

## Rediscovery of *Calanthe nana* (Orchidaceae) and new addition to the flora of Assam

Khyanjeet Gogoi \*

---

The Orchid Society of Eastern Himalaya (TOSEHIM), Regional Orchids Germplasm Conservation & Propagation Centre (Assam Circle), Daisa Bordoloi Nagar, Talap, Tinsukia- 786 156, Assam, India

\*corresponding author: [khyanjeet.gogoi@gmail.com](mailto:khyanjeet.gogoi@gmail.com)

---

### Abstract

A rare terrestrial orchid viz. *Calanthe nana* (Hooker f.) M.W. Chase, Christenhusz & Schuiteman has been rediscovered in the Bhuyapara Range, Chirang District, Assam, India. It is described and illustrated with detailed photos and line drawings. This record constitutes an addition to the flora of Assam.

**Keywords:** Buxa Doar, new occurrence, Epidendroideae, Orchid Germplasm, taxonomy

### Introduction

*Calanthe* Robert Brown (1821: t. 573) belongs to the family Orchidaceae subfamily Epidendroideae and tribe Collabieae and is a large genus according to the updated classification of the orchid family (Chase *et al.*, 2015). This genus is comprised of 275 accepted species distributed in all tropical, subtropical, and temperate regions of Asia, Africa, and the Pacific islands (Clayton & Cribb, 2013). According to recent estimates about 41 different *Calanthe* species are known to

occur in India (Misra, 2019). Gogoi (2018, 2019) reported 17 species of *Calanthe* from the state of Assam.

During a field trip to the grassland area of the Bhuyapara Range and Panbari Range of Manas National Park, Chirang on 30 and 31 January 2010, an unknown *Calanthe* species was found without flowers, which could not be determined immediately. Therefore, the orchid was put in cultivation at the Regional Orchids Germplasm Conservation & Propagation Centre (Assam Circle), where plants flowered under observation on 10 March 2023. The species could not be matched with any existing species in the region and adjacent areas.

After careful examination and comparison with existing species with the help of available literature (Hooker, 1890; King & Pantling, 1898; Pradhan, 1979; Hegde, 1984; Chowdhery, 1998; Pearce & Cribb, 2002; Lucksom, 2007; Chen *et al.*, 2009; Gogoi, 2018, 2019; Misra, 2019; Singh *et al.*, 2019), the specimen has been identified as *Calanthe nana* (Hooker f., 1890: 192) M.W. Chase, Christenhusz & Schuiteman (2020: 164). Previously this species was reported from ‘Buxa Doar’ of West Bengal, India by Hooker (1890). A review of the relevant literature revealed that this species has not been reported from Assam, India. The present collection thus forms the first report of this species from Assam (fig. 1).



**Figure 1:** Geographic distribution of *Calanthe nana*

*Calanthe nana* is a very rare species which was originally described by Hooker (1890) as *Phajus nanus*, based on a plant collected by J.S. Gamble (no. 6672) at Buxa Doar. Again, the same species was described by King & Pantling (1898) from western Duars of Bhutan, east of the Jaldacca river (Pantling no. 433) in 'The Orchids of the Sikkim-Himalaya, Part 3, *the Annals of the Royal Botanic Garden of Calcutta*' as *Phajus nanus*. Pradhan (1979) described this species in his work Indian Orchids Guide to Identification and Culture, Vol II after Hooker and King & Pantling. In 2002, Pearce & Cribb described it in their work 'The Orchids of Bhutan'. But according to Dalstrom *et al.* (2015) Pearce and Cribb described this species from Bhutan because it comes from a neighboring area and can be expected to eventually be found in Bhutan. Lucksom (2007) described it in his work 'The Orchids of Sikkim and North East Himalaya' which is a copy of King & Pantling's work. Reviewing the literature (Hooker, 1892; King & Pantling, 1898; Pradhan, 1979; Pearce & Cribb, 2002; Lucksom, 2007) it seems that one illustrator copied another. Dalstrom *et al.* (2015) mention in their conclusion that *Phaius nanus* probably represents a smaller (younger?) plant of *Phaius tankervilleae*. But the present rediscovery proved the presence of this species.

Hence, a detailed description along with colour plates and line drawings, information on habitat and distribution have been provided and the collected specimen has been deposited at the TOSEHIM (Herbarium of The Orchid Society of Eastern Himalaya), Regional Orchid Germplasm Conservation and Propagation Centre (Assam Circle), Assam.

### **Taxonomic treatment**

*Calanthe nana* (Hooker f.) M.W. Chase, Christenhusz & Schuitman. *Phytotaxa* 472: 164 (2020).

Homotypic synonym: *Phaius nanus* Hooker f., *Flora of British India* 6: 192 (1890). Type: India, West Bengal, Buxa Doar, *Gamble 6672B* (holotype: K!).

Specimen examined: Assam, Chirang, Bhuyapara, 10/03/2023, *Gogoi* 01146 (TOSEHIM!).

**Description** (fig. 2 & 3): Plant terrestrial, 16–20 cm tall, rhizomatous. Rhizomes 0.8–1.6 cm thick, with many nodes and internodes; roots clustered, appearing at the base where leaves appear. Pseudobulbs absent. Stem 2.5–5 cm long, enclosed with leaf sheaths. Leaves 3–5, not deciduous, narrowly elliptic or oblong-lanceolate, 20–25 × 2.4–3.6 cm, acute to acuminate, 5 nerved; petiole-like base 3–4 cm long, channeled. Inflorescence 10–12 cm long, arising from the base of the stem; peduncle 7–8 cm long, erect, terete, glabrous, with 5–6 sterile bracts; sterile bracts 1.5–3.5 × 0.6–0.9 cm, oblong-lanceolate, sheathing; rachis 3–4 cm long, with solitary flower, rarely 2-flowered; pedicellate-ovary 2–2.5 cm long, glabrous; floral bracts persistent, lanceolate, cymbiform, acute, 3.2–3.5 × 1–1.3 cm. Flowers 10–11 cm across; sepals and petals pale yellow on outer surface, reddish to yellow-brown within; tube of lip yellow-brown with a reddish to yellow-brown base within, mid lobe white with yellow callus. Sepals narrowly oblong, acuminate, spreading; dorsal sepal 4.5–5 × 1.1–1.2 cm; lateral sepals 5–5.5 × 1.1–1.2 cm. Petals narrowly oblong, 5–5.5 × 1–1.5 cm, acuminate spreading. Lip 4.5–5 cm long, puberulous, obscurely 3-lobed, nearly orbicular when spread out, with a slender spur; spur 0.6–0.7 cm long, apex bilobed; lateral lobes small rounded, embracing the column, margin somewhat entire but front margin undulate; mid-lobe orbicular, plicate, emarginate, margins strongly undulate; callus of 4 keels running along the whole midline of the lip. Column 1.5 cm long, erect, dorsal surface puberulous; anther cap cordate, puberulous. Pollinia 8, pale yellow, clavate, equal in size, grouped into two clusters.

**Flowering:** February–March.

**Distribution:** India (Assam, West Bengal) and Myanmar, Bhutan? (Dalstrom *et al.* 2015).

**Ecology:** In Assam, this species is restricted to the grassland of the Bhuyapara and Panbari Range of Manas National Park, Chirang at an altitude of 100 m.

**Conservation status:** *Calanthe nana* was first collected from Buxa Doar, West Bengal in 1890, since then it has never been collected from this region and no additional specimen voucher for herbarium was added from that time. The mention of this species in different works is based on Hooker and King & Pantling's old

collection only. It has now been rediscovered by the present author from the Chirang District of Assam in western Himalaya after a gap of 133 years. This species has so far only been observed in two small areas and is very rare in this district.

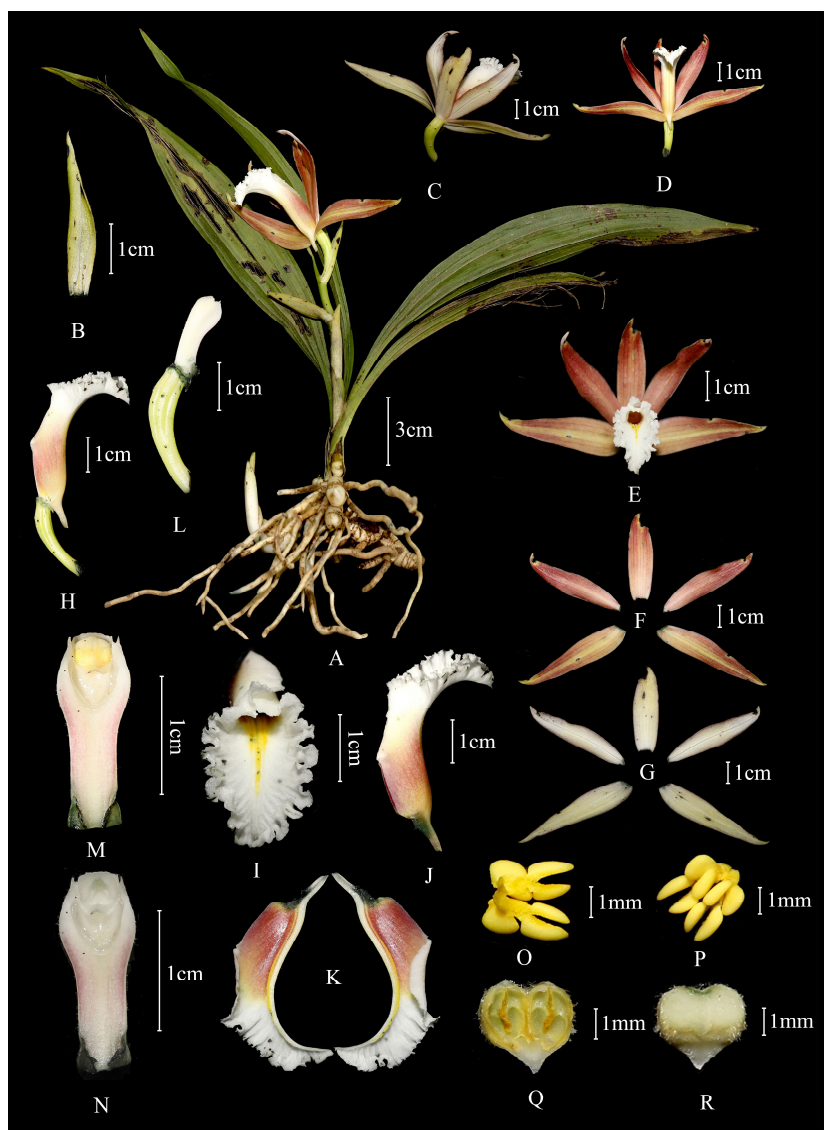


**Figure 2:** *Calanthe nana*. A – plant in natural habitat; B – close-up of flower; C – rhizomes. Photos by K. Gogoi.

### Acknowledgments

I am grateful to Dr. Pankaj Kumar, Hong Kong (China), Ba Vuong Truong, Vietnam, and Hiranya Moran, Assam, India, for providing help and valuable suggestion during the identity of the species.





**Figure 3:** *Calanthe nana* A – habit; B – sterile sheaths; C – side view of flowers; D, E – ventral view of flower; F – ventral view of perianth; G – dorsal view of perianth; H – lip with ovary & column; I – front view of lip; J – side view of lip; K – longitudinal section of lip; L – ovary with pedicel and column; M – front view of column; N – column after removal of pollinarium; O – ventral view of pollinarium; P – dorsal view of pollinarium; Q – anther cap ventral view; R – anther cap dorsal view. Photos by K. Gogoi.

## References

- Brown, R., 1821. *Calanthe*. *Edwards's Botanical Register* 7: t. 573.
- Chase, M.W., M.J.M. Christenhusz & A. Schuiteman, 2020. Expansion of *Calanthe* to include the species of *Cephalantheropsis*, *Gastrorchis* and *Phaius* (Collabieae; Orchidaceae). *Phytotaxa* 472: 159–168. <https://doi.org/10.11646/phytotaxa.472.2.6>.
- Chase, M.W., K.M. Cameron, J.V. Freudenstein, A.M. Pridgeon, G. Salazar, C. Van den Berg & A. Schuiteman, 2015. An updated classification of Orchidaceae. *Botanical Journal of the Linnean Society* 177(2): 151–174. <https://doi.org/10.1111/boj.12234>
- Chen Sing-Chi, L.Z., Z. Guanghua, L. Kai-Yung, T. Zhan-Huo, L. Yibo, J. Xiaohua, P.J. Cribb, J.J. Wood, S.W. Gale, P. Ormerod, J.J. Vermeulen, H.P. Wood, D. Clayton & A. Bell, 2009. Orchidaceae. In Wu Zhengyi, P.H. Raven & Hong Deyuan (eds), *Flora of China*, vol. 25. Science Press, Beijing, China and Missouri Botanical Garden Press, St. Louis, USA 570 p.
- Chowdhery, H.J., 1998. *Orchid Flora of Arunachal Pradesh*. Dehra Dun, India: Bishen Singh Mahendra Pal Singh 824 p.
- Clayton D. & P. Cribb, 2013. *The Genus Calanthe*. Natural History Publications Borneo, Malaysia, in association with Royal Botanic Gardens, Kew 411 p.
- Dalstrom, S., D. Gurung, C. Gyeltshen & N. Gyeltshen, 2015. Orchids of Bhutan: The Genus *Phaius*, *Orchids* 484–491.
- Gogoi, K., 2018. *Wild Orchids of Assam - A Pictorial Guide*. Assam State Biodiversity Board, Guwahati, Assam 473 p.
- Gogoi, K., 2019. *Orchids of Assam - A Pictorial Guide*. Dibrugarh University, Dibrugarh, Assam 588 p.
- Hegde, S.N., 1984. *Orchids of Arunachal Pradesh*. Govt. of Arunachal Pradesh, Itanagar, India 101 p.
- Hooker, J.D., 1890. *Orchideae*. In *Flora of British India*. Ashford, Kent, XVII, 1–224.
- Hooker, J.D., 1892. *Phaius nanus*. plate 2088. In D. Oliver, editor. *Icones Plantarum*. Volume 21. Dulay & Co., London, UK.
- King, G. & R. Pantling, 1898. *The orchids of the Sikkim Himalayas*. Annals of the Royal Botanical Garden Calcutta, 8: 342, tt. 448.

- Lucksom, S.Z., 2007. *The Orchids of Sikkim and North East Himalaya*. Gangtok, East Sikkim, India: Development Area, Jiwan Thing Marg 984 p.
- Misra, S., 2019. *Orchids of India- a hand book*. Dehra Dun, India: Bishen Singh Mahendra Pal Singh 652 p.
- Pearce, N.R. & P.J. Cribb, 2002. *Orchids of Bhutan: Flora of Bhutan*. Vol. 3, No. 3. Edinburg: Royal Botanical Garden 643 p.
- Pradhan, U.C., 1979. *Indian Orchids Guide to Identification and Culture*. Thomson Prass, Faridabad, India Vol- II, 190–747.
- Singh, S.K., D.K. Agrawala, S.S. Das, A.A. Mao & P. Singh, 2019. *Orchids of India- A pictorial guide*. Kolkata, India: Botanical Survey of India, Ministry of Environment, Forest & Climate change 547 p.