Book Review


Understanding ecological effects of the recent human-induced climatic change is important to mitigate the negative consequences of these changes on Earth’s ecosystems. We have started to observe ecological effects of the recent climate change for not more than 35 years. Therefore, global analyses on ecological effects of the climate change could not be conducted until the late 1990s due to the lack of long time series data. After this period, many researches revealed that the recent climate change affects ecosystems, species, and populations (see Walther et al. 2002). These studies faced us with the reality of the climate change and led to an increase in concerns about the future of our planet among both ecologists and the public. The first signs of the effects of climate change helped to put the issue on the agenda of the national and international governmental bodies. During the last decade, as a consequence, the ecology of the climate change achieved a popular trend among biologists, ecologists, and climate scientists. Until recent years, the focus of studies remained as the long-term effects of the climate change on distributional range shifts or changes in phenology of populations and species. Accordingly, fewer studies dealt with the species interactions in biotic communities. Actually, the effects of climate change on species interactions in communities might have been overshadowed the easier-to-be-observed long-term distributional and phenological changes in species and populations. In summary, biotic interactions have been overlooked in the study of the ecology of climate change.

The book, entitled “Ecology of climate change – the importance of biotic interactions” by Eric Post, fills this gap in the global change ecology. As an author of many milestone papers on the ecological effects of the climate change including the classical Nature paper (Walther et al. 2002), Eric Post continues to thrill the scientific community with his contributions to the global change ecology. I believe that his experiences on the Arctic and other high-latitude ecosystems (e.g. Post et al. 2009) led Post to write this book. As we will see the most dramatic effects of climatic warming on northern latitudes, the high frequency of the case studies from high latitude ecosystems throughout the book is further meaningful.

The book consists of nine chapters; each points out various aspects of ecological effects of the climate change. Chapters in the book were presented in two different approaches. Some of the chapters are completely related to ecological effects of the climate change, whereas some others start with an explanation of a basic ecological concept and later make a connection between the concept and the effects of the climate change. For example, in the third, fourth and seventh chapters, the author focus directly on the effects of the recent climate change, such as phenological and population responses, and distributional shifts in species ranges. On the contrary, in the fifth, sixth and eighth chapters, the basics of the ecological concepts such as the niche, community stability, and ecosystem function are the focal points. On the other hand, the author successfully integrates the relationship between the focal ecological concept and the climate change in these chapters. In my opinion, one of the book’s novelties, therefore, comes from its success in integrating ecological effects of the climate change with basic ecological concepts. The success of this integration can be felt throughout the book.

The book starts with a preface, including a proposal of new hypotheses, “the tension and facilitation hypothesis of biotic response to climate change”. Tension and facilitation hypotheses are presented as possible opposite observations that can occur in natural ecosystems in response to the climate change. These hypotheses explain the relationship between the strength of biotic interactions and climatic influence in ecological dynamics. The tension hypothesis suggests that the role of climate in such dynamics will have greater importance, in the case of biotic interactions are weak. Conversely, in the existence of strong biotic interactions, the contribution to climate to ecological dynamics will be minimized. Alternatively, the facilitation (or “promotion”) hypothesis suggests that this interaction between the strengths of abiotic and biotic influences on ecological dynamics is reversed. According to the facilitation hypothesis, therefore, the strengths of the biotic and abiotic influences on ecological dynamics increase/decrease together. With the proposal of new