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## Ecosystem and biodiversity conservation pdf

Volume 213, Part B, September 2017, Pages 309-316View Full Text Why Preserve Ecosystems and Biodiversity? What is biodiversity? Biodiversity, or biodiversity, is an incredible diversity of life on Earth. This includes all the plants, animals and microorganisms that live on the earth's surface, the vast diversity of genes, all the homes, and all the natural processes of which they are part. Ecosystems and the biodiversity they contain are the Earth's life support – we depend on them for the air we breathe, the food we eat and the water we drink. Wetlands filter contaminants from water, plants and trees to reduce global warming by absorbing carbon, and microorganisms break down organic matter and fertilize the soil to make food. Biodiversity helps pollinate our flowers and crops and provides food and medicine for our well-being. Without it, we wouldn't be able to survive. The importance of our natural world is revealed to us in different ways on Earth, so that organisms on Earth interact with each other to contribute to the balance of the global ecosystem and the survival of the planet. No life form can live in isolation. Why are tropical ecosystems a conservation priority? Tropical forest ecosystems are the most species of all types of plants and animals on Earth, many of which have not yet been discovered. As modern civilization continues to evolve, an increasing percentage of these forests are cleared for commercial purposes. Both global and local market demand for soy, corn, palm oil, livestock and other products has led to the clearing of vast writings on tropical forest, and every day thousands of acres of forest have been lost along with countless species that have evolved over the course of millions of years. Unique tropical deciduous forest ecosystems and Andean cloud forests have already lost more than 95% of their original range in many regions, and lush Amazon rainforests are dying at an alarming rate. Providing high-value services Tropical forests provide many basic goods and services, both regionally and globally, making their conservation extremely important. Because of their high biomass, tropical forests help regulate the global climate, reduce the greenhouse effect by storing millions of tons of carbon in plant tissues and soil, prevent soil erosion, and protect watersheds that provide clean water to thousands. If the monetary value was attached to these seemingly free services, there would be many billions of dollars a year. A bounty of ecosystem goods from Tropical Forests also provides goods such as wood, fiber, mares, plant and animal products, food products of thousands of edible species, only a fraction of which are currently introduced to world trade, biological and genetic resources, and medicines. In fact, less than the world's tropical forest plants have tested their pharmaceutical properties, but at least 25% of modern plants, in many cases it was first discovered and used by indigenous peoples. The intrete value of tropical forests Tropical forests are also important simply through their existence to protect the innate and cultural values of the natural world. Indigenous peoples rely on forests in their way of life, as forests meet food and shelter needs and are an integral part of their culture and spiritual traditions. Many people enjoy leisure and tourism activities in tropical forests, and students, musicians, writers and artists are inspired by the astounding beauty of tropical biodiversity. By preserving biodiversity, we are now enabling future generations to appreciate and benefit from it. Now more than ever, we all have to be conservationists. The relentless conversion of these natural habitats continues at an alarming rate, and in the near future they will determine how much of nature survives and which creatures disappear with their unique genes and carefully crafted role in the web of life. Our generation will decide the outcome. Learn more about Nature & Culture International and join us in our conservation efforts by making a tax-deductible donation today. Hi, I'm Dr. Ana Luz Porzecanski, director of the Center for Biological Diversity and Conservation here at the American National History Museum. In this presentation, I would like to discuss three basic ways in which we, humans, are part of ecosystems, individual ecosystems and the global environment. So, first of all, at the most basic level, we are part of biodiversity and therefore part of the system. Biodiversity is a shorter way to say biodiversity can be summed up as life on Earth as a whole. This includes all living things from well-studied organisms to things we know very little about, like microbes. And scientists use an even broader definition and a little more complicated. They say biodiversity is different at all levels of life, genes are ecosystems, and the ecological and evolutionary processes that sustain it. Because humans are living beings, we are part of biodiversity. And we're part of the system because we live on the planet and we interact with the rest of the system. We've been a part of it since modern humans evolved about 200,000 years ago. The ecosystems around us have shaped us in a fundamental way, from our physiology to our culture, literally shaping our evolution. The productivity and stability of these ecosystems have enabled us to succeed as a species. This includes the properties that appear throughout the system as the climate of the planet. The very stable climate we have experienced in the Holocene era, over the past 11,700 years, has enabled people to get on with it. The average surface temperature during this period has not changed more than, say, a centigrade, roughly. And all this experienced in the known human history, and civilization is kind of built on these real conditions. As we realize that we are not only in the world, but an integral part of the world, there is an important consequence. Because we're part of the system, we've evolved with the systems around us. We need these relationships to survive and get it right. The services provided by ecosystems are directly linked to our ability to live a good life, financially and socially, and also to our safety and health. The second way to be part of ecosystems is to be able to change them. We are increasingly affecting ecosystems and profoundly. Humans now control the planet to an unprecedented degree. Indeed, our growing population, economies and, in particular, our way of life impose appalling demands on the world's ecosystems. Some have estimated that the needs of mankind take up about 1.7 parts of the planet's ecological resources. That means more land. And we're taking more out of these ecosystems around us than they can fill up. We have a strong effect because our activities have a lot of results or effects, right? We fragment and destroy habitats, and as a reason, some species lose part of the range, sometimes all of it, and face new risks, such as greater exposure to predators, including humans. Recent estimates of vertebrate populations such as fish, amphibians, reptiles, birds and mammals show a dramatic and steady decline of about 58% since 1970. This has led some scientists to argue that we are on the brink, or perhaps even in the midst of, the sixth mass extinction. One that differs from the previous ones we have experienced in evolutionary history is a key aspect of this product of human activity. Ecological communities are also being transferred, for example, through the dissemination of invasive species and the introduction of a number of pollutants and pollutants, including, for example, synthetic chemicals that are not found in nature and in overexploitation of resources. And it threatens individual species and animals and plants, and even entire ecosystems. And finally, we will change the earth's climate and warm the planet, because our activities, such as deforestation, agricultural practices and greenhouse gas emissions, change the way carbon cycles are done through our ecosystems and atmosphere. These effects do not affect ecosystems individually, either in isolation or even additively. They are part of the system now, and they happen together, interact and often exacerbate each other or completely new scenarios. So they're really connected. For example, you can think of a coral reef ecosystem and how you may face more pressure from warming the sea for example, and invasive species that also alter the trophistic webs of the coral reef. And these threats add to it indeed, understanding and reducing these effects can be seen as an evil problem, a problem that resists a solution that we may never really be able to solve, but we can only hope to increasingly understand, treat and tame, so to speak. This brings us to the third and final reason why it is so important that you think of humans as part of ecosystems. We need to play a new role. We are now directly responsible for maintaining ecosystems. Our footprints have made us something new. We are the dominant species or forces of the planet who can fundamentally change the biosphere. And that's happened very quickly, over the last five or six decades. Our population has grown exponentially. It took 200,000 years for our population to reach 1 billion, but it only reached 7 billion in 200 years. Our choices and activities are increasing, such as carbon dioxide in the atmosphere, which is also rising rapidly, as is the temperature around the planet. In fact, more than a decade ago, an atmospheric chemist named Paul Crutzen suggested that we entered a new geological era defined by human activity and domination of the environment, the Anthropocene. So the most important question is, how can we ensure that we understand the system around us and how it works? Ecology plays a central role in this endeavor. It reminds us that ecosystems have such complicated dynamics, and while we have phenomenal power to change them, we cannot completely control them. We're part of it. And the equally important question is, what role should we play? How can we help maintain ecosystems, their integrity and health? This is where nature conservation comes in, and especially conservation biology and sustainability. The biology of nature conservation is an interdisciplinary area with a strong ecology that has grown in response to these types of questions. For example, how can we maintain biodiversity and systems that support all life on the planet? Sustainability focuses on how we reduce the impact on human activities and, in particular, how we can achieve human development that meets the needs of these generations without compromising future generations' ability to meet their own needs. And part of that is maintaining the integrity of the Earth's ecosystems. So, for example, sustainability scientists are asking themselves, how can we generate cleaner energy? How can we reduce our energy demand? How can we manage more efficiently to reduce water use and water waste? - No, no, no, no, no, I'd like to finish highlighting what I think are three main challenges to conservation as we look ahead. The first challenge is to protect habitats and ecosystems and to ensure protection, to ensure that these protected areas are effective. About 15% of the world's terrestrial and inland waterway environments are officially protected. Just over 10% of coastal and marine areas are protected. And about 4% of the global ocean is covered in protected areas. So since the impact on ecosystems will continue to grow, and it will be important to continue to set aside such protected terrestrial and marine landscapes, where there are rules on how to affect these ecosystems. Equally important, however, is the question of whether the areas under protection should be made effective. Ecology again helps to understand the needs of animal and plant populations in these protected areas and to ensure that they are properly designed. In order, for example, to be able to maintain strong populations of these species, to relate to other areas that can really support migration or movement along the landscape. And ecology, as you know, is very important in illuminating the needs of different species. However, other factors are equally important, namely the resources that we devote to the operation of these areas. Take marine protected areas, for example. Marine protected areas can be found all over the planet. But how effective they are in maintaining biodiversity in areas and ensuring that these systems produce fish, for example, and other resources that support many communities. Millions of people really depend on them. So a recent study asked exactly that question. They analyzed hundreds of protected marine area management and progress, ecological data from around the world. And they found that, first of all, good news, overall, these marine protected areas make a difference. More than 70% had better fish biomass than, for example, in unprotected areas. The protected areas were 1.6 times the number of fish bioassays than in non-protected areas. Interestingly, however, the most important factor in the success of these areas was staff and budget. So the fish bioassay was three times larger in areas with the right staff and budget. Unfortunately, researchers estimate that less than 10% of the world's marine protected areas have sufficient staff and around 35% have sufficient budgets. Protecting ecosystems and ensuring that these conservation measures and strategies are effective is clearly a key challenge for conservation. The second challenge is to change our business as a society so that we can change our relationship with ecosystems everywhere, inside and outside protected areas. Protected areas have been very successful in maintaining these land and sea landscapes, which would otherwise have seen radical changes, but not enough. Biodiversity continues to decline worldwide and cannot fully address global changes such as climate change. It may mitigate some of the effects, but it doesn't really address drivers of these changes to this extent. So our business as a society, we involve everyone in all sectors, such as governments, businesses, cities, rural areas, indigenous peoples. We must all participate in this effort, regardless of whether the land we manage or touch is officially or not. So some basic questions or ecology, again, can guide us in this task. And as we become more understanding of trophistic nets, for example, we will be better able to manage ecosystems, not only for our own sake, but also so they can perform these truly valuable functions that we are looking for today, such as carbon capture, fish production, so that we can harvest sustainably and dilute the impact of infectious diseases. The third and final challenge of conservation, therefore, is how to do this by taking human rights and prosperity into account and on an equal footing and enabling us to live with nature in a sustainable and just and equitable way. It is increasingly recognised, for example, that the success of protected areas depends to a large extent on the support of people living around ottena and on the people living in it, as they actually bear most of the costs of limited access to these resources. And so conservation policy, today, is shifting from more top-down approaches, sometimes the kinds of fences and fines approaches, to more people-centric approaches where we're trying to incorporate stakeholders and really make them part of our decision-making. Today, for example, many protected areas have a mission to protect biodiversity and cultural diversity, with economic benefits for the population living there, poverty alleviation and even the promotion of peace, such as cross-border nature reserves. It is important to note that these challenges are generally not really technological or even scientific challenges, but societal challenges. And so stem from this wide variety of views that we have in our communities, the dynamics of power in our societies, and we face negotiations and cooperation. So the mindset of the conservationist needs to be honed so much as one where he is trying to find a solution or solve puzzles, but it's more like playing an endless game of chess. It's really a game of life when you think about it. Where the rules keep changing. We are constantly learning and we are one of the many pieces in the game. Play.

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