



Why butterflies matters?

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Abstract

When we start studying about any animals specially insects, our very first question what is the use of that study? Is it important economically, ecologically? Or is it useful in the treatment of any severe diseases? This paper is an attempt to explain the importance of butterflies.

Keywords: butterflies. Biodiversity, ecology, food chain, conservation

Introduction

Before starting the discussion on Why Butterflies matters? We would like to put a brief note on why biodiversity loss matters? Very well explained by Flynn and Furney (2010)^[12], "biodiversity loss matters, it matters for ethical, emotional, environmental and economic reasons. Ethically, we have a responsibility to future generations to maintain the diversity of life on earth; emotionally, we derive from nature pleasure, fulfillment, inspiration and solace; nature is fundamental to our culture, language, psychological and spiritual wellbeing. Environmentally, biodiversity provides a wide range of essential services – including carbon-cycle and storage, clean water, climate mitigation, mitigation of natural hazards, and pollination. Economically, the financial value of the goods and services provided by ecosystems and species – by life on earth- has been estimated at Euro 26 trillion per year-nearly twice the value of what human produce each year. The conservation and sustainable use of biodiversity is essential to poverty eradication in developing countries, and to sustainable livelihood and sustained economic growth in Europe and worldwide. Biodiversity is part of the daily lives of every one of us and, indeed, we are part of biodiversity. Climate change will increasingly drive biodiversity loss, affecting both individual species and their ecosystems. An ecosystem can be defined as a community of plant and animal species and the physical environment that they occupy, which includes the climate regime. When climate conditions change, unexpected results may follow. Each species will respond in an individual fashion, according to its climate tolerances and its ability to disperse into a new location, alter its phenology or adapt to shifting food sources. It is difficult to predict the overall results of changes in the abundance of herbivores and food plants, predators and prey. Many studies have attempted to project the rate and extent of terrestrial ecosystem response to climate change, some using simple models assuming that entire ecosystems will shift to follow the changing climate, and others using 'plant functional type' models featuring the responses of different types of herbs, bushes and trees. Vegetation zones are typically expected to move towards higher latitudes or higher altitudes following shifts in average temperatures"

Entire animal kingdom is classified into invertebrates and vertebrates. The phylum invertebrates comprise 95% of the

total animal known, named and classified, remaining 5% are vertebrates. Arthropoda is one of the largest phylum of invertebrates contains about 80% of the all known species. Insects belonging to the class Insecta, one of the largest class in the phylum Arthropoda, they are the most diverse groups of animals on the earth at present (Imms, 1964)^[11]. Approximately 0.9 million species of insects have been described throughout the world and 59,353 species in India belonging to 27 orders (Varshney, 1998)^[2]. Butterflies are belonging to the order Lepidoptera, which is the second largest order in the class insect. There are different views regarding total number of butterflies in the world as well as in India, few are- i) According to Heppner (1998)^[5], Evnas (1932), Kunte (2000)^[6] - 19,238 species of butterflies from the world and 1501 species are from India. ii) In view of Gaonkar (1996)^[8], there are 16,823 species recorded from all over the world and among them 1501 species of butterflies are recorded from India. iii) According to Kehimkar (2008)^[4] around 18,000 species of butterflies are estimated to be there in the world and India has recorded 1501 species. iv) Kunte (2009)^[6], India has total 1,504 species of butterflies. v) The recent estimates according to Varshney and Smetacek (2015)^[3] there are about 18,000 plus species of butterflies in the world, vi) Although several estimates have been made from to time ranging from a low of 13,000 (Owen, 1971)^[13] to the maximum of 20,000 (Vane Wright, 1978) but the total number of butterflies is in the state of flux and it remains so. Though the tropical region contains very rich and diverse butterfly fauna, the information on species found in different habitats is very poor particularly for the Indian region (Rajagopal *et al.*, 2011)^[9]. From the numerical data it is evident that butterflies are the integral part of not only insect diversity but the entire biodiversity.

Table 1

| Entomologist | World | India |
|--|---------|-------|
| Heppner, (1998) ^[5] , Evnas (1932), Kunte (2000) ^[6] | 19,238 | 1,501 |
| Gaonkar (1996) ^[8] | 16,823 | 1,501 |
| Kehimkar (2008) ^[4] | 18,000 | 1,501 |
| Kunte (2009) ^[6] | - | 1,504 |
| Varshney and Smetacek (2015) | 18,000+ | 1,318 |

Human beings are the greediest, self-centered among all the organisms living on the earth, we humans always raise the question why it matters? specially for invertebrates, when compared to the total number of species of insects human beings are negligible but they never asked such questions, because they are not “educated” like us, it is fortunate otherwise we would have been extinct many years before not here to “conserve” the animals and dare to ask such questions. Human see the nature whether it is abiotic or biotic factors from light, temperature, soil, wind, microorganisms, plant or any animal only from the perspective of how to get benefits from this, because of this basic core selfishness we analyze, calculate before studying biotic or abiotic factors in detail, if a animal “fits” into his economic/medicinal or any other beneficial category he starts studying it or try to conserve it, this is the reason why all the conservation programme are focused on higher vertebrates not any other category of animals because they are analyzed for their economic and ecological value and they properly “fits” into the criteria that human counts, insects are too economically, ecologically very very important and there loss is the loss of part of biodiversity, the study of butterflies and their ecological studies are overlooked and underappreciated aspect, if we study and prove the use of it may be the survival chances of butterflies may increase. From the numerical data it is evident that butterflies are very much important part of biodiversity, in this short communication an attempt was made to provide the answer for why butterfly matters, unfortunately we know very less about the services rendered by them.

According to Albert Einstein, “Not everything that can be counted counts and not everything that counts can be counted”. I wish there were conclusive way to prove it.

Conclusion

Human beings are the most self-centered and selfish, greedy animal in the entire animal kingdom. We always look forward the use or outcome of all the things that are there in the nature from water to invisible microorganisms, we human think that the entire nature is there to serve the endless desire of ours we always forget that we are here because all factors biotic and abiotic including “small” invertebrates working with harmony, taking the things within the limited range from the nature, never ever think about their “growth” at the cost of destroying the other wildlife’s, environment and ecosystem. Whatever the subject we study in the basic Biology or any branch (specially insects) either it may be Biodiversity, Ecology, wildlife, Population dynamics, Population assemblages, Community ecology, Bioecology of animals specially invertebrates, biotic interaction of (specially once again) invertebrates, check listing the biodiversity of invertebrates etc., the primary question we asked is why it matters? What is the outcome of the study? How it help to overcome the diseases? Is there genome related to human being; if it yes at what percentage? Is it worth investing money? But we never think is our “study” disturbing somebody’s lives? They are living with harmony even with us too. Few so called intellectual people think about how we can replace the “loss”? How we can compensate to that disturbance? What are all the prioritization that can be possible to start? Next stars Conservation. Forming the conservation committee, finalizing the experts in it from various disciplines of the subjects, studying the harm, formulating laws and making

the guidelines to follow to bring back the worst situation back (?) After few months or years committee presents report with “positive” outcome. First disturbing the nature greed fully then starting slowly in fact very very slowly conservation programmes and again ready to ask another question on any other focused fauna that come with “convinced”, “scientific” answers for list of questions like “why it matters? How it can be useful for our community? is it help to overcome any diseases specially cancer, AIDS, genetic disorders? If such questions are answered logically, statistically the cycles starts once again and end with new conservation programmes. We can prove that how these conservation programmes help to improve the particular habitat to bring the situation back by counting the plants and animals, putting the data in the table, draw the positive progress correlation graph, proving the hypothesis, but we never understand what’s going on in their genes in the new habitat, what is the consequences of the new situation that animals are forced to adapt and still there are many more aspects that are invisible and impossible to understand, count, calculate and prove.

So the first thing we must and should stop raising the question why it is matters? What is its important? For any wildlife form from Protozoa to Mammals. Nature treats all the life equally with all respect; it is our duty to treat with same. It is inevitable that we have to use nature our survival but it should be in the limits. As we become “Civilized”, we also become more “intellectual” and starts proving our conservation programme and its long lasting “positive” effect by theories, hypothesis with statistical data and graph with modern technology and softwares but nature has its own way to behave with these “conservation Programmes” it does not understand neither our “Mathematics” nor our “Statistics”. Whenever we tried to balance the nature we have lost ours and put over self in still bigger ecological problems, the first thing we have to do is stop our over intellectual study, conservation programme, beings to lead a natural, less greedy life, nature has the tremendous capacity to balance itself and our lives too, it does not need anybody’s help. This is the prime time to salute the all the lives of nature make the decision to live with harmony with all the members including smallest insects, because they matter too. Finally, I would like to end with the note of Romain Grey, “there is nothing in nature to prove that it cares more for human species than for daffodils. We may one day vanish as quickly and as radically as thousands of others breeds before us... Mother Nature has no mama’s darlings... when the balance of nature is threatened, it always finds a way to restore that balance, at whatever cost. If endangered by us, nature will strike back and show no more concern for Michaelangelo, Shakespeare or Mozart than for daffodils. We are dealing here with an overwhelming force, that of life itself and we know next to nothing about it. The only thing we know is – nature has no favorite among the species”.

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