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State of the Planet

I mean basically, we are really in the initial stages of what could be, but doesn't have to be, the sixth great extinction in the history of life on Earth. We've got one-third of all amphibian species in dire straits, and, other groups may not be so dramatic but, the numbers are climbing.

Well, I think in the United States what you see, if you look at the, the real information as opposed to the officially posted information, is an increasing number of endangered species and here and there, a couple of them dropping away to extinction. The causes are multiple. It's habitat destruction. It's various forms of pollution. It's initial stages of climate change. And it's a whole long list of things including, invasive species, ones that come from other places and, end up wreaking havoc where they arrive.

But, there are lots of success stories in the United States. I mean the peregrine falcon was headed towards extinction in, the 48 states, 25 years ago and now it's back in New York City. It's come back very strongly. And so has the bald eagle and the wolf is returning too. What we're slowing down on now is creating the sort of additional protected areas we need to secure our biological diversity.

I mean, the real, the real point is, beyond real ethical and, and moral aspects. Basically, you know, we're biological beings. I mean, we are animals ourselves, and anything that, is alive has a potential to contribute to our science and to our well-being. You know the Amazon has not quite reached the state,, where there are large numbers of extinctions, that we know about. But I think it's getting close. We see years now in which there is massive and destructive fire, which never occurred historically. Each year there's a huge new chunk of the Amazon which is converted to soybeans or a pasture or something else. And, every time the forest goes, there are all kinds of living things that go with it.

In terms of wetlands, I expect that we're probably close to having lost, actually, having already lost some 40% or 50% of the wetlands of the world. What we lose there is, a set of very important ecosystems which provide very important ecological services including the cradle of early generations of many fish species. So you may look at a wetland, and you don't see any fish but you remove the wetland and the fish stocks will crash.

Just a few weeks ago I flew over, the forest of the northern province of Argentina, which is nestled, right up against Brazil and the famous Iguazu Falls. I basically flew the length of the state in the helicopter and you could see all that remains of the western part of the great Atlantic forest of Brazil. Most of the Brazilian part of it is gone. Most of the Paraguayan part of it is gone. This is an area where conservation actually has to work with fragments and stitch them back together into some kind of functioning whole.

So, so when a habitat is destroyed, it rarely is just sort of destroyed as one big block. What you get is some fragmentation, of the habitat in the process. And it will appear not so bad. There are plenty of things living in those fragments, but if you study them over time what you find is those fragments are too small to support a lot of those species so you get a simplification of the ecosystem fragment and end up with far less than you had at the beginning.

I've been running a, a study of fragmentation in the middle of the Amazon for 25 years and we now know that of the birds that live in the forest interior of a 100 hectare fragment, half of those species will be gone in less than 15 years. So you, you really end up with an impoverished ecosystem. The good news, of course, is if you can do something to connect that fragment to other pieces of, in this case, forest, you can save a lot of those species before they otherwise would sort of run off the books.

Let me give you an extraordinary example of hope. When I first arrived in the Amazon in 1965, there was only one road in the entire Amazon. That's an area equivalent to the 48 contiguous U.S. states. The bad news that everybody's already heard about time and time again, is about more roads, more forest destruction, more fire, etc. At the same time, what's happened in the Brazilian Amazon, which amounts to two-thirds of it, it has gone from having just one lonely national forest, to a state where 40% of it is under some form of protection. I don't think we would have ever dreamed that was possible. So the lesson I draw from that is that we should keep dreaming about the impossible and work towards it and just transform it until it does become possible.

State of the Planet's Wildlife

Well I think there's no question that we're in the first stages of what could be, but doesn't have to be, the sixth great extinction of life on earth. All major well-known groups have significant fractions of their species in a threatened or endangered status. And, the amphibians are the worst of all with literally one out of every three amphibian species in threatened status. Add that to what we already know about the destruction of habitat around the world and the other factors impinging on life on earth, and we're on the way.

We have lost species in the past but in terms of our own particular history it's been much more of a replacement phenomenon. Not like the fifth great extinction when the dinosaurs departed earth and the mammals began their ascendancy. That certainly was not a great time to exist and why create it for ourselves? So what's different about this extinction event is that basically it's being generated by a single species, namely humans. But if we just would stop and think about it long enough, we wouldn't want to keep continuing.

Biodiversity is a collective term. It's a term we use to describe the variety of life on earth — i.e., the total number of species, the whole different set of ecosystems from place to place, the genetic variety within a species.

Anybody who's really been studying how to address the extinction event and how to really move conservation forward realizes that we have to move past the old model of having isolated national parks and wildlife preserves here and there, not connected with the rest of nature. It's really important to stitch these all together into a sort of a matrix with corridors running between the protected areas, which allows the plants and animals to move with some ease from one protected area to another and ultimately to respond to climate change, which will be yet another need for wildlife to move around .

Humans are just one species of wildlife and we are inevitably connected to the rest of life on earth--whether it's through ecosystem services, or whether it's through some direct product that we are taking from nature, whether it's a beautiful tropical wood to build a table, or it's some molecule that we are buying at the pharmacy but had its origin in nature. We spend our daily existence really depending on nature although we are usually just blissfully unaware.

The Amazon is under serious pressure. Year after year there's further deforestation. 2004 was the second worst deforestation year in the history of the Brazilian Amazon. The Amazon, year after year, is being eaten away by major deforestation--roads penetrating various economic interests, following spontaneous colonization.--What we're getting closer and closer to is a tipping point which will affect the whole system because the Amazon literally makes half of its own rainfall. And that rainfall really depends on there being forests for the rainwater to evaporate from the surfaces of the trees, to expire through their leaves. And there will come a point, and I believe it's really pretty close, where an additional increment of deforestation will leave the whole region to begin to dry out and basically you will lose most of it.

If we were to lose the Amazon, essentially we would be losing probably the second greatest concentration of species and biodiversity on earth. It could be as much as one fifth of all the wildlife species on earth. So it's the mother lode and it's in danger. When you add up what's happening in different places, what's happening in the Brazilian Amazon to what's happening say in the savannah cerrado regions of central Brazil or what's happening in the lowlands of Indonesia, it's a pretty bleak picture for wildlife in general. In most places, wildlife is in serious retreat and there doesn't seem to be any immediate halting of that.

Losing so much biodiversity will actually mean that a lot of ecosystem services will break down, things that our economies treat as though they are free -- like the water filtration that the oysters are responsible for in the Chesapeake bay. And that will, create serious economic impact. That's why New York City has restored the biodiversity of its watershed, to restore its ecosystem service. But more than that we are going to lose a big chunk of the ultimate library for building the life sciences. They would be similar to just going up to Capitol Hill in Washington and destroying 20% of the Library of Congress. Nobody would ever dream of doing that and yet we treat biodiversity as though it was different.

The picture is a mixed one. While on the one hand there are all these negative trends, there are a lot of very positive things going on. Since the earth summit in 1992 most of the countries in the world have been rapidly expanding their protected area systems and devising other ways to slow the destruction of biodiversity. And in the Brazilian Amazon alone, in the 40 years that I've been there, it's gone from having one national forest in 1965 to literally having 40% of the Brazilian Amazon under some form of protection. That's quite extraordinary and we need to celebrate those gains.