In January 1980, at the commencement of a new decade, the journal *Harvard Magazine* asked several Harvard professors what they consider to be the major problems for humanity in the future. Edward O. Wilson replied (1):

The worst that can happen—will happen—is not energy depletion, economic collapse, limited nuclear war, or conquest by a totalitarian government. As terrible as these catastrophes would be for us, they can be repaired within a few generations. The one process ongoing in the 1980s that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This folly our descendants are least likely to forgive us.

Indeed, we have hardly begun to understand the significance of the diversity of life on our earth. Many of the species, which go extinct, will never be known to mankind because the study of biodiversity long has been the “stepchild” in biological sciences. That this irresponsible negligence, this dangerous ignorance concerning the complex and fragile texture of nature in which we live, finally became part of public awareness is largely due to the writings—and yes, preaching—of Edward Osborne Wilson, who died on December 26, 2021.

Ed Wilson was not an extrovert or flamboyant person who thrives when standing in the limelight of public attention. Just the contrary: He was a scientist and scholar, most happy in the library or at the desk in his study, or in the tropical rain forest, cutting up rotting wood searching for little known ant species that specialize in hunting mites. But during his almost 70 years of scientific work, Ed Wilson witnessed the human-made habitat destruction and mass extinction of life forms, which finally drove him to become a chief advocate for the new field of conservation biology and the study of biodiversity. His pioneering work provided the intellectual foundation for this advance.

Edward Osborne Wilson was born on June 10, 1929, in Birmingham, Alabama. He described his childhood as “blessed,” saying, “I grew up in the...
Old South, in a beautiful environment, most insulated
from its social problems.” Nevertheless, when a little
boy he lost the sight of his right eye in a fishing acci-
dent. He wrote: “The attention of my surviving eye
turned to the ground. I would therefore celebrate the
little things of the world; the animals that can be
picked up between thumb and forefinger and
brought close for inspection” (2). At the University of
Alabama in Tuscaloosa, Ed studied biology, receiving
his bachelor’s degree in 1949 and his master’s the
following year. He was a brilliant student and though
he was unable to pay the tuition to go to Harvard
University, he was nevertheless accepted as a gradu-
ate student to this distinguished university. He had
already begun studying ants in his native south and
published some articles, so the Research Museum of
Comparative Zoology of Harvard University, with its larg-
est ant collection in the world, became “his destiny.”

Ed received the prestigious Junior Fellowship
from the Society of Fellows at Harvard (1953–1956)
and in 1955 he obtained his doctorate with a superb
documental thesis on the systematics of the ant genus
Lasius. Although systematic biology and the study of
biodiversity remained his mission, Ed also made
highly significant contributions to other fields in
organismic biology, such as animal behavior and
chemical ecology. His work on chemical communica-
tion in animals, especially in social insects, both from
empirical and theoretical perspectives (in collaboration
with the chemist Fred Regnier, Purdue University, and
the mathematician William H. Bossert, Harvard Univer-
sity), influenced a whole generation of young scientists
that explored a completely new area in behavioral
physiology. I was one of them, and I met Ed Wilson for
the first time in 1969 when I was a visiting scholar at
Harvard University.

Fifteen years earlier, in 1954, even before he
received his doctoral degree, Ed journeyed to New
Guinea and other Melanesian islands to collect ants
and conduct extensive taxonomic and biogeographic
studies. Based on the data he obtained from his field
work, he further elaborated on the critique of the
notion of subspecies that he developed jointly with
the late William L. Brown in 1953. And he undertook
seminal research on so called “character dis-
placement,” which occurs when two similar species,
occupying the same geographic area, diverge geneti-
ically, presumably to avoid competition for resources.
Based on the data collected during his field work in
Melanesia and later in the Caribbean Islands, Ed
developed the concepts of taxon cycle and species
equilibrium, which became the core of the very influ-
te, book The Theory of Island Biogeography (3),
published 1967 with the late Robert MacArthur of
Princeton University, in which they also developed
the widely used life history theory of r- and
K-selection. Even more remarkable, Ed and his for-
mer student, Daniel Simberloff (now Professor of
Environmental Studies at the University of Tennes-
see), went on to empirically test and refine several of
these concepts with elegant experiments they con-
ducted in the Florida Keys. The book and the pio-
neering experimental work had far-reaching effects
on studies in evolutionary ecology and the conserva-
tion of ecosystems.

It was exceptional for Ed Wilson, for he usually
did not dwell on and further elaborate on projects he
helped to initiate; instead, he moved forward to new
frontiers.

From early on in his career, Ed was fascinated by
social insects, such as ants, social bees, wasps, and
termites, and how such social life evolved on this
planet. He studied division of labor in several ant
species and by employing quantitative ethograms,
discovered that different ant species vary in their
age-dependent labor roles and specialization accord-
ing to morphological worker subcastes. This work
culminated in the book Caste and Ecology in the
Social Insects (4), which he wrote jointly with the
mathematician George F. Oster of the University of
California, Berkeley, in 1978, in which they pre-
sented, among other novel concepts, the theory of
adaptive demography that is not only relevant for
insect societies. But these studies did not answer the
question of how social life originated on this planet.

In the 1960s, new theories concerning kin and
group selection were published, which seemed to
cast new light on our understanding of the evolution
of insect societies. Ed incorporated and expanded
these new concepts in his outstanding book The
Insect Societies (5) published in 1971.

By that time, the ideas and theoretical foundation
for a much more far-reaching synthesis on the evolu-
tion of social systems on Earth had matured, mainly
due to the pioneering theoretical work of George
Williams, William D. Hamilton, and Robert Trivers. Ed
Wilson commenced writing the massive work Socio-
biology: The New Synthesis (6), originally published
1975, in which he covered all the organisms that
could even remotely be called “social,” from colonial
bacteria and amoebo to troops of monkeys and other
primates, including humans. The book Sociobiology
was widely hailed as laying the basis for new means
of understanding the evolution of various social
behaviors. In a survey conducted by the Animal

Ed Wilson and Bert Holldobler inspecting a nest of the ant Lasius
fuliginosus in Bavaria in 2000.
Behavior Society in 1995, this book was voted the most influential publication for the field in the past 20 years. Nevertheless, the last chapter of his book titled “Man—From Sociobiology to Sociology,” ignited great controversy, which was to in large part politically motivated. Ed Wilson defended himself brilliantly and looking back, there is no doubt in my mind: He won! The debate stimulated him to write yet another, even more provocative book, On Human Nature (7), published in 1978. For this book, he received his first Pulitzer Prize. In 1981, the book Genes, Mind and Culture: The Coevolutionary Process (8) was published. He coauthored it with the mathematical biologist Charles Lumsden of the University of Toronto. They developed the first general theory of gene–culture coevolution. These books prepared the ground from which his much discussed book Consilience: The Unity of Knowledge (9) originated, which one reviewer called a biologist’s dream of the unity of knowledge. These books ignited great interest among evolutionary biologists, anthropologists, sociologists, psychologists, and philosophers, but they were not always met with full agreement.

Despite all the success and publicity these books brought Ed, the fate of the diversity of life remained deeply engrained in his mind. In 1984, his very original book Biophilia (10) appeared on the market. It is about the deep human empathy for the natural world, and he argued that feeling pleasure in being surrounded by a diversity of living organisms is an ancient biological adaptation. Paul Ehrlich, the renowned biologist from Stanford University, greeted it with the following statement: “This is the best thing I have ever read on the need for developing a deep environmental ethic if our civilization is to persist.”

Ed Wilson’s efforts for conservation biology culminated with the publication of his immensely inspiring book Half-Earth: Our Planet’s Fight for Life (11), published in 2016. It is a well-reasoned plea to protect biodiversity, which was on Ed’s mind to the end of his life.

I joined Harvard University as Professor of Biology in early 1973. I had the great pleasure of sharing with Ed Wilson the fourth floor of the Museum of Comparative Zoology Laboratories at Harvard University for 17 years. Although we had our separate research groups and programs, on many occasions we joined our talents and formed a two-person team. Our collaboration culminated with the publication of our book, The Ants (12), published in 1990, which—to our utter surprise—was the first scientific book ever awarded the Pulitzer Prize for nonfiction writing.

I remember that Ed was particularly interested in the genus Pheidole, a genus with extremely high species diversity, and he wanted to make a taxonomic revision of all Pheidole species in the New World. Ed was an early riser and for years he spent an hour or so every morning at the microscope in his Lexington home and sketched the mounted specimens of hundreds of Pheidole species. Finally, in 2003 the book Pheidole of the New World (13), a coffee table-sized volume of 794 pages, was published. The book is dedicated to his friend and early mentor at Harvard University, William L. Brown Jr., who also was a major contributor to the Pheidole collection in the Museum of Comparative Zoology and in fact, collaborated with Ed on this project until he died 1997. Nevertheless, Ed still collected many new species himself and I witnessed one such collecting event.

Ed and I conducted several research trips to Costa Rica. On such occasions I experienced Ed’s enormous enthusiasm for the diversity of life, his tremendous knowledge of natural history, and his unending drive as a collector. After having spent 2 weeks or so in the La Selva rainforest, we returned to San Jose. On the evening before our departure back to Boston, Ed invited me to a restaurant located behind a little city park close to our hotel. At the entrance of the park Ed spotted a trail of a Pheidole ant colony, the ant genus he was currently revising. Within seconds he was down on his hands and knees, and with an aspirator collection device in his mouth, he followed the trail, picking up Pheidole workers like an ant-eater. But Ed was not so much interested in the workers; for his taxonomic work he needed Pheidole soldiers, which he could not find along the trail. So, he crawled along the trail to get to the nest entrance, and to the absolute bewilderment of the park visitors, Ed was oblivious to having approached a young passionately embracing couple standing behind the bush where the Pheidole nest entrance was located.

The behavior of this fanatic myrmecologist was so suspicious that the police appeared on the scene to inquire about our strange activities. At that end of the evening, Ed had discovered six or seven new Pheidole species in this little city park in San Jose. We never made it to this little restaurant that Ed had recommended to me with mouthwatering superlatives.

Ed Wilson was a gentle, warm person, but he did not shy away from controversy. About 20 years ago, he had begun rejecting the inclusive fitness or kin selection theory, that he once propagated himself. Ed and I agreed that in ant species with advanced social organizations, the entire colony exhibiting variation of their species-specific traits can be considered an extended phenotype on which selection operates. However, I never understood why this should challenge inclusive fitness theory. But Ed insisted and together with his Harvard colleagues, Martin A. Nowak and Corina E. Tamita, he published in the journal Nature a scathing criticism of the theory of inclusive fitness (14). This led to a heated debate, and I found myself opposing some of his views. When we finally found a compromise and submitted the manuscript of our book The Superorganism (15) to the publisher, Ed’s concluding remark was: “Bert, there is one thing we agree on 100%. That is: my coauthor is wrong.” One could disagree with Ed over scientific issues and remain good friends.

E. O. Wilson continued publishing books expressing his thoughts about the meaning of human existence, the origin of creativity, and on the social
conquest of Earth. He was an exceptionally gifted storyteller, with the typical charm of a Southerner that shines through in his wonderful autobiography, Naturalist (2), or his very recently published little book, Tales from the Ant World (16).

Although by nature he was a rather private man, he was a gifted and inspiring teacher and he cared for the next generations of naturalists, wonderfully exemplified in his little book, Letters to a Young Scientist (17).

Ed received more prizes, awards, and medals than anyone I know. Among his many honors are the National Medal of Science presented to him by President Jimmy Carter, the Gold Medal of the World Wide Fund International, the International Japan Prize, the Crafoord Prize of the Swedish Royal Academy of Sciences, two Pulitzer-Prizes, the King Faisal Prize (which he shared with Craig Venter), and many more awards. He is a member of many national and international academies and the recipient of 46 honorary degrees. Though such recognition obviously pleased him, Ed never gave too much importance to these academic decorations. As he wrote (2): “In my heart I will be an explorer naturalist until I die.”

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