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LEADING EDGE DIALOGUE SERIES

NATIONAL URBAN EXTENSION CONFERENCE



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PRESENTED BY:



CONNECTING THE DOTS

Every Leading Edge Dialogue (LED) held at the 2019 National Urban Extension explored innovative shifts in Extension's vision of its future and its role in the communities it serves. While this workshop was not an official LED, the discussions that took place regarding Extension's role (or future) in urban green infrastructure (UGI) as a programming area is a practical example of many of the points raised in the LEDs held during the conference. Specific examples include:

URBAN GREEN INFRASTRUCTURE WORKSHOP

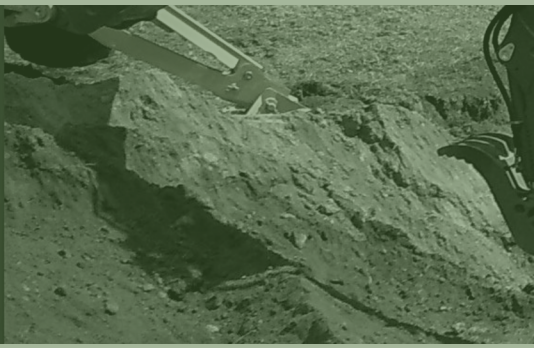
THE ISSUE

What is green infrastructure and why does it matter?

Several definitions of green infrastructure exist, but the foundational vision of authors Benedict and McMahon in their classic text, *Green infrastructure: Linking landscapes and communities*, makes the concept transformational. In their words, green infrastructure is “the ecological framework for environmental, social, and economic health—in short, our natural life-support system.”¹

Green infrastructure is a strategically planned network at the city and even regional scale that includes both land (parks, urban forests, raingardens, bioswales, greenspace, to name a few), and water (rivers, watersheds, etc.). Practitioners emphasize the environmental benefits gained through its use, such as reducing stormwater runoff and flooding, increasing water purification and air quality, addressing climate change through the carbon sequestration of urban forests, and reducing urban heat islands. Working in green infrastructure also enables the clear illustration of often forgotten connections between local and regional food systems and water (roof gardens, community gardens, urban farms, fruit orchards, etc.).

Other benefits of green infrastructure include improvements of physical and mental health, (e.g., decreasing high blood pressure and stress) for those who live or work in close proximity to urban green spaces, or have access to them. Green infrastructure also supports a green economy, increasing job opportunities and providing space for recreational activities (fishing, boating, hiking, to name a few). It is important to recognize that green infrastructure, while often considered an urban feature, is relevant to rural areas as well, although it may be understood and implemented differently. This is particularly true when envisioning the green infrastructure network at the regional or landscape scale. By understanding this, Extension can serve the needs of both rural and urban communities. However, green infrastructure is not a perfect solution to all challenges and Extension, as



CONNECTING THE DOTS CONT'D

- Both the Fulfilling the Land Grant University Mission and the Data & Policy LED called on Extension to increase collaborations across academic and urban boundaries. By working in UGI, Extension should work with landscape architecture, civil and environmental engineering, public health, construction management, and more.
- The Data and Policy LED offers several tools which Extension could utilize to expand its role with municipal and community actors by making community needs visible in ways that advance green infrastructure and its beneficial impacts on economic, environmental, and social issues at multiple scales. Such an expansion of Extension's work strengthens the connection of green infrastructure to Extension programs, as well as broadening its scope with municipalities and other organizations and communities who will need education in the value, utilization and support of green infrastructure and the associated data collection, analysis, and interpretation.

THE ISSUE (CONT'D)

a partner in this process, needs to understand how, why, and when the practice fails, and the appropriate response required to resolve the issue

WORKSHOP BACKGROUND

In February 2018, WCMER held an Urban Green Infrastructure Summit in Tigard, OR (<https://metroextension.wsu.edu/2017/10/10/gisummit/>). At the National Urban Extension Conference in 2019, the WCMER organized an Urban Green Infrastructure workshop as an extension of the Tigard summit and to connect work in the Pacific Northwest to a larger, more national, urban green infrastructure (UGI) collaboration.

Comprised of three working sessions, the Tigard summit explored the latest developments in green infrastructure, followed by small group break-out sessions to identify resources, establish partnerships, and build solutions.

Summit themes included:

- landscape scale challenges and management – land use planning, floods and floodplain management, climate resiliency, riparian and wetland management, open spaces;
- green stormwater infrastructure – runoff reduction, water quality treatment practices, urban trees and forests;
- non-traditional, non-water green infrastructure issues and ideas – social justice and equity, public health, air quality and heat islands, contaminants of emerging concern, economics, regulations and incentives, outreach efforts

An article describing key outcomes and findings from the summit was recently published in Urban Forestry & Urban Greening: Green infrastructure in western Washington and Oregon: Perspectives from a regional summit. “Six challenges that impact GI adoption, and six themes that emerged as possible strategies to overcome these challenges, were identified. The six challenges that were identified were: the lack of coordination, traditionalism, site-specific scales, environmental costs, a lack of expertise, and little consideration for maintenance. The six emergent themes identified were: the need for adaptive design and maintenance, the placement of GI for maximum impact, the concept of collective impact, valuation of GI, equity and GI, and the intersection of GI and community health”.²



GENERATING AND DELIBERATING

Green Infrastructure and Cities

Green infrastructure has been adopted and implemented unevenly across the United States. It lacks a nationally qualified workforce, and the development of quality standards for installing, monitoring, and evaluating projects is still in its infancy. Despite this challenge, cities understand the power of green infrastructure to create sustainable communities. Extension can partner with cities in this work and build a niche as a leader in this field, heightening its visibility as a collaborator with municipalities and community organizations. Creating networks to support these partnerships through existing land-grant university-based structures will nurture this vision.

Currently, some Extension units work with green infrastructure and offer examples to spotlight and emulate such as: the Urban Green Infrastructure Summit, Water Resources Program Team (Clemson University), Michigan Sea Grant, and Water Resources Program (Rutgers University). During this workshop, participants discussed the potential for Extension to construct a nationally branded effort focused on “Greening America’s Cities,” which would explicitly connect Extension to urban plans and policies and their enactment on the ground. This endeavor could engage all Extension departments in land-grant universities and county offices (e.g. health and wellness, youth development, community development) to share in the envisioned urban partnership and explore how green infrastructure’s conceptual framework can advance their traditional programming emphasis.

To build collaborative relationships with divergent partners in communities and municipalities, Extension must reveal its commitment to and expertise in the arena of green infrastructure, and demonstrate why others – namely, municipalities, other community organizations, and communities themselves – should trust Extension to lead within it. In order to realize the vision of the Tigard Summit and of this workshop, Extension staff must clearly communicate their own understandings of green infrastructure’s value, implementation and construction to every possible partner.

Finally, cities often consider green infrastructure in piecemeal fashion, usually at the site or community level. However, the desire to plan and implement green infrastructure more holistically was a theme from the Tigard summit.

CONNECTING THE DOTS CONT'D

And such tools offer exciting opportunities to integrate equity and community health with green infrastructure, benefiting both residents of those neighborhoods and Extension goals in this arena.

- The Fulfilling the Land Grant University Mission LED makes a call for expanding into workforce development training while the Reaching 10 Million Engaged Youth argues for career readiness training. Training residents, and introducing youth, in green infrastructure implementation increases employment prospects for many, particularly for communities of color. This effort could include building connections to Community and Technical College programs.



AUTHORS

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Brad Gaolach, Ph.D., is the Director of Washington State University's Metropolitan Center for Applied Research & Extension and the Western Center for Metropolitan Extension & Research, and was the chair of the 2019 National Urban Extension Conference. Trained as population and community ecologist, he brings systems and sustainability based approaches to community-based applied research and education programs. He has conducted applied research and developed extension programs ranging from water quality, climate change, agriculture, food systems, and community and economic development.

GENERATING AND DELIBERATING CONT'D

The summit also revealed an important dichotomy emerging in the field of green infrastructure:

(a) using green infrastructure to meet water quality standards associated with National Pollutant Discharge Elimination System (NPDES) compliance and therefore focusing on specific locations and the minimum amount of green infrastructure needed, and

(b) the more urban environmentalist vision of 'more is better' and 'anywhere is good'.

Thus, Extension, in its most powerful form as ally and partner, can help communities and governmental agencies craft and promote a vision of green infrastructure focused on the city and regional scale, empowering all residents.

Green Infrastructure and Communities

Communities, whether urban or rural, are important stakeholders in the practice of green infrastructure, and are often last to be included in conversations regarding its creation, use, and implementation. Extension can utilize the trust built across many years to bring community voices to the table, educating residents about green infrastructure's value and informing their involvement in the process of its construction.

With regard to the current social movement to support and advance Black , Indigenous, and People of Color (BIPOC) communities and environmental social justice, Extension can promote green infrastructure in neighborhoods which lack access to the environmental and public health benefits that green infrastructure can provide.

In addition, implementing policies which reduce barriers and disincentives to various forms of green infrastructure could help resolve or mitigate serious issues in communities (e.g., stormwater runoff, broken connections between green infrastructure and food production, the presence of heavy metals in urban areas, etc.).



GENERATING AND DELIBERATING CONT'D

In summer 2019, WCMER hosted another regional green infrastructure summit, *The Next Urban Giants: Building Resilience and Equity into Growing Megapolitan Regions by Greening the Urban Human-Natural System* (<https://metroextension.wsu.edu/2019/06/27/sustainable-urban-systems/>). While it predated the equity, diversity, and inclusion discussions currently occurring in the United States, the summit addressed the importance of community engagement, equity, and gentrification related to building or maintaining green spaces in America's cities.

ACTIONS

Construct a multi-part strategy to connect Hatch Act funding opportunities, Joint Council of Extension Professional (JCEP) organizations, and existing Extension-based conferences (e.g. on sustainability, energy, water, food systems, natural resources), with the goal of building an on-the-ground network of resources and partnerships.

Conduct a survey of Extension via the Association of Natural Resource Extension Professionals (ANREP) to assess interest, expertise, and capacity to develop national, regional, and local UGI programming.

Nationally brand an effort to promote green infrastructure: "Greening America's Cities."

Connect green infrastructure to all Extension program areas (e.g. Master Gardeners, 4-H, nutrition, health and wellness, etc.).

Create training opportunities for Extension as well as non-governmental organizations (NGOs), communities, and municipalities around green infrastructure installation, maintenance, monitoring, etc.

Build a broader network of research and Extension professionals by connecting to them through existing land-grant university-based structures in Extension (e.g. ANREP, National Association of Community Development Extension Professionals) and the sciences (e.g. Society for Ecological Restoration, Society of Environmental Toxicology & Chemistry) and encourage participation in a broader UGI network.

SUGGESTIONS

Attendees Suggestions:

Examine Extension green infrastructure projects across the country and assess how different departments can use green infrastructure to advance their own goals.

Expand connections between local Extension offices and land-grant universities around the issues of green infrastructure, exploring new opportunities for interdepartmental and interdisciplinary projects to address community needs.

Actively seek and support personnel training in green infrastructure implementation, monitoring, and maintenance, possibly evolving into areas of construction management and planning.

Author Suggestions:

Utilize Extension to facilitate stakeholder discussions between communities, municipalities, and NGOs on issues of green infrastructure, environmental social justice, and potential gentrification.



Photo: WA Stormwater Center

Author Suggestions: cont'd:

Cities increasingly invest in green infrastructure but are rarely aware of green infrastructure's regional framework and its benefits for urban and rural stakeholders. Using resources from the Data and Policy Leading Edge Dialogue, provide and interpret related data to government actors, and act to implement green infrastructure at all relevant scales.

ACTIONS CONT'D

Using green infrastructure's conceptual framework, create a strategy that honors the multifaceted needs of both urban and rural communities, and plan training and implementation accordingly.

Spotlight and cultivate current work in green infrastructure occurring within Extension, building connections across county and city government and university departments.

References:

- (1) Benedict, M. A., & McMahon, E. (2006). Green infrastructure: linking landscapes and communities. Washington, DC: Island Press.
- (2) From "Green infrastructure in western Washington and Oregon: Perspectives from a regional summit," by A. D. Jayakaran, K.B. Moffett, J.C. Padowski, P.A. Townsend, and B. Gaolach, 2020, Urban Forestry & Urban Greening. Vol. 50.
<https://doi.org/10.1016/j.ufug.2020.126654>.

OPPORTUNITIES FOR NATIONAL URBAN EXTENSION

NUEL presented a strategic analysis of urban Extension opportunities, and four common themes that emerge in the literature on the unique aspects of urban Extension, in The National Framework for Urban Extension (NUEL Steering Committee (NUEL): et al., 2015).

The following section is aligned with these themes:

- **Positioning:** How Extension is positioned at the national, state, regional, and city levels
- **Programs:** How Extension addresses the multitude of issues and priorities in the city
- **Personnel:** How Extension attracts, develops, retains, and structures competent talent
- **Partnerships:** How Extension collaborates to leverage resources for collective impact

INFRASTRUCTURE



POSITIONING

Constructing a nationally branded effort (Greening America's Cities) requires NUEL to foster the integration of green infrastructure into all Extension departments and position Extension as a sustainability partner to cities. Connecting relevant elements of each of NUEL's Leading Edge Dialogues to the conceptual vision of green infrastructure can help achieve this goal, thus advancing Extension's scope of work at all scales, from local to regional to national. NUEL's Regional Caucuses can explore this initiative in depth.

Recommendations:

- Broaden Extension's current work in green infrastructure to include planning and construction management.
- Utilize existing opportunities to build Extension's capacity in green infrastructure across its community, including but not limited to involvement in the following groups:
 - National Energy and Sustainability
<https://www.nationalextensionsummits.com/>
 - International Low-Impact Development (LID) conference
<https://www.lidconference.org/>
 - National Municipal Stormwater Alliance
<https://nationalstormwateralliance.org/>
 - National Stormwater Symposium
<https://www.wef.org/resources/online-education/digitalprogramming/>
- Conduct a survey of Extension expertise and capacity via the Association of Natural Resource Extension Professionals (ANREP), which will help ANREP strengthen its connection to green infrastructure in both urban and rural areas.

PROGRAMMING

Training residents in green infrastructure implementation increases employment prospects for many, particularly for communities of color. This effort could include building connections to Community and Technical College programs.

ABOUT NUEL

National Urban Extension Leaders (NUEL) began in 2013 as a grass-roots effort of a group of passionate and committed urban Extension educators with the mission to advocate and advance the strategic importance and long-term value of urban Extension activities by being relevant locally, responsive statewide, and recognized nationally. NUEL is geared towards creating a network for collective impact currently with active participation from 23 states. NUEL is passionate and committed to moving urban Extension forward realizing each state in the Cooperative Extension System is different and may have diverse ideas and strategies for meeting urban needs.



ABOUT THE WESTERN CENTER FOR METROPOLITAN CENTER FOR RESEARCH AND EXTENSION

The Western Center for Metropolitan Extension and Research (WCMER) is a multi-university collaboration established by the Western Extension Directors Association to increase the internal capacity of Western Extension programs to address metropolitan issues, and to elevate the stature and value of Cooperative Extension to external metropolitan audiences. Since its founding in 2014 we have focused our efforts on applied research on best Extension practices and issues facing metropolitan areas, and professional development for Extension professionals, with a goal of better aligning programs and program delivery with the needs, issues and interest of their metropolitan constituency.

PROGRAMMING CONT'D

4-H, Master Gardeners, and Extension health and wellness programs can all integrate knowledge of best practices into their separate fields, to certify learners in their use:

- installation and monitoring of rain gardens (e.g. see the 12,000 rain garden project in Western Washington: <https://www.12000raingardens.org/>);
- creation and use of rain barrels;
- connecting green infrastructure to food production and water systems;
- testing for lead in soils, etc.

Discover roles and opportunities across Extension to create community trainings similar to the work of University of California Agriculture and Natural Resources (UCANR) Climate Stewards (<http://calnat.ucanr.edu/cs/>) or that of the University of Maryland Sea Grant (<https://extension.umd.edu/seagrant>).

Partner with eXtension through Learning Circles and other informational opportunities to educate personnel about green infrastructure at the urban and regional scale. This could include the construction of an eFieldbook on the subject, which might include definitions of terms, data tools of interest, instructions for their use, and examples of successful field collaborations between government actors and Extension in the use of green infrastructure.

PERSONNEL

There is an opportunity and need to develop training for Extension personnel to grow in competence and certification across the areas of green infrastructure assessment, installation, monitoring, and maintenance (and possibly construction management and planning as well). Training could include:

- educating employees about green infrastructure's conceptual framework and its importance to urban and rural sustainability plans;
- clarifying implementation prospects across local and regional scales;
- spotlighting possibilities for cross-departmental work in green infrastructure at both university and county office levels, and supporting interdisciplinary forays into this area;



PERSONNEL CONT'D

- surveying possible partnerships with agencies, organizations, NGOs, and municipalities, and learning how to build connections across multiple boundaries;
- constructing and utilizing eXtension courses designed to build expertise within the green infrastructure arena;
- partnering with other university departments with useful courses (i.e., “Green Infrastructure Solutions Across the Urban to Rural Continuum,” an online course offered by the Urban & Community Forestry Program at the Oregon State University).

PARTNERSHIPS

Attendees discussed a multi-part strategy to connect with Hatch Funding, JCEP organizations, and various conferences (emphasizing a diverse set of foci –sustainability, energy, water, food systems, ANREP). The following list is by no means an exhaustive inventory:

- Pacific Northwest – WCMER - GI Summit
- Multi-state Hatch project in the Northeast region
- National Wildlife Federation (<https://www.nwf.org/>)
- Sierra Club (<https://www.sierraclub.org/>)
- Environmental Protection Agency (<https://www.epa.gov/>)
- National Fish and Wildlife Foundation (<https://www.nfwf.org/>)
 - Western Water Program:
<https://www.nfwf.org/wwp/Pages/home.aspx>
 - Five Star and Urban Waters Program:
<https://www.nfwf.org/fivestar/Pages/home.aspx>
 - Resilient Communities Program:
<https://www.nfwf.org/resilientcommunities/Pages/home.aspx>,
 - All areas:
<https://www.nfwf.org/whatwedo/programs/Pages/home.aspx>
- Arizona Water Resource Research Center (<https://wrrc.arizona.edu/>)
- National Resources Conservation Service
(<https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/>)
- The Nature Conservancy (<https://www.nature.org/en-us/>)
- Water Education Teacher (<https://www.projectwet.org/>)
- American Ecological Engineering Society (<https://www.ecoeng.org/>)

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ABOUT THE WCMER CONT'D

Institutional membership in the WCMER has increased from six founding university Extension members: (University of Alaska Fairbanks, University of California, Colorado State University, University of Idaho, Oregon State University, and Washington State University) to 11 in 2019 with the addition of University of Florida, Michigan State University, New Mexico State University, University of Nevada Reno, and The Ohio State University. This expanded membership has allowed us to broaden our collaborations and reach, and engage in new projects that advance the knowledge base of Extension work in our metropolitan regions.

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