

IMPACT OF CLIMATE CHANGE

BIODIVERSITY & ENVIRONMENT

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Impact of Climate Change Biodiversity and Environment

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2021

Associated Publishing Company®

A Division of

Astral International Pvt. Ltd.

New Delhi – 110 002

© 2021 EDITORS
ISBN : 978-93-89719-38-3

Publisher's Note:

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Published by : **Associated Publishing Company®**
A Division of
Astral International Pvt. Ltd.
– ISO 9001:2015 Certified Company –
4736/23, Ansari Road, Darya Ganj
New Delhi-110 002
Ph. 011-43549197, 23278134
E-mail: info@astralint.com
Website: www.astralint.com

Digitally Printed at : **Replika Press Pvt. Ltd.**

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Chapter 31

Monitoring Ecological Changes with the Help of Butterflies

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Butterflies are dominant component of the food web of life. Being so diverse and ecologically important, they are the first to get affected by any disturbance to the habitat and hence butterflies are valuable in monitoring ecological changes and serve to warn us of today's deteriorating environment. The study was conducted in southern part of Western Ghats forest Achenkovil, part of the Kollam district from March to May 2016. In the present study, a total of 27 species of butterflies belonging to 4 families were identified from the study area. Out of the 27 species, eight belongs to Papilionidae, five to Pieridae, eleven to Nymphalidae and three to Hesperidae. The butterfly species like Common Bluebottle (*Graphium sarpedon* Linnaeus) come under family Papilionidae, Spot Swordtail (*Graphium nomius* Esper) under family Papilionidae, Common Albatross (*Appias albina* Boisduval) and Lemon Emigrant (*Catopsilia pomona* Fabricius) come under the family Pieridae mud puddling butterflies. We observed that Lemon Emigrant commonly puddling on the river side sand areas of Achenkovil River. The Common Bluebottle butterflies usually puddle on the cow dung areas inside the forest and also the wetland side, where the wild animals generally came for drinking water. The Spot Swordtail butterfly do puddling on the river side, especially near the rocky areas of Achenkovil River. The Common Albatross also do puddling, but on the wet areas of the open forest in the Achenkovil forest. The results show that out of 27 species studied, four species were found to be involve in mud puddling as observed in Achenkovil forest.

Preface

In twenty-first century, climate change is recognized as the greatest ecological, economic and social challenge globally. Climate is a very dynamic phenomenon and it is always changing through a natural cycle. The anthropogenic activities that are responsible for the generation of greenhouse gases and the alteration in biological stocks of carbon in terrestrial and marine system are majorly responsible for the increasing trend in climatic extremes such as floods and droughts. The other major consequences of climate change are green house effect, global warming, ozone depletion and epidemics which directly or indirectly affect the biological resources and life sustaining system of the nature. Consequently, it is affecting human health, ecological productivity, biodiversity, water supply and economy in a net negative manner. Climate change is both a cause and an effect of biodiversity change.

Kerala state has a fragile and closed ecosystem. There are both threats and opportunities for Kerala's sustainable development. The state is vulnerable to climate change and faces consequences in the form of disasters from the recent past with increased frequency. Realizing the severity of the impacts of climate change, there is a need to address the various anthropogenic activities and the steps to reduce their impact and associated hazards. However, it is pre-requisite to understand the scientific issues related to climate change before adapting the various mitigation measures.

This book entitled '*Impact of Climate Change Biodiversity and Environment*' is an outcome of studies presented in the National Seminar conducted at Department of Environmental Science, St. John's College, Anchal that addresses the major curses and burning issues of climate change and its impact on water resources, soil health and natural habitat. It also focuses on new insights related to update research and development.

The book is categorized into five sections and in total comprises of 33 chapters. First two chapters deals with the current scenario of climate change impact and the