

A Discipline with a Mission: The History of Conservation Biology at Middlebury
College

Natalie Cheung
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In 1965, Middlebury College established the nation's first Environmental Studies Program.¹ This program highlighted "fields of emphasis," including Ecology, Earth Science, and Human Ecology.² Ecology focused on the relationships in biological ecosystems. In 1985, however, the global ecological field of environmental science, however, became formally known as conservation biology when a group of biologists and environmental scientists formed the Society for Conservation Biology,³ but it was not until 1991 that Middlebury College transformed the ecology emphasis into conservation biology.⁴ The history of the arrival of conservation biology at Middlebury begins at the pre-progressive era of industrialism and recreation and ends at the present era of technological advancement and environmentalism, weaving together a dialectic history of American conservation characterized by global and local influences.

The idea of conservation first formed in the pre-progressive era of the United States, when Americans began to see nature not only as a means of provisioning but also as a canvas for human growth. During this time period, Americans turned the Earth into a commodity, converting it into a capital based means of production. For example, industrialists transformed waterfalls into mills in order to turn geology into profit, exhibiting an arm of control over the Earth.⁵ Simultaneous to this commodification of the Earth, however, existed a growing appreciation of nature and its beauty. While industrialists removed the beauty from waterfalls by turning them into mills, improvers worked to reconcile the degradation by domesticating nature

¹ Middlebury College 1965-1966 Course Catalog, Special Collections, Middlebury College Davis Family Library

² Middlebury College 1965-1966 Course Catalog

³ David Duffis, "Society for Conservation Biology," in *Environmental Encyclopedia*, 4th ed. (Detroit, MI: Gale, 2011), 2:1530-1531.

⁴ Middlebury College 1991-1993 Course Catalog

⁵ Paul E. Johnson, *Sam Patch, the Famous Jumper* (New York NY: Hill and Wang, 2003), 45.

into art.⁶ Improvers, like capitalists, saw a market in nature. Instead of manufacturing nature into a means of production, however, improvers assembled it into a recreational luxury.⁷ For example, Timothy Crane of Paterson, New Jersey, converted a playground above the town's waterfalls into an elegant garden.⁸ This garden represented the aesthetic beauty of "nature," even though there remained nothing natural about it. Thus, as industrialists revolutionized nature into a capitalist means of production, improvers worked to conserve nature as a form of art and recreation.

While the majority of the United States remained occupied with advancing technologies civilizing society, however, scientists and naturalists began to grow concerned about the environmental impacts of the world's growing materialistic values. Alfred Russell Wallace, an early British explorer, geologist, and anthropologist warned the world in 1863 about their growing burden on the Earth, describing the potential "extinction of the numerous forms of life which the progress of cultivation invariably entails."⁹ Wallace prematurely understood the environmental implications of an industrialized society, and he encouraged an increase in responsibility and stewardship to complement the development of technology.¹⁰ Following Wallace, in 1864, George Perkins Marsh published *Man and Nature*, elaborating on the effects of human influence on biodiversity.¹¹ Marsh and Wallace represent the progressive era's proto-conservation and naturalist movement which included advocates such as Henry David Thoreau

⁶ Paul E. Johnson, *Sam Patch, the Famous Jumper* (New York NY: Hill and Wang, 2003), 45.

⁷ Johnson, *Sam Patch, the Famous*, 107.

⁸ Johnson, *Sam Patch, the Famous*, 58.

⁹ Alfred Russell Wallace, "On the Physical Geography of the Malay Archipelago," *Proceedings of the Royal Geographical Society of London* 33 (1863):234.

¹⁰ Wallace, "On the Physical Geography," p. 234

¹¹ Meine, Soulé and Noss, "A Mission Driven Principle," p. 633.

and Alexander Von Humboldt, who warned the world against the environmental costs of industrialization and inspired the essence of the conservation movement.¹²

Despite growing concern about industrialization from conservationists throughout the progressive era, the United States continued their ever-increasing desire for material wealth. In creating a civilized and advanced country, Americans harvested the nature's resources with solely the future in mind, largely disregarding the footprints they left behind them in the Earth. In Post World War II United States, therefore, Americans continued to move forward with the development of ideas and innovations, disregarding the shadow of environmental concern shrouding their advancements.¹³ In the wake of industrialization existed pollution, erosion, deforestation, and depletion of biodiversity.¹⁴ Scientists began to grow concerned about the loss of biodiversity and environmental health.¹⁵ Aldo Leopold, a wildlife ecologist, wrote in 1944: "The land consists of soil, water, plants, and animals, [but] health is more than a sufficiency of these components. It is a state of vigorous self-renewal in each of them, and in all collectively."¹⁶ Leopold describes the relationships between multiple ecological systems and their dependency on each other. Following the progressive naturalists, Leopold continued the move towards conservation, centering his priorities around resilience, preservation, and interconnectivity.¹⁷

Following the post-progressive era came World War II. The post World War II era brought immense development to the environmental movement. In 1962, Rachel Carson

¹² Curt Meine, "Society for Conservation Biology," in *Encyclopedia of Environmental Ethics and Philosophy*, ed. J. Baird Callicott and Robert Frodeman (Detroit, MI: Macmillan Reference, 2009), 2:258.

¹³ Meine, Soulé and Noss, "A Mission Driven Principle," p. 634.

¹⁴ Meine, Soulé and Noss, "A Mission Driven Principle," p. 634.

¹⁵ Meine, Soulé and Noss, "A Mission Driven Principle," p. 634.

¹⁶ Aldo Leopold, *The River of the Mother of God and Other Essays*, ed. Susan L. Flader and J. Baird Callicott (Madison, WI: University of Wisconsin Press, 1991), 310.

¹⁷ Leopold, "The River of the Mother," p. 310.

published *Silent Spring*, which caused a direct increase in environmental activism and publicity.¹⁸ Carson's book expanded environmentalism and became a huge part of American culture.¹⁹ Americans became increasingly concerned about pollution, toxic waste, and health effects of the growing industry.²⁰ Membership in conservation and wilderness groups multiplied rapidly, and the environmental movement popularized.²¹ Soon, environmentalism entered the sphere of academic institutions. In 1965, Middlebury College inaugurated the first Environmental Studies major in the country, designed to serve as an interdisciplinary program with multiple "Fields of Emphasis."²² Developing programs such as Middlebury's and books such as Carson's increased public concern and knowledge about environmental problems and soon inspired the government to adopt measures to ensure environmental health and safety. Between 1963 and 1968, President Lyndon Johnson installed almost three hundred conservation and beautification measures, including The Wilderness Act and the Clean Air Act.²³ Over \$12 billion authorized funds supported these acts.²⁴ Environmentalism quickly permeated American, causing a definitive paradigm shift, culture, as demonstrated by *The New York Times*. Prior to 1969, the word "environmentalism" appeared in *The New York Times* once, in 1967 in a review of Ludwig von Mises's *Theory and History*.²⁵ Since 1969, however, the word "environmentalism" has appeared in *The New York Times* 1,394 times.²⁶ This shows the extent to

¹⁸ Daniel Geary, "Environmental Movement," in *Dictionary of American History*, 3rd ed. (New York, NY: Charles Scribner's Sons, 2003), 3:227.

¹⁹ Geary, "Environmental Movement," in *Dictionary of American History*, 3:227.

²⁰ Geary, "Environmental Movement," in *Dictionary of American History*, 3:227.

²¹ Geary, "Environmental Movement," in *Dictionary of American History*, 3:227.

²² Middlebury College 1965-1966 Course Catalog

²³ Geary, "Environmental Movement," in *Dictionary of American History*, 3:227.

²⁴ Geary, "Environmental Movement," in *Dictionary of American History*, 3:227.

²⁵ Louis Hacker, "A Testament of Faith in Man and His Capacity for Growth," *The New York Times* (New York, NY), December 29, 1957: 127.

²⁶ *The New York Times Archives*

which environmentalism grew within the 1960s, a period in which Americans began to recognize the environmental implications of their lifestyles.

As the environmental movement grew, so did the field of biology. Post World War II, scientific development soared.²⁷ New fields of biology emerged, including microbiology, genetics, systematics, population biology, marine biology, and more.²⁸ Some of these developments can be seen in the Middlebury course catalogs, as in 1976-77, a course titled “Marine Microbiology” appears in the Biology department.²⁹ The development of these fields transformed biology into a complicated combination of science, policy, and practice.³⁰ This rapid expansion of biology paired with the rise in the environmental movement inevitably led to the first signs of conservation biology. In 1974, Sir Otto Frankel, an Australian geneticist approached American biologist Michael E. Soulé about collaborating together to study the connections between genetics and conservation.³¹ Soulé agreed, and thus, the two created conservation biology. Soulé and Frankel’s agreement inspired the First International Conference on Conservation Biology in September, 1978.³² According to Gibbons, writer for *Science*, the meeting looked like “an odd assortment of academics, zoo-keepers, and wildlife conservationists.”³³ Gibbons’s description of the first meeting identifies conservation biology’s interdisciplinary blend of many interests, all of which pertain to the preservation of the natural state of the Earth. In 1980, Soulé and Wilcox published the collaborated results from the

²⁷ Meine, Soulé and Noss, “A Mission Driven Principle,” p. 635.

²⁸ James Stewart, review of *The Growth of Biological Thought: Diversity, Evolution, and Inheritance*, *The American Biology Teacher* 46, no. 8 (November 1984): 462-463.

²⁹ Middlebury College 1976-1977 Course Catalog

³⁰ Meine, Soulé and Noss, “A Mission Driven Principle,” p. 635.

³¹ Curt Meine, “Conservation Biology: Past and Present,” in *Conservation Biology for All* (Oxford: Oxford University Press, 2010), 13.

³² Meine, “Conservation Biology: Past and Present,” p. 13.

³³ Ann Gibbons, “Conservation Biology in the Fast Lane,” *Science* 255, no. 5040 (January 3, 1992): 22.

conference and their research, titled *Conservation Biology: An Evolutionary-Ecological Perspective*.³⁴ Following the publication of Soulé and Wilcox's work, their colleagues initiated further conferences and meetings³⁵ that led to increased interest in the field.³⁶ In 1986 at the Second Conference for Conservation Biology, Michael Soulé formally founded the Society for Conservation Biology, "an international professional organization dedicated to promoting the scientific study of the phenomena that affect the maintenance, loss, and restoration of biological diversity."³⁷ The founding of the Society for Conservation Biology confirmed the group's mission to focus on the interconnectivity between advocacy, policy environmentalism, biology, and conservation. Soulé and his colleagues worked to understand these dynamic relationships, acknowledging the need to strengthen the connection between economic growth and biodiversity.³⁸

Conservation biology remains a developing field, as Soulé founded it only 29 years ago. Middlebury College did not rename the Ecology field of emphasis as Conservation Biology in Middlebury's Environmental Studies program until 1991.³⁹ The college did not introduce a formal course into conservation biology until 1995, a 400 level senior seminar.⁴⁰ Today, the course is taught at the 300 level, ensuring greater accessibility to the student body. Just as environmentalism took many years to popularize, conservation biology will require time as well. The general public has yet to learn the importance of conservation biology, as exhibited by *The New York Times*, which first mentioned the phrase "conservation biology" in February, 1987, in

³⁴ Curt Meine, "Conservation Biology: Past and Present," 13.

³⁵ Meine, Soulé and Noss, "A Mission Driven Principle," p. 637.

³⁶ Curt Meine, "Conservation Biology: Past and Present," 13.

³⁷ "What is SCB?," Society for Conservation Biology, accessed May 12, 2015, <https://conbio.org/about-scb/who-we-are>.

³⁸ Meine, Soulé and Noss, "A Mission Driven Principle," p. 637.

³⁹ Middlebury College 1991-1993 Course Catalog

⁴⁰ Middlebury College 1995-1996 Course Catalog

an article featuring the impending extinctions of many larger mammals.⁴¹ Since its first appearance, the phrase has been used only 212 times,⁴² but this number will continue to grow as the field expands.

Conservation biology aims to integrate both scientific understanding and community values into an effective method to sustain diversity of life and ecosystem health.⁴³ These values and goals are reflected in Middlebury College's own Environmental Studies program, which teaches "knowledge of the diverse human relationships to the environment, achieved through: breadth, depth, integration, commonality, [and] creativity."⁴⁴ Like conservation biology, Middlebury's environmental studies program focuses not only on biological diversity, but also on intellectual diversity, highlighting the human relationship with the environment. Both the mission of conservation biology and Middlebury's environmental studies program reflect the global and local influences that compose their histories. Environmentalism, the Society for Conservation Biology, and their role at Middlebury College originate in a dialectic chronicle of American materialism, development, and freedom of choice, synthesized of interconnected global and local influences, the hope of a sustainable future, and a mutual respect for the surrounding world.

⁴¹ James Gleick, "Species Vanishing from Many Parks," *The New York Times* (New York, NY), February 3, 1987.

⁴² *The New York Times Archives*

⁴³ Meine, Soulé and Noss, "A Mission Driven Principle," p. 647.

⁴⁴ "Learning Goals for the Environmental Studies Major," Middlebury, accessed May 12, 2015, <http://www.middlebury.edu/academics/es/goals>.

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