Professional Opportunities in Sustainability

Sustainable Sites Initiative

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Women's Arboricultural Conference 2012

Tigh-Na-Mara Resort, B.C. Canada

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THE SUSTAINABLE SITES INITIATIVE

The Sustainable Sites Initiative: Translating Science to Performance

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS
ASLA Library & Education Advocacy Fund

Lady Bird Johnson Wildflower center

United States Botanic Garden

LOOKS GREEN BUT IS IT SUSTAINABLE?

STEERING COMMITTEE

American Society of Landscape Architects

Lady Bird Johnson Wildflower Center

United States Botanic Garden

U.S. Green Building Council

U.S. Environmental Protection Agency, GreenScapes Program

National Recreation and Park Association

National Association of County and City Health Officials

The Nature Conservancy, Global Invasive Species Team

University of Texas at Austin, Center for Sustainable Development

American Society of Civil Engineers, Environment & Water Resources Institute

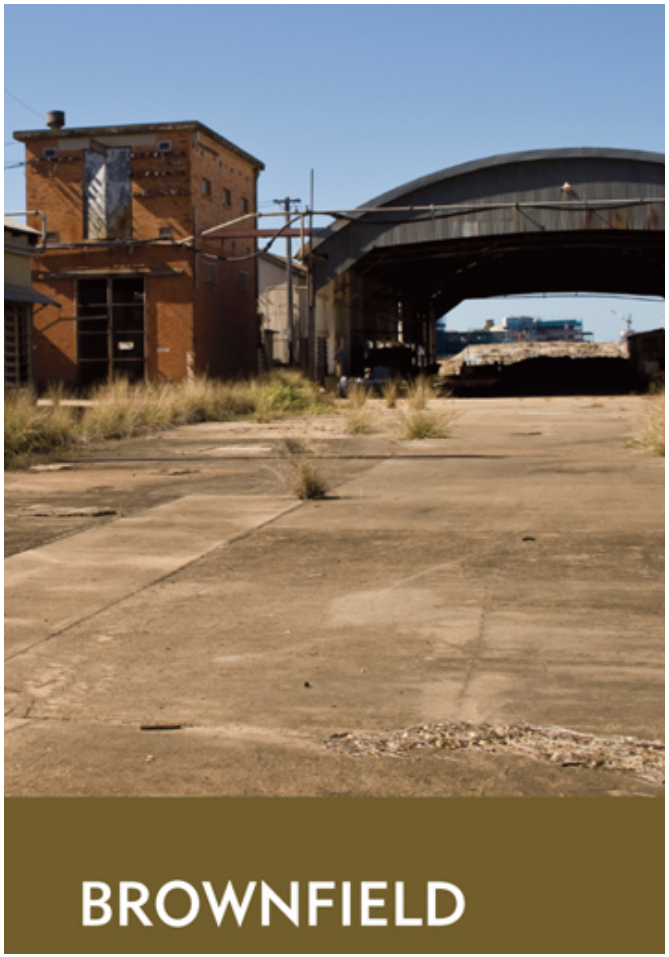
ECOSYSTEM SERVICES

Goods and services, with an estimated combined value of **$33 trillion**, that are produced by ecosystem processes.

Constanza et al (1997)

ECOSYSTEM SERVICES

*All sites **CAN** provide ecosystem services*



SUSTAINABLE DEVELOPMENT:

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Brundtland Report,
*Our Common Future (*1987)

POTENTIAL PROJECT TYPES

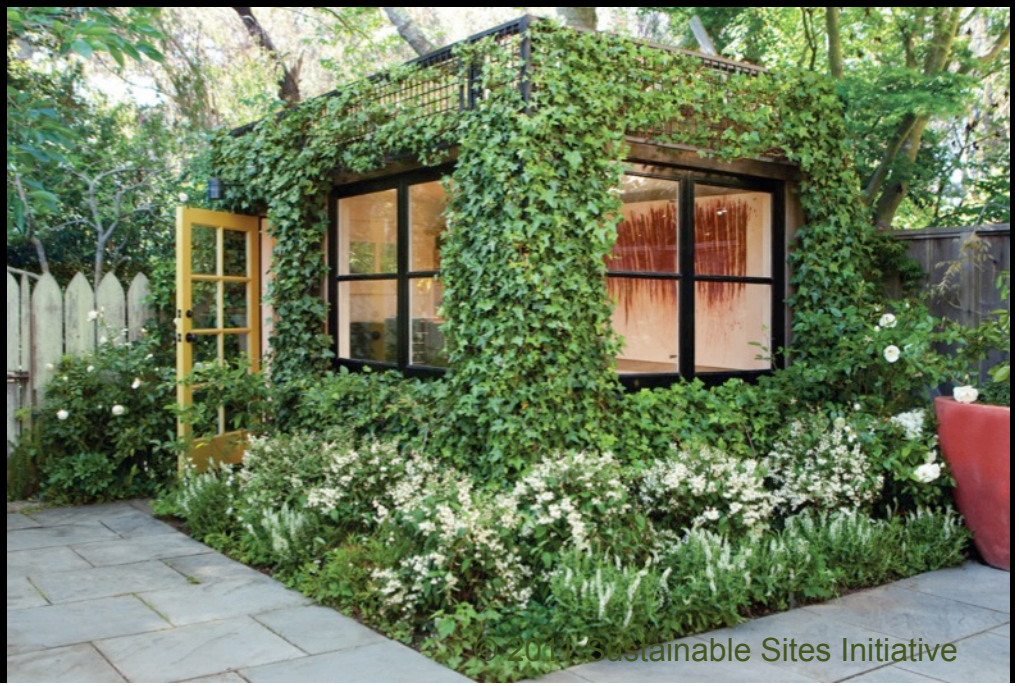
Sites with or without buildings:

- parks, trails, campgrounds
- industrial and office parks
- govt. & medical complexes
- conservation easements
- botanical gardens
- university campuses
- residential sites
- streetscapes & plazas

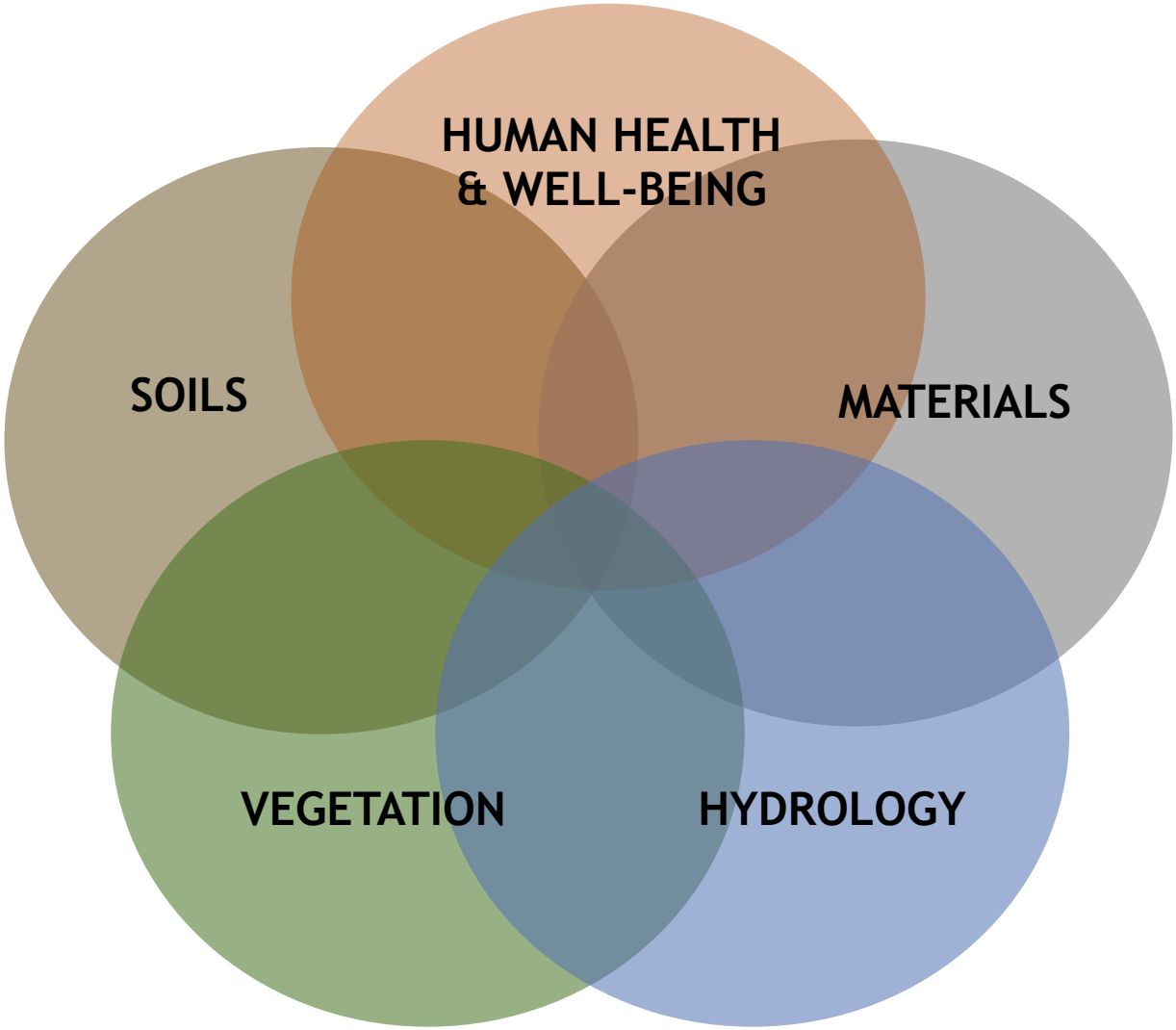



Project Applications

Clarify Site Definition/Criteria



Research & Evidence Based



THE SUSTAINABLE SITES INITIATIVE™

An Integrated Approach

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS
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Success of Green Building

As of 2010, green building accounted for 25% of all new construction activity.

The green building market size is expected to reach $135 billion by 2015.

The value of green building construction starts was up 50% from 2008 to 2010— from $42 billion to $55 billion-$71 billion.

Source: McGraw-Hill Construction (2010). Green Outlook 2011: Green Trends Driving Growth.

LEED
Green Building Rating Systems

- *Leadership in Energy and Environmental Design*
- using tools and performance criteria
- building and development checklist
- started in U.S. in 1998, now 30 countries, 14,000 projects

LEED Performance Checklist

- sustainable site development
- water savings
- energy efficiency and atmosphere
- materials selection
- indoor environmental quality

LEED Certification - Summary

- Performance Criteria = design score
- Rating Levels: Silver, Gold, Platinum
- Adopted widely! Incentive not regulation
- Project certification & professionals are certified

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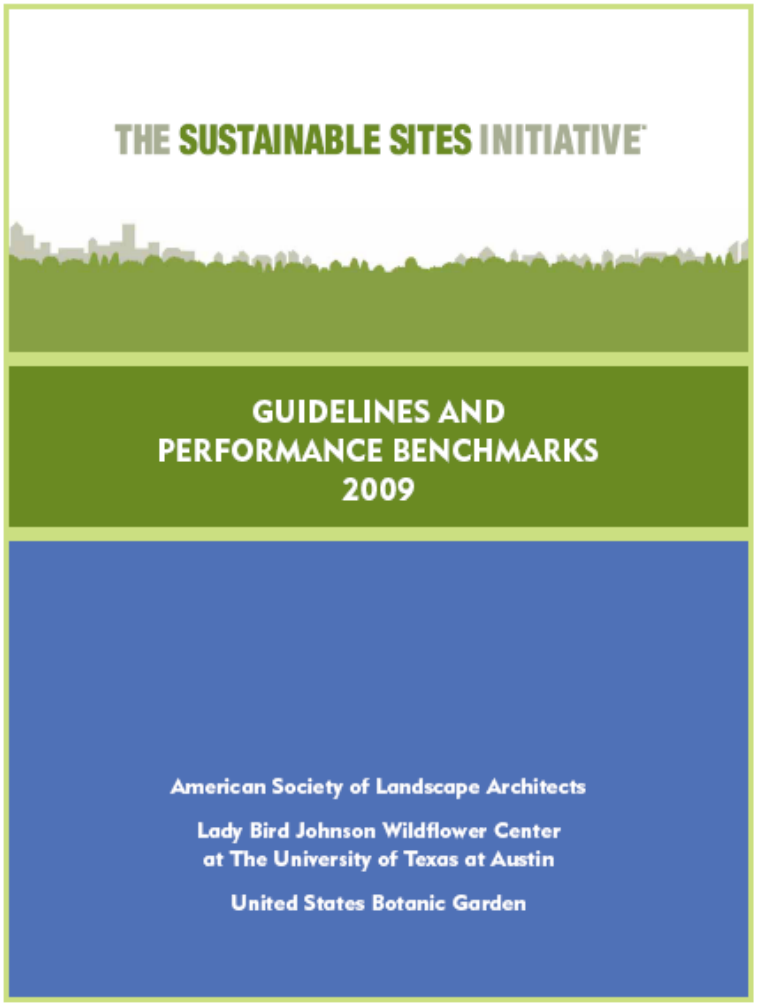
GUIDING PRINCIPLES

- Do no harm
- Use the precautionary principle
- Design with nature and culture
- Use a decision-making hierarchy of preservation, restoration and regeneration
- Provide regenerative systems as intergenerational equity
- Support a living process
- Use a systems thinking approach
- Use a collaborative and ethical approach
- Maintain integrity in leadership and research
- Foster environmental stewardship

Guidelines & Performance Benchmarks

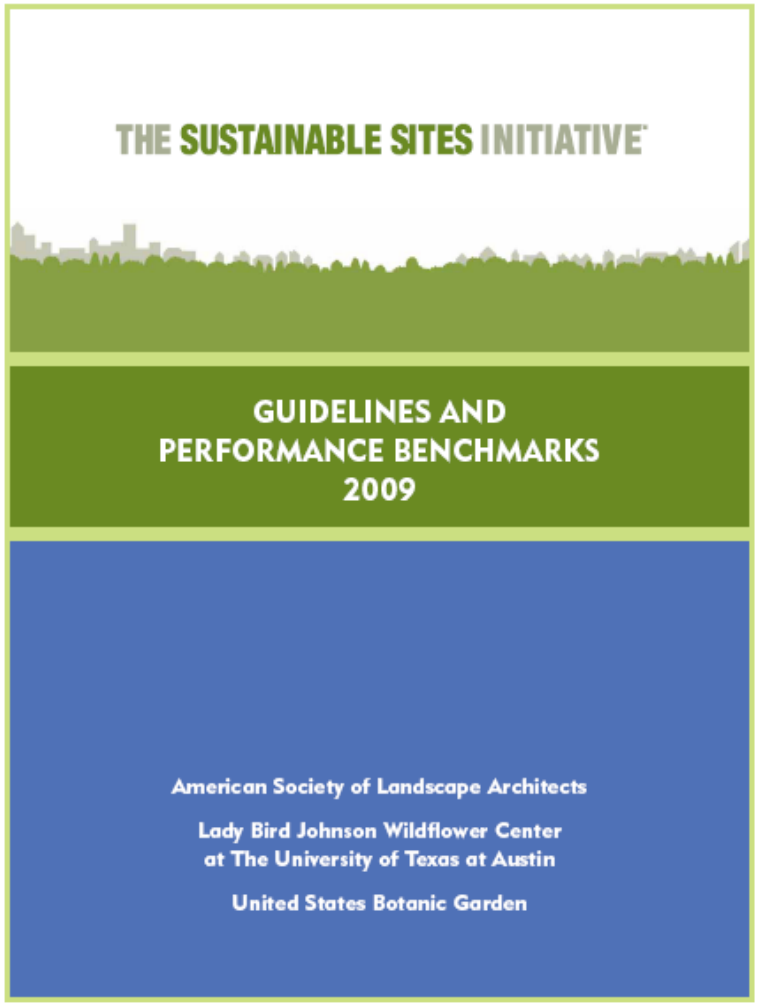


- **Site Selection**
- **Pre-Design Assessment**
- **Site Design – Water**
- **Site Design – Soil and Vegetation**
- **Site Design – Materials**
- **Site Design – Human Health & Well Being**
- **Construction**
- **Operations and Maintenance**
- **Monitoring and Innovation**

released November 2009

RATING SYSTEM

Guidelines & Performance Benchmarks 2009



- **250 point scale**
- **Recognize % of attainment**
- **Multiple point levels for many credits**
- **4 levels of certification**

Guidelines and Performance Benchmarks

Site Selection
Preserve existing resources and repair damaged systems

Pre-Design Assessment and Planning
Plan for sustainability from the onset of the project

Site Design – Ecological Component
Protect and restore site processes and systems

Site Design Human Health Component
Build communities and a sense of stewardship

Site Design – Materials Selection
Reuse/recycle and support sustainable production practices

Construction
Minimize effects of construction related activities

Operations and Maintenance
Maintain the site for long-term sustainability

DRAFT PREREQUISITES AND CREDITS

1 SITE SELECTION
Select locations to preserve existing resources and repair damaged systems

1.1 Prerequisite	**Preserve threatened or endangered species habitat**
1.2 Prerequisite	**Protect and restore floodplain functions of riparian and coastal zones**
1.3 Prerequisite	**Limit disturbance of prime farmland soils, unique soils, and soils of statewide importance**
1.4 Credit	Select brownfields or greyfields for redevelopment

2 PRE-DESIGN ASSESSMENT AND PLANNING
Plan for sustainability from the onset of the project

2.1 Prerequisite	**Conduct a pre-design site assessment**
2.2 Prerequisite	**Use an integrated design process**
2.3 Prerequisite	**Develop a program plan with site performance goals**
2.4 Credit	Engage users and other stakeholders in meaningful participation in site design

3 SITE DESIGN—ECOLOGICAL COMPONENTS
Protect and restore site processes and systems

3.1 Prerequisite	**Control and manage invasive species**
3.2 Prerequisite	**Use appropriate, non-invasive plants**
3.3 Prerequisite	**Preserve special status trees**
3.4 Prerequisite	**Reduce potable water consumption for irrigation**
3.5 Credit	Minimize or eliminate potable water consumption for irrigation
3.6 Credit	Preserve and restore plant biomass on-site
3.7 Credit	Minimize building heating and cooling requirements with vegetation
3.8 Credit	Reduce urban heat island effects
3.9 Credit	Promote a sense of place with native vegetation
3.10 Credit	Preserve and restore native wildlife habitat
3.11 Credit	Protect and restore riparian and wetland buffers
3.12 Credit	Repair or restore damaged or lost streams, wetlands, and coastal habitats
3.13 Credit	Preserve existing healthy soils
3.14 Credit	Preserve existing topography
3.15 Credit	Restore soils disturbed by previous development
3.16 Credit	Manage water on site
3.17 Credit	Cleanse water on-site
3.18 Credit	Eliminate potable water use in ornamental or stormwater features
3.19 Credit	Minimize use of potable water in water features designed for full human contact
3.20 Credit	Mitigate potential wildfire risks

4 SITE DESIGN—HUMAN HEALTH COMPONENTS
Build strong communities and a sense of stewardship

4.1 Credit	Promote equitable site design, construction, and use
4.2 Credit	Promote sustainability awareness and education
4.3 Credit	Provide for optimum site accessibility, safety, and wayfinding
4.4 Credit	Provide views of the natural environment to building occupants
4.5 Credit	Provide opportunities for outdoor physical activity
4.6 Credit	Connect site to surrounding resources, amenities, and services
4.7 Credit	Provide outdoor spaces for mental restoration
4.8 Credit	Provide outdoor spaces for social interaction
4.9 Credit	Design stormwater management features to be a landscape amenity
4.10 Credit	Prevent and abate sensory stress
4.11 Credit	Protect and promote unique cultural and historical site attributes

5 SITE DESIGN—MATERIALS SELECTION
Reuse/recycle existing materials and support sustainable production practices

5.1 Prerequisite	**Eliminate use of lumber from threatened tree species**
5.2 Credit	Support sustainable practices in plant production
5.3 Credit	Support sustainable practices in materials manufacturing
5.4 Credit	Reuse on-site structures, hardscape, and landscape amenities
5.5 Credit	Use salvaged and recycled content materials
5.6 Credit	Use certified wood
5.7 Credit	Use products designed for reuse and recycling
5.8 Credit	Use adhesives, sealants, paints, and coatings with reduced VOC emissions
5.9 Credit	Conduct a life cycle assessment

6 CONSTRUCTION
Minimize effects of construction-related activities

6.1 Prerequisite	**Create a soils management plan**
6.2 Prerequisite	**Restore soils disturbed during construction**
6.3 Credit	Achieve a carbon-neutral site
6.4 Credit	Divert construction and demolition materials from disposal
6.5 Credit	Control and retain construction pollutants
6.6 Credit	Use excess vegetation, rocks, and soil generated during construction

7 OPERATIONS AND MAINTENANCE
Maintain the site for long-term sustainability

7.1 Prerequisite	**Plan for sustainable landscape maintenance**
7.2 Credit	Minimize exposure to localized air pollutants
7.3 Credit	Recycle organic matter generated during site operations and maintenance
7.4 Credit	Provide for storage and collection of recyclables
7.5 Credit	Use renewable sources for site outdoor electricity

EXAMPLE CREDIT

1.4 Credit Select brownfields or greyfields for redevelopment

Intent
Channel development to urban areas with existing infrastructure and rehabilitate damaged sites to reduce pressure on undeveloped land and restore ecosystem services.

Requirements
- Option 1 Brownfield redevelopment: Select a site documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment or a local Voluntary Cleanup Program) OR a site defined as a brownfield by a local, state, or federal government agency.
  OR
- Option 2 Greyfield redevelopment: Select a site that has been previously developed or graded.

Suggested submittal documentation
- Option 1: Provide confirmation that the existing site was documented as contaminated or defined as a brownfield, and provide a detailed narrative describing the site contamination.
  OR
- Option 2: Provide a site vicinity plan (e.g., sketches, block diagrams, maps, and aerial photographs) showing the project site and the surrounding sites and buildings.

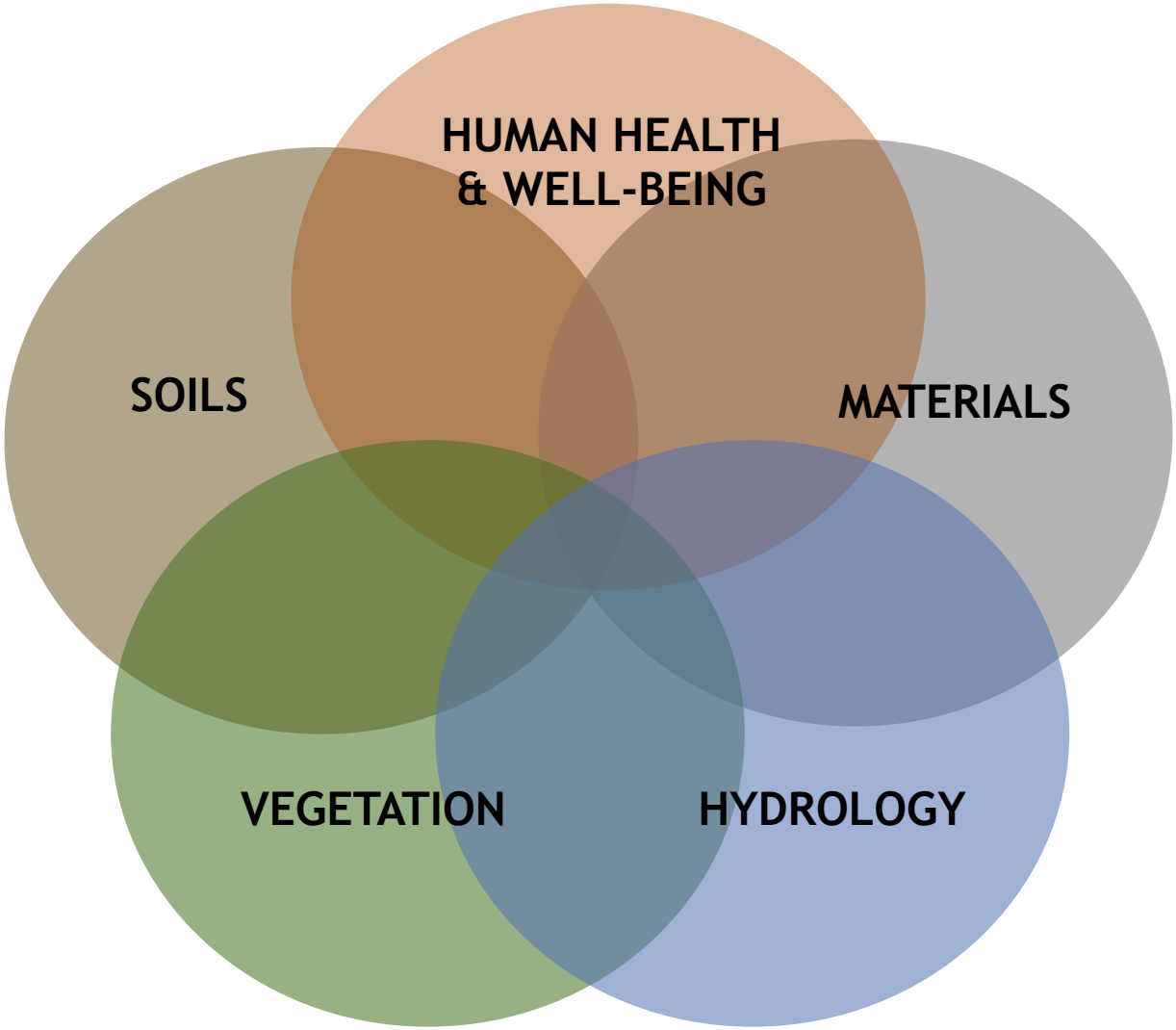
Technologies and strategies
During the site selection process, give preference to previously developed or brownfield sites. Coordinate site development plans with remediation activity and use of existing infrastructure and materials, as appropriate.

Ecosystem services addressed:
- Global climate regulation
- Air and water cleansing
- Waste decomposition and treatment
- Human health and well-being benefits
- Cultural benefits

Economic and social benefits:
Brownfield and greyfield redevelopment reduces pressure on undeveloped land, thereby protecting habitat and preserving natural resources. Using existing infrastructure and on-site materials as resources can reduce project costs for new materials.

The rehabilitation of a site with environmental contamination is an opportunity to improve the environmental quality and resources available to local communities. Such properties may also cost less and be offered for sale with tax incentives.

Research & Evidence Based



Human Health and Well-Being

C 1.6 Select sites within existing communities

C 1.7 Select sites that encourage non-motorized transportation and use of public transit

C 2.3 Engage users and other stakeholders in site design

C 6.1 Promote equitable site development

C 6.2 Promote equitable use of the site

C 6.3 Promote sustainable awareness and education

C 6.4 Protect and maintain unique cultural and historical places

C 6.5 Provide for optimum site accessibility, safety & wayfinding

C 6.6 Provide opportunities for outdoor physical activity

C 6.7 Provide views of vegetation and quiet outdoor spaces for mental restoration

C 6.8 Provide outdoor spaces for social interaction

C 6.9 Reduce light pollution

C 8.6 Minimize exposure to Environmental Tobacco Smoke

PROJECT SCHEDULE

Guidelines and Performance Benchmarks Draft 2008

Released November 2008

Guidelines And Performance Benchmarks 2009 with Rating System

Released November 2009

Pilot Projects Phase

From 2010 – 2012

Reference Guide

Target publication – 2013

PILOT PROJECTS for credit review and revisions

Below is a summary of the projects participating in the pilot program.

PROJECT TYPES

- 25% Open space - Park
- 20% Institutional/Educational
- 15% Commercial
- 13% Residential
- 8% Transportation corridor/ Streetscape
- 8% Open space - Garden/Arboretum
- 6% Government Complex
- 4% Mixed-use
- 1% Industrial

EXISTING LAND USE

- 65% Greyfield
- 20% Greenfield
- 15% Brownfield

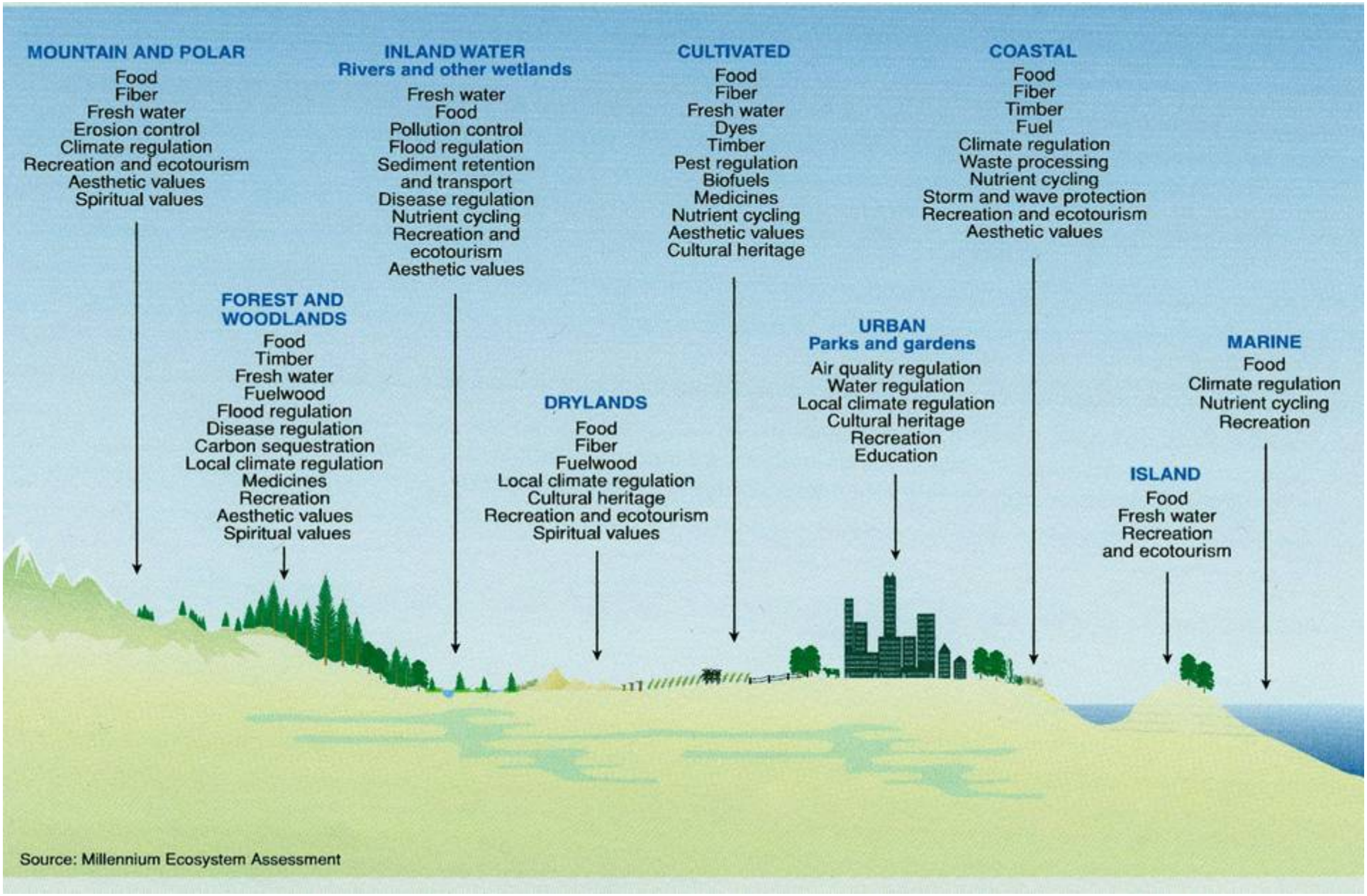
PROJECT SIZE

- 25% Less than one acre
- 27% 1-5 acres
- 40% 6-100 acres
- 7% 101-500 acres
- 1% Greater than 500 acres

PROJECT LOCATIONS

- Projects in 34 U.S. States
- 3% of projects outside U.S. in Canada, Iceland and Spain

Ecosystem Services – landscape gradient



Crissy Field (former Navy airfield, San Fran

Pierce Co Environmental Services, WA

Certifiable?

Namba Parks retail center Osaka, Japan

Certifiable?

Fukuoka City Hall
Tokyo, Japan

THE SUSTAINABLE SITES INITIATIVE

For more information:

www.sustainablesites.org

PDF of this presentation:

www.naturewithin.info

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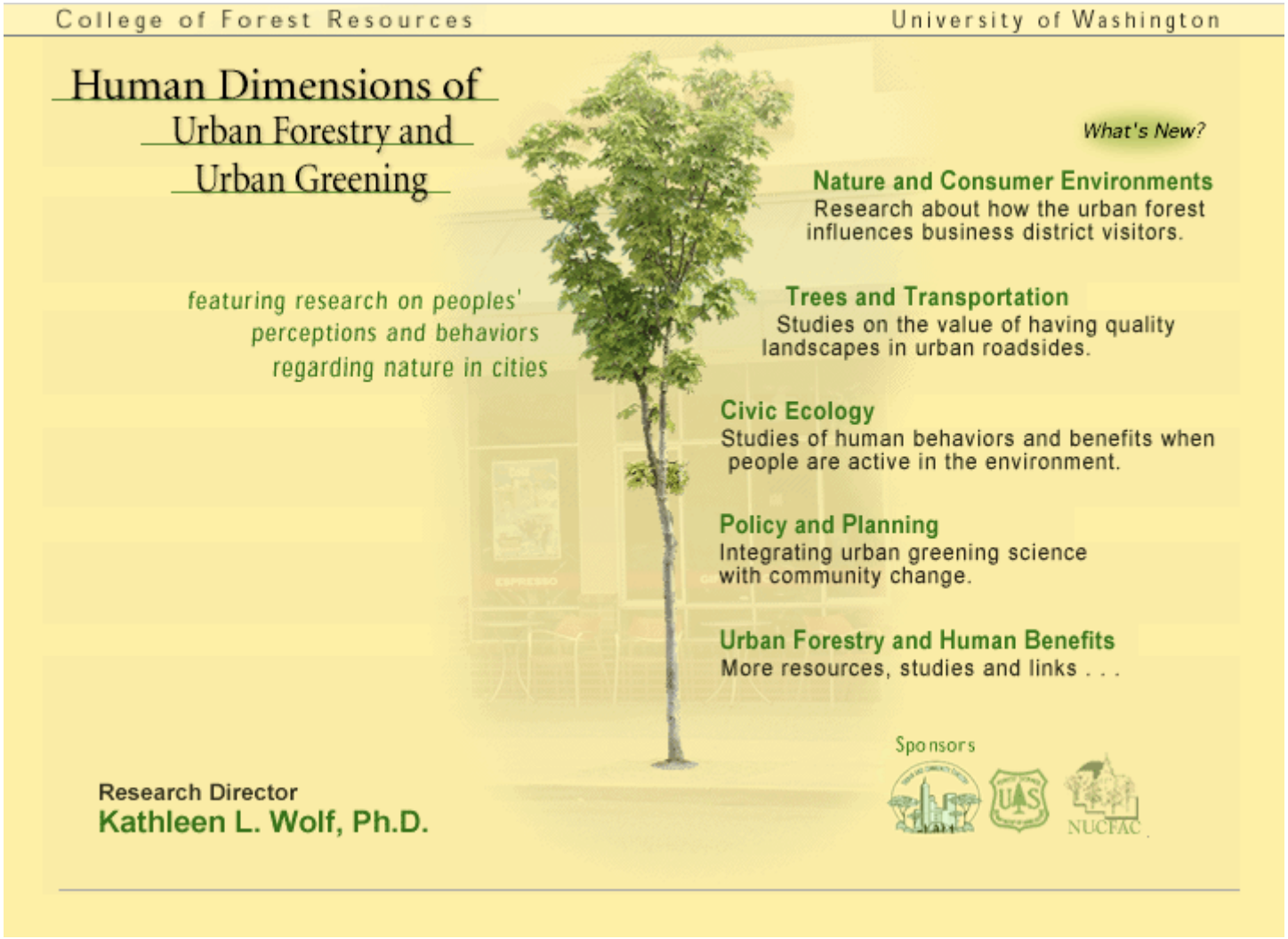

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