Importance of Biodiversity and urgent need for its conservation

By

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Abstract

Man's over ambition is costing heavily to the pristine environment which was having a perfect ecological balance. It is only in the past few centuries or to be very-very precise last few decades man has played havoc to nature resulting in lost purity on the surface of this beautiful planet the "mother earth". Some of the beautiful flora and fauna have already gone extinct and others are seriously threatened if proper attention is not paid to their conservation. These plants and animals will be lost forever from earth which will be the biggest negligence of present generation of human beings. Hence immediate attention is required to this important issue. In the present paper importance of biodiversity and emphasis for urgent need for its conservation has been discussed.

Key Words: *Pristine, flora, fauna, epidemic, pandemic, rare, extinct and endangered species etc.*

Biodiversity in the simple words is defined as various kinds of animals, plants, fungi, bacteria and viruses that make up our natural world. Each of these species and organisms work together in a tangled manner to maintain a perfect ecological balance and support life. The living organisms are broadly classified into two groups named as prokaryotes and eukaryotes. The prokaryotes include monera, whereas eukaryotes include protista, fungi, animalia and plantae. The major groups of plants are algae, mosses and liverworts, ferns, gymnosperms and angiosperms. Animals are similarly classified into two broad groups known as non chordates and chordates. The non chordates include porifera, cnidarians, platyhelminthes, aschelminthes, annelida, arthropods, molluscs, echinodermates and hemichordates. Similarly chordates include protochodates, cyclostomata and tetrapods (fish, amphibians, reptiles, birds and mammals). About 9 to 52 million species are expected to be present on our planet (Mora et al., 2011). Life on earth is dominated by plants whereas animals constitute a minuscule part. The majority of life is terrestrial. Till now we have been able and successful in identification of wide varieties of species but still larger chunk need identification and description. Biodiversity is not uniformly distributed and is the richest in the tropics. Terrestrial biodiversity tends to be highest near the equator (Gaston, 2000), which seems to be the result of the warm climate and high primary productivity (Field et al., 2009). In fact the tropics are the homes to diverse flora and fauna because of unique ecosystem where lot of scientific work is still pending.

In the evolutionary history of life on earth extinction has been an important natural force and will remain so always. It is presumed that many species that evolved on earth have already gone extinct and been replaced by new species but the speed by which this extinction has happened in the last few decades is a matter of serious concern for every ecologist. Humans have increased the species extinction rate by as much as 1000 times (Redding and Boakes, 2018). There is lot of gap in studies as a very small fraction of species has been evaluated for their extinction rate. So the figures which are shown in scientific writing may not be the exact data. We have heard about the huge dinosaur roaming and ruling this planet once upon a time. Some of the other animals which have gone extinct are Wooly mammoth, Tasmanian tiger, Stellers sea cow, Dodo, Passenger pigeon, Great auk, *Pyrenean ibex* etc. Similarly the extinct plants are *Franklinia alatamaha, Lepidodendron, Lysimachia minoricensis, Silphium, Cooksonia, Calamites, Saint helena olive, Euphorbia mayurnathanii, Sigillaria* and *Rhynia* etc.

Along with the term extinction the other three terms which are commonly used in conservation strategies are endangered species which is used for those species which are likely to become extinct in near future. The best examples are Eastern lowland gorilla, Hawksbill turtle, Javan rhino, Orangutan etc. Rare species are those which are uncommon and are rarely found and are fewer than 10000. Examples are Pangolin, Eelephant shrew, Northern hairy nosed wombat and Vaquita etc. The threatened species are those which are going to become

endangered in near future and these include Leopard, Great Indian bustard, Himalayan quail, House sparrow, Sarus crane, Nilgiri tahr, Asiatic lion etc.

Human dependence upon biodiversity has been inseparable be it for food, freshwater, timber, fiber, fuel, wood, wool and medicine etc. In fact our very existence without biodiversity is impossible. During the last few decades we have become more ambitious and have been over exploiting our natural recourses irrationally resulting in loss of biodiversity at much faster rate. This has never ever happened in the history of human civilization. The degradation of ecosystem services could grow significantly worse during the first half of this century and is a barrier to achieving the Millennium Development Goals. (Source: MEA, 2005). Biodiversity provides functioning ecosystems that supply oxygen, clean air and water, pollination of plants, pest control, wastewater treatment and many other ecosystem services which include protection of water resources, soils formation and protection, nutrient storage and recycling, pollution breakdown and absorption, contribution to climate stability, maintenance of ecosystems, and recovery from unpredictable events.

Thus it is crystal clear that our existence without biodiversity is impossible and therefore for preserving and conserving biodiversity we need to take a stock of threats to biodiversity. The biggest threats to biodiversity include climate change, habitat loss and degradation, pollution, introduction of invasive species, over exploitation and other potential threats. The climate change has been responsible for frequent forest fires, storms, period of drought along with rise in temperature. Glaciers are melting, rivers are drying up, water cycles are changing patterns and oceans levels are rising all these kind of changes are negatively impacting the lives of human beings along with adversely effecting the biodiversity. Habitat loss and degradation on the other hand is the other major area of concern as many species are finding it difficult to survive due to lost habitat (Ayoade at al., 2009; Agarwal et al., 2011). Humans have been encroaching in newer areas on land, in water and in air to adjust ever increasing human population thus many species are finding it difficult to survive as they are very sensitive to their peculiar habitat. Similarly rise in pollution level in air, water or soil is serious threats to all forms of life including humans also. Introduction of invasive species without proper scientific data could also play havoc with local biodiversity. Invasive species is a species which has been introduced in foreign land. The introduction of plant species like *Parthenium* (congress grass), *Ageratum* (Phulanoo) and *Lantana* (Panjphuli) have been live examples as they have dominated local flora in shorter time due to extensive root system. Also some time overexploitation which refers to over harvesting a species and natural recourses at a much faster rate than they can actually sustain in wilderness is also responsible for loss of species. Along with all these if misfortune happens epidemic and pandemic diseases like ebola and corona could also be responsible for loss of some species from this planet.

Though it is different story that human civilization has traditionally been nature's lover and has been drawing only what was just required without any greed and infarct living in perfect harmony with nature and natural recourses. Biodiversity has become an important issue on the global arena. The importance of biodiversity is increasingly being recognized as of vital concern on the local, national and international levels. The challenge is how to find practical and workable ways to increase biological diversity. As the issues surrounding biodiversity are not individual and country specific and lost species is a great loss of humanity as a whole. Therefore the solution to these problems has to be collective one. The issues and challenges around achieving biodiversity could be also diverse and therefore require diverse solutions in order to be finding the most effective solution or combination of solutions for a given area. Successful conservation strategies will have to have the confidence and participation of the local communities (Dobhal et al., 2011). Obviously action needs to be taken on the governmental level. However there are also ways that individuals and groups of individuals can begin to act on their own right and help create ecological change and increase biodiversity.

Acknowledgments: The author is highly thankful to his family members Mrs. Mamta Sharma (wife), Kriti Sharma (Daughter) and Abhinandan Sharma (Son) for encouraging me during research work under discussion.

References:

Agarwal, N.K., Singh, G. and Singh, H., 2011. Present status of Icthyofaunal diversity of Garhwal Himalayan river Bhilangna and its tributaries with reference to changing environment. Environment Conservation Journal, 12(3): 101-108.

Ayoade, A. A., Agarwal, N.K and Chandola-Saklani, A., 2009. Changes in Physico-chemical Features and Plankton of Two Regulated High Altitude Rivers, Garhwal Himalaya, India. European Journal of Scientific Research, 27 (1): 77-92.

Dobhal, R., Kumar, A. and Rawat S., 2011. Conservation and management of bio-resources In Uttarakhnad, India In. Y. Gokhale and A.K. Negi (eds.), Community based bio-diversity conservation in the Himalay, The Energy and Resource Institute (TERI), New Delhi. pp: 1-19.

Field, R., Hawkins, B. A., Cornell, H.V., Currie, D.J., DinizFilho, J., Alexandre, F., Guégan, Jean-François; Kaufman, D.M., Kerr, J.T., Mittelbach, G.G., Oberdorff, T., O'Brien, E. M. and Turner, J. R. G., 2009. Spatial species-richness gradients across scales: a meta-analysis. Journal of Biogeography, 36 (1): 132– 147.

Gaston, K.J., 2000. Global patterns in biodiversity. Nature, 405 (6783): 220–227.

Millennium Ecosystem Assessment (MEA), 2005. Ecosystems and Human Well-Being. Washington, D.C.: Island Press, 354.

Mora, C., Tittensor, D.P., Adl, S., Simpson, A.G. and Worm, B., 2011. How many species are there on Earth and in the ocean?. PLOS Biology. 9(8): e1001127. doi:10.1371/journal.pbio.1001127.

Redding, D and Boakes, E. 2018. Extinction is a natural process, but it's happening 1000 times the normal speed. An article in Down to Earth scientific magazine.