

DRAFT

**Ecological Restoration Opportunities
for Cleveland's Lakefront**

**Report from a workshop sponsored by the BLUE Project
(Building the Livable Urban Edge)
of EcoCity Cleveland and the Cleveland Waterfront Coalition
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For more information:
David Beach, EcoCity Cleveland
216-932-3007
david@ecocitycleveland.org

Executive summary

“If ecological restoration were a primary goal for Cleveland’s lakefront, what should we do?”

That was the question posed to more than 20 local experts in lakefront ecology at a workshop organized by EcoCity Cleveland as part of the BLUE Project on December 11, 2002. The workshop brought together botanists, birders, fisheries biologists, water quality professionals, landscape architects, planners, and others to brainstorm possible ways to restore the ecological integrity of Cleveland’s lakefront. The purpose was to contribute ideas to the city’s lakefront planning process and to raise public awareness of the potential to bring nature back into the city.

This report summarizes the intriguing ideas generated at the workshop. One of the ideas — the construction of habitat cells along the harbor breakwall — has already attracted media attention. Many of the other specific ideas also deserve serious consideration, including the transformation of grass areas in parks and highway interchanges into ecologically beneficial landscape features, such as “hummocky” terrain with small kettle holes and ephemeral wetlands.

But this report also recognizes that Cleveland may not be ready to undertake large-scale restoration projects. Too many funding, operational, and land use issues must be resolved. Thus, the report concludes with recommendations to improve the organizational “infrastructure” to plan, manage, and sustain restoration. These recommendations include:

- Creation of a Lakefront Conservancy to advocate for restoration, coordinate planning, and raise funds for demonstration projects and ongoing management.
- Ongoing consultation with experts in ecological restoration who can bring ideas for how lakefront habitat can contribute to the life of healthy city.
- Development of protocols for restoring the landscape of the lakefront to native plant communities and habitats; and the training of park personnel in proper maintenance of healthy ecosystems.
- Integration of alternative stormwater management techniques into the ongoing process of transportation planning and construction.

These recommendations are intended to stimulate a broader conversation about the relationship between ecological quality, economic sustainability, and quality of life. Cleveland is ready for this conversation. Certainly, the participants in this workshop (listed at the end of this report) expressed their interest in continuing to develop these ideas.

Introduction

The Lake Erie shoreline is the most dramatic land-water interface in Northeast Ohio, yet there has been little concern about its ecological functioning and scenic character. During the past 200 years, the lakefront has been almost entirely developed, stripping away all but a few tiny remnants of natural habitat. Estuaries at the mouths of rivers and creeks have been dredged for boating with the consequent loss of shoreline marshes. The littoral drift of sand that nourishes beaches has been interrupted by extensive armoring of the shoreline. Upland areas at the top of the bluff above the lake have been paved over or turned into lawns and horticultural plantings. And water quality continues to be degraded by the nonpoint source pollutants carried into the lake by stormwater outlets.

Today, with its network of superhighways, railroads and industrial uses, the Cleveland waterfront is one of the most ecologically disturbed areas in Northeast Ohio. But does this have to be a permanent legacy? As Cleveland begins the process of creating a new plan for the lakefront, is it possible to have a vision of a very different kind of city-lake interface?

It might be possible, for instance, to envision a new lakefront that integrates human uses with nature, restores wastelands, and provides a beautiful, natural framework for the city's vital and energetic connection to the lake. Imaginative designs can bring back a rich diversity of life to the lakefront, creating humane and healthy communities that sustain and foster all the living inhabitants—people of all ages, income levels and cultural backgrounds, as well as plants and animals, in the water and on the land.

Workshop description

On December 11, 2002, EcoCity Cleveland organized a workshop on ideas for ecological restoration for the Cleveland lakefront. The immediate purpose of the workshop was to contribute ideas to the City of Cleveland's lakefront planning process. The larger purpose was to raise awareness of the potential to regenerate older industrial cities by restoring natural systems and embracing natural assets.

The workshop included more than 20 experts from Northeast Ohio, representing a wide range of interests in the city and lakefront ecology (see list below). Participants included representatives of citizens groups, filmmakers, biologists, botanists, birders, environmental engineers, city and county planners, and directors and staff from local botanical institutions. The workshop was sponsored by the BLUE Project, a lakefront planning initiative of EcoCity Cleveland and the Cleveland Waterfront Coalition. Andropogon Associates facilitated the workshop. The George Gund Foundation and the Raymond John Wean Foundation provided funding. The Cuyahoga County Planning Commission provided meeting space and helpful aerial photos and base maps.

The day was spent brainstorming ideas to improve habitat and environmental quality along the Cleveland lakefront. From the beginning of the discussions, workshop

participants made clear that reconnecting the people of Cleveland to the lake and to any natural areas that can be re-established must go hand-in-hand with ecological restoration. These two issues needed to be considered together to resolve the legacy of a history of development that has all but obliterated a natural lakefront and systematically restricted access to it.

Workshop organization

Because there were so many participants, and because it was important to hear from everyone, the day was divided into three parts:

A. Initial discussion in round robin format

Each participant was asked to share his or her affiliation, special expertise, and corresponding concerns about the Cleveland lakeshore. What are the possibilities? These ideas created an initial wish list for further discussion.

B. Consolidation of ideas

The workshop moderators then grouped all the ideas suggested into six main topics, and workshop participants then consolidated two of these topics to make a final four.

C. Break-out groups

The larger group then broke into four smaller groups to explore each topic in detail and report back to the entire assembly.

Initial comments and wish list

Ecological restoration

- Relocate port activity to the east end of Burke Lakefront Airport to allow ecological restoration of the place where the City of Cleveland, the Cuyahoga River, and Lake Erie come together—a very dynamic and dramatic nexus.
- Since all land north of the railroad tracks is fill and the mouth of the Cuyahoga River has been moved, the issue is not only “ecological restoration” along the waterfront but also the restoration of ecological functioning and the “creation of neo-natural” areas.
- Natural marshes and wetlands once flourished on Lake Erie's shoreline and the banks of its tributaries, such as the Cuyahoga, Chagrin and Rocky rivers. Now only a few remain.
- Any plans for ecological restoration must have a structure and funding for ongoing management.
- In re-introducing native shoreline habitat, plants, and animals, it is important to work with lakefront property owners and the Lakefront State Park as partners and allies. Restoration of these areas could include restoration of the historic “hummocky” terrain creating small kettleholes and hummocks. These areas could then support a rich variety of native plant communities.
- To increase existing habitat potential, create a freshwater marine preserve offshore. This could be done by creating cells along the present five-mile long Cleveland

Harbor breakwall from Edgewater Park to Dike 14. These modifications could help cleanse the harbor area by bio-remediating pollution, and provide spawning areas, nursery areas, feeding areas and refuge areas for fish.

- Create habitat shelves along the banks of the Cuyahoga River.
- The creation of proposed “neo-natural” areas—including beach replenishment, habitat shelves, and breakwall enlargement—will require sources of suitable fill materials. Can construction debris be sited strategically to advance these goals? The Great Lakes Commission is currently researching the uses of dredge materials.
- There is concern about existing lands made from dredgings, such as Dike 14, because of the possibility of the accumulation of pollutants, such as heavy metals, in the soil. These areas should be sampled to determine appropriate uses and required remediation.
- The entire south shore of Lake Erie is a crucial bird stopover/habitat with the entire Cleveland lakefront designated a “important bird area” by the Audubon Society. In particular, Dike 14 is an important bird habitat.
- Wetlands now lost, but historically abundant, should be re-established along the Cuyahoga River corridor and the shore of Lake Erie. Cleveland is a gauntlet for birds migrating north, and more natural areas, such as Dike 14, are required along the Cleveland waterfront.
- Whiskey Island has an ecologically rare and special habitat—palustrine sand plain. The north side of Whiskey Island as it drops into the lake could be restored as a typical Lake Erie marsh.
- Doan Brook, Euclid Creek, and other tributaries feeding into the lake are extremely important and need to be restored with riverine marshes.
- Restore the old Cuyahoga River channel by cutting an opening to the lake just east of the Westerly Wastewater Treatment Plant.

Access and connectivity

- The area where river meets the lake is a key multi-modal transportation link in downtown Cleveland, with an important connection to the Canal Towpath Trail.
- The present Cleveland Memorial Shoreway blocks access to the waterfront. Portions of the highway could be roofed over to create multi-use green space.
- Revitalized habitat on lakefront should be connected to nearby neighborhoods.
- Foster ecological connectivity and public access continuously along lakefront.
- New developments should be set back from the shoreline enough to allow for public access, and critical viewsheds from the city to the lake should be maintained.
- Ring the central business district from Cuyahoga River to Cleveland State University with a green corridor.

The plan and the planning process

- Create a comprehensive planning process, not just a “land use” plan.
- Make sure that conservation and ecological restoration agendas become part of the planning process for big infrastructure projects.
- Work closely with the Northeast Ohio Regional Sewer District to influence the investment of \$1.2 billion to reduce combine sewer overflow problems.

- Make use of the extensive water quality and quantity data available (such as pollutant loads offshore, etc.) from the regional sewer district.
- Enlarge the goals for transportation planning as a way to improve water quality and stormwater management.
- Treat the river/lakefront connection as a unified system.
- Any waterfront plan must also be economically viable.
- It is important to identify big partnerships to advance big ideas—transportation agencies, utilities, port developers, U.S. Army Corps of Engineers, etc.
- Area naturalists/ecologists need to be included in making lakefront plans.

Tourism and other economic opportunities

- The special geology and natural systems of the shore can create special as tourism opportunities.
- Cleveland should be seen as the gateway to Lake Erie.
- Development along the lakefront must link to public transportation and bikeways.
- Newly-created islands in the lake could be sites for a Wind Park and an economic opportunity—generating electricity and making a dramatic, artistic statement.
- The creation of “neo-natural” areas, habitat shelves, and extended breakwall, will require sources of suitable fill materials and could be seen as an opportunity for demolition companies.

Breakout group topics

1. Enhancement of the City/Lake/River interface.
2. Habitat establishment along the shore, on Dike 14, Whiskey Island, and the mouth of the Cuyahoga River.
3. Habitat establishment offshore, within the lake itself, and the creation of new land.
4. An examination of the impacts of impervious surfaces, present stormwater management, and possibilities for a more sustainable approach.
5. An examination of the present and potential role of large-scale transportation projects to help solve the problems of habitat creation and public access.
6. Recommendations for the ongoing management of the public landscape to ensure the long-term viability of any restoration efforts.

Group #1—Enhancement of the City/Lake/River interface

This group focused on public access to two areas of concern:

- The City/Lake interface.
- The connection between the lake and the mouth of the Cuyahoga River

General recommendations

- Provide public access to the lakefront.

- Downtown Cleveland, the river and the lake come together where the port is located now, and this area is a critical nexus for access to the lake.
- Activities should be concentrated to create critical mass and draw people to the waterfront.
- Identify the natural infrastructure and include a thorough understanding of the topography. All plans should build on the natural systems and foster their repair.
- Create partnerships with the Port Authority, CSU and the U.S. Army Corps of Engineers.

Public access

To provide better public access to the lakefront, several suggestions were made:

- Ensure that all developments along the lake are required to provide a public easement of minimum 20 feet to allow for a no-fences walk along the shore.
- Cover the Cleveland Memorial Shoreway and bridge over the CSX railroad tracks. This cover should be multipurpose and serve the city in a number of ways, creating “new land” for commercial and institutional use and public green space.
- Pursue ideas to provide a multi-modal transportation center—to include train, ferry, pleasure boats, RTA Waterfront Line, National Heritage Corridor Scenic Byway and Towpath—in downtown Cleveland.
- Bring the Towpath Trail to Whiskey Island and to the lake.
- Create greenway connections between the Towpath and the lakefront, creating a circle of green around the central business district for walking and bicycling.
- Relocate the present port to the fill area at the east end of Burke Airport and connect the Warehouse District to the present port area. Throughout the rest of the lakefront and Flats, new manufacturing developments should follow the most stringent sustainable guidelines to take Cleveland into the 21st century.
- Maintain the viewsheds from center city, making sure that any development will preserve the views from the downtown to the lake, and from the neighborhoods to the lake and vice versa.
- Near the mouth of the Cuyahoga River, cut the old river channel back to lake.
- Explore public access to the salt mines on Whiskey Island as a potential tourist attraction.
- Provide short-term slips for small recreational boats.
- Provide access to fishing gates.
- Carry any proposed ecological restoration into the Flats and connect green spaces along river.

Groups #2 and #3—Habitat establishment along the shore, on Dike 14, Whiskey Island, and the mouth of the Cuyahoga River; Habitat establishment offshore, within the lake itself and the creation of new land

This group focused on two areas of concern:

- The shoreline itself, examining the possibilities of re-establishing a variety of native habitats on Dike 14, Whiskey Island, and near the mouth of the Cuyahoga River.
- The lake offshore with the possibility of establishing a marine park as part of an expanded breakwall.

General recommendations

- Provide controlled public access to the new restoration areas.
- In restoring an area, do not create attractive nuisances.
- Make sure that all restoration is imaginative, solves real problems, accurately reinstates historical plant communities, and uses the latest best scientific information to insure that the biotic community will not be harmed.

Public access

To provide public access to the new natural areas:

- Run shuttles to Dike 14 and build a causeway from here to the new expanded breakwall.
- Build a walkway along the new expanded breakwall.

Site preservation/restoration opportunities

Dike 14 is a major opportunity for the development of a Great Lakes Interpretive Center.

Whiskey Island contains Palustrine Sand Plain ecosystem areas with important plant communities. These plant communities—from wetter low-lying areas to drier more upland habitats—include:

- Yellow Water Lily Marsh
- Bur-reed Marsh
- Shrub Swamp
- Ash/Red Maple Swamp
- Cottonwood/Willow Woodland
- Oak Savannah

Reconfiguration of the breakwall could add significant new opportunities for the creation of new habitat, which could primarily benefit neo-tropical migrating birds using the Great Lakes flyway.

Specific Recommendations for the Lake Offshore

Proposed breakwall modifications

- Build a second breakwall 200 to 300 feet north of the existing one. Fill in the space in between the two walls, using rubble and unpolluted dredge material. This would create a series of cells 300 feet wide along the existing breakwall. The south side of these cells would be made into a long sloping shore edge that would provide terrestrial habitat and be planted with trees and shrubs. More than half of the land would be underwater and would be designed to create a gradient of natural wetlands and aquatic habitats. Openings in the wall would allow water to pass in and out to

prevent stagnation in the area between breakwall and lakeshore. Aquatic communities would establish naturally within the cells.

- Breaks in this expanded breakwall can be created to flush the area behind it, particularly at the western end, which is presently stagnant. Or sections of the breakwall can be lowered to allow water to wash over the top. Sand migration into the harbor may be a problem.
- Dike 14, a man-made peninsula north of Martin Luther King, Jr. Boulevard, is the gateway to this area and a natural focus for this project to start. A possible bridge from Dike 14, or from Edgewater Park, would allow access to the breakwall park.
- The view back to the city would change the perception of the shoreline and how people relate to it.
- Migratory birds flying north and northwest would follow this habitat to the end of Dike 14 and would be steered away from tall buildings and their lights (a cause of high bird mortality), and the increase in bird population should reinforce bird watching as a popular recreational activity.
- Federal and state money is available for such projects. Engineering issues would have to be worked out, and the city would have to work closely with the U.S. Army Corps of Engineers.
- The breakwall enlargement project could be built in phases over several decades.
- Identify areas where “habitat shelves” could be created, such as the area along the channelized sections of the Cuyahoga River and along older sections of the dikes, as a part of the repair of the breakwall (for example, off the east side of Dike 14). These shelves could include a bio-filtration component, such as John Todd’s “clamshell,” to help clean the water
- The existing submerged habitat area on the southeast corner of Whiskey Island, south of the railroad tracks, shows the potential for increasing river habitat to attract fish.

Specific recommendations for the lakefront/shoreline

- Relocate the port to the fill area east of Burke Airport, which would then allow the restoration of significant habitat in the area where the current port is now located—east of the mouth of the Cuyahoga River. The Port Authority is presently undertaking a capacity study. A possible source of funding for such a project is the U.S. Army Corps of Engineers, which has money for waterfront habitat restoration.
- “Daylight” Doan Brook in Gordon Park and reconnect it to the lake as part of the proposed realignment of the Cleveland Memorial Shoreway. Such a project should include realigning the channel west of Dike 14.
- Encourage lakeshore homeowners and lakefront parks to convert lawn to many small habitat areas. This will involve regrading the present flat terrain into a “hummocky” terrain with small kettle holes and ephemeral wetlands.
- Plant native vegetation with selected views/windows carefully cut to allow homes views of the lake. This vegetation should provide a dense multi-layered mat of native plants whose role is to hold the soil of the bluff and slow erosion, to provide plant and animal habitat and to restore the historical character of the landscape.

Group #4 and 5—An examination of the impacts of the Cleveland lakefront’s impervious surfaces, present stormwater management practices, and possibilities for a more sustainable approach. An examination of the present and potential role of large-scale transportation systems in solving the problems of habitat creation and public access

General recommendations

- Improvement of water quality should be considered one of the goals of transportation planning and transportation funding and be seen as a means to bring alternative stormwater management and water quality improvement measures to the Cleveland waterfront.
- The Northeast Ohio Regional Sewer District can provide or develop data on many water-related planning issues, such as current land use, pollution load, costs to improve water quality per project, etc.
- Tools for the amelioration of water quality and the management of stormwater velocity and volume include bio-retention, reduction of impervious surfaces upstream, “daylighting” streams, minimizing additional culverting, and encouraging infiltration through porous materials and infiltration basins, retention puddles, wetland restoration, etc.
- Thoroughly study proposed freight rail bypass of the entire downtown area.
- Thoroughly study relocating the present port to the east end of Burke Lakefront Airport.
- All highway planning should be thinking in terms of “shoreline resource integrity,” not just “stormwater management.”

Specific recommendations for new highway and parking lot design

- Define micro-drainage areas/mini watersheds in downtown Cleveland that immediately impact the waterfront. (Areas close to shore can have acute water quality impacts because they shed stormwater directly into the lake without any filtration or treatment.)
- Engineer all waterfront park parking lots to retain and gradually infiltrate stormwater.
- Move all parking back from the lakeshore and improve people-moving solutions.
- If the Shoreway can be moved and the two halves of Gordon Park reunited, soil from softball area in the upper part of Gordon Park could be used to cap Dike 14 (thus covering potentially hazardous dredgings). The entire park could then be on one level.
- Increase meadow habitat areas by replanting and reducing mowed areas along both railroad and highway rights-of-way.
- Identify specific demonstration sites for the conversion of highway right-of-way currently in lawn to native plant communities. (Land within interchanges is often wasted space with little habitat value.)
- The Coit Road, GE site, and the Job Corps site are potential demonstration areas for a stream “daylighting” project to make a strong statement. For such projects to be realized a single like-minded client is needed.

- Create an incentive program with standards for developers, such as no net increase in runoff from the project site.

Group #6 —Recommendations for the ongoing management of the landscape to ensure the long-term viability of any restoration efforts

General recommendations

- Work closely with the Lakefront Park to resculpt public parkland on the lakefront into a “hummocky” terrain with small kettle holes and ephemeral wetlands. The newly graded terrain should then be planted with hardwood swamps, fern meadows, wetland wildflowers and scrub-shrublands. This will reintroduce historical terrain and native vegetation and also will contribute to improved water quality.

Specific recommendations

- The re-creation of appropriate native plant communities and habitats wherever possible along the waterfront (on public, semi-public, and private lands) will require a study of the historical terrain and plant communities. Also needed, as part of this re-establishment of native plant communities, is a study of potential public participation and sources of plant materials and labor.
- Replacement lawn and horticultural plantings must be attractive, well presented, and well cared for, or the community will perceive these plantings as a pile of weeds.
- These demonstration native landscapes should be designed for: Variety of plant display (encourage a variety of expression along the expanse of lakefront), accessibility, people, learning, appropriate and cost effective maintenance.
- These landscapes will require re-training park staff and nursery personnel, who presently mow lawns and pick up trash, to manage these areas. This re-training will require an oversight organization and funding.
- Consider/use each restoration as a miniature laboratory to “learn by doing.” Such efforts require involvement in projects over long periods of time. Without continuity, restoration efforts will fail.
- From a partnership of interested institutions and agencies create an ongoing structure for the management of public, semi-public, and private lands. Suggested players include the Ohio Department of Natural Resources, Ohio Department of Transportation, CSX, City of Cleveland, Port Authority, Coast Guard & Naval Reserve, Northeast Ohio Regional Sewer District, and nonprofit citizen groups.

All successful restoration and ongoing management is an interdependent circle of marketing, public relations, funding, design by a consortium of artists and scientists and the community working together, appropriate and high quality construction and long-term management of these sites by trained horticultural workers who know native plants and understand what needs to be done to keep these plantings healthy and happy.

Strategies

- Establish a Lakefront Conservancy as an umbrella group.

- Establish a consortium of restoration experts—Cleveland Botanical Garden, Holden Arboretum, Cleveland Metroparks, Cleveland Department of Parks and Recreation, Cleveland Museum of Natural History, Cuyahoga Valley National Park, Cuyahoga Valley Environmental Education Center, etc.— to spread an understanding of a new hybrid discipline— ecological/horticulture.
- First potential project is to write or sponsor guidelines illustrating appropriate plant communities, prototypical plants and best planting/establishment practices.
- Second potential project is to create/train a special restoration maintenance staff.
- Establish funding sources from foundations, corporate sponsors, or private donors.

V. Recommendations/priority actions

The time is ripe for doing something very exciting on the Cleveland waterfront. New groups and coalitions are emerging around waterfront issues, and there is growing concern about issues of sustainability and economic revitalization. These groups are talking to each other and working together. There is a new mayor committed to a “green” city in all the many meanings of the word “green.”

Below are six suggestions for immediate action on the waterfront. These recommendations take into account both workshop ideas and a wider knowledge of what has been successful elsewhere. To arrive at these recommendations, we asked, “What projects can have the biggest impact on the waterfront, and what is feasible here?”

These recommendations do not focus on ecological restoration alone. With the exception of alterations to the breakwall and to the present landscaping of the public parks on the waterfront, Cleveland is not yet ready to undertake other restoration projects. Too many funding, operational, and land use issues must be resolved first. To this end, a number of the recommendations here involve bringing in outside experts and putting them together with major waterfront land owners/controlling agencies to reexamine current uses and to review the critical drivers of change in innovative and successful waterfront revitalization in other cities.

It is important to note that a number of significant restoration recommendations surfaced in the workshop that are not fully explored here. Specifically, these recommendations included the reconfiguration of the mouth of the Cuyahoga River, the restoration of Whiskey Island and the redesign of Gordon Park to daylight Doan Brook. Restoration of these areas involves problems that were not sufficiently investigated in the workshop, so this summary does not make specific recommendations regarding them. However, as a general recommendation, each of these areas should continue to be explored and their transformation incorporated into all waterfront planning.

The specific recommendations include:

1. Create a Lakefront Conservancy as an umbrella group. Include in its membership individuals from the workshop, city residents, government agencies, non-profits and

citizens groups, and regional institutions with waterfront concerns and expertise. The purpose of this conservancy would be to:

- Bring together and coordinate all the diverse waterfront stakeholders and get them talking to each other, and ensure relevant and continuous participation from conservancy members in any planning processes which impact the lakefront.
 - Develop and raise funds for demonstration projects.
 - Possibly spearhead the creation of a Lake Erie Institute, to be located on the waterfront and to act as a clearinghouse for all critical waterfront/Lake Erie information.
2. Bring William Warner from Exeter, Rhode Island, to Cleveland to discuss the Providence River Project, its impact on the renewal of the City of Providence and its relevance to Cleveland's waterfront.
 3. Bring Isaac Manning, a developer specializing in port and business renewal, from Dallas, Texas, for a three-day workshop with the City, the Port Authority, and airport officials. These experts would question current assumptions and look at the broad strategic implications of major infrastructure and land use issues and other economic components of the system, including public policies and practices.
 4. Working closely with Roger Thoma, fisheries biologist with the EPA, begin a full-scale ecological and engineering study on the feasibility of extending and modifying the breakwall to create a new in-lake park with new upland, lowland, and aquatic habitats. Include an exploration of the feasibility of creating off-shore islands with wind turbines to generate electricity.
 5. Working closely with Lester Stumpe of the Northeast Ohio Regional Sewer District and ODOT planners and engineers, integrate waterfront access and alternative stormwater management into present transportation planning.
 6. Establish a consortium of restoration experts from regional institutions—Cleveland Botanical Garden, Holden Arboretum, Metroparks, Cleveland Park System, Natural History Museum, Cuyahoga Valley National Park, and Cuyahoga Valley Environmental Education Center, etc.—to train park staff and establish protocols for restoring the landscapes of the waterfront to native plant communities and habitats.

VI. List of Participants

Thanks to these workshop participants, most of whom donated their time and ideas:

Andropogon Assoc., Ltd.

Carol and Colin Franklin
Andropogon Assoc.
215-487-0700
franklincl@andropogon.com

Center for Sustainable Communities

Richard Nalbandian
Research Fellow, Center for Sustainable Communities
Ambler College of Temple University
Adjunct Assoc. Professor Department
Community and Regional Planning
215-925-6585
twhcII@netreach.net

Chagrin River Watershed Partners, Inc

Kyle Dreyfuss-Wells
Chagrin River Watershed Partners, Inc.
440-975-3870
drywell@earthlink.net

Cleveland City Planning Commission

Martin Cader
Cleveland City Planning Commission
216-664-2210
mcader@city.cleveland.oh.us

Cleveland Metroparks

Dan Petit
Manager of Natural Resources Research
Cleveland Metroparks
216-351-6300

Cleveland Museum of Natural History

James Bissell
Curator of Botany
Cleveland Museum of Natural History
216-231-4600
jbissell@cmnh.org

Commonwealth Development Consulting and Cleveland Waterfront Coalition

Patrick Campbell
Commonwealth Development
Consulting and Cleveland Waterfront
Coalition
216-932-3563
pcampbell@alum.mit.edu

CSU College of Urban Affairs

Wendy Kellogg
CSU College of Urban Affairs
216-687-5265
wendy@wolf.csuohio.edu

Cuyahoga County Planning Commission

Paul Alsenas
Executive Director
Cuyahoga County Planning Commission
216-443-3700
palsenas@www.cuyahoga.oh.us

Christopher Alvarado
Cuyahoga County Planning Commission
216-443-3700
calvarado@www.cuyahoga.oh.us

James Danek
Cuyahoga County Planning Commission
216-443-3700
Jdanek@www.cuyahoga.oh.us

Lynn Garrity
Cuyahoga County Planning Commission
216-443-3711
lmgarrity@msn.com

Carol Thaler
Cuyahoga County Planning Commission
216-443-3700
cthaler@www.cuyahoga.oh.us

EcoCity Cleveland

David Beach
Executive Director
EcoCity Cleveland
216-932-3007
david@ecocitycleveland.org

Ryan McKenzie
Transportation Program Manager
EcoCity Cleveland
216-932-3007
ryan@ecocitycleveland.org

George Gund Foundation

Jon Jensen
Senior Program Officer
George Gund Foundation
216-241-3114
jjensen@gundfdn.org

Griesinger Films and Cleveland Waterfront Coalition

Peter Griesinger
Griesinger Films and Cleveland
Waterfront Coalition
440-423-1601
peterg@griesingerfilms.com

Holden Arboretum

Elaine Price
Executive Director
Holden Arboretum
440-946-4400
elaineprice@holdenarb.org

Tom Buchter
Director of Horticulture and Facilities

Holden Arboretum
440-946-4400
tbuchter@holdenarb.org

Brian Parsons
Director of Natural Areas
The Holden Arboretum
440-946-4400
bparsons@holdenarb.org

Kingston Photography

Laura Gooch
Kingston Photography
216-932-1002
lgooch@alum.mit.edu

NEO Regional Sewer District

Lester Stumpe
NEO Regional Sewer District
216-881-6600
stumpel@neorsd.org

Ohio EPA

Roger Thoma
Fisheries biologist
Ohio EPA
330-963-1141
roger.thoma@epa.state.oh.us

Ohio Winter Bird Atlas

Victor Fazio
Director of Ohio Winter Bird Atlas
216-561-7651
dromaius@mail.bright.net

Schmidt, Copeland, Parker, Stevens

Patty Stevens, Principal, Landscape
Architect
Schmidt Copeland Parker Stevens
216-696-6767
pstevens@scpsohio.com

URS

Tom Denbow
URS
216-622-2334
Tom_Denbow@URSCorp.com