



# Wild Flowers in Kayin State

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**volume I**

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# Foreword

The Kochi Prefectural Makino Botanical Garden, located in Kochi Prefecture, Japan, has been engaged in plant classification and conservation since 1958. It has 6 hectares of gardens covered with over 3,000 species of plants. Its activity has also been extended to other countries such as Myanmar, where work was started in Chin State and Shan State for 15 years, and it has now been extended to Kayin State in collaboration with the Kayin State Medicinal Plant Resource Center Project. The Nippon Foundation has been collaborating with Kayin State Government to implement the project, sharing the same view with Makino Botanical Garden that natural resource conservation is one of the important factors to promote rural agricultural development support sustainably. We appreciate the initiative The Kochi Prefectural Makino Botanical Garden took in developing a guidebook entitled “Wild Flowers in Kayin State” with key stakeholders such as the Forest Research Institute (FRI), Department of Forestry, Department of Agriculture, Department of Traditional Medicine, and Kayin State Medicinal Plant Resource Center. “Wild Flowers in Kayin State” compiled the plants that grow in Hpa-an and Hlaingbwe Township as the first attempt to summarize the wild and medicinal plants of Kayin State. It is important to identify and utilize local resources wisely to socio-economic development in places where agriculture is the main form of industry. This guidebook will help us understand the unique characteristics and potential of locally available plant resources.

I hope this publication is useful and I wish you well in this endeavor.

Ichiro KABASAWA  
Executive Director  
The Nippon Foundation  
December 2019



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# Introduction

Myanmar, located at the western edge of Southeast Asia and the eastern edge of the Indian sub-continent, is a unique place at the intersection of four floristic regions – the Indian, Sino-Japanese, Southeast Asian and Malesiana regions. Myanmar is known for its rich plant diversity due to the combination and interaction of geography, topography, climate, a pattern of seasonal rainfall, and the presence of high mountains and major rivers. However, very little inventory-based botanical fieldwork has been undertaken, whilst in surrounding countries field investigations as well as preparations and publications of their floras have been actively progressing.

Based on a Memorandum of Understanding signed by the Kochi Prefectural Makino Botanical Garden, Japan (MBK), and the Forest Department of Myanmar (FD), the Makino Botanical Garden and its associated institutions has been conducting plant inventory research in the country towards the production of a Flora of Myanmar since 2000. Also, the Makino Botanical Garden agreed with Kayin State Medicinal Plant Resource Center for conservation of plant resources in Kayin State in April 2017 and started a project supported by the Nippon Foundation entitled “Educational and training of Myanmar personnel for the realization of plant diversity conservation and sustainable use of plant resources to improve economy of the rural population in Kayin State” to protect plant resources and establish sustainable use of these resources.

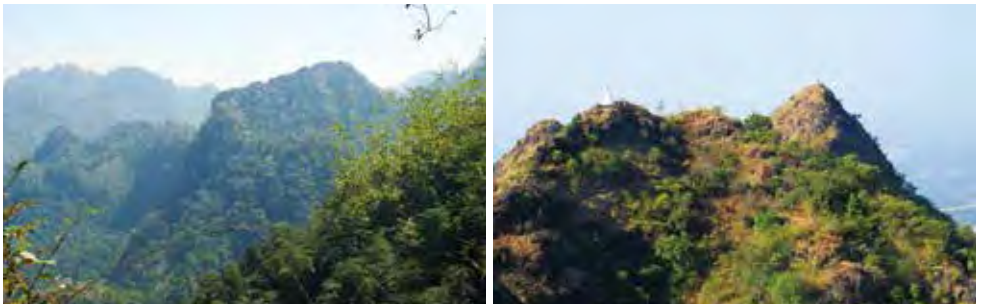


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# Forests in Hpa-an and Hlaingbwe Township

## Zweka Bin Mountain

In Kayin State, steep and craggy karst towers rise abruptly from the flat agricultural plains. Mt. Zweka Bin is isolated at an elevation of around 720 m, featuring an impressive long ridge outside of Hpa-an, and is one of the most sacred mountains in Kayin State. There is a pagoda at the top of it and local visitors climb up a massive stairway for two or three hours to get there. Some of the ranges have extensive forest cover, whereas slopes facing south have scant vegetation. The most commonly used trail to the mountaintop is the route facing the south slope from the Kyauk Ka Lat Pagoda and Lumbini Garden, with a thousand of Buddha's images at the base of Zweka Bin. In Zweka Bin mountain there are two types of forest vegetation: evergreen mixed forest and deciduous forest over limestone. It looks much more diverse because of its wide range of elevations.



## Limestone area at Kama Phaw Mountain in Hlaingbwe Township

Mt. Kama Phaw, at an elevation range between 35 and 150 m, is a limestone monolith rising in the flat agricultural plain located in Hlaingbwe Township. The forest has been conserved well due to it being a sacred place with a natural spring and temples. Here you can find the typical vegeta-



tion of limestone hills with small trees, shrubs and relatively sparse understory. The flowering and fruiting species in the dry season are *Firmiana colorata* (Malvaceae), *Wendlandia tinctoria* (Rubiaceae), *Osbeckia truncata* (Melastomataceae), and Acanthaceae species, such as *Thunbergia grandiflora*, *Justica*, *Lepidagathis* and *Strobilanthes*.

*Phyllocyclus parishii* (Gentianaceae) and *Phoenix loureiroi* (Palmae) are common in open limestone areas. In 1864, *P. parishii* was described as *Canscora parichii* by W. J. Hooker in Curtis's Botanical Magazine with excellent drawing by W. Fitch based on the specimens collected on limestone rocks and on the ruins of the pagoda in Mawlamyine, formerly known as Moulmein, and in the capital of Mon State at the mouth of Thanlwin (Salween) River.

## “In-Daing” Forest in Hpa-an and Hlaingbwe Township

Dry dipterocarp forests, known as In-daing forests, are an important deciduous forest type in Myanmar because they consist of important tree species for timber and non-timber products. In-daing forests are found on the plains and dry slopes in Kayin State. The Kyone Pako Community Forestry (CF) at an elevation of around 30 m is composed of mainly deciduous trees, which are dominated by *Dipterocarpus tuberculatus* (Dipterocarpaceae) associated with *Guluta usitata* and *Lannea coromandelica* (Anacardiaceae), *Terminalia elliptica* (Combretaceae), *Pterospermum semi-sagittatum* (Malvaceae) and *Parinari anamensis* (Chrysobalanaceae). Windaya CF is located northwest of Hpa-an. The whitish soil of limestone and reddish-brown soil of chart are mixed like patches on the flatland. The forest is a typical In-daing forest at an elevation of around 10 m., composed of deciduous trees, which are dominated by *Dipterocarpus tuberculatus* (Dipterocarpaceae) associated with *Lagerstroemia tomentosa* (Lythraceae) and *Osbeckia* sp. (Melastomataceae).



# Map of Hpa-an Township



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