Conservation status of the endemic orchid *Peristylus kumaonensis* Renz. (Orchidaceae) of Western Himalaya, India

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ABSTRACT

Peristylus kumaonensis Renz is an endemic taxon of western Himalayas. It is found in the outer fringe of the Kumaun Himalayas 5 km away from Nainital towards Ratighat. The orchid species appears to be restricted to this area according to past and the present surveys. Major threats to the existence of this species are due to habitat fragmentation, forest fire and might be the invasion of a fern species *Phytopteris oxyloba*. This species is of conservation concern because of its low numbers of individuals and restricted distribution in the western Himalayas. [Nature and Science. 2009;7(5):86-89]. (ISSN: 1545-0740).

Keywords: Kumaun Himalayas, endemic, *P. kumaonensis* Renz, Western Himalayas.

INTRODUCTION

Peristylus is an Indo-Malaysian genus of about 60-70 species of terrestrial orchids. The genus is distributed in the tropical and sub-tropical parts of Asia, New Guinea, Australia and some Pacific Islands. The generic name is derived from Greek peri= around and stylus=column, referring to the shape of the column. The genus Peristylus having convex stigmas that are entirely united to the base of the labellum and to the auricles of the column. All species are multi-flowered with mostly dull coloured, small flowers held close to the flower stem which are short-lived. All the species are normally deciduous terrestrials with fleshy, subterranean tubers closely related to Habenaria. Peristylus is represented in India by 28 species with them many species are native to India. Eight species are found in western Himalayas. Kumaun Himalaya occupies in the central sector of Indian Himalaya and lies between 28°44'- 30° 49' N Lat. and 78° 45'- 81° and 01' E long. Broadly the area consists of three parallel mountain ranges. The outermost range rises steeply above the plains to more than 2000 m above msl, reaching 2600 m in some peaks near Nainital. Rainfall is heaviest on the southern slopes of this range, between 1981 cm and 3048 cm annually. This area receives the major part of its annual precipitation during the southwest monsoon from June to September. Altogether 192 species of orchids under 61 genera were recorded so far from Kumaun Himalaya (Pangtey et. al., 1991). ***Peristylus kumaonensis*** Renz was first time reported by Dr. J. Renz in 1983 from the locality 5 km from Nainital towards North on the way of Ratighat at altitude 2178 m and it is restricted to this area in the whole of western Himalayas (**Fig. 1 & 2**). That time almost 130 individuals were counted at this particular locality (Pangtey, personal communication). During our orchid study in Kumaun region since 2002 we are continuously observing the population of the species. Now the scenario of the whole area has been changed due to habitat changes and anthropogenic pressures. The population drastically changed only 30 individuals so far observed in this locality. The species is generally grows on the rocks covered by thick mosses bed. The mossy bed basically holds moisture and soil which is sufficient to the growth of the species. During our survey we tried to explore other area where the possibility of the occurrence of this species but we could not get this species in other part of Kumaun Himalayas. Thus it is very important to conserve the novel endemic orchid and its habitat.

SPECIES DESCRIPTION

Peristylus kumaonensis Renz., J. Orchid Soc. India 1: 23. fig. 1. A-H (1987); Pangtey et. al., Orchids Kumaun Him. 77 (1991); Jalal, Sys. Phyt. Hab. Eco. Orch. Utt.: 149 (2005).

Terrestrial herb with almost straight stem and usually 2-leaves, which are somewhat clasping and located near the base, leaves erect and unequal in size and shape. Lower leaves longer, narrowly oblong, acute, 9 x

1.5 cm. Upper leaves lanceolate to linear-lanceolate, reduced in size. Inflorescence very narrow, rather laxly sub-secund. Bracts lanceolate acuminate as long as the ovary or little shorter or longer. Flowers minute, greenish, and glabrous. Sepals converging. Dorsal sepal elliptic, obtuse, upto 1.7 mm long. Lateral sepals obliquely ovate-elliptical, acute, slightly longer than the dorsal. Petals obliquely rhomboid-elliptical, upto 1.5 mm long. Lip as long as the petals, trilobed near the middle, with small triangular side-lobes and a longer, obovate to oblong mid-lobe. Spur much shorter than the ovary (**Fig. 2**).

Flowering: This taxon flowers from late July through August.

Geographical Distribution: It is only known from on the way to Ratighat near Nainital, Western Himalaya.

Specimen Examined: Wildlife Institute of India herbarium (WII) - *J.S.Jalal 13993*.

Habitat: This taxon has been found at elevations of 2178 m (7145 ft) on the moist rocky surface covered by thick mosses patches. This particular habitat is a transition zone of Banj-oak (*Quercus leucotrichophora*) forest and Chir-pine (*Pinus roxburghii*) forest. Apart for this a fern species *Phytopteris oxyloba* is the main associate species.

THREATS

This species is threatened due to its low numbers of individuals and restricted distribution in Kumaun Himalayas. The plants are small and fragile and can not tolerate and direct impacts by anthropogenic pressures, canopy exposer and forest fire. Chir-pine forest is also rapidly encouraging the entire area, which is prone to fire. This forest also changes the hydrology of the area which impacts many rare herbs including orchids. The soil chemistry also gets changed under Chir-pine forest. The soil becomes more acidic under chir-pine forest which can put negative impact on the germination of orchid seeds. Another major threat is its road side location. This particular species is growing in the main Nainital-Ratighat road and which is frequently used by local community for their daily uses. During rainy season, that is also the peak flowering season of Peristylus ***kumaonensis*** Renz. The local villagers clean the road side tall herbs and bushes because of this activity most of the time the ***Peristylus kumaonensis*** Renz species also damaged. In past few years it was observed that *Phytopteris oxyloba*, a lithophytic fern also encroaching the habitat, resulting the whole rocks now covered fully with this fern. Most of the moist part of the rock encroached by this. For conservation of this endemic orchid further survey is required to relocate this species and establish its vulnerability to the threatening processes in the area. Recovery actions such as monitoring, fire management and habitat condition may need to be implemented and it is also recommended to include national threatened species list.

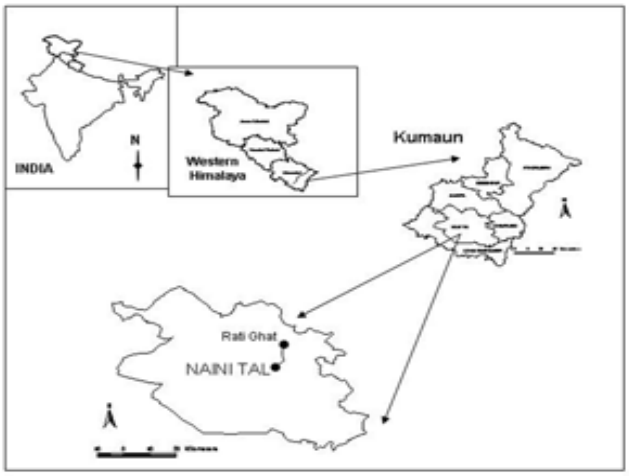

Figure 1: Showing location of *Peristylus kumaonensis* Renz **in Western Himalaya**

Figure 2: Habitat of *Peristylus kumaonensis* Renz.

Figure 3: *Peristylus kumaonensis* Renz: 1. Plant in habit; 2. Closeup of Inflorescence.

Figure 4: Close-up of Inflorescence

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Renz J. *Peristylus kumaonensis* Renz., Journal of Orchid Society of India, 1987; 1 (23) fig. 1. A-H.

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