



**Center for  
Environmental  
Research** at Hornsby Bend



All Lectures available online at the Nature In The City Podcast  
<http://austineconetwork.com/nature-in-the-city/>



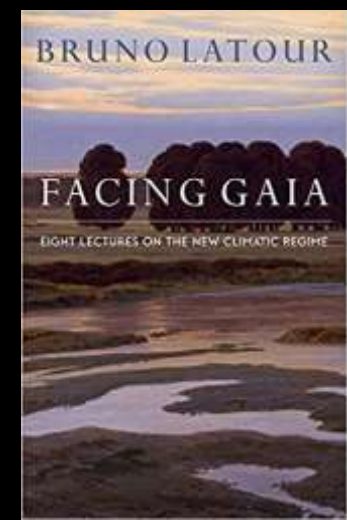
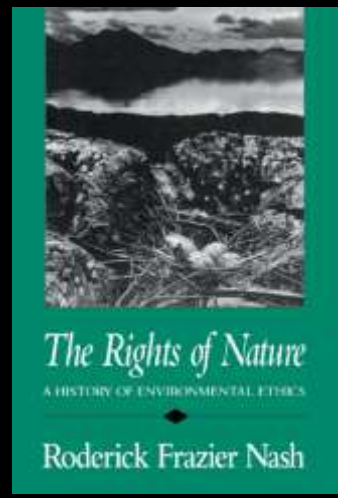
**Development** CITY OF AUSTIN  
SERVICES DEPARTMENT

**Community Tree  
Preservation Division**



**The End of Nature: Prospective Ecology, Environmental Ethics, and the Anthropocene**

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



RODERICK FRAZIER NASH

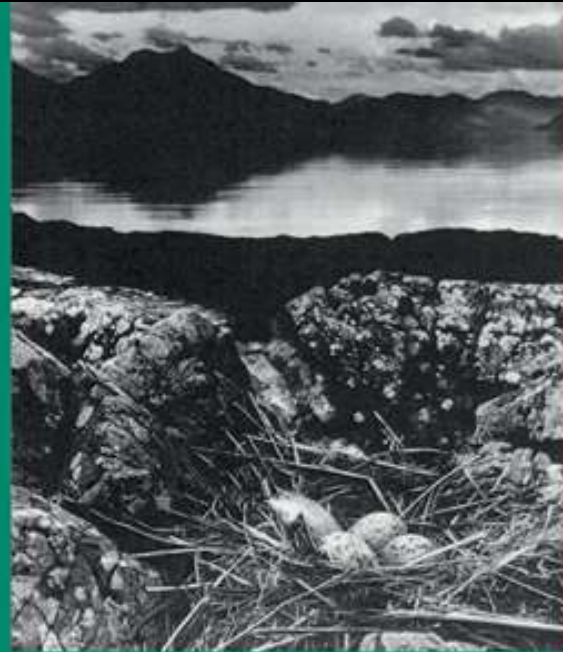
# wilderness

OF THE AMERICAN MIND

FOURTH EDITION

*A classic work now updated for the twenty-first century*

NB



## *The Rights of Nature*

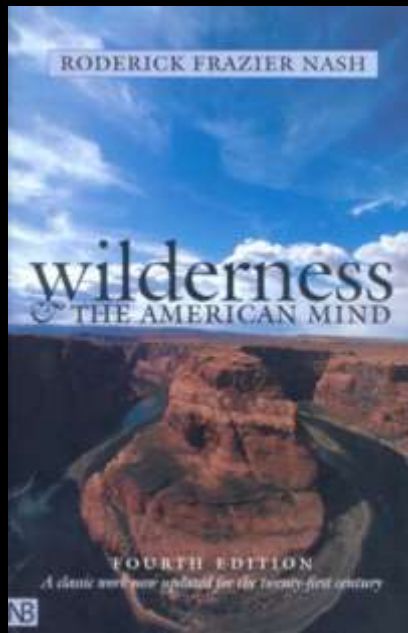
A HISTORY OF ENVIRONMENTAL ETHICS

Roderick Frazier Nash





“wilderness is a matter of perception – part of the geography of the American mind”



# The Re-invention of Wild Nature

## American Transcendentalism

Ralph Waldo Emerson's essay, "Nature" (1844).

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.

Thoreau's *Walden* (1854)

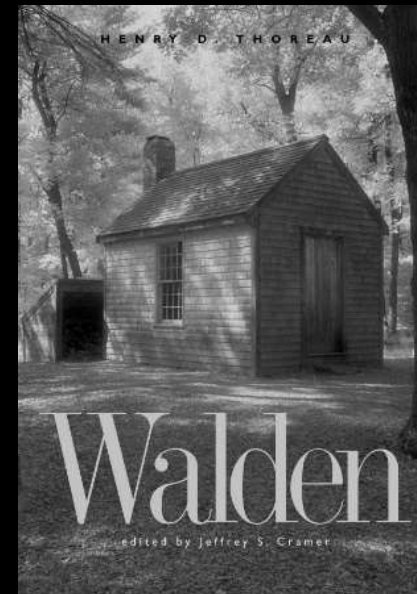
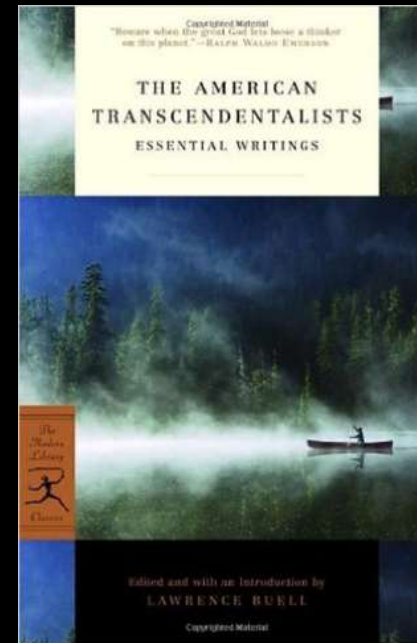
Nature is a refuge from the artificial constructs of civilization.

Thoreau, "Walking" (1862)

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.

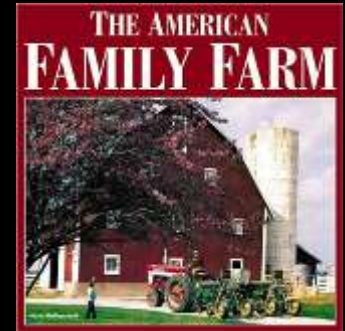
I wish to make an extreme statement...

Wildness is the preservation of the world...





Pastoral Nature  
is, also, a matter of  
perception and part of the  
geography of the American  
mind.



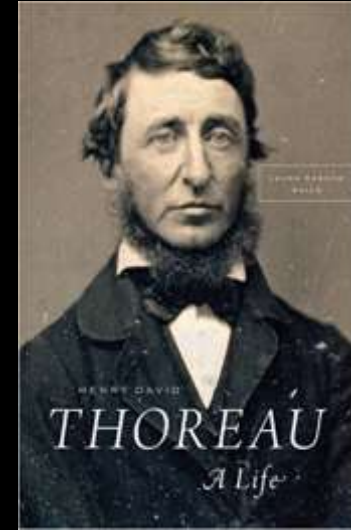
# Thoreau and Pastoral Nature Wildness and Cultivation (The Bean Field)

"I would not have every man nor every part of a man cultivated, any more than I would have every acre of earth cultivated: part will be tillage, but the greater part will be meadow and forest"

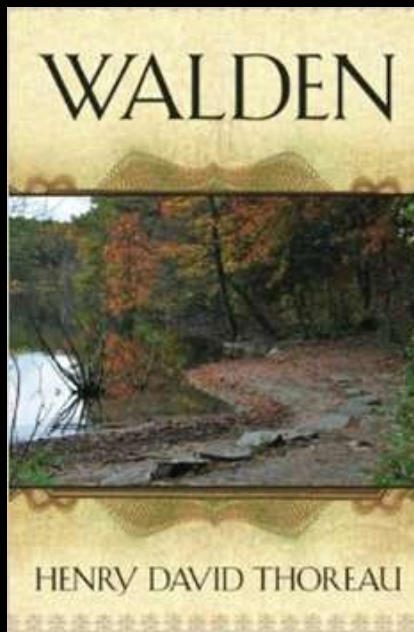
## The Wild and The Cultivated Connected

We are wont to forget that the sun looks on our cultivated fields and on the prairies and forests without distinction. They all reflect and absorb his rays alike, and the former make but a small part of the glorious picture which he beholds in his daily course. In his view the earth is all equally cultivated like a garden.

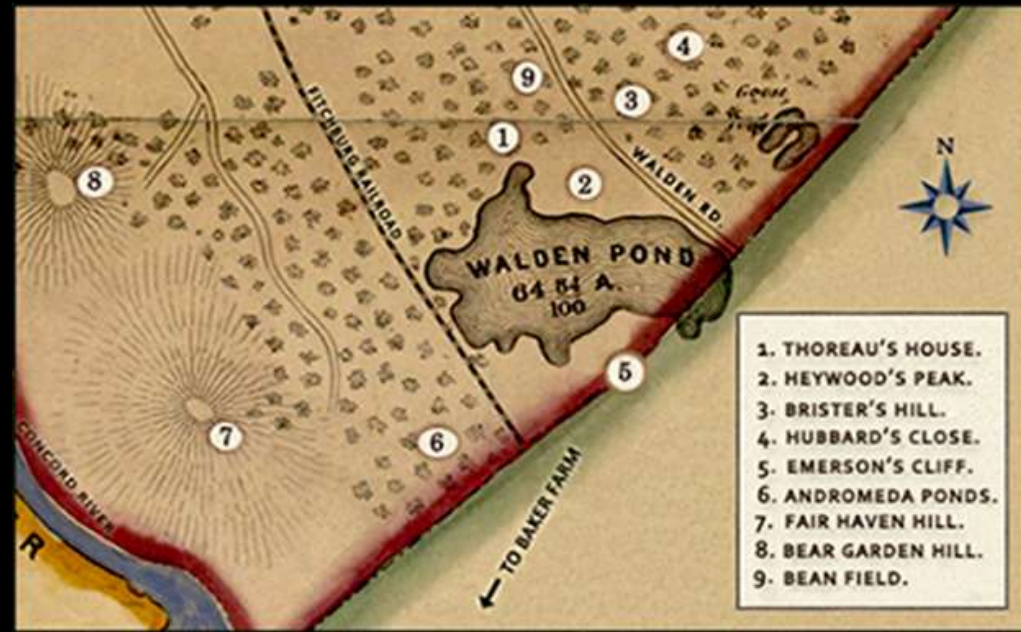
Trying to find a balance between culture and nature.



1817-1862



*Walden* (1854)





# The American Myth of Nature

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

They are the foundations of the American myth of nature from which we assess the value of all nature in America.





# The Problem of Urban Nature

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

Wilderness

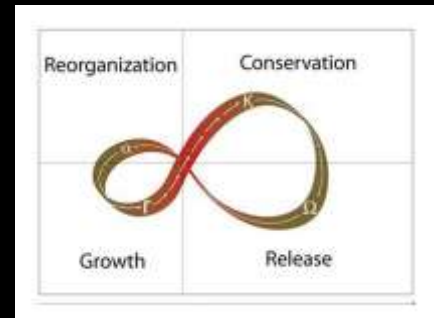
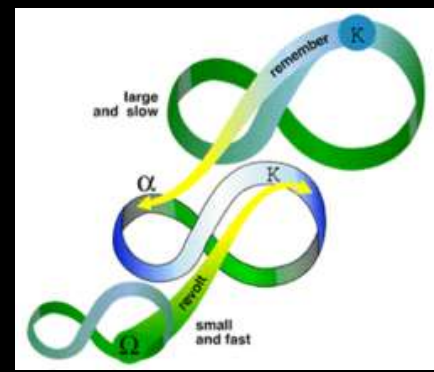
Pastoral

Urban Nature?



# The Concepts of Nature

- Apply to Parts of Whole, but Not the Whole
- True but Incomplete
- Retrospective, Historical Naturalness
- Prospective? Future? Change?



Resilient Nature

Wilderness



Pastoral



Urban Nature



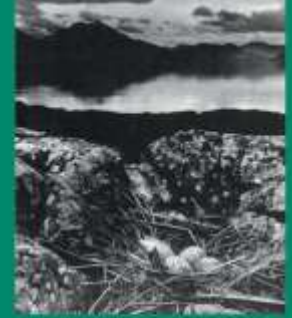


# Environmental Ethics and American Nature

Environmental ethics focuses on the moral relationship of human beings to the biotic and abiotic environment.

It examines the moral status of nonhumans and of the abiotic world.

- Why “Environmental” and not “Nature”?
- Why protect or conserve Environment/Nature?
- Which Nature should we protect and conserve?



*The Rights of Nature*

A HISTORY OF ENVIRONMENTAL ETHICS

Roderick Frazier Nash



# Environmental Ethics and Moral Theories

## Deontological

- Rights, Obligations, Duties - uses rules to distinguish right from wrong
- Kant – Categorical Imperative “Act in such a way that you treat humanity, whether in your own person or in the person of any other, never merely as a means to an end, but always at the same time as an end.”
- Religious laws and commandments “Do unto others as you would have them do unto you.”

## Consequential

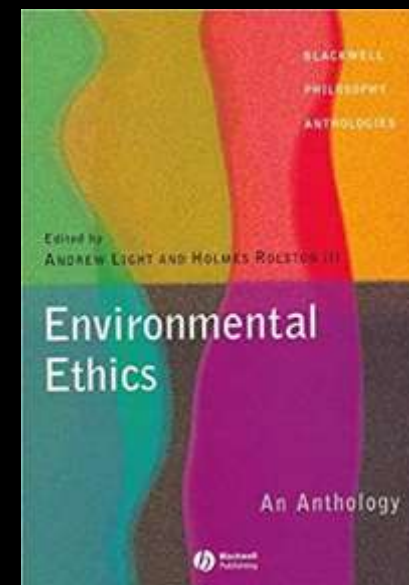
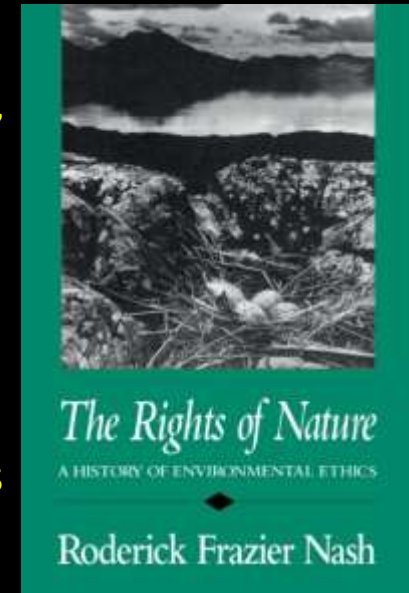
- An ethical theory that judges whether or not an action is right by what its consequences are.
- Utilitarian – Greatest Good for Greatest Number

## Pragmatism

- Human needs and the practical interests of humans as the basis for judgment and evaluation.
- Rejects the idea that there is any universal ethical principle or universal value. Ethical principles being social constructs to be evaluated in terms of their usefulness.

## Virtue Ethics

- Person rather than action based. It looks at the moral character of the person carrying out an action, rather than at *ethical* duties and rules, or the consequences of particular actions.
- Virtues are habits/values to learn within a historical community





## Premises of Environmental Ethics

### Humans as “Disturbing Agents” and Unintended Consequences

*Man and Nature, or, Physical Geography as Modified by Human Action*

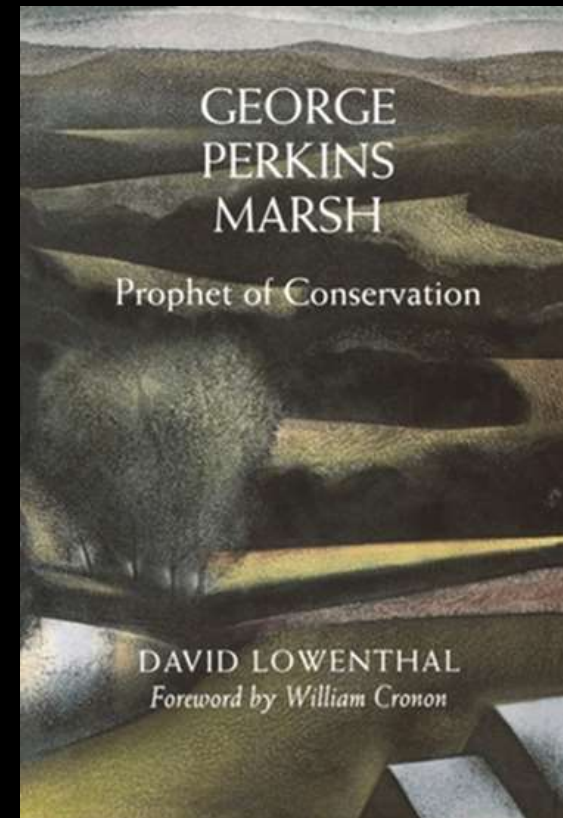
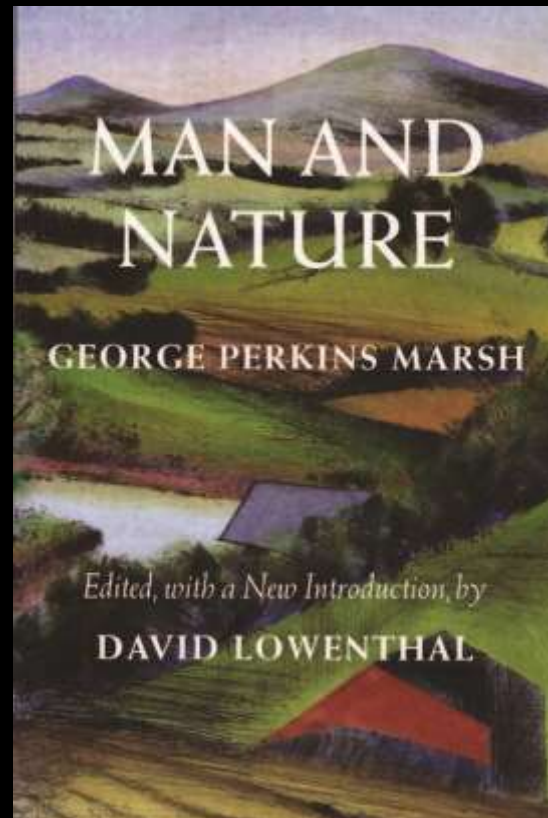
Published 1864

"Man is everywhere a disturbing agent. Wherever he plants his foot, the harmonies of nature are turned to discord"

Unintended Consequences “Vast as is the . . . magnitude and importance [of] intentional changes”, they are “insignificant in comparison with the contingent and unsought results which have flowed from them”.

George Perkins Marsh

1801-1882



# The Sustainability Concept - To Live in Balance with Nature

Premise: Obligations to Future Generations of Humans

Premise: Stability over Time

Environment - Economy - Equity

Sustainability – Equilibrium - maintaining a stable state

*Our Common Future*, also known as the *Brundtland Report*, from the United Nations World Commission on Environment and Development was published in 1987.

Sustainable development is defined in the report as:

"development that meets the needs of the present without compromising the ability of future generations to meet their own needs."



Sustainable Cities

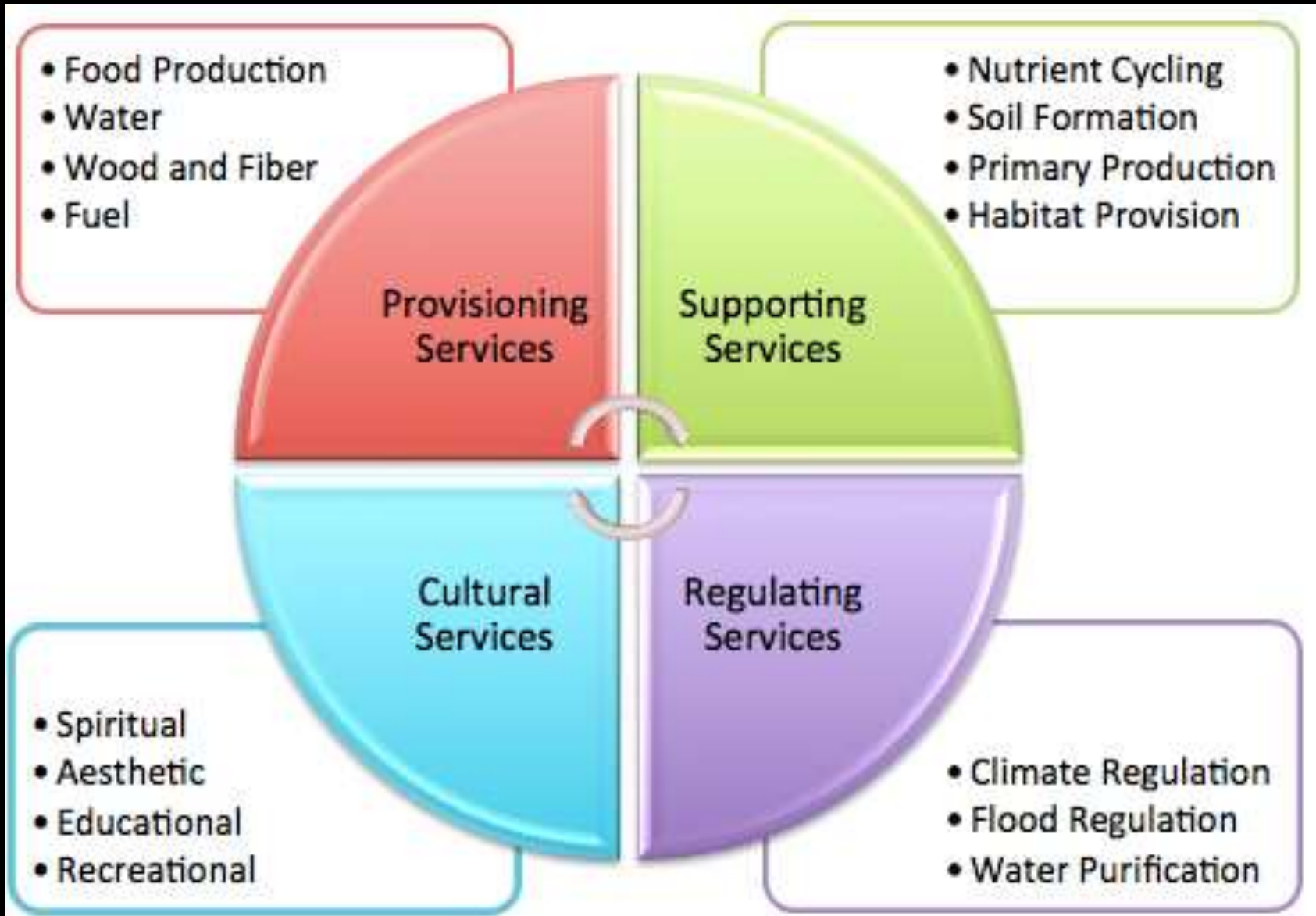


**OUR  
COMMON  
FUTURE**

THE WORLD COMMISSION  
ON ENVIRONMENT  
AND DEVELOPMENT



# Sustainability – To Live in Balance with Nature – Stability over Time



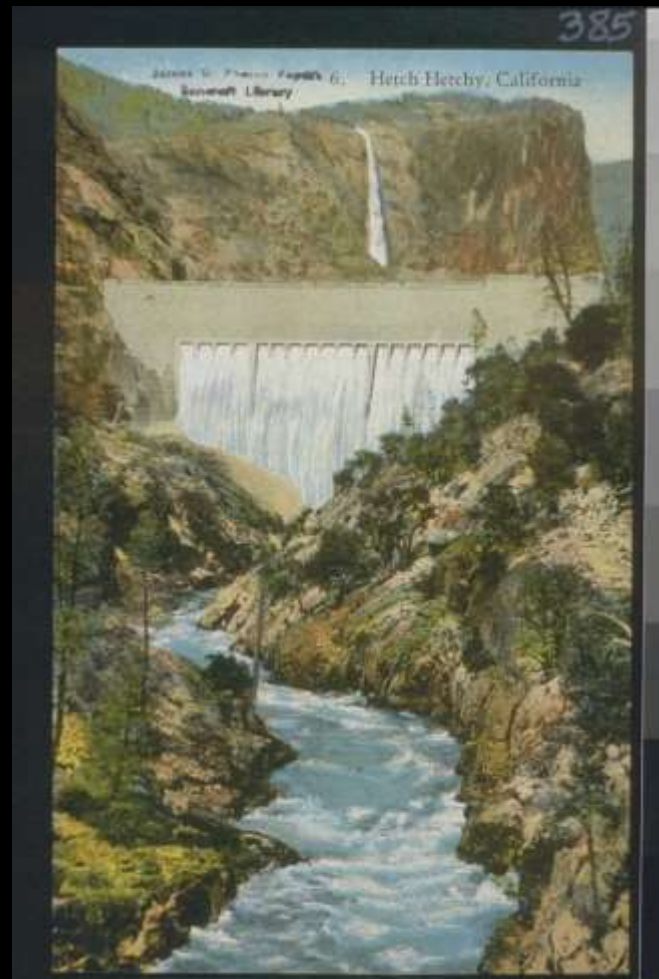
Source: Millenium Ecosystem Assessment, 2005.

# American Environmental Ethics

## Preservation vs. Conservation

### The Hetch Hetchy Debate 1908–1913

- John Muir was the romantic environmentalist (preservationist).
- Gifford Pinchot (Roosevelt) was the progressive environmentalist (conservationist).





# Nature Preservation - Deontological Ethics

## Our Duty to Nature/God


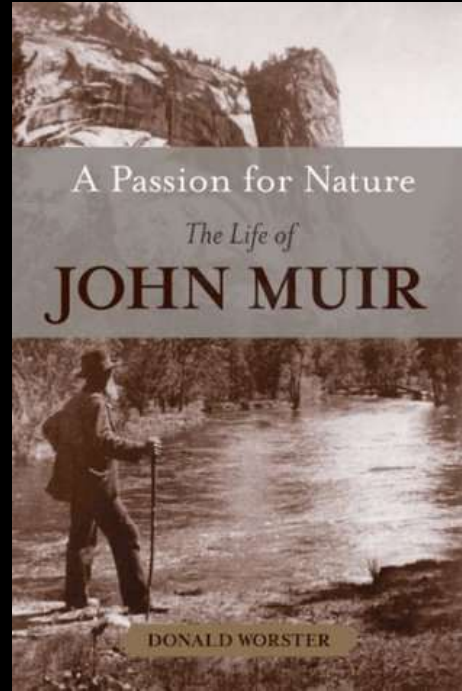
“In God’s Wildness lies the hope of the world...”

## Nature Preservation as Natural Theology

John Muir

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

“Climb the mountains and get their good tidings. Nature’s peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop away from you like the leaves of Autumn.”



In God's wildness lies the hope of the world—the great fresh unblighted, unredeemed wilderness. The galling harness of civilization drops off, and wounds heal ere we are aware.

(John Muir)

izquotes.com



**God has cared** for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he **cannot save them from fools.**

— John Muir —

AZ QUOTES

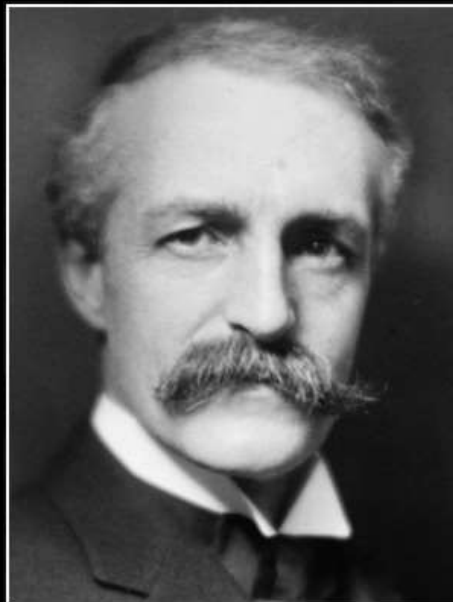
## Nature Conservation – Consequentialist Ethics

### Utilitarian Natural Resource Management

#### Our Duty to Future Generations of Humans

"Without natural resources life itself is impossible. From birth to death, natural resources, transformed for human use, feed, clothe, shelter, and transport us. Upon them we depend for every material necessity, comfort, convenience, and protection in our lives. Without abundant resources prosperity is out of reach." - Gifford Pinchot

Sustainable Development "To waste, to destroy, our natural resources, to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining in the days of our children the very prosperity which we ought by right to hand down to them amplified and developed." – President Theodore Roosevelt, State of the Union Speech, December 3, 1907.



The purpose of conservation: The greatest good to the greatest number of people for the longest time.

— Gifford Pinchot —

AZ QUOTES



President Taft protects Secretary Ballinger as Roosevelt lurks behind Chief Forester Pinchot



# The Paradox of Wilderness Preservation/Conservation and National Parks

## Aldo Leopold

“All conservation of wildness is self-defeating, for to cherish we must see and fondle, and when enough have seen and fondled, there is no wilderness left to cherish.”



In 1916, when the National Park Service was created, there were a dozen national parks, all of them in the West, visited by 326,506 people.

Today, 412 parks, national monuments and historic sites cover more than 84 million acres and were visited more than 307 million times last year.

## Premise: Historical Naturalness

### A Lament for A Lost Natural World

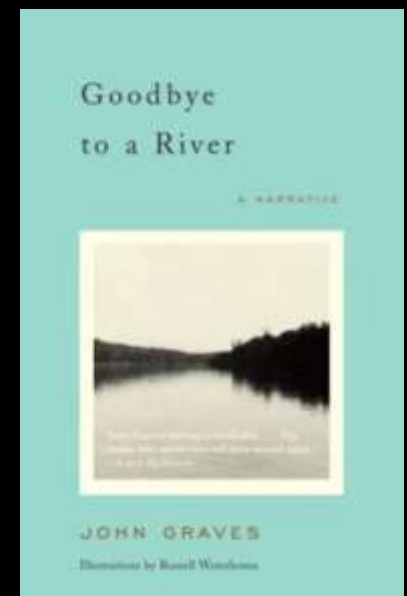
In recent decades it has become customary, and right I guess, and easy enough with hindsight, to damn the ancestral frame of mind that ravaged the world so fully and so soon.

What I myself seem to damn mainly though, is just not having seen it.

Without any virtuous hindsight I would likely have helped in the ravaging as did even most of those who loved it best.

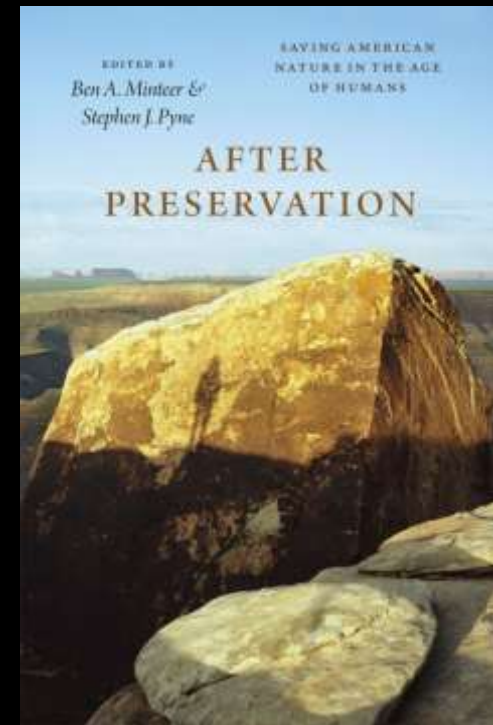
But God! To have viewed it entire, the soul and guts of what we had and gone forever now, except in books and such poignant remnants as small swift birds that journey to and from the distant Argentine, and call at night in the sky.

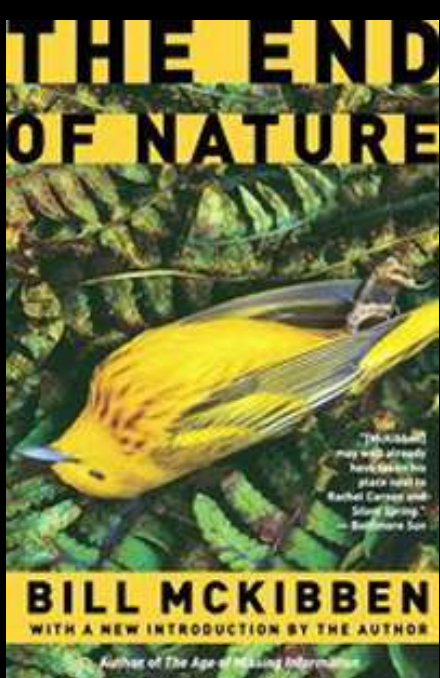
From *Self Portrait, with Birds: Some Semi-Ornithological Recollections* (1991)





# Saving American Nature in the 21<sup>st</sup> Century





# Retrospective Ecology and the Anthropocene

## The Lament - *The End of Nature* (1989)

"The idea of nature will not survive the new global pollution –

We have changed the atmosphere, and thus we are changing the weather, we make every spot on earth man-made and artificial.

We have deprived nature of its independence, and that is fatal to its meaning."

"There's no such thing as nature anymore—and there is nothing except us alone"

"Having lost its separateness, it loses its special power. Instead of being a category like God – something beyond our control – it is now a category like the defense budget or the minimum wage, a problem we must work out...one of the possible meanings of the end of nature is that God is dead."

Nature – Human Dualism

We are not part of nature.

Are Humans part of Nature?





# Permanence and Change

# nature

THE INTERNATIONAL WEEKLY JOURNAL OF SCIENCE



## THE HUMAN EPOCH

Defining the Anthropocene PAGES 144 & 171

CONFLICT RESOLUTION

### BUILDING BRIDGES

Long-standing disputes can be fixed — in theory

PAGE 148

LINGUISTICS

### SCIENTIFICALLY SPEAKING

How English became the academic lingua franca

PAGE 154

RISK MANAGEMENT

### TAKING IT PERSONALLY

Model the growing interconnectivity of risk

PAGE 151

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# Global Change

International Geosphere-Biosphere Programme

Issue 78 ■ March 2012

## ANTHROPOCENE

The geology of humanity



Urban expansion  
No signs of slowing

Natural catastrophes  
2011 breaks records

GLOBAL  
IGBP  
CHANGE

www.igbp.net

Earth-system science for a sustainable planet



# Permanence and Change

## Learning *to* Die *in the* Anthropocene

REFLECTIONS ON THE  
**END OF A CIVILIZATION**

Roy Scranton

"Scranton draws on his experiences in Iraq to confront the grim realities of climate change. The result is a fierce and provocative book."

—Elizabeth Kolbert, author  
of *The Sixth Extinction*

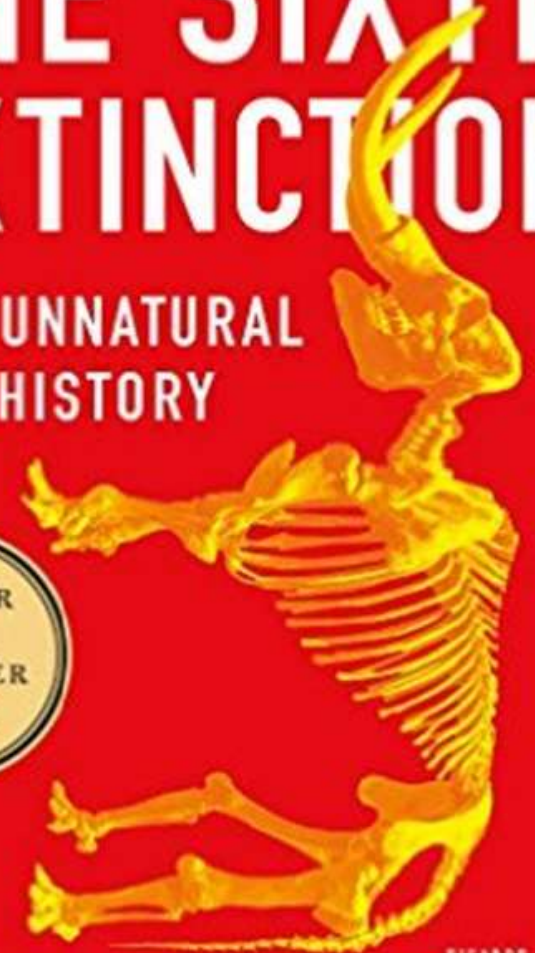


NEW YORK TIMES BESTSELLER

# THE SIXTH EXTINCTION

AN UNNATURAL  
HISTORY

WINNER  
of the  
PULITZER  
PRIZE



PICADOR

ELIZABETH KOLBERT

Author of *FIELD NOTES  
FROM A CATASTROPHE*

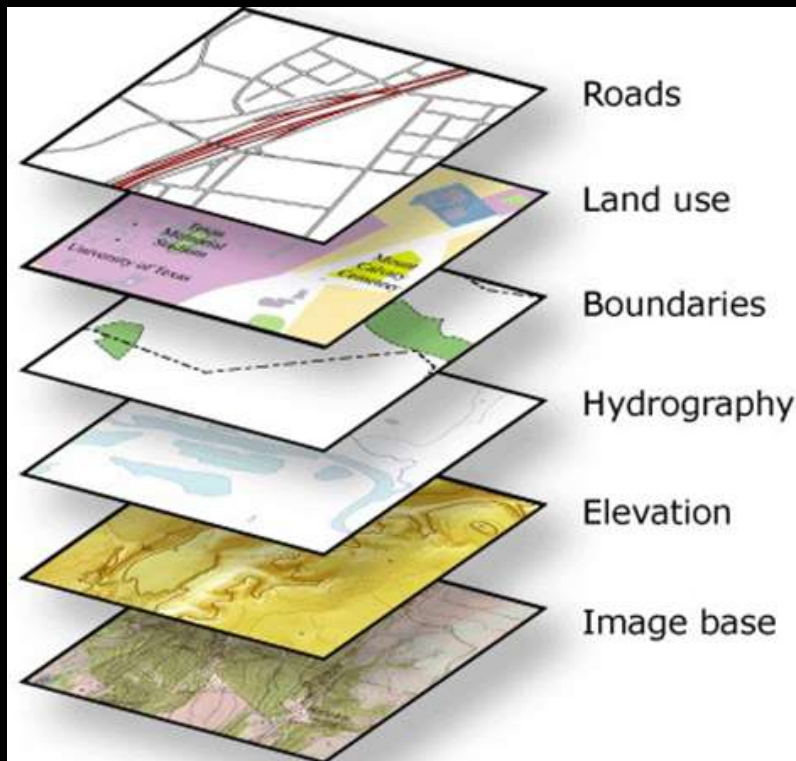
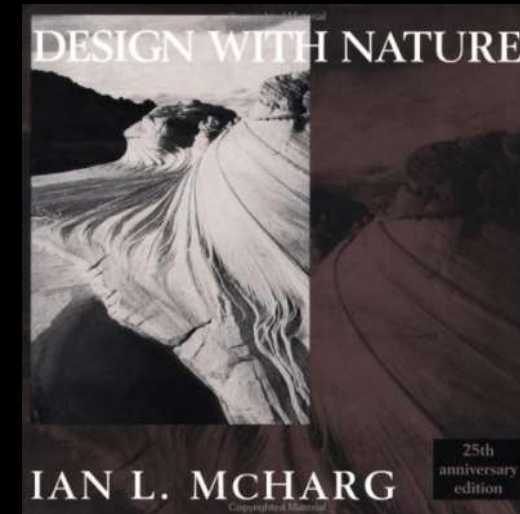


# Science to the Rescue! Design with Nature

## Ecology - The Science of How Nature Works

McHarg insisted that urban design should -

- Find its “rules” in nature.
- Those rules emerged from the scientific study of nature = Ecology.
- Ecology – the Science of How Nature Works.
- Ecologists provide “not only an explanation, but also a command.”



## A ‘Design with Nature’ approach to community design means...

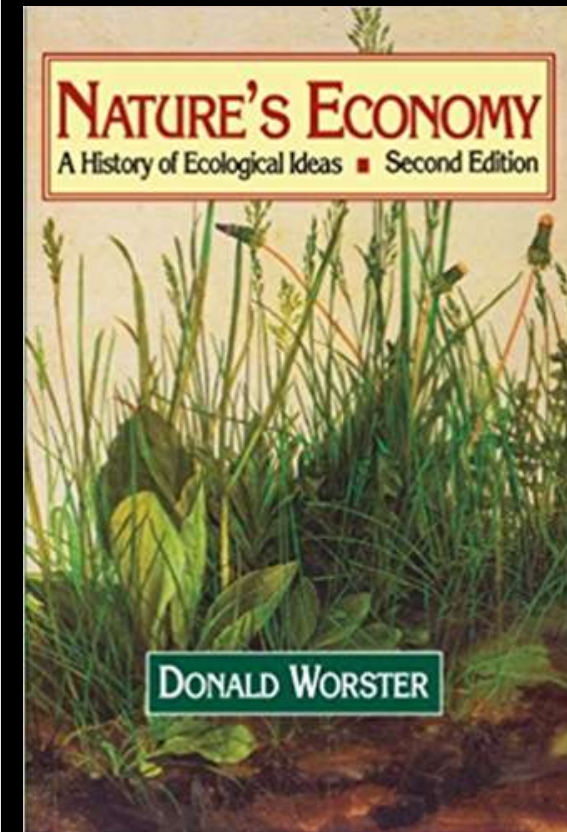
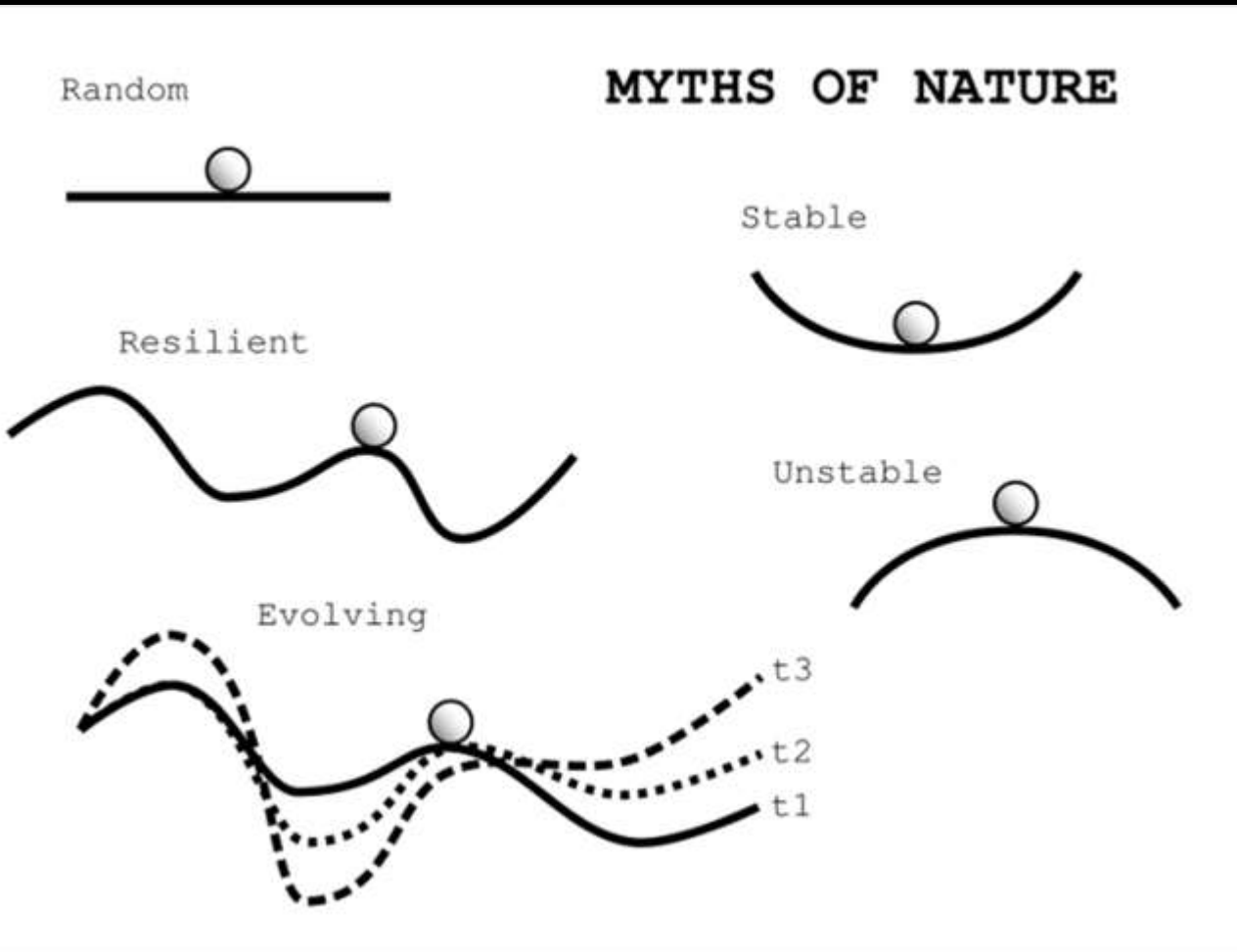


- Develop compact, complete communities
- Increase transportation options
- Reduce the loads on water, waste and energy systems
- Protect and restore urban ‘green’ space
- Strive for a lighter ‘hydrologic footprint’
- Achieve higher levels of stream, wetland and lake protection

# How Nature Works – Ecology's Myths of Nature

“Every generation...writes its own description of the natural order, which generally reveals as much about human society and its changing concerns as it does about nature.”

Donald Worster





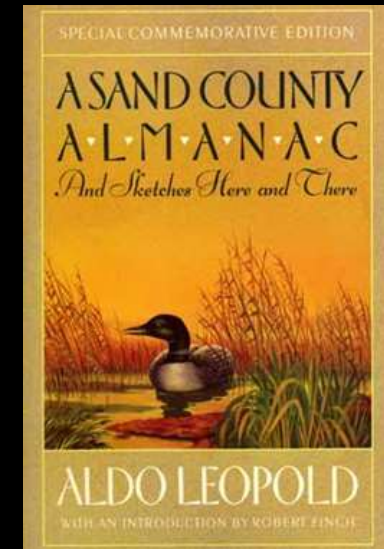
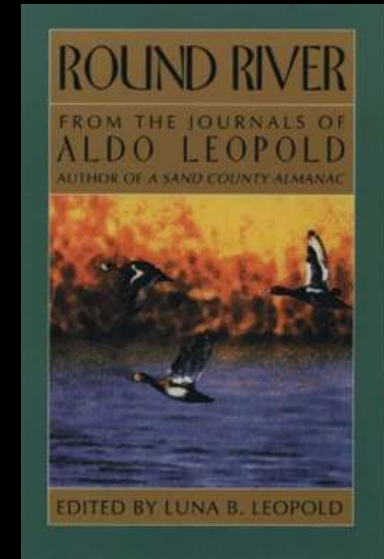
# An Ecological Ethics?

## Ecology – The Science of How Nature Works

Ecology is an infant just learning to talk, and, like other infants, is engrossed with its own coinage of big words.

Its working days lie in the future.

Aldo Leopold, *Round River* 1941



## Thinking like a mountain – A Fierce Green Fire

### How does Nature work?

“A deep chesty bawl echoes from rimrock to rimrock, rolls down the mountain, and fades into the far blackness of the night...

Only the mountain has lived long enough to listen objectively to the howl of a wolf... Only the ineducable tyro can fail to sense the presence or absence of wolves, or the fact that mountains have a secret opinion about them...

My own conviction on this score dates from the day I saw a wolf die...

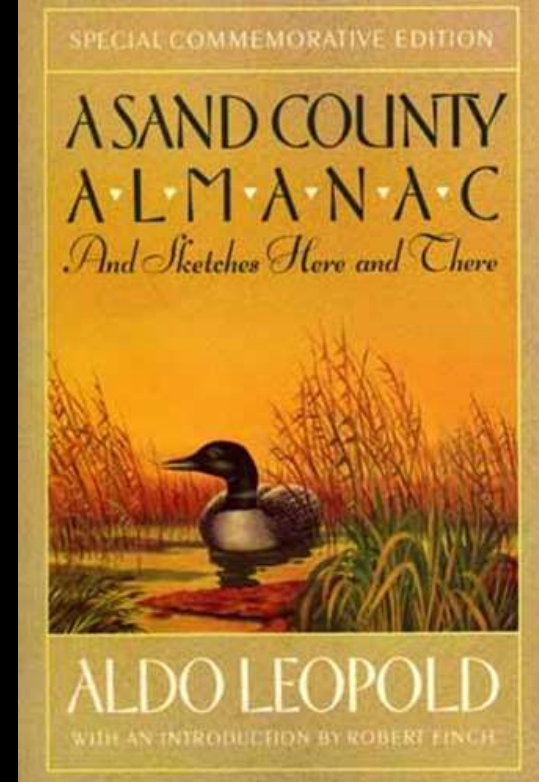
In those days we had never heard of passing up a chance to kill a wolf. In a second we were pumping lead into the pack...

We reached the old wolf in time to watch a fierce green fire dying in her eyes.

I realized then, and have known ever since, that there was something new to me in those eyes - something known only to her and to the mountain. I was young then, and full of trigger-itch;

I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise.

But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.”





## Thinking like a mountain Ecological Vision of How Nature Works

“Since then I have lived to see state after state extirpate its wolves. I have watched the face of many a newly wolfless mountain, and seen the south-facing slopes wrinkle with a maze of new deer trails. I have seen every edible bush and seedling browsed, first to anemic desuetude, and then to death...

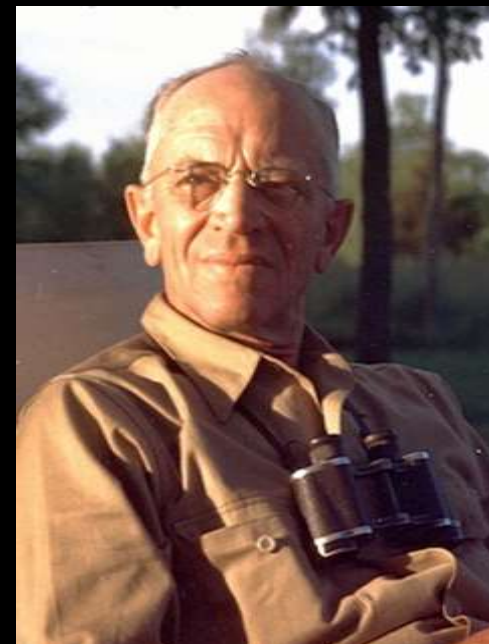
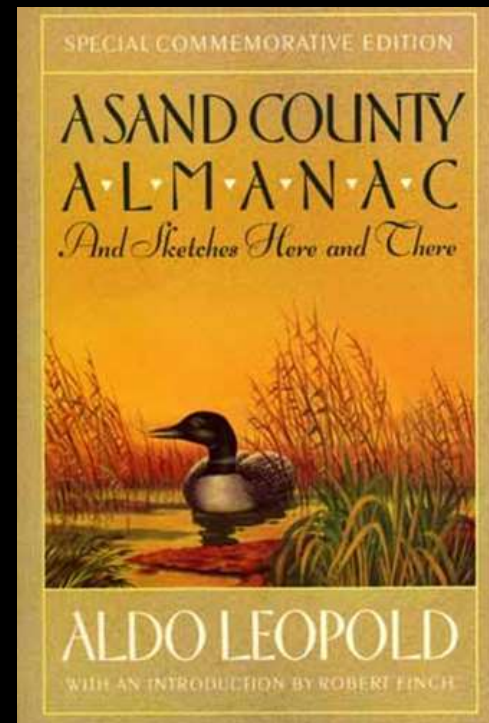
I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer...

So also with cows. The cowman who cleans his range of wolves does not realize that he is taking over the wolf's job of trimming the herd to fit the range.

He has not learned to think like a mountain. Hence we have dustbowls, and rivers washing the future into the sea...

Too much safety seems to yield only danger in the long run. Perhaps this is behind Thoreau's dictum: In wildness is the salvation of the world.

Perhaps this is the hidden meaning in the howl of the wolf, long known among mountains, but seldom perceived among men.”



# George Perkins Marsh Revisited

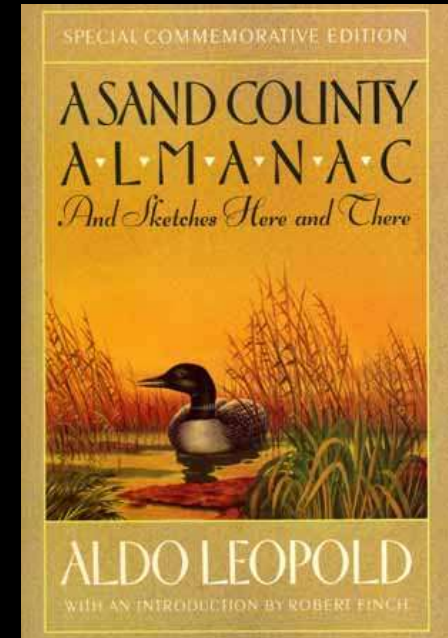
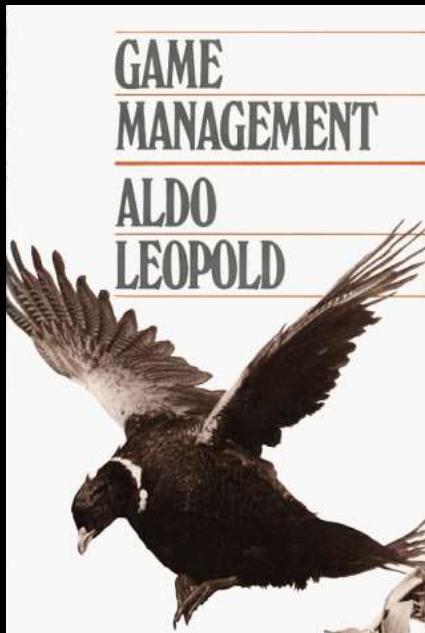
## Unintended Consequences and Conservation

### The first precaution of intelligent tinkering

"The last word in ignorance is the man who says of an animal or plant: "What good is it?"

If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts?

To keep every cog and wheel is the first precaution of intelligent tinkering."





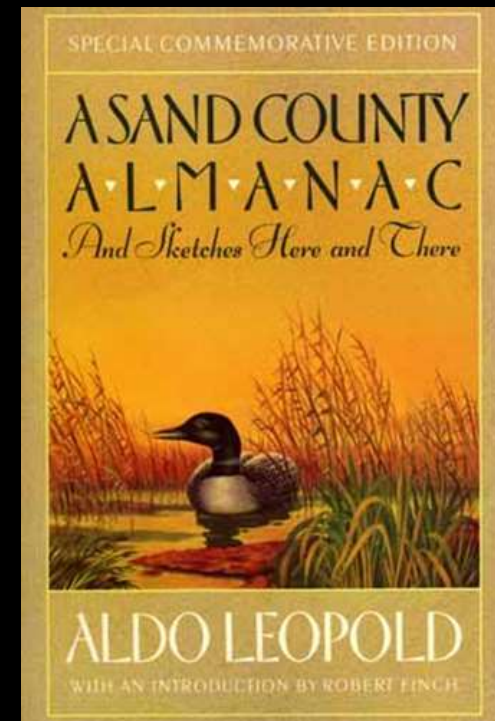
# The Land Ethic – the Ecological basis for Environmental Ethics? Deontological Ethics

"A thing is right when it tends to preserve the **integrity, stability, and beauty** of the biotic community. It is wrong when it tends otherwise."

"The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land."

"...In short, a land ethic changes the role of Homo sapiens from conqueror of the land-community to plain member and citizen of it.

It implies respect for his fellow-members, and also respect for the community as such."



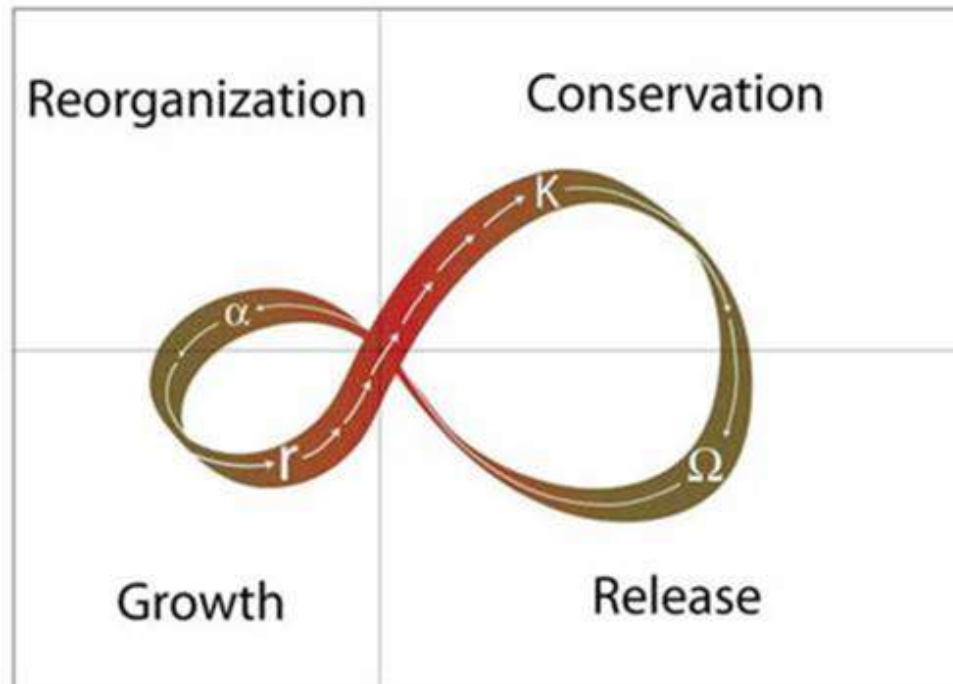
“Its working days lie in the future.”

## Prospective Nature and the New Ecology

### Permanence and Change

Nothing Endures But Change

Heraclitus 540-480BC





# How Does Nature Work?

## The New Ecology - No inherent stability

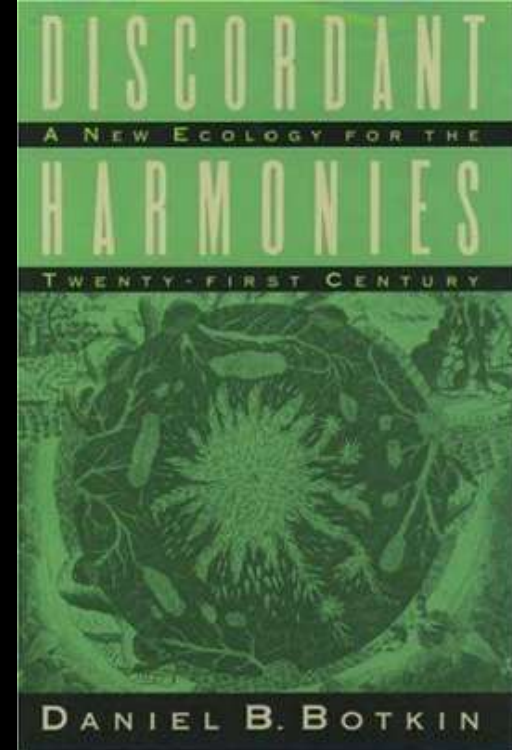
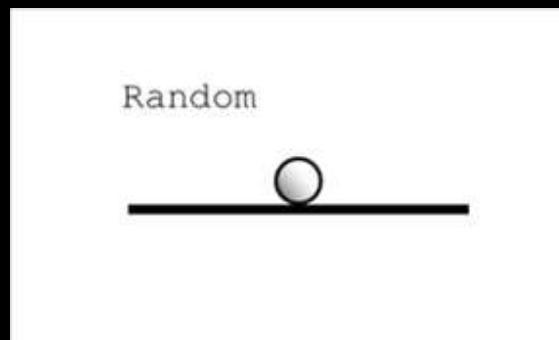
The new ecology emphasizes

- Disequilibria
- Instability
- Chaotic fluctuations

If 20th-century ecology was marked by an infatuation with balance, then our era is one of disturbance, disruption, non-equilibrium, chaos, and randomness.

“Clearly, to abandon a belief in the constancy of undisturbed nature is psychologically uncomfortable...The way to achieve a harmony with nature is first to break free of old metaphors and embrace new ones so that we can lift the veils that prevent us from accepting what we observe, and then to make use of technology to study life and life-support systems as they are.”

– Daniel Botkin 1990



# The New Ecology: Harmony vs. Disharmony

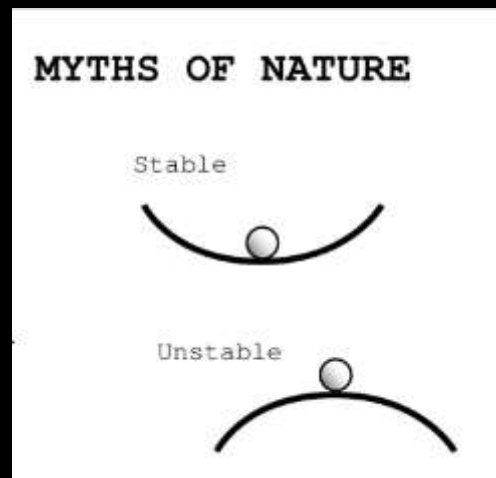
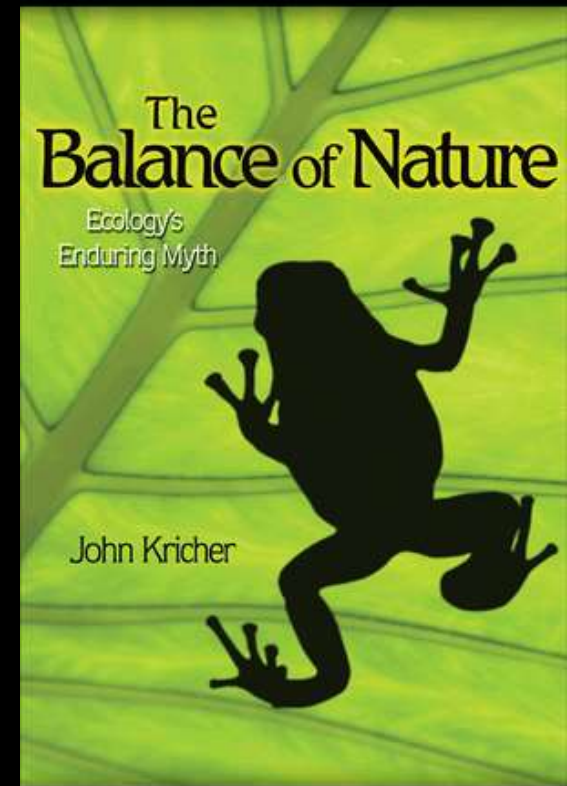
“The existence of a balance of nature has been a dominant part of Western philosophy since before Aristotle.

But the science of ecology and evolutionary biology together demonstrate that there is no balance of nature—not today and not at anytime in Earth’s long history.

The paradigm is based on belief, not data; it has no scientific merit.

Nature is constantly in flux varying in scales of space and time, and most of that flux is due entirely to natural causes. At this time of extraordinary human influence on Earth’s ecosystems and biota, I argue that it is essential for humanity to understand how evolution occurs and why ecology is far more dynamic than static.”

*The Balance of Nature: Ecology’s Enduring Myth* 2009  
John Kricher





# The New Ecology of Change - Ecological Resilience

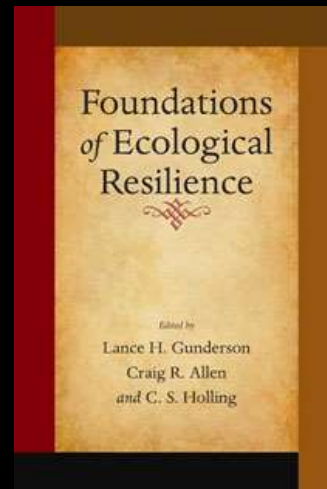
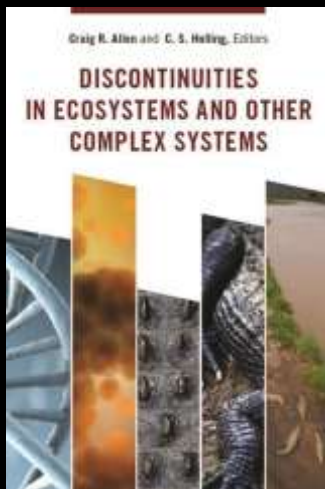
Resilient



Balance vs. Disequilibrium  
Permanence vs. 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.
- 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 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.

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



# Nothing Endures But Change

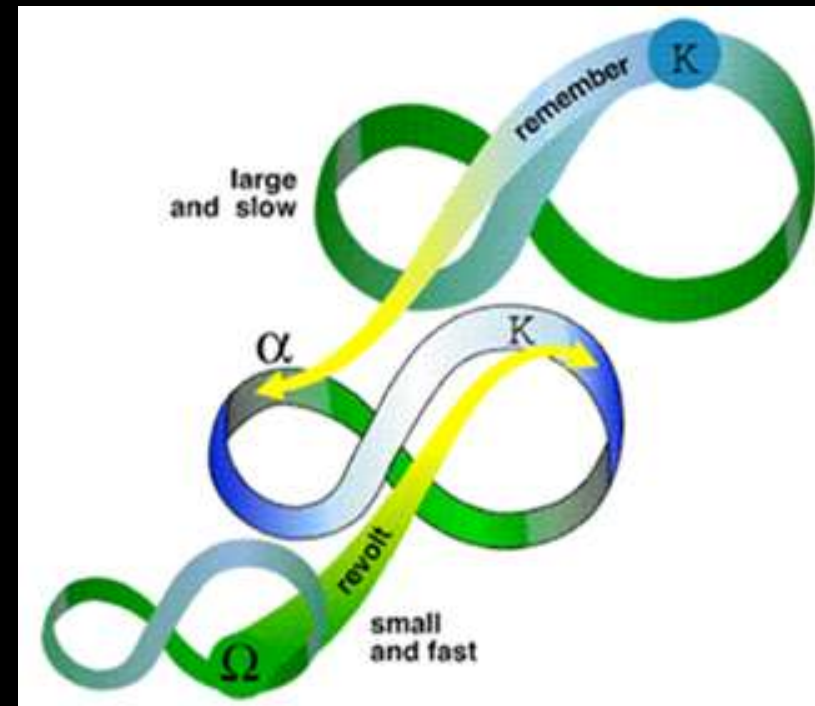
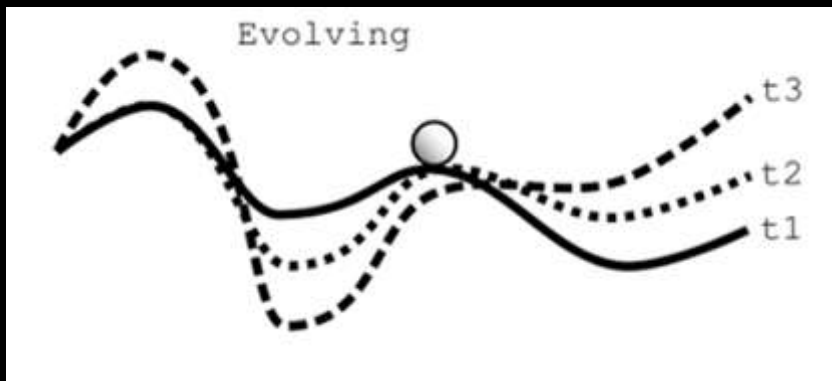
## Structured Change – The Adaptive Cycle

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...

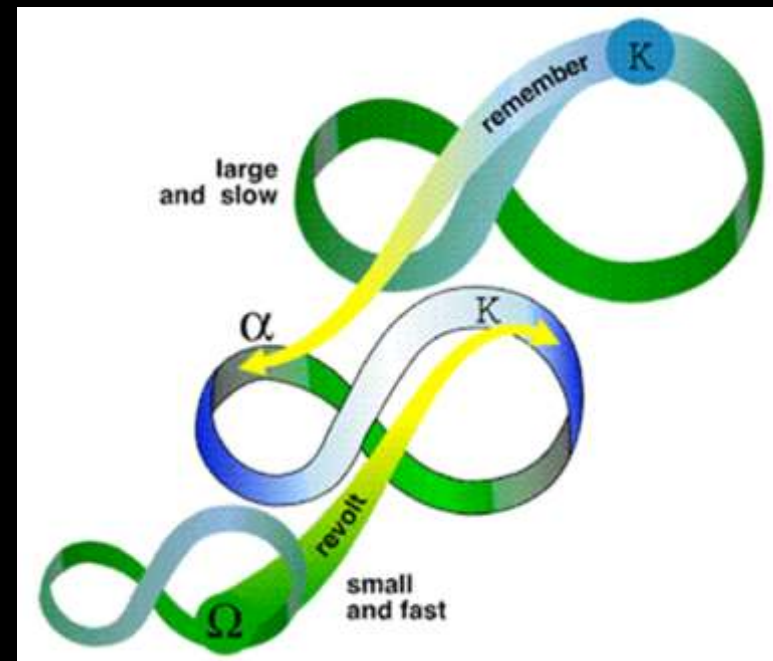
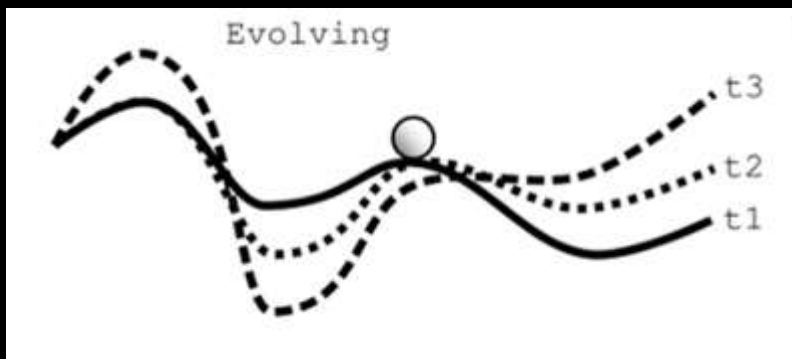
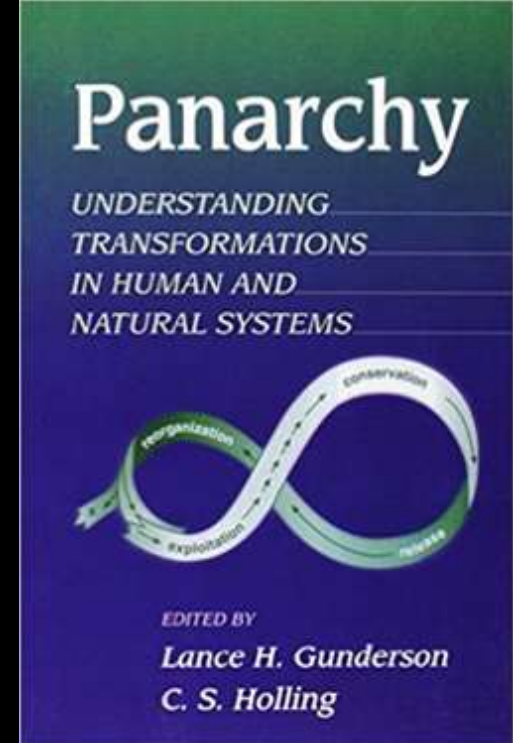
Reorganization – where systems return in completely new ways, which creates a new field of conditions and possibilities for the next growth phase





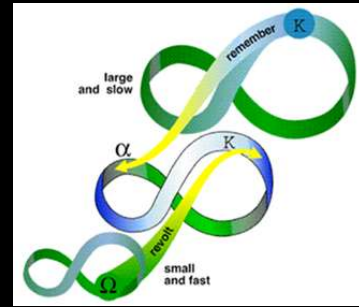
# New Narrative of Change and Permanence Resilience, Panarchy, and Adaptive Evolution

- 'Panarchy' is a term that “explains the evolving nature of complex adaptive systems” Human and Natural systems - Socioecological systems
- No socioecological system can be understood or managed by focusing on it at a single scale. All systems exist and function at multiple scales of space, time and social organization, and the interactions across scales are fundamentally important in determining the dynamics of the system at any particular focal scale.
- Ecological and social-ecological systems form nested sets of adaptive cycles. The larger, slower cycles generally constrain the smaller, faster ones and maintain system integrity



# Managing for Change

## Historical Naturalness vs. Prospective Naturalness



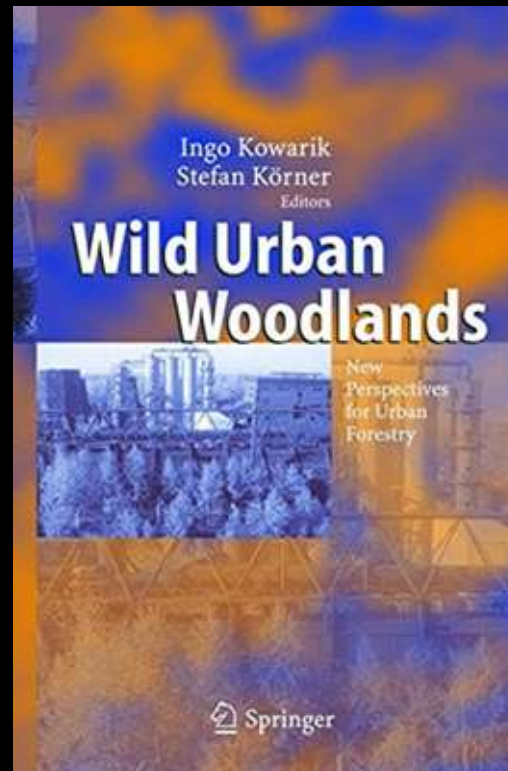
### Prospective naturalness...

“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.”

### Functionality

2005



### Resilience

2017



# New Nature - Novel Ecosystems

- Assemblages of species in a given area that have not previously occurred.
- They lack historically natural analogs
- Novel ecosystems are not really all that novel, except in their species composition.
- We need to develop a new ecology that is not prejudiced by the human-nature dualism.

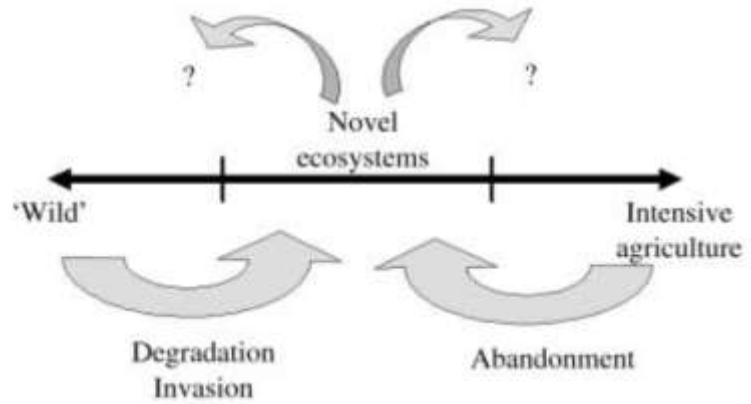
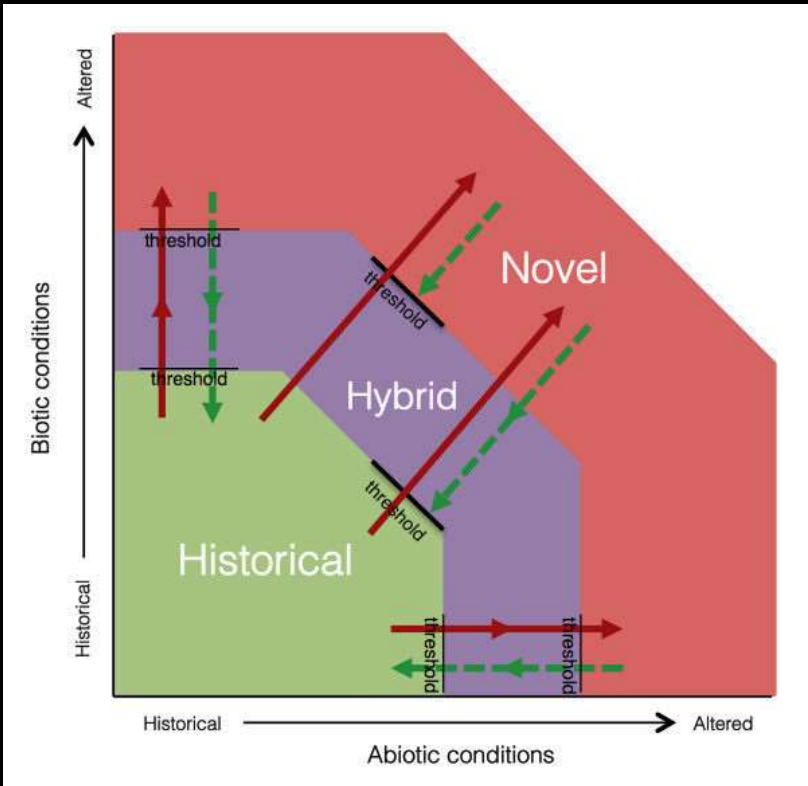
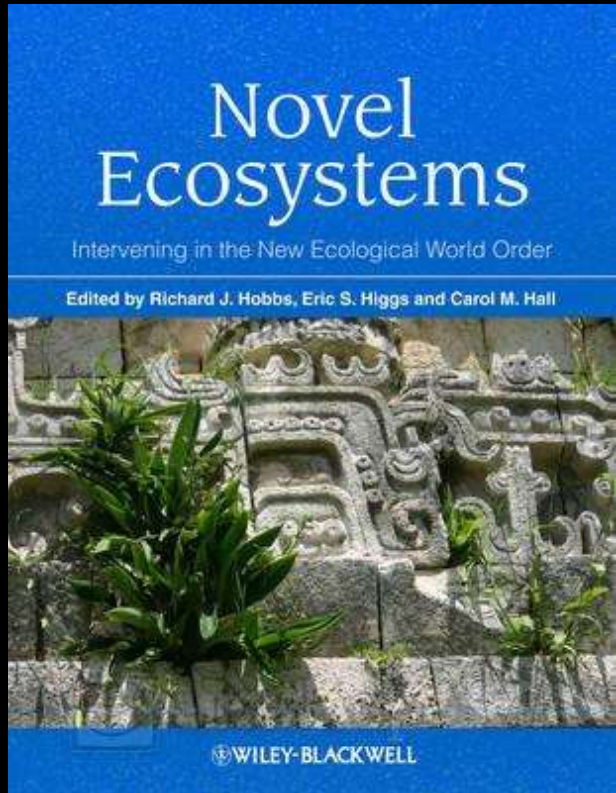


Figure 1 Novel ecosystems arise either from the degradation and invasion of 'wild' or natural/seminal systems or from the abandonment of intensively managed systems.



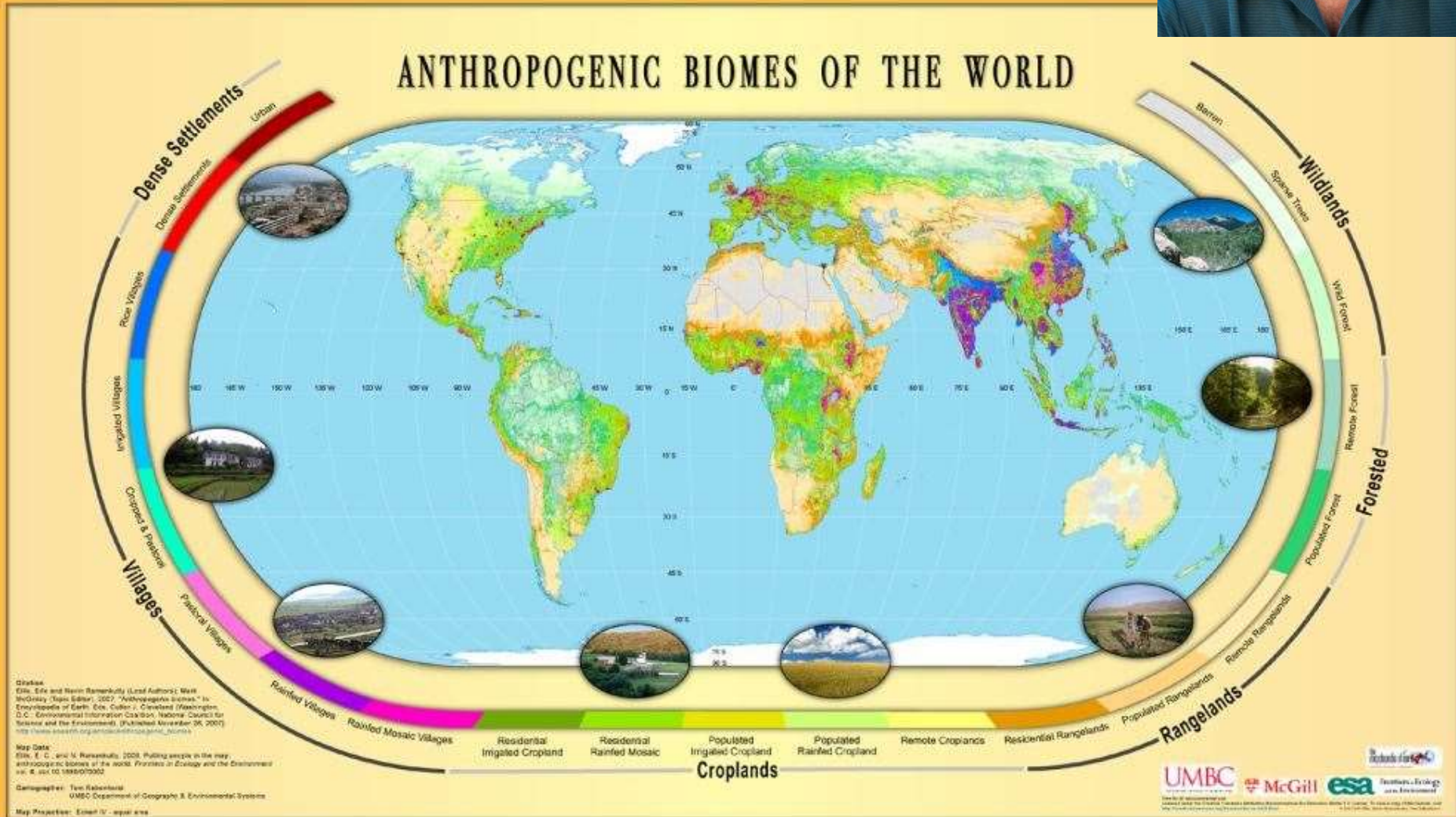


# Anthropogenic Biomes or "Humanized Landscapes"

<http://ecotope.org/> Dr. Erle Ellis

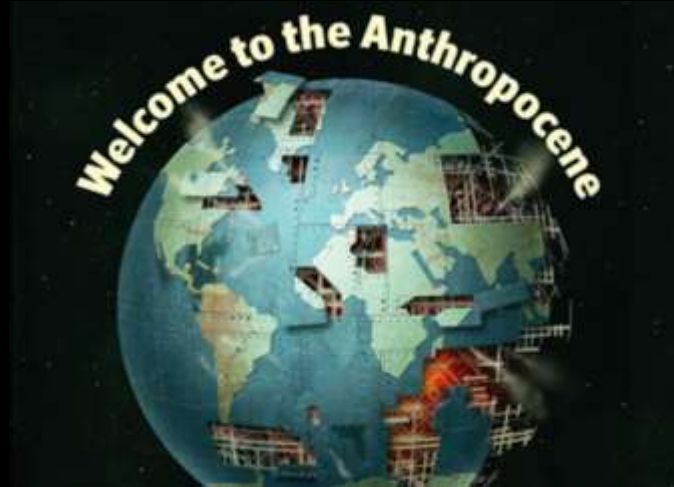
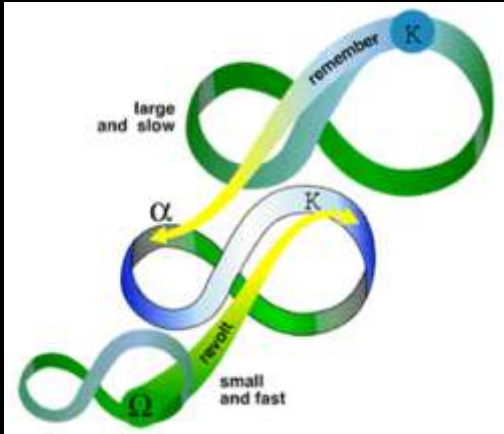


Anthropogenic Biomes ("Anthromes"), describe the globally-significant types of anthropogenic landscapes.



# The Anthropocene, The New Ecology, and the New Concept of Resilient Nature

## Telling a New Story



Wilderness

Pastoral

Urban Nature





# Resilience, Nature Conservation, and Humans

Peter Kareiva, UCLA Institute of the Environment and Sustainability  
Former Nature Conservancy Chief Scientist

Conservation is widely viewed as the innocent and uncontroversial practice of purchasing special places threatened by development.

In truth, for 30 years, the global conservation movement has been racked with controversy arising from its role in expelling indigenous people from their lands in order to create parks and reserves.

(New Premises for an Ecological Ethics)

- 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...



The Nature Conservancy



SAVING THE LAST GREAT PLACES ON EARTH

The Nature Conservancy



Protecting nature. Preserving life.™





## 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. And it will utilize the right kinds of technology to enhance the health and well-being of both human and nonhuman natures.

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.



**UCLA**  
Institute of the Environment  
and Sustainability



LABORATORY FOR ENVIRONMENTAL  
NARRATIVE STRATEGIES

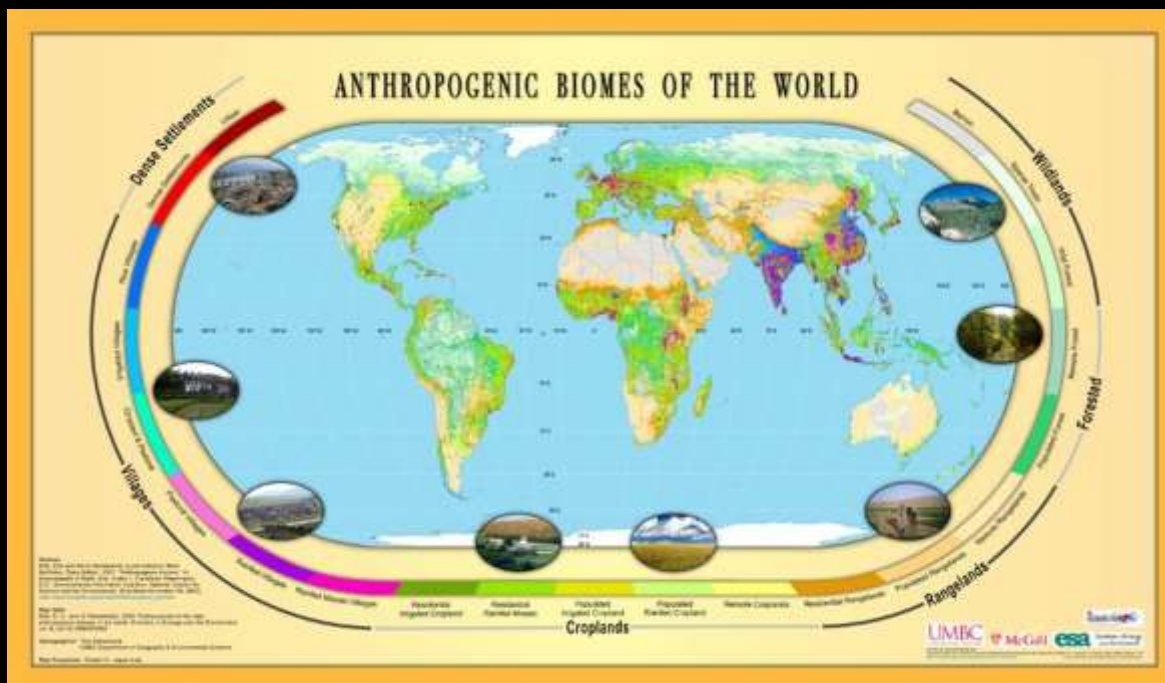
# A New Human-Nature Narrative

“Anthropogenic biomes point to a necessary turnaround in ecological science and education, especially for North Americans.

Beginning with the first mention of ecology in school, the biosphere has long been depicted as being composed of natural biomes, perpetuating an outdated view of the world as ‘natural ecosystems with humans disturbing them’.

Anthropogenic biomes tell a completely different story, one of ‘human systems, with natural ecosystems embedded within them’.

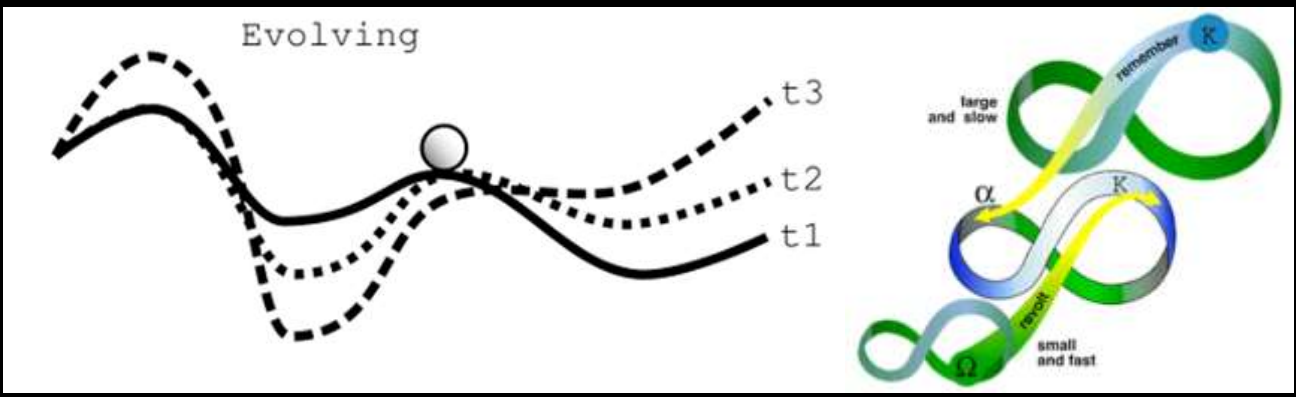
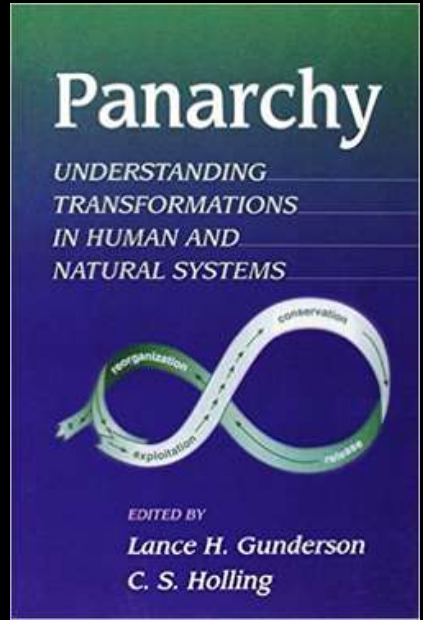
This is no minor change in the story we tell our children and each other. Yet it is necessary for sustainable management of the biosphere in the 21st century.” Erle Ellis



# New Narrative of Nature: Evolving Nature is Animated Nature

## Pan and Panic - Permanence and Change

- Panarchy is a new narrative or myth of evolving nature, hinted at by the name of the Greek god of nature - Pan - whose persona also evokes an image of unpredictable change.
- Nature as alive and lively – Animated. Not objects, rather subjects.
- Unintended consequences - Change is not always for the good - Pan has a destabilizing role that is captured in the word panic, directly derived from one facet of his paradoxical personality.
- His attributes are described in ways that resonate with the attributes of the four phase adaptive cycle; as the creative and motive power of universal nature, the controller and arranger of the four elements - earth, water, air and fire.





# The Agency of Nature – Nature Reanimated

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. They break our rules about how nature works.

- Subjects rather than objects
- Active rather than passive
- Animated rather than merely material
- Actors intentionally modifying their “environment”



# How Nature Works - Gaia and the Agency of Nature

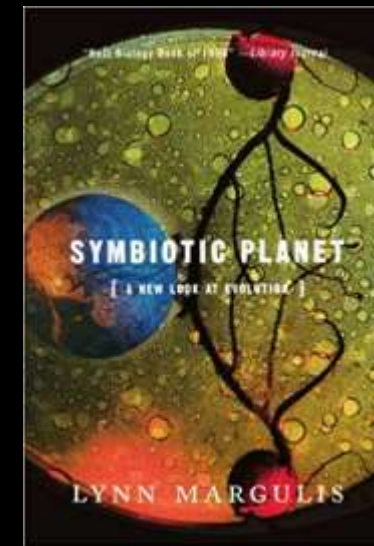
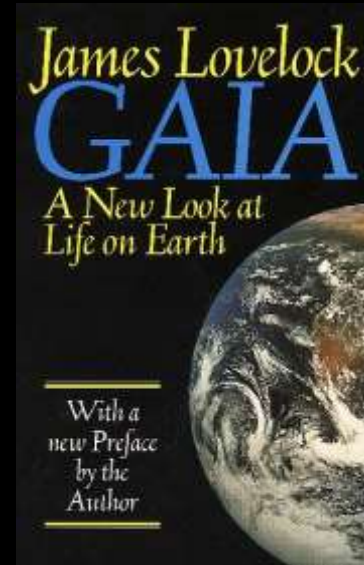
James Lovelock and Lynn Margulis

The Gaia hypothesis proposes that organisms interact with their inorganic surroundings on Earth to form a self-regulating, complex system that contributes to maintaining the conditions for life on the planet.

“The Earth has abundant oceans because it has evolved, not by geophysics and geochemistry alone, but as a system in which the organisms are an integral part.”

“Gaia is the planetary life system that includes everything influenced by and influencing the biota. The Gaia system share with all living organisms the capacity for homeostasis – the regulation of the physical and chemical environment at a level that is favorable to life.”

“When I talk of Gaia as a super organism, I do not for a moment have in mind a goddess or some sentient being. I am expressing my intuition that the Earth behaves as a self regulating system, and that the proper science for its study is physiology.”



Lynn Margulis – *Symbiotic Planet*

“Life on earth is more like a verb. It repairs, maintains, re-creates, and outdoes itself.”

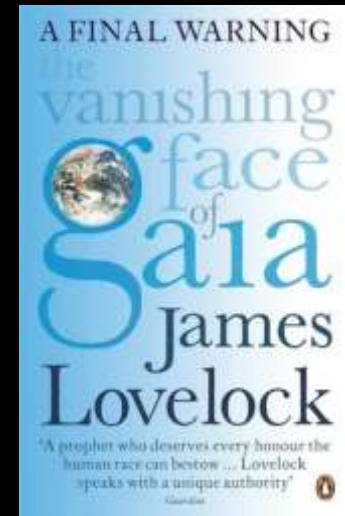
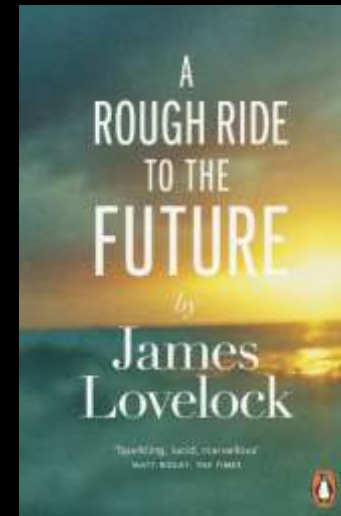
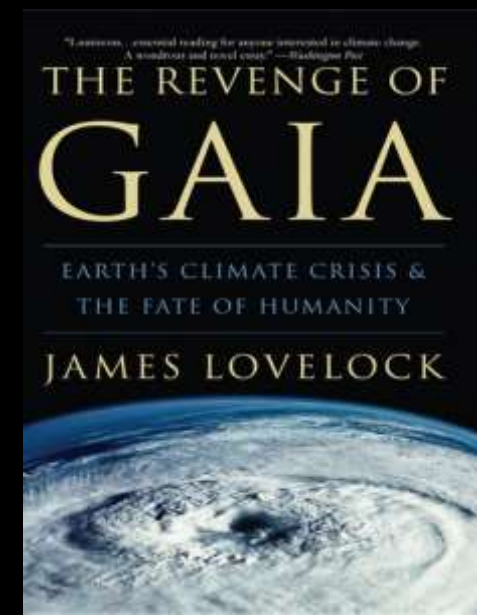
## Sustainable Retreat

Lovelock thinks the time is past for sustainable development, and that we have come to a time when development is no longer sustainable. Therefore, we need to retreat.

Lovelock - “Retreat means it's time to start talking about changing where we live and how we get our food; about making plans for the migration of millions of people from low-lying regions like Bangladesh into Europe; about admitting that New Orleans is a goner and moving the people to cities better positioned for the future. Most of all, it's about everybody 'absolutely doing their utmost to sustain civilization, so that it doesn't degenerate into Dark Ages, with warlords running things, which is a real danger. We could lose everything that way.”

Margulis – “Life is a planetary level phenomenon and the Earth has been alive for at least 3000 million years. To me the human move to take responsibility for the living Earth is laughable - the rhetoric of the powerless. The planet takes care of us, not we of it. Our self inflated moral imperative to guide a wayward Earth or heal a sick planet is evidence of our immense capacity for self-delusion.

Rather, we need to protect us from ourselves.”





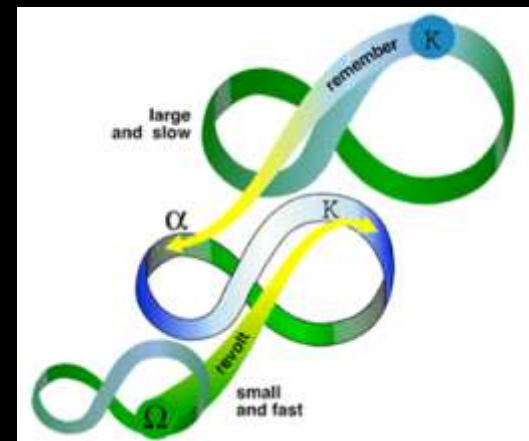
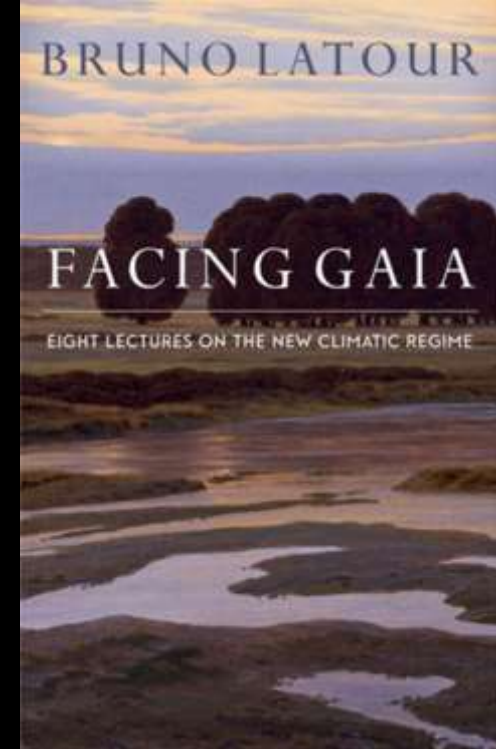
## Nature as a verb – Bruno Latour and a new Philosophy of Nature

“Contrary to the old nature, Gaia does not play either the role of inert object that could be appropriated or the role of a higher arbiter on which, in the end, one could rely. It was old Nature that could serve as a general framework for our actions even as She remained *indifferent* to our fate... Gaia is no longer *indifferent* to our actions...Gaia can treat us as enemies. We can respond in kind.”

“That’s what the Anthropocene is all about. It is not that, suddenly, the tiny human mind should be transported into a global sphere that would, anyway, be much too big for his or her tiny scale. It is instead that we have to weave ourselves, to cocoon ourselves within a great many loops so that progressively, thread after thread, the knowledge of where we reside and on what we depend for our atmospheric condition can gain greater relevance and feel more urgent.

This slow operation of being wrapped in successive looping strips is what it means to be ‘of this Earth.’ And it has nothing to do with being human-in-nature or human-on-a-globe.

It is rather a slow and painful progressive merging of cognitive, emotional and aesthetic virtues because of the ways the loops are rendered more and more visible through instruments and art forms of all sorts. Through each loop we becomes more sensitive and more responsive to the fragile envelopes we inhabit.”



# The Ethics of Pastoral Nature - Kindly Use and Responsiveness

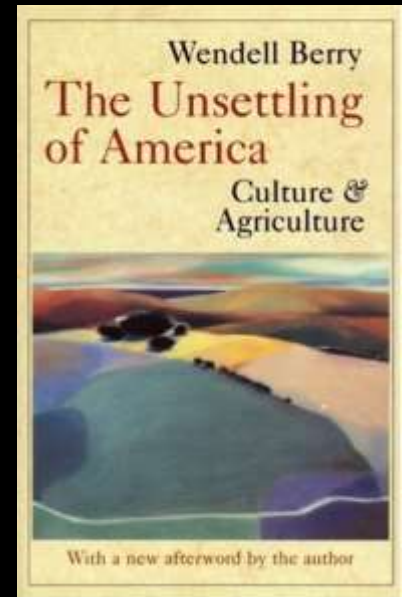
## The Virtue Ethics of Wendell Berry

“But we cannot hope – for reasons practical and humane, we cannot even wish – to preserve more than a small portion of the land in wilderness. Most of it we will have to use.”

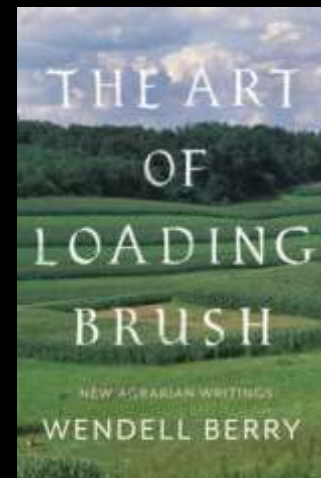
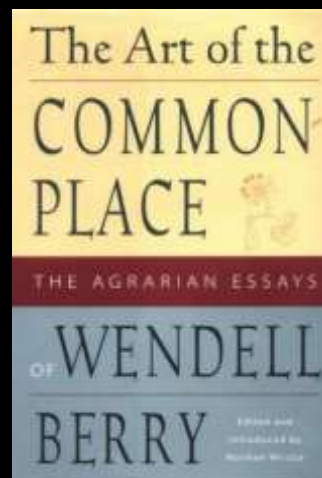
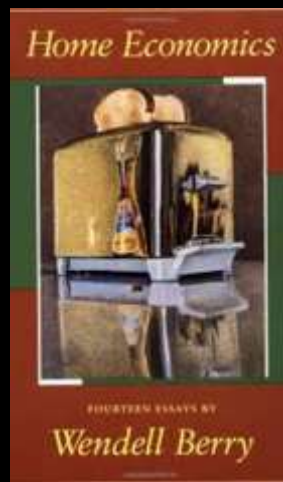
The conservation movement swings from self-righteous outrage to self-deprecation because it has neglected this issue. Its self-contradictions can only be reconciled – and the conservation impulse made to function as ubiquitously and variously as it needs to – by understanding, imagining, and living out the possibility of ‘kindly use’...”

## New Land Ethic – Kindly Use

“Kindly use depends upon intimate knowledge, the most sensitive responsiveness and responsibility...the understanding of kindly use in agriculture must encompass both farm and household...”



1977



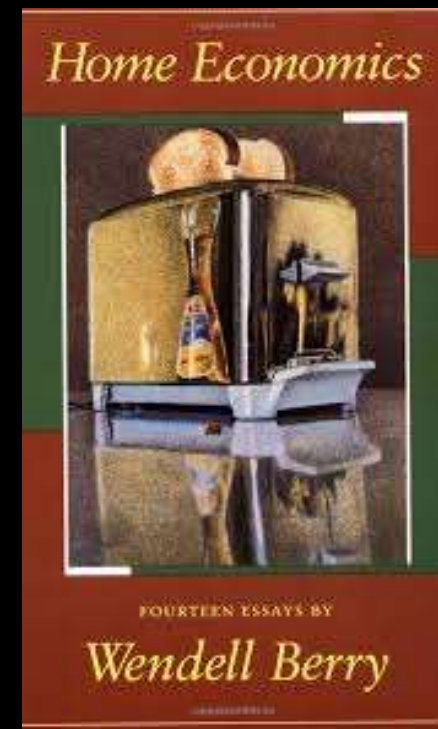
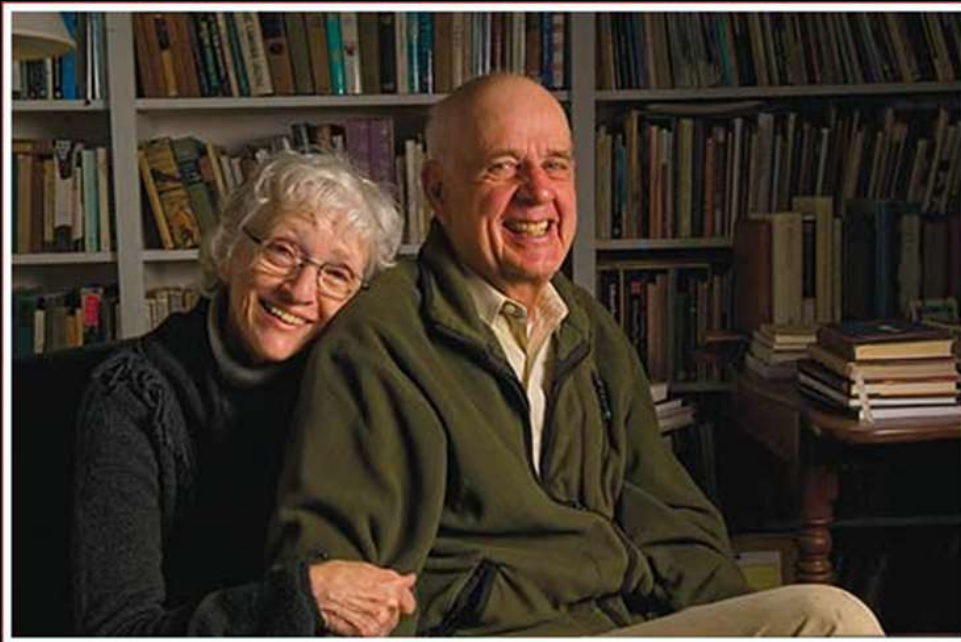
## New Narrative of Nature – Interdependence

“Getting Along with Nature” *Home Economics* 1987

“I would argue that we do not need just the great public wildernesses, but millions of small private or semiprivate ones. Every farm should have one; wildernesses can occupy corners of factory grounds and city lots – places where nature is given a free hand, where no human work is done, where people go only as guests.

What I am aiming at – because a lot of evidence seems to point this way – is the probability that nature and human culture, wildness and domesticity, are not opposed but are interdependent.

Authentic experience of either will reveal the need of one for the other. In fact, examples from both past and present prove that a human economy and wildness can exist together not only in compatibility but to their mutual benefit.”





# Nature – Nonetheless Our Mother

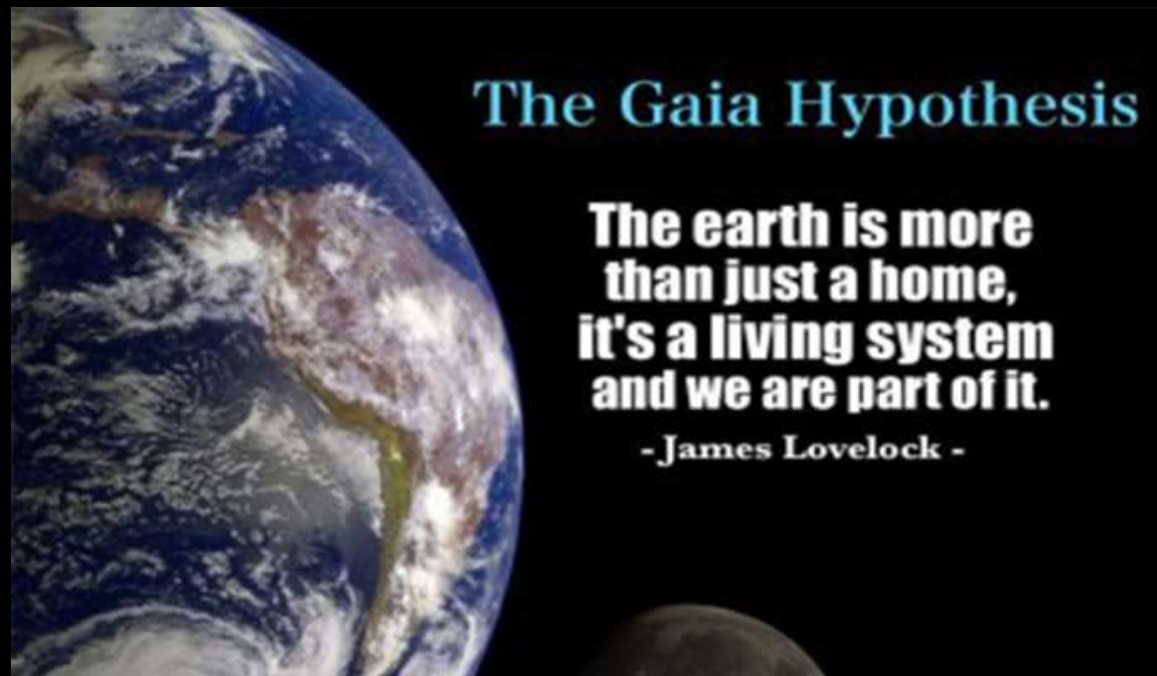
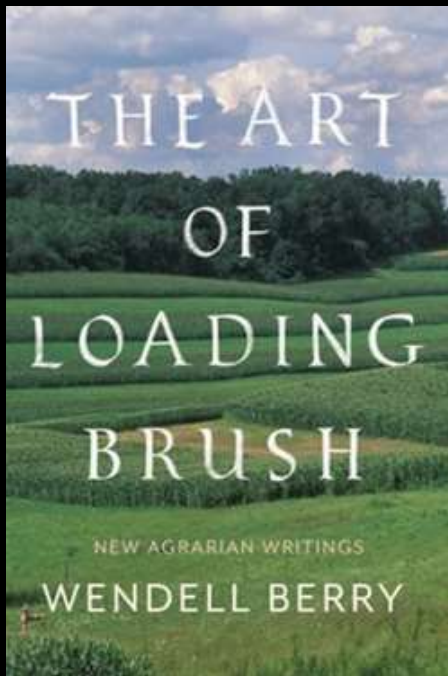
Wendell Berry and Gaia

“As many hunters, farmers, ecologists, and poets have understood, Nature (and here we capitalize her name) is the impartial mother of all creatures, unpredictable, never entirely revealed, not my mother or your mother, but nonetheless our mother.

If we are observant and respectful of her, she gives good instruction.

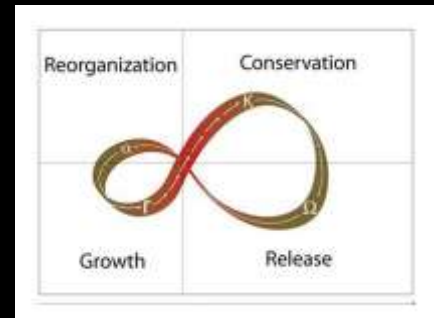
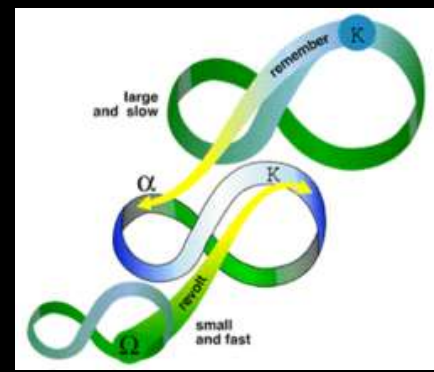
...If we ignore or offend her, she enforces her will with punishment.

She is always trying to tell us that we are not so superior or independent or alone or autonomous as we may think.”



# The Concepts of Nature

- Apply to Parts of Whole, but Not the Whole
- True but Incomplete
- Retrospective, Historical Naturalness
- Prospective? Future? Change?



Resilient Nature

Wilderness



Pastoral



Urban Nature

