

Biodiversity: one small step for man, a giant leap for future generations

[Environment](#), [Nature](#)



The continued existence of the human race depends greatly on nature, whether they recognize that fact or not. Nature's resources are what we depend on heavily for our survival, yet nature depends on other species and organisms to be able to provide the resources being used up. However, humans do not recognize that they are not only beneficiaries of nature; they also have a role to play in replenishing nature's stock of resources. It is mostly a symbiotic relationship that humans have with nature and the other forms of life; species require habitats to live as do humans; yet, most humans perceive their role in Earth as parasitic. According to Shah (2011), in his article " Why Is Biodiversity Important? Who Cares? ", " Biodiversity boosts ecosystem productivity where each species, no matter how small, all have an important role to play; " but, mankind's habits are well-known to disregard any attention to world they live in; however, conservation of the environment's biodiversity is important for the continuance of the human race. Prior to explaining the importance of biodiversity and its role in nature, the terms ecosystem and biodiversity have to be defined; also, their relationship and importance must be highlighted. To begin with, an ecosystem is a " biological community that occurs in some locale and the physical and chemical factors that make up its non-living or abiotic environment" (The Concept, 2008). Simply put, an ecosystem is an area where plants and animals (flora and fauna) as well as other living and non-living organisms help each other in their daily survival, whether it is for food, shelter, or a living habitat. Forests and lakes are examples of ecosystems; a forest has flora (vegetation) and fauna (animals) depend on one another for their survival. To elaborate, some animals, herbivores mainly, depend on the

flora for their food, and other animals including squirrels and such depend on the flora for their shelter. In return, the animals help the flora continue their existence through natural fertilization of the earth, other fauna, mainly bees, help in floral reproduction during the process of pollination by carrying the pollen grains from one flower to another. Biodiversity, on the other hand, is simply explained as the variety of life forms around us, including forests, deserts, species, micro-organisms, and so on (Shah [1], 2011; Faith, 2008). According to Naeem et. al (1999), “ ecosystem processes are controlled by both the diversity and identity of the plant, animal, and microbial species living within a community”; meaning that ecosystems depend on biodiversity. Different animals and plants require different habitats to live in. “ While there might be “ survival of the fittest" within a given species, each species depends on the services provided by other species to ensure survival. It is a type of cooperation based on mutual survival and is often what a “ balanced ecosystem" refers to" (Shah [1]); for example, a polar bear will not be able to survive in any region with high temperatures because its furry and its body is made to sustain heat and keep the animal warm; therefore, in a desert, firstly a polar bear will not be able to withstand the heat; secondly, if it does overcome the temperature obstacle, it will not find anything that its diet is accustomed to such as fish. Therefore, this illustrates how biodiversity and ecosystems are related in some manner. Furthermore, ecosystems are not limited to flora, fauna, water reserves, soil, and so on; humans are included. Human beings also play a role in the ecosystem, a role that is quite similar to that of animals — in a simple scenario, they use the flora in their dietary habits, to build shelter, and make

materials to assist them in life; in turn, they farm and replant trees increasing the flora around them. Moreover, since biodiversity defines the variety of species around us, that presents humans with multiple options, whether it is for food, decorations, etc. Although biodiversity is an important asset, human habits have been responsible for the loss of diversity, whether the effects were intentional or otherwise. Mainly, the transition from the simple era to the current technological stage that we enjoy is the cause for most of the harm done. The industrialization of nations and countries has caused a great deal of harm to the environment, and in turn to biodiversity. The introduction of the industrial age has led to the destruction of forests and other habitats mainly for resources and materials to improve the human standard of living. Humans, with the purpose of development and progress, have become blinded and negligent of the ecosystems and resources that they are exhausting. Shah [2] mentions that "the current extinction rate is now approaching 1,000 times the background rate and may climb to 10,000 times the background rate during the next century, if present trends continue [resulting in] a loss that would easily equal those of past extinctions"... with some 10-30% of the [present] mammal, bird and amphibian species threatened with extinction, " as well as 75% of marine life due to over-exploitation. Furthermore, current emission rates from automobiles, factories, and other industries, have led to the global issue of global warming. The increase of temperature is causing the sea level to rise, worldwide, because the polar ice caps are melting. This means more land is being submerged underwater, and with its increasing rate it is causing to both animal and human habitats to decrease in turn leading to

overpopulation in some areas. " Up to 70% of the world's known species risk extinction if the global temperatures rise by more than 3. 5°C" (Shah [2]), and " overpopulation means that there are more people than there are resources to meet their needs" (Impacts on Biodiversity, n. d.). Other effects of human activities on biodiversity include loss of habitat, erosion, and chemical pollution. In Canada alone, " more than 85% of short-grass prairie, 80% of mixed-grass prairie, 85% of aspen parkland and almost all our native tall-grass prairie. Loss of habitat, combined with reliance on a few genetically-engineered crop strains instead of indigenous crops, have resulted in the endangerment of a disproportionately large number of plant and animal species, " and the removal of natural vegetation have caused the soil to wash into rivers and other water bodies harming " fragile aquatic habitat"(Impacts on Biodiversity, n. d.). Moving on, why and how is biodiversity important to humans? What effects do they have on human way of life? Why should the human population of the world actually invest in saving the biodiversity of nature? The role played by biodiversity is not known to many; however, mankind's survival depends largely on biodiversity, for that nature depends on biodiversity to replenish and preserve its resources. Will humans be able to survive and avoid extinction without the existence of certain flora and fauna? No, the human race will fail to. Herbivores, mainly cattle including cow and sheep, are the main source of meat products that humans consume in their daily diets. Without the growth of vegetation, these animals will not be able to survive and in turn become extinct; consequently, humans will have to turn to other sources of meat. Other sources might include fish, carnivorous animals, and so on, which also

depend on other environmental factors that humans are destroying or using up without replenishment. More importantly than the reason for survival, biodiversity will be considered of greater value if an economic value is placed on it because money is the main concentration of today's world. "Planting and protecting nearly 12, 000 hectares of mangroves in Vietnam costs just over a million dollars but saved annual expenditures on dyke maintenance of well over seven million dollars"(Stephen Leahy qtd. in Shah [1]). The table below puts a price tag that will show the worth of biodiversity and its importance:

Sector	Size of Market	Comment
The Economics of Ecosystems and Biodiversity for National and International Policy Makers 2009	p. 17	
Pharmaceutical	US\$ 640 bn. (2006)	25-50% derived from genetic resources
Biotechnology	US\$ 70 bn. (2006)	from public companies alone
Many products derived from genetic resources (enzymes, microorganisms)		
Agricultural seeds	US\$ 30 bn. (2006)	All derived from genetic resources
Personal care, Botanical and food & Beverage industries	US\$ 22 bn. (2006)	for herbal supplements
	US\$ 12 bn. (2006)	for personal care
	US\$ 31 bn. (2006)	for food products

Some products derived from genetic resources. represents ' natural' component of the market. Table: Example of market sectors dependent on genetic resources - (Shah [1]). If not for biodiversity, then the numbers shown in the table would have not existed. The ' size of market' column shows the revenue generated for each of the fields that utilize and profit from biodiversity and the natural resources generated as a result of biodiversity. Since the benefits reaped from biodiversity are great, and as the previous section mentions, there is more than enough motivation for the human race to begin saving the

environment; no matter the purpose behind the act, it will result in the increase in biodiversity once more. Organizations such as GreenPeace and the United Nations Environment Programme (UNEP) have taken the initiative in protecting ecosystems and nature's biodiversity. Campaigns have been launched to "provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations"(UNEP). Also, automobile manufacturers in certain countries, such as the United States and members of the European Union (EU), have been forced to maintain a certain Carbon Monoxide (Co) emission level forcing them to implement hybrid engines which reduce the level of petrol consumption in turn leading to the lesser emissions. In conclusion, biodiversity is the main purpose behind the survival of many species including the Human Race. However, with time the Human race began to focus on progress and development, forgetting the lower steps they have taken to reach their current state; the environment has been ignored and biodiversity has and continues to be harmed in favor of industries and technological improvement. Although unknown, biodiversity has many effects on humans: provides resources to be used as well as a major economical asset helping most industries. Some people have come to recognize the importance of biodiversity and organizations have been set up to reduce biodiversity loss. Yet, it is still not enough for the pace and resources invested in protection of the environment are not enough. "World leaders faced the economic crisis head on. We need that same level of investment and commitment for the environment. " (Simon Stuart qtd. in

Shah [3]). References: 1. Shah, A. (2011) " Why Is Biodiversity Important? Who Cares?. " Global Issues.. Retrieved from: . 2. Shah, A. (2011) " Loss of Biodiversity and Extinctions. " Global Issues. Retrieved from: . 3. Shah, A. (2011) " Addressing Biodiversity Loss. " Global Issues. . 4. Impacts on Biodiversity (n. d.). Quebec Biodiversity. Retrieved from: <http://redpath-museum.mcgill.ca/Qbp/3.Conservation/impacts.htm> 5. Faith, Daniel P., " Biodiversity", The Stanford Encyclopedia of Philosophy (Fall 2008 Edition), Edward N. Zalta (ed.), Retrieved from: . 6. Naeem, S. et. al (1999). Biodiversity and Ecosystem Functioning: Maintaining Natural Life Support Process. Issues in Ecology. Issue 4. Retrieved from: <http://www.epa.gov/owow/watershed/wacademy/acad2000/pdf/issue4.pdf> 7. UNEP. " Mission". Retrieved from: [http://www.unep.org/Documents.](http://www.unep.org/Documents/Multilingual/Default.asp?DocumentID=43)