



Preliminary survey on native orchids of Hkakabo-razi National Park

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Abstract

Hkakabo-razi is rich in biodiversity of flora and fauna which is situated in Northern Kachin State. Total area of Hkakabo-razi is 1472 sq miles and is the biggest National Park in Myanmar. Abundance of wild orchids, rhododendrons, ferns, trees, temperate and sub-tropical wild flowers grow well naturally in primary dense forests of this area. This area is habitat of CITES Appendix (I) listed orchid *Paphiopedilum wardii* and other uncommon and unusual native wild orchids. Three biological expeditions in 1997, 1998 and 2000 undertook the task of surveying the flora and fauna of this region jointly co-sponsored by Forest Department of Myanmar and Wildlife Conservation Society from United States. In this presentation, the native orchids of this area were described and presented as the preliminary result of above three biological expeditions conducted in Hkakabo-razi National Park.

Introduction

Myanmar is geographically located in south-east Asia between 9° 58'' and 28° 31'' north latitude and 92° 9'' and 101° 1'' east longitude. From north to south, it stretches 2,092 km and the farthest distance from east to west is about 917 km.

Northern Myanmar is known as one of the most important and biologically diverse regions in Indo-china. The headwaters of major rivers in Myanmar, a transition zone between the tropical Indo-Malaysian fauna and flora from the south and the temperate and alpine Sino-Himalayan fauna and flora from the north are contained in that area. Much of northern extremities of Myanmar is a sparsely populated, little-explored region that is generally referred to as Icy mountains-including the country's highest peak Mount Hkakabo-razi estimated at 5881 m higher.

Hkakabo-razi National Park is about 3,812 sq km (1472 sq miles) the largest National Park in Myanmar. It is situated between north latitude 24° - 28° and east longitude 97° -99° in Naung-Mung Township of Putao District in

the northern of Kachin State, in the northern part of Myanmar. It is bounded by India in the west and by China in the north and east and the southern boundary is demarcated along the Nam Tamai and Taron rivers. It incorporates 11 villages with a population of 948. It was designated as a protected area in January 1996 and as a National Park in October 1998. (Appendix I) A proposal was submitted for upgrading Hkakabo-razi National Park to the status of a World Natural Heritage site to the United Nations Educational, Scientific and Cultural Organization (UNESCO).

The park is entirely mountainous and is characterized by broad-leaved evergreen rainforest, sub-tropical and temperate, up to 2500-2750m, then broad leaved, semi-deciduous forest, and needle-leaved evergreen forest. Above 3,350m, alpine forest is the highest forest zones.

Hkakabo-razi region is recognized to be one of the richest areas in the world in terms of biological resources incorporating rare, endangered and unknown and unrecorded flora and fauna.

Due to its unique biodiversity, Hkakabo-razi region is considered as Asiatic centre of endemic and repository of origin of the angiosperm flora.

Biological Expeditions in Hkakabo-razi Area

The 1997, 1998 and 2000 biological expeditions, jointly cosponsored by the Forest Department of Myanmar and the Wildlife Conservation Society (WCS) of the United States, undertook the task of surveying the flora and fauna of this region.

The first Hkakabo-razi Biological Expedition took place in 1997, between 2nd March and 13th April and covered about 290 Km. During the expedition, Tong camp, a three night journey away from Myanmar northernmost village of Tahondan and Guba village from where there is access to India, were reached and studied. With 14 researchers taking part, it was the largest expedition to the region to date. The aims of the First Hkakabo-razi Biological Expedition were :

- to find unrecorded and rare fauna and flora and incorporate them into Myanmar conservation law so that they may be protected;
- to assess the presence and distribution of flora and fauna;
- to support the development of Hkakabo-razi National Park;

- to participate in activities of NGOs, universities and other institutions as well as those of the expedition, and to promote the park's nature conservation programme among the public.

The botanists collected orchids, ferns, gymnosperms, microorganisms and other botanical plants; 469 plant species were collected. Forest types were also observed.

The second expedition, in the Naung Mung areas (a buffer zone of Hkakabo-razi National Park) was a follow-up to the first expedition. The expedition took place in 1998 from 24th April to 17th May.

The aims of the expedition were :

- to observe and record the rare little leaf Muntjac *Muntiacus putaoensis*; the Naung Mung area is the only place in the world that it is found;
- to record the natural habitat and distribution of Black orchid *Paphiopedilum wardii* and other orchid species growing in the dense forests of this area; and
- to observe and record the birds and the forests of this area.

The survey routes of the Hkakabo-razi and Naung Mung expeditions are shown in Appendix II.

The third expedition, in the Hkakabo-razi National Park took place in February, 2000.

The aims of the expedition were :

- to survey the sociology of Taron People
- to record and survey native orchids, birds, forest types of the park
- to survey the salt and wildlife trade of local people
- to make recommendations for the active management and protection of the park.

Native Orchids of Hkakabo-razi National Park

World orchidologists and orchid hunters have been interested in and recording Myanmar's orchid species since the nineteenth century. Among these researchers, Reverend Parish, Dr. Helfer, Dr. Griffith, Sir William

Hooker and Professor H.B. Reichenbach have carried out much research and written about their findings. In 1895, Captain Bartle Grant compiled all the papers about Myanmar orchids written by various writers and published a book called "Orchids of Burma". Starting in 1914, the well known botanist and naturalist F. Kingdon Ward conducted several floristic surveys in Kachin State. He discovered many new orchid species in the northernmost part of Myanmar. In 1920, he discovered a new species of terrestrial orchid in the Naung Mung area. Later, that orchid was botanically named *Paphiopedilum wardii* in honour of him. Local native called this orchid, 'the Black orchid' because of the dark maroon color of its flowers. The Naung Mung area is the only place in the world where the black orchid is found.

During the expeditions, the botanists climbed up to about 1,219 m in the mountain that provide the habitat for the black orchid; they took photographs and collected some sample plants as well. The black orchid grows well in the leaf humus on the rock ridges as well as under the small bushes in low light conditions and it was learned from the local people that it blooms from December to February. Most of the black orchids collected were nurtured successfully in the Pyin-Oo-Lwin Research Nursery, which is located 914 m above sea level. Here the weather is cool and mild and very similar to that which occurs where the black orchid grows naturally. Nearly all the plants flowered in January-February 1998.

Other interesting Myanmar orchid species were also collected and nurtured in Pyin-Oo-Lwin.

Terrestrial orchids were also observed growing about 2,133m; at this height large trees are rarely seen.

On the first expedition, due to heavy rain, time restriction and period in which the expedition took place (off season), not as many orchid species as expected were collected. However the habitat of *Paphiopedilum wardii* was studied extensively and recorded, and *Cymbidium eburneum*, native to Myanmar, was recorded for this time. Seventeen orchid species were recorded in this expedition. (Shown in Appendix III)

On the Naung Mung expedition, the botanists collected and studied some 39 orchid species. (Shown in Appendix IV)

The growing and propagation conditions of the endemic *Paphiopedilum wardii* were studied in detail.

Although the orchids listed below had previously been recorded as growing in Myanmar, this was the first time they had been recorded as true natives.

- *Bulbophyllum odoratissimum*
- *Dendrobium brymerianum*
- *Dendrobium linguella*
- *Phalaenopsis parishii*
- *Dendrobium transparens*

The following orchids were recorded for the first time (they are native to Myanmar).

- *Epipogium roseum*
- *Micropera rostrata*
- *Pholidota chinensis*

On the Hkakabo-razi National Park expedition 2000, 14 orchid species were collected. (Shown in Appendix V)

The following orchids were recorded for the first time for Myanmar:

- *Cymbidium iridioides*
- *Dendrobium moliniforme*

Many orchid fruits containing seeds were also collected and grown in the laboratory for further propagation. Some rare and endangered orchid species that had been collected were propagated in the laboratory using tissue culture technique. Promising result were obtained.

Discussion and Recommendations for Future Research

- On the Hkakabo-razi expedition, as a result of collective endeavour, the blue sheep, the black barking deer and the little leaf Muntjac were discovered. In addition, the team took the opportunity to observe the rapid development of a national park from a protected area.
- On the second expedition, the little leaf Muntjac, rare orchids and birds were observed. In addition to examining the existing condition of

Hkakabo-razi National Park, an assessment was made of the conservation measures required for the park.

- Some Myanmar orchid species, including *Vanda coerulea*, *Dendrobium cruentum*, *Renanthera inschootiana*, and all *Paphiopedilum* sp. are listed in Appendix I of 'The Convention on International Trade in Endangered Species of the Wild Flora and Fauna as World Endangered Orchid Species' (CITES).
- It was learned that five years previously some traders from China came and purchased *Cymbidium* orchids in the Hkakabo-razi area. However the expeditions found no evidence of the collection and sale of orchids on a large scale. It was noticed that small numbers of black orchid, having been collected by local people, were being sold in the Naung Mung market place and being given to visitors as mementoes. Considering the long-term interests of this rare orchid, the local people should be given an educational talk on orchids asking for their cooperation in this conservation.
- The season in which the expeditions took place was not the flowering season. If it had been, more orchid species would have been collected.

National Park to a World Heritage Site.

- An education centre should be established in Hkakabo-razi National Park, with an exhibition for the public providing information about orchid of the area. A model orchid garden with the orchid species of Hkakabo-razi area could also be made.
- Because there are evergreen rainforests, mountains over 3,048m, and subtropical forests in Hkakabo-razi, there is a wide variety of orchids to be studied. As well as botanical and orchid expeditions, educational tours could also be organized in the area.
- There might be new and unrecorded orchid species still waiting to be discovered in Hkakabo-razi National Park. It is recommended that a cooperative expedition and research programme, involving local scientists and knowledgeable scientists from abroad, be organized in the area to search for any rare, undiscovered Myanmar orchids.

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References

- Agricultural Regulatory Division (1997) *Manual for Identification of Thai Orchids*. Bangkok: Department of Agriculture
- Dressler, R.L. (1977) *The Orchids : Natural History and Classification*
- Grant, B. (1895) *The Orchids of Burma (Including the Andarman Islands)*, Rangoon; Central Press (reprinted 1966)
- Hooker, J.D. (1885) *The Flora of British India*, Vol. 5, Kent, UK: L. Reeve and Co., Ltd.
- Hundley, H. G.; Chit-Ko-Ko (1987) *List of Trees, Shrubs, Herbs and Principle climbers of Burma*. Rangoon: Swe Daw Oo Press
- IUCN/SSC Orchid Specialist Group (1996) *Orchids -- Status Survey and Conservation Action Plan*. Gland, Switzerland and Cambridge, UK: IUCN. SSC
- Reich, B.F. (1873) *Enumeration of the Orchids Collected by Reverend E.C. Parish in the Neighbourhood of Moulmein*. Place and Publish not given.
- Royal Botanical Gardens, Kew (1995) *CITES Orchid Checklist*, Vols. 1 and 2
- Siedenfaden, G.; Wood, J.J. (1992) *The orchids of Peninsular Malaysia and Singapore*. Fredensborg, Denmark: Olsen and Olsen
- Ward, F.K. (1932) *Explorations on the Burma-Tibet Frontier*, pp. 465-483
- Ward, F.K. (1939) "Hkakabo-razi, Burma's Highest Peak". In *Himalayan Journal*, 9: 74-88
- Ward, F.K. (1949) *Burma's Icy Mountains*. London: Alden Press