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BOOK TALK

Saving Half the Planet for Nature Isn't As Crazy As It Seems

"It's a practical possibility," says biologist E.O. Wilson, and it could save 80 to 90 percent of all species on Earth.

Half the planet should be set aside for nature, says biologist E.O. Wilson, as Yosemite National Park, above, already is.

PHOTOGRAPH BY MELISSA FARLOW, NATIONAL GEOGRAPHIC

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By **Simon Worrall**

PUBLISHED SUN MAR 27 07:00:00 EDT 2016

It's hard to be an optimist these days. We are living through what biologists call the sixth mass extinction, a time of dramatic depletion of species, from frogs to rhinos and butterflies. By the end of the century, it is estimated that one in six species will be extinct. The causes—human population growth, habitat loss, climate change—are complex and interlocking, fueling each other in an ever faster destructive spiral.

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But E.O. Wilson, the esteemed biologist and National Geographic Hubbard Award winner, believes we can still save what is left of the planet. And in his new book, Half Earth: Our Planet's Fight For Life, he outlines a bold new plan to set aside half the planet for conservation. [Read E.O. Wilson's take on the meaning of life.]

Talking from his home in Massachusetts, Wilson explains why despair is not the answer to Earth's problems, how most of Earth's species have not even been identified, and why setting aside half the planet would actually be good for business. [Explore a war-weary national park with E.O. Wilson.]

COURTESY OF W. W. NORTON & COMPANY

How bad is the situation facing our planet today?

There were five great extinction episodes during past geologic history, the last being 65 million years ago. I think it is correct to call what's happening now due to human activity the sixth. If we allow it to continue, we could drive down the diversity of life on Earth pretty close to what it was in the last big extinction at the end of the Mesozoic. We have a lot of good measurements, and though they're approximations, they've been carefully done by teams of scientists, who put the extinction rate at between 100 and 1,000 times greater than it was before the coming of humanity. I actually believe that it's probably closer to 1,000 right now than it is to 100.

Proponents of what's known as "new conservation" say we should stop trying to save the planet. Or as environmental scientist Erle Ellis put it, "Nature is gone. We now live in the Anthropocene." Do you disagree?

This is defeatism that is both irrational and dangerous. What they're saying is that there's no stopping extinction, that humanity is a juggernaut which is essentially mindless, and that we should concentrate on saving the species we most value, like elephants and other big mammals. They seem unaware of the vastness of biological diversity, which runs into the millions of species, many of which are still unknown to science. It's a combination of ignorance and despair. The other element that comes into it is a proposal that if we save the DNA, we can clone these species later and bring them back to life. That's an absurdity.

We have no need to surrender to nihilism. But if we continue to allow species to go extinct, by the end of the century we will have lost a large part of biological diversity. If, on the other hand, we take the right measures, we can save the greater part of it. I believe the choices are clear-cut and that the optimistic one is doable.

Last year broke global warming records by an unprecedented amount. How is this linked to the destruction of the biosphere?

It's fundamental, just as it is to human existence. The extinction process can be summarized with the word HIPPO. Each of the letters from H to O designates one of the causes of extinction. So H is habitat; I is the impact of invasive species; the first P is continuing high levels of population growth; and the second P is pollution. [O stands for overharvesting.]

H is number one—and that's where climate change comes in. Changing climatic conditions destroys habitat wholesale. There are parts of the Earth where, as habitats are affected, the fauna and flora have no way to retreat. Notable is southern Africa, which has a magnificent fauna and flora. Other parts of the world will also see very large extinction of species and habitat because of climate warming. The arctic and subarctic regions, for instance, contain a rich fauna and flora and those are in imminent danger. We all know about the polar bears. But there are also large numbers of small invertebrate animals, including insects, which are the foundations of the ecosystem. And they are also at high risk.

A mother polar bear and her cub are stranded on an iceberg in the open sea. Polar bears are among the many species whose habitat is shrinking due to climate change.

PHOTOGRAPH BY PAUL NICKLEN, NATIONAL GEOGRAPHIC CREATIVE

The title of your book refers to setting aside half the planet as nature reserves. Surely that's just a pipe dream.

It would seem to be upon first hearing. But I've seen a lot of data and talked with senior ecologists, who are best informed on biodiversity and the extinction process, to conclude that it's easier than you think. In the 1960s, I proposed a theory with an ecologist named Robert MacArthur that we called the theory of island biogeography. One of its major tenets is the close relationship between the area of a habitat and the number of species of plants and animals that can live sustainably there. In the simplest form, if you were to be able to save half of the surface of the Earth, then you would come close to saving between 80 and 90 percent of all species.

Let's start with the ocean. Currently, 3 percent of the ocean has been set aside for reserves. The reserves are usually along the coasts of coastal nations, and we want to get that to 50 percent. That might seem almost impossible. But two recent, independent studies by experts on marine organisms show that if we could set aside the entire blue water outside the Exclusive Economic Zones of the coastal nations, and prohibit

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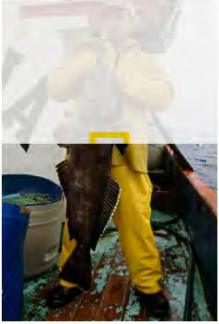
fishing throughout the open sea, we would actually *increase*, not decrease, the global growth of fisheries. There would be richer fisheries and faster growth in coastal fishing areas. It would be to our benefit to set aside the ocean, the open sea. That's a remarkable, unintended consequence of the half earth concept.

One of the surprises reading your book is how much we still don't know about life on earth. Explain why it is so important to catalogue all living species.

Our lack of knowledge of biological diversity is one of the great scandals of the biological sciences. Those of us that work in biodiversity, going back to the time of Linnaeus, have catalogued a little over two million species of all kinds of organisms. But the estimated number of plants, animals, and microorganisms in the world is in the vicinity of 10 million. In other words, roughly 80 percent of the species on Earth remain undiscovered. We live on a little-known planet. We still have only begun the process of mapping the biodiversity on Earth. That's why we have such difficulty in making projections and why we urgently need to reopen a grand survey of Earth's biodiversity.



A fisherman holds up a Patagonian toothfish. Wilson argues that prohibiting fishing in the open sea would boost fisheries in coastal waters.

PHOTOGRAPH BY PAUL SUTHERLAND, NATIONAL GEOGRAPHIC

Pope Francis recently said that Catholics shouldn't go on multiplying "like rabbits." Why is population control so important to saving what is left of the planet?

I think most people know intuitively that the world *is* already overpopulated and that the more land we take over, the less the rest of life has to exist on. But I would like to quote something else Francis said: "Every tree, every pond, every member of every species is unique and special to God." That kind of blessing from a major religious leader is a powerful force to work.

Explore These Photographs from Joel Sartore's Photo Ark

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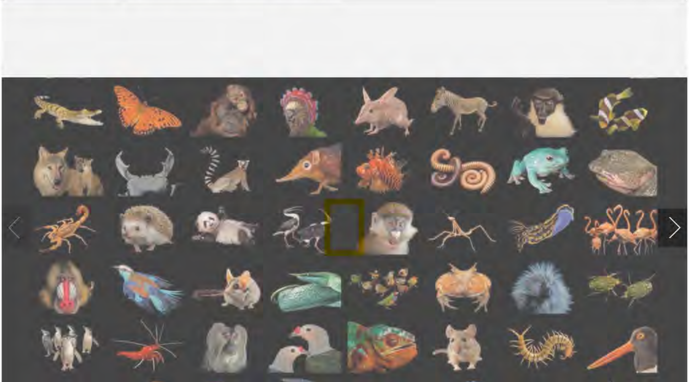

We can actually be a bit optimistic about population because current demographic trends show that in every developed country there's a substantial middle class. Most importantly, where women have some degree of economic freedom, the birthrate plummets. According to United Nations estimates, population will peak by the end of the century at somewhere around 10-11 billion, about 50 percent more than now, but then it should slowly come down.

The philosopher Francis Bacon coined the term Lord of Creation. You suggest the opposite—that human beings are actually "weak and dependent." Unpack that idea for us.

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We have reached unimaginable heights in our scientific and technological knowledge. But that knowledge is mostly confined to our own immediate welfare, particularly the biological aspects of medicine. We have a very powerful instinct to explore, we know a great deal now about astrophysics, but when we look at the biological world—what the resources are and how are we going to manage our future with or without a certain number of species living with us—it's pretty much a blank slate. We *are* fragile and if we continue present trends in the utilization of the Earth we could have a catastrophe.

Technology and conservation appear to be opposites. But you don't see it that way, do you? Explain why the digital revolution can help save the planet.

I've taken the opposite tack from some of my colleagues, who uphold the classical opposition between human progress and technology versus Nature. I see it the opposite way. In the digital age, with the fundamental economic incentives humans have to get the most from the least, the economy evolves almost automatically towards less material, less energy, and more efficiency. This trend, combined with a move toward alternative energy sources, creates the potential of reducing what is called our ecological footprint: the average amount of space required by each human being for his or her livelihood. So I believe our techno-scientific civilization has the potential, unintended consequence of making the proposal to set aside half the Earth a practical possibility.

TAXI-METER
ENLARGE

Two of the main causes of extinction are human population growth and pollution. But even teeming Bangkok, where this traffic jam occurred, has managed to clean up its air.

PHOTOGRAPH BY JODI COBB, NATIONAL GEOGRAPHIC

Let's talk about the specifics of the Half Earth idea—how would it actually be implemented? Would the earth literally be divided in half? How much of the earth's surface is currently given over to conservation?

Currently, 15 percent of the Earth's surface and 3 percent of the sea has been conserved. The U.S. National Park system has devised a number of ways to show how you can achieve half the Earth in steps. They include things like national natural landmarks: areas that have special value for the nation, either in terms of nature or history. There would be no change in ownership or rules against using this land. But when people have property in a national natural landmark, they will tend to have pride in it and make sensible use of it. This is just one of many steps that have been devised within our current parks system in the United States. Then there are the landmark areas officially recognized by the United Nations. We can do it stepwise.

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You end your book by saying, "Only a major shift in moral reasoning...can meet the greatest challenge of the century." Are you optimistic or pessimistic that we can make it happen?

I'm quite optimistic. I think one of the main reasons we haven't moved more quickly is that we haven't made that moral shift where people value what they call wildlife. Not just the big animals, but the rest of life. Once people get a sense of what that is and how important it is for nature's ecosystems and, ultimately, for them, I believe a shift towards the preservation of the rest of life would follow, to our all-around benefit.

I belong to a worldwide group of amateurs and professional entomologists, headquartered in the United Kingdom, who have an interest in dragonflies and damselflies. They go out on trips, like birders. I think it wouldn't be difficult for many other invertebrate groups to attract a similar interest and caretaker group. I tend to stop short of spiders. [Laughs] I'm a little bit of an arachnophobe myself. But who knows?

This interview was edited for length and clarity.

Simon Worrall curates Book Talk. Follow him on Twitter or at simonworrallauthor.com.

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joy berry 9 hours ago

If we preserve huge amounts of land like Wilson wants, economies will suffer. Already, the coal industry, which employs thousands of people, has been destroyed because of EPA regulations. If half of the the world's resources were protected, industries would not be to continue. This means we would not have some of the basic necessities we take for granted and and millions of people would not have jobs.

Flag Share Like Reply

Liliana Hamacher 8 hours ago

@joy berry That again is not necessarily true. If you had completely read the article you would know that other industries like the fishing industries would sky rocket. Maybe you should fact check your information before you try to use it as proof (Another thing I learned in class)

Like Reply

Liliana Hamacher 8 hours ago

@joy berry Other wise it would be Slander and Libel.

Like Reply

joy berry 10 hours ago

Of course, we have to be responsible and care for the environment! I agree that we must preserve some land for animals (not half of the world though). But we have to remember that human life is more important than animal life. This means we have to put human needs and interests first. It is not pessimistic to say that it is impossible and immoral to set aside half of the world for animals. It is impossible because people live all over the world and cannot be forced from their homes. Wilson's theory is immoral because it requires forced population control. It is actually more optimistic to think that humans and animals can co-exist WITHOUT Wilson's theory which makes impossible and immoral demands.

Like Reply

Liliana Hamacher 10 hours ago

@joy berry I do wish that what you are saying could be true but for the future generations of humans to live in a safe environment there has to be sacrifices made now. I am not saying that people should be forced from their homes or anything, I am saying that we need more land set aside for the environment. Also Wilson's theory did not say that it would be one specific half of the world or anything so it can be safe to assume that governments would select land that has very few people living in it to be preserved not just whole entire sections of towns or cities where many people live. Also this whole time of human existence we have lived along side animals but now this is not working, we need to give some of the land back at least. And who says that human life is more important then animal life, are we not all coexisting on the same planet so should we not all get an equal share of rights on this planet? You talk about human needs and interests being put first but it was these human needs and interests that have caused so much destruction of this Earth in the first place? I am not trying to put down your opinions or say that you are wrong, I just think that there are different ways that you could look at this situation that could in the end benefit the whole Earth (including humans) more. Thank you for this fun little debate, I always like to hear others opinions so that I can better my own. Plus I am studying argumentative writing grounded in evidence in class and this has been good practice for me.

Flag Share Like Reply

Rebecca Hale 10 hours ago

@joy berry I disagree that human life is more important than animal life. And I disagree that forced population control is immoral. Religion and our current global capitalism are two of the biggest immoralities afflicting humans now. I could go on and on, but I won't.

1 Like Reply

Liliana Hamacher 10 hours ago

@Rebecca Hale @joy berry

Thank you! I disagree as well. Humans are the ones who have created the problem and now it is our job to fix it as best we can!

Like Reply

joy berry 10 hours ago

One last thought. Do Wilson and his supporters wish that they had been aborted before they were born? Think, if all of you had been aborted there would be a smaller population and more habitat for animals! Wouldn't it be wonderful if there was more land for dragonflies and lions to roam about in? Somehow, though, I doubt Wilson and his supporters wish that they had been aborted...I bet that they are glad that their mothers were pro-life at least in their case. Also, Liliana Hamacher, humans did not "screw the earth up". You are probably living in a comfortable house with clean drinking water and three meals every day. Be grateful to your ancestors who chopped down forests and hunted animals in order to create a country in which their descendants could live comfortably and securely.

Like Reply

Liliana Hamacher 10 hours ago

@joy berry I do understand where you are coming from but I just have to say, you have a very bleak outlook on things. And technically humans are the ones who have caused all of the pollution, rise in the greenhouse effect, CO2 emissions, overpopulation, and poaching so we are kind of the ones who have caused such harm to the Earth itself and all of the other things living on it. If we deny this fact and do not take responsibility for it nothing will change and soon there will be nothing left to try and save, no more "comfortable homes" or "three meals every day". You may have a different opinion on things from me but still there is one undeniable fact; humans and animals alike will die if we do not do something to stop it.

Like Reply

Liliana Hamacher 11 hours ago

Thank you for this information. At first it made me sad but then I realized that being sad will do nothing. Now I have hope because this article made me realize something, we can all help the world and change it for the better. For my whole life I have felt like I have to make a difference and do something for the environment. But for my whole life I have also felt helpless in trying to accomplish this task. But reading this article, I know now that preserving the environment and helping the species that can't help themselves is very doable. All we need to do is be willing to try. And I know that it is common belief that the people who want to change the world for the better do not have a voice but that is not true. We do have a voice, the people who have the power to prevent change just have the microphone. But we do not need a microphone to be heard, we can yell out shout until we are heard! We can keep trying until we make change. Even though I am only 14 years old I know that it is our responsibility to help this Earth because we are the ones who screwed it up in the first place. This too gives me hope because if the young people like me and so many others can see that we need to protect what we already have, then I know that there is a higher chance of it actually getting done. I will do all that is in my power to help this world. And I know that many others will too. Thank you again for this article.

1 Like Reply

Ian Monteith 11 hours ago

@Liliana Hamacher

With young people such as yourself, there truly is hope for this planet. Thank you for a wonderful post. You have brightened my day.

1 Like Reply

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joy berry

11 hours ago

Wilson says we must value all life. In his mind, I suppose, that means valuing everything from lions to dragonflies to bacteria. But what about human life? In order to preserve half of the world for animals, we would have to force women to use birth control or abortion. To Wilson, though, killing unborn children is perfectly acceptable since one less human means more habitat for creatures like dragonflies. Furthermore, who decides which half of the world is given up for the animals? What happens to the people who have lived in those places their entire lives, own property there, and don't want to abandon their homes for elephants to use? Let me guess, poverty stricken places like Africa will be cleared for the animals because who cares about the poor men, women, and children living there-we have to think about the animals!

Like Reply

Gillian Arendse

13 hours ago

Thank you for this wonderful information. It gives me hope.

Like Reply

Craig Donovan

15 hours ago

Really good read and amazing photos to accompany,

I took a photo recently of deforestation in a local woods and it really got me thinking. How are we going to get past this when we can't even preserve the small little woodlands we have locally. I completely agree that we need to start looking after what we have now... what we actually have left, I just wish more people will open their eyes to it. Hopefully at the articles like this will help people realise.

You can see my deforestation photo on your shot.

Like Reply

Werner John

USGS map displaying potential to experience damage from natural or human-induced earthquakes in 2016. Chances range from less than 1 percent to 12 percent.

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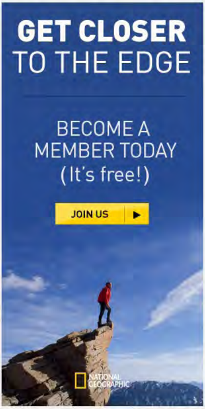
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D. Cook 2 days ago

I would love to be a part of this ☺ ☺

Like Reply

Suzanne Thomadella 2 days ago

99.8% of all species ever on earth are now extinct…we didn't kill them all and even though man is greatly responsible for global warming, man cannot save the planet or its species, including man. Here's a link to an article by Frank Fenner; it's very much worth the read: **http://phys.org/news/2010-06-humans-extinct-years-eminent-scientist.html**

Like Reply

Bibi Harim 19 hours ago

@Suzanne Thomadella You really miss the astounding part of evolution. Yes, extinction is the rule, but it is not the important rule. 0.2% of all species are alive TODAY. They are the entirety of the biodiversity, and from an ecological POV, necessary and sufficient. The species change over time. The number of species also changes, but the greater the richer, the lesser the poorer. We cannot survive an ever bio-poorer world. The 99.8% will inevitably go up over time. Trivial and irrelevant.

Like Reply

Cynthia Hever 2 days ago

Such a brilliant man and treasure. He truly cares for the Earth and sees its worth without dollars. I hope we rise to the occasion and dedicate half the Earth to the other species who reside with us who desperately need it.

2 Like Reply

Bibi Harim 19 hours ago

@Cynthia Hever I'll donate half my money. Oh wait. They took it all already.

Like Reply

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