

Rhododendrons Endemic to Myanmar's Snow-capped Mountain Region

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Introduction

According to the vegetation pattern, the Myanmar section of the Sino-Himalaya Region and the upper parts of the triangular region between Main Hka, Mai Hka, and Mali Hka can be divided into

- high mountain evergreen forests,
- wet evergreen forests,
- moist deciduous forests and shrub forests,
- high mountain coniferous forests,
- high mountain alpine scrub and rhododendron forest, and
- alpine meadow.

Most of these little-explored forests are still in their natural condition.

Floral Diversity

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The Sino-Himalayan ecosystem of Hkakaborazi and its surrounding area holds a variety of vegetation, from forest to algae and lichens. In the last botanical survey, which was done in 1954, 120 families of flora comprising 1,000 species of trees, shrubs, herbs, bamboos, and climbers, were listed. Among them, the most dominant families and the numbers of species recorded were Ericaceae (8 genera and 200 species); Orchidaceae 84 species (both terrestrial and epiphytic); Musaceae (20 species); Zingiberaceae (14 species); and Areaceae (18 species). The ecosystem also harbours primitive families, such as Magnoliaceae, consisting of small numbers of rare species. At high altitude (2,438m), the occurrence of oak, chestnut, conifers, and magnolia is typical of wet, moist, evergreen forest. An extensive area of tall grasses is also found at high altitude. Orchid ovoids, bird's nest ferns (*A plenum*) and stag's horn ferns (*platyserium*) provide many examples of epiphytes.

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In the tundra climate region (3,000m and higher) stunted conifers, dwarf rhododendrons, *Betula*, juniper, and moss can be found. Many other interesting species including those of Cyadaceae, Aquilariaceae, Juglandaceae, Cupressaceae, Cyperaceae, Primulaceae, Rosacea, and Lauraceae are indigenous to this region. The ancient families of Ginkgoaceae and Taxaceae (red pine) are also endemic.

Origin and Distribution of *Rhododendron*

Rhododendrons belong to the Ericacea family. The genus *Rhododendron* is widely distributed throughout the world, mainly in the temperate regions of the northern and southern hemispheres and in tropical regions from sea level to high elevations.

They occur naturally in Europe (Austria and the Swiss Alps), Russia, North America, Japan, Korea, New Guinea, Malaysia (Cameron Highlands), India, (Kashmir, Sikkim, Himalayas, Nilgiris, Assam, Manipura), China (Yunnan, Sezchaun, Kansu), Tibet (Province of Pemako), Myanmar (northernmost Kachin State and Chin Hill), Bhutan, Nepal, Pakistan (Swat Valley, Kaghan Valley, Lahore), and Sri Lanka.

In Myanmar, the estimated 200 species (according to F.K. Ward in 1954) can mostly be found in the areas of Mai-Hka-Thain-Lwin Division, Ngawchaung Valley, Mount Iwaw Bun, Lauk Haung, Myitkyina Plain, Putao Plain, Shangorouit Pass, Maguchi Pass, Zaklang, Adung Valley, and Seinghku Valley. A few can be found in Chin Hill and Shan State; these species occur only in China, Tibet, Nepal, Bhutan, and northern Myanmar. The centre of origin of *Rhododendron* is considered to be the Sino-Himalayan Range, including the Tibet-Myanmar Frontier Range and the China-Myanmar Frontier Range.

The Economic Importance of the Ericacea Family

This family Ericacea is economically important. It incorporates the genus *Gaultheria*; both *G. hookeri* and *G. laxiflora* produce volatile oil, which is used for producing cosmetic and perfumes. Of the *Rhododendron* spp., *R. nitens*, *R. imperator*, *R. forrestii*, *R. chryseum*, and *R. indicum* are famous, and ideal for rock garden landscaping. They are commercially cultivated for ornamental purposes. In the Himalayan ecosystem, a thick cover of this vegetation protects soil from the pelting of the rain and it plays a significant role in limiting erosion.

Some of the most beautiful Myanmar species were introduced to western countries for commercial use by plant hunters of the early twentieth century — such as George Forrest and F.K. Ward. Nowadays over 300 new hybrids have been created with the help of plant hunters in the west and east Himalayas and Myanmar.

Rhododendron Species found in Abundance in the Upper Part of Mai-Hka-Mali-Hka Division and Putao Plain

The sub-tropical monsoon and mountain climate, with mean January temperatures below 17°C and occasional frost during winter months, creates luxurious vegetation in the northern mountains.

The Naung Mung area of Putao Plain is built up of highly metamorphous rock (gneiss, quartzite and marble). Precipitation is high (average of 4 to 4.5m per year) and occurs throughout the year. The warm, humid summers and cool winters encourage the following species to proliferate.

Rhododendron simsii Planch

This very common *Rhododendron*, which thrives well on rocky cliffs, can be found in the Putao Plain at an altitude of 411m and is also abundant in Naung Mung Township. It is a small tree about three metres high and its showy flowers are bright carmine red and canducous. The flowering season is from November to March.

“a crooked or gnarled trunk, wrinkled bark, and crimson flowers with short pedicles”

***Rhododendron arboreum* W.W. Smith**

This species is abundant in Naung Mung Township and in Sum-Parabum. It grows at an altitude of 2,133m. It has a crooked or gnarled trunk, wrinkled bark, and crimson flowers with short pedicles. The flowering season is from April to July.

***Rhododendron delavayi* Franch**

This species grows abundantly in Naung Mung Township and Sum-Parabum Township, at altitudes of from 411-2,377m. It is a medium-sized tree, has thick bark with a cork layer underneath, and small, aromatic, scarlet flowers.

***Rhododendron stewartianum* Diels**

This species thrives on the west flank of Malikha River and in the conifer forest beyond Naung Mung Township, at an altitude of 1,707m. It is an evergreen alpine shrub with leaves crowned at the end of the branch and aromatic flowers that are white and rosy pink. The flowering season is from May to June.

***Rhododendron pruniflorum* Hutchinson**

This species is widely distributed on metamorphous rock at an altitude of 1,829m. It can also be found in Khum Lun and in the Putao Plains. It is an alpine shrub with deep red flowers and leaves with an acuminate tip. The flowering season is from November to February.

Rhododendron Species found in the Alpine Forests of Northern and Northeastern Myanmar

“an evergreen alpine shrub with leaves crowned at the end of the branch and aromatic flowers that are white and rosy pink”

At an altitude of 914m and above, this area, which is made up of quartzite, pink-grey marble, quartz-rock, and schist, has a tundra climate with a mean temperature (during the warmest month) of 9°C or less. It is slightly warmer than the permafrost region with much more precipitation, about 203-254 cm per year. The frozen soil melts in summer allowing tree roots to penetrate more deeply and the soil to be more fully developed. Flowering species of *Rhododendron* can be found abundantly in this region.

***Rhododendron sino-grande* Balf. F.K. Ward**

This is a large tree, about 15m high, with flowers of creamy yellow with a purple splash at the bottom of the corolla tube, the shape of the corolla tubes being ventricose campanulate. The flowering season is from May to June. Early specimens were collected at Ngwe-Chaung Valley and Kang Fan.

***Rhododendron pankimense* Cowan and F.K. Ward**

“the frozen soil melts in summer allowing tree roots to penetrate more deeply”

This is a small shrub with showy and aromatic flowers of purple with a black spot at the bottom. The flowering season is from March to August. It can be found in Mai-Thanlwin Division, Ngawchaung Valley, and Adung Valley.

***Rhododendron genestierianum* (rhododendron flower) Forrest**

This evergreen shrub has deep purple, aromatic flowers with a long pedicle. The flowering period is from March to June. This species can be found only in Seinghku Valley.

***Rhododendron oxyphyllum* Franch**

This small tree has aromatic flowers of yellow with a crimson blotch in the throat of the corolla tube. The flowering period is from May to June. This species occurs widely in Nyitadi, Maguchi Pass, and Tama Bum.

***Rhododendron falcineri* Hook**

This small tree has aromatic flowers with a white or yellowish corolla with purple spots at the base within. It grows well in dense thicket on the steep rock faces, especially at Maguchi Pass.

Endangered Species of *Rhododendron* found in the Permafrost Region

The ice-peak climate of northernmost parts of Myanmar at an altitude above 4,200m with a mean temperature of 0°C during the warmest months keeps the surface soil frozen most of the year. In the summer, a few inches of topsoil can thaw. However the rest of the ground remains frozen (permafrost) but a few woody plants can survive. The area is made up of quartz-rich and coarse-grained marble and granule ferrous schist (according to observations made by F.K. Ward in 1949). The red earth is gradually replaced at higher elevations by brown mountain soil and brown mountain meadow soil. Species of *Rhododendron*, when they can be found in this area, are mostly under shrubs and are uncommon. A decrease in population is occurring, due to habitat loss. *Rhododendron* is threatened with extinction in the foothills of the Hkakaborazi Range.

***Rhododendron dendricola* Hutchinson**

This epiphytic rhododendron has showy flowers that are white to pink in colour and aromatic. The leaves are large and silvery brown underneath. The flowering period is from March to May.

***Rhododendron megacalyx* Balf. F.K. Ward**

This shrub has very large, aromatic flowers that are creamy white to pale pink in colour. The leaves are silvery brown underneath. The flowering period is from May to June.

***Rhododendron stenaulum* Balt. F. W.W. Smith**

This small tree has aromatic, deep purple flowers. The corolla tube is salverform and has black spots at the bottom. The capsule is long and narrow.

Rhododendron repens

These are dwarf, evergreen azaleas. The flowers are small, red, and aromatic. The flowering season is from June to August.

Rhododendron imperator

This creeping species clammers over rocks and has small, purple, aromatic flowers. The flowering season is from May to August.