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On the occurrence of an interesting leafless orchid *Neottia listeroides* Lindl. in Himachal Pradesh, northwestern Himalaya, India

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The extensive orchid explorations from 2002–2010 in Himachal Pradesh, India have resulted in documenting many orchid species including some new distribution records. These orchids exhibit a variety of life forms (epiphytes/terrestrials/lithophytes) and are mostly distributed in the temperate hills. Five leafless terrestrial orchids, viz., *Cymbidium macrorhizon* Lindl., *Epipogium aphyllum* (F.W. Schmidt) Sw., *E. roseum* (D. Don) Lindl., *Gastrodia falconeri* D.L. Jones & M.A. Clem. and *Neottia listeroides* Lindl. were found to occur in Himachal Pradesh. The present communication provides notes on taxonomy, distribution, habitat ecology and conservation of the interesting leafless species, *Neottia listeroides*.

The genus *Neottia* Guett. is derived from Greek word 'neottia' meaning 'the bird's nest' in allusion to their highly interwoven fibrous roots (Fig. 1a). The genus comprises of terrestrial leafless or leaf-bearing herbs that are widely distributed in Asia, Europe, and North America. Out of about 70 species worldwide (Xinqi et al. 2009), about 18 occur in India; only eight have been reported from northwestern Himalaya (Deva & Naithani 1986; Jalal et al. 2008).

Neottia listeroides

Lindl. in Royle, Ill. Bot. Himal. Mts. 1: 368. 1839; Gen. Sp. Orch. Pl. 458. 1840; Hook. f., Fl. Brit. India 6: 103. 1890; Collett, Fl. Siml. 495. 1902; Seidenfaden & Arora, Nordic J. Bot. 2: 21. 1982; Chowdhery & Wadhwa, Fl. Himachal Pradesh 3: 690. 1984; Deva & Naithani, Orchid Fl. N. W. Himalaya 71. t. 29. 1986. *N. lindleyana* Decne., in Jacquem. Voy. Bot. 163. t. 163. 1844. *Listera lindleyana* King & Pantl., Ann. Roy. Bot. Gard. (Calcutta) 8: 258. t. 343. 1898; Duthie, Ann. Roy. Bot. Gard. (Calcutta) 9: 153. 1906.

Type: India, Mussoorie, Royle s.n. (holo, K.).

Terrestrial leafless herbs. Stem stout or slender, 10–30 cm long, 3–4 (-5) mm thick, base covered with 3-4 loose tubular sheaths, brownish-green, glabrous below, upper portion glandular-pubescent. Roots forming a congested mass at the base of stem, stout and brittle, c. 1–2 mm thick. Leaves absent. Racemes terminal, erect, 6–10 cm long, lax with many flowers. Floral bract small, ovate-lanceolate, c. 6–8×4–5 mm, sub acute, shorter than ovary. Flowers brownish-green or dark green, c. 8–12 mm long. Sepals subequal, elliptic-ovate, c. 5×2.5 mm, spreading, reflexed, subacute, the laterals somewhat falcate. Petals linear or more or less falcate, c. 5×1–1.5 mm. Lip brown, flat, narrowly obovate-oblong, 2–3 times longer than the lateral sepals, apex cleft into 2 oblong or lanceolate acute lobules, upper surface with a greenish linear groove, which forms a ridge on the back. Column curved, dilated at the base and apex, c. 3 mm long. Pollinia 2, oblong. Fruit capsule, turgid, 7–9 mm long, broadly-elliptic. (Fig. 1a–k).

Distribution: India (Jammu & Kashmir to Arunachal Pradesh), China, Pakistan, Nepal, Bhutan, Myanmar,

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Competing Interest: None.

Tibet. In Himachal Pradesh the species is distributed in Shimla (Narkanda-Hattu, Sarain-Choordhar), Kullu (Kothi), Kangra (above Polang), and Lahul at an altitude of 2,000–3,500 m.

Flowering: July–August.

Fruiting: August–September.

Ecology: The plants were growing singly or in groups of 3–10 individuals on moist, shady and humus rich localities in conifer-oak forests (Image 1). The species is not of common occurrence in the state and therefore only one specimen (Orch 236) was collected and deposited at Herbarium, Panjab University (PAN), Chandigarh, India.

Threats and Conservation: A large proportion of orchid habitats (forests/ grasslands) in Himachal Pradesh have lost their quality due to expanded agricultural and other developmental activities. Large scale exploitation of forests for tourism related activities has detrimentally affected the delicately balanced ecological equilibrium; even littering and trampling are enough to impair the habitats. This species is vulnerable to frequent land slips, grazing, and fodder and fuel wood collection activities. The orchids are inherently slow growers and due to their nutritional complexities (which are relatively more complex in leafless species) they germinate poorly in nature. In *N. listeroides,* though the green flowers and young stems help plants in performing photosynthesis,

Image 1. *Neottia listeroides* Lindl. Plants growing in Oak-pine forest at Churdhar.

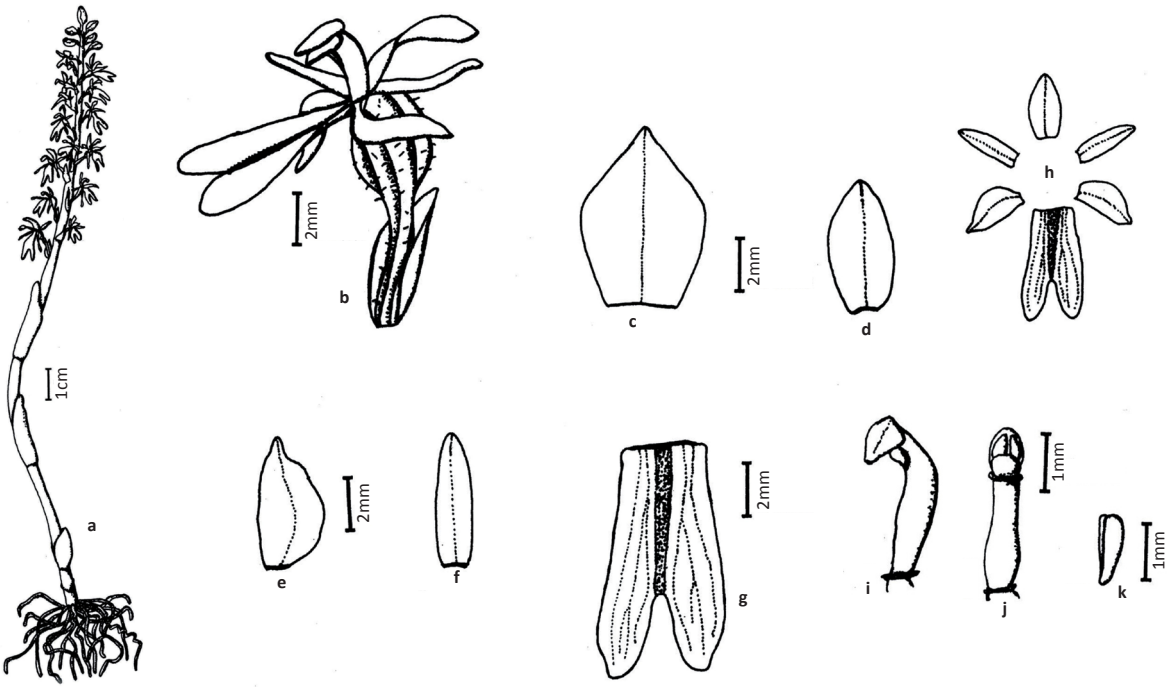

Figure 1 a–k. *Neottia listeroides* Lindl. a - A plant showing habit (note the highly clustered roots); b - flower; c - floral bract; d - dorsal sepal; e - lateral sepal; f - petal; g - lip; h - floral parts spread (not to scale); i–j - column; k - pollinia.

the leafless species are generally believed to obtain nutrients from a mycorrhizal fungus that is attached to a photosynthetic host plant. Proactive measures should be taken for conservation of such orchid species and their habitats.

REFERENCES

Deva, S. & H.B. Naithani (1986). *The Orchid Flora of North West Himalaya*. Print and Media Associates, New Delhi, 71pp.

Jalal, J.S., P. Kumar, G.S. Rawat & Y.P.S. Pangtey (2008). Orchidaceae, Uttarakhand, Western Himalaya, India. *Check List* 4(3): 304–320.

Xinqi, C., S.W. Gale & P.J. Cribb (2009). *Neottia* Guettard. *Flora of China* 25: 184–195.