

Preface to Symposium Papers on “Biological Interactions in Arable Land-Grassland-Forest Continuums and their Impact on the Ecosystem Functions”, 7th International Symposium on Integrated Field Science

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Field Science Center of Tohoku University aims at developing sustainable bio-production system in integrated ecosystem from forest, grasslands, arable lands to coastal sea. Field Science Center is comprised by 5 research groups in collaboration with staffs belonging to Graduate School of Agricultural Sciences, Tohoku University. The research groups are referred as Research Cores, which are the Forest-Andisol Core, the Ruminant Production Core, the Rice Production Core, the Marine Bio-production Core and the Integrated Field Control Core. Each core has in turn organized the international symposium annually. In 2009, the Forest-Andisol Core in collaboration with Ecosystem Adaptability Global COE, Tohoku University, organized the international symposium on “Biological Interactions in an Arable land-Grassland-Forest Continuum and their impact on the Ecosystem Functions” as 7th International Workshop on Integrated Field Science.

We now face global and local environmental change due to human activities. It is urgently needed for us to understand how the environmental changes have been caused, how such changes affect our living, how we mitigate such changes and how we adapt ourselves to the changes. Most phenomena in global and local environmental changes are macroscopic. However, these macroscopic phenomena are often caused by microscopic organisms and by their interactions. It is now well recognized that interactions among organisms not only govern dynamics of populations and communities but also affect various phenomena in ecosystems.

From the above viewpoint, we organized the symposium to discuss how biological interactions affect ecosystem functions with emphasis on a continuum of different land-use from forest to arable- and grassland and arable lands. The symposium was held on Oct 10-12, 2009, at Multimedia Education and Research Complex, Kawauchi Campus of Tohoku University. Fifteen scientists, including from Canada, USA, New Zealand and Indonesia, were invited to oral session. Sixteen posters were also presented. The topics included plant pathogens, endophytic and mycorrhizal fungi, earthworm, tubifex and wood mouse. Also terrestrial carbon accumulation in terms of global carbon sequestration was discussed. Field excursion to Terrestrial Field Science Center in Naruko-Onsen, Osaki city, was conducted to look at soil profiles and some field experimental sites. It was an excellent opportunity to discuss the most progressive research topic among the participants. I believe the symposium has contributed to our understanding of significance of biological interactions in integrated field science.

Most of the invited speakers contribute their papers to this issue. On behalf of the organizing committee, I would like to express my sincere thanks to all contributors. My gratitude is extended to Prof. Li, who was invited to the symposium but could not come due to sudden sickness, kindly contributes his paper. All abstracts including poster presentation are also included in the last part of this issue.