

# E. O. Wilson

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**Edward Osborne "E. O." Wilson** (born June 10, 1929) is an American biologist, researcher (sociobiology, biodiversity), theorist (consilience, biophilia), naturalist (conservationist) and author. His biological specialty is myrmecology, the study of ants, on which he is considered to be the world's leading authority.<sup>[1][2]</sup>

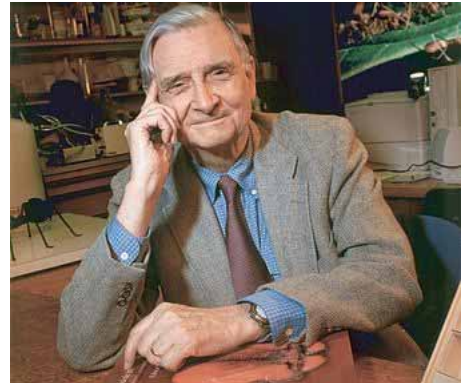
Wilson is known for his scientific career, his role as "the father of sociobiology", his environmental advocacy, and his secular-humanist and deist ideas pertaining to religious and ethical matters.<sup>[3]</sup>

Wilson was the Joseph Pellegrino University Research Professor in Entomology for the Department of Organismic and Evolutionary Biology at Harvard University and a Fellow of the Committee for Skeptical Inquiry. He is a Humanist Laureate of the International Academy of Humanism.<sup>[4][5]</sup> He is a two-time winner of the Pulitzer Prize for General Non-Fiction and a New York Times bestseller for *The Social Conquest of Earth*<sup>[6]</sup> and *Letters to a Young Scientist*.<sup>[7]</sup>

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## E. O. Wilson



February, 2003

<b>Born</b>	Edward Osborne Wilson June 10, 1929 Birmingham, Alabama, United States
<b>Nationality</b>	American
<b>Fields</b>	Biologist
<b>Institutions</b>	Harvard University
<b>Alma mater</b>	University of Alabama Harvard University
<b>Thesis</b>	<i>A Monographic Revision of the Ant Genus Lasius</i> ( <a href="http://search.proquest.com/docview/301948222/">http://search.proquest.com/docview/301948222/</a> ) (1955)
<b>Doctoral students</b>	Daniel Simberloff Donald J. Farish
<b>Known for</b>	Popularizing sociobiology Epic of Evolution Character displacement Island biogeography
<b>Notable awards</b>	Pulitzer Prize (1979) Crafoord Prize (1990) Pulitzer Prize (1991) Kistler Prize (2000) Nierenberg Prize (2001)

## Early life

Wilson was born in Birmingham, Alabama. According to his autobiography *Naturalist*, he grew up mostly around Washington, D.C. and in the countryside around Mobile, Alabama.<sup>[8]</sup> From an early age, he was interested in natural history. His parents, Edward and Inez Wilson, divorced when he was seven. The young naturalist grew up in several cities and towns, moving around with his father and his stepmother. In the same year that his parents divorced, Wilson blinded himself in one eye in a fishing accident. He suffered for hours, but he continued fishing.<sup>[8]</sup> He did not complain because he was anxious to stay outdoors. He never went in for medical treatment.<sup>[8]</sup> Several months later, his right pupil clouded over with a cataract.<sup>[8]</sup> He was admitted to Pensacola Hospital to have the lens removed.<sup>[8]</sup> Wilson writes, in his autobiography, that “[t]he surgery was a terrifying [19th] century ordeal.”<sup>[8]</sup> Today, he suffers from the phobia of being enclosed in a “closed space with [his] arms immobilized and [his] face covered with an obstruction.”<sup>[8]</sup> Wilson was left with full sight in his left eye, with a vision of 20/10.<sup>[8]</sup> He lost his stereoscopy, but he could see fine print and the hairs on the body of small insects.<sup>[8]</sup> His reduced ability to observe mammals and birds led him to concentrate on insects. At nine, Wilson undertook his first expeditions at the Rock Creek Park in Washington, DC. He began to collect insects and he gained a passion for butterflies. He would capture them using nets made with brooms, coat hangers, and cheesecloth bags.<sup>[8]</sup> Going on these expeditions led to Wilson’s fascination with ants. He describes in his autobiography how one day he pulled the bark of a rotting tree away and discovered citronella ants underneath.<sup>[8]</sup> The worker ants he found were “short, fat, brilliant yellow, and emitted a strong lemony odor.”<sup>[8]</sup> Wilson said the event left a “vivid and lasting impression on [him].”<sup>[8]</sup> He also earned the Eagle Scout award and served as Nature Director of his Boy Scout summer camp. At the age of 18, intent on becoming an entomologist, he began by collecting flies, but the shortage of insect pins caused by World War II caused him to switch to ants, which could be stored in vials. With the encouragement of Marion R. Smith, a myrmecologist from the National Museum of Natural History in Washington, Wilson began a survey of all the ants of Alabama. This study led him to report the first colony of fire ants in the US, near the port of Mobile.<sup>[9]</sup>

Concerned that he might not be able to afford to go to a university, Wilson attempted to enlist in the United States Army. His plan was to earn U.S. government financial support for his education, but he failed his Army medical examination due to his impaired eyesight. Wilson was able to afford to enroll in the University of Alabama after all. There, he earned his B.S. and M.S. degrees in Biology. He later earned his Ph.D. degree in Biology from Harvard University.

## Retirement

In 1996 he officially retired from teaching at Harvard and continues to hold the positions of Professor Emeritus and Honorary Curator in Entomology.<sup>[10]</sup> He and his wife Irene now reside in Lexington, Massachusetts. His daughter, Catherine, and her husband Jonathan, reside in nearby Stow.<sup>[10]</sup>

## Theories and beliefs

### Epic of evolution

"The evolutionary epic," Wilson wrote in his book *On Human Nature*, "is probably the best myth we will ever have." Wilson's intended usage of the word "myth" does not denote falsehood - rather, a grand narrative that provides people with placement in time—a meaningful placement that celebrates extraordinary moments of shared heritage.<sup>[11]</sup> Wilson was not the first to use the term, but his fame prompted its usage as the morphed phrase epic of evolution.<sup>[3]</sup>

Wilson explained the need for the epic of evolution:<sup>[12]</sup>

Human beings must have an epic, a sublime account of how the world was created and how humanity became part of it... Religious epics satisfy another primal need. They confirm we are part of something greater than ourselves... The way to achieve our epic that unites human spirituality, instead of cleave it, it is to compose it from the best empirical knowledge that science and history can provide.

The worth of the epic, he said, is that "[t]he true evolutionary epic retold as poetry, is as intrinsically ennobling as any religious epic."<sup>[13]</sup>

Cosmologist Brian Swimme concludes in a 1997 interview:<sup>[14]</sup>

I think that what E. O. Wilson is trying to suggest is that to be fully human, a person has to see that life has a heroic dimension... I think for the scientist, and for other people, it's a question of, "Is the universe valuable? Is it sacred? Is it holy? Or is the human agenda all that matters?" I just don't think we're that stupid to continue in a way that continues to destroy. I'm hopeful that the Epic of Evolution will be yet another strategy in our culture that will lead our consciousness out of a very tight, human-centered materialism.

Naturalistic and liberal religious writers have picked up on Wilson's term and have used it in a number of texts. These authors however have at times used other terms to refer to the idea: *Universe Story* (Brian Swimme, John F. Haught), *Great Story* (Connie Barlow, Michael Dowd), *Everybody's Story* (Loyal Rue<sup>[15]</sup>), *New Story* (Thomas Berry, Al Gore, Brian Swimme) and *Cosmic Evolution* (Eric Chaisson<sup>[16]</sup>).<sup>[17][18][19]</sup>

## Sociobiology

Michael McGoodwin paraphrasing and quoting Wilson (pp. 16 and 222) on sociobiology:<sup>[20]</sup>

Sociobiology is defined as the scientific or systematic study of the biological basis of all forms of social behavior, in all kinds of organisms including man, and incorporating knowledge from ethology, ecology, and genetics, in order to derive general principles concerning the biological properties of entire societies. "If humankind evolved by Darwinian natural selection, genetic chance and environmental necessity, not God, made the species." "The brain [and the mind] exists because it promotes the survival and multiplication of the genes that direct its assembly." The two apparent dilemmas we face therefore are: (1) We lack any goal external to our biological nature (for even religions evolve to enhance the persistence and influence of their practitioners). Will the transcendental goals of societies dissolve, and will our post-ideological societies regress steadily toward self-indulgence? (2) Morality evolved as instinct. "Which of the sensors and motivators should be obeyed and which ones might better be curtailed or sublimated?"

Although much human diversity in behavior is culturally influenced, some has been shown to be genetic - rapid acquisition of language, human unpredictability, hypertrophy (extreme growth of pre-existing social structures), altruism and religions. "Religious practices that consistently enhance survival and procreation of the practitioners will propagate the physiological controls that favor the acquisition of the practices during single lifetimes." Unthinking submission to the communal will promotes the fitness of the members of the tribe. Even submission to secular religions and cults involve willing subordination of the individual to the group. Religious practices confer biological advantages.<sup>[20]</sup>

Wilson used sociobiology and evolutionary principles to explain the behavior of the social insects and then to understand the social behavior of other animals, including humans, thus established sociobiology as a new scientific field. He argued that all animal behavior, including that of humans, is the product of heredity, environmental stimuli, and past experiences, and that free will is an illusion. He has referred to the biological basis of behaviour as the "genetic leash."<sup>[21]</sup> The sociobiological view is that all animal social behavior is

governed by epigenetic rules worked out by the laws of evolution. This theory and research proved to be seminal, controversial, and influential.<sup>[22]</sup>

The controversy of sociobiological research is in how it applies to humans. The theory established a scientific argument for rejecting the common doctrine of *tabula rasa*, which holds that human beings are born without any innate mental content and that culture functions to increase human knowledge and aid in survival and success. In the final chapter of the book *Sociobiology* and in the full text of his Pulitzer Prize-winning *On Human Nature*, Wilson argues that the human mind is shaped as much by genetic inheritance as it is by culture (if not more). There are limits on just how much influence social and environmental factors can have in altering human behavior.

## Ants and social insects

Wilson, along with Bert Hölldobler, has done a systematic study of ants and ant behavior,<sup>[23]</sup> culminating in their encyclopedic work, *The Ants* (1990). Because much self-sacrificing behavior on the part of individual ants can be explained on the basis of their genetic interests in the survival of the sisters, with whom they share 75% of their genes (though the actual case is some species' queens mate with multiple males and therefore some workers in a colony would only be 25% related), Wilson was led to argue for a sociobiological explanation for all social behavior on the model of the behavior of the social insects. In his more recent work, he has sought to defend his views against the criticism of younger scientists such as Deborah Gordon, whose results challenge the idea that ant behavior is as rigidly-predictable as Wilson's explanations make it.

Edward O. Wilson, referring to ants, once said that "Karl Marx was right, socialism works, it is just that he had the wrong species",<sup>[24]</sup> meaning that while ants and other eusocial species appear to live in communist-like societies, they only do so because they are forced to do so from their basic biology, as they lack reproductive independence: worker ants, being sterile, need their ant-queen to survive as a colony and a species and individual ants cannot reproduce without a queen, thus being forced to live in centralised societies. Humans, however, do possess reproductive independence so they can give birth to offspring without the need of a "queen", and in fact humans enjoy their maximum level of Darwinian fitness only when they look after themselves and their offspring, while finding innovative ways to use the societies they live in for their own benefit.<sup>[25]</sup>

## Consilience

In his 1998 book *Consilience: The Unity of Knowledge*, Wilson discusses methods that have been used to unite the sciences, and might be able to unite the sciences with the humanities. Wilson prefers and uses the term "*consilience*" to describe the synthesis of knowledge from different specialized fields of human endeavor. He defines human nature as a collection of epigenetic rules, the genetic patterns of mental development. He argues that culture and rituals are products, not parts, of human nature. He says art is not part of human nature, but our appreciation of art is. He argues that concepts such as art appreciation, fear of snakes, or the incest taboo (Westermarck effect) can be studied by scientific methods of the natural sciences. Previously, these phenomena were only part of psychological, sociological, or anthropological studies. Wilson proposes that they can be part of interdisciplinary research.

## The unit and target of selection

Wilson has argued that the "*unit* of selection is a gene, the basic element of heredity. The *target* of selection is normally the individual who carries an ensemble of genes of certain kinds." With regard to the use of kin selection in explaining the behavior of eusocial insects, Wilson said to *Discover* magazine, the "new view that I'm proposing is that it was group selection all along, an idea first roughly formulated by Darwin."<sup>[26]</sup>

## Spiritual and political beliefs

### Views on religion

As paraphrased by Michael McGoodwin<sup>[20]</sup>

The predisposition to religious belief is an ineradicable part of human behavior. Mankind has produced 100,000 religions. It is an illusion to think that scientific humanism and learning will dispel religious belief. Men would rather believe than know... A kind of Darwinistic survival of the fittest has occurred with religions... The ecological principle called Gause's law holds that competition is maximal between species with identical needs... Even submission to secular religions such as Communism and guru cults involve willing subordination of the individual to the group. Religious practices confer biological advantage. The mechanisms of religion include (1) objectification (the reduction of reality to images and definitions that are easily understood and cannot be refuted), (2) commitment through faith (a kind of tribalism enacted through self-surrender), (3) and myth (the narratives that explain the tribe's favored position on the earth, often incorporating supernatural forces struggling for control, apocalypse, and millennium). The three great religion categories of today are Marxism, traditional religion, and scientific materialism... Though theology is not likely to survive as an independent intellectual discipline, religion will endure for a long time to come and will not be replaced by scientific materialism.

### Scientific humanism

Wilson coined the phrase *scientific humanism* as "the only worldview compatible with science's growing knowledge of the real world and the laws of nature".<sup>[27]</sup> Wilson argues that it is best suited to improve the human condition. In 2003 he was one of the signers of the Humanist Manifesto.<sup>[28]</sup>

### God and religion

On the question of God, Wilson has described his position as *provisional deism*.<sup>[29]</sup> He has explained his faith as a trajectory away from traditional beliefs: "I drifted away from the church, not definitively agnostic or atheistic, just Baptist & Christian no more."<sup>[21]</sup> Wilson argues that the belief in God and rituals of religion are products of evolution.<sup>[30]</sup> He argues that they should not be rejected or dismissed, but further investigated by science to better understand their significance to human nature. In his book *The Creation*, Wilson suggests that scientists ought to "offer the hand of friendship" to religious leaders and build an alliance with them, stating that "Science and religion are two of the most potent forces on Earth and they should come together to save the creation."<sup>[31]</sup>

Wilson makes a similar suggestion, and appeal to the religious community, on the lecture circuit. An article on his September 17, 2009 lecture at Midland College, Texas, reports, "he said the appeal received a 'massive reply' and a covenant has been written. 'I think that partnership will work to a substantial degree as time goes on,' Wilson said."<sup>[32]</sup>

Wilson appears in the documentary *Behold The Earth*, which inquires into America's "divorce from nature" and the relationship between science and religion.

### Ecology

When discussing the reinvigoration of his original fields of study since the 1960s, Wilson has said that if he could start his life over he would work in microbial ecology.<sup>[33]</sup> He studied the mass extinctions of the 20th

century and their relationship to modern society, arguing strongly for an ecological approach:

Now when you cut a forest, an ancient forest in particular, you are not just removing a lot of big trees and a few birds fluttering around in the canopy. You are drastically imperiling a vast array of species within a few square miles of you. The number of these species may go to tens of thousands. ... Many of them are still unknown to science, and science has not yet discovered the key role undoubtedly played in the maintenance of that ecosystem, as in the case of fungi, microorganisms, and many of the insects.<sup>[34]</sup>

His understanding of the scale of the extinction crisis has led him to advocate a number of strategies for forest protection, including the Forests Now Declaration, which calls for new markets-based mechanisms to protect tropical forests.

## Criticism of human sociobiology

Wilson experienced significant criticism for his sociobiological views from several different communities. The scientific response included several of Wilson's colleagues at Harvard,<sup>[35]</sup> such as Richard Lewontin and Stephen Jay Gould, who were strongly opposed to his ideas regarding sociobiology. Marshall Sahlins's work *The Use and Abuse of Biology* was a direct criticism of Wilson's theories.<sup>[36]</sup>

Politically, Wilson's sociobiological ideas have offended some Marxists who favored the idea that human behavior was culturally based. Sociobiology re-ignited the nature-versus-nurture debate, and Wilson's scientific perspective on human nature led to public debate. He was accused of "racism, misogyny, and eugenics."<sup>[37]</sup> In one incident, his lecture was attacked by the International Committee Against Racism, a front group of the Progressive Labor Party, where one member poured a pitcher of water on Wilson's head and chanted "Wilson, you're all wet" at an AAAS conference in November 1978.<sup>[38]</sup> Wilson later spoke of the incident as a source of pride: "I believe...I was the only scientist in modern times to be physically attacked for an idea."<sup>[39]</sup>

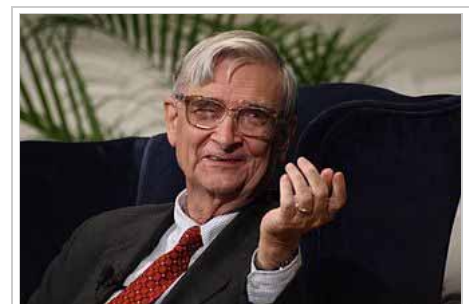
"I believe Gould was a charlatan," Wilson told *The Atlantic*. "I believe that he was ... seeking reputation and credibility as a scientist and writer, and he did it consistently by distorting what other scientists were saying and devising arguments based upon that distortion."<sup>[40]</sup>

Religious objections included those of Paul E. Rothrock, who said: "... sociobiology has the potential of becoming a religion of scientific materialism."<sup>[41]</sup>

## Awards and honors

Wilson's scientific and conservation honors include:

- Member, National Academy of Sciences, 1969
- U.S. National Medal of Science, 1976
- Pulitzer Prize for *On Human Nature*, 1979
- Tyler Prize for Environmental Achievement, 1984
- ECI Prize, International Ecology Institute, terrestrial ecology, 1987
- Academy of Achievement Golden Plate Award, 1988
- Crafoord Prize, 1990, a prize awarded by the Royal Swedish Academy of Sciences in certain sciences not covered by the Nobel Prize, and therefore considered the highest award given in the field of ecology
- Pulitzer Prize for *The Ants* (with Bert Hölldobler), 1991



Wilson at a "fireside chat" during which he received the Addison Emery Verrill Medal in 2007



- International Prize for Biology, 1993
- Carl Sagan Award for Public Understanding of Science, 1994
- *Time Magazine's* 25 Most Influential People in America, 1995
- Benjamin Franklin Medal for Distinguished Achievement in the Sciences of the American Philosophical Society, 1998.<sup>[42]</sup>
- American Humanist Association's 1999 Humanist of the Year
- Lewis Thomas Prize for Writing about Science, 2000
- Nierenberg Prize, 2001
- Distinguished Eagle Scout Award 2004
- Dauphin Island Sea Lab christened its newest research vessel the *R/V E.O. Wilson* in 2005.
- Addison Emery Verrill Medal from the Peabody Museum of Natural History, 2007
- TED Prize 2007 (<http://www.ted.com/tedprize/winners2007.cfm>) given yearly to *honor a maximum of three individuals who have shown that they can, in some way, positively impact life on this planet.*
- XIX Premi Internacional Catalunya 2007 (<http://www20.gencat.cat/portal/site/msi-dgac/menuitem.cfb4d0ec869dcac3934fec60b0c0e1a0/?vgnextoid=441e7109261a9210VgnVCM1000008d0c1e0aRCRD&vgnnextchannel=441e7109261a9210VgnVCM1000008d0c1e0aRCRD&vgnnextfmt=default>)
- Member of the World Knowledge Dialogue (<http://www.wkdialogue.ch>) Honorary Board, and Scientist in Residence for the 2008 symposium organized in Crans-Montana (Switzerland).
- Distinguished Lecturer, University of Iowa, 2008–2009
- E.O. Wilson Biophilia Center (<http://www.eowilsoncenter.org>) on Nokuse Plantation in Walton County, Florida 2009 Video (<http://www.vimeo.com/8678440>)
- Explorers Club Medal, 2009
- BBVA Frontiers of Knowledge Award in the Ecology and Conservation Biology Category (<http://www.fbbva.es/TLFU/tlfu/ing/microsites/premios/fronteras/index.jsp>), 2010
- Thomas Jefferson Medal in Architecture, 2010
- 2010 Heartland Prize for fiction for his first novel *Anthill: A Novel*<sup>[43]</sup>
- EarthSky Science Communicator of the Year, 2010



Dr. E.O. Wilson addresses the audience at the dedication of the E.O. Wilson Biophilia Center at Nokuse Plantation in Walton County, Florida.

## Main works

- *The Theory of Island Biogeography*, 1967, Princeton University Press (2001 reprint), ISBN 0-691-08836-5, with Robert H. MacArthur
- *The Insect Societies* (<http://www.hup.harvard.edu/catalog.php?isbn=9780674454903>), 1971, Harvard University Press, ISBN 0-674-45490-1
- *Sociobiology: The New Synthesis* 1975, Harvard University Press, (Twenty-fifth Anniversary Edition, 2000 ISBN 0-674-00089-7)
- *On Human Nature*, 1979, Harvard University Press, ISBN 0-674-01638-6
- *Genes, Mind and Culture: The coevolutionary process*, 1981, Harvard University Press, ISBN 0-674-34475-8
- *Promethean fire: reflections on the origin of mind*, 1983, Harvard University Press, ISBN 0-674-71445-8
- *Biophilia* (<http://www.hup.harvard.edu/catalog.php?isbn=9780674074422>), 1984, Harvard University Press, ISBN 0-674-07441-6
- *Success and Dominance in Ecosystems: The Case of the Social Insects*, 1990, Inter-Research, ISSN 0932-2205
- *The Ants*, 1990, Harvard University Press, ISBN 0-674-04075-9, Winner of the Pulitzer Prize, with Bert Hölldobler
- *The Diversity of Life* (<http://www.hup.harvard.edu/catalog.php?isbn=9780674058170>), 1992, Harvard

University Press, ISBN 0-674-21298-3, *The Diversity of Life: Special Edition* (<http://www.hup.harvard.edu/catalog/WILDIS.html>), ISBN 0-674-21299-1

- *The Biophilia Hypothesis*, 1993, Shearwater Books, ISBN 1-55963-148-1, with Stephen R. Kellert
- *Journey to the Ants: A Story of Scientific Exploration*, 1994, Harvard University Press, ISBN 0-674-48525-4, with Bert Hölldobler
- *Naturalist*, 1994, Shearwater Books, ISBN 1-55963-288-7
- *In Search of Nature*, 1996, Shearwater Books, ISBN 1-55963-215-1, with Laura Simonds Southworth
- *Consilience: The Unity of Knowledge*, 1998, Knopf, ISBN 0-679-45077-7
- *The Future of Life*, 2002, Knopf, ISBN 0-679-45078-5
- *Pheidole in the New World: A Dominant, Hyperdiverse Ant Genus* (<http://www.hup.harvard.edu/catalog.php?isbn=9780674002937>), 2003, Harvard University Press, ISBN 0-674-00293-8
- *From So Simple a Beginning: Darwin's Four Great Books*. 2005, W. W. Norton.
- *The Creation: An Appeal to Save Life on Earth*, September 2006, W. W. Norton & Company, Inc. ISBN 978-0-393-06217-5
- *Nature Revealed: Selected Writings 1949-2006*, ISBN 0-8018-8329-6
- *The Superorganism: The Beauty, Elegance, and Strangeness of Insect Societies*, 2009, W.W. Norton & Company, Inc. ISBN 978-0-393-06704-0, with Bert Hölldobler
- *Anthill: A Novel*, April 2010, W. W. Norton & Company, Inc. ISBN 978-0-393-07119-1
- *Kingdom of Ants: Jose Celestino Mutis and the Dawn of Natural History in the New World*, 2010, Johns Hopkins University Press, Baltimore, with José María Gómez Durán
- *The Leafcutter Ants: Civilization by Instinct*, 2011, W.W. Norton & Company, Inc. ISBN 978-0-393-33868-3, with Bert Hölldobler
- *The Social Conquest of Earth*, 2012, Liveright Publishing Corporation, New York, ISBN 978-0-87140-413-8

## Edited works

- *From So Simple a Beginning: Darwin's Four Great Books*, edited with introductions by Edward O. Wilson (2010 W.W. Norton)

## See also

- Sociobiology
- Biodiversity
- Biophilia hypothesis
- Westermarck effect
- Green economics
- Evolutionary psychology
- Human behavioral ecology
- Dual inheritance theory
- Richard Machalek
- Barry Lopez
- Bert Hölldobler
- Myrmecology
- Superorganism
- Biomass
- Encyclopedia of Life
- The 2005 Global Intellectuals Poll

## Footnotes

1. <sup>^</sup> <http://www.guardian.co.uk/science/2012/jun/24/battle-of-the-professors>
2. <sup>^</sup> "Lord of the Ants documentary" (<http://documentaryhive.com/lord-of-the-ants/>). VICE. 2009. Retrieved 18 February 2013.
3. <sup>^</sup> <sup>a</sup> <sup>b</sup> Novacek, Michael J. (2001). "Lifetime achievement: E.O. Wilson" (<http://web.archive.org/web/20061014091550/http://www.cnn.com/SPECIALS/2001/americasbest/science.medicine/pro.eowilson.html>). CNN.com. Archived from the original (<http://www.cnn.com/SPECIALS/2001/americasbest/science.medicine/pro.eowilson.html>) on 2006-10-14. Retrieved 2006-11-08.
4. <sup>^</sup> "E.O. Wilson Profile" (<http://www.metrokc.gov>



- /dnrp/swd/naturalconnections  
/edward\_wilson\_bio.htm) - Comprehensive list of Degrees, Awards and Positions
5. <sup>^</sup> Archive.org; E. O. Wilson biography (<http://web.archive.org/web/20101208080544/http://alabamaliterarymap.org/author.cfm?AuthorID=16>)
  6. <sup>^</sup> <http://www.nytimes.com/best-sellers-books/2012-05-06/hardcover-nonfiction/list.html>
  7. <sup>^</sup> <http://www.nytimes.com/best-sellers-books/2013-05-05/hardcover-nonfiction/list.html>
  8. <sup>^</sup> *a b c d e f g h i j k l m* Edward O. Wilson – Naturalist, Island Press; (April 24, 2006), ISBN 1-59726-088-6
  9. <sup>^</sup> first-hand account, Smithsonian Institution talk, April 22, 2010
  10. <sup>^</sup> *a b* "E.O. Wilson Biography" (<http://www.achievement.org/autodoc/page/wil2bio-1>). *Academy of Achievement*.
  11. <sup>^</sup> Connie Barlow. "The Epic of Evolution: Religious and cultural interpretations of modern scientific cosmology" ([http://www.science-spirit.org/article\\_detail.php?article\\_id=31](http://www.science-spirit.org/article_detail.php?article_id=31)). *Science & Spirit Magazine*.
  12. <sup>^</sup> Edward O. Wilson, Foreword of *Everybody's Story: Wising Up to the Epic of Evolution* By Loyal D. Rue, SUNY Press, 1999, page ix and x, ISBN 0-7914-4392-2,
  13. <sup>^</sup> Edward O. Wilson, Consilience 1998 (<http://www.thegreatstory.org/ClassicQuotes.pdf>)
  14. <sup>^</sup> Brian Swimme interview (<http://www.earthlight.org/interview26.html>)
  15. <sup>^</sup> Rue, Loyal (1999). *Everybody's Story: Wising Up to the Epic of Evolution*. SUNY Press. ISBN 0-7914-4392-2.
  16. <sup>^</sup> Chaisson, Eric (2006). *Epic of Evolution: Seven Ages of the Cosmos*. Columbia University Press. ISBN 0-231-13560-2.
  17. <sup>^</sup> Thomas, Alfred K. (1989). *The Epic of Evolution, Its Etiology and Art: A Study of Vardis Fisher's Testament of Man*. University Microfilms International.
  18. <sup>^</sup> Miller, James B (2003). *The Epic of Evolution: Science and Religion in Dialogue*. Pearson/Prentice Hall. ISBN 0-13-093318-X.
  19. <sup>^</sup> Kaufman, Gordon. *The Epic of Evolution as a Framework for Human Orientation*, 1997
  20. <sup>^</sup> *a b c* Edward O. Wilson: On Human Nature - Summary by Michael McGoodwin, prepared 1991 [1] ([http://mcgoodwin.net/pages/otherbooks/eow\\_humannature.html](http://mcgoodwin.net/pages/otherbooks/eow_humannature.html))
  21. <sup>^</sup> *a b* E. O. Wilson, Consilience: The Unity of Knowledge, New York, Knopf, 1998, pp. 127-128.
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## External links

- E.O. Wilson Foundation (<http://eowilsonfoundation.org/>)

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