usually they are full. One training was held for landscape professionals. 27% of participants completed a survey after the workshop. 20% installed a rain garden after the workshop. 50% had decided their site was not appropriate. 37% were thinking they would still do one later. People asked for financial incentives and help with choosing plants. Rain Garden site tour held in October.

*Green home and garden tours.* Happens every June with 15-20 sites. They list the destinations and people can go around to them. Several hundred people come. They also have a resource list on creating green homes.

## **Discussion**

What about the soil underneath pervious paving? Will it absorb water? If not you have not improved function. Might have to underdrain lousy soil.

Half of people in the audience were not aware of the financial incentives. What is the best way to get the word out? To get the volume of people, it will have to be a private/public partnership, Start with nursery contractors to get the word out.

Audience member: can this happen through licensed peoples' needs for CEUs?

Ann English: response to rain-garden-build day. Contractors liked it being hands-on. Now two contractors want to use it.

Contractors are the ones selling this...should they get a financial incentive? They will have to train a whole staff in new techniques. They are the ones who will push it.

Audience member: Zoning codes push you to get water off the property. Homeowners often think they don't have a choice. Virginia is working on changing stormwater requirements for homes.

What about a tax credit for a good tree and a tax debit for an invasive tree?

Montgomery County has had only 1 or 2 applications for a green roof so far. Pretty small.

Montgomery County offers "Promoting the Tree" coupon for free tree.

Audience: Jobs are created by these projects. Now the government wants game-changing ideas. Where federal money is involved, they want to know how many jobs will be created. DC's program was created by stimulus funding. They are keeping statistics on how many jobs are being created, and this will be publicly available.

[Summaries prepared by Carol Cavanaugh and Elena Harvith]

## TRACK C: GETTING IT DONE WITH LOCAL GOVERNMENTS

### Session C3. Panel. *Projects and Lessons Learned*

Anya Zmudzka Sattler, ArtGarden Design

Lauren Wheeler, Natural Resource Design

Adele O'Dowd, Willow Landscape Design

Daryl Braithwaite, City of Takoma Park, Maryland

Aileen Winqvist, Arlington County, Virginia

Moderator: Carol Heiser, Virginia Department of Game and Inland Fisheries

**Overview:** Obstacles faced and lessons learned in five on-the-ground projects

- I. Demonstration of the conversion of a barren residential landscape to a natural one
  - A. "Conservation landscaping is accomplishing something unfulfilled in that space"
  - B. Start fleshing out the project with a specific vision or feel
  - C. Lesson Learned: Client adopted natural plantings because the designer 'told her to'
  
- II. Demonstration of a residential stormwater treatment using criteria from the Maryland 2000 Stormwater Design Manual
  - A. Assess the limitation of the project and design to specs
  - B. Cooperate and collaborate in conjunction with others – including residents (neighborhood meeting with donuts and coffee out of the back of the designer's truck – basic but effective) Get community input and honestly incorporate into design
  - C. Lessons Learned
    1. Existing streets may have older streets under them and other hidden treasures
    2. Gently work around trees
    3. Monitor before and after construction
    4. Inflow and outflow of stormwater never ceases to be amazing. Be prepared to make adjustments
    5. Work closely with your communities
  
- III. Demonstration of an Outdoor Classroom for an urban elementary school without an unpaved playground
  - A. Problem: How can we expect kids to appreciate or desire their environment if it consists of asphalt?
  - B. Solution: Create an immediate environment, not an abstract one (rainforest)
  - C. How: This was an all-volunteer effort and was a designed project including a full set of construction documents and \$50,000 in NFWF grants. Parents were laborers and a local contractor (Level Green) donated services. Demolition was *pro bono* courtesy of the DC Dept. of the Environment
  - D. Lessons Learned
    1. Soil – terrible composition. Had to replace completely, which ate budget
    2. Project is now phased until additional funds are raised

IV. Demonstration of an idea seeded by an existing community rain garden resulting in the Powhatan Springs Children's Rain garden

A. Idea was suggested at a community meeting after another rain garden had been installed

1. Designed (Oculus Landscape Design with Kerns Group and artist Jann Rosen Queralt) to be interactive, complementary of sports areas and to treat runoff
2. Ground and roof runoff filtered. Pumps allow children to pull water up from cistern and drip basins from roof
3. Rain garden contains an underdrain

B. Problems

1. First set of plants did not work (used obligate wetland plants such as rushes). Second planting of goldenrod and switchgrass was successful
2. Lack of maintenance

Solutions

1. Best to plant with something tall to choke out weeds. This helps keep the garden low maintenance
2. Design for a certain stormwater capacity but there is always going to be a time where you're going to exceed that

Garden is located at 6020 Wilson Blvd in Arlington, VA. Contact [awingquist@arlingtonva.us](mailto:awingquist@arlingtonva.us)

[Summary prepared by Kara Bowne Crissey]

## TRACK D: THE SCIENCE OF SUSTAINABILITY: URBAN ECOLOGY AND NEW TECHNOLOGIES

### Session D1. *Soil Compaction*

Dr. Stu Schwartz, Center for Urban Environmental Research and Education, UMBC

- I. Effects of soil in urban landscapes
  - A. Landscaping services under-appreciate the role of soil compaction
  - B. Pervious is at least as important as impervious in the landscape. There are challenges and opportunities
    1. Portfolio of services should:
      - a. Provide incentives for a shift of behaviors
      - b. Acknowledge results are generated by cumulative impacts of decisions
- II. What is the right instrument to achieve management goals of landscaping services?
  - A. Maintain a high priority on preserving undisturbed areas when possible
  - B. When not possible to preserve areas as undisturbed, minimize disturbance as much as possible
- III. Cities are complex layers of impervious surfaces.
  - A. Ubiquitous in modern landscape development are traumatic changes in soil.
    1. Thinner
    2. Compacted
      - a. Pore spaces are tighter. Individual grains of soil abrade and break into even smaller particles further tightening small spaces and creating less volume and an increase in bulk density resulting in a dramatic change in the ability of water to infiltrate
    3. Soil vitality lost
    4. Capacity of infiltration is lost
      - a. Bulk Density = Material weight per volume
      - b. Porosity = Void space per volume
      - c. Permeability = Ability to transfer water
- IV. Modern Land Development
  - A. Turf Grass Case Study – 125 year old Public Space – The hydrologic function of a landscape cannot be characterized without measurement of infiltration abilities.
    1. Hydrologic test shows initial rate of infiltration high then steady state
    2. Very heavily compacted
    3. Although this is considered pervious land use (turf) there is very little capacity for water infiltration – nearly matched a parking lot level of low hydrologic function.
    2. Why is turf grass more impervious than pervious?
      - a. Modern land development leaves little to no top soil
      - b. Modern lawn treatment results in loss of soil ecology
      - c. Thatch layer in turfgrass can be impervious
  - B. Pervious concrete

1. Pervious concrete only works if soil underneath is permeable too.
  2. If under soil is compacted the possibility of infiltration is precluded.
- C. Engineered topographies – Graded land in developments
1. Why?
    - a. A response to incentives – cost effective way to develop land given current incentives
    - b. Collective decision of individual landowners
- V. How do we evaluate the change in landscaping and consider alternatives?
- A. Preserve undisturbed landscapes
  - B. Minimize compaction and disturbance
- VI. The landscaping community is not familiar with the practices of restoring and renovating compacted soils including:
- A. Subsoiling – Agricultural deep tillage as a practice to “rip” compacted soils
    1. Not feasible for residential/postage stamp yards.
    2. Works for larger properties and new development.
    3. Requires machinery with at least 35 hp per blade.
  - B. Soil amendments – Deep tillage (about 24 inches) plus a chisel plow with organic composts (90% reduction in runoff!)
    1. Not feasible for residential/postage stamp yards.
    2. Works for larger properties and new development.
  - C. Practices to change lawn culture
    1. Check your lawn day with HOAs (Home Owner Associations)
    2. Maryland Master Gardeners: Soil compaction for Bay-Wise Landscape as criteria for points
    3. “Low Mow” and “No Mow” seed mixtures for turf grass
- VI. Postage Stamp Yards
- A. If you have a postage stamp sized yard, what are you trying to infiltrate?
  - B. Best route may be hyperfunctionality
    1. Rain Garden
    2. Permeable sidewalk/pavement
      - a. Sub base such as Cornell structural soils (visit the National Gallery to learn more) – a sub base of uniformly sized large gravel with high porosity and high permeability but can also be compacted. When mixed with planting mix allows tree roots to channel under sidewalks, water to infiltrate.

[Summary prepared by Kara Bowne Crissey]

**TRACK D: THE SCIENCE OF SUSTAINABILITY: URBAN ECOLOGY AND NEW TECHNOLOGIES**  
**Session D2. *Lawns, Landscapes and Identity: What Can Current Landscape Practices Tell Us about the Adoption of New Stormwater Techniques***  
**Dr. David Myers, University of Maryland**

- I. Lawn: An urban problem driven by economic social structure
- II. Interesting statistics:
  - A. 79% (85 million) households are involved in lawn care/ gardening (2002 NGA Harris Poll)
  - B. Lawn and garden sales annual growth of 8% (96 billion dollars)
  - C. Of lawn and garden sales consumers were 35-44 years old and 55+ years old, college graduates, married, 2 person households with annual incomes of 75K.
- III. Lawn and identity
  - A. Lawn is a visual cue to status
  - B. In 1940, a few dandelions are okay in the lawn
  - C. By 1955 dandelions are no longer okay in the lawn because post WWII chemicals are adopted by baby boomers and pushed by advertisers for lawn care.
  - D. Lawns reflect the shared community identity found in typical suburban residential environments:
    1. Conformity
    2. Community status
  - E. Lawns reflect the individual identity found in typical suburban residential environments:
    1. Territoriality
    2. Individual status
    3. Masculinity
  - F. Lawns represent:
    1. Play
    2. Security
    3. Utility
  - G. Lawns are part of an aesthetic of care. "We care, therefore we mow our lawns."
  - H. Lawns are a culture of consumption and a culture of contamination.
- IV. Research by speaker in 1999 demonstrated community 'hands on' practices accomplished the only significant impact on change in lawn culture as compared to direct mail campaigns.
- V. How do we change the norm of our society? ("Rebranding" the lawn)
  - A. The more educated you are the more likely you are to pollute
  - B. Policy makers creating change:
    1. Garden Club of America's criteria for lawn services

2. Choptank River Eastern Bay Conservancy's 'Badge of Dishonor' for over-fertilized/  
fertilized lawns
- VI. Eliminate the sources, not the lawn
    - A. Control, change, eliminate fertilizers
    - B. Reduce, eliminate pesticides
  - VII. The change in cultural norms must begin with the political will of some individual to change a regulation, which may or may not be enforced but it may at least have some impact.

[Summary prepared by Kara Bowne Crissey]

## **TRACK D: THE SCIENCE OF SUSTAINABILITY: URBAN ECOLOGY AND NEW TECHNOLOGIES**

### **Session D3. *The Urban Canopy***

#### **Mike Galvin, Casey Trees**

Casey Trees is seeking to restore, enhance and protect the tree canopy of Washington DC.

Background: This is the first time in history that more than 50% of the world's people will be urban, raising questions about carrying capacity, human health and sustainability. In 1920 urban and rural populations were equal. Now we are 80% urban. When Europeans first came here, the Chesapeake Bay area was 95% forested.

Evolution of the Bay program. It used to be all about the water. After 10 years, they started looking at the land around the water. The Chesapeake Bay is unique among all world's estuaries. It has a much bigger area of land draining into a much smaller area of water than anywhere else into the world. So we have to look at the land use.

After construction, you lose canopy and alter the hydrologic cycle. There is a great increase in surface runoff.

Correlation between impervious cover and stream health. Relationship between tree canopy cover and the watershed.

Is water a problem or a resource? We want to get it out of the way. With the urban tree canopy program, we are trying to collect water like a sponge. We don't know how to stop the spigot from flowing, so we need a bigger sponge. Forests release a rain event slowly over a period of time. At present levels the tree canopy in 100 years will degrade to having 100% runoff. A rain event would go through the canopy as though it were not there. Imperviousness is increasing as development increases. Impervious cover is 5 times worse than tree cover is good. Climate change predictions show more frequent and more severe weather events over course of time.

District must do some things to keep its good status (compliance) under EPA.

Chesapeake Bay is moving from voluntary to regulatory. DC is the only jurisdiction that is meeting nitrogen and phosphorus targets under the Bay Program rules. They want to plant 4150 trees per year. The goal is to increase the tree canopy by 5%. Create tree box standards. Must not only plant trees, but protect the ones that already exist.

Metro DC/Baltimore region has included trees in their strategic implementation plan for ozone reduction, the only jurisdiction in the country to do so. All our local jurisdictions had to join together to do this.

Air/heat island. In California in 2007 they say that environmental effects are coming more from impervious cover increase than from climate change itself.

Air quality. Two regulated pollutants are smog (ozone) and soot (particulate). Trees raise the height of ozone above us. They also reduce air temperature and reduce energy needed for cooling. Remove ozone and NOx from air.

Some day Clean Air Act may require tree planting. A 5% increase in tree canopy results in a measurable reduction in pollution.

Regional greenhouse gas initiative. Ten states in the Northeastern US plan to launch market by 2009. The goal is to cut power plant emissions by 10%.

In a regulatory market you can buy and sell credits. Not so in a voluntary situation.

Casey Trees: Mapping land cover through using high resolution gives 95% accuracy or more. Land cover mapping was formerly done through Landsat, which didn't assess accurately. Aerial imagery is remarkably more detailed, more reliable.

They look at the existing urban tree canopy. Then, they look at what the tree canopy will be with vegetation vs. with impervious coverage. What can we cover physically vs. what will be tolerated socially? For example, FedEx field physically could be planted with trees, but not socially.

They ask: how much canopy do you have? How much could you potentially have? Then they target areas where the air quality is bad, but there is a high potential for trees and a high willingness in the community to plant and care for them.

D.C canopy goal is 40% tree coverage by 2035. Presently coverage is 35%. Need 2,041 acres of new tree canopy. 100 trees to be planted per acre. They assume a 6% loss of existing trees from any cause – disease or construction. This adds up to: 216,300 trees must be planted, 8,600 trees per year.

Measuring success. Tree report card will be issued annually. Will look at performance relative to the 40% goal.

Bigger trees have a much bigger environmental effect.

## **Discussion**

*How do we sell trees to customers?* Lots of people want instant gratification. Most people don't want to wait 20 years. City managers may not have the incentive if it takes 20 years to get the benefit. They think short-term.

Most fast growing trees are weak wooded, subject to breakage. People think Bradford pears are good because they grow faster. People have to be educated. At 40-45 years natural trees begin to die and people cut them down. At that point, do they replace them? This is the decision point. Will I replace the tree?

Upcoming goals: Launch “Trees of Note” program in December 2009. Convene a tree summit to engage community in canopy goal. Launch big tree care initiative in summer: encourage people to water, mulch trees using social media. Use colors: green, yellow, red to notify the community of times of drought when people need to get involved.

Below-ground biomass helps soil stability. Mycorrhizae, fungi, insects cluster around trees. Urban areas are not native areas. So it is sometimes hard to install a native tree. The natives won’t like the non-natural area.

Tree benefits calculator. You can plug in details of your tree, and it will tell you its stormwater management ability, etc. The software is iTree.

*What gets a community to establish a tree canopy goal? A cost-effective program that is replicable.*

If you plant a tree on the south or west side of your house, you save 10-15% on your cooling costs.

[Summary prepared by Carol Cavanaugh]

## **The Urban Canopy as an Environmental Management Tool**

*by Mike Galvin, Deputy Director of Casey Trees*

DC’s trees are about to have more company. At least, that is the goal of Casey Trees, the nonprofit organization whose mission is to increase the city’s tree canopy by 5 percent -- from 35 to 40 percent -- by 2035. Attaining the 40 percent goal would require planting 2000 acres of new canopy, with 100 trees per acre. This translates into 8600 trees per year, or 216,300 trees total by 2035. Mike Galvin, Deputy Director for Casey Trees, outlined the plan and spoke about the vital role that trees play in the health of our environment in his presentation at the CCLC conference.

Increasing DC’s tree canopy will not only improve the aesthetics and livability of the capital, it will lead to significant environmental benefits as well. Trees are known to reduce the heat island effect of urban areas, as well as help to reduce ground level ozone concentrations, making the air we breathe cooler and cleaner.

On a wider scale, trees will play a vital role in restoring the Chesapeake Bay to a functioning ecosystem. The 30-year-old Chesapeake Bay Program initially focused on efforts to clean up and restore the *water*. According to Galvin, the organization soon recognized that in order to fix the water, the *land* needed to be fixed. Specifically, the issue of excess run-off needs to be addressed, as impervious ground in the Bay’s watershed continues to increase at alarming

rates every year. Another interesting point highlighted by Galvin is that the Chesapeake is an especially fragile ecosystem when compared with other estuaries around the world. This is due to the Bay's extremely large watershed (2743 sq. km) draining into a relatively small body of water. The Chesapeake's ratio of land to water is 14:1, which is the largest of any coastal water body in the world. (See [www.chesapeakebay.net](http://www.chesapeakebay.net)) Planting and preserving more trees in the watershed is critical if the ecosystem of the Bay is to be restored.

Galvin also explained the process of Tree Canopy Assessment, which must be conducted before any Urban Tree Canopy program can proceed. Data collection methods are critical. Improvements in Remote Sensing and GIS technology have provided organizations like Casey Trees the power to analyze various data on *individual residential parcels*. Thanks to this innovative technology, organizations are able to create planting maps/plans based on several factors, including physical conditions of the site, environmental need, existing air quality, etc. Check out some incredible interactive maps at <http://www.caseytrees.org/geographic/maps-tools/index.php>

So what's next for DC's Urban Tree Canopy project? Galvin says the organization plans to hold a Tree Summit on March 25, 2010, in which they will formally announce the 40 percent goal to the public. Casey's newly-planted trees are already dotting the streets of Washington (look for their name on the brown water bags around young trees), but Galvin hopes to engage the community in the tree planting effort on a deeper level in order to make greater strides toward the 40 percent goal. Other plans for the UTC project include issuing annual report cards (this year's grade was a B), and launching a major tree care initiative in the summer of 2010.

Casey Trees maintains an excellent website which lays out the UTC project, describes the environmental benefits of trees, and lists volunteer opportunities and classes. Check it out at [www.caseytrees.org](http://www.caseytrees.org).

[Article prepared by Mary Gray]

## PLENARY ADDRESS

*The World Outside: What They Say About Why Your Work Matters*

Eric Eckl, Water Words That Work

In the U.S., only about 250,000 to 500,000 people, or 1:1000 are “like us” – green professionals. Several case examples demonstrate that people who become “green” follow a common path – (1) a “first impression” of an issue or practice; (2) taking a small, first step; (3) an attitude change; and (4) taking a big step in support of the issue, or in implementing the practice. There is a mistaken impression that attitude change precedes the first step. However, most people will take a small first step because you ask them to take it. They feel good having done so, leading to an attitude change and bigger steps.

### First impressions/First Steps

Info USA profiles consumers. They looked at recreation activities in the five bay states:

- 2.56 million gardening
- 1.3 million fishing
- 86 million hunting
- 77.4 million camping
- .5 million boating

Study looked at what’s important to them:

- 53 percent say pollution
- 44 percent say habitat loss

A Chesapeake Bay Trust study in 2008 – *Marylanders and the Environment* – revealed that 55 percent said the Chesapeake Bay is important to them. Yet it doesn’t feel that way. Research reveals that, for example, 60 percent of people surveyed did not know who does licensing of fishing; some said it is the National Park Service.

We tend to confuse how loud one person is with how many people feel that way (complaints weigh heavily). The number of dissatisfied will never be 0, and 3 percent will never be quiet.

A rookie mistake in developing promotional materials and projects is to give people too much information too fast. At the first nibble of interest, we pile on with our handouts, etc. Better to provide a bit of information, enticing them to learn more on their own.

We also need to be careful about using jargon. Only 40 percent of people in one survey could pull the definition of the word “watershed” from four choices in a multiple choice question. Lack of confidence is a big barrier. If we try to make them talk like us, and they don’t understand the language, they’re not going to say anything.

In 1984, a very important study was conducted of recreation in America. Results showed that people who remember spending time outside with their family as children are 50 to 60 percent more likely to report that they recall being satisfied with family life as a child, and 50 percent more likely to say they are more satisfied with family life today. They are more likely to be satisfied with friends, over their lifetime; choice of careers; overall success in life; and with quality of their lives generally.

This research shows that the most important thing a parent can do is to make sure to spend time with the children outside. Also, it indicates that we can increase the effectiveness of promotional materials by reminding the audience of this connection. When we show young and old people together outside, it taps into a deep vein.

## **Q&A**

*What do you say about the word stormwater?* It's an awful word, runoff not much better.

*Can kids transfer their enthusiasm about the environment to adults?* Market research results are inconclusive.

[Summary prepared by Carol Jelich]