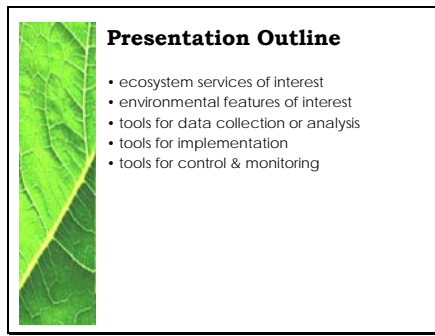


Slide 1



Basic “tools” for green infrastructure project planning & management.

Slide 2



In this presentation I will briefly discuss:


- the **tools that...**
  - measure or help locate environmental features
  - quantify environmental services those features provide
  - create or analyze data used in GI planning, implementation, and management
  - and those that protect or mandate creation or protection of GI

GI must be planned, developed, and **managed**.

Prepared by:  
Dudley R. Hartel, Center Manager  
Urban Forestry South

Presented by:  
Daniel Westcot, Senior Community Forester  
Georgia Forestry Commission

Slide 3



**Environmental Services**  
the "value" of green infrastructure


- air quality (urban heat island, PM10)
- watershed services (quality & quantity)
- climate (carbon sequestration)
- biodiversity
- recreation
- energy conservation (i.e. shading, avoided)
- other cultural (physical & mental health)

The "tools" needed for GI planning and implementation are those that can locate, map, and value the environmental **features** (e.g. riparian zones, tree canopy) that provide these services.

The principal environmental services (or ecosystem services/values) that GI provide include:

- improved air quality (local shade, ameliorated regional temperatures, capturing particulates)
- water quality improvement (sediment), and reductions in stormwater runoff (forested/green riparian zones)
- carbon sequestration and avoided carbon
- wildlife and plant diversity; habitat protection
- recreational opportunity (human health related)
- avoided energy from lower demand by shading
- psychological benefits and the complex "quality of life"

Slide 4



**Environmental Features**

- tree canopy
- riparian zones
- agricultural lands
- forest lands
- agroforestry
- wetlands
- dune systems

Green Infrastructure components may be public or private


The principal environmental **features** that create ecosystem services that we value.

Agricultural and forestry lands are often referred to as "working lands/forests".

Portions or entire GI components may be public or private; e.g. tree canopy exists on both publicly controlled and private property.

To be a long-term, valuable GI component, privately held components may be controlled by ordinance or mandated BMPs.

Slide 5




**How “tools” Function**

- locate
- quantify
- measure impact
- analyze
- monitor gains & losses
- protection

The primary ways that “tools” can be used to support GI projects...

- use GIS and image analysis to develop baseline maps & reports
- measure how much there is in miles, acres, perimeter
- characterize the GI project area (e.g. topography, soil types, habitat)
- determine the quantify of environmental services generated;
- show spatial relationships between GI components and/or population (demographics) of the area
- monitor GI components over time
- provide regulatory control (i.e. ordinances) that protect or mandate GI components (e.g. development sites must conserve or create canopy of minimum %; or, riparian zones must meet minimum standards)

Slide 6




**“Tools” To Use**

- GIS-based tools for
  - hydrology
  - canopy and impervious delineation
- cost-benefit software
  - i-Tree Streets (STRATUM)
- ecosystem value software
  - i-Tree Eco (UFORE)
  - carbon calculators
- data (spatial)
  - hydrography
  - infrastructure
  - public lands

“Tools” loosely defined include:

- software
- GIS based systems
- cost/benefit models
- carbon calculators
- data of all types for the GI objectives at hand

Slide 7



**“Tools” To Use**

- inventories
  - trees
  - canopy
- ordinances
  - Smartcode
  - BMPs
- development practices
  - New Urbanism
  - LID (low impact development)
- rating systems
  - LEED-ND

“Tools” loosely defined include (con’t):

- inventories
- ordinances & regulations
- best management practices
- development guides or practices (e.g. Low Impact Development, LID)
- qualitative/quantitative rating systems (sustainable forestry initiative, SFI)

Planners, Landscape Architects, urban foresters, hydrologist, developers, and other professionals that are “versed’ in a wide variety of tools and practices can use this expertise effectively in developing and managing GI projects.

GI development that draws on an array of professions will bring the variety and depth of tools needed for GI success.

Slide 8



**Daniel Westcot**  
Senior Community Forester  
Georgia Forestry Commission  
(912) 330-0918  
dwestcot@gfc.state.ga.us

**Dudley R. Hartel**  
Center Manager, Urban Forestry South  
Athens, Georgia

(706) 559-4236 office  
dhartel@fs.fed.us

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



A PDF of this presentation will be at [www.UrbanForestrySouth.org](http://www.UrbanForestrySouth.org) .

“Quick Search” with ‘GUFC green infrastructure tools’ (no quotes).

Prepared by:  
Dudley R. Hartel, Center Manager  
Urban Forestry South

Presented by:  
Daniel Westcot, Senior Community Forester  
Georgia Forestry Commission