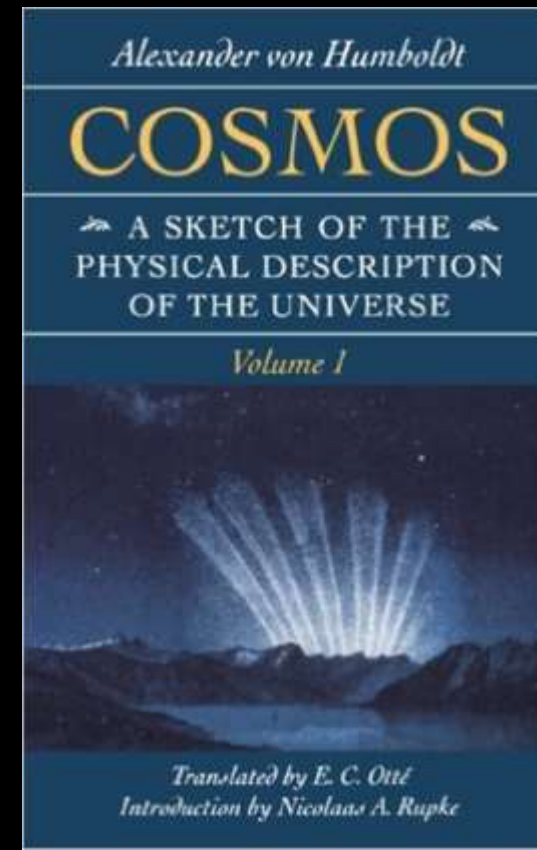
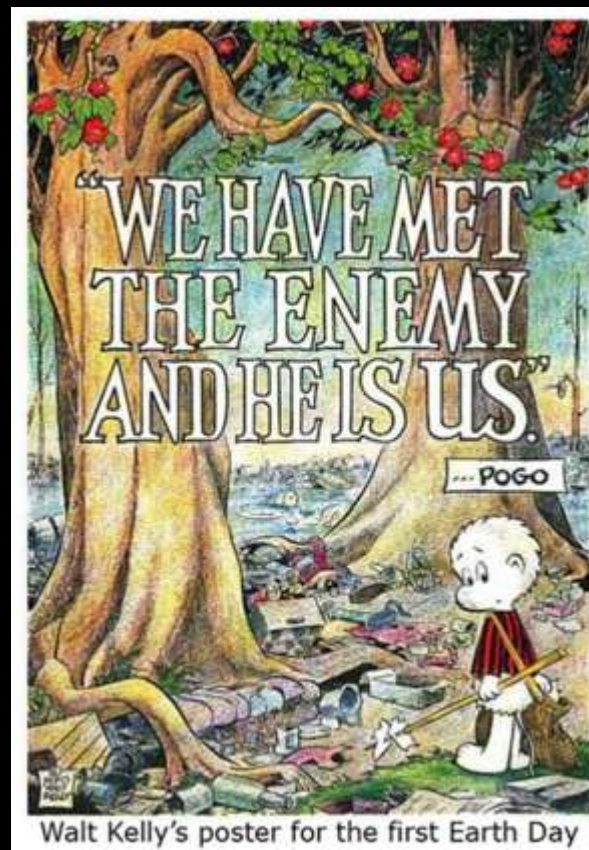
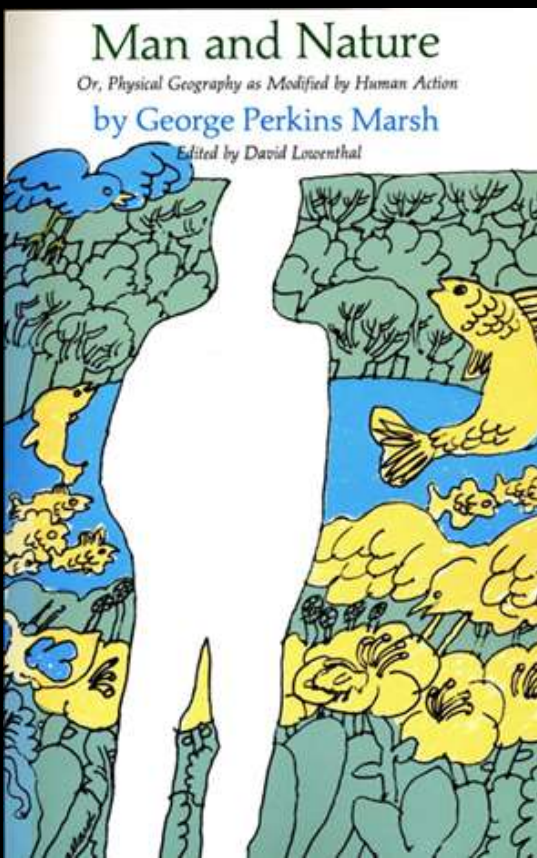




The Great Disruptors: Physical Geography as Modified by Human Action

Kevin M. Anderson Ph.D.

Austin Water Center for Environmental Research





Alexander von Humboldt's American expedition 1799-1804

- Expedition way
- City / Stopping place
- Spanish Viceroy's and United States

I With the spanish corvette "Pizarro" from La Coruña over the Canary Islands to Cumaná

II 75-days journey with Bonpland, on the Orinoco and the Rio Negro

III With the ship from Nueva Barcelona to Havana, 3-month sojourn on Cuba, over Trinidad to Cartagena

IV Through today's Colombia, Ecuador and Peru to Lima

V From Guayaquil to Acapulco, longer sojourn in Mexico-City and back to Havana over Veracruz

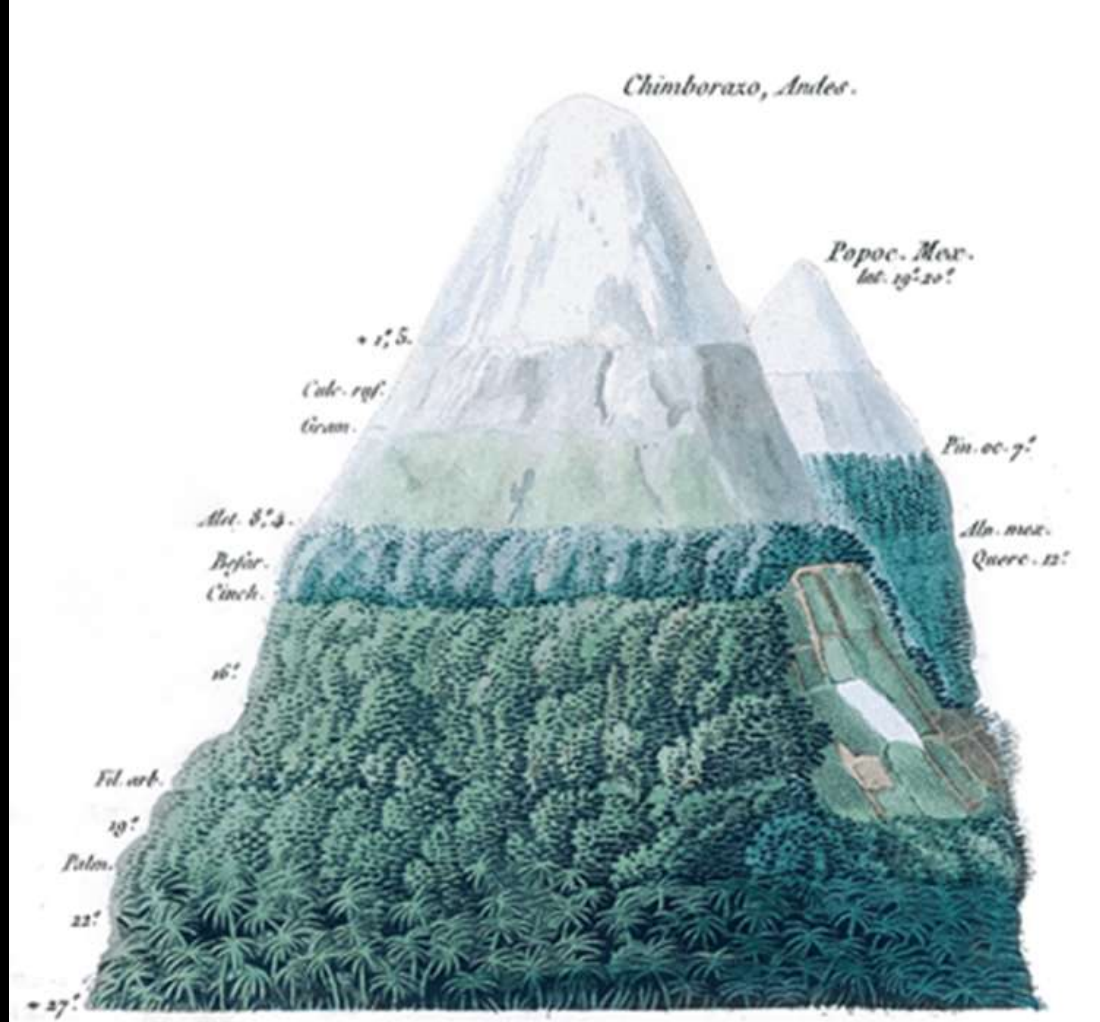
VI With the cargo ship "Concepción" to Philadelphia, Washington, with the french Frigate "La Favorite" to Bordeaux



Alexander von Humboldt von Auguste Desnoyers/Foto: T. Rooks

The Unity of Nature

“I shall try to find out how the forces of nature interact upon one another and how the geographic environment influences plant and animal life. In other words, I must find out about the unity of nature.”

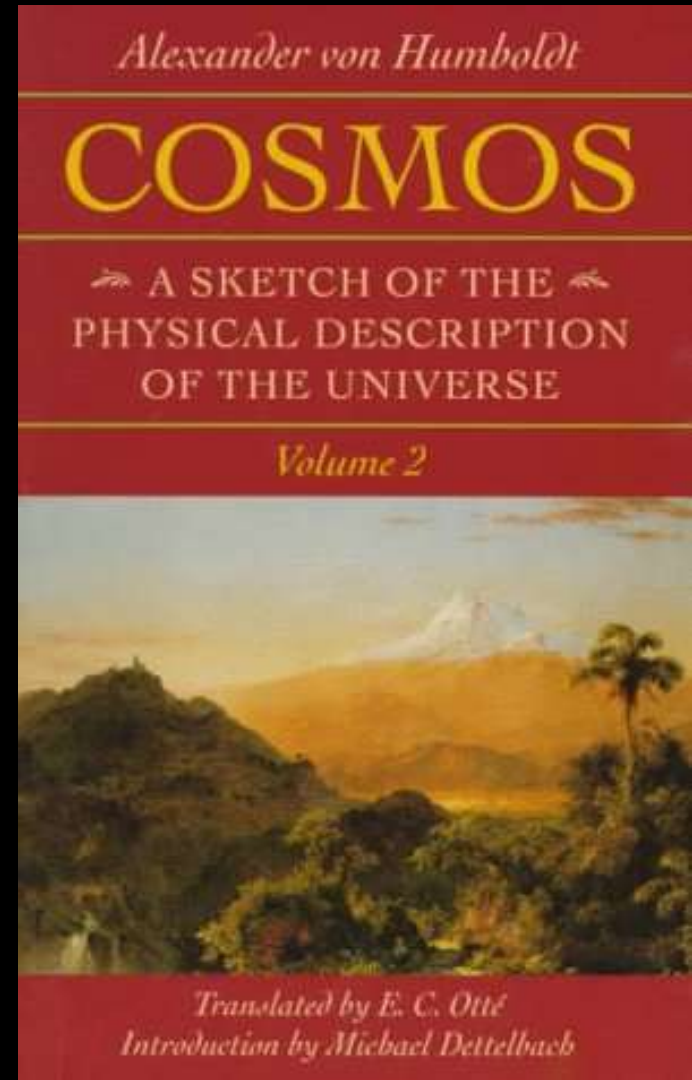
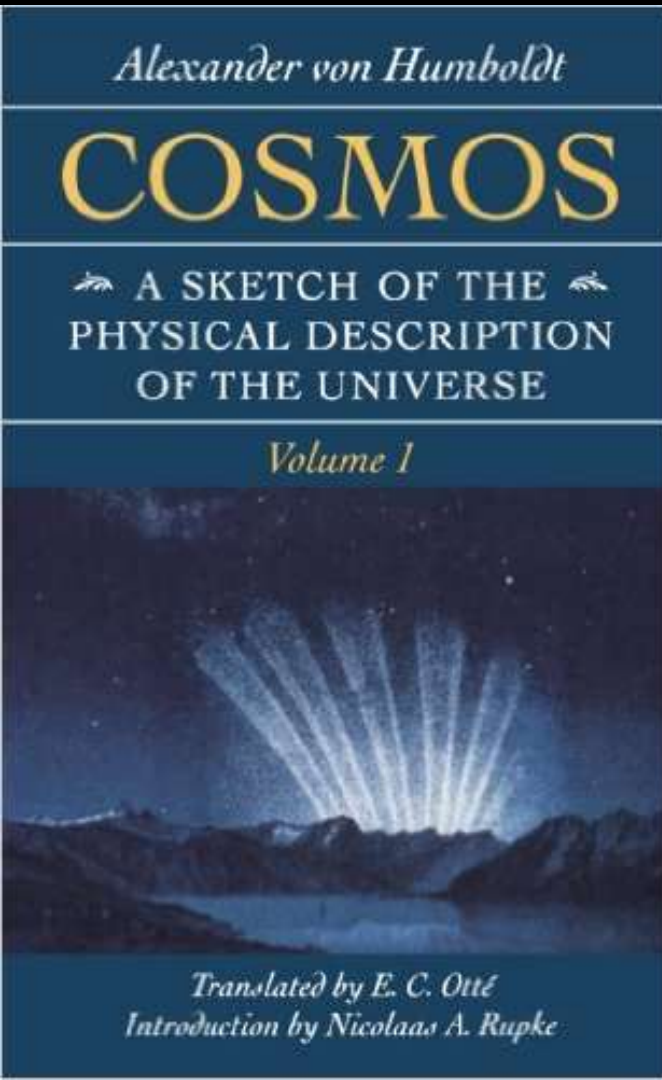


Humboldtian Science

“the accurate measured study of widespread but interconnected real phenomena in order to find a definite law and a dynamic cause”

Cosmos: A Sketch of the Physical Description of the Universe

“The aspect of external nature, as it presents itself in its generality to thoughtful contemplation, is that of unity in diversity, and of connection, resemblance and order, among created things most dissimilar in their form; — one fair harmonious whole.”



Humboldt the Atheistical?

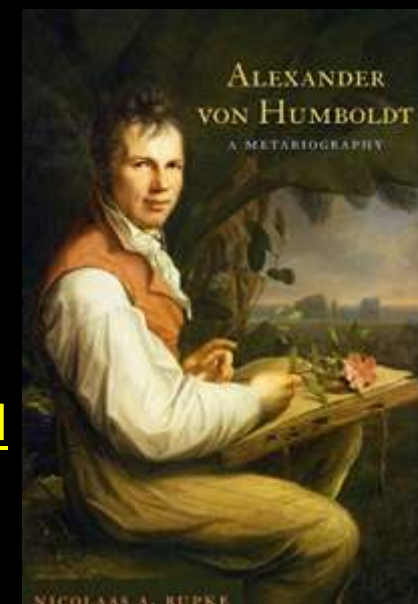
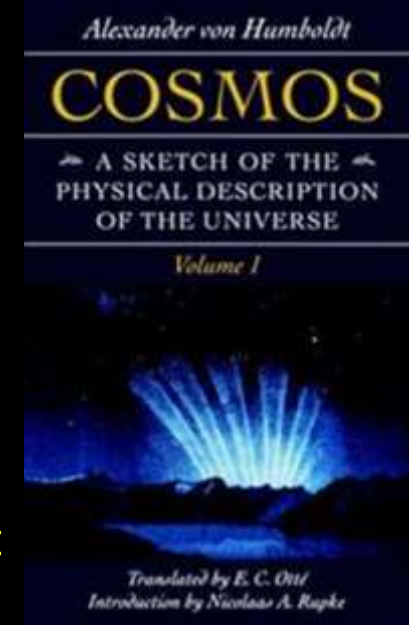
His emphasis on the “unity in diversity of nature” and “harmony” often has been misinterpreted as reflecting a kind of Deism. Cosmos was much criticised for its omission of God, and attempts were made to "domesticate" Humboldt's book for local audiences by connecting it to the argument from design.

- *Westminster Review* on Humboldt's *Cosmos* 1846 - “a sketch of the universe in which the word ‘God’ appears nowhere, but the spirit of God is supposed everywhere, will perhaps be regarded as dangerously Atheistical by the stickler for The Word.”

Nicholas Rupke - “The physical description of the universe, Humboldt insisted, leads up to a picture of harmony and unity; but, as Immanuel Kant had argued a century or so before, "all higher speculative views" lie outside the realm of scientific study.

Humboldt's narrative of Nature was a consciously secular one and omitted all rhetoric of the divine.”

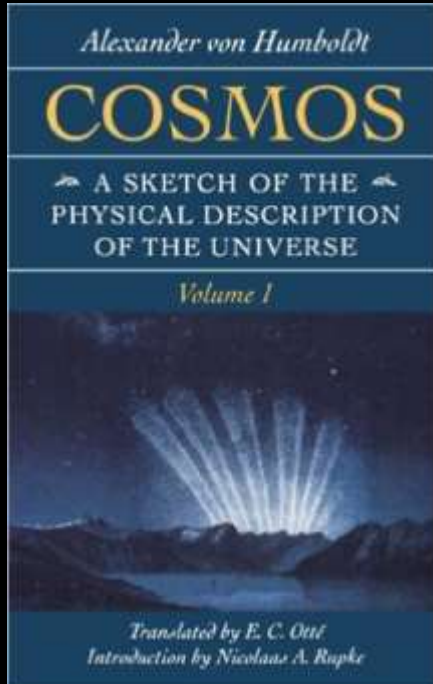
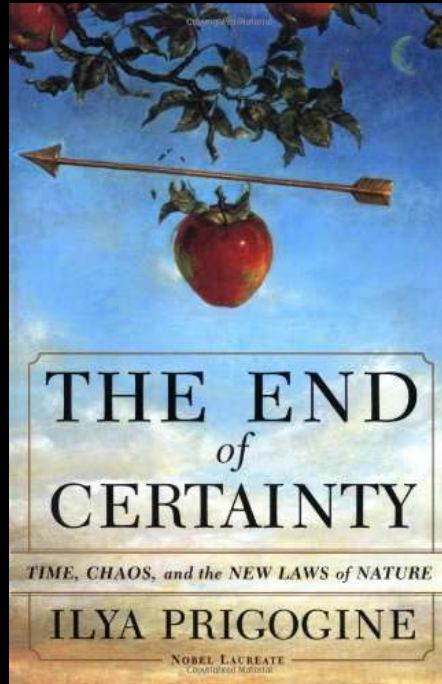
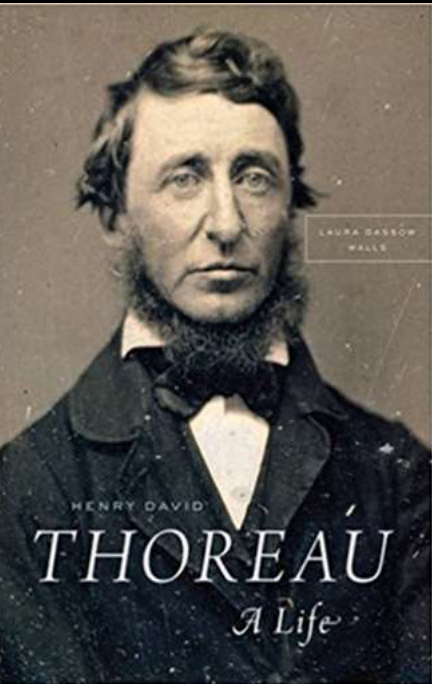
- Humboldt – “All religions have three distinct parts – First, a code of morals, very pure and nearly the same in all, next, a geological dream (Creation story) and thirdly, a myth or historical novelette - which last becomes the most important of all.”



Humanity's Limitations in Comprehending The Cosmos

“The attempt perfectly to represent unity in diversity must ...necessarily prove unsuccessful...If nature be illimitable in extent and contents, it likewise presents itself to the human intellect as a problem which cannot be grasped, and whose solution is impossible.”

The Universe is wider than our views of it.
- Henry David Thoreau

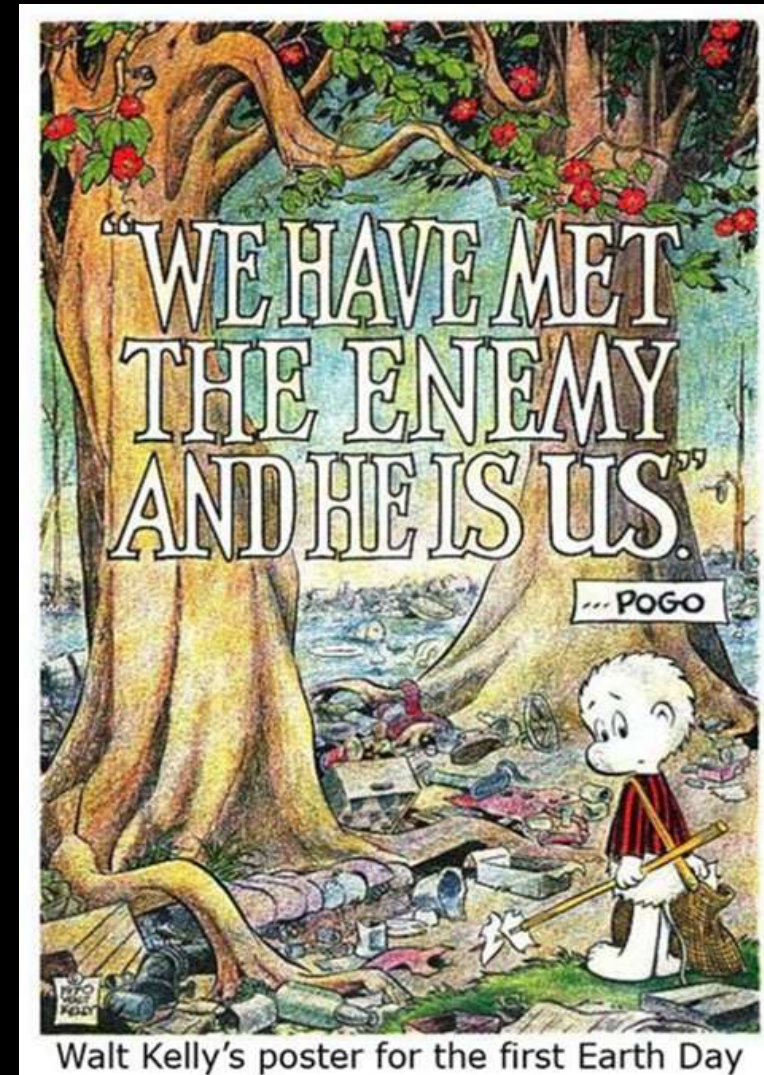


Humboldtian Environmentalism and the Tapestry of Nature

Humboldt recognized a connection between healthy landscapes and water supplies during his time in America. Humboldt saw this particularly in the plantations around Lake Valencia in northern Venezuela. The felling of trees by settlers did more than just denude the landscape.

“When forests are destroyed, the springs are entirely dried up,” he wrote. “The beds of the rivers are converted into torrents whenever great rains fall on the heights...They furrow during heavy showers the sides of the hills, bear down the loosened soil, and form those sudden inundations that devastate the country.”

“In this great chain of causes and effects, no single fact can be considered in isolation.”



Walt Kelly's poster for the first Earth Day

Pull one thread and the whole tapestry might unravel. Nature's strands are intimately woven, but humankind can undo them.

The Second Great Journey - Russia: The 1829 Expedition

In April 1829, Humboldt was invited to Russia to consult about the new metal called platinum discovered in the Ural Mountains and found an opportunity to realize his other grand dream: an expedition through Central Asia.

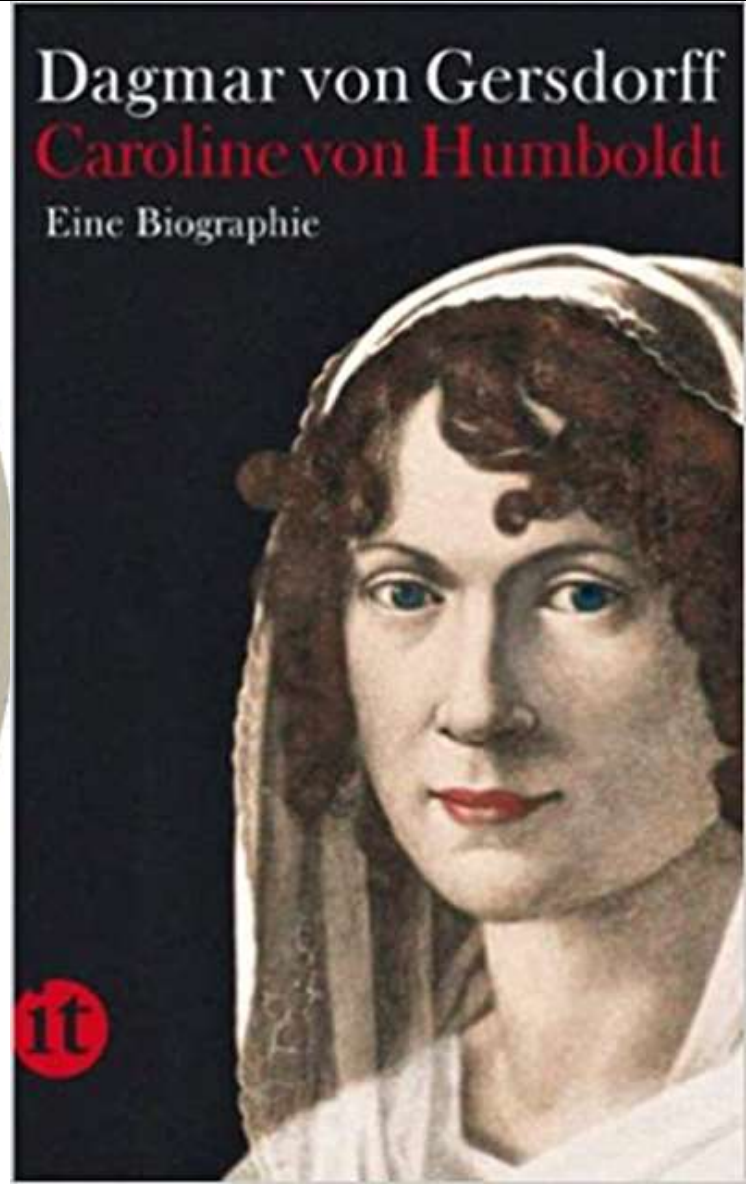
Knowing that diamonds were often found with gold and platinum deposits, Humboldt predicted that diamonds would be found there, too, and the Russian Government offered to fully fund his expedition to the Urals. Humboldt would push past the Urals to reach the border of China.



Humboldt's carriage speeding through Russia

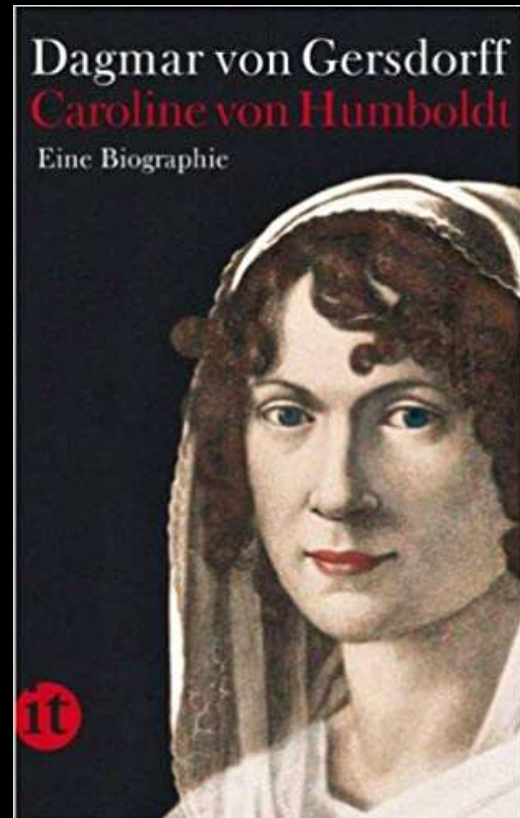


In 1829, Caroline dies at the age of 63.



The Humboldt Brothers – The Spirit of Europe

<https://explore.psl.eu/en/discover/virtual-exhibits/humboldt-brothers-spirit-europe>



Humboldt in Russia - April - November 1829

In a whirlwind of about six months' duration, the party covered approximately 9,700 miles, passed through 658 post-stations, and used more than 12,000 post-horses!



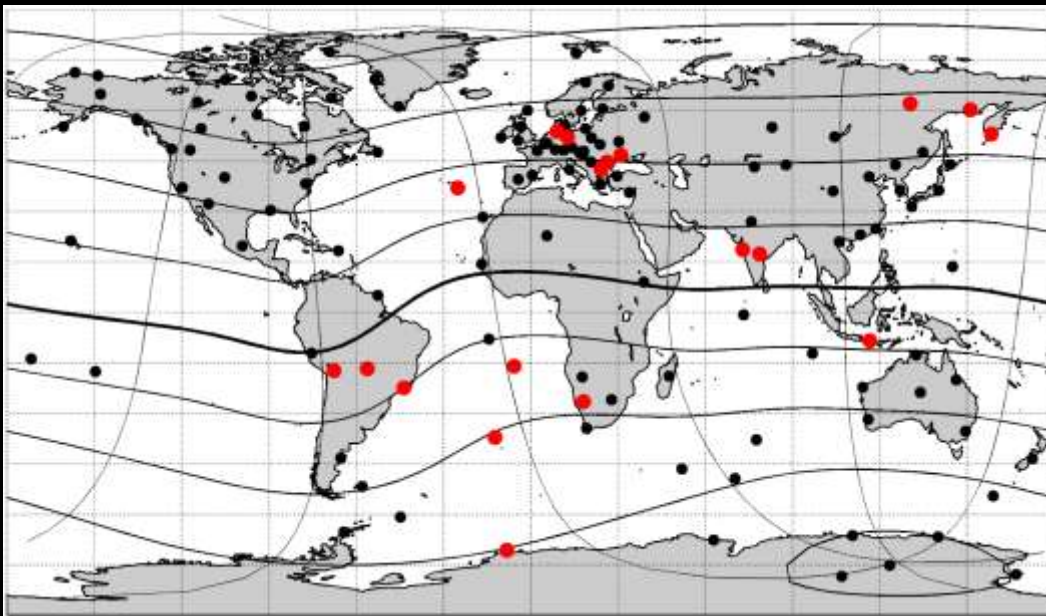
Humboldt's Itinerary 1829

Humboldtian Science – Global Network for Earth Science

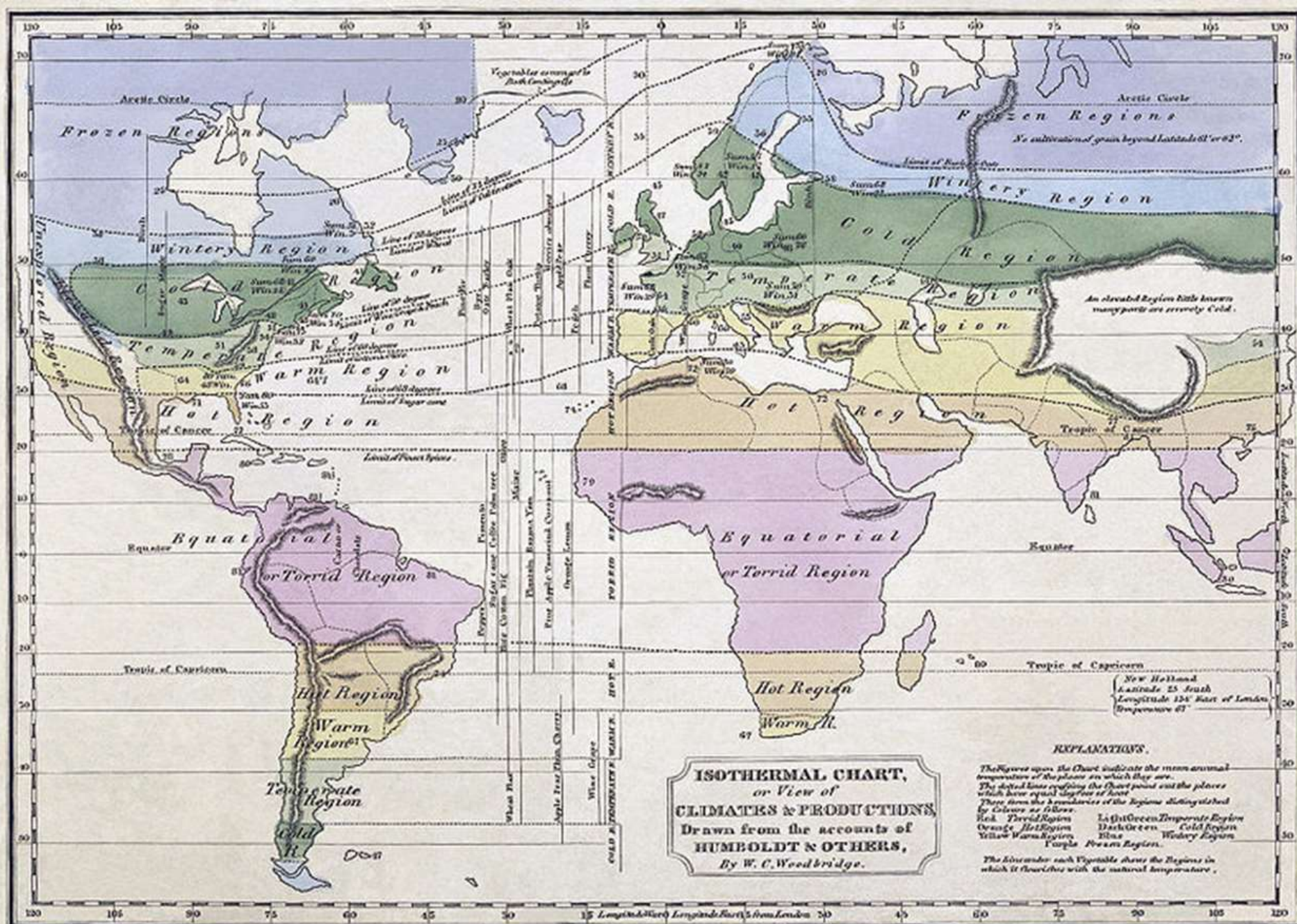
Back in St. Petersburg by November 1829, Humboldt gives a speech for the Russian Imperial Academy of Sciences, in which he urged the establishing a chain of geomagnetic and weather observation stations across the Russian Empire linking with a network around the globe.

The Czar agreed, creating stations from St. Petersburg to Alaska. These connected to stations in the US and Europe, and by 1839 the British had built them across the British Empire. Humboldt's dream was fulfilled as the observation stations collected geomagnetic and climate data on a global scale.

In the same speech, he urged climate study to understand the effects of the destruction of forests on climate which he first described in South America on his first great journey.



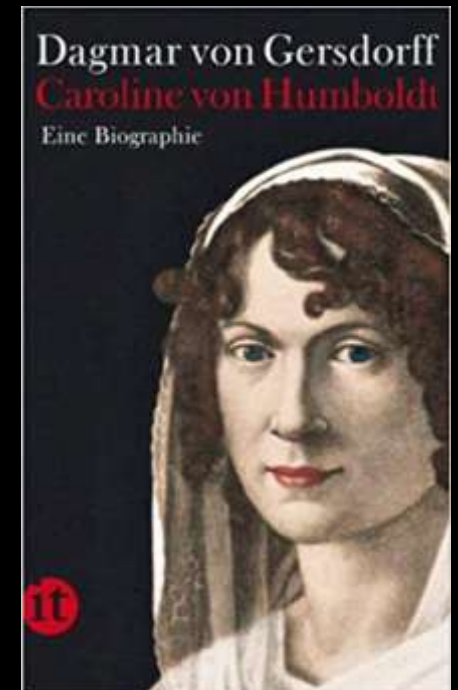
Understanding the interconnections of phenomena



Revised according to the observations of the 45th day of January 1830 by William C. Woodbridge of the State of Connecticut.

Wilhelm von Humboldt (1767–1835)

- With his eyesight failing, he lived another six years after Caroline's death in relative seclusion and dies at the age of 68 in 1835 at Tegel.
- Wilhelm died while preparing a final book on the ancient Kawi language of Java, but its introduction was published in 1836 as *The Heterogeneity of Language and its Influence on the Intellectual Development of Mankind*.
- Alexander will live another 34 years...



Humboldt –

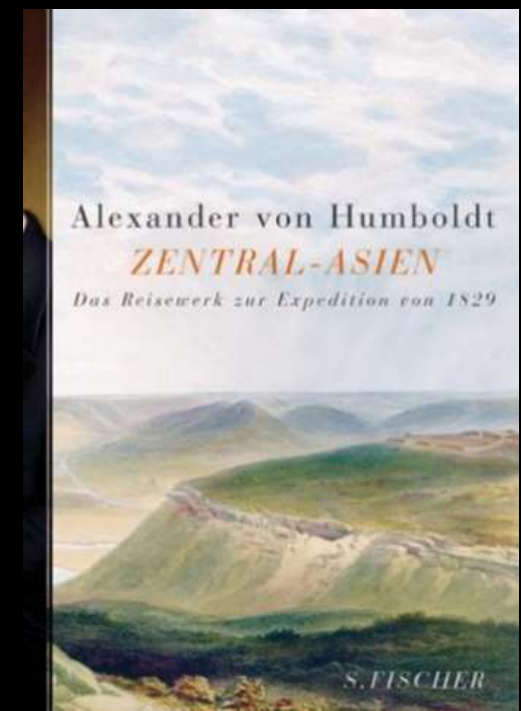
Human Impacts on the Environment and Earth Science

In his book about his Russian journey, *Central Asia (1843)*, Humboldt listed three ways in which the human species was even then affecting the climate:

1. Through the destruction of forests
2. Through the distribution of water for agriculture and urban development (irrigation, drainage, and supply)
3. Through the production of great masses of steam and gas at the industrial centers (human induced climate change)

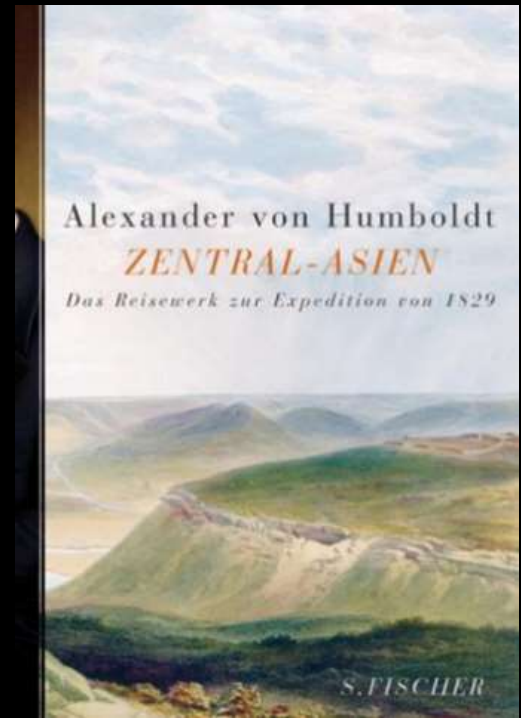
“The wants and restless activity of large communities of men gradually despoil the face of the Earth.”

Humboldt said it was the duty of scientists to examine the changeable elements in the “economy of nature” to understand human impacts.



Humboldt Environmentalism

- Humans are part of nature
- Nature/Cosmos is bigger than us
- Most human impacts are unintended consequences (consequences of ignorance)
- The limits of human understanding of nature should encourage caution
- Science can help solve problems of natural resource management



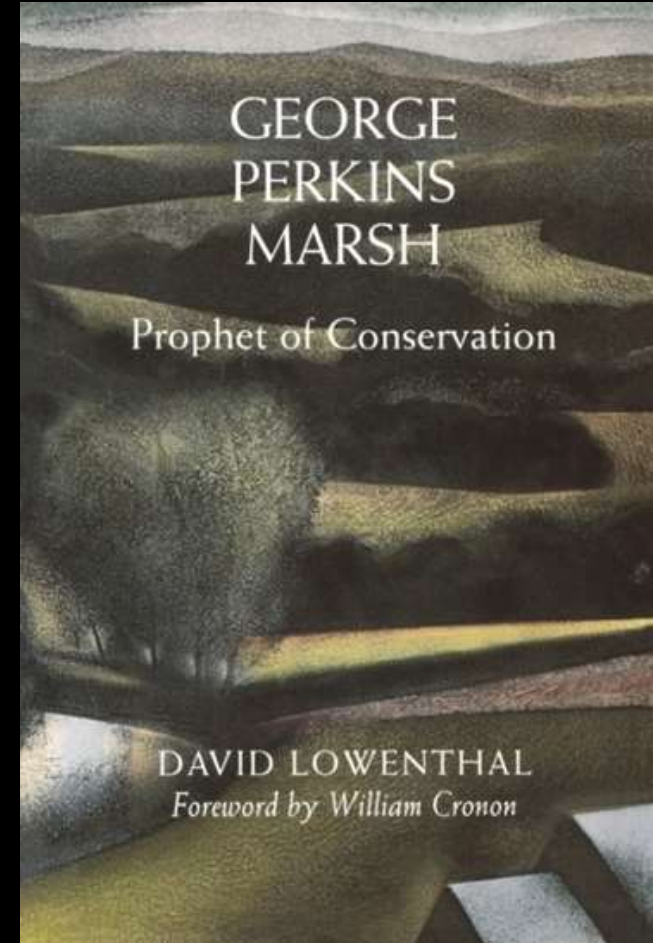
The Birth of Humboldtian Environmentalism

George Perkins Marsh

“One fair harmonious whole”

"Man is everywhere a disturbing agent.

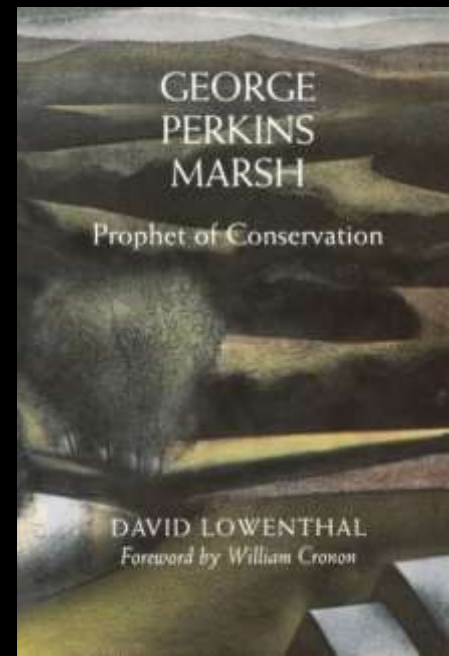
Wherever he plants his foot, the harmonies of nature are turned to discord"



George Perkins Marsh (1801 – 1882)

American politician, diplomat, and philologist

- Greatly influenced by reading Humboldt to observe and compare Old World and New World environmental change.
- Humboldt was the “greatest of the priesthood of nature”
- Marsh was born in Vermont, educated at Dartmouth College and taught Greek and Latin before becoming a lawyer and moving to Burlington, Vermont.
- In 1839, he was elected to the U.S. House of Representatives and went to Washington, where he was a key figure in the establishment of the Smithsonian Institution.
- Most known in his lifetime as a philologist. Knew 20 languages and wrote a history of the English language, championed Norse sagas.
- Marsh began the diplomatic phase of his career in 1849, when he was appointed to serve as the Minister to the Court at Constantinople.
- In 1861, Lincoln appointed him as ambassador to the Kingdom of Italy and he spent the rest of his life as ambassador in Italy.



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

Published in 1864

Wallace Stegner "the rudest kick in the face that American initiative, optimism and carelessness had yet received."

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



Three Key Humboldtian Insights from Marsh

– Destruction and Reclamation

1. Unintended Consequences

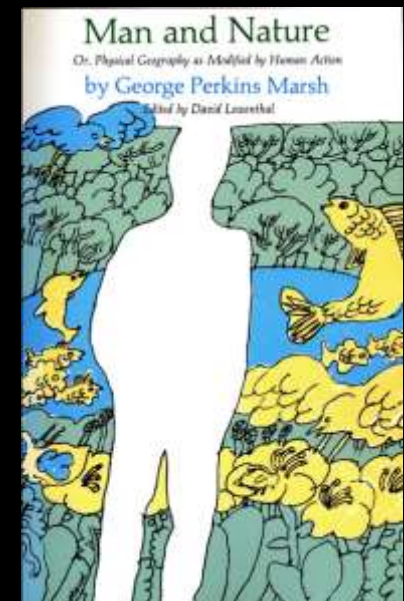
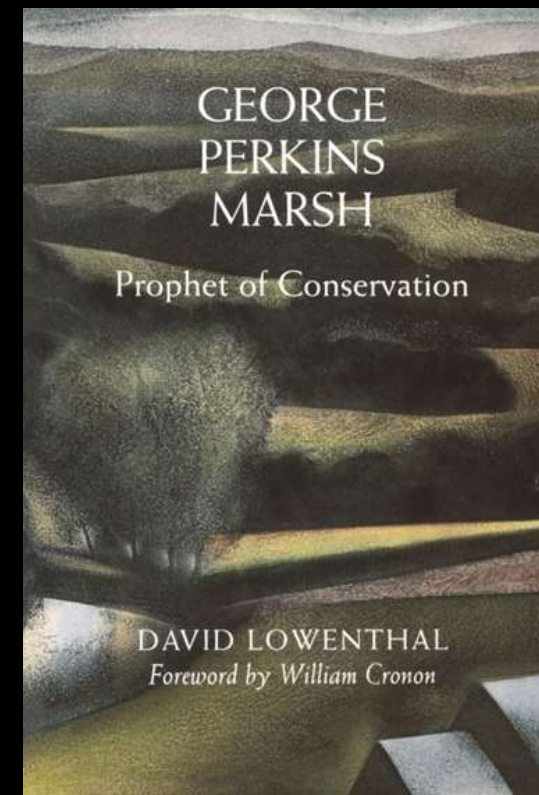
Most human impacts are unintentional. “Vast as is the . . . magnitude and importance [of] intentional changes”, they are “insignificant in comparison with the contingent and unsought results which have flowed from them”.

2. Complexity of Nature

“The equation of animal and vegetable life is too complicated a problem for human intelligence to solve, and we can never know how wide a circle of disturbance we produce in the harmonies of nature when we throw the smallest pebble into the ocean of organic life.”

2. Commitment to the Future - Increase Nature’s Usefulness

The whole force of *Man and Nature* lies in its assumption that the welfare of future generations transcended immediate gains. Americans who disdained to practice a better husbandry for themselves should feel morally obliged to do so for their offspring.



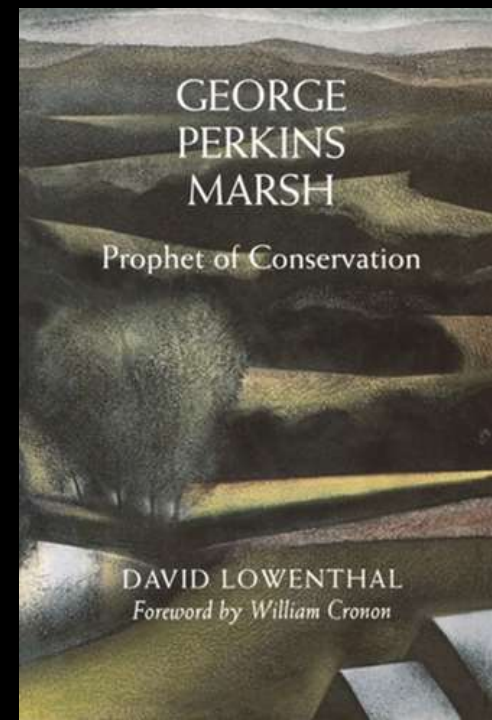
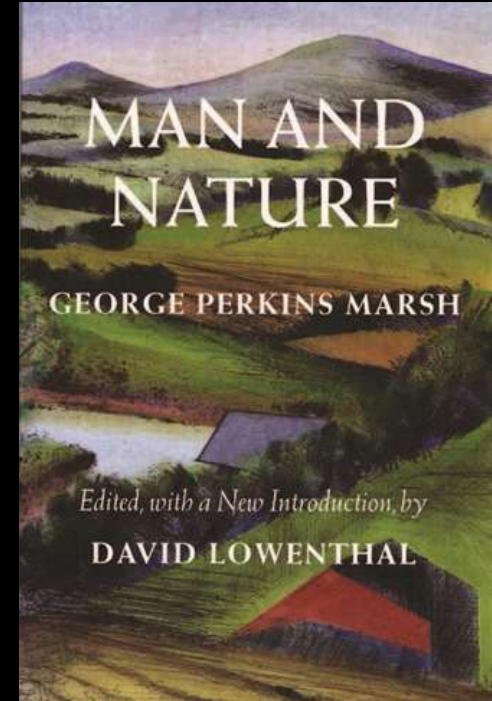
The Prophet of American Nature Conservation

1. Finite World "...Man, who even now finds scarce breathing room on this vast globe, cannot retire from the Old World to some yet undiscovered continent, and wait for the slow action of such causes to replace, by a new creation, the Eden he has wasted"

2. Usufruct "Man has too long forgotten that the earth was given to him for usufruct alone, not for consumption, still less for profligate waste. Nature has provided against the absolute destruction of any of her elementary matter... But she has left it within the power of man irreparably to derange the combinations of inorganic matter and of organic life."

- Non-Humboldtian Christian Environmental Ethic
- Marsh reframes Humboldt through Christian doctrine and a Biblical interpretation of usufruct
- Intergenerational obligation enforced by God - "The Earth belongs in usufruct to the living" Thomas Jefferson [Wendell Berry – Christian Agrarianism]

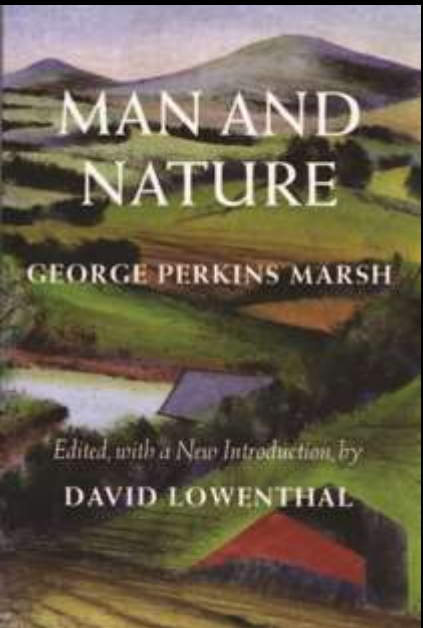
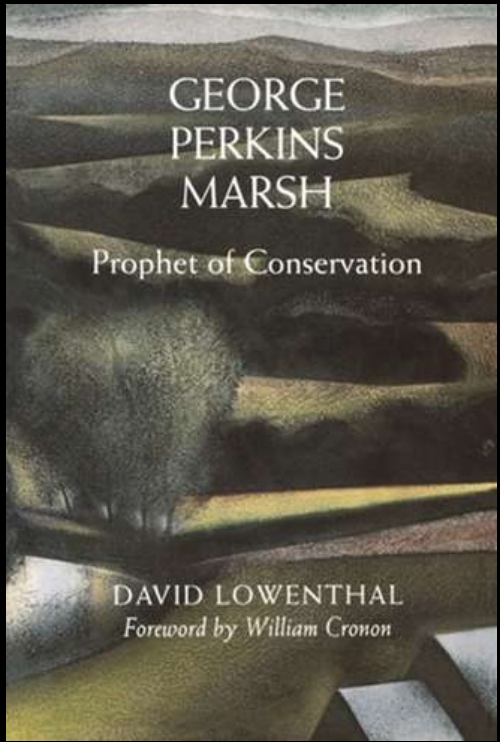
3. Utilitarian – Increase Nature's Usefulness through Science



Father of American Forest Conservation

“If the present value of timber and land will not justify the artificial re-planting of grounds injudiciously cleared, at least nature ought to be allowed to reclothe them with a spontaneous growth of wood, and in our future husbandry a more careful selection should be made of land for permanent improvement.”

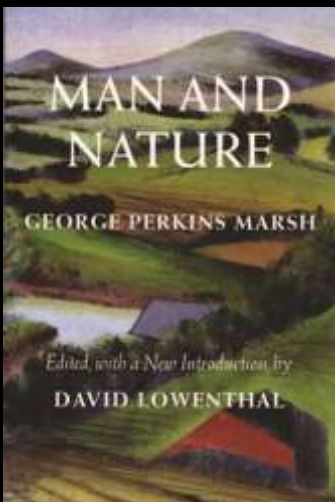
It has long been a practice in many parts of Europe, as well as in our older settlements, to cut the forests reserved for timber and fuel at stated intervals. It is quite time that this practice should be introduced among us.”



Father of American Forest Conservation

George Perkins Marsh (1801 – 1882) *Man and Nature* published 1864

- 1876 - The Office of Special Agent for forest research is created in the Department of Agriculture to assess the state of the forests in the United States.
- 1881 - The Office of the Special Agent is expanded into the newly formed Division of Forestry.
- 1891 - The Forest Reserve Act of 1891 authorizes withdrawing land from the public domain as "forest reserves," managed by the Department of the Interior.
- 1901 - The Division of Forestry is renamed the Bureau of Forestry.
- 1905 - The Transfer Act of 1905 transfers the management of forest reserves from the General Land Office (within the Department of the Interior) to the Bureau of Forestry (within the Department of Agriculture). The name of the agency changes to the Forest Service.



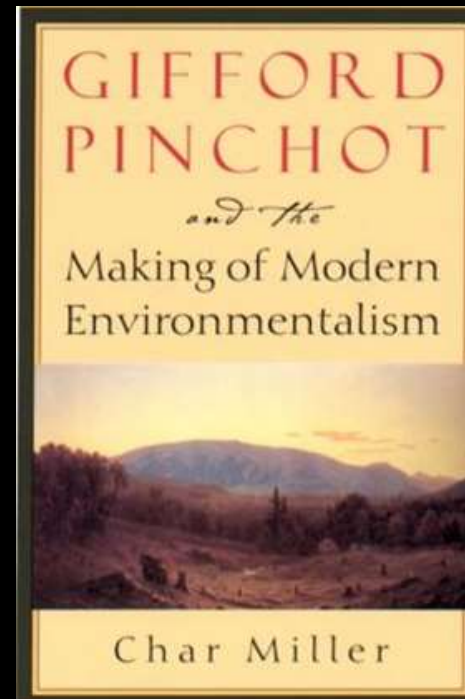
The First Conservationist – Gifford Pinchot

Scientific Forestry and Natural Resource Conservation

- Receives George Perkins Marsh's *Man and Nature* as a gift from his parents on his 21st birthday 1886
- Pinchot graduated from Yale in 1889 and studied at the National Forestry School in Nancy, France, and in Switzerland, Germany, and Austria.
- Upon his return home in 1892, he began the first systematic forestry work in the United States at Biltmore, the estate of George W. Vanderbilt, in North Carolina.
- He and his father founded the Yale School of Forestry at New Haven, Conn., as well as the Yale Summer School of Forestry at Milford, Pa., and in 1903 became professor of forestry at Yale.



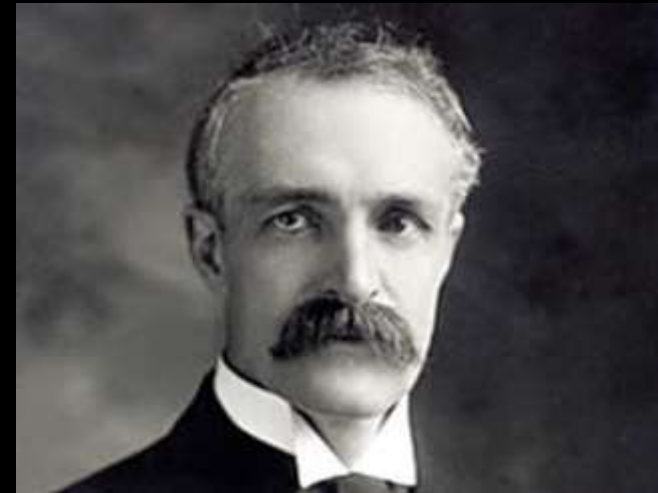
Gifford Pinchot
1865 - 1946
The First
Conservationist



Politics and Forests

Gifford Pinchot (1865 – 1946)

- In 1898 he was appointed chief of the Division, later Bureau, of Forestry and then the Forest Service (created 1905) in the Department of Agriculture, which office he held under Presidents William McKinley, Theodore Roosevelt, and William Howard Taft, until 1910.
- Pinchot's authority was substantially undermined by the election of President William Howard Taft in 1908. Taft later dismissed Pinchot for speaking out against his policies.
- With Theodore Roosevelt, Pinchot helped to found the progressive Bull Moose Party in 1912.
- In 1920 he was appointed state forester of Pennsylvania and began a systematic administration of the forest areas of that state.
- From 1923 to 1927 and from 1931 to 1935 he was governor of Pennsylvania.

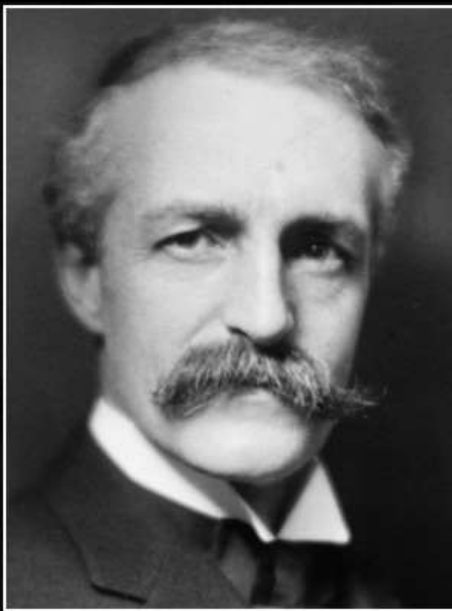


Nature Preservation vs. Natural Resource Conservation

Pinchot saw conservation as a means of scientifically managing the nation's natural resources for long-term sustainable commercial use. As a professional forester, his view was that "forestry is tree farming," without destroying the long-term viability of the forests.

"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."

Wise Use = Conservation for present and future generations



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

Preservation vs Conservation

John Muir



Gifford Pinchot



The Hetch Hetchy Debate 1908–1913

Nature Preservation vs. Natural Resource Conservation Roosevelt, Muir, and Pinchot

“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, 1907.

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



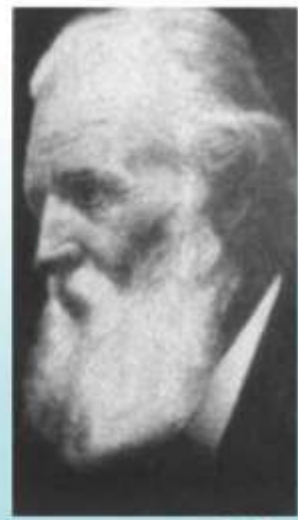
The Hetch Hetchy Debate 1908–1913

The Hetch Hetchy Valley lies in the northwestern part of Yosemite National Park and is drained by the Tuolumne River.

During the late 19th century, the valley was renowned for its natural beauty – often compared to that of Yosemite Valley – but also targeted for the development of water supply for irrigation and municipal interests.



Muir on Hetch Hetchy:
...the Phelans, Pinchots and their hirelings will not thrive forever.... These temple-destroyers, devotees of ravaging commercialism, seem to have a perfect contempt for Nature, and instead of lifting their eyes to the God of the mountains, lift them to the Almighty Dollar. Dam Hetch Hetchy! As well dam for water-tanks the people's cathedrals and churches, for no holier temple has ever been consecrated by the heart of man.



John Muir & Gifford Pinchot, ca. 1913

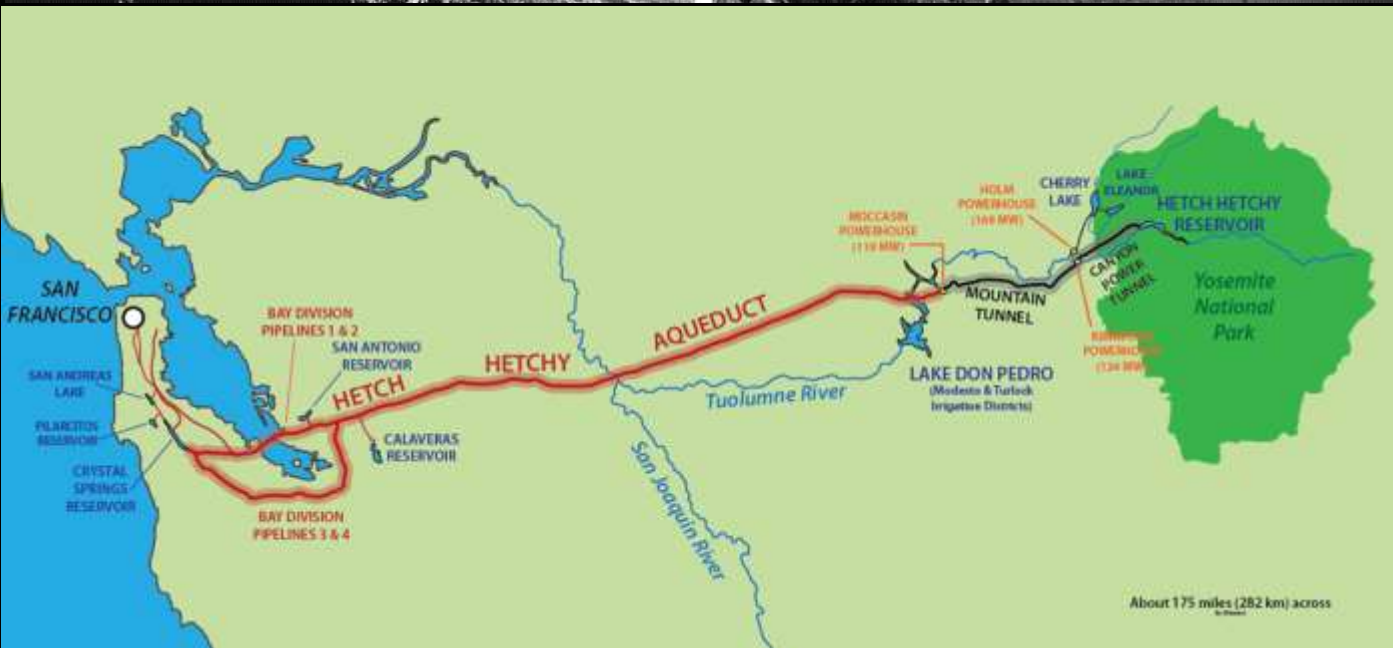
Pinchot on Hetch Hetchy:
The star witness in 1913 hearings on legislation to dam Hetch Hetchy to provide water and hydropower for San Francisco, Gifford Pinchot testified: "If we had nothing else to consider then the delight of the few men and women who would yearly go to Hetch Hetchy Valley, then it should be left in its natural condition. But the considerations on the other side of the question, to my mind, are simply overwhelming.... I never understood Muir's position on Hetch Hetchy."



In 1923, the O'Shaughnessy Dam was completed on the Tuolumne River, flooding the entire valley under the Hetch Hetchy Reservoir



DAM!
WATER, POWER,
POLITICS, AND PRESERVATION
IN HETCH HETCHY AND
YOSEMITE NATIONAL PARK
JOHN WARFIELD SIMPSON



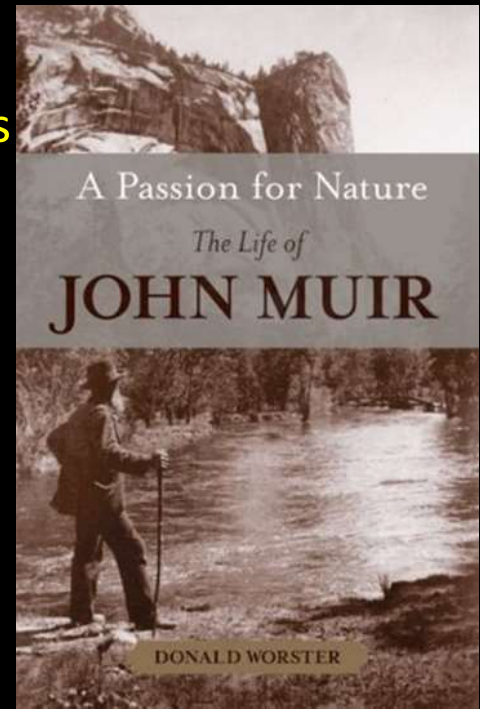
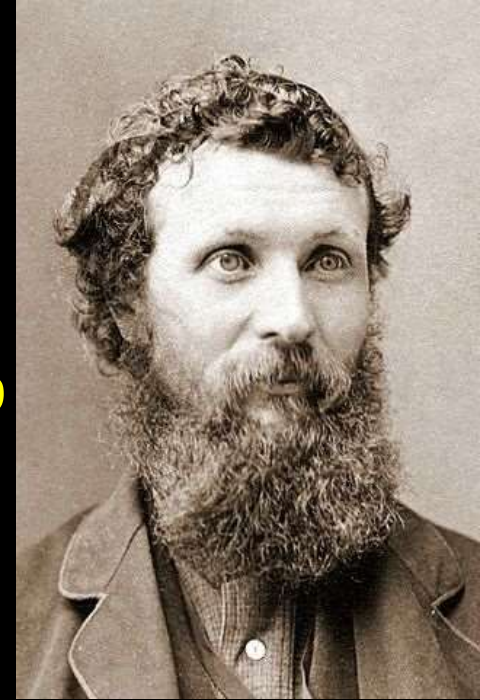
About 175 miles (282 km) across

Humboldtian Environmentalist

John Muir 1838 – 1914

"When we try to pick out anything by itself, we find it hitched to everything else in the Universe."

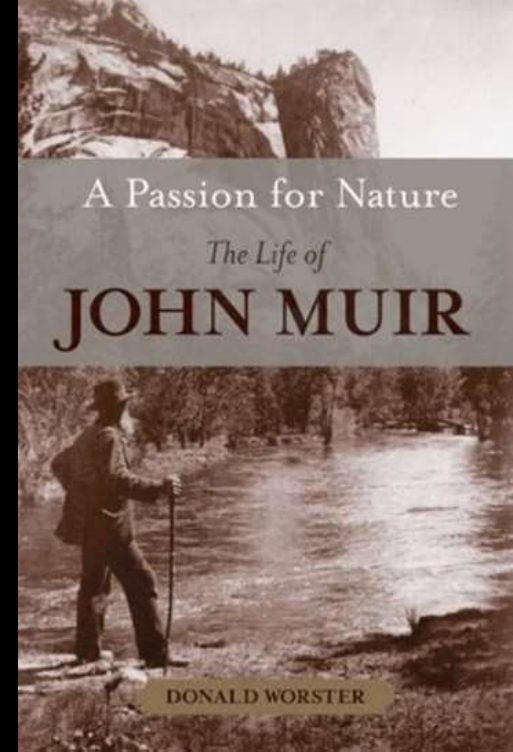
- Born in Scotland, immigrates with his parents to the US in 1849
- Grows up in Wisconsin on a farm and a “mechanical genius”
- Strict evangelical Protestant upbringing - "I never tried to abandon creeds or code of civilization; they went away of their own accord... without leaving any consciousness of loss."
- Attends University of Wisconsin 1860-63 – a bright but indifferent student – leaves without completing degree, studies geology and botany, reads Humboldt
- “How intensely I desire to be a Humboldt!” 1865



Humboldtian Environmentalist

John Muir 1838 – 1914

- Leaves for Canada 1864 with his brother Daniel and avoids the draft during the Civil War, returns 1867 to Indianapolis
- In early March 1867, an accident changed the course of his life: a tool he was using slipped and struck him in the eye.
- He was confined to a darkened room for six weeks, worried whether he would ever regain his sight.
- When he did, "he saw the world—and his purpose—in a new light".
- From that point on, he determined to "be true to [himself]" and follow his dream of exploration and study of plants.



The Humboldtian Years – 1860-1890

Tropical Quest

A Thousand Mile Walk to the Gulf

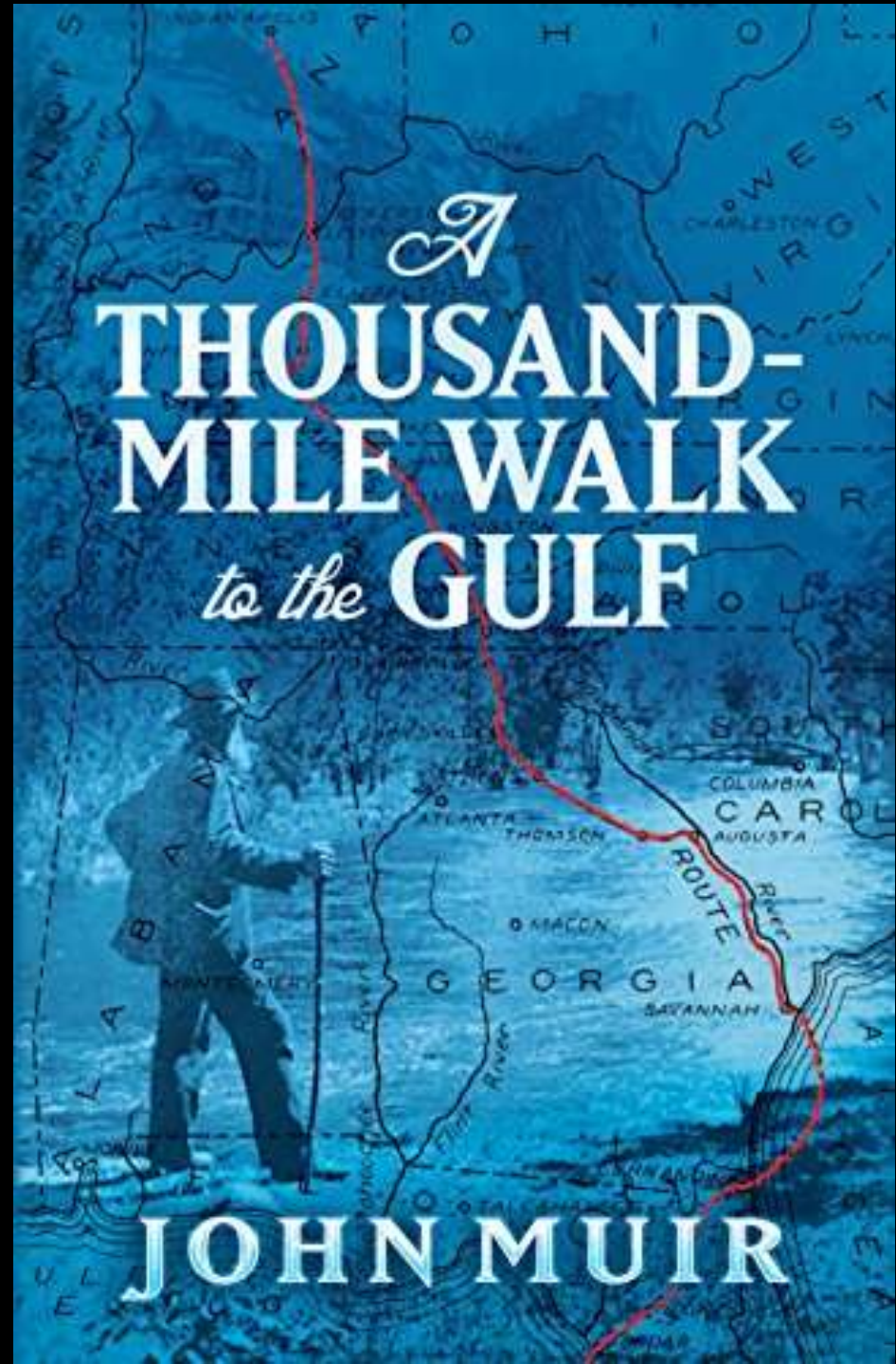
“How intensely I desire to be a Humboldt!”

"My plan was to simply to push on in a general southward direction by the wildest leafiest, and least trodden way I could find, promising the greatest extent of virgin forest."

“There is not a ‘fragment’ in all nature, for every relative fragment of one thing is a full harmonious unit in itself.” Muir, page 164.

In September 1867, Muir undertook a walk of about 1,000 miles from Kentucky to Florida where he gets malaria and so leaves on a boat to Cuba with plans to follow Humboldt’s path to South America, but the tropics weaken him and he leaves for California.

From tropics to mountains...



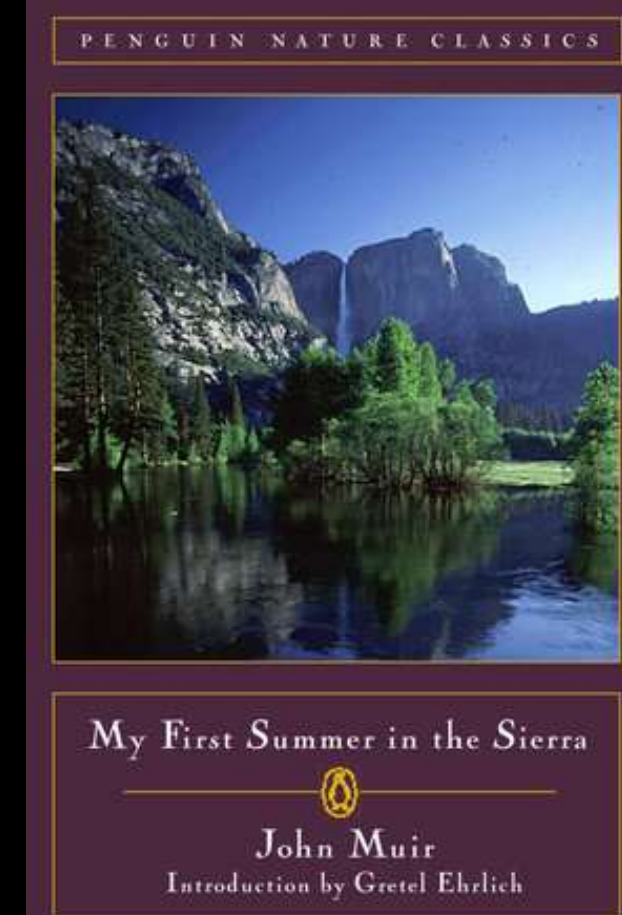
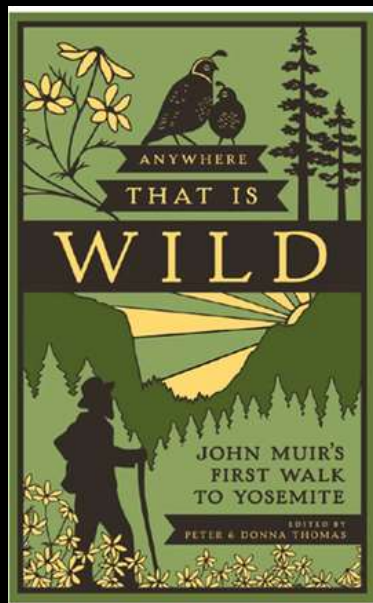
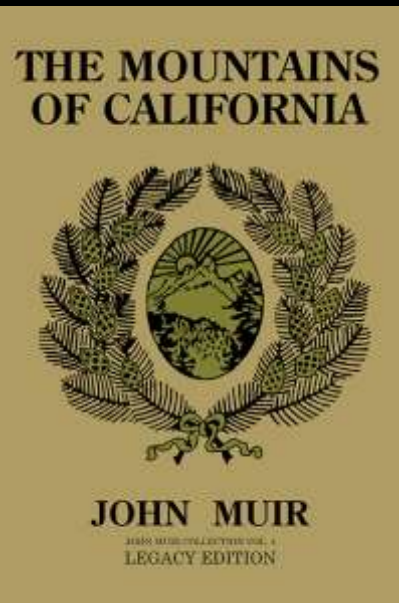
The Humboldtian Years – 1860-1890

Mountains and Glaciers - The Sierras and Yosemite

It was California's Sierra Nevada and Yosemite that truly claimed him. In 1868, he walked across the San Joaquin Valley and into the high country for the first time.

"Then it seemed to me the Sierra should be called not the Nevada, or Snowy Range, but the Range of Light...the most divinely beautiful of all the mountain chains I have ever seen."

Beginning in 1874, a series of articles by Muir entitled "Studies in the Sierra" launched his career as a writer.



Breaks with Humboldt's Science 1890s

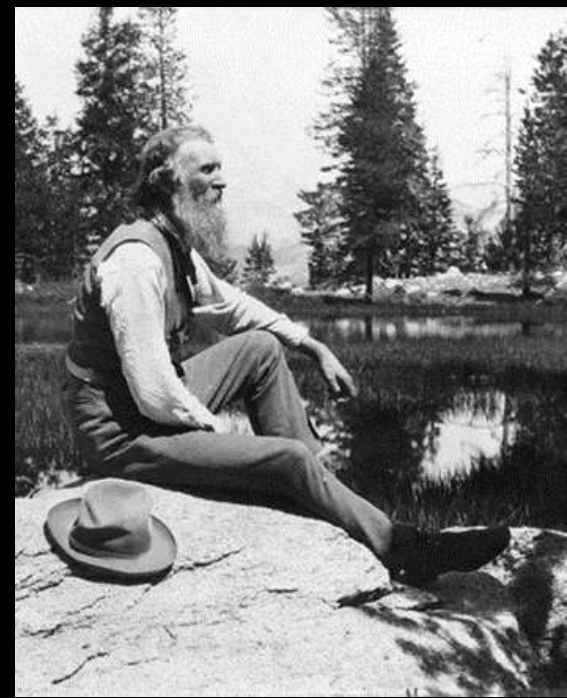
Preservation – The Natural Theology of Wilderness

- Founds the Sierra Club 1892 Yosemite 1890 National Park,
- Mountains and wilderness as re-creational, spiritual sanctuary from human society

Muir's embrace of "wilderness preservation" was a significant retreat from his earlier, more Humboldtian approach to nature.

"These temple-destroyers, devotees of ravaging commercialism, seem to have a perfect contempt for Nature, and instead of lifting their eyes to the God of the mountains, lift them to the Almighty Dollar. Dam Hetch Hetchy! As well dam for water-tanks the people's cathedrals and churches, for no holier temple has ever been consecrated by the heart of man."

- The Yosemite (1912) chapter 15.



1906

Breaks with Humboldt's Science 1890s

The Natural Theology of Wilderness and Evolution

"Little men, with only a book knowledge of science, have seized upon evolution as an escape from the idea of a God. 'Evolution!' a wonderful, mouth-filling word, isn't it? It covers a world of ignorance. Just say 'evolution' and you have explained every phenomenon of Nature and explained away God. It sounds big and wise. Evolution, they say, brought the earth through its glacial periods, caused the snow blanket to recede, and the flower carpet to follow it, raised the forests of the world, developed animal life from the jelly-fish to the thinking man.

"But what caused evolution? There they stick. To my mind, it is inconceivable that a plan that has worked out, through unthinkable millions of years, without one hitch or one mistake, the development of beauty that has made every microscopic particle of matter perform its function in harmony with every other in the universe, that such a plan is the blind product of an unthinking abstraction.

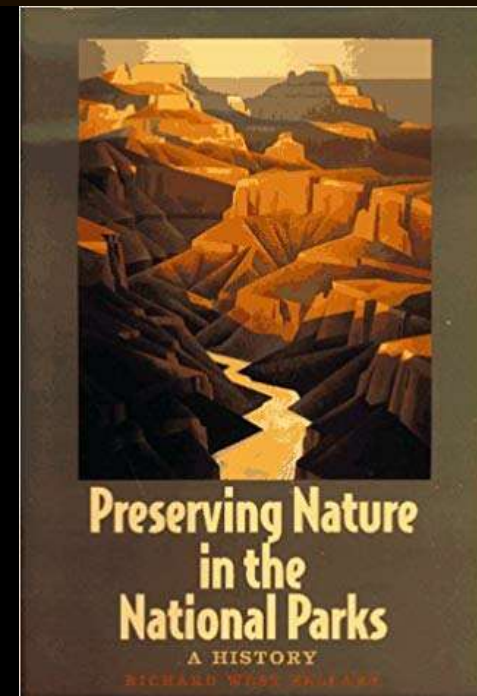
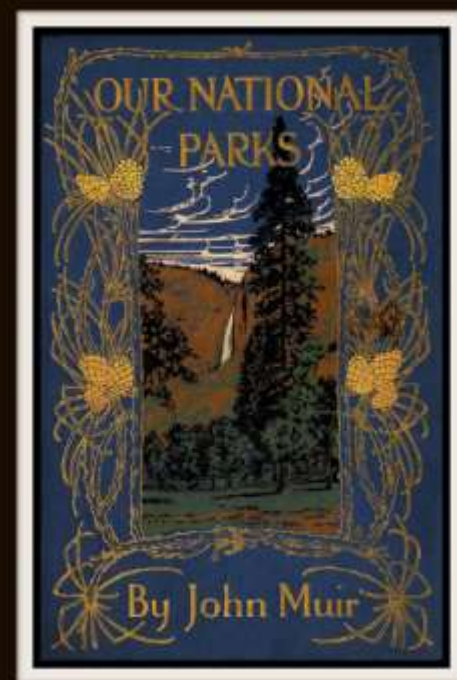
No; somewhere, before evolution was, was an Intelligence that laid out the plan, and evolution is the process, not the origin, of the harmony. You may call that Intelligence what you please: I cannot see why so many people object to call it God."- "Three Days with John Muir," *World's Work* (1909)



Nature Preservation/Conservation and National Parks

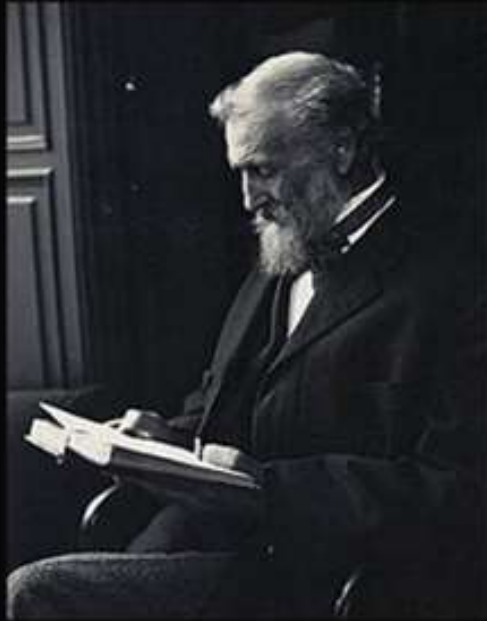
John Muir 1838 – 1914

- Paradox of public use to foster nature preservation
- Railroad Interests and Tourism
- Economic Argument - The Worthless Land Thesis
- Displacement of Native Americans
- Yosemite 1864 State Park, 1890 National Park
- Yellowstone 1872
- Mt. Ranier 1899
- Grand Canyon 1908
- National Park Service created 1916



The Wilderness Paradox - 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 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)

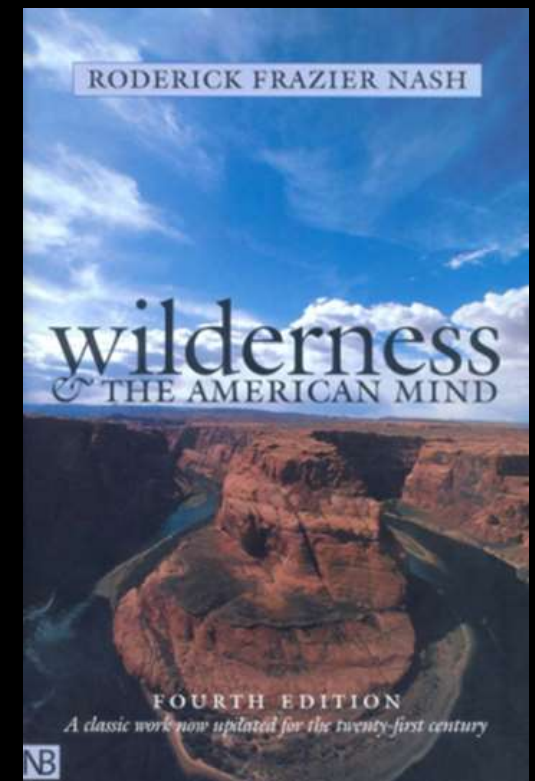


Wilderness and the American Mind
Roderick Nash, 1967

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

“The difficulty is that while the word is a noun it acts like an adjective. There is no specific material object that is wilderness.”

However, it is used to refer to specific material objects...





Generally speaking, a howling wilderness does not howl: it is the imagination of the traveler that does the howling.

(Henry David Thoreau)

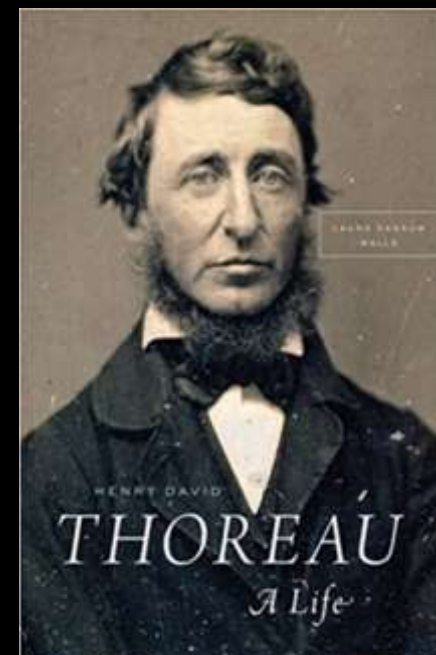
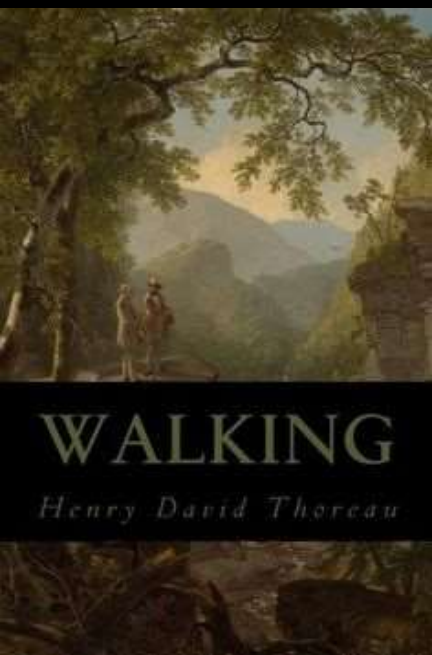
Wildness and the West - New World Nature and the Swamp

Henry David 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.

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.

Hope and the future for me are not in lawns and cultivated fields, not in towns and cities, but in the impervious and quaking swamps.



Theory of Degeneracy of American Nature – The American Swamp

“...the crude state in which nature is found...in this state of abandon, everything languishes, decays, stifles. The air and the earth, weighed down by the moist and poisonous vapors, cannot purify themselves nor profit from the influence of the star of life.

The sun vainly pours down its liveliest rays on this cold mass ... it will never produce anything but humid creatures, plants, reptiles, and insects, and cold men and feeble animals are all that it will ever nurture.” (1761)

America is a land of swamps, where life putrefies and rots.

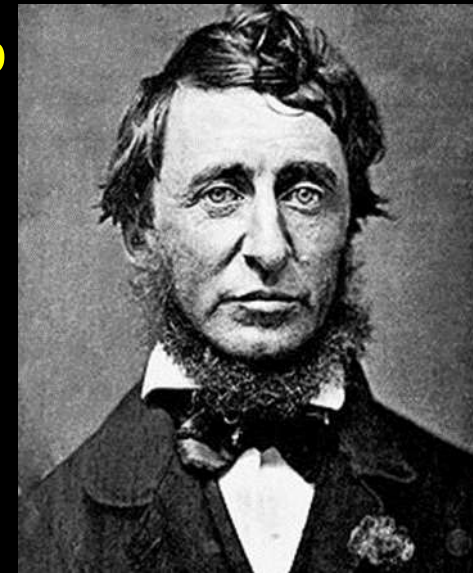


Wildness is the preservation of the world – The Swamp

Henry David Thoreau, *Walking* (1862)

“This statement will do at least to set against Buffon’s account of this part of the world and its productions...

When I would recreate myself, I seek the darkest wood, the thickest and most interminable, and, to the citizen, most dismal swamp. I enter a swamp as a sacred place — a sanctum sanctorum. There is the strength — the marrow of Nature.



Thoreau and Humboldtian Science



1817-1862

“What sort of a science is that which enriches the understanding but robs the imagination?” Journal

“I am an observer of nature generally, and the character of my observations, so far as they are scientific, may be inferred from the fact that I am especially attracted by such books of science as White’s Selborne and Humboldt’s ‘Aspects of Nature.’” 1853

PENGUIN NATURE CLASSICS



The Natural History of Selborne



Gilbert White

Introduction by Edward Hoagland

ASPECTS OF NATURE,
IN
DIFFERENT LANDS AND DIFFERENT CLIMATES;

WITH
Scientific Observations.

BY
ALEXANDER VON HUMBOLDT.

TRANSLATED BY MRS. SABINE.

IN TWO VOLUMES.

VOL. II.



LONDON.

PRINTED BY
LONGMAN, BROWN, GREEN, AND LONGMANS;

15, ADELPHI STREET.

1849.



Views of Nature

ALEXANDER VON HUMBOLDT

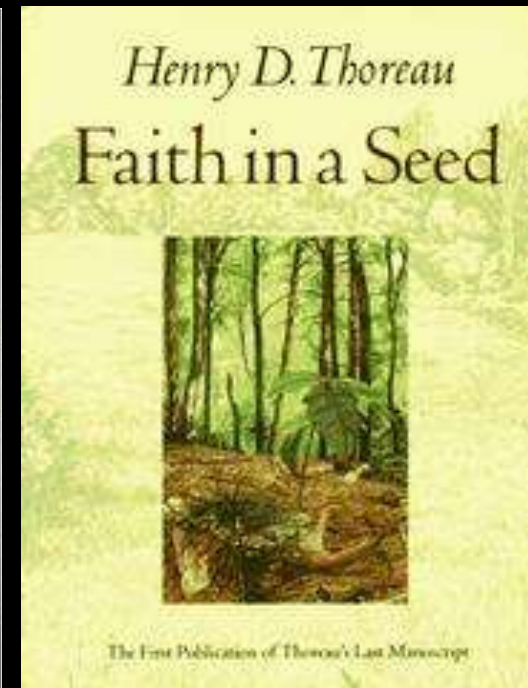
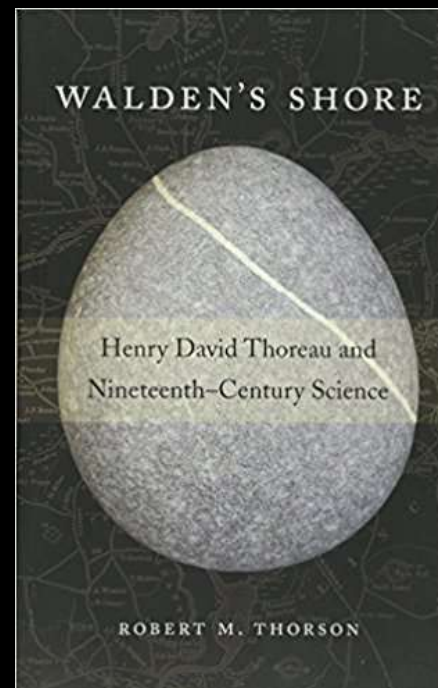
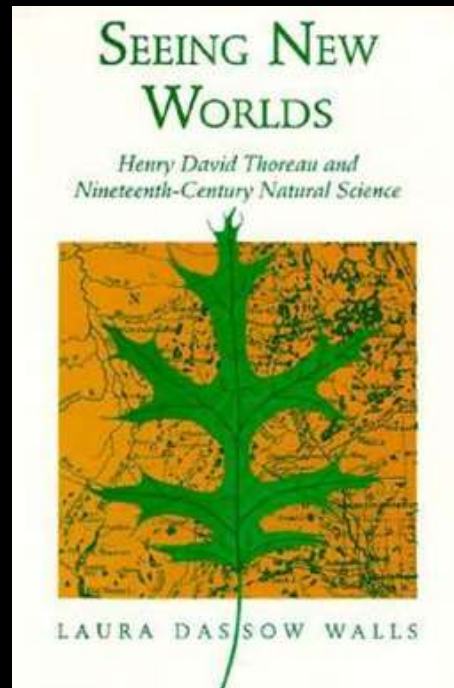
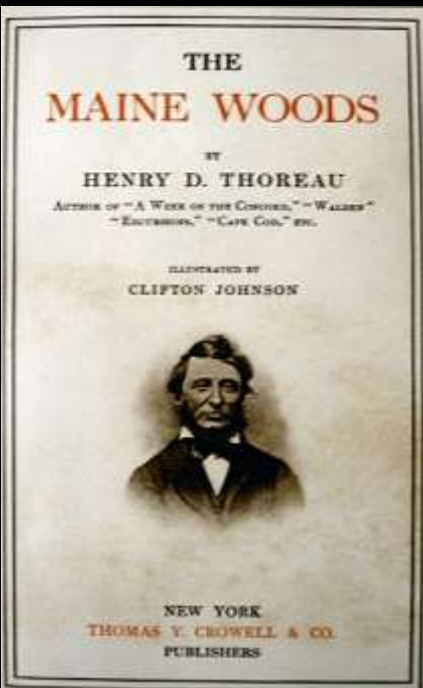
Edited by Stephen T. Jackson and Laura Dassow Walls

Translated by Mark W. Peterson

Thoreau and Humboldtian Science – Explore and Collect

“How indispensable to a correct study of nature is a perception of her true meaning – the fact will one day flower out into a truth... Mere accumulators of facts – collectors of materials for the master-workmen, are like those plants growing in dark forests, which ‘put forth only leaves instead of blossoms.’” 1837

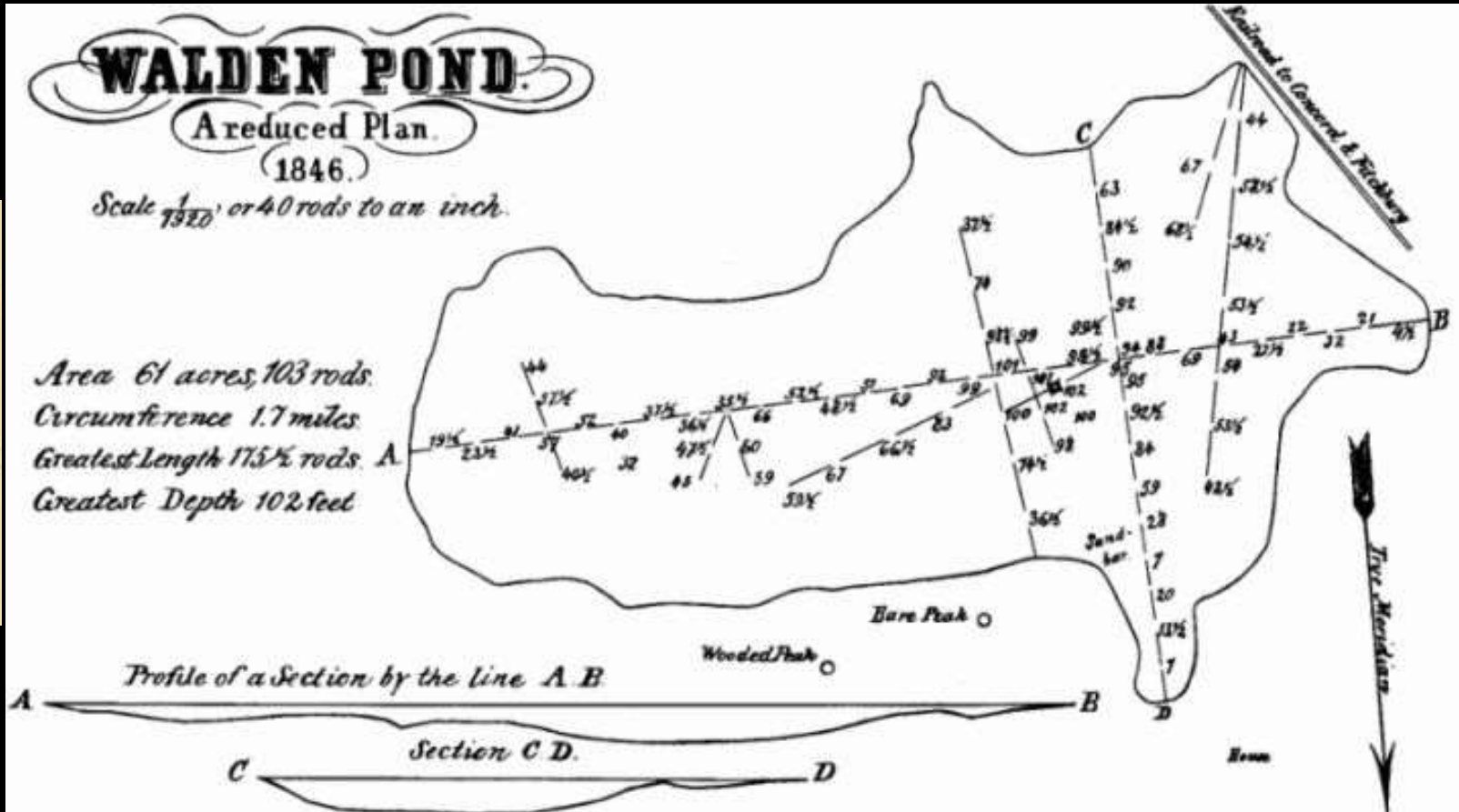
“If I am overflowing with life, as rich in experience for which I lack expression, then nature will be my language full of poetry, - all nature will fable, and every natural phenomenon be a myth. The man of science, who is not seeking for expression but for a fact to be expressed merely, studies nature as a dead language. I pray for such inward experience as will make nature significant.” 1853



Thoreau and Humboldtian Science – Measure and Connect

“How many new relations a foot-rule alone will reveal, and to how many things still this has not been applied! What wonderful discoveries have been, and may still be made, with a plumb line, a level, a surveyor’s compass, a thermometer, or a barometer!” 1845

Just before his death in 1862, “I have not been engaged in any particular work on Botany, or the like, though, if I were to live, I should have much to report on Natural History.”



PATRICK CHURA

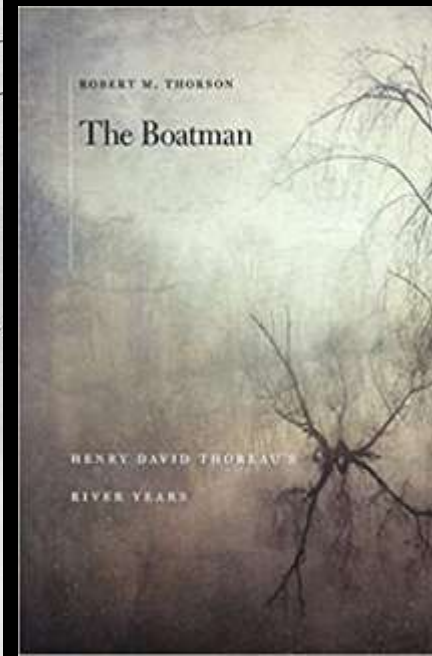
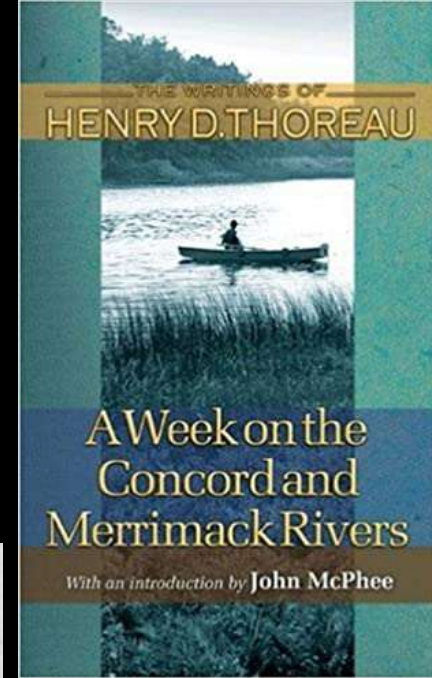
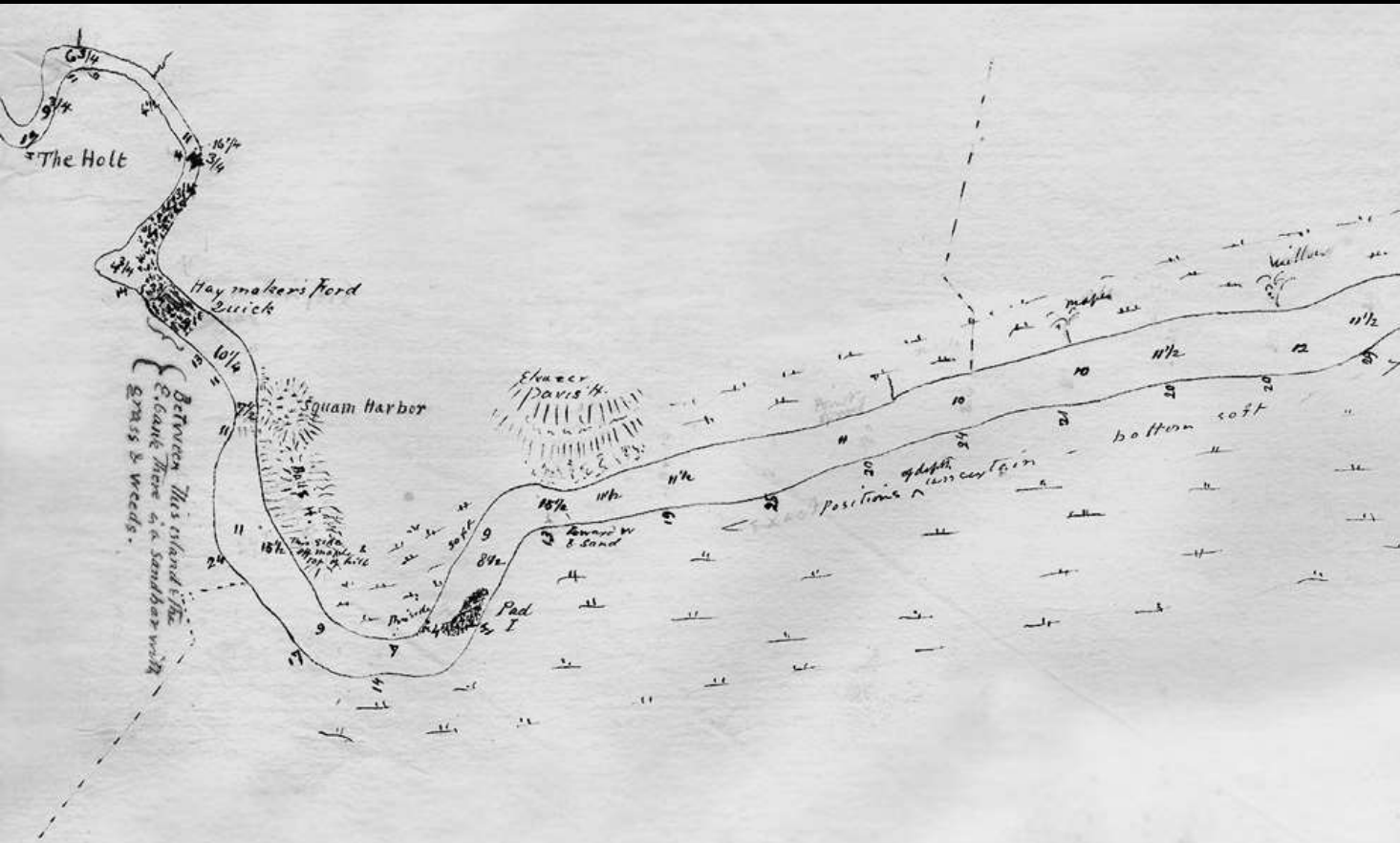
**THOREAU
THE LAND
SURVEYOR**

HENRY DAVID THOREAU, one of America's most prominent environmental writers, supported himself as a land surveyor for much of his life, practicing land that would be sold off in litters, to the very study of its kind.

Thoreau, the Concord River, and Humboldtian Science

One of the last projects that Thoreau ever worked on was an enormously detailed seven-and-a-half-foot map of the Concord River.

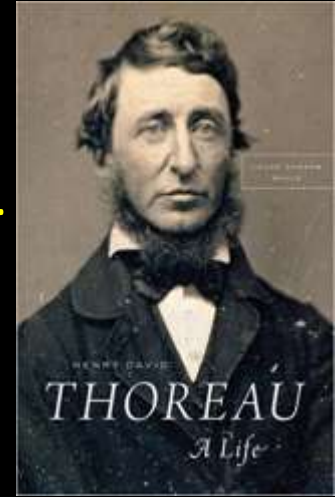
“What meandering! The Serpentine, our river should be called? What makes the river love to delay here? Here come to study the law of meandering.”



Trying to find a balance between human society and nature
Henry David Thoreau – Tension between Wilderness and Human Society

“...Wildness is the preservation of the world...Life consists with Wildness. The most alive is the wildest. Not yet subdued to man, its presence refreshes him. In short, all good things are wild and free.

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...” *Walking*

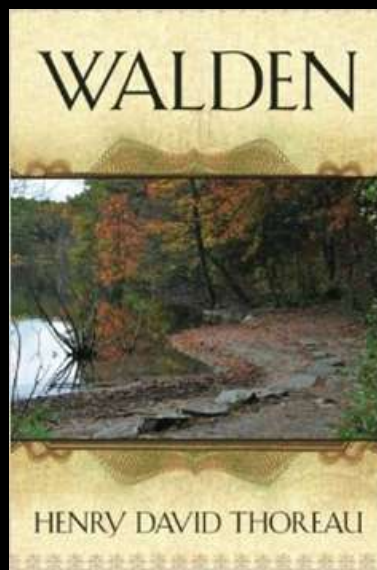


1817-1862

"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" *Walden*



WALKING
Henry David Thoreau



WALDEN
HENRY DAVID THOREAU



Thomas Cole
"Oxbow" 1836

Wilderness and the American Mind

Saving American Nature in the 21st Century

Rewilding, Resilience, Regeneration, Anthropocene



THE NEW ECOLOGY

RETHINKING
A SCIENCE
FOR THE
ANTHROPOCENE



OSWALD J. SCHMITZ

EDITED BY
*Ben A. Minteer &
Stephen J. Pyne*

SAVING AMERICAN
NATURE IN THE AGE
OF HUMANS

AFTER PRESERVATION



Rewilding the West



The Rewilding Institute (TRI) mission is to explore and share tactics and strategies to advance continental-scale conservation and restoration in North America and beyond.

We focus on the need for large carnivores and protected wildways for their movement; and we offer a bold, scientifically credible, practically achievable, and hopeful vision for the future of wild Nature and human civilization on planet Earth.



Dave Foreman (1946-2022)

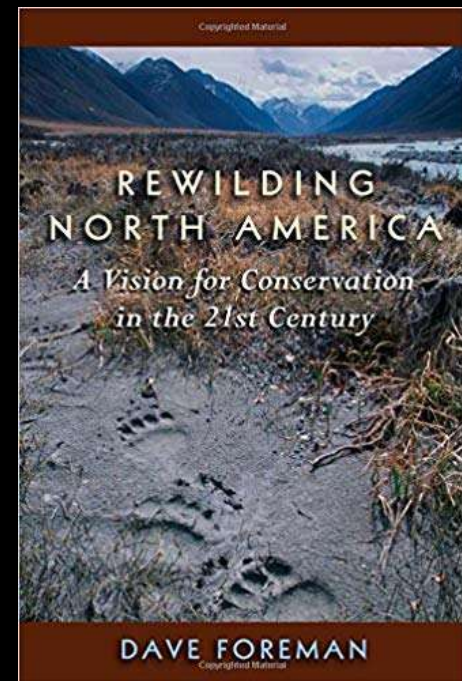
Founder of The Rewilding Institute and coiner of the term “Rewilding”

- From 1976 to 1980, he was a board member for the New Mexico chapter of The Nature Conservancy.
- Co-founded Earth First! in 1980

Rewilding North America

A plan to restore animals that disappeared 13,000 years ago from North America offers an alternative conservation strategy for the twenty-first century argue **Josh Donlan** and colleagues.

The idea is to actively promote the restoration of large wild vertebrates into North America in preference to the 'pests and weeds' (rats and dandelions) that will otherwise come to dominate the landscape. This 'Pleistocene rewilding' would be achieved through a series of carefully managed ecosystem manipulations using closely related species as proxies for extinct large vertebrates, and would change the underlying premise of conservation biology from managing extinction to actively



Rewilding – Cores, Corridors, Carnivores



THE REWILDING INSTITUTE



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.”

- 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?”

“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”





REGENERATION INTERNATIONAL



To promote, facilitate and accelerate the global transition to regenerative food, farming and land management for the purpose of restoring climate stability, ending world hunger and rebuilding deteriorated social, ecological and economic systems.



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QUIVIRA COALITION American Grassfed HMI

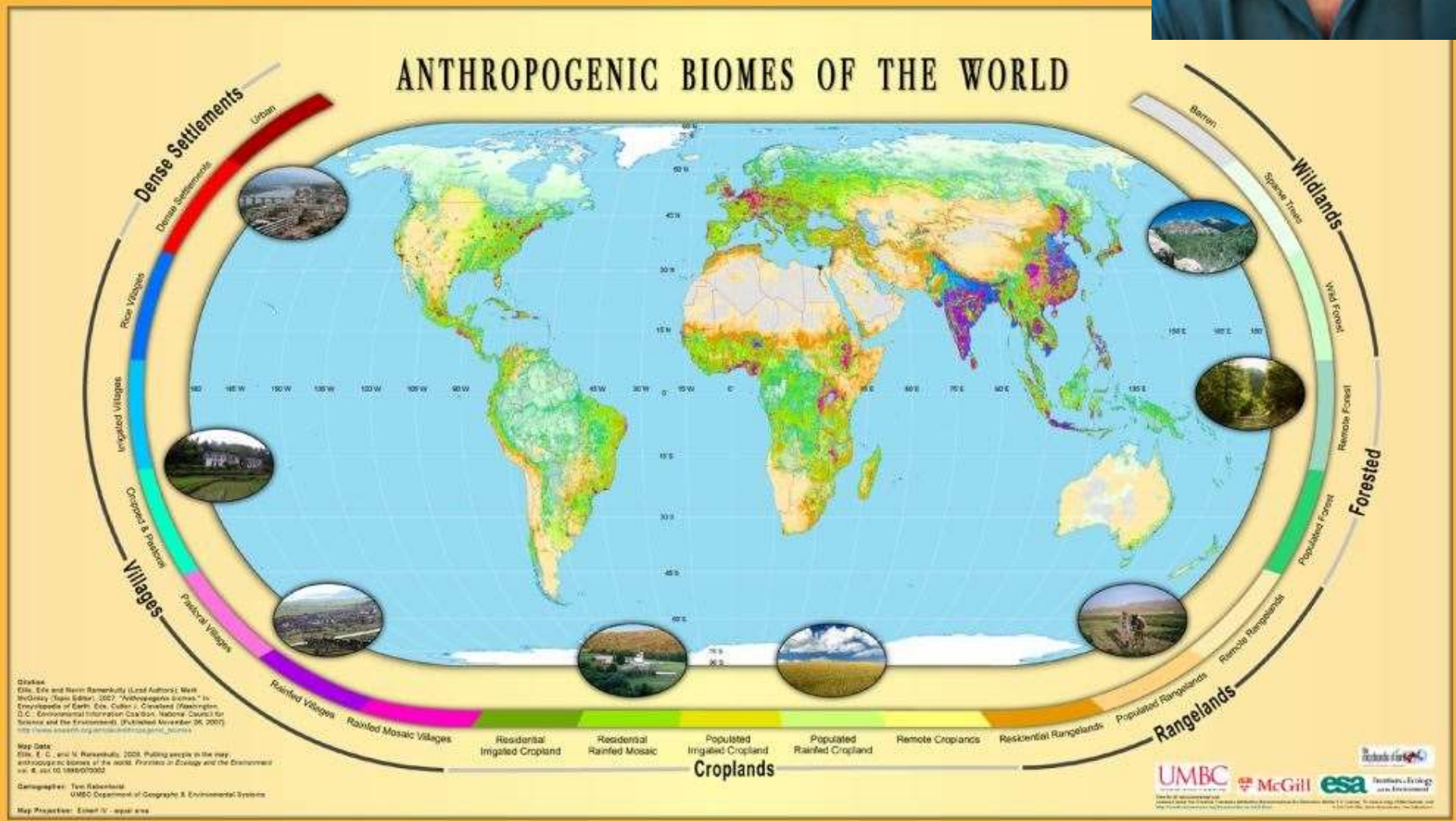


Anthropogenic Landscapes, or "Human Landscapes"

Dr. Erle Ellis



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

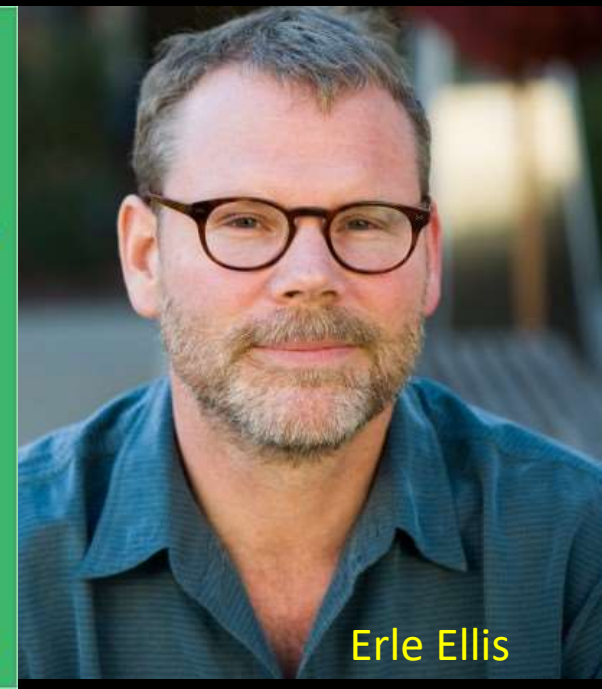
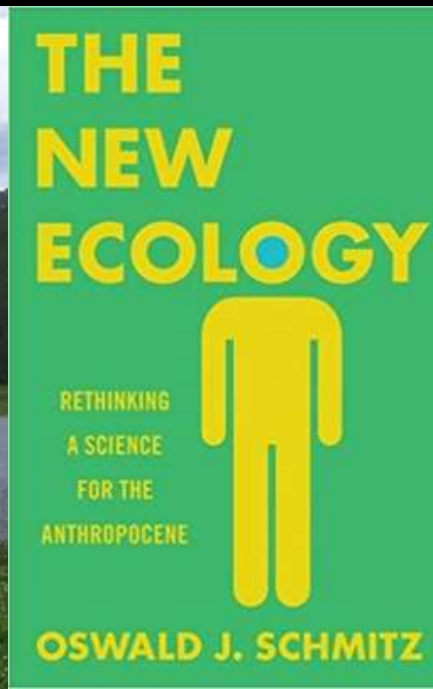


Anthropocene – Human/Nature and the American Mind

“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



Erle Ellis

Humboldt and the Tapestry of Nature

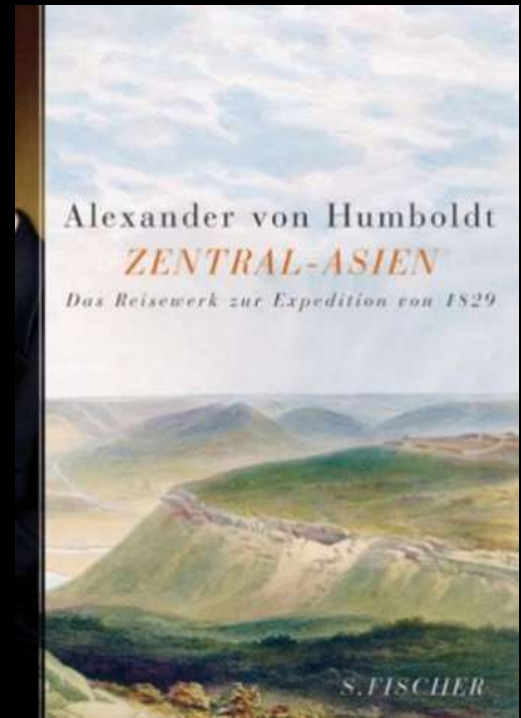
Human Impacts on the Environment

“Through the destructions of forests, through the distribution of water (irrigation and drainage), and through the production of great masses of steam and gas at the industrial centers.”

“The wants and restless activity of large communities of men gradually despoil the face of the Earth.”

- Humans are part of nature
- Nature/Cosmos is bigger than us
- Most human impacts are unintended consequences (consequences of ignorance)
- The limits of human understanding of nature should encourage caution

Humboldt said it was the duty of scientists to examine the changeable elements in the “economy of nature” to understand human impacts.



Humboldt's Influence on the United States

Science, Politics, and Culture

"An exhilarating carouse across dreamscapes and down mind shafts from Napoleon to Antarctica, from Chimborazo to Mount Shasta, from Walden Pond to Rachel Carson." —JOHN LEONARD, *Harper's Magazine*

THE

HUMBOLDT

CURRENT

NINETEENTH-CENTURY EXPLORATION
AND THE ROOTS OF
AMERICAN ENVIRONMENTALISM

AARON SACHS



The Passage to Cosmos

ALEXANDER VON HUMBOLDT
and the Shaping of America



LAURA DASSOW WALLS