

Abstract

Planted forests may help offset biodiversity loss from deforestation, but the impacts of converting crops to plantations on local biodiversity are poorly understood. The east rift valley of Taiwan was originally covered by broad-leaved forests. Nowadays, most of the lands in the valley have been converted for various agricultural needs. The Danongdafu farm in Guanfu Township, Hualien County, was built to grow sugarcane in the 1910's. Since 2002, no more sugar is produced and broad-leaved trees were replanted over 1000 hectare of lands in the valley. Base on the plantation, this study is an evaluation of (1) the effects of converting broad-leaved forests to crops on the avian community and its diversity, (2) the recovery of broad-leaved forest avian species and its diversity, and (3) the impacts to the avian community and its diversity on adjacently remnant croplands. In Danongdafu forest park and its neighboring farmland and secondary broad-leaved forest, we investigated the avian communities in four habitat types including farmlands, farmlands adjacent to plantations, plantations, and secondary broad-leaved forests in April- June and September-November during 2009-2010. We found different avian species compositions and typical species in farmlands and secondary forestlands. The avian species compositions in the farmlands were less stable and the diversity indices were lower compared to the secondary forestlands. Avian species compositions were different between plantations and secondary forests, and the former communities were less diverse than the latter. Farmlands adjacent to plantations had different avian species compositions from farmlands away from plantations, and the former had higher avian diversity indices than the latter. We conclude that avian species compositions will become stable and diverse after farmlands are converted to broad-leaved forests. Avian species and diversities in broad-leaved forests did not recover in the rather young man-made plantations due to their simple vegetation structures and low plant species diversities. On the other hand, plantations might enhance avian diversities in the adjacent farmlands on the landscape. It is suggested that one of the ways to increase bird diversity in the plantation is to increase avian species in the shrub layer of planted forests, decrease the weeding frequency and create vegetation in understory of the forests.

關鍵字：鳥類群聚、多樣性、造林、農地、花蓮

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