

## Urban Nature: Perspectives on Nature and the City



Kevin M. Anderson, Ph.D.  
Austin Water – Center for Environmental Research

# Perspectives on Nature and the City

## Nature and Culture

- What it is
- Where it is
- What it does
- What it means

## Narratives of Urban Nature

- Redemptive
- Restorative
- Functional



# The American Concept(s) of Nature

In the United States, the kinds of nature that we celebrate are wilderness and pastoral landscapes.

They are the foundation of the American concept of nature from which we assess the value of nature in America.



# The Problem of Urban Nature for Americans

## What it is and What it means

*The Cincinnati Arch: Learning from Nature in the City* (2004)

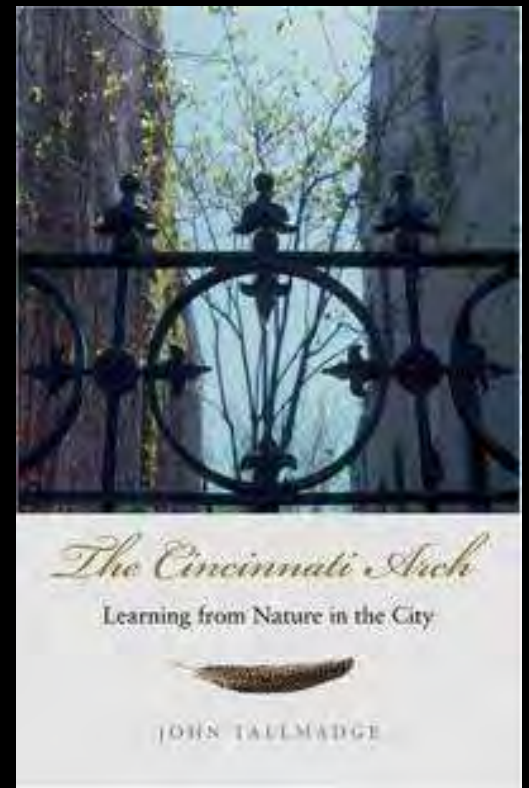
John Tallmadge

Urban nature is not sublime...There's too much sterility in the form of roofs and pavement, and, oddly enough, there's also too much wildness, too many weeds and wooded borders and tangled banks, not to mention vacant lots going to brush.

Of course, "wilderness" won't do to describe such landscapes either. Despite the degree of wildness, there's too much human impact, too many alien species, too few large animals to meet the legal and cultural criteria.

The fact is that urban landscapes are just too mixed up, chaotic, and confused to fit our established notions of beauty and value in nature.

Maybe it's not really nature at all, not a real ecosystem, just a bunch of weeds and exotics mixed up with human junk.



# Where it is - The Proper Place of Nature

We need to embrace the full continuum of a natural landscape that is also cultural, in which the city, the suburb, the pastoral, and the wild each has its proper place, which we permit ourselves to celebrate without needlessly denigrating the others.

William Cronon “The Trouble with Wilderness or, Getting Back to the Wrong Nature”  
in *Uncommon Ground: Rethinking the Human Place in Nature* (1995)



# The Problem of Urban Nature – What it means

- In American cities, we perceive nature in the urban landscape filtered through a conceptual framework that prejudices its ecological and cultural value.
- Our understanding of what constitutes good urban nature in American cities is shaped by culturally dominant metaphors of nature.

Wilderness

Pastoral

Urban Nature?



## The Iterative Natures - Classical Western Ideas of Nature

1. First nature - wilderness or pristine (untrammelled by humans)

Wilderness is the realm of the gods or “primitive” humans

2. Second nature – pastoral arcadia – pastures, farms, settlements



3. Third nature – Renaissance formal gardens

Jacopo Bonfadio wrote in 1541 that formal gardens make a “third nature, which I would not know how to name.”



The illustration shows a distant mountain (first nature) giving way to cultivated agricultural land (second nature) and then a formal garden (third nature).

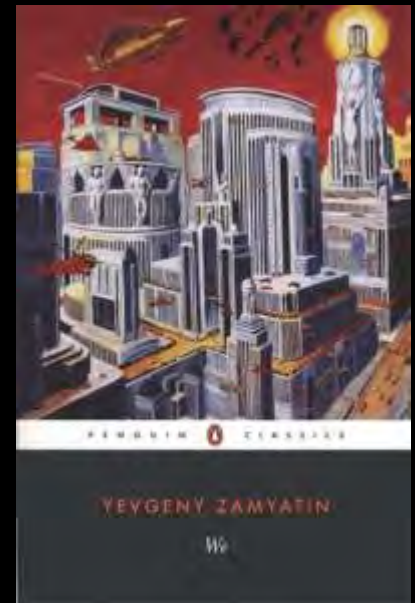
Frontispiece to l'Abbé de Vallemont's *Curiositez de la nature et de l'art* (1705)

# Humans and Wild Nature

Oh, how great and divinely limiting is the wisdom of walls. This Green Wall is, I think, the greatest invention ever conceived.

Man ceased to be a wild animal the day he built the first wall; Man ceased to be a wild man only on the day when the Green Wall was completed, when, by this wall we isolated our machine-like, perfect world from the irrational, ugly world of trees, birds, and beasts.

- Eugene Zamyatin, *We* (1921)





## From Positive to Negative Second Nature – the Urban

### Positive Pastoral Arcadia

Cicero *De natura deorum* (45BC)

We enjoy the fruits of the plains and of the mountains, the rivers and the lakes are ours, we sow corn, we plant trees, we fertilize the soil...we confine the rivers and straighten or divert their courses. In fine, by means of our hands we essay to create as it were a second world within the world of nature.



With the rise of Industrialism...

### Negative Urban Decay

Henri Lefebvre *The Production of Space* (1974)

Nature, destroyed as such, has already had to be reconstructed at another level, the level of “second nature” i.e. the town and the urban. The town, anti-nature or non-nature and yet second nature, heralds the future world, the world of the generalized urban.

Nature, as the sum of particularities which are external to each other and dispersed in space, dies. It gives way to produced space, to the urban.



# 19<sup>th</sup> Century Narrative of Redemptive Urban Nature in America

## Thoreau, the City, and the Tonic of Nature

Henry David Thoreau, "Walking" (1862)

"The West of which I speak is but another name for the Wild; and what I have been preparing to say is, that in Wildness is the preservation of the world.

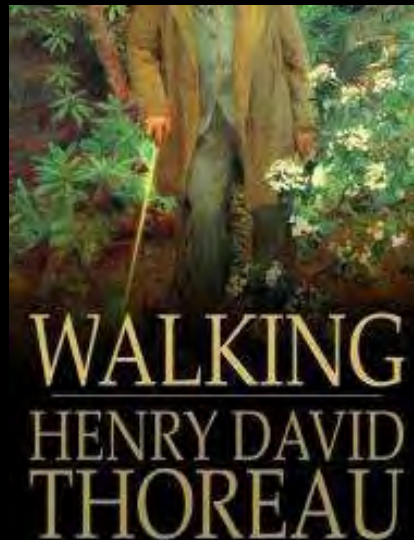
Every tree sends its fibers forth in search of the Wild. The cities import it at any price. Men plow and sail for it. From the forest and wilderness come the tonics and barks which brace mankind.

Hope and the future for me are not in lawns and cultivated fields, not in towns and cities..."

The Transcendentalist concept of nature as a tonic for body and spirit



1817-1862



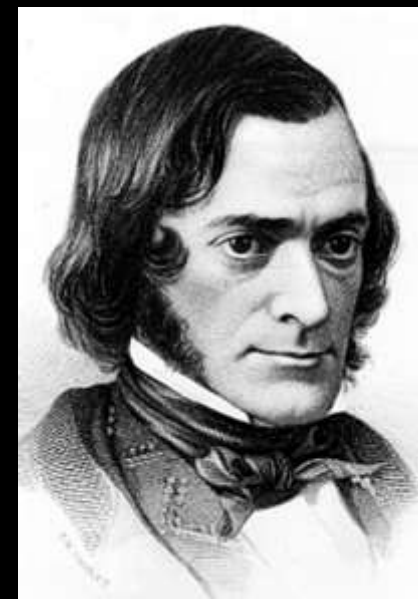
# Redemptive Urban Nature - "cities import it at any price"

Andrew Jackson Downing 1815-1852

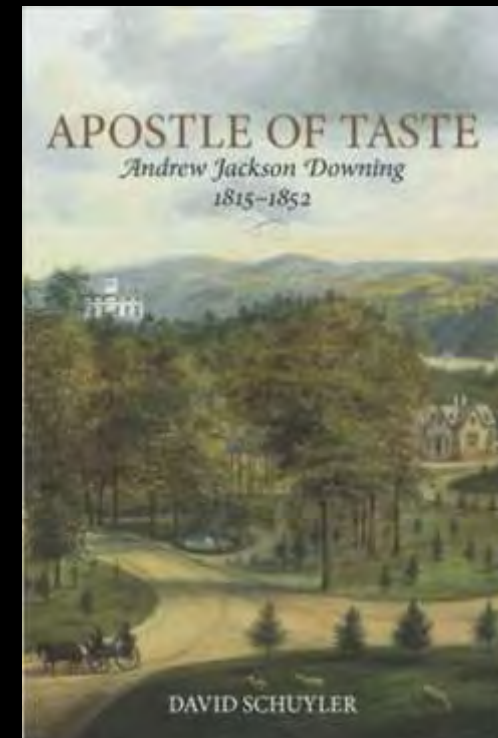
## The Social and Political Role of American Urban Nature

"Plant spacious parks in your cities, and unloose their gates as wide as the gates of morning to the whole people.

As there are no dark places at noonday, so education and culture – the true sunshine of the soul – will banish the plague-spots of democracy."



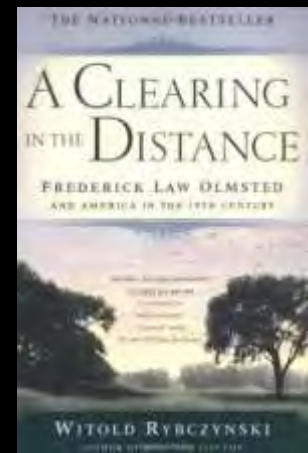
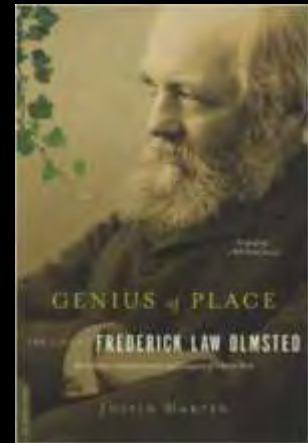
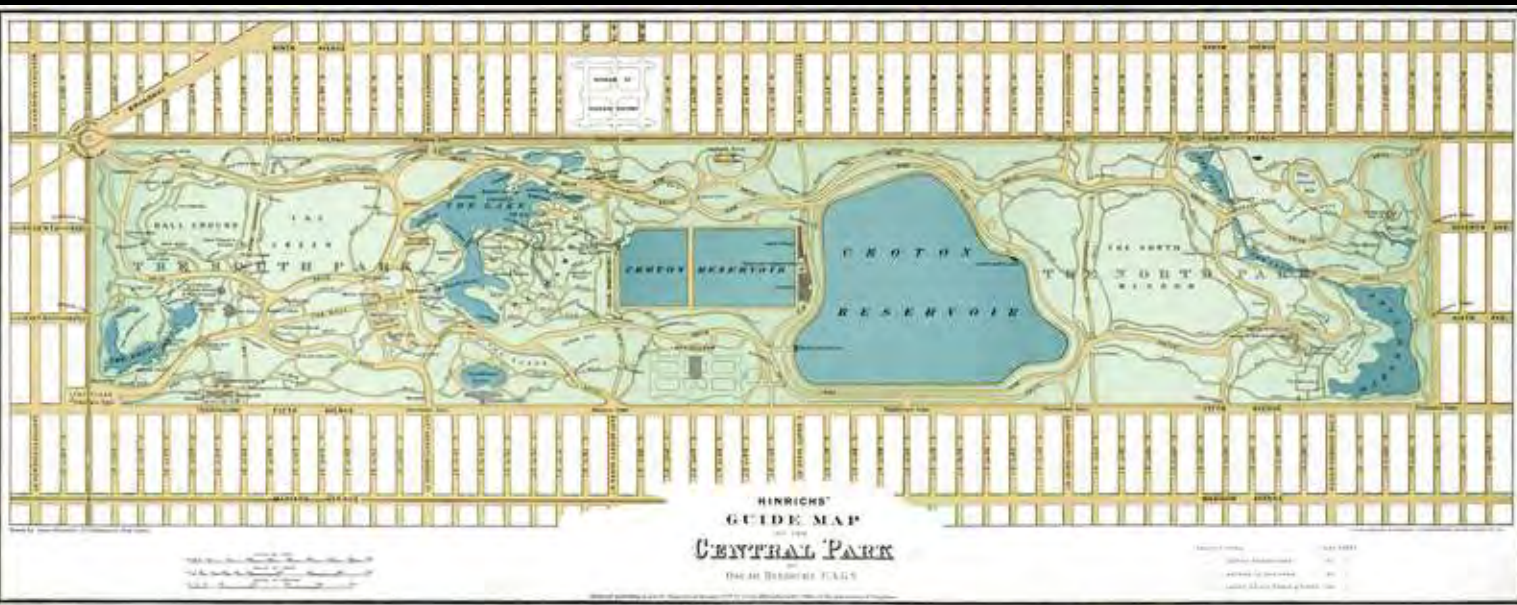
## The New York Park 1851





## Redemptive Urban Nature Banish the Plague-spots of Democracy

Olmsted observed that New York's Central Park had a "harmonizing and refining influence upon the most unfortunate and most lawless classes of the city - an influence favorable to courtesy, self-control, and temperance."



# The Olmstead "Pastoral" Style A Designed Experience of Urban Nature

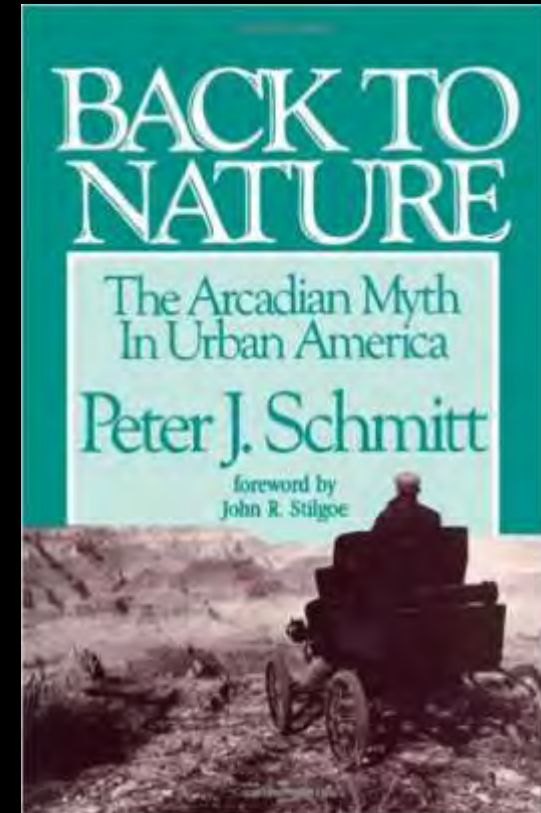


There were broad spaces of greensward, broken occasionally by groves of trees.

The boundary was indistinct, due to the "obscurity of detail further away" produced by the uneven line and intricate foliage of the trees on the edge of the open space.

## Urban Pastoral Democracy – Banish the Plague-spots of Democracy

Like Downing, Olmsted believed that the rural, picturesque landscape contrasted with and counteracted the confining and unhealthy conditions of the crowded urban environment and served to strengthen society by providing a place where all classes could mingle in contemplation and enjoyment of the pastoral experience.



Peter J. Schmitt, *Back to Nature: The Arcadian Myth in Urban America* 1969

# 19<sup>th</sup> Century Narrative of Redemptive Urban Nature

“Should the forces which push men into the arms of ignorance, sin, and death, be allowed a free field in our cities or should there be parks and open spaces to redeem the city with all that mingling of the natural and the human which we call landscape?”

Charles Elliot, Jr. 1891



Charles Eliot Jr.  
1859-1897

Downing, Olmsted, and Eliot saw themselves as educators teaching with shovel and pen a new meaning for nature in urban society.

## Metropolitan Park System of Greater Boston



# Redeeming the City with Nature continues today...

Greenspace, Parks, Gardens, Farms, Preserves, Wildlands

In America, we celebrate urban nature that is either deliberately cultivated pastoral “greenspace” like parks, gardens, and urban farms or formally protected as remnants of the “wild” native landscapes obliterated by the creation of the city in preserves, sanctuaries, refuges, and other “wildlands”.

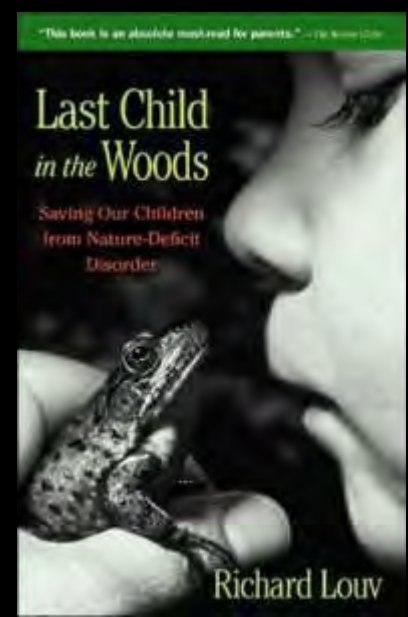




# Narrative of Redemptive Urban Nature – What it means

## The Wild and The Pastoral Imported

- This narrative presupposes the framework of iterative natures with wildlands, preserves, parks, and gardens established for imaginative urban landscapes of wild first nature and pastoral second nature.
- The further presupposition is that the urban industrial second nature is degradation in need of redemption.
- The narrative of redemptive urban nature uses the Transcendentalist concept of nature as a tonic for body and spirit which is deliberately incorporated into urban design.
- Space for nature is created to provide recreation for physical health and to allow contact with officially sanctioned nature for mental health.



# 20<sup>th</sup> Century Narrative of Restorative Urban Nature – What it means and What it does

## Design with Nature to Biophilic Cities

### Version 1 - Architecture and Urban Design/Planning

- Design with Nature - One version of this narrative focuses on urban design and landscape architecture, and Ian McHarg is the main protagonist.
- This urban design version of the restoration narrative emerges from a positive view of cooperation with nature and pastoral ideals of improvement of nature.
- It, also, presupposes that urban industrial second nature is degradation which can be restored to ecological sustainability through design and planning.
- It is based on a scientific, mechanistic manipulation of nature for human ends to produce a functional urban ecosystem overlaid with a “green” aesthetic.



### A 'Design with Nature' approach to community design means...



- Develop compact, complete communities
- Increase transportation options
- Reduce the loads on water, waste and energy systems
- Protect and restore urban 'green' space
- Strive for a lighter 'hydrologic footprint'
- Achieve higher levels of stream, wetland and lake protection

# THE GRANITE GARDEN

Urban Nature and Human Design  
ANNE WHISTON SPIRN



# SUSTAINABLE URBANISM

## URBAN DESIGN WITH NATURE



DOUGLAS FARR

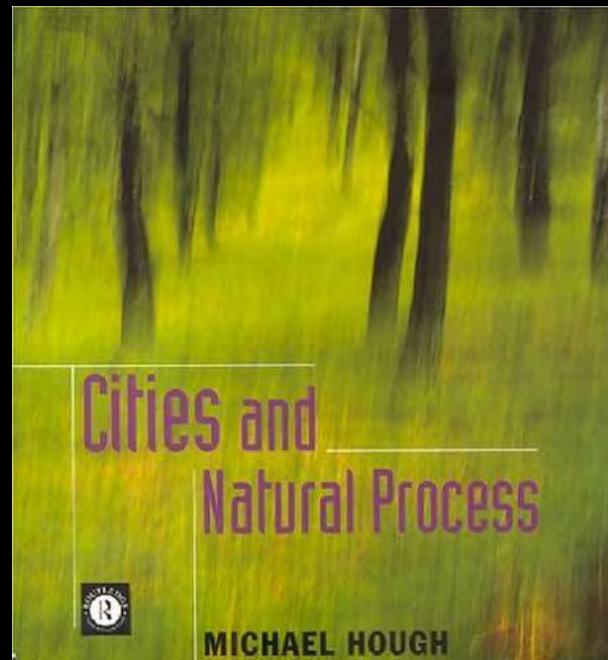
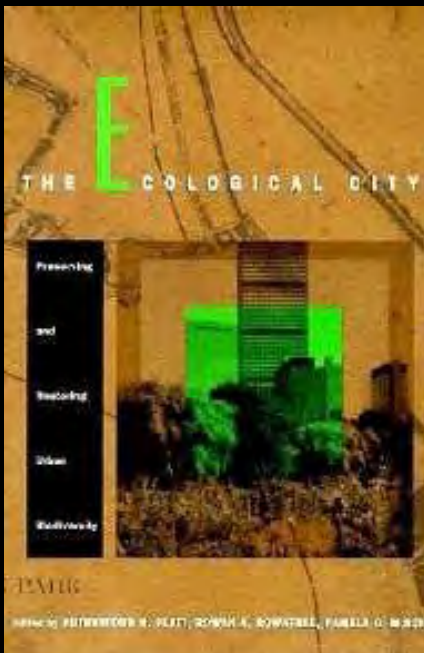
FOREWORD BY ANDRES DUANY

# URBAN ECOLOGICAL DESIGN

A Process for Regenerative Places



DANILO PALAZZO AND FREDERICK STEINER



# The Living Landscape

SECOND EDITION

An Ecological Approach to Landscape Planning



FREDERICK STEINER

With a new preface by the author

# BIOPHILIC CITIES

INTEGRATING NATURE  
INTO URBAN DESIGN AND PLANNING



TIMOTHY BEATLEY



# 21<sup>st</sup> Century Narrative of Restorative Urban Nature and Sustainable Cities

## NATURE AND CITIES THE ECOLOGICAL IMPERATIVE IN URBAN DESIGN AND PLANNING

Edited by  
FREDERICK R. STEINER  
GEORGE F. THOMPSON  
ARMANDO CARBONELL



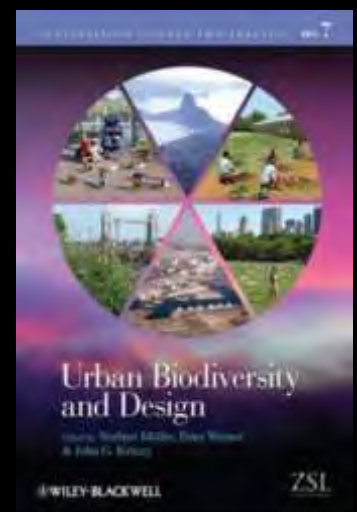
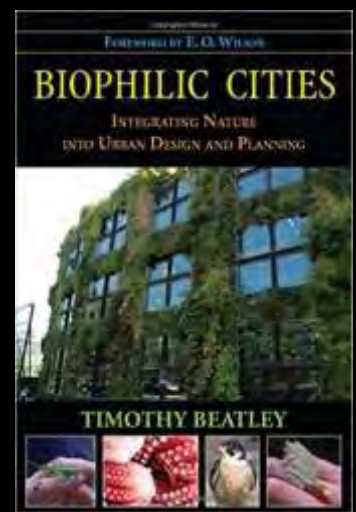
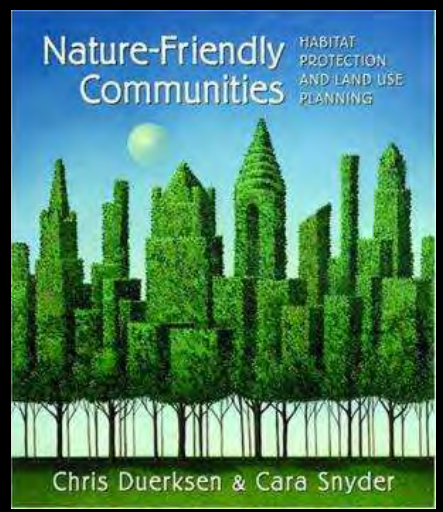
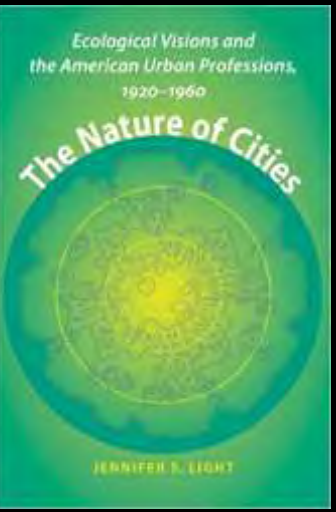
## Sustainable Cities



# New Narrative of Urban Nature? Redemptive? Restorative? Other? Urban Design, Management, and Science

The Nature of Cities is a “boundary organization” interested in ideas at the frontiers of science, design, policy, and the arts — an idea hive that puts different approaches and points of view together, to discover what novel perspectives might emerge.

a virtual magazine and discussion site  
<https://www.thenatureofcities.com/>



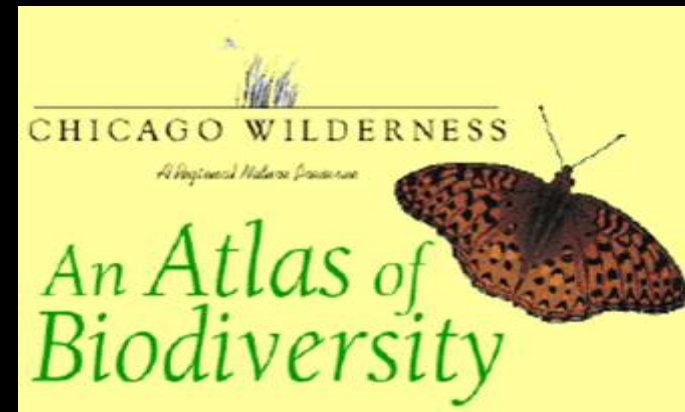
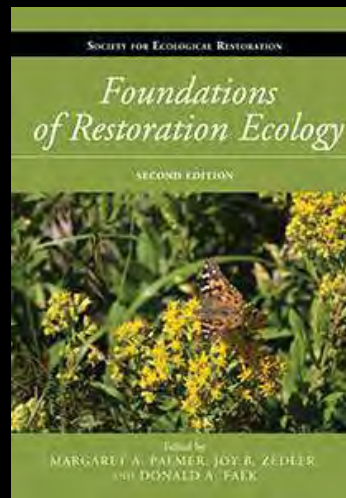
# 20<sup>th</sup> Century Narrative of Restorative Urban Nature

## Version 2 - Restoration Ecology and Conservation Biology

Urban Restoration Ecology - The restoration narrative has another version which emerged in the 1980s focused on the recovery of native historical habitats through the restoration of these habitats in urban landscapes.

Restoration ecology developed alongside conservation biology with the goal of not just to conserve remnant historical habitats and species but to actively restore native ecosystems.

What it is? Good Urban Nature = Native Nature



# Degraded Nature in American (Urban) Ecology

Perceptions of American Urban Biologists, Ecologists, and Environmentalists

Ecology “in” cities – “Bizarre” - A weedland community of inappropriate nature

(Urban growth) replaces the native species that are lost with widespread “weedy” nonnative species. This replacement constitutes the process of biotic homogenization that threatens to reduce the biological uniqueness of local ecosystems.

Michael L. McKinney, “Urbanization, biodiversity, and conservation”. *Bioscience* 52(10), (2002), 883–890.

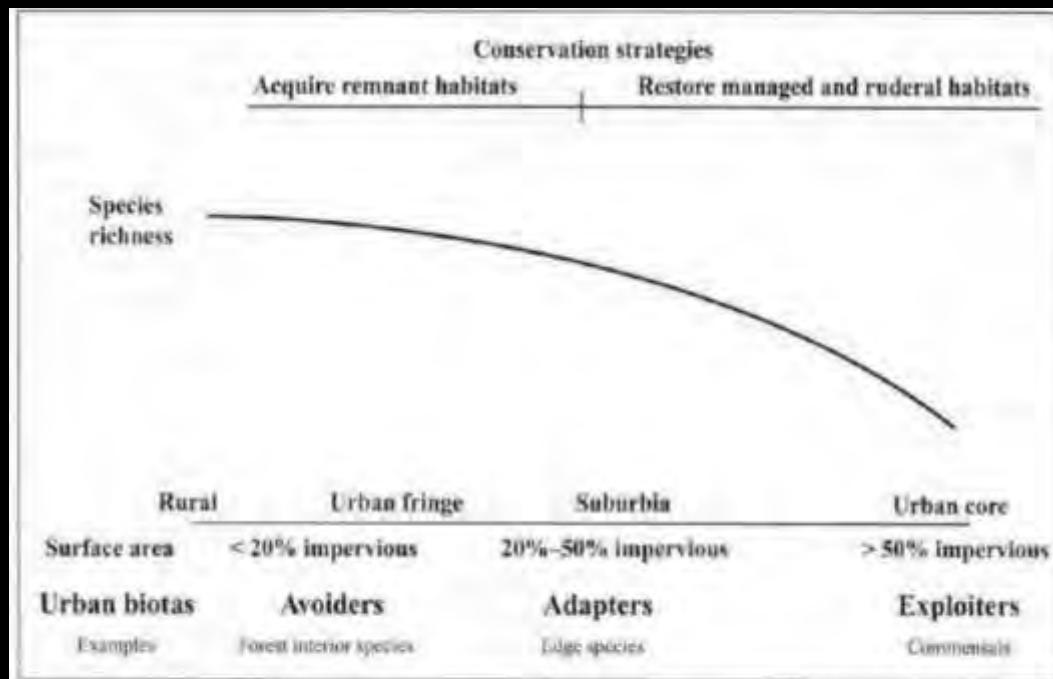
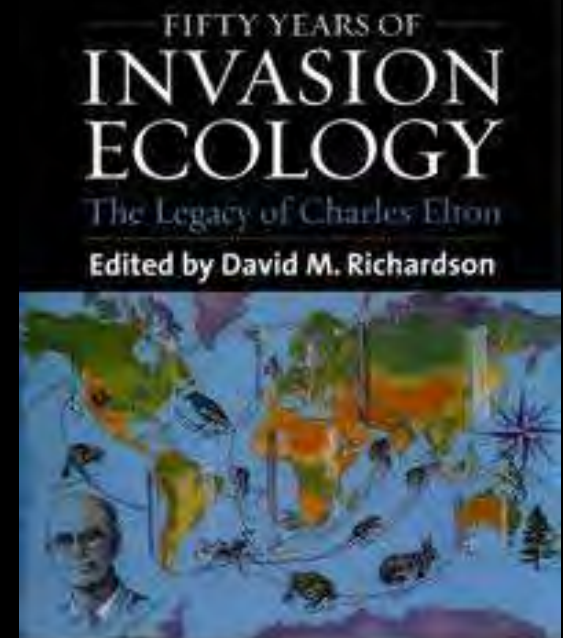


Figure 2. Urban-rural gradient. This is a very generalized and simplified depiction of changes in surface area, species richness, and composition, as compiled from a number of sources discussed in the text. Two basic conservation strategies with respect to urban sprawl are shown at the top.



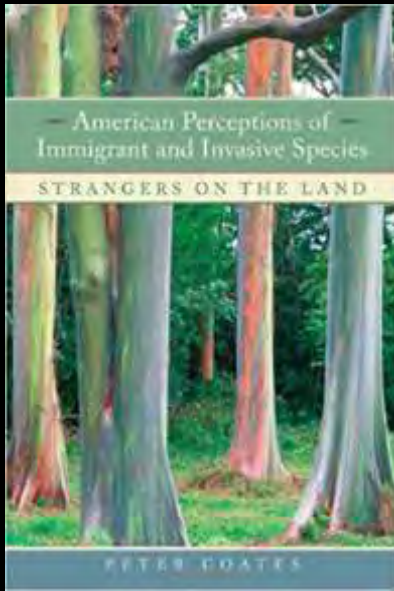
In this traditional version of the narrative of restorative urban nature, the transgressive weeds - non-native species - must be eradicated because they are disruptive aliens. The most controversial of these aliens are called “invasive species”.

# Invaders of Texas

a Citizen Science Program to Detect and Report Invasive Species

“Invaders of Texas” website was created by the Lady Bird Johnson Wildflower Center as a tool for mobilizing the public “to control the spread of unwanted invaders” and the program mobilizes “citizen scientists” to defend the homeland.

## What it is? Good Urban Nature = Native Nature

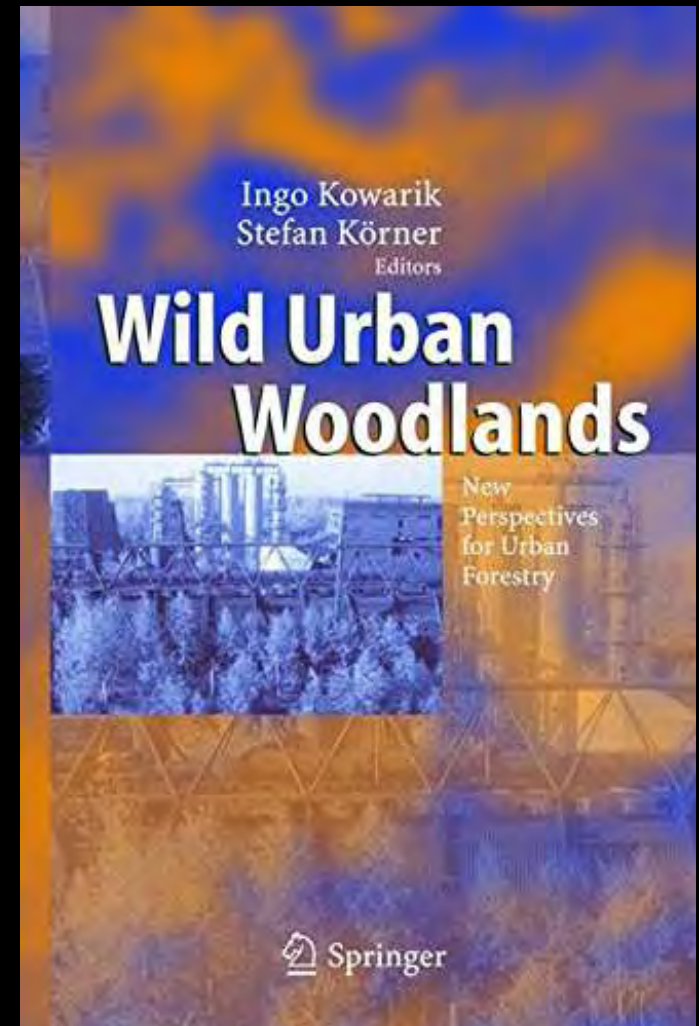


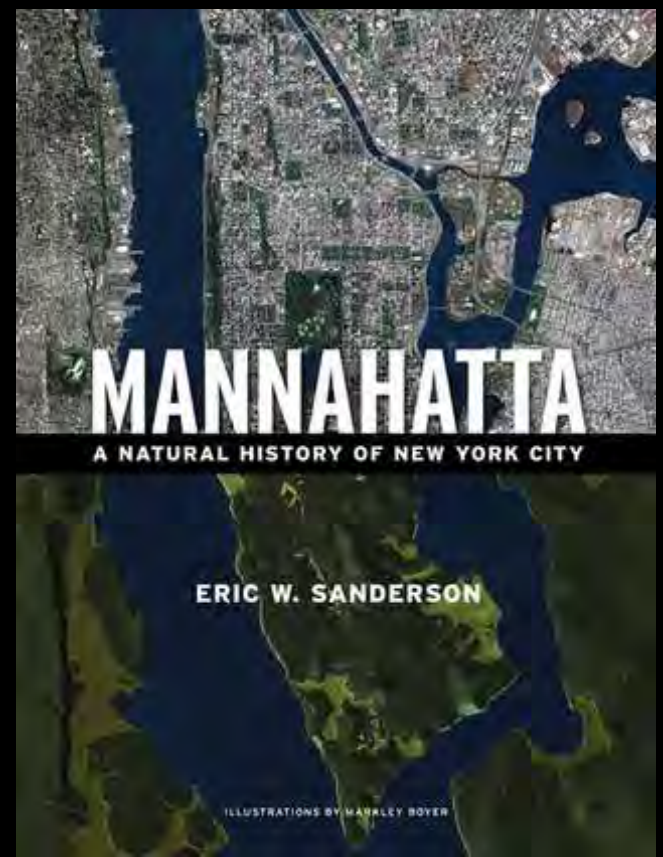


# 21<sup>st</sup> Century Ecology and the City

## The Problem of Scientific Knowledge and Urban Nature

### Retrospective Ecology vs. Prospective Ecology

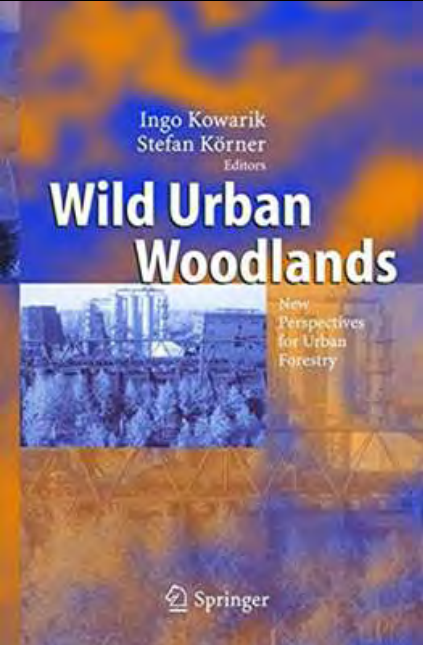




## Retrospective Ecology, Historical Naturalness, and American Urban Ecology

“The Mannahatta Project began in 1999, when landscape ecologist Dr. Eric Sanderson moved to New York City to work for the Wildlife Conservation Society. Dr. Sanderson realized that, to fully appreciate the concrete landscape of streets and buildings that was his new home, he would have to “go back in time” to recreate the its ecology from the “ground up.””

Going back to 1609 allows us to see what New York City was before it was a city and to reimagine the city’s development in a way that would incorporate more of the natural cycles and processes (such as the hydrological cycle) that made the island the ecological gem that it was.”



## Reassessing scientific approaches to naturalness in urban ecology A European Perspective

Retrospective naturalness vs. Prospective naturalness

*Wild Urban Woodlands* Ingo Kowarik 2005

### Retrospective naturalness

- The point of reference is therefore, pristine vegetation uninfluenced by humans. Based on the cultural history of the relevant area, the reference period may lie decades or a few millennia in the past.
- In the retrospective perspective of naturalness, remnants of pristine woodlands are most natural and woodlands used for forestry are at least semi-natural.
- From the retrospective perspective the development back to nearly natural or natural woodlands composed of historical native species can be analyzed well.



With the evaluation of new development of “wild” urban woodlands, however, the traditional concept of naturalness oriented toward historical comparisons runs aground.

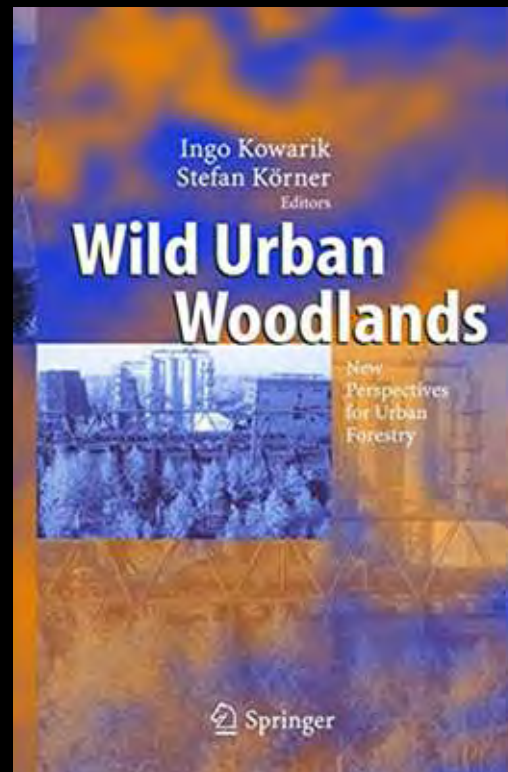
# Prospective Naturalness and Prospective Ecology The Wild Urban Woodlands of Waller Creek

## Prospective naturalness...

“the reference point is not an original condition of a natural landscape, but rather a condition defined based on the current site potential and the greatest possible degree of self-regulation.

From this perspective, therefore, the natural capacity for *process* is the central point, not a particular, retrospectively determined and often idealized, *picture* of nature.”

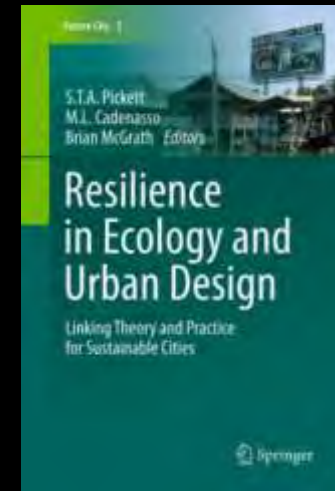
2005



2017



Resilience



# 21<sup>st</sup> Century Narrative of Functional Nature - Urban Ecology

## What it does – Ecosystem Processes

### Science and Environmental Management

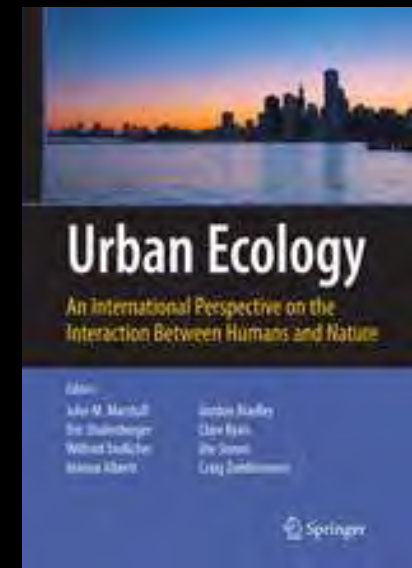
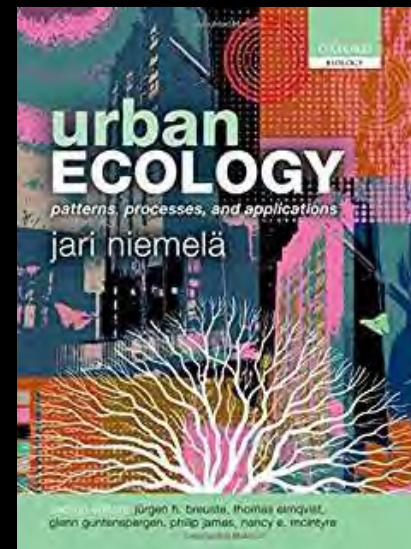
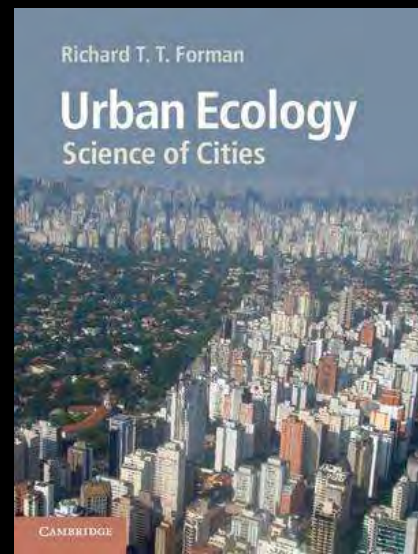
the natural capacity for *process* is the central point, not a particular, retrospectively determined and often idealized, *picture* of nature

- The study of urban ecosystem functionality
- The restoration of urban ecosystem functionality



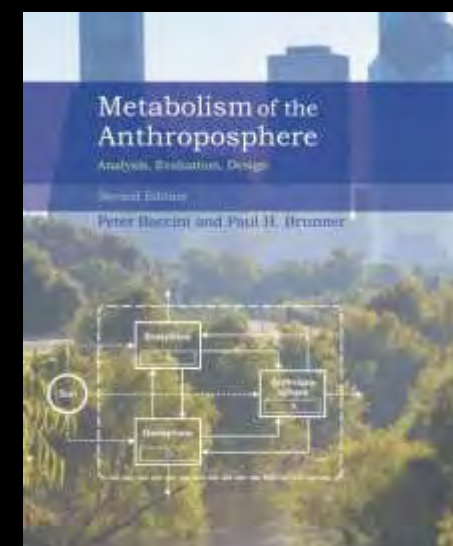
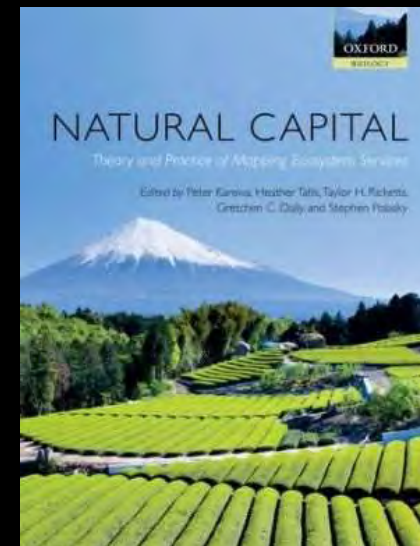
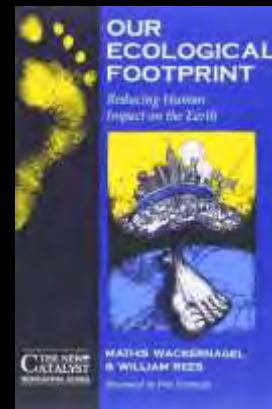
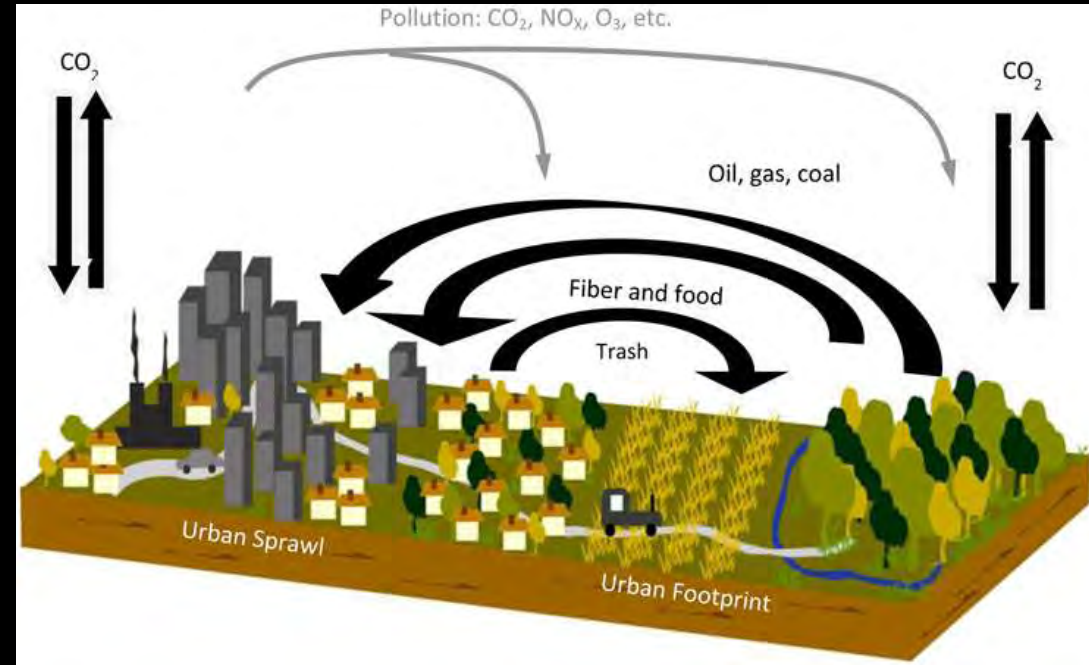
### Advances in Urban Ecology

Integrating Humans and Ecological  
Processes in Urban Ecosystems



# What Nature Does - Ecosystem Cycles and Services

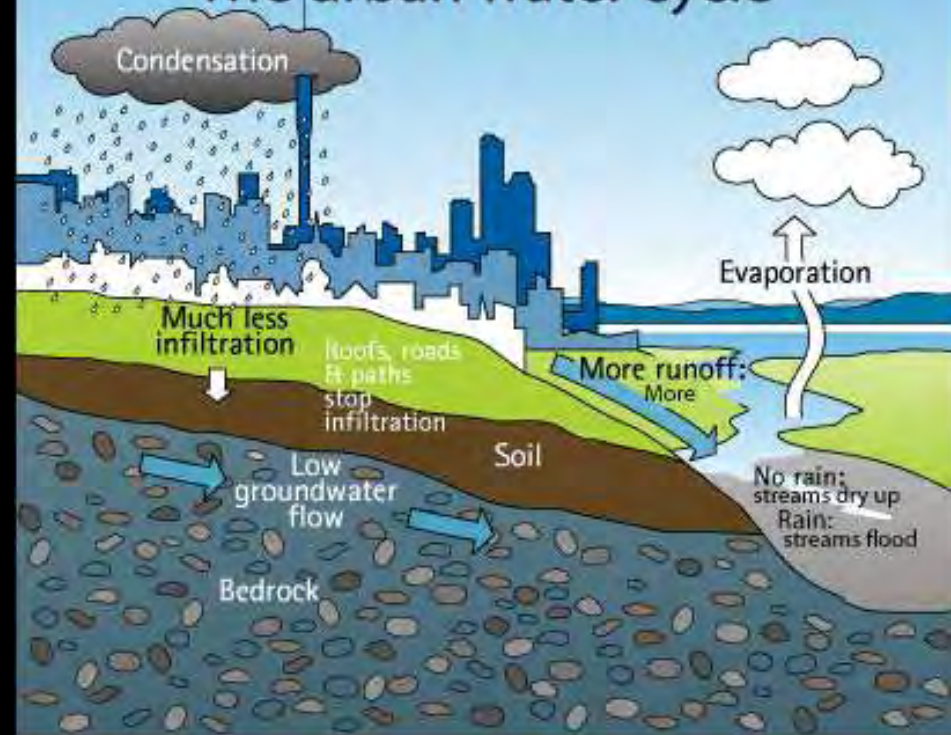
- ✓ Maintenance of atmosphere
- ✓ Protection from ultraviolet rays
- ✓ Regulation of climate
- ✓ Maintenance of genetic diversity
- ✓ Purification of air and water
- ✓ Detoxification and decomposition of wastes
- ✓ Generation of soil and renewal of soil fertility
- ✓ Pollination of vegetation
- ✓ Control of agricultural pests
- ✓ Dispersal of seeds
- ✓ Translocation of nutrients



# The natural water cycle



# The urban water cycle



Thomas Elmqvist  
 Michael Fragkias  
 Julie Goodness  
 Burak Güneralp  
 Peter J. Marcotullio  
 Robert L. McDonald

Susan Parnell  
 Maria Schewenian  
 Marte Sendstad  
 Karen C. Seto  
 Cathy Wilkinson  
 Editors

## Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities

A Global Assessment  
 Foreword by Pavan Sukhdev

Springer Open

Richard T. T. Forman

## Urban Ecology Science of Cities



CAMBRIDGE

Wilfried Endlicher et al. Editor

## Perspectives in Urban Ecology

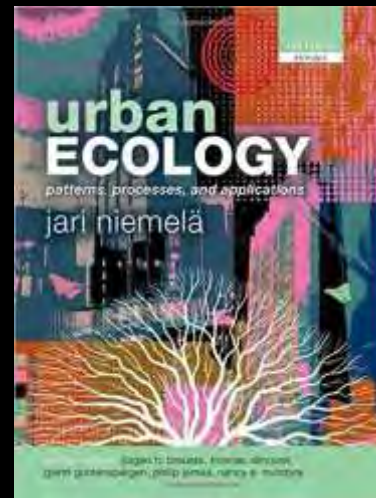
Studies of ecosystems  
 and interactions  
 between humans and nature  
 in the metropolis of Berlin

Springer

## urban ECOLOGY

patterns, processes, and applications

Jari Niemelä



Editors: Tommie, Anneli, Anniina, Jari Niemelä, Philip James, Nancy & Michael

Ingo Kowarik  
 Stefan Körner  
 Editors

## Wild Urban Woodlands



With  
 150 illustrations  
 by Ulfarur  
 Parnell

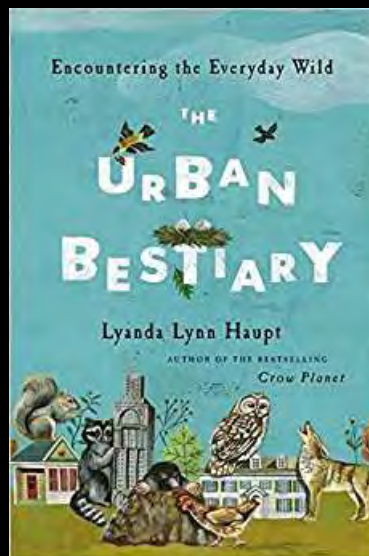
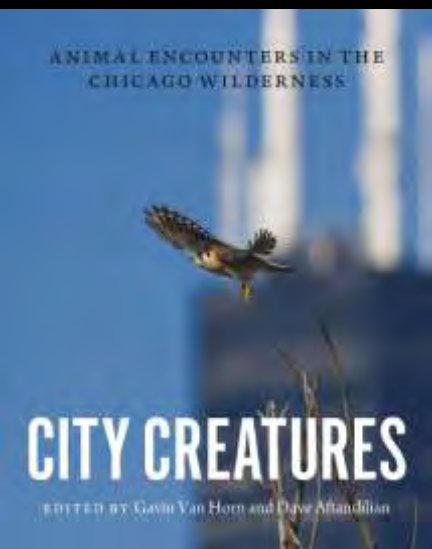
Springer

## Once more from the top!

*Maybe it's not really nature at all, not a real ecosystem, just a bunch of weeds and exotics mixed up with human junk.*

### The Non-Human Urbanites

- Who are they?
- Where are they?
- What do they do?
- What do they mean?





# Urban Wildness and the Agency of Nature

Non-humans do unexpected things and defy our expectations of how non-humans should behave and where they should live (their proper place)...their habitat.



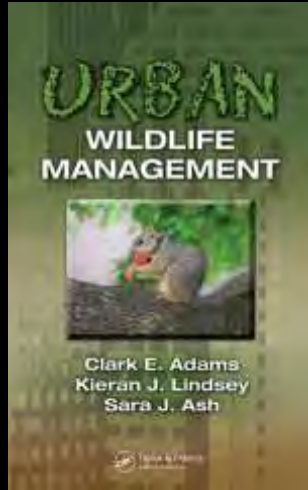
# Urban Fauna - The Challenge of Urban Wildlife

Urban “wildlife” is another mediated, managed part of urban nature found in the city.

This urban fauna is judged favorably when it in some way fulfills our expectations of wild or pastoral nature or condemned as pestilent when it fails to follow the narrative for good fauna in the city – and stay in the proper places for nature in the city.



This narrative of urban wildlife declares that transgressive coyotes, rats, grackles, and pigeons are urban pests that further degrade the city...



...but nesting red-tailed hawks and peregrine falcons are redemptive wild additions to the city.



Welcome to the Live Falcon Cam!

The University of Texas Tower is home to a female Peregrine Falcon, nicknamed "Tower Girl."



# What does the City mean to Pale Male?

Pale Male the famous red-tailed hawk  
Performs wing stands high above midtown Manhattan  
Circles around for one last pass over the park  
Got his eye on a fat squirrel down there and a couple of pigeons  
They got no place to run they got no place to hide  
But Pale Male he's cool, see 'cause his breakfast ain't goin' nowhere  
So he does a loop the loop for the tourists and the six o'clock news  
Got him a penthouse view from the tip-top of the food chain, boys  
He looks up and down on fifth avenue and says "God I love this town"  
But life goes on down here below  
And all us mortals struggle so  
We laugh and cry  
And live and die  
That's how it goes  
For all we know  
Down here below

Down Here Below  
Steve Earle  
Washington Square Serenade  
2007



## Proper Place for Urban Wildlife? All of the City is habitat

The mobility of urban wildlife allows them to exploit the entire city as habitat...and ignore human boundaries for proper urban nature.



# Improper Urban Nature

Nature flourishes through its own agency in neglected urban spaces and margins like vacant lots, garbage dumps, sewage ponds, unmaintained roadway and railway verges, derelict industrial tracts, abandoned buildings, overgrown urban creeks, crumbling walls, and other urban waste spaces.



MARCO CALIF 67008

# Types of Neglected Urban Spaces

## Wastelands - whole patches

- Vacant lots
- Dumpsites
- Industrial Wasteland
  - Brownfields
  - Greenfields
  - Quarries and Gravel Pits
- Urban Infrastructure Land
  - Power plants
  - Water treatment plants
  - Reservoirs
  - Wastewater treatment plants
  - Sewage ponds
  - Constructed wetlands
  - Stormwater retention structures
- Unusable Land - bits and pieces
  - Slopes, gullies, corners, fragments

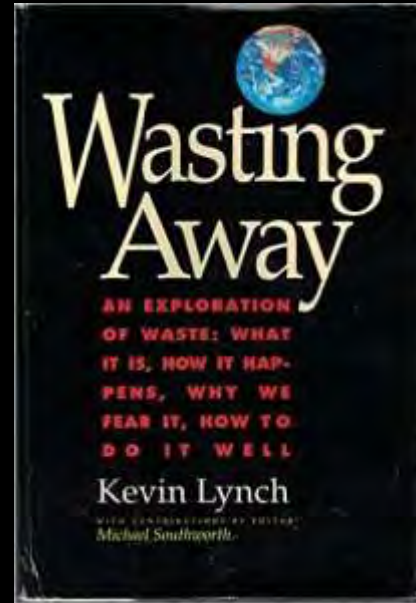
## Margins – edges and ledges

- Urban waterways
- Canals, drainage channels
- Utility corridors
- Waysides
  - road waysides
  - railway verges
- Alleys – paved, unpaved, grass
- Walkways and pathways
- Fencelines
- Walls and ledges
- Pillars and bridge abutments



# Ruinous Attractions of Neglected Urban Places For Humans

Many waste places have these ruinous attractions: release from control, free play for action and fantasy, rich and varied sensations. Thus children are attracted to vacant lots, scrub woods, back alleys, and unused hillsides...those screened, marginal, uncontrolled places where people can indulge in behavior that is proscribed and yet not harmful to others – are regularly threatened by clean-ups and yet are a necessity for supple society.



- Kevin Lynch *Wasting Away* (1990) p. 26.





## Unofficial Urban Nature

What emerges in these urban wastelands is a hybrid type of nature both weedy and wild - the unintended product of human activity and Nature's unflagging opportunism, which I call

### Marginal Nature.



“Maybe it’s not really nature at all, not a real ecosystem, just a bunch of weeds and exotics mixed up with human junk.”

Marginal nature in the urban landscape is neither pristine nor pastoral, but rather it is a new kind of nature whose ecological and cultural meaning is an open question.

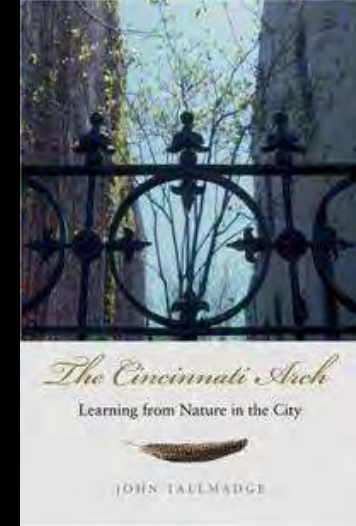
# “Established Notions of Nature” and Urban Nature

The fact is that urban landscapes are just too mixed up, chaotic, and confused to fit our established notions of beauty and value in nature.

Maybe it's not really nature at all, not a real ecosystem, just a bunch of weeds and exotics mixed up with human junk.

John Tallmadge

*The Cincinnati Arch: Learning from Nature in the City* (2004)





# Natural What?



# Perspectives on Nature and the City

## Nature and Culture

- What it is
- Where it is
- What it does
- What it means



## Narratives of Urban Nature

- Redemptive
- Restorative
- Functional – Resilient

