

## CONSERVATION OF BIODIVERSITY OF LIMESTONE FLORA OF MALAYSIA

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### Introduction

Malaysian limestone flora is poorly known botanically especially in Sabah and Sarawak. The increasing development and quarrying activities on limestone hills may deprive us to proceed our inventory of flora diversity in these areas. Therefore, it is our greatest concern to at least obtain a complete list of hills mapped and co-ordinated in Sabah and Sarawak. On the basis of present data available from the herbarium specimens at Forest Research Centre, Sandakan and Kuching, a checklist of plant species collected together with their localities from the two states will be produced. Exploration of limestone localities that are unknown and are poorly known botanically will continue and assessment for their conservation status will follow. It is hoped from the overall field collections and herbarium specimens data assessment that limestone hills of scientific importance could be identified so that we can draw up a management plan for their long-term protection and also to build up living collections of orchids and other commercially important species from limestone areas.

### Materials and Methods

Field visits and collections will be carried out to these limestone areas. Collections will be of living collections and herbarium specimens. All collections will be identified and duplicates of herbarium specimens will be distributed to herbaria especially, Kepong (KEP), Kew (K), Leiden (L), Sandakan (SAN) and Sarawak (SAR) for further rectification of specimen identity and safe keeping for future study. The living collections especially orchids will be planted in arboretum or green houses both in Sandakan and Kuching.

### Results and Discussion

As of December 1998, almost half of the limestone localities were visited in Sabah and four in Peninsular Malaysia and from these visits, 400 herbarium collections were made in Sabah and 50 from Peninsular Malaysia. The visits and collections has contributed to the discovery of 10 new species of

*Begonia*, 2 new species of *Peperomia* and one new variety of *Codiaeum* (Euphorbiaceae) and several new records for Sabah (Kiew, 1998a). The limestone localities in Sabah have been successfully mapped (Kiew and van Welzen, 1998). This study has revealed that there were many limestone localities has never been explored botanically and so the gazetteer provides the basis for the exploration program especially to make botanical collection to localities not previously visited. The database for checklist of limestone flora of Sabah and Sarawak continues with herbarium specimens being deposited at Forest Research Centre Sandakan and Kuching. In Sarawak collections of rare, endangered and commercially valuable orchids from the limestone localities has started long before the conception of this collaboration and their living collections will soon be moving to a new orchid house constructed with the funds we extended to them early 1998. A checklist of orchids from limestone areas in Sarawak based on herbarium collections has been prepared and manuscript of the paper is in the final form and will be published soon. The survey of floristic diversity and degree of endemism in Bukit Bauk, Terengganu and Cameron Highlands has contributed to one master's graduate and two publications (Tam et al. 1998; Teo, et al. 1998).

### Conclusions

Preliminary analysis of the data on the Flora of Sabah has revealed two interesting and hitherto unknown phyto-geographical regions (Kiew, 1998b) namely that species on limestone in the Southeast Sabah shows strong links with the Philippine flora, and most unexpectedly that the limestone flora of Sabah is distinct from that of Sarawak. This latter need to be confirmed as the limestone closest to Sarawak has yet to be explored.

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