

**“I think we can change, because it is a natural part of who we are.”**

Edward O. Wilson, the world’s preeminent evolutionary biologist, on the importance of diversity

**E. O. Wilson is celebrated as one of the world’s best-known biologists, a champion of earth’s biodiversity, and a campaigner for conservation measures to protect it. His major concern is that unless we pause to appreciate and defend the diversity of life on our planet, we could lose an enormous number of species along with access to vast amounts of knowledge that we have barely explored, and much of the natural heritage of future generations.**

WHEREAS BUSINESSES may ponder why some companies and sectors are more successful than others, E. O. Wilson, who has spent his entire career delving deeply into evolutionary biology, is preoccupied with why some species are more successful than others.

“In business, one speaks of a ‘balanced portfolio’ and ‘flexibility’ and ‘innovation,’” Wilson explains to The Focus during our interview. “In ecosystems, we speak of the same thing – of a balanced portfolio – when it comes to the diversity of species that exists in an ecosystem, and the flexibility of that ecosystem. A parallel that fits a broad model of what keeps a system healthy, growing, and resistant to change.”

## Of ants and men

Blessed with curiosity, intelligence, and an uncanny ability to synthesize information – as well as a delightful Southern charm – Wilson has nonetheless had to struggle since an early age against near-blindness and impaired hearing. It was this sensory handicap that focused a young Wilson on something he could see up close – ants – and there is arguably no one past or present who knows more about these little creatures.

Staring at ant colonies might seem an odd vantage point from which to extrapolate the kind of information that one needs to address a vast universe of animal life, but that is precisely what Wilson has done. His patient observation of ants has helped him to formulate theories of biological evolution large enough to encompass all living creatures, including us. At the core of these theories is the critical role that diversity plays.

Wilson’s newest book, *The Social Conquest of Earth*, deals with the origins of social behavior in humans and other animals, such as ants, and how it is reflected in our current predicament. After all, how did we grow from a small band of advanced primates in eastern Africa to spread across the globe and number more than seven billion? And how is it that we humans, who have depended on diversity for our species’



survival, let alone advancement, have now placed the world's biological fecundity in such danger?

"We are beginning to see with increasing clarity all the conditions under which a very small number of species through evolutionary time have come to dominate the world," Wilson explains. "Those very small percentages of species – humans among the larger creatures, and social insects among the very small ones – are the dominant creatures on earth in terms of numbers."

It took ants, bees, wasps, and termites millions of years to evolve to this state, and they haven't upset the earth's ecosystem in any substantial way. Humans, on the other hand, arrived at their present state very rapidly, at least in evolutionary terms, over the course of about two to three million years. "That is a very small stretch of time, and we are having a devastating effect," Wilson says. "This is the reason why humanity is causing so much damage as it settles down and adapts to its own genius."

### The vulnerability of diversity

"I believe the issue of diversity, the amount of it and the content of it, is vital to every aspect of human activity," Wilson says. And yet, in his view, the greatest threat to the future of that we are the impact that we are having on this very diversity. There have been five mass extinctions in the four-billion-year history of life on earth, Wilson explains, and we are now in the midst of the sixth great extinction, caused solely by human actions. The current rate of extinction is roughly 1,000 times greater than just 200 years ago.

"We cannot conceive of preserving and increasing the quality of life of humanity indefinitely unless we have the resilience and adaptability of life forms around to sustain us," Wilson says. "In order for the rest of life to continue to flourish – or to even exist – it is necessary for humanity to preserve as much of the diversity of what remains as we possibly can."

The number of known species of plants, animals, and microorganisms is about 1.9 million, but Wilson believes that the actual number is likely much higher, perhaps well over five million or even far more. "We are living in a little-known world with new species being discovered all the time," Wilson says. "But we are also eliminating species at a very rapid rate. If we continue to utilize and use up the remaining wild environments, as we are doing now, we will lose or push to the point of extinction as many as half of the world's species by the end of this century."

The continuing destruction of the world's rainforests, which are considered diversity "hotspots" or "habitat islands" in a sea of human development, is wiping out at an alarming rate species that have existed for tens of millions of



years and genetically limiting those that have so far managed to survive. But one doesn't have to threaten thousands of species to destroy an ecosystem. Sadly, it's much easier than that. "Ecosystems can crumble and grow ineffective very easily if they are not carefully preserved in something like their natural condition," Wilson says.

In fact, it only takes the destruction of an ecosystem's so-called keystone species – a reference to the keystone on an arch that holds the whole structure up – to wreak terrible havoc. "Even though these species may be only a handful out of thousands in a particular ecosystem, they are needed in good health to maintain the whole ecosystem," Wilson explains. He points to the example of the American marine otter. When the otters were hunted for their fur to the point of near extinction along the northern Pacific coast, sea urchins no longer had a natural predator. Consequently, the sea urchins multiplied to such an extent that they overwhelmed an ecosystem centered on vast coastal kelp forests, which are nurseries for many kinds of marine crea-

tures. “It was close to catastrophic,” Wilson says. “With the otters now being allowed to repopulate, the kelp is slowly coming back. But we are faced with many other examples all over the world of this kind of phenomenon.”

### Partnering with business

Beyond the obvious losses, Wilson says, ecosystem destruction, and the corresponding loss of diverse species, means we are losing a priceless repository of genetic information with potential uses in agriculture, technology, and medicine.

As a first critical step, Wilson advocates – through his E. O. Wilson Biodiversity Foundation – the preservation of the world’s 35 hotspots of biodiversity that cover just 1.5 percent of the earth’s land surface (such as the forests of Madagascar and of the Amazon and Congo Basins) but contain 60 percent of all species. “We could save as much as half of the endangered species of the world that we know about by protecting these hotspots at a cost of about \$50 billion,” Wilson says. “If that much were invested in protecting these reserves, as well as in helping develop the economies of those who live in and around these areas so that they would be incentivized to help protect them, then we could really accomplish something great.”

Wilson sees business as a logical partner in his quest to protect the world’s ecosystems. “There are many ways to promote business – economic growth in the narrowest sense – by taking care of the rest of life on earth,” he says. “A large percentage of the medicines we use have an origin in natural products. And we know that there are pharmaceuticals yet to be discovered that could have a powerful influence on medicine. The science of biotechnology is at a primitive stage and its advancement is also dependent on the continued study of biodiversity.”

### RESUMÉ Edward O. Wilson

**Edward Osborne Wilson was born in 1929 in the American South. He graduated from the University of Alabama, and earned his doctorate from Harvard, where at 26 he became one the youngest members of the university’s faculty. Wilson soon ranked among the top naturalists in the world, becoming the foremost expert on ants and a giant in the world of scientific thought. He is the author of two dozen books, two of which won the Pulitzer Prize – *On Human Nature*, and *The Ants* – and has published more than 400 scientific papers.**

Proper ecological stewardship also leads to vast savings. As Wilson points out, much of the destruction from Hurricane Katrina, which devastated New Orleans and much of the Gulf Coast in 2005, killing nearly 2,000 people and causing billions of dollars of damage, could have been avoided if the well-forested barrier islands and natural shoreline groves had been protected from human development. These forest ecosystems are termed “ecological services,” and are provided by nature free of charge. “Everything becomes much more expensive to maintain in their absence,” Wilson says.

Ethical behavior plays a key role as well when it comes to protecting earth’s precious ecological diversity, Wilson adds. “There is such a thing as business ethics, and there is such a thing as human ethics, and there is such a thing as the love of life that human beings have. If we have any concern whatsoever about ethics in business and economic development for these hard-to-measure values of the human spirit, then we should be talking more about ethics in terms of business mandates to help protect the environment.”

### Altruistic groups prosper

Wilson is the first to admit that there is not much that humans can learn from ants in terms of the sort of attributes we like to associate with our species, such as morality and good behavior. “My answer to that is a simple ‘nothing,’” Wilson says. “We don’t want to be like ants. Their societies are all one sex, which happens to be female, and they are constantly at war, far more so than humans. We do not want to imitate ants in any respect whatsoever.” But ants make for an opportune foil when viewing human nature.

According to Wilson’s new theory, our particular species’ saving grace – and hopefully the planet’s as well – is that we’ve developed certain group traits to help us succeed in evolutionary terms, among them cooperation and altruism. “Selfish individuals win within groups, but groups of altruistic individuals beat out groups of selfish individuals,” Wilson explains. “Group selection is where we find what we call the ‘strengths and virtues of human society.’”

Thus, Wilson remains an optimist. Through education, he believes that humans will find the motivation to alter their behavior before we have an irreversibly lasting impact on that critical ingredient to all human endeavors: diversity. “Education is the best way to save everything,” he says.

“I think we can change, because it is a natural part of who we are,” he continues. “We have reached a point of failure in terms of how we deal with the natural environment, and we now feel and see the necessity of applying reason and science to improve the situation. As the Israeli diplomat Abba Eban famously said ‘History teaches us that men and nations behave wisely once they have exhausted all other alternatives.’”