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RESEARCH ARTICLE

NEW DISTRIBUTIONAL RECORD OF PERISTYLUS CONSTRICTUS (LINDL.) LINDL. FROM TELANGANA, INDIA – WITH CONSERVATION IMPLICATIONS UNDER CAMPA

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Abstract: The genus *Peristylus* Blume (Orchidaceae) comprises about 102 species worldwide, with 36 species reported from India. During field studies of third party Evaluation of works carried out under Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Scheme, conducted in August 2025, *Peristylus constrictus* (Lindl.) Lindl., a rare terrestrial orchid, was documented for the first time in Telangana from Kavadigundla village, Aswaraopet Range, Bhadradri Kothagudem District. Previously, this species was known from Northeast India, the Eastern Himalayas, Odisha, Maharashtra, and adjoining Andhra Pradesh. The discovery extends the distributional range of the species and enriches the floristic diversity profile of Telangana. The orchid was located on a moist, shaded forest floor close to an encroached habitat, highlighting its ecological vulnerability. The finding emphasizes the importance of habitat protection under CAMPA Biodiversity Conservation components and aligns with the objectives of the UN Decade on Ecosystem Restoration (2021–2030). We recommend protection of the ~200 m² orchid patch through fencing and awareness measures as a model for integrating rare species conservation (*in-situ* conservation) into landscape-level restoration programs.

Keywords: *Peristylus constrictus*, Orchidaceae, Ecosystem restoration, Biodiversity conservation

INTRODUCTION

Orchids are one of the most diverse and ecologically significant plant families, comprising over 28,000 species globally (Chase *et al.*, 2015). In India, orchids are primarily distributed in the Himalayan region, Western Ghats, Odisha, Maharashtra and Andhra Pradesh. The genus *Peristylus* Blume is widely distributed in Tropical & Subtropical Asia to Mongolia and the Pacific, includes 102 species; in India, 36 species are recorded, of which 3 species occur in Telangana (Panda *et al.*, 2025).

Peristylus constrictus (Lindl.) Lindl. is a terrestrial orchid known for its distinct inflorescence and floral morphology. The present study reports *P. constrictus* for the first time from Telangana State, thereby contributing to the floristic diversity of the region.

The discovery extends the known distribution range of the species, previously reported from Northeastern states, Eastern Himalayas, Odisha, Maharashtra, and adjoining Andhra Pradesh. Its occurrence in Aswaraopet Range highlights the ecological value of the Bhadradri Kothagudem forests and their connection to the Papikondalu Wildlife Sanctuary. However, anthropogenic pressures such as podu cultivation, habitat encroachment, and deforestation pose significant threats.

Study Area

The study area, Kavadigundla village, falls under Aswaraopet Forest Range in Palvoncha Forest Division of Bhadradri Kothagudem District, Telangana (Plate-I). The range is ecologically connected to Papikondalu Wildlife Sanctuary. Vegetation includes tropical semi-evergreen forests, tropical moist deciduous forests, and tropical dry deciduous forests (Champion & Seth, 1968).

However, the forests are severely impacted by podu-cultivation, fuel wood collection, and grazing. The *P. constrictus* population was located just 10 m from encroached forest land, indicating high vulnerability.

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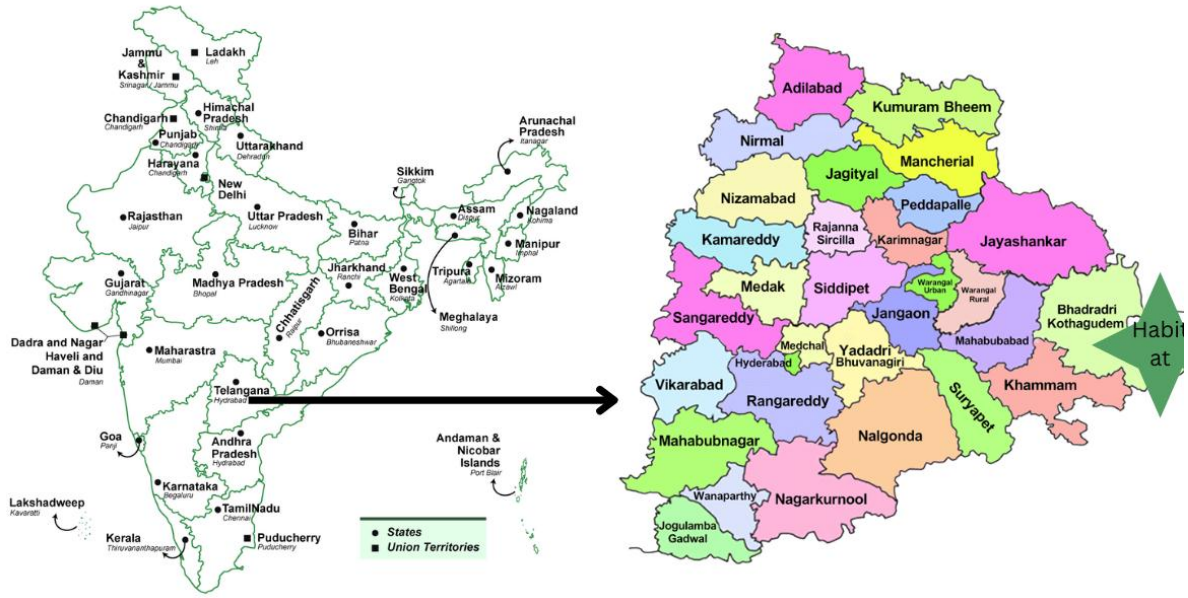
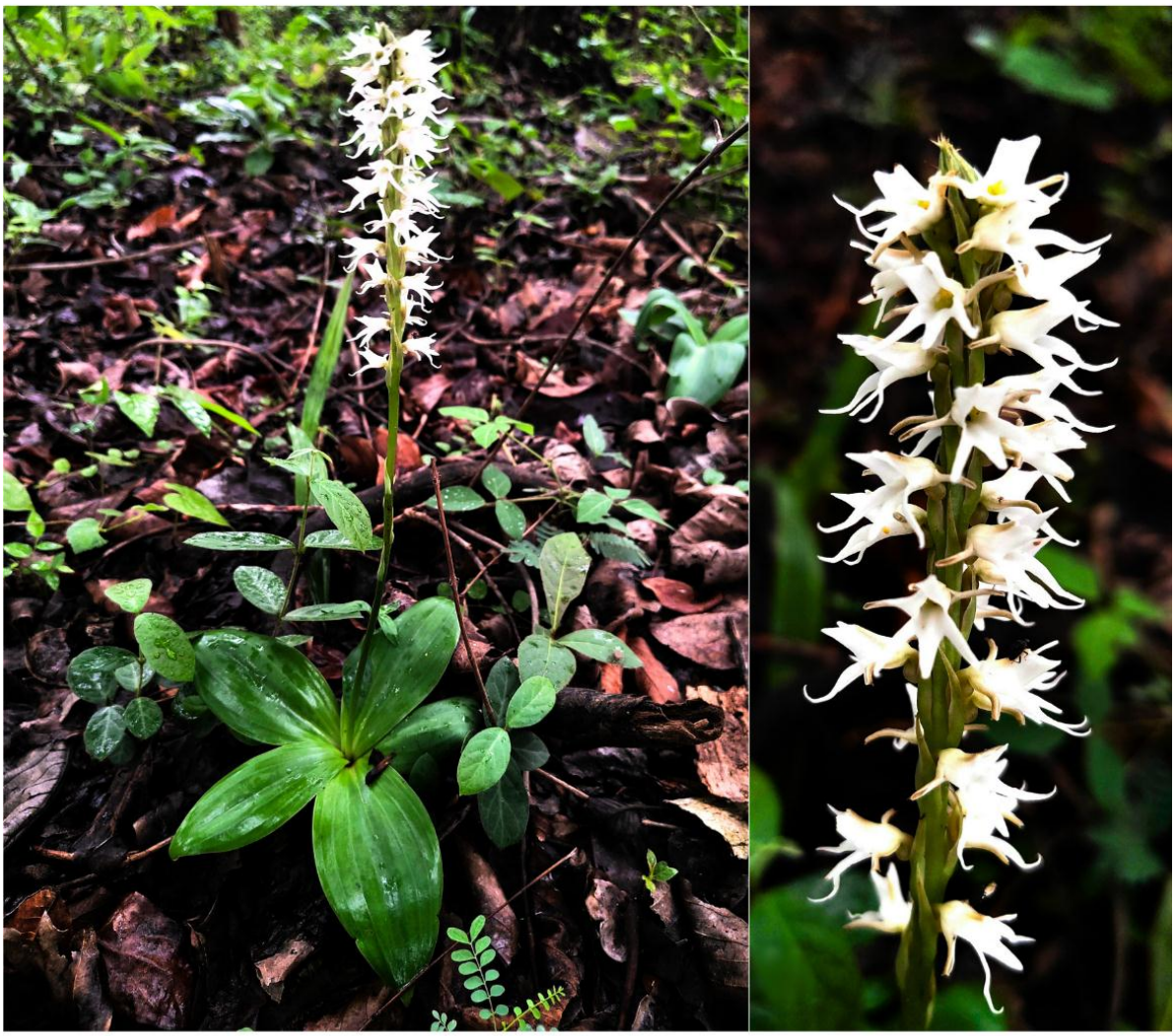
Distribution of *Peristylus constrictus*





Habitat distribution

Review and Literature

Peristylus constrictus is distributed in Bangladesh, Myanmar, Thailand, Cambodia, Vietnam, Nepal, China, and the Philippines (Flora of China, 2009). In India, it has been reported from Uttarakhand, Uttar Pradesh, Assam, Meghalaya, Nagaland, Arunachal Pradesh, and Sikkim (Misra, 2007; Jalal & Jayanthi, 2015), as well as Odisha and Maharashtra (Mudaliar, 1991; Datar & Ghate, 2018). Recent floristic surveys in Andhra Pradesh (Mahesh *et al.*, 2022) hinted at its possible occurrence due to ecological connectivity, but no previous published literature recorded it in Telangana.

Thus, the present report marks the first confirmed record for Telangana Plate-I.

METHODOLOGY

The survey was undertaken as part of CAMPA Third Party Evaluation field studies in Aswaraopet Range. Specimens were collected in moist, shaded forest floor habitats. Morphological identification was carried out using orchid taxonomic keys (Misra, 2007; Jalal & Jayanthi, 2012). The specimens were photographed and cross-referenced with herbarium records.

Systematic Description

Plants robust, up to 70 cm tall. Tubers oblong, 3-4 × 0.8-1.5 cm. Stem with 4-6 tubular sheaths at base, 4-6-leaved. Leaves basal and clustered to somewhat spaced along stem, broadly elliptic, 5-13 × 3.5-6.5 cm, apex acute. Inflorescence 21-42 cm; peduncle cylindric, stout; sterile bracts several, lanceolate, to 30 mm; rachis 5-18 cm, densely many flowered; floral bracts ovate-lanceolate, 9-15 mm, exceeding ovary, apex acuminate. Flowers horizontal; sepals pale brown; petals and lip white. Dorsal sepal forming a hood, concave, 7-9 × 2-3 mm, 1-veined, apex obtuse; lateral sepals spreading, narrowly oblong-lanceolate, oblique, 7-9 × ca. 2.5 mm, 1-veined, margin incurved, apex acute to mucronate. Petals ovate-lanceolate, oblique, 9-11 × 3.5-4 mm, 3- or 4-veined, apex obtuse; lip spreading, oblong-obovate, 9-11 × 4-5 mm, ecallose, base shallowly concave, 3-lobed near middle; lateral lobes diverging at an acute angle from axis of lip, triangular to shortly oblong, slightly falcate, 2.8-5.8 mm, apex acute; mid-lobe 3-5.5 mm, slightly broader than lateral lobes, apex obtuse; spur pendulous, globose, 2-3 mm, apex rounded, neck contracted. Column ca. 1.8 mm; viscidia ovoid; rostellum deltoid, with short arms.

Phenology: June-August

Habitat: Moist, shaded forest floor at low elevation.

Success Story

Safeguarding Rare Orchids under CAMPA: First Record of *Peristylus constrictus* in Telangana

Location: Kavadigundla village, Aswaraopet Range, Bhadradri Kothagudem District, Telangana

Date: August 2025 (during CAMPA 3rd Party Evaluation field studies)

Background: Orchids are bio-indicators of healthy ecosystems. *P. constrictus*, a rare orchid, was earlier known from NE India, Odisha, Maharashtra, and Andhra Pradesh. No record existed from Telangana.

Discovery: First documented in Telangana during CAMPA studies, found just 10 m from encroached land.

Ecological Significance:

- Extends distributional range into Telangana.
- Strengthens floristic diversity profile.
- Confirms ecological connectivity with Papikondalu Sanctuary.

Challenges: Podu cultivation, fuelwood collection, grazing, and fragmentation.

Conservation Outcomes (linked to CAMPA):

- Falls under Biodiversity Conservation component.
- ~200 m² patch should be chain link fenced to prevent encroachment.
- Serves as a demonstration model of CAMPA's role in species conservation.
- Calls for habitat protection and awareness initiatives.

Link to the UN Decade on Ecosystem Restoration

The proposed fencing of the ~200 m² patch in Aswaraopet Range is not only a protective measure under CAMPA but also a step towards ecosystem restoration. By securing the orchid habitat from encroachment and grazing, this action contributes to the objectives of the UN Decade on Ecosystem Restoration (2021–2030), which emphasizes restoring degraded ecosystems for biodiversity, climate resilience, and community well-being. Protecting this micro-habitat represents a model of species-specific habitat restoration in Telangana.

Map showing the impact of Habitat Encroachment on *Peristylus constrictus* Distribution

CAMPA Components and Relevance

The discovery of *P. constrictus* is strongly aligned with CAMPA Guidelines. The table below highlights CAMPA components, activities, and their relevance.

Component	Activities	Relevance to Orchid Site
Artificial Regeneration (AR)	Raising plantations	Improves vegetation cover in Aswaraopet and Papikondalu landscape
Assisted Natural Regeneration (ANR)	Protecting natural patches	Supports natural orchid regeneration
Soil & Moisture Conservation	Check dams, percolation tanks	Maintains moisture vital for orchids
Protection Measures	Fire control, fencing, watchtowers	Fencing ~200 m² orchid site near encroachment
Wildlife & Biodiversity Conservation	Species plans, awareness	Core component; ensures rare orchid survival
Catchment Area Treatment	Watershed management	Prevents degradation of moist habitats
Miscellaneous Activities	Awareness, research, training	Community awareness and documentation

ACKNOWLEDGMENT

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