



# Center for Environmental Research at Hornsby Bend



## MISSION

### Urban Ecology and Sustainability

- Community
- Education
- Research

## PARTNERS

- Austin Water Utility
- University of Texas
- Texas A&M University

## RESEARCH AREAS

- Soil Ecology, Sewage Recycling and Reuse
- Hydrogeology of the Alluvial Aquifer
- Riparian Ecology and Restoration
- Avian Ecology



50 YEARS OF BIRDING



AUSTIN, TEXAS  
*Hornsby Bend*  
1959-2009



# Center for Environmental Research at Hornsby Bend



## **AWU-CER Lunchtime Lectures September – December 2011**

Each talk begins AT NOON Waller Center [625 East 10th Street – between I-35 and Red River] Room 104

The 1<sup>st</sup> Wednesday of the Month! Free and Open to the Public – bring a lunch and learn

### Urban Nature and Urban Ecology: Understanding Urban Ecosystems

Over the next four months, we will explore different perspectives and issues of urban nature and ecology. We will begin in September by examining a range of perspectives on nature in the city, including urban ecology, urban planning, restoration ecology, political ecology, and more. In October, we will focus on the issue of officially sanctioned urban nature versus non-native intruders, and the different views of nature in the study of urban ecology. Focusing on urban planning in November, we will look at how nature is incorporated into the urban landscape and how it resists our planning. We will wrap up in December by assessing encounters with urban nature as revealed by urban nature writers.

September 7 Noon-1pm

**Varieties of Possibility: Perspectives on Nature and the City**

October 5 Noon-1pm

**The Weeds and the Wild: Invasive Species and Urban Ecology**

November 2 Noon-1pm

**The Proper Place of Nature: Urban Planning and Urban Ecology**

December 7 Noon-1pm

**Encounters with Nature in the City: Urban Nature and Literature**

# Three Key Perspectives on Urban Nature

1. urban ecology and science
2. urban space and planning
3. urban nature and culture

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## ***Varieties of Possibility: Perspectives on Nature and the City***

The conceptual framework for understanding Nature and the City

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Officially sanctioned urban nature vs. non-native intruders and the study of urban ecology

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What is revealed as urban nature writers assess their encounters with urban nature



# Varieties of Possibility: Perspectives on Nature and the City

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



# The Conceptual Framework

## Language

We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation.

- Edward Sapir (1949) *The Status of Linguistics as a Science*

## Narratives, Stories, and Myths

Narratives form our reality. We become their vessels. Stories find, capture, and hold us. Our lives are shaped by the stories we hear as children; some fade as we grow older, others are reinforced by our families, churches, and schools. From stories we absorb our goals in life, our morals, and our patterns of behavior.

- Carolyn Merchant (2003) *Reinventing Eden*

## Metaphor

We evolve, so to speak, through metaphor: one day the world is respoken, and a new being is released. Whether or not we have reached this point, whether there actually is the possibility of a re-imagining of things, we cannot know: perhaps our constant mass-media chatter is sufficient to drown out any rival vocabularies.

- Neil Evernden (1992) *The Social Creation of Nature*

## The Concept of Nature

Nature, in the broadest sense, is equivalent to the **physical** or **material world**

The word *nature* is derived from the Latin word *natura*, or "essential qualities, innate disposition"

*Natura* was a Latin translation of the Greek word *physis* (φύσις), which originally related to the intrinsic characteristics that plants, animals, and other features of the world developed of their own accord.

Nature may refer to the general realm of various types of living plants and animals, and in some cases to the processes associated with inanimate objects – the way that particular types of things exist and change of their own accord, such as the weather and geology of the Earth, and the matter and energy of which all these things are composed.

"What do we mean by nature? We have to discuss the philosophy of natural science. Natural science is the science of nature. But--What is nature? Nature is that which we observe in perception through the senses."

- Alfred North Whitehead (1919) *The Concept of Nature*

Nature can also mean the "natural environment" – wild animals, mountains, forest, oceans, and in general those things that have not been substantially altered by human intervention, or which persist despite human intervention.

For example, manufactured objects and human interaction generally are not considered part of nature. This concept of nature relies on a distinction between the natural and the artificial, with the artificial being understood as that which has been brought into being by a human consciousness or a human mind.

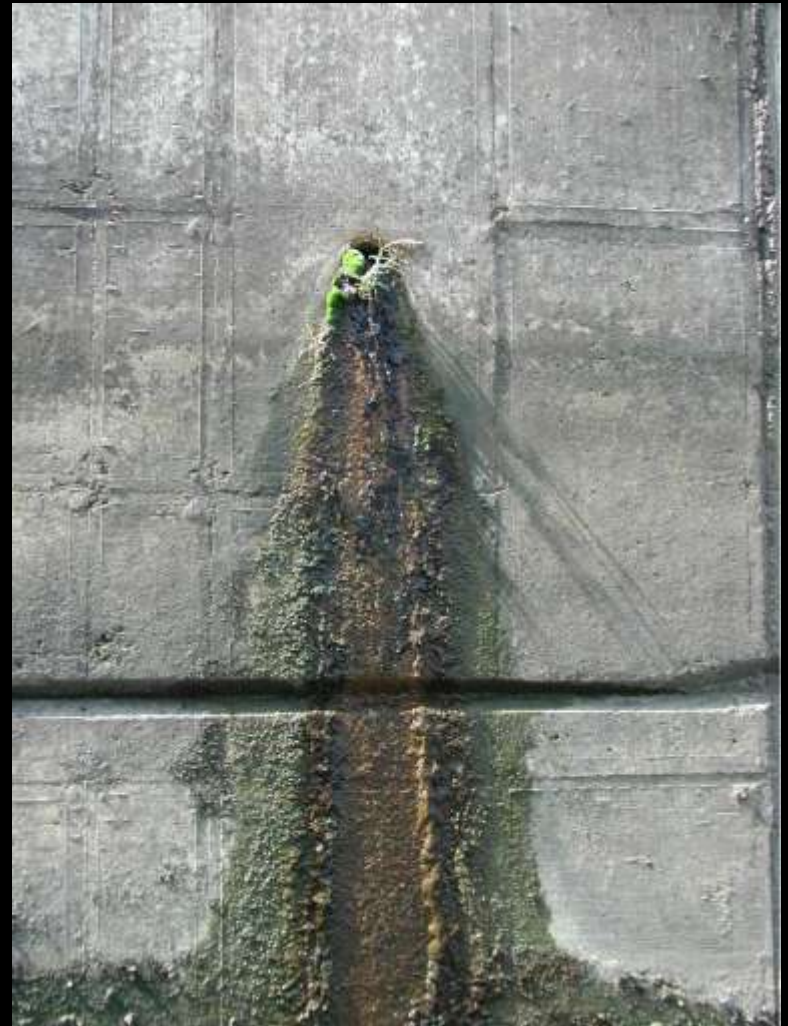
## Varieties of Possibility – Narratives of Nature

### Iterative natures – First and Second Nature

#### First Nature and Culture

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)



## Second Nature – the transformation of first nature

### Positive and Negative Narratives

From Pastoral Arcadia

Cicero *De natura deorum*

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 by irrigation, 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.

to 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.





## First Nature - Wilderness and the Wild

The West of which I speak is but another name for the Wild; and what I have been preparing to say is, that in Wilderness is the preservation of the world. Every tree sends its fibers forth in search of the Wild.

-Henry David Thoreau, "Walking"

Wilderness is the natural, unfallen antithesis of an unnatural civilization that has lost its soul. It is a place of freedom in which we can recover the true selves we have lost to the corrupting influences of our artificial lives. Most of all, it is the ultimate landscape of authenticity. Combining the sacred grandeur of the sublime with the primitive simplicity of the frontier, it is the place where we can see the world as it really is, and so know ourselves as we really are – or ought to be.

William Cronon "The Trouble with Wilderness or, Getting Back to the Wrong Nature"  
in *Uncommon Ground: Rethinking the Human Place in Nature* [1995]



## The Romantic Concept of Nature and American Transcendentalists

The Romantic period, begins in 1798, the year of the first edition of *Lyrical Ballads* by Wordsworth and Coleridge.

For the Romantics, Nature was closer to a spiritual experience, a natural religion of the sublime, as opposed to traditional institutionalized religion. The concept of the spirituality of Nature is thoroughly explored in Ralph Waldo Emerson's essay, "Nature" (1844).

For example, throughout "Song of Myself," Whitman makes a practice of presenting commonplace items in nature--"ants," "heap'd stones," and "poke-weed"--as containing divine elements, and he refers to the "grass" as a natural "hieroglyphic," "the handkerchief of the Lord."

Romantic "nature" is a vehicle for self-consciousness. The Romantics' preoccupation with natural phenomena amounts to a search for the true self, for one's real identity. Thoreau's *Walden*

Nature is a source of sensations--healthy feelings. It is therapy for a diseased, overcivilized heart. Humans can discover emotional health in nature. Such health leads to moral and spiritual clarity.

Nature is a refuge from the artificial constructs of civilization



In the United States, the foundational narratives of Nature that we celebrate are wilderness and pastoral arcadia.

They are the foundational metaphors of American nature from which we assess the value of nature in America.



However, we are now predominately a country of urbanites who have only occasional contact with wilderness or pastoral nature.



Our understanding of what constitutes “official” urban nature in cities is shaped by culturally dominant metaphors of nature.

These metaphors valorize urban nature that is either deliberately cultivated in parks and gardens or formally protected as remnants of native landscapes obliterated by the creation of the city in preserves, sanctuaries, and refuges.





In American cities, we perceive nature in the urban landscape filtered through concepts that prejudge its ecological and cultural value.

## Urban Wildlife

Urban “wildlife” is another mediated, managed kind 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.

This narrative of urban wildlife declares that everyday non-charismatic house sparrows, 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 urban scene.



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* (1995)



## finding bearings in a disorienting landscape - Chaos

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.*

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





finding bearings in a disorienting landscape – Not Even Natural

This is the landscape that nobody wants. It's my cup of rejection:  
Driven to this unformed scraggly ignored backlot, this not-quite  
Prairie, not-quite thicket, not even natural corner of  
Texas, the hardscrabble left butt of a demoralized nation,  
It is my choice and my pleasure to cherish this haphazard wilderness.  
No, it's not even "wild" – it's a neglected product of artifice.  
Come, let us walk by an improvised lakeshore, be given a vision:  
Beaches of black dust, beautiful white ghosts, this drowned forest...

- Frederick Turner, *Texas Eclogue* (1999) first stanza



## Narrative of Redemptive Nature

This narrative presupposes the framework of iterative natures with 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.

Saint Henry – the complete quote – “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.”

-Henry David Thoreau, “Walking”



The narrative of redemptive urban nature is the story of nature which is deliberately incorporated into urban design as a tonic for body and spirit. Space for nature is created to provide recreation for physical health and to allow contact with officially sanctioned nature for mental health in parks and gardens and by the creation of preserves, sanctuaries, and refuges.



# Narrative of Restorative Nature

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 is based on a scientific, mechanistic manipulation of nature for our own ends to produce “green space”.

The restoration narrative has another version which focuses exclusively on the recovery of indigenous ecosystems through the restoration of habitats in urban landscapes.

Restoration ecology developed out of conservation biology as a proactive technique not to just conserve remnant habitats and species but to actively restore degraded ecosystems. In this version of the narrative of restorative urban nature, the transgressive weeds especially non-native species must be eradicated because they are disruptive aliens. The most controversial of these aliens are invasive species.



[from the perspective of conservation biology and restoration ecology]

- a bunch of weeds and exotics mixed up with human junk

*Biological slumming*

...the danger...is being tempted into some biological slumming. The habitats I've described in this book are in no way a substitute for the official countryside. Nor are they something to be cherished in their own right, necessarily.

Richard Mabey, *Unofficial Countryside* (1973)



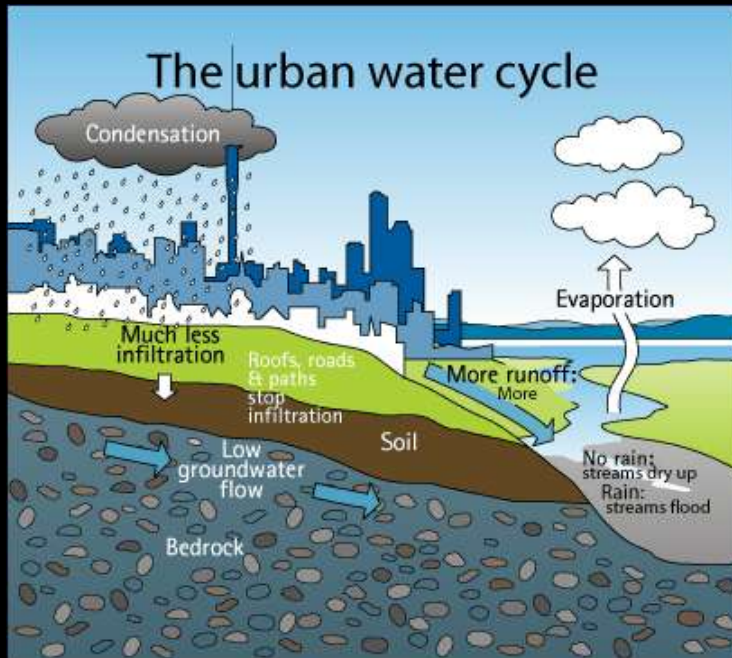
# Narrative of Functional Nature

## Urban Ecology

The metabolic requirements of a city can be defined as the materials and commodities needed to sustain the city's inhabitants at home, at work and at play...The metabolic cycle is not completed until wastes and residues of daily life have been removed and disposed of with a minimum of nuisance and hazard.

-Abel Wolman "The metabolism of cities" *Science* (1965)

The narrative of functional urban nature that emerges from the study and practice of urban ecology is an account that does not necessarily start with a list of good and bad nature (or native and non-native nature).



## Perceptions of European Urban Ecologists

### A cosmopolitan community of uniquely adapted ruderal organisms

German botanist, Herbert Sukopp has studied plant succession in Berlin's wastelands since the 1950s.

For Sukopp, wastelands are,

“the field laboratories where possibly new and well-adapted ecotypes of our native or naturalized wild plants will originate in the changed environmental conditions. Ecosystems which have developed in urban conditions may be the prevailing ecosystems of the future.”

- Herbert Sukopp *The soil, flora, and vegetation of Berlin's waste lands*. In *Nature in Cities*, Ian Laurie, ed. (1979)

For Sukopp, this last statement is not a lament but a fact. Urban ecosystems should be studied because the world is urbanizing, and wasteland ecosystems are the best sites for tracking this change.



## European Urban Ecology

... 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.

Ingo Kowarik *Urban Wild Woodlands* (2005)

...although wild and rather specialist species may be missing, cities are great havens for biodiversity, in terms of both ecology and species, even in industrial areas.

Anthony Bradshaw in Berkowitz, *Understanding Urban Ecosystems: A New Frontier for Science and Education*. (2003)







### Benefits of Wastelands for the Protection of Urban Biodiversity

Recent research has emphasised the role urban wastelands can play in preserving biodiversity in urban areas: Large connected wasteland seems to be a significant source of floristic diversity and thus disseminates and colonises surrounding neighbourhoods. Scientists suggest that preserving wasteland in urban areas could be necessary to protect urban biodiversity.

Land use planning can have a significant impact on biodiversity. To address this concern, the European Commission issued a strategy on biodiversity<sup>1</sup> in 1998 and four biodiversity action plans in 2001. In May 2006, the Commission adopted a Communication<sup>2</sup> which sets out an ambitious policy approach to halting the loss of biodiversity by 2010. In particular, it provides an EU Action Plan which proposed concrete measures and outlines the responsibilities of EU institutions and Member States, respectively. Furthermore, the European Commission also adopted a Thematic Strategy on the Urban Environment<sup>3</sup> in January 2006 aiming at improving the quality of the urban environment. However, even with this initiative, the specific link between urban wasteland and biodiversity has still received limited attention.

Recently, French researchers tried to determine the role of urban structures in the distribution of wasteland flora in urban areas. Within the framework of this study, they focused on 98 wastelands ranging from a few square meters to more than 18,000 m<sup>2</sup> over a French department in the greater Paris region. Researchers assessed three parameters quantifying the floristic importance of wastelands: the number of species, the frequency of occurrence of species and the proportion of indigenous versus naturalised species.

The main results from this study are as follows:

- Urban wastelands host a substantial proportion of the floristic diversity of cities: nearly 60% of the total species recorded over the whole department were found in the wastelands under study.
- Large wastelands and wastelands of intermediate ages contain the highest number of species. This is the result of the traditional evolution of floristic diversity: after some years of colonisation and competition among species, a relatively small number of species remain settled.
- Wastelands witnessing the presence of water within a close radius have a higher chance of containing rarer species. Adversely, acting as a biodiversity pool, urban wastelands could have a positive impact on the biodiversity of neighbouring areas according to the authors.
- Individual and collective dwellings around sites have a negative influence on the floristic significance of areas by reducing their overall quality: rare species are less frequent in this type of wasteland.
- Unexpectedly, the environmental characteristics of the area, such as geomorphology and exposition, were not crucial factors in the floristic importance of wastelands. Though these parameters are considered unavoidable by the authors, no evidence could be provided by the study: the fragmentation of the landscape, and the introduction and covering of alien substances in wastelands could have hindered these parameters.

Overall, the authors suggest that the maintenance of wastelands is necessary considering their role in the spreading of species and the colonisation of surrounding areas. Large and connected wastelands contribute to the preservation of biodiversity in urban areas. Therefore, this study provides new insight in the dynamics of biodiversity in urban areas that could be taken into consideration when planning urban land use.

<sup>1</sup> The European biodiversity strategy is available at <http://ec.europa.eu/environment/docum/20542sm.htm>

## Perceptions of American Biologists, Ecologists, and Environmentalists

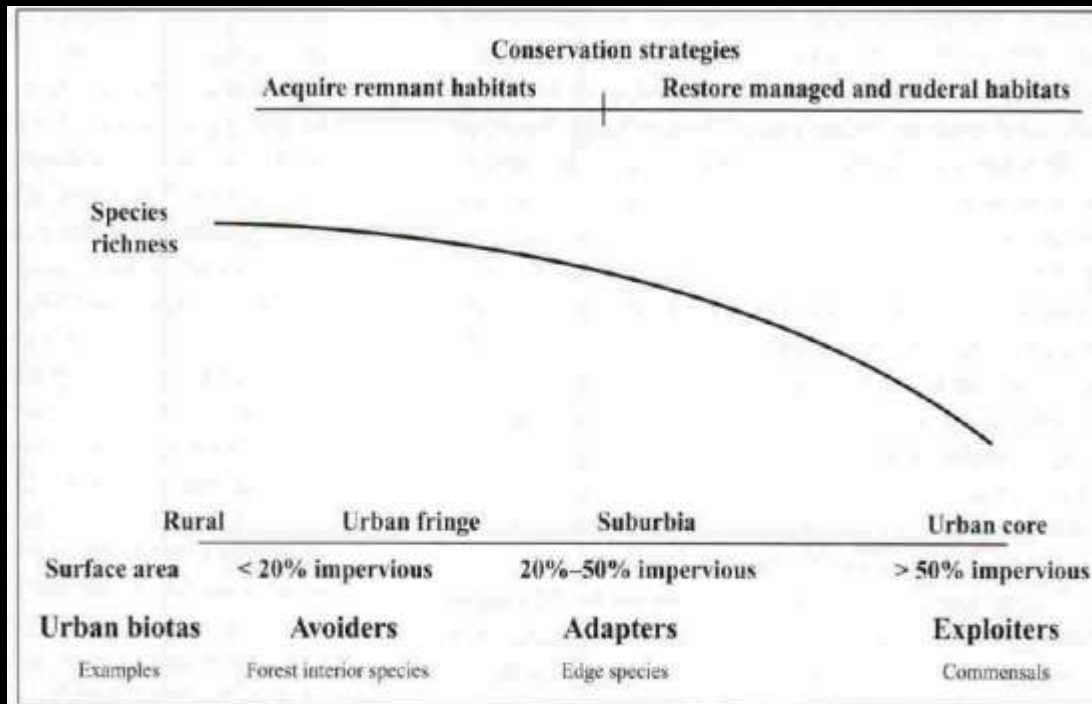
### A weedland community of inappropriate nature

(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)

The discourse of American urban ecology, urban conservation biology, and restoration ecology is preoccupied by a retrospective longing for lost pristine nature and native habitats, and the rhetoric of warfare with invasive non-native species combines with a vision of urban landscapes as weedlands to paint a bleak picture of urban ecosystems in America.





*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.*

McKinney, Urbanization, biodiversity, and conservation.  
*Bioscience* (2002)

# Invaders<sup>of</sup> 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 against non-native invaders and the website employs the rhetoric of war and a resistance composed of “citizen scientists” defending the homeland –

The Invaders of Texas Program is an innovative campaign whereby volunteer "citizen scientists" are trained to detect the arrival and dispersal of invasive species in their own local areas.

- from <http://www.texasinvasives.org/>



# Narrative of Urban Political Ecology

It is in practice, hard to see where “society” begins and “nature” ends...in a fundamental sense, there is in the final analysis nothing unnatural about New York City.

-David Harvey *Justice, Nature and the Geography of Difference* (1996)

Cities are dense networks of interwoven socio-spatial processes that are simultaneously human, material, natural, discursive, cultural, and organic. The myriad of transformation and metabolisms that support and maintain urban life, such as water, food, computers, or movies always combine environmental *and* social processes as infinitely interconnected...this intermingling of things material and symbolic combines to produce a particular socio-environmental *milieu* that welds nature, society and the city together in a deeply heterogeneous, conflicting and often disturbing whole.

-Maria Kaika *City of Flows* (2005)

Nature is a biophysical fabric or network

-Matthew Gandy *Concrete and Clay: Reworking Nature in New York City* (2002)

Objects passively flowing rather than  
Subjects actively shaping their world.



# Narrative of Embodied Urban Nature

## Human Agency and the Agency of Nature

I like very much a little piece by Michel Callon which is about the problem with scallop fishing in Saint Briene Bay. It seems like a very conventional piece of sociological analysis talking about the various agents at work, until you come to the final agent, which is the scallops.

Now at that point most people freak out: they say 'scallops? Agents?!' Now this struck me too at first as strange, but then I thought, 'Yeah, he's right, he's dead right'. I mean why do we say that the scallops have no agency in this.

It does seem to me that one of the transgressive points that Donna (Haraway) feels very strongly about is to try to dissolve that divide between nature and culture, and I think I would want to try to do that too, although it's extremely hard to do and this is where the language comes back and gets you again and again. We don't have, as it were, the discursive strategies that allow us to talk freely about the production of nature...

I prefer to talk about socioecological projects in which it's not simply the social that's the activating unit but also, scallops and mice and all the rest of them.

- **David Harvey** "Nature, politics, and possibilities: a debate and discussion with David Harvey and Donna Haraway", *Environment and Planning D: Society and Space* 1995, Volume 13,

**Animal Geography – Wolch, Philo, Whatmore, etc.**



# Agency of Nature

Non-humans do unexpected things and defy our expectations of what nature should be and how non-humans should behave



## Urban Ecology and the Agency of Nature

The urban lifeworld is subject to a range of interpretive ecological readings:

- A cosmopolitan community of uniquely adapted ruderal organisms
- A weedland community of inappropriate nature
- An invading force of alien species destroying the integrity of our homeland
- A hybrid ecosystem...

All point to the need to address *the issue of nonhuman agency*





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Applause

