

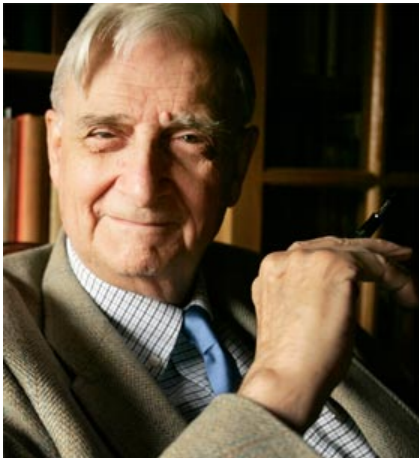
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A Conversation With E.O. Wilson

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In 1984, Edward Wilson published a slim volume called *Biophilia*. In it he proposed the eponymous term, which literally means "love of life," to label what he defined as humans' innate tendency to focus on living things, as opposed to the inanimate. While Wilson acknowledged that hard evidence for the proposition is not yet strong, the scientific study of biophilia being in its infancy, he stressed that "the biophilic tendency is nevertheless so clearly evinced in daily life and widely distributed as to deserve serious attention." He also hoped that an understanding and acceptance of our inherent love of nature, if it exists, might generate a new conservation ethic. On the eve of the book's 25th anniversary, NOVA's Peter Tyson spoke with the "father of biophilia" in his office at Harvard about where the concept stands today and what could happen—to both the natural and human worlds—if we fail to cultivate it.



"The reason I'm an optimist," says Edward Wilson, referring to where society stands in terms of protecting the natural world, "is that we still have a lot of elasticity, a lot of wiggle room." [Enlarge](#)

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THE EVIDENCE SO FAR

NOVA: Is there a general consensus in the scientific community about whether biophilia exists? And if so, about whether it's innate, learned, or a combination of the two?

E.O. Wilson: Well, there is no doubt that I've ever seen that it exists. And there seems to be little doubt, at least I haven't seen a critique of it, that it has at least a partial genetic basis. It's too universal, and the cultural outcomes of it in different parts of the world are too convergent to simply call it an accident of culture. There's probably a complex of propensities that form convergent results in different cultures, but it also produces the ensemble of whatever these propensities are.

We have to distinguish, for example, between the apparently innate preference of habitat—an idea originally worked out by Gordon Orians at the University of Washington—and the deep love people have for their pets, which tends to be more a matter of human surrogates, particularly child surrogates. These are very different impulses, but nonetheless they add up together to something very strong.

And in between, of course, is what can only be broadly called "the love of nature." I think that an attraction for natural environments is so basic that most people will understand it right away. The scientific evidence for the whole ensemble of pieces of it have been summarized in *The Biophilia Hypothesis*, which Steve Kellert and I edited. That's a little out of date; there's been a lot more since then. But it's a solid body of evidence in different disciplines.

In *Biophilia*, Wilson says the human body is well-adapted to life on the African savannas (here, acacias in the Serengeti), then asks, "But is the *mind* predisposed to life on the savanna...? [Enlarge](#)

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I found that book incredibly rich. You get all these essays from heavy thinkers, people who've really thought about it.

That's very true. In fact, there are specialists in aspects of this. For example, those who study the biology and the psychology of phobias quickly arrive at the flip side of biophilia. But I always wanted biophobias to be part of biophilia, because the evidence is that the response to predators and to poisonous snakes (which spreads out to snakes generally) generate so much of our culture: our symbolism, the traits we give gods, the symbols of power, the symbols of fear, and so on. They are so pervasive that we need to include biophobia under the broad umbrella of biophilia, as part of the ensemble that I mentioned.

Since *The Biophilia Hypothesis* came out in 1993, have there been any genetic discoveries that support the notion of biophilia?

I haven't tried to keep up with it beyond that meeting [held in August 1992 at the Woods Hole Oceanographic Institution to discuss biophilia and out of which the book came]. But with work by investigators like Arne Öhman [a psychologist at the Karolinska Institute in Sweden who has worked on phobias] and others, they'd already gone into such detail about development and the probable hereditary basis and so on, that the evidence is very strong that way.

Eventually, I think we will know a lot more, including where the genes are located and which fear receptors are activated. I'm pretty sure the fear response will be found to be particularly sensitive to certain inputs, and that will include both pleasurable, emotional feedback and the excitement of fear.



Biophobia is the flip side of biophilia, Wilson says. Pictured, a Southern Pacific rattler. [Enlarge](#)

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Do you think, as Gary Paul Nabhan and Sara St. Antoine write in *The Biophilia Hypothesis*, that the genes for biophilia, if they exist, now have fewer environmental triggers to stimulate their full expression among contemporary cultures than they used to?

That's an interesting question. As I pointed out in the chapter on the serpent in *Biophilia*, the vast majority of people don't ever see a snake in nature. And they're sure not being hunted by cave lions and oversized crocodiles, although they were universally through most of the history of the species. So that part of it is far less true. Also far less true is the chance to unfold more completely a sense of belonging to a habitat, particularly savanna, although that continues to resonate in our making choices for habitation, having city parks, and the like.

It's becoming part of the culture to think rationally about saving the natural world.

So I think that [a sense of biophilia still] resonates strongly, yet probably they are right, it doesn't develop as fully as it did in our ancestors 10,000 or even 5,000 years ago.

AN OPTIMISTIC VIEW

With the world's population exploding, is it still possible for most people to nurture a sense of biophilia? Or is it likely to be just crushed underfoot, particularly among poor people? In the rich countries we have the luxury to think about these things, but what about the peasant farmer in the Amazon who's just trying to feed his family?

That is the dilemma of the 21st century—the juggernaut of development, which is extremely hard to stop. The destruction of tropical forests is a good focal point too. (And tropical *grassland*. Since the 1970s, 80 percent of the tropical grasslands have been destroyed and developed. That's one [ecosystem] we don't think about very much, but tropical grasslands are extremely rich. We don't know how much biodiversity and local ecosystems have gone from that [loss] alone.)

But considering tropical forests, in some parts of the world slash-and-burn [agriculture] has been a key force of destruction. That's particularly true of Africa; that combined with bushmeat hunting is devastating parts of Africa.



Dry-land agriculture offers hope for sparing the world's remaining tropical rain forests, Wilson says (here, a portion of the upper Amazon basin in Ecuador). "Once that gets introduced, even poor people would be better off." [Enlarge](#)

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We don't *need* to clear the 4 to 6 percent of the Earth's surface remaining in tropical rain forests, with most of the animal and plant species living there. We don't need to clear that. *Any* of it. There are ways of taking what's been cleared and devastated, other habitats like saline, you know, with low biodiversity and dry land. The Sahel, the spreading dry country south of the Sahara, *begs* for the development of dry-land agriculture. Once that gets introduced, even poor people would be better off.

As you can see, I'm a pessimist. No, I'm not a pessimist. [laughs] I'm an optimist.

You are an optimist. But how do you keep optimistic in the face of this juggernaut, as you termed it? And, as you asked in *Biophilia*, do we humans love the Earth enough to save it?

I doubt that most people with short-term thinking love the natural world enough to save it. But more and more are beginning to get a different perspective, particularly in industrialized countries. It's becoming part of the culture to think rationally about saving the natural world. Both because it's the *right* thing to do—and notice the quick spread of this attitude through the evangelical community—but we will save the natural world in order to save ourselves.

I think the right way of looking at it, and the reason I'm an optimist, is that we still have a lot of elasticity, a lot of wiggle room. The kinds of elasticity and wiggle room that would allow us to save virtually *all* of the natural environments in the world while dramatically improving ourselves with the land and with the technology yet undeveloped.

Look at this country. This is what I consider real patriotism. Look at the United States of America and say we are at risk from various major movements worldwide of losing our edge, of losing our leadership. We don't need to. We have the greatest scientific minds and capacities in the world. We have experience, and the kind of capitalist system to build technologies swiftly. We can, if we want, lead the world in two areas right away.



"We need a whole new agriculture," Wilson says, one that replaces conventional crops like wheat. [Enlarge](#)

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One is alternative energy, if we have the will to do it. We can produce the technology that others would beg, borrow, or steal to get. We're in better shape to do it. And we have some elasticity even within our country, so that we're not going to suffer anywhere while we do this changeover.

Soccer moms are the enemy of natural history and the full development of a child.

The other reason I'm optimistic is what we've been talking about, particularly with reference to the living world. We need a whole new agriculture and silvaculture, the growing of forest, which will take land that has been pretty well ruined as far as natural environments are concerned, and land that's growing dry due to climate change, and develop the crops that can grow in those spreading habitats. The world is going to have to go to dry-land agriculture.

If we can get the crops developed, and find the way—it'll take subsidies at first, you know, prime the pump—to introduce and spread *these* crops or at least strains of them, replacing the great traditional ones like wheat and potatoes and millet even, we can greatly increase the productivity of [already cleared] lands. I think that's the way we should be thinking, and we should be

optimistic about that.

That's refreshing to hear. Getting back to biophilia for a moment....

You got me on a soapbox.

No, it's all tied in.

I'm happy to tell you, it's getting to be a crowded soapbox. Did you know that Tom Friedman of *The New York Times* is coming out with a new book this summer? I really like the sound of what he has in mind. He talks like this, but he also is gathering a lot of information to tie together, in something that will appeal to a broad audience, of how we're in an exponential growth phase of so many things: the depletion of resources, the cost of fossil fuels, population, and so on.

All these things are intertwined, and so we have to learn how to look at them as one combined, nonlinear process that's just about going to *bear us away* unless we handle them now as a whole. I think more and more people are thinking like that. They're deciding that yes, we've really got to face it. And if we *do it*, there's going to be light at the end of that tunnel. We'll be so much better off.

We'll survive.

We'll do more than survive. I think we're going to do very well.



Children who learn about nature solely from television and computers are not developing fully, Wilson argues. They need to experience wildlife firsthand, like this child holding a snail. [Enlarge](#)

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DANGERS OF DISSOCIATION

What could happen to people, to society, if, despite your optimism, we continue to distance ourselves from nature and let our biophilia atrophy?

I don't know. There's now a lot of concern, even consternation, among not just naturalists and poets and outdoors professionals but spreading through I think a better part of the educated public, that we've cut ourselves off from something vital to full human psychological and emotional development. I think that the author of *Last Child in the Woods*, Richard Louv, hit on something, because it became such a popular theme to talk about that book [which posits that children today suffer from what Louv calls "nature-deficit disorder"] that people woke up and said, "Yeah, something's wrong."

Just last week I was at the first Aspen Environment Forum in Colorado, and I gave a keynote. I made a remark there: "Soccer moms are the enemy of natural history and the full development of a child." That got applause. [laughs] And many responded afterward agreeing with me. Someone said, "We just over-program kids. We're so desperate to move them in a certain direction that we're leaving out a very important part of childhood." There's a strong feeling that that's the case, that there's something about a child's experience—many of them had it, others have just heard about it—that should be looked at.

I believe that probably a good focus point is biophilia. What is it that we want to cultivate? The dire comparison I make is between children brought up in a totally humanized, artifactual environment, urban or suburban, and cattle brought up in a feedlot. When you see cattle in a feedlot, they *seem* perfectly content, but they're not cattle. It's an exaggeration, of course, to compare those with children, but somehow children can be perfectly happy with computer screens and games and movies where they get to see not only African wildlife but, lo and behold, dinosaurs. But they're just not fully developing their psychic energy and their propensities to develop and seek on their own.

Children who remain out of touch with the natural world are like cattle in a feedlot, Wilson says. They may appear content, but are they children—or cattle—in the fullest sense? [Enlarge](#)

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Could this result in more than stunted psychic development? Could it actually threaten our survival if, because of it, we continue our rampant destruction of nature?

It's too hard to call. What does it mean when you say a child or a person hasn't fully developed? Suburban environment, watching football, moving up the ladder at the local corporation, sex, children—all that is pretty satisfying. But what does it mean to have a world that just comes down to that? It's hard to say. All I know is that *not* developing in that direction, having enough people *not* having a sense of place associated with nature, is very dangerous to the environment.

At Aspen, each person was allowed three minutes to state one big idea. I gave mine in my keynote. It concerns [what I call] the first rule of climate management. The first rule is that if you save the living environment—save the species and ecosystems that are our cradle and where we developed and on which we've depended for literally millions of years—then automatically you'll save the physical environment. Because you can't save the living environment, of course, without being very careful about the physical environment.

I'd be willing to place a bet that among people who get out into the outdoors early and really love it, there are fewer depressed people.

But if you save *only* the physical environment, such as doing what it takes to slow down climate change, get a sustainable source of fresh water, develop alternative fuels, reduce pollution, all the things that people think correctly are of central importance in management of the planet—if that's *all* you go for, then you will lose them both, the physical and living environments.

Because the living environment is what really sustains us. The living environment creates the soil, creates most of the atmosphere. It's not just something "out there." The biosphere is a membrane, a very thin membrane of living organism. We were born in it, and it presents exactly the right conditions for our lives, including—the whole point of our conversation—psychological and spiritual [benefits].



The wilderness experience, which Wilson describes as exploring "a world that's just filled with life, that's fascinating to watch in every aspect," can greatly broaden young people's conception of the world, he says. [Enlarge](#)

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To what degree do you think that emotional problems that many people today, particularly in cities, suffer from, like depression and anxiety, might be due to a lack of contact with nature?

I think it may have a lot to do with it. Psychologists and psychiatrists themselves seem in agreement on the benefits of what's called "the wilderness experience." To be able to [give this to] young people who may have gotten themselves all tangled up with their concerns about ego and peer relationships and their future and are falling into that frame of mind and becoming very depressed because they have such a narrow conception of the world. The wilderness experience is being able to get into a world that's just filled with life, that's fascinating to watch in every aspect, and that *does not depend on you*. It tells them that there's so much more to the world.

I've never seen a test made of it, but I'd be willing to place a bet that among full-blown outdoorsmen, the birders and the fishermen, people who get out into the outdoors early and really love it, I bet there are fewer depressed people. That's an interesting proposition to check out.

BENEFITS OF BIOPHILIA

I bet you're right. I go out into nature all I can.

There are so many things to do. And you know as well as I that it's not just going into a natural environment and saying, "Aah, the air is great, and I love the scenery." Serious naturalists, serious outdoorsmen have *goals*. They want to see how many birds they can spot. They want to see if they can catch a sight. They're willing to go up, shall we say, the Choctawhatchee River in order to get a glimpse of a swallow-tailed kite. If they're fishermen, they want to fish a certain river to see if they can bring up a large specimen of a certain kind of fish. This is what they live for.

Yes, and they likely identify a lot more closely with those animals and with nature in general than city dwellers. Lately I've been looking at things even as small as ants, your specialty, and thinking, *As much evolution went into those creatures as into me.* And I've been reading about "immortal genes" that reveal how intimately we're tied to all other creatures on this planet. Why is it so hard for us humans to accept that we are cousin to all other living things?

Because we're tribal. It's always been a great survival value for people to believe they belong to a superior tribe. That's just in human relationships. Spirit, patriotism, courage under fire, all these things have been generated almost certainly by group competition, tribe against tribe—an idea, incidentally, first spelled out in some detail by Darwin in *Descent of Man*. This is where intelligence and courage and altruism and high-quality people come from, he said—the exigencies of tribal conflict. And the tribes that win have what we call the "noble" qualities in them.



A blue damselfly, member of a lineage going back 300 million years. "I'll tell you," Wilson says, "for me it beats the hell out of NASCAR!" [Enlarge](#)

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That's an interesting area of theory I'm working in right now. I don't want to go into it, but it's a very hot issue, exactly where altruism and what we call "noble" qualities of humans come from. But it appears to me that much of it occurs from tribal identification and the belief that your tribe is above other tribes. And I think that part of our contempt for the life that supports us is an extension of such tribalism. [pause] How can you love an ant?! [laughs]

How can you love an ant? [laughs too]

Well, actually you can. Not love it, but... A couple of years ago I attended a local conference of damselfly specialists and enthusiasts. I thought maybe there'd be five or six coming, people here or there who just happened to like damselflies. My god, there were 30 or 40 of them! And when they all came together, it was the same thing. They all knew the damselflies. One of them from upstate New York had just produced a beautiful guidebook. They gave talks. They told war stories about finding a new bog in Connecticut, you know, which had five species, including two that were endangered. The hunt for *Williamsonia*, which is a near-extinct one, and how a team was able to locate it in three more ponds on the Cape.

Nature doesn't belong to anybody. And it's not forbidden to touch it. It's his. His!

This may be laughable to a person you picked off the street. But these people are talking about animals that are *300 million years old* and all that time have been vital parts of the environment. And they're beautiful—most of them are iridescent blue or green. I'll tell you, for me it beats the hell out of NASCAR! [laughs]

And if you asked them if they love their damselflies, I bet they'd say yes.

Yes, they would. But they'd want to qualify it, of course. They would say it's a beautiful subject, it's a beautiful world, and it's wonderful to know about something in such detail that when you go out [into the field and find them] it's meaningful.

When I step off a plane anywhere, for example, I'm already looking around, because I know the ants that are supposed to be there. There may be 100 species, but I know them, or many of them, and where they might be found, and so on. It's a familiar world for me, which speaks of the sense of place and a sense of belonging.

Scanning the ground for remnant patches of forest, and dreaming about ants going about their lives and kids getting their feet dirty, is par for the course for Ed Wilson whenever he travels by air. [Enlarge](#)

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Even when the plane is landing and I'm at the window, I start scouring the suburbs. I'm looking at where the housing developments are, where the kids are—you know, like myself when I was 10, 12, 14—and I'm spotting the woodlots that are left and the woods or seemingly natural environments along streams. I'm plotting in my mind—you know, just dreaming—how long it would take to walk or ride a bike from that suburb I see over to that forest. And I'm thinking, I hope the kids there have discovered it. [laughs] I hope they're finding out how to walk it from one end to another and that they're finding tiger salamanders and spotting red-eyed vireos.

Native Americans traditionally had that kind of intimacy with the landscape and its wildlife. What would an Indian hunter of a century or two ago think of what we're doing today, of many people's wanton disregard for the natural world?

They never tire of telling us, do they? [laughs] At the opening event in Aspen last week were two Ute Indians, a gentleman and his wife. They had to be very well-educated people, but they put on their traditional dress of the Ute. And he gave us a very fine talk about the Ute tribe, the culture, and so on, which has held on pretty well in the Colorado mountains. And that was the theme: the radical difference in culture, and how we might very well appropriate more of *their* way of looking at the Earth and not go too far with *our* way of looking at the Earth.



A wild frog, a veritable miracle of evolution, does not belong to anybody, Wilson notes. It's available for all to enjoy. [Enlarge](#)

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AT PEACE WITH THE WORLD

I just got a copy of a new book called *Biophilic Design*, for which you wrote a chapter. So-called biophilic architecture really seems to be taking off.

A lot of architects are saying this is the next big thing. Maybe we've had enough around the world of Le Corbusier and buildings and monuments to ourselves. You know, gigantic phalli, huge arches, forbidding terraces and walkways as in our City Hall, neo-Soviet buildings. [laughs] These are things in which we're celebrating our strength, our power, our conquest of the world, right? How great we are! But maybe what we really need down deep is to get closer to where we came from. That doesn't mean we become more primitive, but we just feel better about it.

I recently visited an office building in North Carolina. It was by a professional and very successful architect, and it was [designed biophilically]. He had selected a little knoll. He had to cut some trees, but he left the rest on this little knoll overlooking a stream. And you sit there with a glassed-in wall endlessly looking out, while chipmunks and warblers and so on are all over the place and the stream is flowing by. And you're at peace. *I am.* [laughs]

I hear you. I have an 11-year-old son who is autistic. He can't go to a mall or fair because they're too overwhelming. Instead I take him out into nature, and he adores it. He calms right down, because there's no competition and there's this natural love for nature, I suppose.

I'm pleased to hear that. The thing about nature is it's so rich, and yet it's not owned by other people. I mean, your son sees the remarkable spectacle of a frog springing out and splashing in the water, and a water snake coursing along, and an odd flower growing up—all that doesn't belong to anybody. It's not claimed by somebody over there. And it's not forbidden to touch

it. It's his. *His!*

Interview conducted in Wilson's office at Harvard's Museum of Comparative Zoology on April 3, 2008 and edited by Peter Tyson, editor in chief of NOVA Online

Sources



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