Richard Smardon, Sharon Moran and April Karen Baptiste

Revitalizing Urban Waterway Communities

Streams of Environmental Justice

Earthscan Studies in Water Resource Management

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"Richard C. Smardon, Sharon Moran and April Karen Baptiste have delivered an invaluable handbook on urban stream restoration. Particularly innovative are the book's approach to engagement via arts and culture, and how stream restoration can serve as a way to improve the physical landscape and water quality while at the same time repairing social relationships. It is required reading for urban environmentalists and social justice activists."

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"From the nation's capital to the East Bay, from Syracuse to Milwaukee to Chattanooga, Smardon and his colleagues have embraced the rich diversity of experience in revitalizing urban watersheds and waterfronts—a truly collaborative process which will survive the ups and downs of federal environmental policies."

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"This book is a badly needed treatise on how to creatively involve the community in connecting with and caring for the waterways around us, and in the process working towards social justice. This is important reading for any planner, city official, activist or citizen interested in the health and restoration of streams and rivers, and the people and communities they can help to sustain and bring together along the way."

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"Cities across the world are restoring urban waterways, and they all face the question of how to ensure that projects of river revitalization include the voices and address the needs of the most disadvantaged communities. This eye-opening, valuable, and compelling volume breaks new ground by using case studies of urban stream restoration to examine a range of strategies and challenges for achieving social and environmental justice. It will be an essential resource for practitioners, activists, academics, and all others involved in reimagining and transforming the world's urban rivers."

—Ryan Holifield, Associate Professor of Geography, University of Wisconsin-Milwaukee, USA

"Matters of environmental justice merit detailed investigation across many different topic areas and contexts. This book is an excellent example, taking on the novel and fascinating case of urban waterway revitalization and interrogating this in terms of crucial process questions—who participates, who is included, through what means and with what outcomes? Drawing on cases from across North America and Europe, and engaging with diverse participatory methods and techniques, this is a book that will be of great interest to scholars of environmental justice, political ecology and urban planning, as well as to those engaged with pursuing and/or resisting waterway revitalization projects on the ground."

—Gordon Walker, Lancaster Environment Centre, Lancaster University, UK

Revitalizing Urban Waterway Communities

The revitalizing and restoration of rivers, creeks and streams is a major focus of urban conservation activity throughout North America and Europe. This book presents models and examples for organizing multiple stakeholders for purposes of waterway revitalization—if not restoration—within a context of fairness and environmental justice.

After decades of neglect and misuse, the challenge of cleaning up urban rivers and streams is shown to be complex and truly daunting. Urban river cleanup typically involves multiple agendas and stakeholders, as well as complicated technical issues. It is also often the situation that the most affected have the least voice in what happens. The authors present social process models for maximum inclusion of various stakeholders in decision-making for urban waterway regeneration. A range of examples is presented, drawn principally from North America and Europe.

Richard Smardon is a SUNY Distinguished Service Professor Emeritus at the SUNY College of Environmental Science and Forestry, USA.

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April Karen Baptiste is an Associate Professor of Environmental Studies and Africana and Latin American Studies at Colgate University, USA.

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Revitalizing Urban Waterway Communities

Streams of Environmental Justice

Richard Smardon, Sharon Moran and April Karen Baptiste

With contributions from
Blake Neumann and Jill Weiss

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Right: Sound art project, with people and stream (see Chapter 9). The location is near Onondaga Creek, Syracuse, New York (Photo Fereshteh Toosi)

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Author biographies

Richard Smardon is a SUNY Distinguished Service Professor Emeritus at the SUNY College of Environmental Science and Forestry, USA. He has been involved in water resource management for a very long time and has been concerned with how different types of stakeholders become involved (or not) with such applications. Examples include protecting natural riparian floodways, which was the focus of the 1996 publication for FEMA and the Federal Floodplain management council where the dual question was how to avert increased flood damage and protect the more natural features of the floodplain. From 2005 to 2009 Smardon was part of the team to produce the Onondaga Creek Revitalization Plan where the question was how to develop a broad ranging participatory process for urban creek revitalization.

Sharon Moran is an Associate Professor at the SUNY College of Environmental Science and Forestry, USA. Her research interests include the human dimensions of water problems, management of toxic substances, and environmental health policy. She leads the doctoral program in Environmental and Natural Resource Policy (ENRP) in the Graduate Program on Environmental Science. She also teaches classes in environmental policy and governance in the Department of Environmental Studies.

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Contributors

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Foreword

> Clean rivers with a wide range of animals and plants have become symbols of a healthy environment, an attractive city, and a stakeholder society having ownership of its environment and responsibility for the needs of future generations.

This summary, in a book published in 2002 with the UK's Environment Agency,[1] placed a strong marker for the revitalization of urban rivers; crucially, a revival based on partnerships with the public and private sectors and the positive involvement of local communities.

A renaissance in urban living was envisaged through a revival that promotes an intimate link between community and nature. With more than 50 percent of the world's population already living in cities—projected to rise to 70 percent by 2050—understanding and responding to the power of urban waterways in the lives of people is essential. But this demands the direct involvement of local communities in the development of both a vision and set of solutions, for the sustainable management of their rivers.

Since the late 1990s, there has been a steady growth in recognition that local people are well-able to work with experts and professionals to produce such outcomes. As colleagues and I discovered in the European SMURF (*Sustainable Management of Urban Rivers and Floodplains*) project (discussed in Chapters 2 and 5 of this book), people living in the heart of urban environments will readily engage with both the emotional and physical criteria that they believe should define their local river. They draw upon history and direct, day-to-day, experience to describe what a sustainable river should be like. Importantly, this is often the opposite of what they currently experience. So—they want a place that they will want to go to, a relaxing, natural, diverse and safe environment that brings a "bit of the rural" into the city.

One of our older participants in the SMURF project, a renowned author on his local river (the Rea in the City of Birmingham, U.K.), drew upon his experience and memory, in the opening of his *Ode to a Secret River*:

When I was young and just a boy,
To play in rivers was my joy,
And as I made my way to school,
I'd dam a stream and make a pool,
Then later on, returning home,
Release the stream and let it roam.

In our community engagement project to restore a stretch of the River Tame in Birmingham, such emotional and physical experiences of being able to once again access the river, rather than being isolated from it by concrete walls and fast flowing water, became essential criteria for its revival. For some this translated into spots where they could get down into the water, for others it was accessible footpaths along the river bank through contrasting areas of light and shade, with abundant wildlife and "babbling water." Importantly, they were able and willing to work with the water engineers, ecologists and local authorities, inevitably constrained in terms of financial resources, to translate what might seem at first sight rather romantic ideals of the river into achievable outcomes. There was willingness to help maintain the river into the future, bringing the next generation through local schools and youth groups, into an understanding of how to sustain a healthy river. Towards the end of the SMURF project, I remember a wonderful Saturday morning when local people of all ages and from diverse communities (including the local Asian community) came out to help plant a wildflower meadow, to take direct ownership of the revival of *their* river.

Community engagement that achieves these outcomes requires time and resources and dedication to the cause. It is far more than a simple consultation exercise, as the multiple examples in this book attest to. But reviving and sustaining urban rivers is worth this investment for the health of cities and all their residents, and for the future. Importantly, as this book stresses, reviving urban waterways is about restoring relationships and community building. In so doing, the authors argue persuasively that there is real potential to tackle issues of environmental justice

Professor Judith Petts, CBE
University of Plymouth, UK

Note

1 Petts, G.E., Heathcote, J. & Martin, D. (2002) *Urban Rivers: Our Inheritance and Future*. IWA Publishing and Environment Agency, London.

Preface

This book was inspired by waterway revitalization processes we've observed in Syracuse, New York, which have encompassed social, economic and environmental dimensions. Our Rust Belt city in Upstate New York is not broadly known for much these days, but its productive past is impressive. Older residents can recite the names of well-known consumer products (e.g., Carrier air conditioners, Syracuse China, Oneida cutlery) once exported nationally and beyond. But many of the factories have now closed, and Syracuse's population has dropped by more than a third. The city has attracted attention for being home to the country's first underwater Superfund site (Onondaga Lake), which is now being remediated. And it has also made the national news for other dubious reasons: Syracuse has one of the highest levels of residential segregation in the U.S., and it is among the worst places to live for African-American and Hispanic people. The rounds of investment, and the decades of disinvestment, have been manifest in the built environments, the ecosystems and the social fabric of the community.

Syracuse is hardly unique. Cities and towns across North America and Europe have experienced similar industrial and cultural upheavals and have lost connection with their natural water resources. Many communities have turned their backs on the streams, creeks, rivers and bayous that once anchored them aesthetically, practically and economically, and, as a result, those waterways have become degraded. Clean air and water are only a small part of what residents have lost through these processes. They have lost their fundamental rights to environmental justice, to access the kind of psychological, social, recreational and aesthetic benefits all people deserve from relationships with the natural world.

But in Syracuse as elsewhere there is reason for hope. Our waterways are taking in much less industrial waste than in the past. Leaders at all levels of government are more committed to environmental justice. As some point out, restoring and revitalizing urban waterways can benefit people and communities in myriad ways, creating more sustainable urban places, reconnecting people with the environment and correcting or at least ameliorating procedural and distributive environmental injustices.

This book explores the concept of such revitalization and looks at examples from around the world. Several terms we use here require clarification. *Revitalize* means making something more alive once again; it is similar to *restore*, but that term implies a more complete putting-back to an earlier state. We settled on revitalize because it is broad enough to cover a range of initiatives and also sufficiently imprecise that it allows us to be inclusive in what we discuss in this book. Also, while restoration projects often focus exclusively on the biophysical integrity of the hydrology and the aquatic ecology, projects revitalizing waterways more frequently target both the waterway and the community or development just beyond it.

The term *urban* seems intuitive, but for the purposes of this book we note that its definitions can take two different forms, and we embrace both of them. The main one suggests a static quality—how large or how dense—and implies a threshold for designation of urban. The other considers process instead of endpoint—urbanizing rather than urban, which matters for waterways because urbanization harms aquatic ecology, even at low levels of impervious surfaces. *Waterway* here includes linear water bodies usually known as streams, creeks or rivers. While it's hard to specify a precise distinction between stream and rivers, differential flow rates may provide an approximate indicator. Still, we note that even the USGS sidesteps any quantitative definition of a river, instead acknowledging that it is relative.

Our goal here is to explore academic scholarship as well as pragmatic applications that center on waterway restoration and environmental justice. We hope this book will prove useful to both academics studying such subjects and to residents, advocates and activists engaged in the long-term processes of restoration and revitalization.

Richard Smardon
Sharon Moran
April Karen Baptiste

Acknowledgments

Much of the genesis of this book lies in work done in connection with planning the Onondaga Creek Revitalization Plan (OCRP), starting more than a decade ago. Working from Syracuse, NY, the authors would like to acknowledge with respect the Onondaga Nation, the indigenous people whose ancestral lands we now stand on. In doing the research for a book of this nature, there are many who contributed their time and effort. We wish to thank Edward Michalenko, Ph.D., Onondaga Environmental Institute Director, who had the foresight to write the grant proposal for the Onondaga Creek Conceptual Revitalization Plan, and Meredith Perreault in her critical role as project manager. Other key contributors included Lee Geches, Samuel Gordon, Sid Hill, Tarki Heath, Amy Samuels, Samuel Sage, Jeannie Shenandoah and Kelly Somerlot. This was truly a collaborative effort of five different organizations plus a 15-member citizen-working group.

Learning about the best practices taking place nationally and beyond was an essential and compelling part of planning the course of action for the OCRP. For the Bronx River case study, we would like to thank for their insight members of the Bronx River Alliance; Sustainable South Bronx; Steve Oliveri of the Ministry of Peace and Justice; Linda Cox, Executive Director of the Bronx River Alliance and NYC Parks and Recreation; Joan Byron, Senior Fellow at the Pratt Institute Center for Community and Environmental Development; and Jill Weiss, former Bronx Educational Program Director. We would also like to thank Gerry Willis of the National Park Service, who provided valuable context.

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1 Introduction

Urban waterway history and planning context

Richard Smardon

Introduction

We know that negative impacts from urbanization accumulate within watersheds as small tributary streams contribute higher peak flows and lower base flows to waterways downstream. As Platt points out, "Dozens (and possibly hundreds) of small urban watersheds in the United States and around the world … are the focus of multifarious "restoration" strategies under complex institutional arrangements" (Platt, 2006, p. 29). In many instances, as with our own Onondaga Creek in Syracuse, New York, the main channel has been straightened and "hardened," moving higher flows faster through the settled areas without flooding. These same channels in many cases are lined with sanitary sewer overflows (SSOs) and combined sewer overflows (CSOs), which may dump raw sewage plus street drainage during storm events, thus severely degrading the urban waterway.

Many obstacles can interfere with the revitalization or restoration of urban waterways and what follows are examples of such obstacles. The urban creeks, streams and sloughs in need of revitalization are often within poor neighborhoods with highly diverse populations and across multiple jurisdictions. Some examples are Wildcat Creek in North Richmond/San Pablo, California (Riley, 1989a, 1989b); the Anacostia River in Washington, D.C. (Powell, 2010); and Onondaga Creek (Moran et al., 2013) in Central New York State (Figure 1.1). Local communities may not agree as to what should be done to revitalize these waterways; different agencies may hold conflicting priorities, e.g., flood control vs. water quality improvement vs. habitat restoration.

An incredible number of research and demonstration projects (Bernhardt et al., 2005) have attempted to restore segments and functions of small creeks, streams and bayous, but we maintain that a major challenge for the urban waterway restoration/revitalization is gaining consensus about what to do and how to do it. We learned this during the three years of working on the Onondaga Creek Revitalization Plan (Moran et al., 2013) in Syracuse, New York, and others have found this to be a major challenge as well (Moran, 2003, 2007, 2010; Platt, 2006; Riley, 1998). There are also

Figure 1.1 Onondaga Creek walk linking Franklin Square to Downtown Syracuse
Source: Photo by R. Smardon

equity issues in terms of who has historically been forced to live in high-risk floodplain or polluted water areas.

The term *restoration* implies speaking mainly from a biophysical restorative functional capacity, e.g., hydrology, water quality, aquatic and riparian habitat. Using the term *revitalization* implies social and economic improvement or revitalized creek neighborhoods with economically sustainable land use patterns as well as some level of biophysical restoration of the water body. *Naturalization* implies some degree of biophysical water body restoration.

The focus of this book is to explore social processes that are equitable to surrounding communities and can be combined with good environmental science to advance urban waterway restoration/revitalization. The few other books that address the subject include Ann Riley's *Restoring Streams in Cities: A Guide for Planners, Policy Makers and Citizens,* published in 1998, and the American Planning Association's *Ecological Riverfront Design: Restoring Rivers, Connecting Communities* (Otto et al., 2004). One of this book's co-authors produced and co-wrote *Protecting Floodplain Resources: A Guidebook for Communities* for the Federal Interagency Floodplain Management Task Force (Smardon et al., 1996), and the book