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Human beings and biodiversity degradation

SHENDE V.A.[1*] and PATIL K.G.[2]

[1]Department of Zoology, K. Z. S. Science College, Bramhani-Kalmeshwar, Nagpur, India - 441 501.

[2]Department of Zoology, Institute of Science, R. T. Road, Nagpur (M.S.) India - 440 001.

***Corresponding Author E-mail:** virushende@gmail.com

ABSTRACT

Biodiversity contributes to make human life both possible and worth living. Human beings are the major source for degradation of biodiversity. Biodiversity is under significant threat from the effects of human-induced climate. Its loss is threatening the fulfillment of basic needs and aspiration of humanity as a whole. If we carry on losing biodiversity, future generations face hunger, thirst, disease and disaster. It directly and indirectly contributes many constituents of human, including security, basic material for a good life, health, good social relations, and freedom of choice and action.

KEYWORDS

Ecosystem services, Biodiversity loss, Conservation, Human, Basic needs.

Review Article

INTRODUCTION

Biodiversity's relevance to human health is becoming an international political issue, as scientific evidence builds on the global health implications of biodiversity loss (Chivian and Bernstein, 2008; Corvalan et al., 2005). Implications of biodiversity loss and ecosystem change for the global environment have been widely discussed, but attention has recently turned to the effects that these modifications could have on human health.

Ecosystems can helps to regulate infectious diseases. Biodiversity loss has serious implications for the availability of future medicines. Approximately half of all synthetic drugs have a natural origin. Recent studies have shown that hundreds of medicinal plant species, which make up the basis of over 50% of all prescription drugs, are threatened with extinction. The components of human were defined as security, basic material for a good life, health, good social relations, freedom of choice and action. All of which depend either directly or indirectly on ecosystems and the services they provide. Humans rely on food, clean air, water, timber and medicines for survival. Human livelihoods rely on ecological services that support global employment and economic activity (for example food aquaculture, and recreation) Millennium Ecosystem Assessment (2005).

Regulating services determine the distribution of provisioning services, such as food, fuel, fiber and cultural services such as spiritual and aesthetic values (Kinzig et al., 2007).

OBSERVATIONS AND DISCUSSION

1. Health issues

Changes in food supply leads to increased malnutrition and, hence, to more immuno-compromised people in the world which increases parasites and disease-carrying organisms. Changes in supply and quality of freshwater are lead to increased transmission of water-borne diseases. Some of the health issues influenced by biodiversity include dietary health and nutrition security, infectious disease, medical science and medicinal resources, social and psychological health (Gaston et al., 2005).

"Habitat destruction and biodiversity loss," driven by the replacement of local species by exotic ones, deforestation, global transportation, encroaching cities, and other environmental changes- "can increase the incidence and distribution of infectious diseases in humans," (Montira et al., 2009).

The clearest connection between biotic homogenization and infectious disease is the spread of non-indigenous vectors and pathogens. Habitat destruction and biodiversity loss associated with

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biotic homogenization can increase the incidence and distribution of infectious diseases affecting humans. The loss of predators and hosts that dilute pathogen transmission can also increase the incidence of vector borne illnesses. Other mechanisms include enhanced abiotic conditions for pathogens and vectors and higher host-pathogen encounter rates. Improved understanding of these causal mechanisms can inform decision making on biodiversity conservation as an effective way to protect human health.

Biodiversity loss can also have a direct effect on zoonotic disease transmission. Plant or structural diversity and habitat complexity can influence the composition, abundance and distribution of animals that play important roles in the transmission cycles of some human diseases. For example, deforestation and habitat fragmentation or modification and the accompanying loss of structural diversity, can lead to changes in human contact rates with a variety of pathogens and disease vectors (Vittor et al., 2006).

Changes in the diversity or composition of animal hosts may be closely associated with the incidence of zoonotic diseases such as Lyme disease or West Nile virus (WNV) in humans (LoGiudice et al., 2003, Ezenwa et al., 2006). At the same time, it is important to note that parasites can be important drivers of biodiversity and components of ecosystem health (Hudson et al., 2006). Some disease dynamics may operate independently of biodiversity if they rely on non-generalist vectors or a certain abundance of reservoir hosts (Kilpatrick et al., 2006). Finally, although additional hosts can reduce the transmission rates of particular diseases, they can also harbor other pathogens.

The links between biodiversity and human health occur from the microbial level to that of the habitat. Mechanistic pathways that lead from changes in biodiversity to human health can occur at the genetic, microbial, organismal (host or vector species), community, and habitat levels (Pongsiri et al., 2009). Biodiversity loss can impact on community traditions and livelihoods centered on traditional medicinal practices that utilize wild animals and plants, particularly for indigenous and local communities. Millions of people depend upon traditional medicines for their primary health care (COHAB, 2010).

Patterns of health and disease have undergone dramatic transitions during human history, reflecting social and ecological changes (Barrett et al., 1998; McMichael, 2001).

2. Aspiration and Basic needs

Biodiversity provides us with raw materials that we use to make products such as clothes, shoes and paper. We use many natural products and materials in our daily lives. We need biodiversity to satisfy basic needs like food, drinking water, fuel, shelter, and medicine. Much of the world's population still uses plants and animals as a primary source of medicine in biodiversity origin. Ecosystems provide services such as pollination, seed dispersal, climate regulation, water purification, nutrient cycling, and control of agricultural pests. Supporting services underpin all other ecosystem services and capture processes such as carbon cycling (primary production, decomposition and soil formation), water and nutrient (nitrogen and phosphorus) cycling. Regulating services provide the mechanisms that moderate the impact of stresses and shocks on ecosystems (Kinzig et al., 2006) include, climate and disease regulation.

The transformation of ecosystems and exploitation of natural resources have resulted in substantial gains in human wellbeing and economic development. However, the benefits have not been equitably distributed and the costs of biodiversity changes either not recognized or quantified. This is because ecosystems tend to be valued by people in terms of the direct benefits provided by provisioning and cultural services (food, fiber, recreation and aesthetics respectively) which represent a relatively small component of biodiversity. However, the supply of these services is underpinned by supporting and regulating services (pollination, climate regulation and primary productivity respectively), for which the value of biodiversity is less visible but no less important (Scholes and Midgley, 2007; Kinzig et al., 2007).

3. Cultural services

Biodiversity has been very important in inspiring many cultural traditions. This can be seen in the music, ceremonies, holidays, mythology and decorations used by different cultures around the world. Protecting biodiversity helps preserve many

of these cultural traditions. Protecting cultural traditions helps protect the natural biodiversity of the land, thus culture needs for survival.

Peoples were adapted to the environment where they lived. This resulted in different languages, traditions, customs, knowledge and beliefs that have been passed down through generations. The environment influenced the development of cultures and similarly our cultures influenced the makeup of the local environment. For example, food is an important part of culture. This affects the crops people grow, animals that they raise or hunt and the waste products that they send back into the environment.

Many cultures view themselves as an integral part of the natural world which requires them to respect other living organisms. Biodiversity enriches leisure activities such as hiking, bird watching or natural history study. Biodiversity inspires musicians, painters, sculptors, writers and other artists. Popular activities such as gardening, fish keeping and specimen collecting strongly depend on biodiversity. The relationships between the original natural areas of these often exotic animals and plants and commercial collectors, suppliers, breeders, propagators and those who promote their understanding and enjoyment are complex and poorly understood. The general public responds well to exposure to rare and unusual organisms, reflecting their inherent value.

Ecosystem change can result in disconnection of populations from open spaces or the wider countryside, with negative implications for physical and mental well-being and loss of "sense of place". This has been linked to an increased prevalence of 'diseases of affluence' (diabetes, obesity, cardio-pulmonary illness) and psychological disorders in many communities. Conversely, access to 'green space' (natural and artificial) are associated with better health outcomes, shorter hospital visits and reduced convalescence time for patients than purely urban environments (Gaston et al., 2007). An awareness of environmental values and respect for other species has been associated with reduced propensity towards anti-social behavior in children and young adults (Francesca and Joshua, 1997).

Global warming may increase the frequency of climatic disturbances such as fires, disease, insects, storms, etc. Biodiversity sustain you, empower you, and give you purpose and direction in life towards ultimate happiness and fulfillment. As you need air to breathe, food to eat, and water to drink and your aspirations too are a needed daily nutrient.

CONCLUSION

Every policy and action must recognize that-the resources of the Earth are finite. Nature's components are unique and once lost, irreplaceable. We depend on biodiversity in some way all day, every day. Human health depend upon the conservation of biodiversity is still largely unappreciated. If we do not now preserve biodiversity there will soon be little left to preserve. When that happens, humans themselves may become an endangered species. Biodiversity conservation requires bold new thinking about the way we manage the Earth.

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