

**First Record of *Calanthe herbacea* Lindl. (Orchidaceae: Epidendroideae) in
Bhutan**

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Abstract

In Bhutan, orchids are still poorly studied. *Calanthe herbacea* Lindl. was recorded for the first time in Bhutan using an opportunistic survey. This record increases the number of known *Calanthe* R.Br. species of Bhutan to 19 and the number of orchid species reported to occur in Bhutan to 470 species.

Keywords: *Calanthe herbacea*, new record, orchid

Introduction

Study of orchids in Bhutan is still in a young stage. In 1976-1979, Pradhan recorded a couple of orchid species known to occur in Bhutan while enumerating the Indian orchids. However, Pearce and Cribb (2002) missed to include these species in their book on Orchids of Bhutan. They recorded 369 species of orchids known to occur in Bhutan. Gurung (2006) developed a guide book on the orchids of Bhutan with several new records. In a similar attempt, Dorji (2008) developed a field guide on orchids of Bhutan. In 2016, the National Biodiversity Centre of Bhutan published a book title 'A Century of New Orchid Records from Bhutan' which

includes new records published by Gurung as well. Since then a number of pictorial guide books have been published.

During a recent survey conducted by the forestry staff of the Tsirang and Pemagatshel Forest Divisions of the Department of Forest and Park Services, *Calanthe herbacea* Lindl. was recorded. This species has a wide distribution range including Sikkim, Arunachal Pradesh, Assam, Meghalaya and Nagaland in India to Southern China, Myanmar and Vietnam. It is also recorded in Thailand (Suksathan, 2010), but this species was not known to occur in Bhutan. This new record of *C. herbacea* from Bhutan has further stretched the distribution range of this species in the Eastern Himalayas. *Calanthe* R.Br. is one of the genera of terrestrial orchids found across Southeast Asia. Due to its attractive flowers and ease to cultivate, it is cultivated in the gardens by orchid enthusiasts.

When National Biodiversity Centre published 'A Century of New Orchid Records in Bhutan' in 2016, the total number of orchid species in Bhutan raised to 469. However, the search for

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orchids continued at individual level. Later, the search expanded through the use of social media in the form of citizen science where many forestry staff across Bhutan are actively participating. While the report of *Calanthe herbacea* from Tsirang and Pemagatshel Dzongkhags raised the list to 470, a number of new records are being reported through the use of social media – the Facebook page – ‘Orchids of Bhutan.’

Materials and Method

Calanthe herbacea Lindl. was collected during official trips using opportunistic survey. Orchid photos were taken during the survey and the photographs were uploaded in the ‘Orchids of Bhutan’ – Facebook page for identification by experts. Besides this social media, available reference materials such as the Orchids of Bhutan (Pearce and Cribb, 2002) and Indian Orchids (Pradhan, 1976; 1979) were consulted to confirm the species. The correct epithet of the species was crosschecked with the WCSP (2019) web publication.

Results and Discussion

During an official trip to Patsaling-moed, Patsaling Gewog under Mendrelgang Beat Office, Tsirang Forest Division on July 24, 2019, *Calanthe herbacea* was observed growing at an elevation of 1442 meters above sea level at Patsaling-moed village under Patsaling Gewog, Tsirang District. The species was observed growing under a *Castanopsis* tree in the moist and humid area in a warm broadleaved forest. Several other species such as ferns, shrubs and bamboos were also observed in and around the habitat. In the case of Pemagatshel, the species was observed while returning to

Nganglam Range Office from the Bainang Goenpa under Dungmin Gewog at an elevation of 1535 m. The species was observed in the cool broadleaved forest dominated by *Castanopsis* species. The photographs of the orchid in bloom were taken at the site in June 2019 though the plant was sighted in May 2019.

After referring several online websites such as the Bhutan Biodiversity Portal and social media Facebook page on ‘Orchids of Bhutan,’ the species was identified as *Calanthe herbacea* Lindl. It is a first record in Bhutan. The new record raises the list of orchids known to occur in Bhutan to above 470 species.

Calanthe herbacea is a terrestrial orchid with short fusiform pseudobulb which grows in a cool to warm temperate forests (Swami, 2016). It grows up to 30-70 cm in height. There are three to four leaves that are well developed and spreading. The leaf blade is elliptic-lanceolate with 3-4 veins running parallel. The leaf is 15-30 cm long and 7-9 cm wide with hairs in abaxial surface. The apex is acute to acuminate. There are 10-15 loosely arranged flowers on the terminal inflorescence with persistent floral bracts. The flowers are yellowish green with hairs on the pedicels. Petals are reflexed and the apex of petal is obtuse. Lip is joined to the entire length of the column wings and has three lobes. The column is white in color with dilation at the apex.



Figure 1: *Calanthe herbacea* Lindl: A. Flower in front view, Photograph by Tendri Tshewang. B. Inflorescence. Photograph by Jigme Zangpo

Herbarium was prepared in the case of the specimen collected from Tsirang after the species was confirmed as a new record for Bhutan. The herbarium specimen will be deposited in the National Herbarium of the National Biodiversity Centre of Bhutan in Thimphu.

According to De and Medhi (2014), this orchid is found in the humus-rich-moist earth and montane forests ranging from 1330 to 2600 m. In Tsirang, the orchid was found growing in humus-rich top soil under the cool broad-leaved forest, under a deep shade in the valley. The overall aspect of the area was gentle with a gradient of 10-15%.

In the case of Pemagatshel, the species was found growing in the moist area covered by thick humus under *Castanopsis* tree that provides shade. There were mushrooms, ferns and shrubs growing at the site. Generally, the flowering season for *Calanthe herbacea* starts from June and lasts till August due to variation of altitudes in different sites.

Conclusions

An opportunistic survey was carried out during official trips in Tsirang as well as in Pema-

gatshel. During the trips, *Calanthe herbacea* was recorded, photographed and confirmed as a new record for Bhutan. We expect that several species known to occur in the neighbouring region of India are likely to occur in Bhutan. So the search for wild orchids in Bhutan should be continued. Such new records should be able to assist in listing the orchids of Bhutan and ultimately contribute to conservation of species.

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