

**An Extended Distribution Record of *Paphiopedilum fairrieanum* (Lindl.) Stein
(Orchidaceae: Cyripedioideae) in Bhutan**

Phuntsho Wangdi^{1*}, Yonten Norbu², Bala Ram Mafchan², Sonam Pelkey³, Tandin Tshering³, Pema Thinley³ and Phurpa Gyeltshen³

Abstract

In this Note, an extended distribution record of *Paphiopedilum fairrieanum* (Lindl.) Stein (Orchidaceae: Cyripedioideae) in Bhutan is provided. The new occurrence habitat of this orchid was recorded from Gangtho, Tsamang under Mongar District in the eastern part of Bhutan.

Keywords: Bhutan, extended-distribution, Mongar, *Paphiopedilum fairrieanum*, Tsamang

Introduction

The *Paphiopedilum* Pfitzer, known as the slipper orchid, represents one of the most threatened terrestrial orchids under the family Orchidaceae (Tsewang et al, 2022). Under this genus, there are 109 accepted species in the world (POWO, 2025) including in Bhutan; *Paphiopedilum venustum* (Wall. ex Sims) Pfitzer and *Paphiopedilum fairrieanum* (Lindl.) Stein (Gurung et al., 2019). Both these species are listed as Endangered and Critically Endangered under the IUCN Red List category and

Schedule I of CITES Listing (Rankou and Kumar, 2015a; 2015b). The *Paphiopedilum fairrieanum* (Lindl.) Stein is widely known as “the lost orchid” because of its extreme rarity (Jamtsho, 2017). Globally it is reported from India (Sikkim, Arunachal Pradesh and Assam), Nepal and Bhutan (Rao, 2010; Raskoti, 2011). In Bhutan, its distribution record is documented from Martshalla, Sarjung, Gomdar and Wangphu in Samdrup Jongkhar district; Kheng Gongdu and Khengkhar in Mongar district; Ngala and Kaktong in Zhemgang district; Surelaxha in Sarpang district; Lhamoizingkha in Dagana district; Barshong in Tsirang district; Rukha and Passang Omchu in Wangdue Phodrang district; and Gomtu in Samtse district (Pearce & Cribb, 2002; Gurung, 2006; Dorji, 2008; Phuntsho et al., 2022).

Habitat and Threats

The species primarily prefers limestone substrate and sometimes grows in gneiss, dolomitic gravels and rocks with good drainage system within the oak and chirpine forests (Tsewang et al, 2022). Its known elevational

¹Divisional Forests Office Bumthang, Department of Forests and Park Services, Ministry of Energy and Natural Resources, Thimphu

²Forest Monitoring and Information Division, Department of Forests and Park Services, Ministry of Energy and Natural Resources, Thimphu.

³Phrumsengla National Park, Department of Forests and Park Services, Ministry of Energy and Natural Resources, Royal Government of Bhutan.

*Corresponding author: phuntshowangdi115@gmail.com

Received: October 16, 2025

Accepted: November 17, 2025

Published Online: December 31, 2025

Editor: DB Gurung

range is notably broad, with the lowest recorded elevation of 600 meters above sea level (Gurung et al., 2019) to the highest elevation of 1,690 meters (Samdrup et al., 2022). *Paphiopedilum fairrieanum* is threatened with anthropogenic activities such as land expansion for agriculture, road construction and widening, forest fires, logging and cattle grazing (Gyeltshen, 2017; Tsering et al., 2022). The species is highly susceptible to heavy collection and commercialization as both potted and cut flowers are sought after due to its significant aesthetic value (Wangchuk & Dorji, 2022). Furthermore, the species is subject to herbivory by wild ungulates, specifically the Himalayan Goral and Himalayan Serrow (Gurung et al., 2016). Understanding these threats and ensuring protection from extinction, *P. fairrieanum* has been accorded the highest level of legal protection. It is listed under CITES Appendix I (NEC, 2021) and is classified under Schedule I of the Forests and Nature Conservation Act of Bhutan (RGoB, 2023).

Discussion

The *Paphiopedilum fairrieanum* (Lindl.) Stein, was sighted on March 23, 2024 at Gangtho, Tsamang under Mongar District during a botanical expedition. More than 20 matured

clumps of this orchid were growing on the limestone outcrop with few clumps still in the flowering stage. The occurrence was recorded within the Chirpine (*Pinus roxburghii*) forest at an elevation of 1589 meter above sea level. The species co-existed with a diverse plant community of *Rhus paniculata*, *Viburnum cylindricum*, *Rhus chinensis*, *Wendlandia speciosa*, *Toricellia tiliifolia*, *Oxyris lanceolata*, *Hypericum griffithii*, *Bergenia ciliata*, *Rubia cordifolia*, *Sedum* sp., *Cyanotis vaga*, *Cheirostylis yunnanensis*, *Delphinium* sp., *Tetrastigma* sp., *Arisaema consanguineum*, *Polygonatum* sp., *Pyrrosia porosa*, *Drynaria propinqua*, *Pteris cretica*, *Nephrolepis cordifolia*, and *Butea buteiformis*.

Conclusion

The current sighting provides an additional ecological information in understanding the Area of Occupancy (AOO) and Extend of Occurrence (EOO) of the orchid. However, to design and implement effective conservation measures, comprehensive research must be undertaken in the area to gather information on distribution, habitat composition, and associated threats to secure the long-term viability of this critically endangered species.



Figure 1: *Paphiopedilum fairrieanum* (Lindl.) Stein in the natural habitat

Acknowledgement

The authors would like to express our gratitude to the management of Phrumsengla National Park, for the facilities and administrative support. We would like to further extend our appreciation to all the field colleagues of

the Park whose support was essential for the successful execution of the field work. Finally, we extend our sincere appreciation to the review team for their invaluable efforts in reviewing and enhancing this manuscript.

References

- Dorji, S. (2008). *The Field Guide to the Orchids of Bhutan*. Bhutan Orchid Science Society, Thimphu, Bhutan.
- Gurung, D. B. (2006). *An Illustrated Guide to the Orchids of Bhutan*. DSB Publication, Thimphu, Bhutan.
- Gurung, D. B., Dalström, S., Höijer, T., Gyeltshen, N., Gyeltshen, N., & Wangdi, D. (2016). Orchid Explorers on the Trail of Gaurs and Elephants. *Orchids, American Orchid Society, USA*, 526–533.
- Gurung, D. B., Gyeltshen, N., Tobgay, K., Dalström, S., Wangdi, J., Ghalley, B. B., Chaida, L., Phuntsho, P., Gyeltshen, N., Dawa, K., Wangchuk, T., Pradhan, R., Hoijer, T. A. I., & Gyeltshen, C. (2019). Distribution and habitats of *Paphiopedilum* Pfitzer (Orchidaceae) known to occur in Bhutan. *Journal of Threatened Taxa*, 11(9), 14101–14111. <https://doi.org/10.11609/jott.3431.11.9.14101-14111>
- Gyeltshen, N. (2017). *Distribution ecology and conservation status of threatened Paphiopedilum fairrieanum in Ngala, Zhemgang District, Southern Bhutan* [The Rufford Foundation Grant Report].
- Jamtsho, S. (2017). Distribution, Habitat Assessment and Conservation status of Critically Endangered *Paphiopedilum fairrieanum* (The Lost Orchid) in Zhemgang district, central Bhutan. The San Diego County Orchid Society. <<https://sdorchids.com/awards/>>. Accessed 8 August 2025.
- Kataki, S. K. (1984). *Lady's Slipper Orchids of India*. POSSCEF, Botanical Survey of India. NEC. (2021). *Bhutan Biodiversity User List*. National Environment Commission, Royal Government of Bhutan.
- Pearce, N. R., & Cribb, P. J. (2002). *The Orchids of Bhutan*. Royal Botanic Garden, Edinburgh and Royal Government of Bhutan.
- Phuntsho, Y., Dorji, C., Gyeltshen, G., Drukpa, D., Zangpo, J., Dorji, T., Wangmo, K., Kinley, K., Wangchuk, T., & Dorji, C. (2022). Distribution Extension of *Paphiopedilum fairrieanum*(Lindl.) Stein (Orchidaceae: Cyripedioideae) and *Spathoglottis jetsuniae*Gyeltshen, Tobgyel & Dalström (Orchidaceae: Collabiinae) in Bhutan. *Bhutan Journal of Natural Resources and Development*, 9(2), 36–39. <https://doi.org/10.17102/cnr.2022.78>.
- POWO (2025). Plants of the World Online. <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:327473-2>
- Rankou, H., & Kumar, P. (2015). *Paphiopedilum venustum*. *The IUCN Red List of Threatened Species 2015*: E.T15052375A15055154. <http://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T15052375A15055154.en>

- Rankou, H., & Kumar, P. (2015). *Paphiopedilum fairrieianum*. *The IUCN Red List of Threatened Species 2015*: E.T43320321A43327829. <http://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T43320321A43327829.en>
- Rao, A. N. (2010). Orchid Flora of Arunachal Pradesh—An Update. *Bulletin of Arunachal Forest Research*, 26 (1&2): 82-110.
- Rastoki, B. B., & Ale, R. (2011). *Paphiopedilum fairrieianum* (Lindl.) Stein and *Paphiopedilum venustum* (Wall. Ex Sims) Pfitzer, new records of genus *Paphiopedilum* Pfitzer (Orchidaceae) for flora of Nepal. 12(8), 7–11.
- RGoB. (2023). *Forest and Nature Conservation Act of Bhutan 2023*. National Assembly of Bhutan. Gyelyong Tshokhang, Thimphu.
- Samdrup, T., Dorjee, S., Phurpa, P., Wangdi, K., Dorjee, S., Cheda, K., Rinzin, C., & Subba, K. (2020). Habitat assessment of *Paphiopedilum fairrieianum* (Lindl.) Stein (Orchidaceae: Cyripedioideae) in Samdrup Jongkhar, Bhutan. *NeBIO, An International Journal of Environment and Biodiversity*, 11 (1), 40–41.
- Tsering, J., Apang, O. and Rinya, K., 2022. Current status of *Paphiopedilum fairrieianum* (Orchidaceae) –An endangered orchid of Arunachal Pradesh, India. *Journal of Non-Timber Forest Products*, 29(2), pp.59-64. <https://doi.org/10.54207/bsmps2000-2022-R47W9Q>
- Tshewang, S., Gyeltshen, P., Chetenla, Nepal, A., Dendup, K. C., & Letro, L. (2022). Population status, habitat composition and threats of *Paphiopedilum fairrieianum* (Lindl.) Stein (Orchidaceae: Cyripedioideae) in Jigme Singye Wangchuck National Park. *Bhutan Journal of Natural Resources and Development*, 9(1), 11–21. <https://doi.org/10.17102/cnr.2022.68>
- Wangchuk, K.; Dorji, U (2022). Abundance, Distribution and Association of *Paphiopedilum fairrieianum* (Lindl.) Stein with Site Factors in Brongshing, Samdrup Jongkhar District. *Conservation*, 2(4), 627–638. <https://doi.org/10.3390/conservation2040041>