

Natural What?





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 and Urban Waste Recycling
- Avian Ecology
- River and Alluvial Aquifer Hydrology
- Riparian Ecology



50 YEARS OF BIRDING



AUSTIN, TEXAS
Hornsby Bend
1959-2009



Nature and the American Mind

The 2014 Lunchtime Lectures will explore American myths, science, and management of Nature.



New for 2014 – 3 times a month from NOON to 1pm

Waller Center
625 East 10th Street

Dougherty Arts Center
1110 Barton Springs Road

City Hall
Boards and Commissions Room

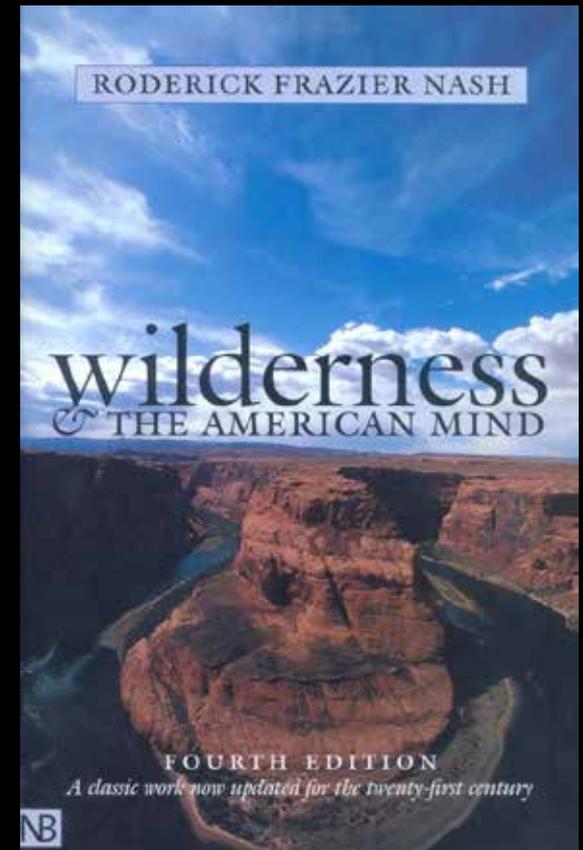


Nature and the American Mind

I will begin the year by exploring four main Myths of American Nature – wilderness, pastoral, urban, and the newly emerging narrative of resilient nature.

Through the summer, I will look at Science and American Nature – the development of natural history, biology, ecology, and environmental science was shaped by the myths of American Nature.

Then I will finish the year by examining how myths and science influence the Management of American Nature from the early battle between preservationists and conservationists to the relationship between farming and nature to urban planning and design meant to sustain American cities through using nature.



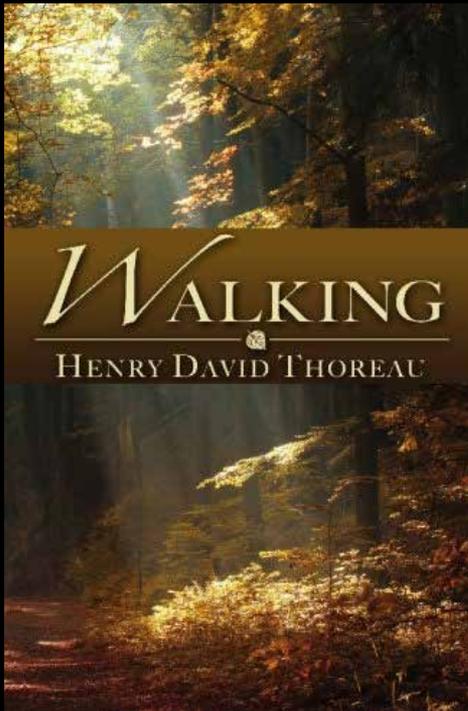
American Nature

I wish to speak a word for Nature, for absolute freedom and wildness, as contrasted with a freedom and culture merely civil, — to regard man as an inhabitant, or a part and parcel of Nature, rather than a member of society.

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" 1862





Nature and the American Mind

Myths of American Nature – January to April

Myths are foundational narratives used by humans to make sense of the world.

We all know the traditional narrative of American Nature – that there once was wilderness in America, discovered and destroyed by European settlers, or, perhaps, not all destroyed, as we preserved bits and pieces of untouched Nature in “wilderness areas” and “parks”.

Meanwhile, we try to conserve the rest of Nature outside of the boundaries of preservation, but conservationists divided between “sportsmen” who kill and eat nature and “nature-watchers” who look and take pictures of nature.

Looming over all is the shadow of the City, that sprawl of urbanism destroying American Nature.

This caricature of a complicated story leaves out ecology, environmentalism, sustainability, agriculture, and more.



Nature and the American Mind

Myths of American Nature – January to April

January 7 at Waller Center –Wilderness: The Myth of Pristine Nature

January 8 at Dougherty Arts Center – Wilderness: The Myth of Pristine Nature

January 14 at City Hall - Wilderness: The Myth of Pristine Nature

February 11 at Waller Center –Pastoral Nature: the Agrarian Myth of the Yeoman Farmer

February 12 at Dougherty Arts Center – Pastoral Nature: the Agrarian Myth of the Yeoman Farmer

February 19 at City Hall – Pastoral Nature: the Agrarian Myth of the Yeoman Farmer

March 11 at Waller Center – Urban Nature: The American City and Degraded Nature

March 12 at Dougherty Arts Center – Urban Nature: The American City and Degraded Nature

March 19 at City Hall – Urban Nature: The American City and Degraded Nature

April 8 at Waller Center –Resilient Nature: Wasteland and the New Ecology

April 9 at Dougherty Arts Center – Resilient Nature: Wasteland and the New Ecology

April 16 at City Hall – Resilient Nature: Wasteland and the New Ecology

Resilient Nature: Wasteland and The New Ecology

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



2005



2007



2009



2012

Narrative of Degraded Nature

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), 883–890.

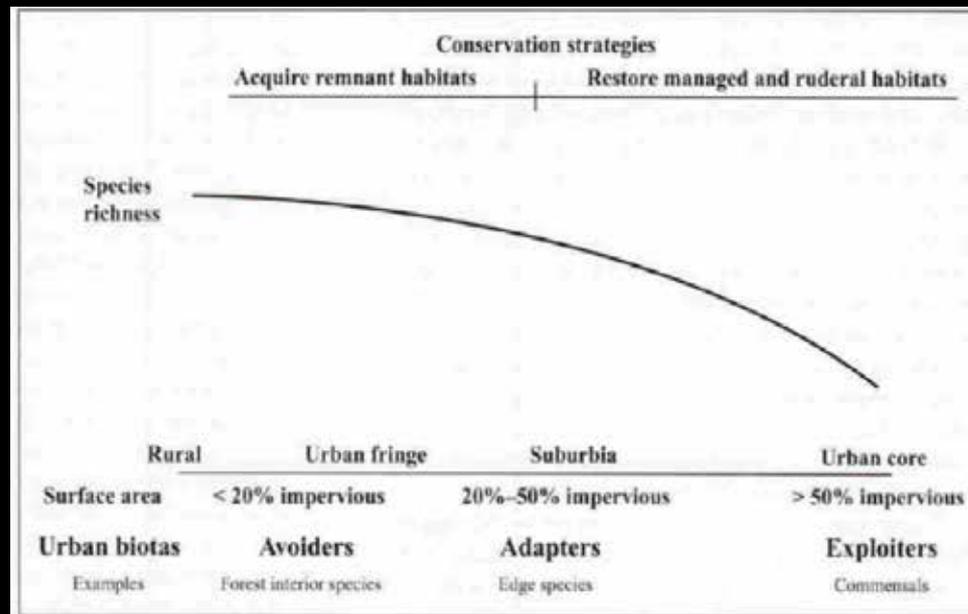


Figure 2. Urban-rural gradient. This is a very generalized and simplified depiction of changes in surface area, species richness, and composition, as compiled from a number of sources discussed in the text. Two basic conservation strategies with respect to urban sprawl are shown at the top.

Narrative of Restorative Nature

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.

The most controversial of these aliens are “invasive species” identified as non-native species introduced by humans. These transgressive weeds must be eradicated in order to bring back lost native landscapes.

Chicago Wilderness

A regional alliance dedicated to protecting nature and enriching life

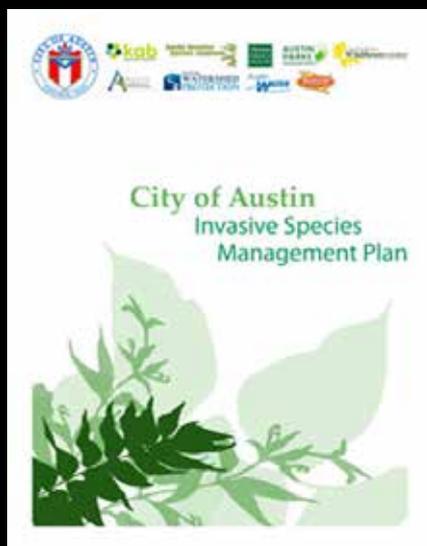


Invaders

Of Texas - a Citizen Science Program to Detect and Report Invasive Species

"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.

The Invaders of Texas program provides training and materials to volunteers who find, track, describe and photograph invasive species and report occurrences to a centralized database on the texasinvasives.org website. The anticipated outcomes of this citizen scientist program include a statewide network of volunteers contributing to our knowledge of the distribution of invasive species in Texas and increased public awareness of the dangers imposed by invasive species and what steps citizens can take when they encounter them; and reduced spread of invasive species through more timely control and eradication."



Chinaberry



But not Monk Parakeets



Degraded Urban Nature

These narratives of current American nature are preoccupied by a retrospective longing for lost pristine nature and native habitats.

The rhetoric of warfare with invasive non-native species combines with a vision of urban landscapes as weedlands resulting in a bleak picture of urban ecosystems in America.

Austin Invasive Species Coalition

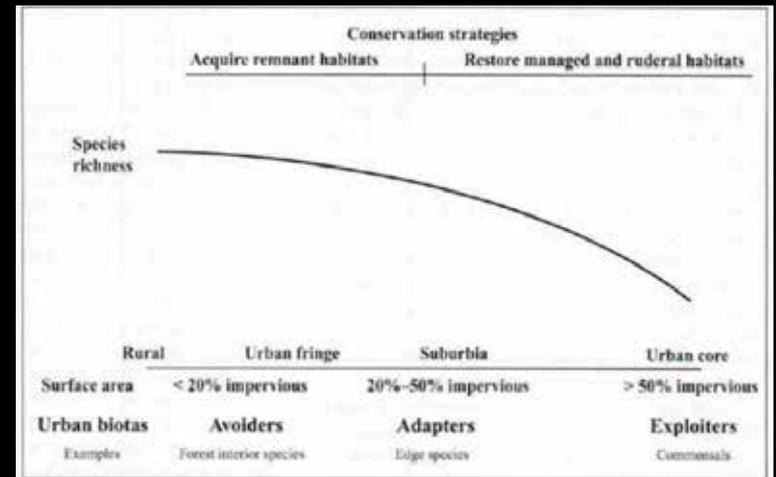
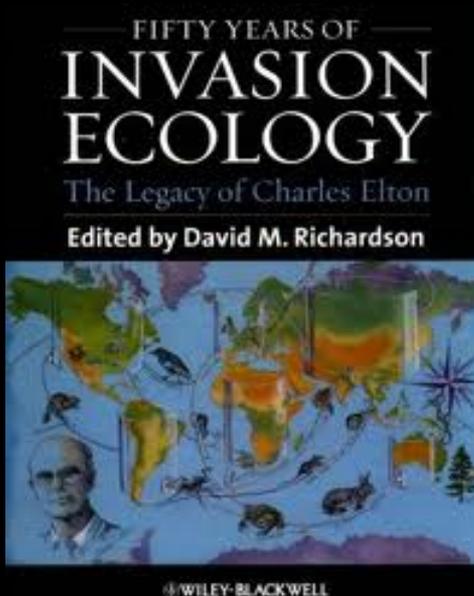
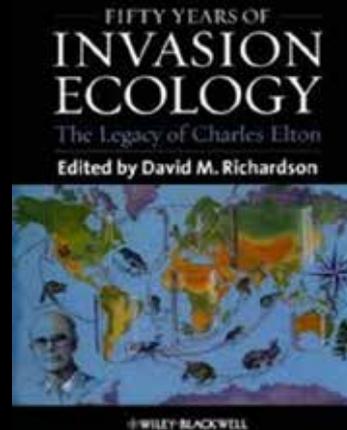
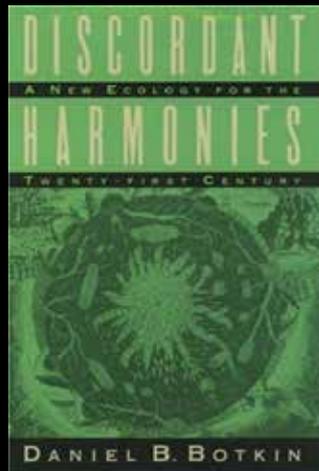
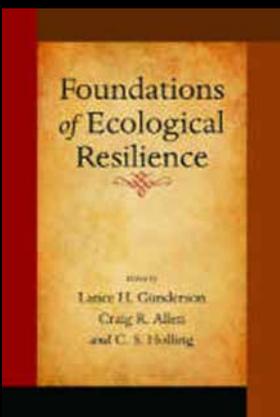
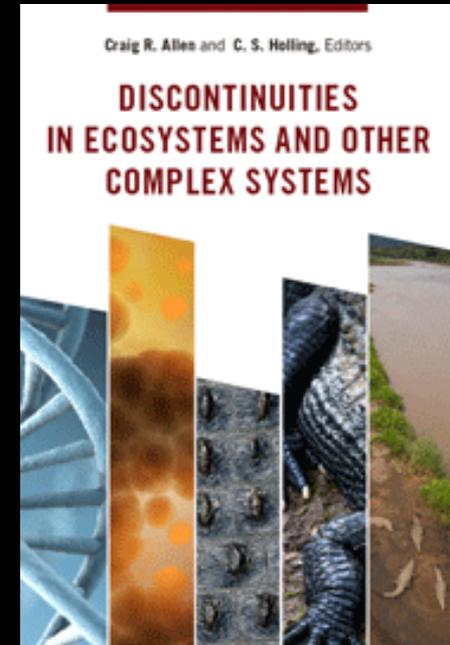
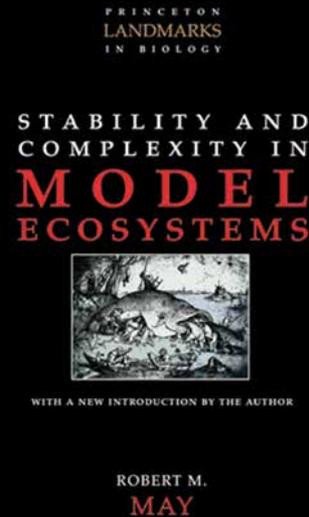
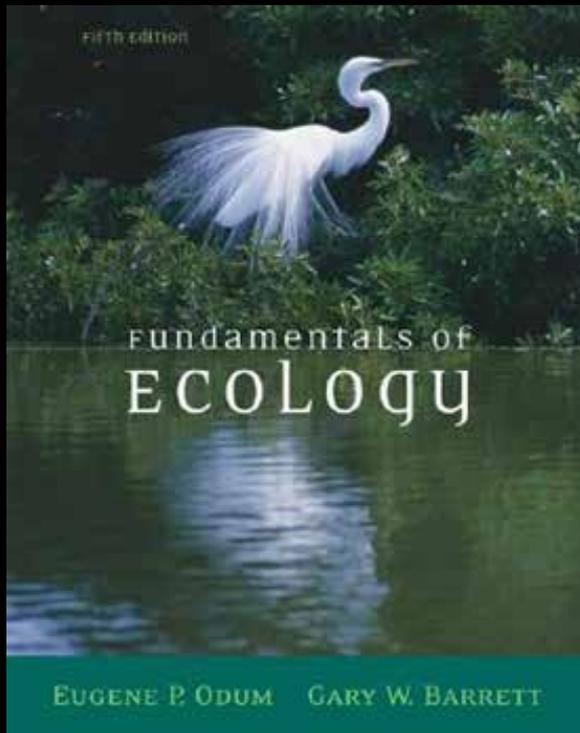


Figure 2. Urban-rural gradient. This is a very generalized and simplified depiction of changes in surface area, species richness, and composition, as compiled from a number of sources discussed in the text. Two basic conservation strategies with respect to urban sprawl are shown at the top.

Profound Ecological Changes



"Old" Ecology and "New" Ecology



Don't judge species on their origins

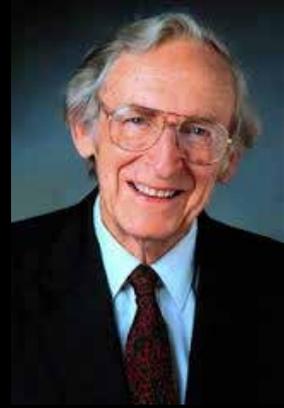
Conservationists should assess organisms on environmental impact rather than on whether they are natives, argue Mark Davis and 18 other ecologists.

“Old” Ecology – Community Structure and Succession

Ecology – systems and populations

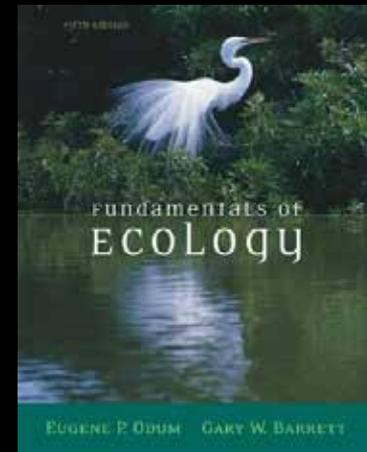
Energy and Economic Model – Ecological Efficiency

Eugene Odum, *Fundamentals of Ecology* (1953)



- The law of organic nature is to bring order and harmony out of chaotic materials of existence
- Nature is a series of balanced ecosystems – the basic functional unit of ecology, and so a need for a unified theory of the ecosystem [a pond, a watershed, a meadow]
- A flow of energy leads to clearly defined trophic structure, biotic diversity, and material cycles within the system
- Rather than climax stage he used “mature ecosystem” – the ecosystem was often disturbed but fluctuated around a single homeostatic point – health = stability

1. But is an ecosystem a reality or an abstraction?
2. Are ecosystems inherently stable?
3. How does disruption fit in?
4. How do the great disrupters – Humans - fit in?



The “new ecology” post-Odum

Anthropogenic climax communities

Robert May, *Stability and Complexity in Model Ecosystems* (1973)

- Mathematical models demonstrate that the more species there were, the more fragile was the system
- Chaos theory and complexity, “Confronted with disturbances beyond their normal experience” complex systems like rainforests tended to crumple.

Instability of biodiversity and invasion biology

Daniel Botkin, *Discordant Harmonies: A New Ecology for the Twenty-first Century* (1990)

- “Nature in the 21st Century will be a nature that we make”

The new ecology emphasizes

- Disequilibria
- Instability
- Chaotic fluctuations

in ecosystems both “natural” and human impacted

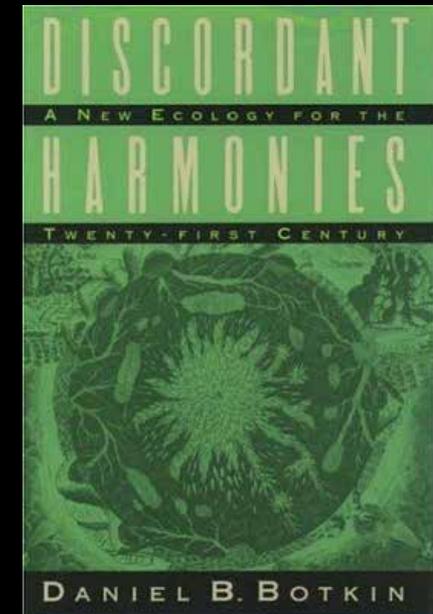
PRINCETON
LANDMARKS
IN BIOLOGY

STABILITY AND
COMPLEXITY IN
MODEL
ECOSYSTEMS



WITH A NEW INTRODUCTION BY THE AUTHOR

ROBERT M.
MAY



The Rise and Fall of Biotic Nativeness: a Historical Perspective

Matthew K. Chew and Andrew L. Hamilton

In *Fifty Years of Invasion Ecology: The Legacy of Charles Elton* (2011)

The idea of a native species was first defined in 1847.

Nativeness is an organizing principle of numerous scientific studies and findings, and the *sine qua non* invoked by many management policies, plans, and actions to justify intervening on prevailing ecosystem processes.

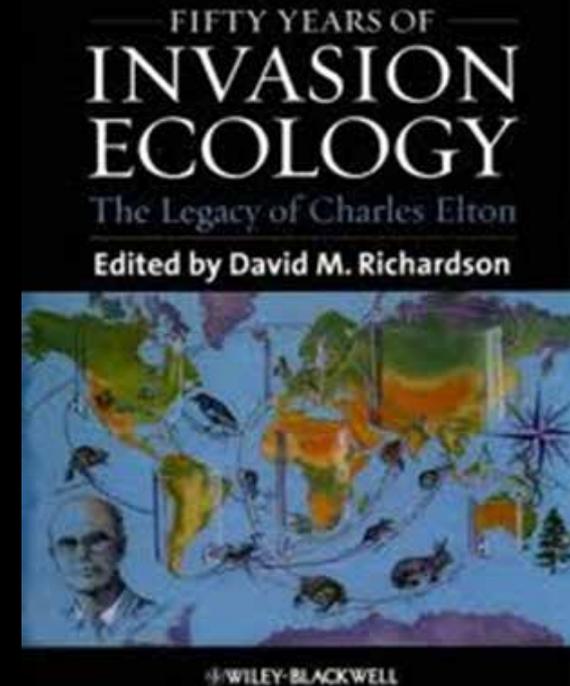
It is important to be clear about what these concepts mean.

1. Is nativeness conceptually defensible?
2. Does it accomplish any theoretical work?

In answering, we conclude that its categorical meaning and significance both dissolve under scrutiny.

Biotic nativeness is theoretically weak and internally inconsistent, allowing familiar human desires and expectations to be misconstrued as essential belonging relationships between biota, places and eras.

We believe much well-intended effort is wasted on research contrasting 'native' and 'alien' taxa, and by conservation projects focused primarily on preserving or restoring natives.



Don't judge species on their origins

Conservationists should assess organisms on environmental impact rather than on whether they are natives, argue **Mark Davis** and 18 other ecologists.

BIOLOGICAL BIAS

Nativeness is not a sign of evolutionary fitness or of a species having positive effects. The insect currently suspected to be killing more trees than any other in North America is the native mountain pine beetle *Dendroctonus ponderosae*. Classifying biota according to their adherence to cultural standards of belonging, citizenship, fair play and morality does not advance our understanding of ecology. Over the past few decades, this perspective has led many conservation and restoration efforts down paths that make little ecological or economic sense.

We are not suggesting that conservationists abandon their efforts to mitigate serious problems caused by some introduced species, or that governments should stop trying to prevent potentially harmful species from entering their countries. But we urge conservationists and land managers to organize priorities around whether species are producing benefits or harm to biodiversity, human health, ecological services and economies. Nearly two centuries on from the introduction of the concept of nativeness, it is time for conservationists to focus much more on the functions of species, and much less on where they originated. ■

Mark A. Davis is *De Witt Wallace professor of biology at Macalester College, St Paul, Minnesota, USA*. **Matthew K. Chew**, **Richard J. Hobbs**, **Ariel E. Lugo**, **John J. Ewel**, **Geerat J. Vermeij**, **James H. Brown**, **Michael L. Rosenzweig**, **Mark R. Gardener**, **Scott P. Carroll**, **Ken Thompson**, **Steward T. A. Pickett**, **Juliet C. Stromberg**, **Peter Del Tredici**, **Katharine N. Suding**, **Joan G. Ehrenfeld**, **J. Philip Grime**, **Joseph Mascaro**, **John C. Briggs**.

If nature is resilient rather than fragile

“As conservation became a global enterprise in the 1970s and 1980s, the movement's justification for saving nature shifted from spiritual and aesthetic values to focus on biodiversity.

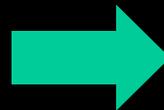
Nature was described as primeval, fragile, and at risk of collapse from too much human use and abuse...

The trouble for conservation is that the data simply do not support the idea of a fragile nature at risk of collapse.

Ecologists now know that the disappearance of one species does not necessarily lead to the extinction of any others, much less all others in the same ecosystem...

If there is no wilderness, if nature is resilient rather than fragile, and if people are actually part of nature and not the original sinners who caused our banishment from Eden, what should be the new vision for conservation?”

These are the words of Peter Kareiva, Chief Scientist for the Nature Conservancy.



Peter Kareiva - A New Vision for Conservation



...what should be the new vision for conservation?

It would start by appreciating the strength and resilience of nature while also recognizing the many ways in which we depend upon it. Conservation should seek to support and inform the right kind of development -- development by design, done with the importance of nature to thriving economies foremost in mind.

None of this is to argue for eliminating nature reserves or no longer investing in their stewardship. But we need to acknowledge that a conservation that is only about fences, limits, and far away places only a few can actually experience is a losing proposition. Protecting biodiversity for its own sake has not worked.

Protecting nature that is dynamic and resilient, that is in our midst rather than far away, and that sustains human communities -- these are the ways forward now. Otherwise, conservation will fail, clinging to its old myths.

Conservation must demonstrate how the fates of nature and of people are deeply intertwined -- and then offer new strategies for promoting the health and prosperity of both.

- Kareiva, Marvier, and Lalasz in *The Breakthrough Journal* December 2012

More on Conservation in September – "Saving American Nature: Conservation vs. Preservation"

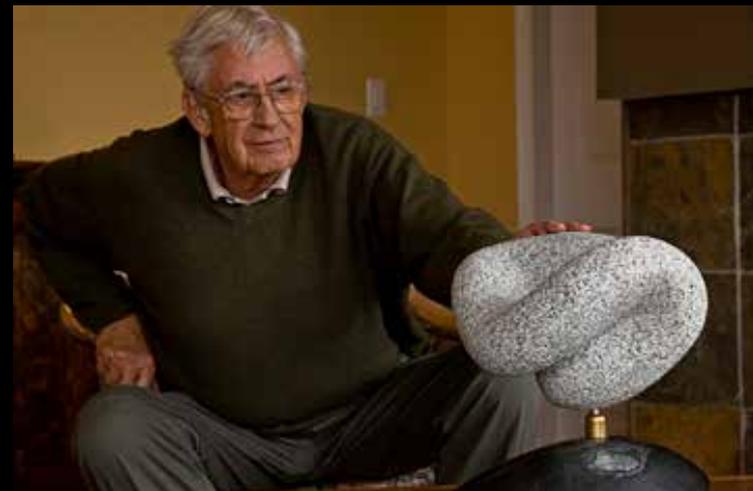
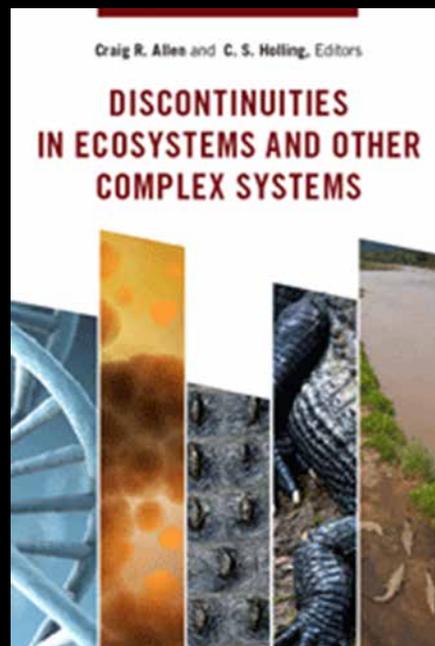
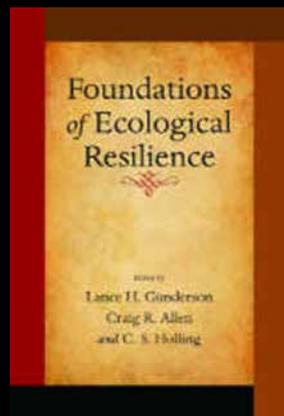
Origins of the concept of Ecological Resilience

The general meaning of resilience, derived from its Latin roots 'to jump or leap back', is the ability to recover from or adjust easily to misfortune or change.

The concept of resilience in ecological systems was first introduced by the Canadian ecologist C.S. Holling in order to describe the persistence of natural systems in the face of changes in ecosystem variables due to natural or anthropogenic causes.

Holling argued that complex adaptive systems did not tend toward equilibria, but toward maximizing diversity over deeper evolutionary time.

Holling, C.S. (1973). "Resilience and stability of ecological systems". *Annual Review of Ecology and Systematics* 4: 1–23.



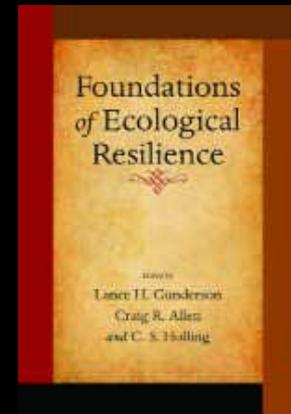
Resilience is...

...the ability to absorb disturbances, to be changed and then to reorganize and still have the same identity (retain the same basic structure and ways of functioning).

As resilience declines the magnitude of a shock from which an ecosystem cannot recover gets smaller and smaller.

Ecosystem resilience is the capacity of an ecosystem to tolerate disturbance without collapsing into a qualitatively different state that is controlled by a different set of processes.

A resilient ecosystem can withstand shocks and rebuild itself when necessary.



"Resilience" as applied to ecosystems has three defining characteristics:

- The amount of change the system can undergo and still retain the same controls on function and structure
- The degree to which the system is capable of self-organization
- The ability to build and increase the capacity for learning and adaptation

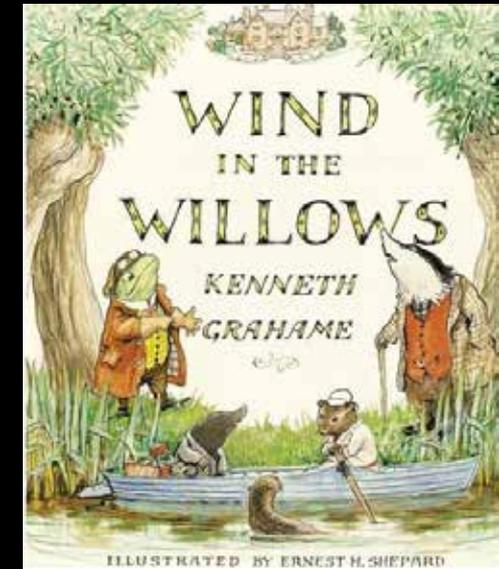
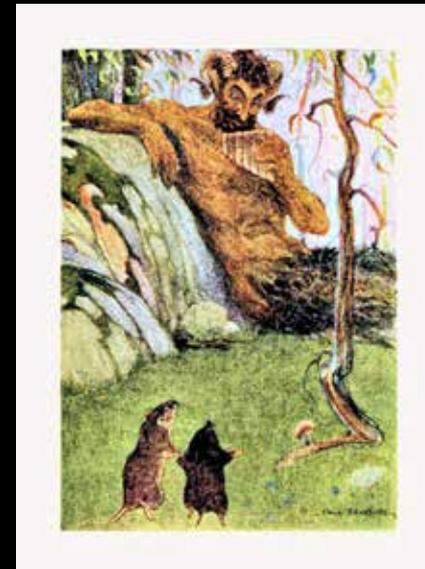
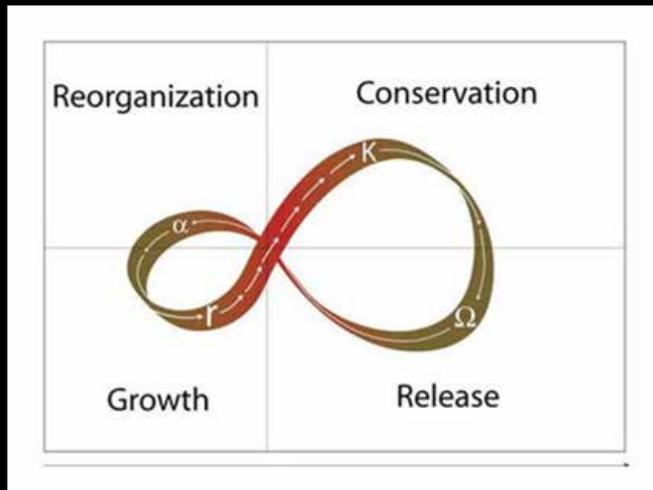
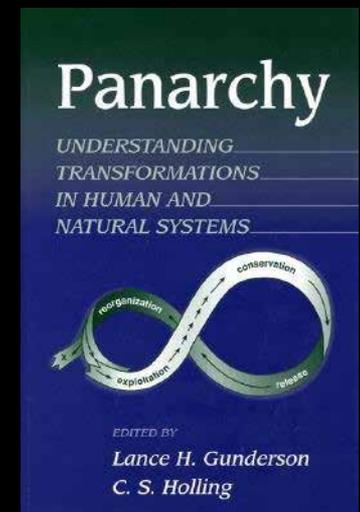
Panarchy

The *pan-* in panarchy is meant to connote the Greek god Pan, who is associated with both nature and disruption.

The term was created as an antithesis to the word hierarchy.

The essential focus of Panarchy is to rationalize the interplay between change and persistence, between the predictable and unpredictable.

Essential to this process is both creative construction as well as creative destruction.

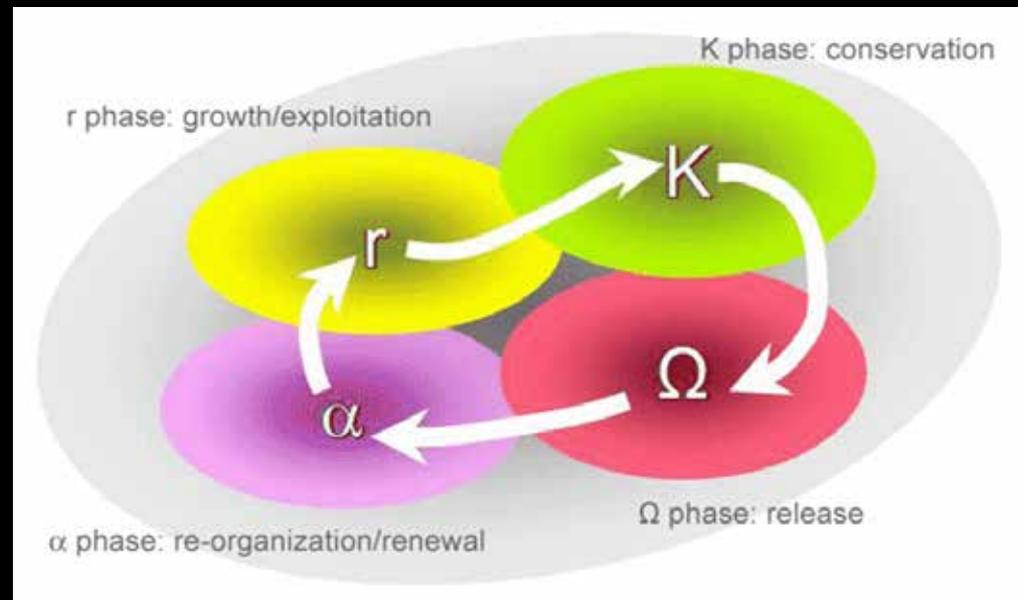


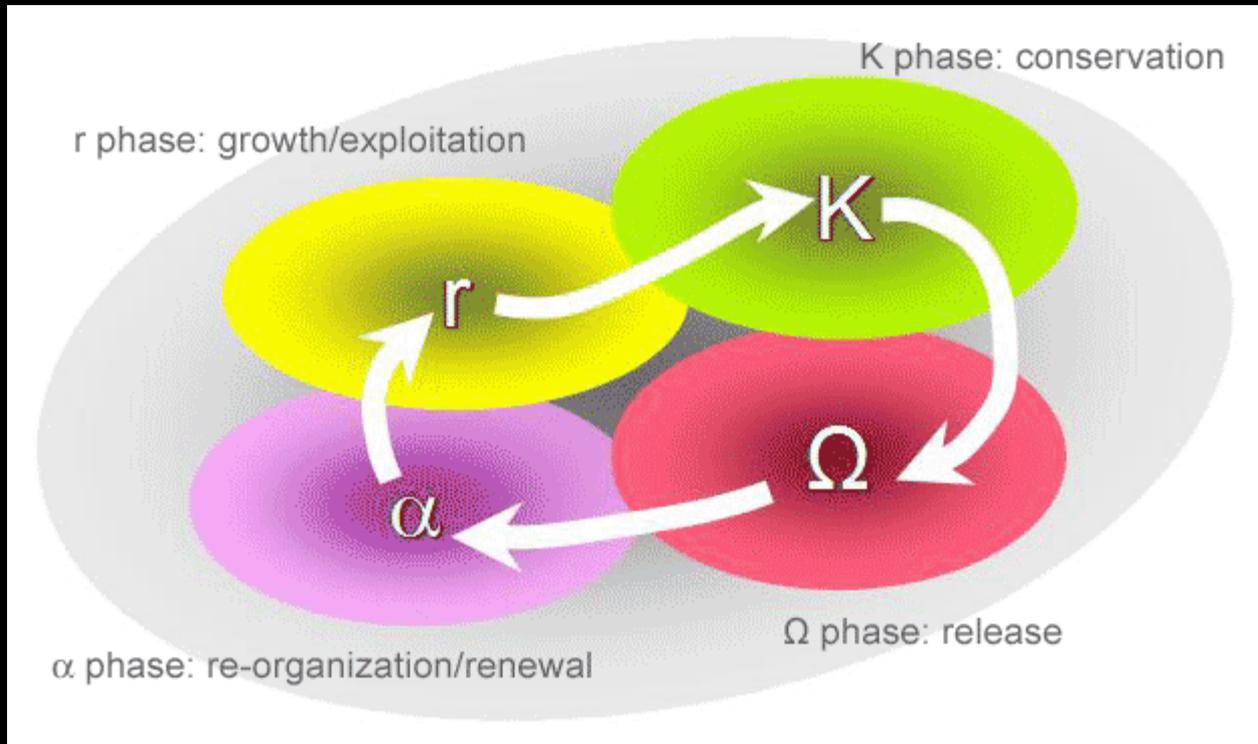
Adaptive Cycle

Traditionally ecology has focused on the concept of succession that describes the transition from a time when exploitation (i.e., the rapid colonization of recently disturbed areas) is emphasized to a time when conservation (i.e., the slow accumulation and storage of energy and material) is emphasized.

Our current understanding of ecological dynamics however indicates that two additional functions - release and reorganization - are needed.

An adaptive cycle that alternates between long periods of aggregation and transformation of resources and shorter periods that create opportunities for innovation, is a fundamental unit for understanding complex systems from cells to ecosystems.





The adaptive cycle exhibits two major phases (or transitions).

The first, often referred to as the foreloop is the slow, incremental phase of growth and accumulation.

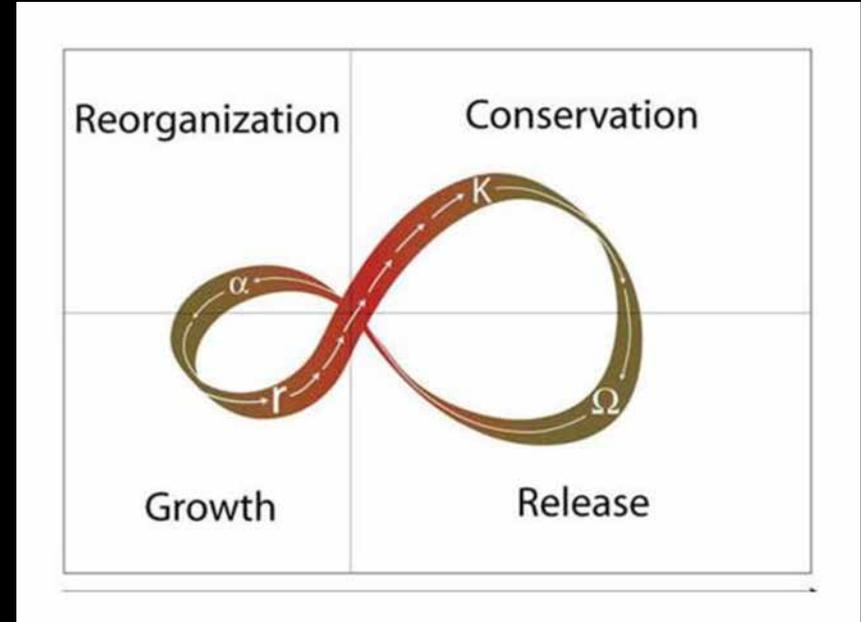
The second, referred to as the backloop, from Omega to Alpha, is the rapid phase of reorganization leading to renewal.

Growth - where species and systems grow and diversify to exploit new opportunities and develop entirely new ecological ways of being.

Conservation - where climax species are tightly connected and organized, and systems stabilize into mature, often hierarchically nested systems, where there is little or no room for innovation or growth.

Release (the "backside" of the mobius strip) - where mature systems destabilize and collapse, and become increasingly discontinuous and chaotic which opens the field for...

Reorganization – where systems return in completely new ways, which creates a new field of conditions and possibilities for the next growth phase



Adaptive Capacity

During the slow sequence from exploitation to conservation, connectedness and stability increase and a capital of nutrients and biomass (in ecosystems) is slowly accumulated and sequestered.

Competitive processes lead to a few species becoming dominant, with diversity retained in residual pockets preserved in a patchy landscape. While the accumulated capital is sequestered for the growing, maturing ecosystem, it also represents a gradual increase in the potential for other kinds of ecosystems and futures.

Systems with high adaptive capacity are able to re-configure themselves without significant declines in crucial functions in relation to primary productivity, hydrological cycles.

A consequence of a loss of resilience, and therefore of adaptive capacity, is loss of opportunity, constrained options during periods of reorganization and renewal, an inability of the system to do different things.

And so the effect of the loss of resilience is for the social-ecological system to emerge from such a period along an undesirable trajectory.

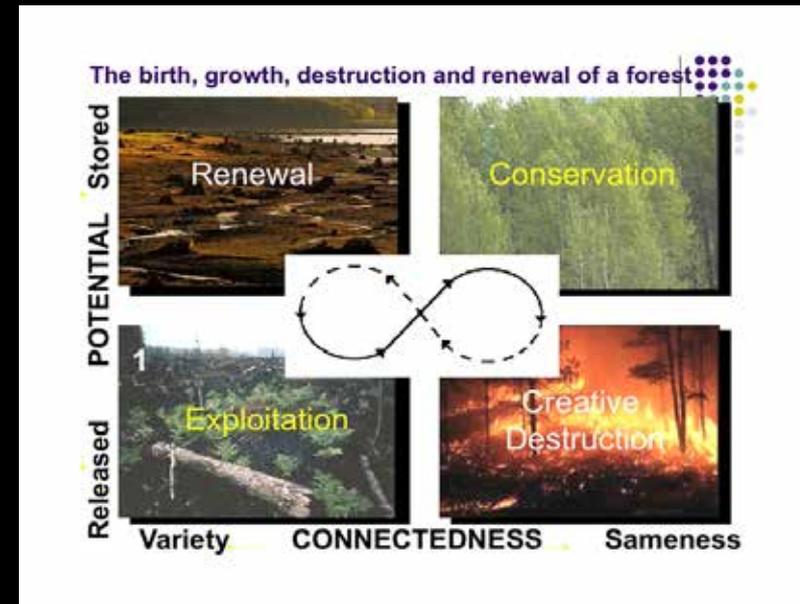
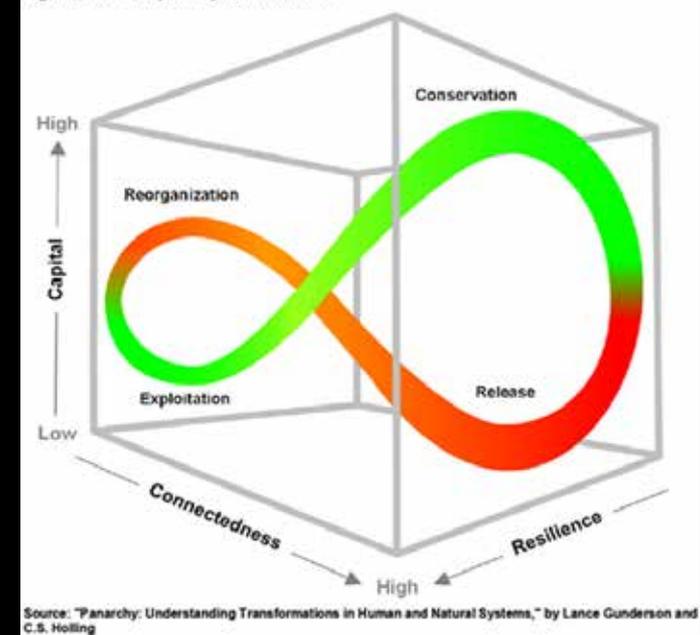
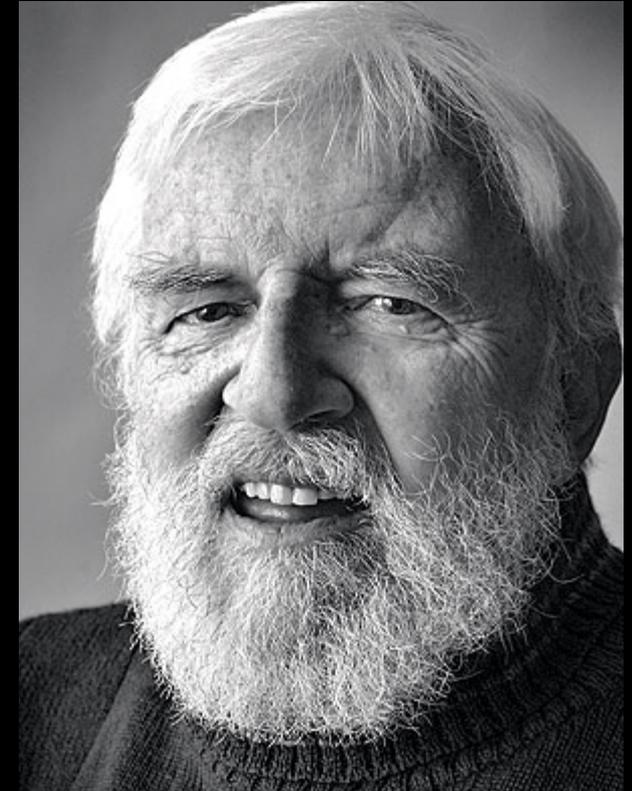
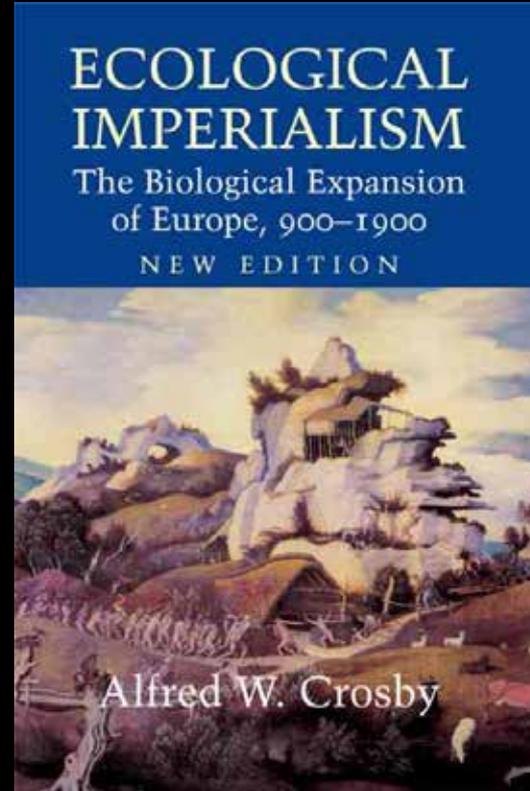
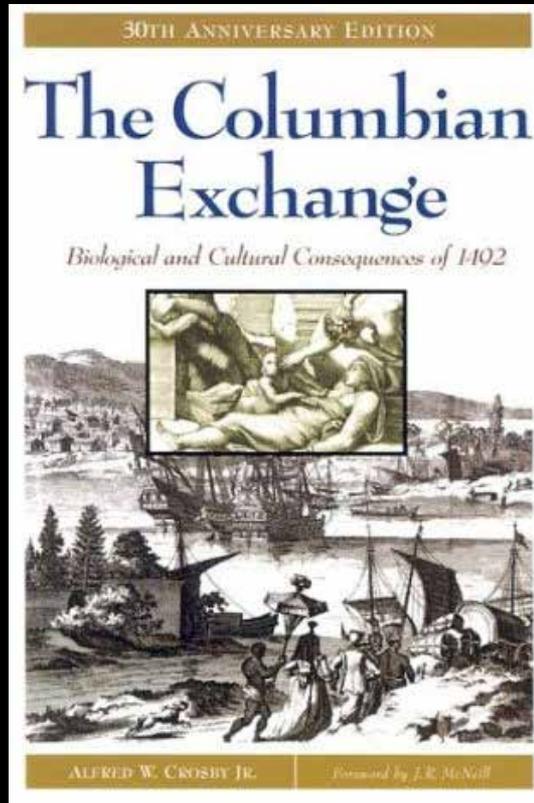


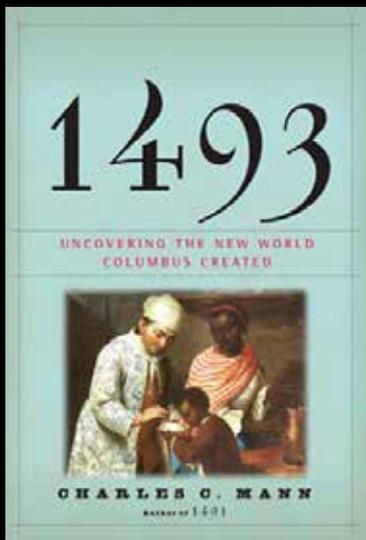
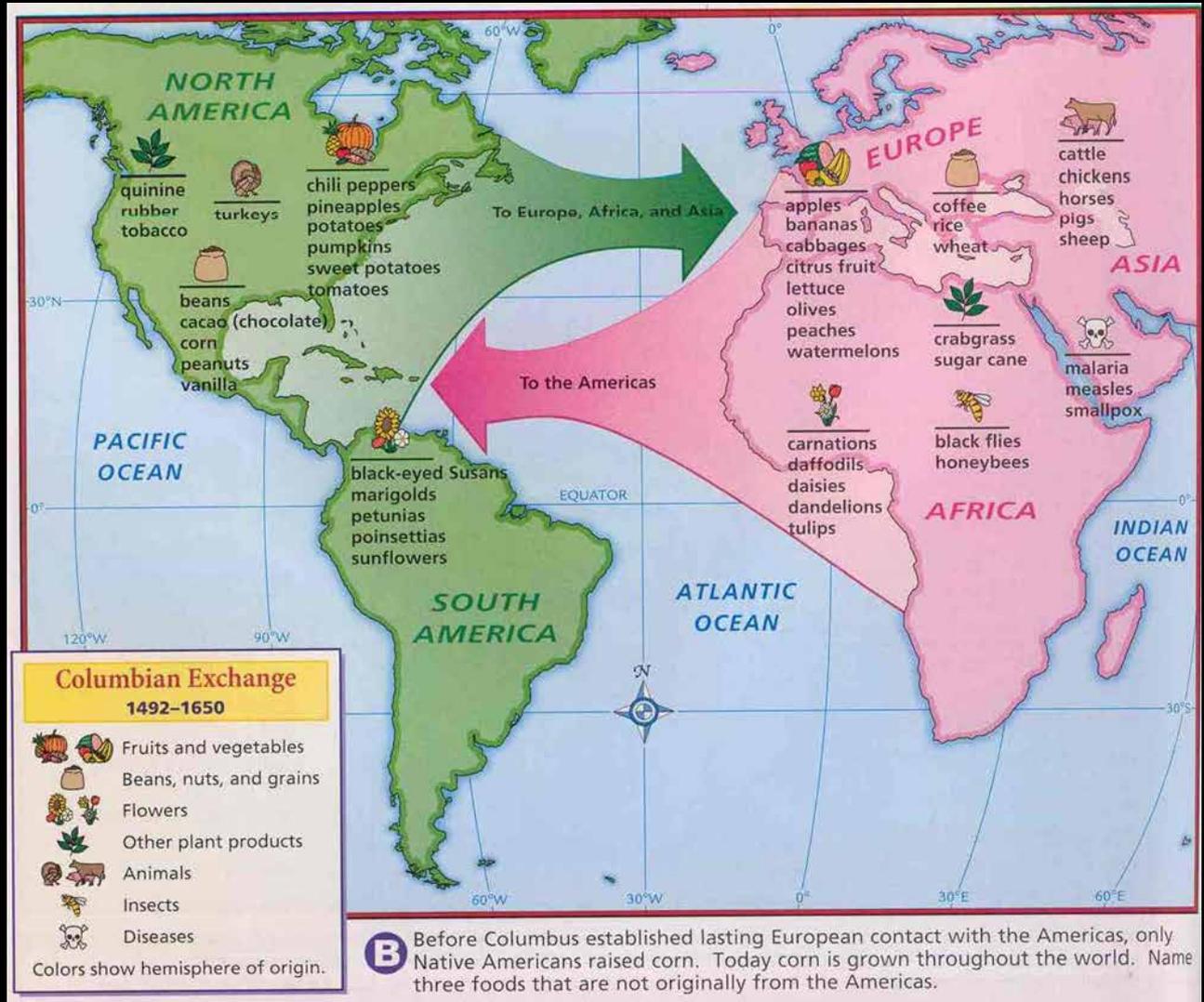
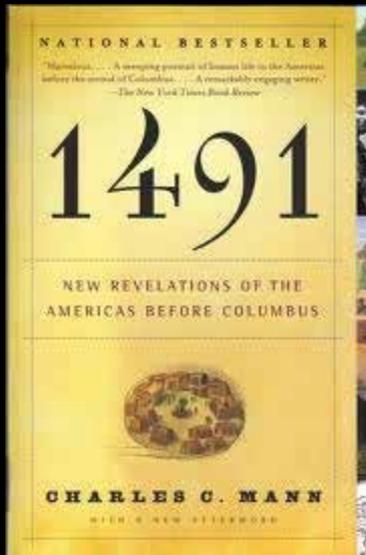
Figure 2. The Adaptive Cycle of Renewal



Ecological Release as a Socio-Ecological Reality

Alfred Crosby described the near extinction of some tribes and the dramatic depopulation of others in *The Columbian Exchange* (1972) and the biological expansion of Europe in *Ecological Imperialism* (1986).





The Great Nations of Europe – Randy Newman

The Great Nations of Europe had gathered on the shore
they'd conquered what was behind them and now they wanted more
so they looked to the mighty ocean and took to the western sea
The great nations of Europe in the 16th century

Hide your wives and daughters, hide the groceries too
The great nations of Europe coming through

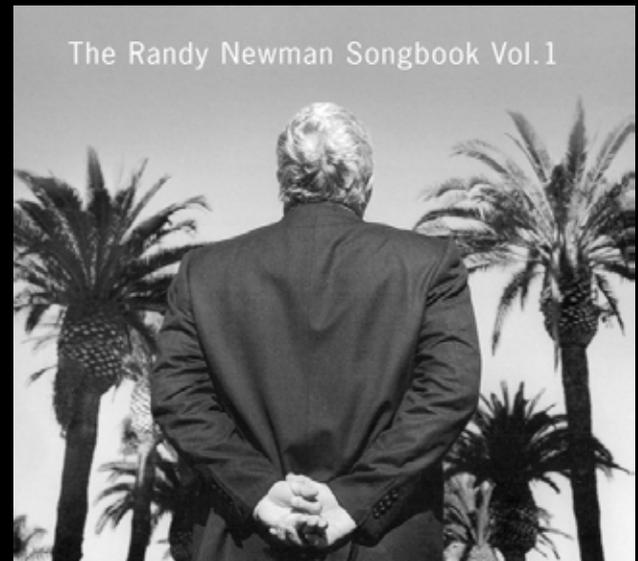
The Grand Canary Islands first land to which they came
they slaughtered all the canaries there which gave the land its name
there were natives there called Guanches, Guanches by the score
bullet's, disease the Portuguese, they weren't there any more

now they're gone, they're gone, they're really gone
you never seen anyone so gone
there's pictures in a museum, some lines written in a book
but you won't find a live one, no matter where you look

Hide your wives and daughters, hide the groceries too
The great nations of Europe coming through

Columbus sailed for India found Salvador instead
he shook hands with some Indians and soon they all were dead
they got tb and typhoid and athletes foot, diphtheria and the flu
'scuse me great nations coming through

On *Bad Love* (1999) and *Songbook Vol. 1* (2003)



Resilience and Socio-Ecological Systems

We define resilience, formally, as the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure and feedbacks - and therefore the same identity.

The basic concepts are:

- non-linearity, alternate regimes and thresholds
- adaptive cycles
- multiple scales and cross-scale effects - "panarchy"
- adaptability
- transformability
- general versus specified resilience

<http://www.resalliance.org>



Resilience Alliance

*research on resilience in social-ecological systems -
a basis for sustainability*

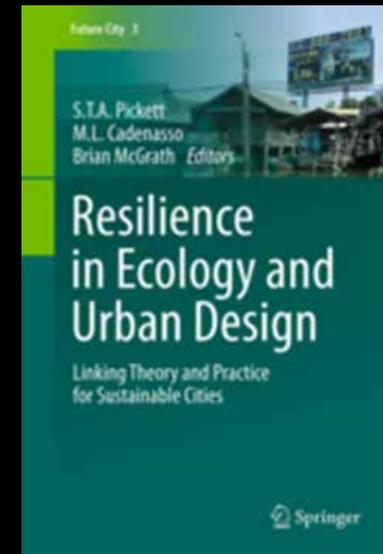
Resilience in social systems

Humans are part of the natural world. We depend on ecological systems for our survival and we continuously impact the ecosystems in which we live from the local to global scale. Resilience is a property of these linked social-ecological systems .

Sustainable use of environmental goods and services requires understanding and consideration of the resilience of the ecosystem and its limits.

However, the elements which influence ecosystem resilience are complicated. For example various elements such as the water cycle, fertility, biodiversity, plant diversity and climate, interact fiercely and affect different systems.

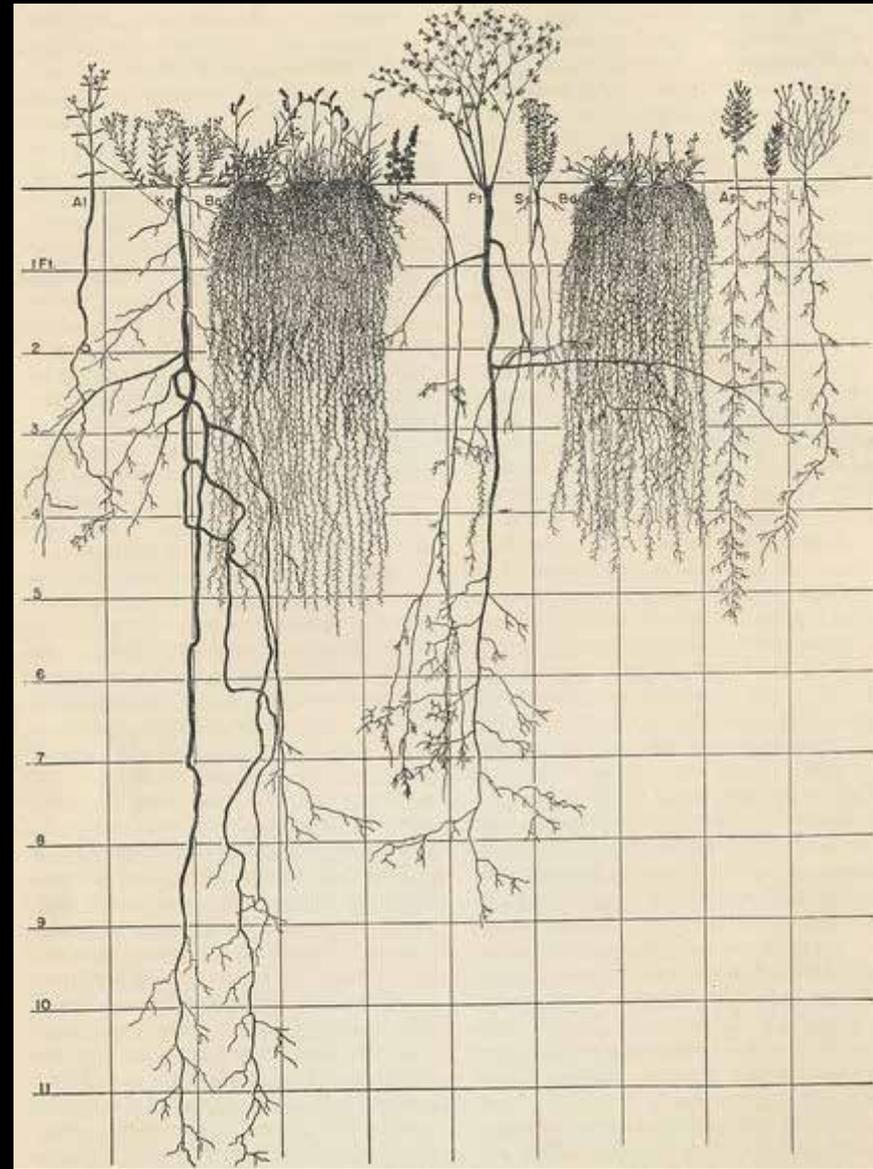
Resilience shifts attention from purely growth and efficiency to needed recovery and flexibility. Growth and efficiency alone can often lead ecological systems, businesses and societies into fragile rigidities, exposing them to turbulent transformation. Learning, recovery and flexibility open eyes to novelty and new worlds of opportunity.



HOW IS RESILIENCE ENHANCED?

Natural systems are inherently resilient but just as their capacity to cope with disturbance can be degraded, so can it be enhanced. The key to resilience in ecological systems is diversity. Biodiversity plays a crucial role by providing functional redundancy.

For example, in a grassland ecosystem, several different species will commonly perform nitrogen fixation, but each species may respond differently to climatic events, thus ensuring that even though some species may be lost, the process of nitrogen fixation within the grassland ecosystem will continue.



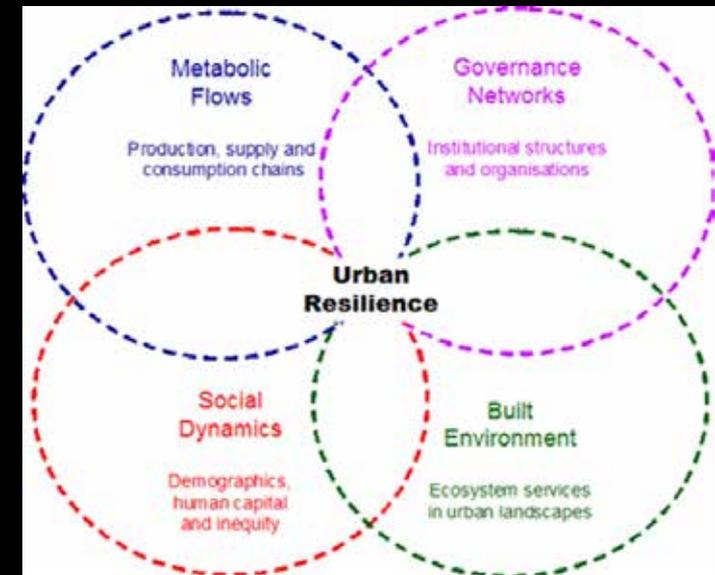
Adaptive Management

Adaptive management identifies uncertainties, and then establishes methodologies to test hypotheses concerning those uncertainties.

It uses management as a tool not only to change the system, but as a tool to learn about the system.

It is concerned with the need to learn and the cost of ignorance, while traditional management is focused on the need to preserve and the cost of knowledge.

“Assume what you are doing is wrong and monitor accordingly”



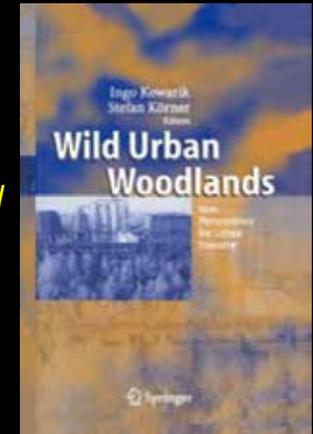
Resilience and Wasteland Ecology

... 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)

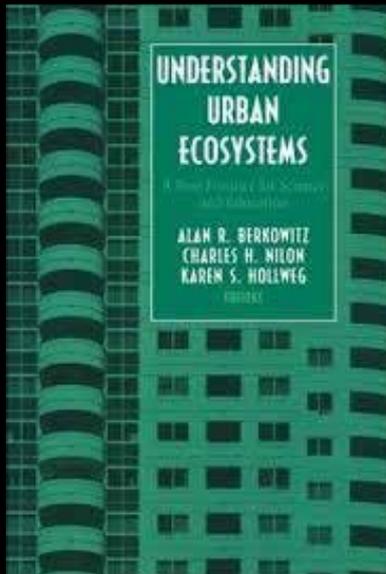
...although wild and rather specialist species may be missing, cities are great havens for biodiversity, in terms of both ecology and species, even in industrial areas.

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



Ratty – the Water Vole

“There is nothing, absolutely nothing half so much worth doing as messing about in boats.”



Wastelands as Cosmopolitan Community

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

- A cosmopolitan community of uniquely adapted ruderal organisms
- 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)





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 biodiversity¹ in 1998 and four biodiversity action plans in 2001. In May 2006, the Commission adopted a Communication² 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 Environment³ 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 m² 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.

¹The European biodiversity strategy is available at <http://ec.europa.eu/environment/docum/9842sm.htm>

Types of Urban Waste 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



What emerges in these 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.



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.

Literature and Marginal Nature

What do shreds and scraps of the natural scene mean, after all, in the shadow of the citified whole?

What can one patch of leftover land mean to one person's life, or to the lives of all who dwell in the postindustrial wasteland?

Robert Michael Pyle, *The Thunder Tree: Lessons from an Urban Wildland* (1993)

Accidental Wilds

Discursive Strategies



Literature and Meaning

What are the roots that clutch, what branches grow
Out of this stony rubbish? Son of man,
You cannot say, or guess, for you know only
A heap of broken images, where the sun beats,
And the dead tree gives no shelter, the cricket no relief,
And the dry stone no sound of water. Only
There is shadow under this red rock
(Come in under the shadow of this red rock),
And I will show you something different from either
Your shadow at morning striding behind you
Or your shadow at evening rising to meet you;
I will show you fear in a handful of dust.

- T.S. Eliot, *The Wasteland*



Literature of urban nature encounter

Unofficial Countryside

I have called it the unofficial countryside because none of these places is in the countryside proper, nor were they ever intended to provide bed and board for wildlife...This is a scrappy definition, I know, covering everything from a planned suburban playground to the accidentally green corner of a city-centre parking lot.

Yet I think all these places do have one quality in common, and that is that, in them, the labels 'urban' and 'rural' by which we normally find our bearings in a landscape, just do not apply.

It is not the parks but the railway sidings that are thick with wild flowers

Richard Mabey, *Unofficial Countryside* (1973)



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



Review

Myths of American Nature

Natural What?



Myths of American 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]



Myths of American Nature

Myths are foundational narratives used by humans to make sense of the world.

First Nature - Wilderness and the Wild

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]



Second Nature – the transformation of first nature

Positive and Negative Narratives

From Pastoral Arcadia

Cicero –

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

Lefebvre in *The Production of Space*-

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.



Resilient Nature

Marginal Nature in the Wasteland

Beautiful flower in your garden
But the most beautiful by far
Is the one growing wild in the garbage dump
Even here, even here, we are

Song by Paul Westerberg, "Even Here We Are" (*14 Songs*, 1993)



Even Here We Are



Applause



Questions?





Nature and the American Mind

Science and American Nature – May to August

May 13 at Waller Center – American Natural History and the Theory of Degenerate Nature

May 14 at Dougherty Arts Center – American Natural History and the Theory of Degenerate Nature

May 15 at City Hall - American Natural History and the Theory of Degenerate Nature

June 10 at Waller Center – Biology, Ecological Change, and Native Species

June 11 at Dougherty Arts Center – Biology, Ecological Change, and Native Species

June 19 at City Hall - Biology, Ecological Change, and Native Species

July 8 at Waller Center – Ecology, Ecosystem Services, and the Balance of Nature

July 9 at Dougherty Arts Center – Ecology, Ecosystem Services, and the Balance of Nature

July 17 at City Hall - Ecology, Ecosystem Services, and the Balance of Nature

August 6 at City Hall - Environmental Science, Sustainability, and Human Nature

August 12 at Waller Center – Environmental Science, Sustainability, and Human Nature

August 13 at Dougherty Arts Center – Environmental Science, Sustainability, and Human Nature