

The Impacts of the Alteration in Agriculture on the Environment and Ecosystem in Sarawak, Malaysia

Sota Tanaka^{1*}, Mohd Effendi bin Wasli², Joseph Jawa Kendawang³, Katsutoshi Sakurai⁴

¹ Kuroshio Science Unit, Multidisciplinary Sciences Cluster, Research and Education Faculty, Kochi University, Nankoku, Kochi 783-8502, Japan

² Department of Plant Science & Environmental Ecology, Faculty of Resource Science & Technology, Universiti Malaysia Sarawak, Kota Samarahan, Sarawak 94300, Malaysia

³ Sarawak Planted Forest Sdn Bhd, Kuching, Sarawak 93660 Malaysia

⁴ President Office, Kochi University, Kochi 780-8520, Japan

Abstract

In Sarawak, Malaysia, while large scale oil palm plantations have been rapidly expanding, shifting cultivation has been altering toward more intensified systems or reducing in its area or activities. Some local farmers prefer planting commercial crops such as rubber, pepper and oil palm rather than their traditional crop of upland rice. Issues relating to the influence of shifting cultivation and oil palm plantation on the environment and ecosystem are still disputable because the discussion is usually based on the stereotypical views lacking ecological evidence. In this keynote report for the 7th International Symposium on Kuroshio Science, several topics are presented related to the impacts of shifting cultivation and oil palm plantations on the environment and ecosystem in Sarawak, Malaysia, based on previous studies. We emphasize that further field research is needed with collaboration between multi-disciplinary international researchers to provide empirical data in order to reach conclusions and resolve the issues.

Key words: cash crops, oil palm plantation, Sarawak, shifting cultivation, soil fertility

Introduction

In Sarawak, Malaysia, while shifting cultivation is a traditional and primary form of agriculture for local farmers, large-scale oil palm plantations have been rapidly expanding. The impacts of this type of agriculture on the ecosystem, environment and society have been discussed widely but with opposing views, respectively; while shifting cultivation has been regarded as being a regressive type of agriculture and is believed by the government and forestry sector and occasionally by international organizations (such as the FAO) to cause tropical forest destruction and soil degradation, it has been positively accepted as a sustainable, environment-friendly, and highly resilient form of agriculture with fewer negative influences on tropical ecosystems and integral parts of culture and customs in local societies, in particular, by anthropologists and social scientists as well as related NGOs (Chin 1985; Crumb 1993, 2007). While conservationists and NGOs have strongly blamed

the oil palm industry as being the main cause behind tropical forest destruction, the degradation of soil fertility, environmental pollution, biodiversity losses, land rights conflicts, human rights violation, and the collapse of indigenous cultural practices (Ngidang 2002; Cooke 2002; Fitzherbert 2008), the government, industries and stakeholders have praised the palm oil production because of its sustainable and careful management with high use-efficiency of input, lower costs and higher oil productivity as well as longer life-span and smaller land requirements compared with other edible oil and biodiesel production (Weng 2005; Basiron 2007).

However, most of such views come from a rather stereotyped impression, occasionally lacking in any ecological evidence, which brings about antagonism between the two sides and creates obstructions to solving the problems connected with these different forms of agriculture and with forest conservation. In this keynote report for the 7th International Symposium on Kuroshio Science, several topics are presented related to the

*e-mail address: sotatnk@kochi-u.ac.jp, Tel & Fax: +81-88-864-5183