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One of the natural human behaviors is to look for a cause very quickly, things that we don't necessarily understand and place blame and try to solve. Well, understandable, but avian influenza, as with any disease process, is a complex relationship between the environment and between different types of life, both, both plants and animals. We know this disease to be spread by poultry and the animal movement that is occurring because of globalization- ducks and geese and domestic chickens that move across borders rapidly. What tends to happen, however, is that people look to the wildlife, something that they don't necessarily understand, and the wildlife becomes the victim of the disease, more because of human backlash, and that is our great concern.

We, to date, do not believe that the migratory birds in Southeast Asia are moving this disease around. It is the domestic livestock, the domestic poultry, that we know have moved the disease. And yet some governments have reacted by claiming that it is the wildlife and that wildlife needs to be removed from an area. It's an impossible task and a shortsighted plan that will have serious effects on the environment and the diversity of our planet. We cannot go after each wildlife species, one after the next and say by eliminating that species we eliminate some threat to us because ultimately we undermine that infrastructure of biodiversity upon which we all depend. Without that infrastructure of life, our foundation will collapse.

The biodiversity of plants and animals is that spectrum of uniqueness amongst wildlife, wild plants, and wild animals of all sorts. We depend on biodiversity to provide all kinds of natural resources for us; the air we breathe through the plants, the clean water we drink and our food sources of all different types. When you start chipping away at this foundation of relatedness amongst animal and plant life, the result may be that you will fundamentally shift the food sources for people. And while we look at domestic animals for our food, we also depend on clean water and oxygen. We depend on clean water, the air we breathe, and the foods of the world,, and the forests that feed the animals.

What I can say about political systems and, and wildlife trade is is that in those areas of the world where there is not a strong government, where there is not transparency in government, animals tend to move in the black market. They tend to move in the illegal trade, and literally tens of thousands, hundreds of thousands of kilos of meat leave the forest of these critical habitats around the world, moving the wildlife to urban area markets. Here, people can then purchase these wildlife products and we don't know what kind of melting pot of disease we've created.

The zoological parks around the world provide a number of ecoservices. One is a place to learn, a place to adapt technology to the novel needs of wild animals. And the Bronx Zoo is such a place. Our health facilities allow us to learn more about these animals, to do so in a highly specialized and technologically advanced way so that we can learn what the

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threats are. And we can also learn how these animals live, what normal is. We can take that information and we can move out from there, out into the wild where our field veterinary programs look at the health of populations around the world and can move information back and forth. What effects elephants in the wild? What effects elephants in captivity? How do we best provide care for those animals, whether they be in zoos or in free-ranging habitats?

Well, for instance here at the Bronx Zoo we have a diverse and wonderful population of western lowland gorillas and for years we have been working with these animals to define what their normal physiology is. We know how to safely anesthetize these animals in order to provide care. And we know what diseases affect these animals. And then we can move this information out into habitats like those in Central West Africa, and Gabon, and in the Central African Republic. And, we can begin to understand along a continuum, the threats to these animals from disease; and the health parameters that provide us that information to know when they are under some sort of threat from disease; what diseases pass between people and animals and what diseases these gorillas could catch or what diseases these these gorillas could acquire from humans.

The interface of people, their animals, their domestic animals and wildlife in rural settings is of particular concern because as these gorillas and non-human primates, forest antelope, etc. utilize the forest and come in contact with things like domestic livestock, people and their diseases, feral dogs or pet dogs that aren't vaccinated properly, they bring a wealth of possible threats to the animals in the forest. It can be from open garbage. It can be from the animals themselves. It could be from the people. And what this does is set us the potential of a catastrophic event that affects wildlife. The Ebola virus, which has emerged out of the forests of Africa, affects people and also affects nonhuman primates. We know this. Our field vet staffs have proven that Ebola kills gorillas. We don't understand how this disease yet works, what that vector is that moves between these populations. But it is critical to understand the relationship of people and animals and by doing so, to understand what threat this disease poses. And once we understand that, we can develop ways to control, to prevent disease.

People in the United States should be very concerned about what occurs in the far corners of the world because the world has become a smaller place. Globalization, the movement of plants and animals around the world as well as people happen seamlessly and in a moment's notice, and in a moment in time. For instance, we knew about monkey pox. Those who work in Africa, our field scientists, our field veterinarians working in Africa knew about monkey pox and how it can spread from rodent populations to people. But we didn't know about this in the United States. So it came as a surprise when it breached our borders. But it really shouldn't have because these animals, these rodents in this case, most likely Gambian rats, were moving from Africa to the United States for the pet trade. Millions of animals every year move around the world into new environments for the pet trade and as meat. And much of this goes unchecked. It goes under the radar screen. Even the legal shipments of many of these things are under the radar screen because we're not

prepared. We don't have a system in place that will allow us to examine these potential threats as they come and breach our borders.

We believe there are as many as 15,000 hybrid tigers or tigers of unknown origin in the United States in private hands. This is catastrophic for a number of reasons, one is the direct contact between people and these animals. These are wild animals and we hear in the news at least once a year of someone being tragically injured or killed by one of these tigers. But more than that, it is the fact that there are more of these hybrids in captivity than there are Siberian tigers left in the wild. And we are not protecting those places around the world where these animals truly live and are supposed to be.

I believe the sixth extinction crisis is upon us. We are seeing the beginnings of it. Habitat degradation, human population growth, emerging diseases, abrupt global climate change, all of these factors are changing the world we live in. And while there have been other extinction crises this will be a dramatic alteration that will fundamentally threaten the future of humanity because we are all linked. We are all part of this web of life and as we lose important parts of this foundation our own future is threatened.

I think the current state of the planet's wildlife is severely threatened. We are starting to see the beginnings of what could be a huge change in the diversity of the forest. This is due both to direct effects of human encroachment and of bringing the products out of the forest in order to feed humanity, of moving these products, these invasive species around the world and upsetting other environments. And what we will see is a fundamental alteration in the building blocks that support all of our lives

I think zoos are critically important to the future of life on our planet for a number of reasons. Right now they serve a crucial role in bringing that information to light, of showing the populace what is in another part of the world. We have the ability through zoos in the United States alone to impact millions of people's lives to show them how they're related to this complex organization of life on our planet. It's one of the few places that people can go for this information and get a tangible sense of the lives of wild animals. So we serve a fundamental educational role.

We must educate people about this crisis that is upon us and zoos provide that role. Every day, they are looking at new ways of educating people on these challenges that are ahead of us. The other way that zoos may come into play is by being the last havens for certain species. Certainly in our lifetimes we'll see the extinction of some of the most dramatic mega-vertebrates, such as the Sumatran rhino. Rhinos are at terrible risk in general. The large cats, the tigers, are at terrible risk and zoos may be the last place where there are genetically pure representatives of these species. So there may be a role to play, but the problem with that role is that we have to have habitat. We have to have a sense of wild because if tigers are lost in the wild, if they go extinct, they'll be alive in zoos and there'll be all these hybrids that are alive in people's private hands. But will they be wild animals? For me they won't be. They'll be the remnants of human thoughtlessness and inability to heal the planet.

If we don't also include ensure that we maintain wild areas where Siberian tigers live, then they'll be no place to go home to. And seeing them in a zoo, or seeing them in someone's little sanctuary in the middle of the United States will not make up for the diversity that is lost in the wild. The tiger plays an important role in an ecosystem, in the diversity of life in a habitat. And if we lose that habitat, even if we have tigers in captive situations, if we're unable to bring them back to the wild, then I wonder whether they'll truly be wild.

Zoos maintain genetically diverse populations of animals through what, in the United States, we call the species survival program. All the American zoo and aquarium zoos participate in some of the most endangered species survival programs. The idea is to maintain genetically diverse populations of species moving out 100 years. So the choices that we make about who breeds -- what gorilla breeds with what gorilla or what tiger breeds with what tiger-- are based on genetic models to maintain the diversity of the species. We are keeping alive the hope that if we can maintain these wild areas that someday, if it's needed, zoos could contribute back to the wild. And we've done it. We've done it with other species, the golden lion tamarin, the Arabian oryx, species that have become extinct in the wild that we've reintroduced into those habitats because we've managed to save the habitat. But, keep in mind that these wonderful, charismatic animals like tigers, and lions, and rhinoceros, they represent wild for us and if we're unable to save them, they're an indicator. They're an indicator that the wild areas are leaving us. They're an indicator that that foundation of life is no longer stable. They're at the top of the food chain. When they go it means that all the things beneath them, all that diversity, all that wonderful milieu of life has left us.

We have a great deal to learn about the diversity in the oceans. It's much more difficult to study. It's much more difficult to get a holistic understanding of what is going on in the oceans. But we do know some things. We know that coral reefs are being devastated by changes in the, in their -- by changes in the, in the environment in ocean. We know that marine animals are being affected by a whole variety of diseases. So we look for indicators, just as we do on land. We look for indicators of the health. We can monitor these corals. By looking at the health of these animals and the threats and the stability of these populations, we can infer what is going on in the oceans in general.

I think we've made some great gains. I think we have some significant challenges ahead of us. I think global climate change is going to turn everybody on their heads. What areas will become richer in wildlife? What areas will become more barren? What happens to the flora and fauna with changes in microclimate? And in a broader sense, what happens in the greater climate? What happens to our oceans? These are all uncertainties. We have projections of some very dire times ahead of us but I am encouraged at another level, which is that we are looking ahead. We are looking towards the future and saying this is not what we want. This is not a place that we want to live. We need to change and by working with communities around the world, by affecting change at the local level on up to the more broad government levels, we do see movement. We do see improvement. But

it's going to be a horse race. It's going to be a horse race between those changes that will be irreparable and our ability to do good and alter the way that we use the resources on our planet.