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RESEARCH ARTICLE

# Exploration of Orchid Species: First Annual Biodiversity Camp of Neora Valley National Park, Kalimpong, under Gorumara Wildlife Division, West Bengal, India

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ABSTRACT

Present paper deals with available Orchid species resources with field availability status and habitat including phenology during field survey and medicinally important species during First Annual Biodiversity Camp of Neora Valley National Park, under Gorumara Wildlife Division, West Bengal, India. Total 53 Orchid species were available during 10 days field survey. Out of these, 45 were epiphytic and the rest 8 species were terrestrial species. Detail status of the species discussed in the paper.

**Keywords:** Orchid species, Availability Status, Habitat, Phenology, Neora Valley National Park, India

## INTRODUCTION

The study area selected is Neora Valley National Park exists within Darjeeling Himalayan region of Kalimpong district of West Bengal, India (Plate 1) covers a total area of 88km$^2$ and the most undisturbed area of the state. It is rich in biodiversity located in the Eastern Himalaya and notified as a National Park in the year 1992. Sikkim and Bhutan are the boundaries of this national park and entire forest is virgin in nature and natural habitat is still conserved. The altitude varies as low as 170m from Samsing foothills to as high as 3200m Rachela hill. Neora valley national park is situated between the 26$^0$ 52'3" and 27$^0$ 7'35" north latitude and 80$^0$ 45'to 80$^0$ 55'east longitudes (Plate 2).

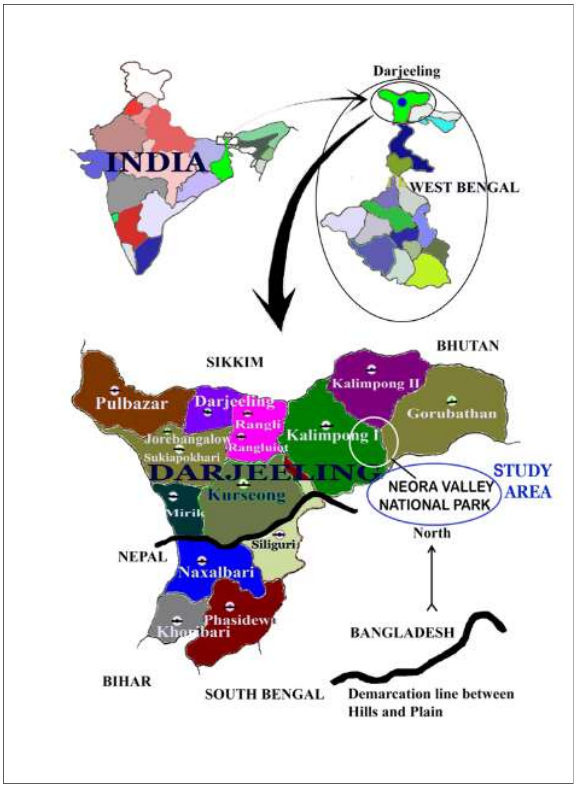


**Plate 1. Map of Darjeeling, White circle: Neora Valley Nat. Park.**

Orchids comprise 25000 to 30000 species distributed throughout the world and are used as ornamentals, food, aphrodisiac, religious beliefs and as medicine. Orchids are interesting group of flowering plants belong to the family Orchidaceae which is highly evolved among the monocotyledons (Yonzone, 2015). They exhibit incredible diversity in colour, shape, size, structure and fragrance of flowers and four different life forms *viz*., subterranean, saprophytic, terrestrial and epiphytic and are pretty admired among the professional and amateur Orchid lovers of the world and are important both botanically and commercially. In India, the Eastern Himalaya is the centre of Orchids, followed by Western Himalaya and the South Indian hills. The Khasia hills in Assam, Arunachal Pradesh and the Sikkim and Darjeeling Himalayas are richest in Orchid flora

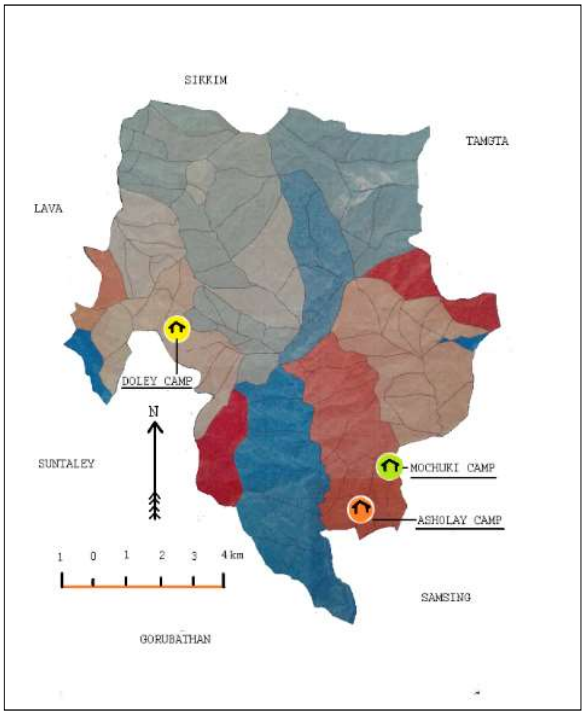


**Plate 2. Map of Neora Valley National Park with three camps *viz*., Asholay Camp, Mochuki Camp and Doley Camp**

in India (Yonzone & Rai, 2016). North East India constitutes an Orchid hotspot and show maximum diversity in the Eastern Himalaya. Of the total Orchid species found in India nearly 70% found in North East India.

## MATERIAL AND METHODS

Primary and secondary data collected from the various departments to confirm the status of the species. Author done field survey during 3$^{rd}$ to 13$^{th}$ March 2018 covering 3 different camps *viz*., Asholay N27$^0$00'46.3", E88$^0$46'29.4", altitude 686–700msl, Mochuki N 27$^0$01'36.48", E88$^0$47'10.05, altitude 1170–1200msl, and Doley N27$^0$04'14.51", E88$^0$42'34.36", altitude 2000–2025msl with field staffs of Neora Valley National Park under Gorumara Wildlife Division, West Bengal for the exploration of available Orchid species of Neora Valley National Park, Kalimpong. Availability status of all the Orchid species access by visual observation in the habitat. Enumeration of species is mentioned in Table 1 and Table 2. Literatures of following authors *viz*., King & Pantling, 1898; Pradhan, 1979; Pradhan & Pradhan, 1997; Bose & Bhattacharjee, 1999; Pearce & Cribb, 2002; Lucksom, 2007 and Yonzone *et al.* 2012) were used to authenticate the species during the camp as well as the Laboratory of the Orchid Society of Eastern Himalaya, Orchid Propagation and Conservation Centre, Kalimpong Circle, Kalimpong. The present paper revealed the availability status and habitat of Orchid species within surrounding areas of 3 different Camps of Neora Valley

National Park, Kalimpong, Wildlife Wing, West Bengal, India in details.

## OBSERVATIONS & RESULTS

Extensive field survey has been conducted by a team and recorded all the necessary observations. Plant photographs, geographical position, specimen collection and herbarium specimen preparation done at laboratory. List of species confirmed are noted below with their availability status.

**Table 1: List of Epiphytic Orchid Species**

| Sr. No. | Name of the species | Habitat | Availability Status |
|---|---|---|---|
| 1 | *Aerides odoratum* Lour. ** | Epiphytic | Rare |
| 2 | *Agrostophyllum planicaule* (Wall. *ex* Lindl.) Rchb. f. | Epiphytic | Sparse |
| 3 | *Agrostophyllum callosum* Rchb.f. | Epiphytic | Frequent |
| 4 | *Bulbophyllum careyanum* (Hook.) Spreng**. | Epiphytic | Frequent |
| 5 | *Bulbophyllum leopardianum* (Wall.) Lindl. ** | Epiphytic | Frequent |
| 6 | *Bulphyllum cauliflorum* Pearce & Cribb | Epiphytic | Sparse |
| 7 | *Bulbophyllum helenae* (Kuntze) J.J. Sm. | Epiphytic | Rare |
| 8 | *Bulbophyllum reptans* (Lindl.) Lindl.* | Epiphytic | Frequent |
| 9 | *Chiloschista parishii* Seidenf.* | Epiphytic | Rare |
| 10 | *Coelogyne barbata* Lindl. *ex* Griff. | Epiphytic | Rare |
| 11 | *Coelogyne flaccida* Lindl. | Epiphytic | Sparse |
| 12 | *Coelogyne corymbosa* Lindl. ** | Epiphytic | Common |
| 13 | *Coelogyne fimbriata* Lindl. ** | Epiphytic | Sparse |
| 14 | *Coelogyne longipes* Lindl. | Epiphytic | Rare |
| 15 | *Coelogyne occultata* Hook. f. | Epiphytic | Rare |
| 16 | *Cymbidium eburneum* Lindl. | Epiphytic | Rare |
| 17 | *Cymbidium hookerianum* Rchb. f. | Epiphytic | Threatened |
| 18 | *Dendrobium chrysanthum* Wall. *ex* Lindl. | Epiphytic | Sparse |
| 19 | *Dendrobium amoenum* Wall. *ex* Lindl. ** | Epiphytic | Sparse |
| 20 | *Dendrobium aphyllum* (Roxb.) C.E.C. Fischer** | Epiphytic | Sparse |
| 21 | *Dendrobium densiflorum* Lindl. ** | Epiphytic | Rare |
| 22 | *Dendrobium eriiflorum* Griff. ** | Epiphytic | Rare |
| 23 | *Dendrobium longicornu* Lindl. | Epiphytic | Sparse |
| 24 | *Dendrobium nobile* Lindl. ** | Epiphytic | Rare |
| 25 | *Dendrobium porphyrochilum* Lindl. | Epiphytic | Threatened |
| 26 | *Eria amica* Rchb. f. | Epiphytic | Rare |
| 27 | *Eria paniculata* Lindl.* | Epiphytic | Rare |
| 28 | *Eria spicata* (D. Don) Handel-Mazz. | Epiphytic | Sparse |
| 29 | *Eria stricta* Lindl. | Epiphytic | Sparse |
| 30 | *Epigenium rotundatum* (Lindl.) Summer. | Epiphytic | Sparse |
| 31 | *Gastrochilus acutifolius* (Lindl.) Kuntze | Epiphytic | Threatened |
| 32 | *Ione bicolour* (Lindl.) Lindl. | Epiphytic | Rare |
| 33 | *Liparis botanensis* Griff. | Epiphytic | Rare |
| 34 | *Liparis cespitosa* (Lamk.) Lindl. | Epiphytic | Threatened |
| 35 | *Otochilus fuscus* Lindl.* | Epiphytic | Sparse |
| 36 | *Otochilus lancilabius* Seidenf. ** | Epiphytic | Common |
| 37 | *Oberonia falcata* King & Pantl. | Epiphytic | Rare |
| 38 | *Oberonia longilabris* King & Pantl. | Epiphytic | Rare |
| 39 | *Pholidota articulata* Lindl. ** | Epiphytic | Sparse |
| 40 | *Pleione humilis* (J.E. Sm.) D. Don, ** | Epiphytic | Rare |
| 41 | *Pleione praecox* (J.E. Sm.) D.Don** | Epiphytic | Rare |
| 42 | *Podochilus cultratus* Lindl. | Epiphytic | Sparse |
| 43 | *Porpax elsweii* (Rchb. f.) Rolfe | Epiphytic | Threatened |
| 44 | *Trichotosia dasyphylla* (Parish & Rchb. f.) Kranz. | Epiphytic | Threatened |
| 45 | *Vanda cristata* Lindl. | Epiphytic | Sparse |

* Species available in blooming stages in natural habitat
** Medicinal Orchid species

**Table 2 : List of Terrestrial Orchid Species**

| Sr. No. | Name of the species | Habitat | Availability Status |
|---|---|---|---|
| 1 | *Calanthe brevicornu* Lindl. | Terrestrial | Rare |
| 2 | *Cremastra appendiculata* (D. Don) Makino** | Terrestrial | Threatened |
| 3 | *Goodyera schlechtendaliana* Rchb. f. ** | Terrestrial | Rare |
| 4 | *Odontochilus elweii* C.B. Clarke *ex* Hook. f. | Terrestrial | Threatened |
| 5 | *Odontochilus grandiflorus* (Lindl.) Benth & Hook. f. | Terrestrial | Threatened |
| 6 | *Rhomboda lanceolata* (Lindl.) Ormerod | Terrestrial | Rare |
| 7 | *Tainia minor* Hook. f. | Terrestrial | Sparse |
| 8 | *Zeuxine affinis* (Lindl.) Bentham *ex* Hook. f.* | Terrestrial | Rare |

* Species available in blooming stages in natural habitat
** Medicinal Orchid species

## DISCUSSION & CONCLUSION

Availability status of all these orchid species by means of visual observation in the habitat. Habitat destruction is not found all the camp surrounding areas like i. Asholay Camp, ii. Mochuki Camp and iii. Doley Camp. Asholay camp falls in tropical zone whereas Mochuki and Doley camps fall subtropical and temperate zones and orchid species are distributed according to altitude, slope, terraces, and concrete rocky places, sunny and moist places of the region.

Total 53 Orchid species were observed during this field survey (3rd to 13th March 2018) carried out at Neora Valley National Park, Kalimpong, Gorumara Wildlife Division, West Bengal, India (Plate 3. A-D. & Plate 4. A-D.). Out of these, 45 were epiphytic and the rest 8 species were terrestrial species i.e., the number of epiphytic species is greater than terrestrial species during the survey region.

Field availability status of these epiphytic species was observed during the field survey and noted as eighteen (18) were rare, two (02) were common, fifteen (15) were sparse, four (04) were frequent in distribution and six (06) species were threatened epiphytic species.

Whereas, in terrestrial orchid species only one was sparse in, four (04) were rare and three (03) were considered as threatened category.

Some microclimatic condition of the region favour the survive of some terrestrial orchid species like *Zeuxine* spp., *Calanthe* spp., *Cremastra* spp., *Goodyera* etc. and availability of suitable host tree favour the luxurious growth of many epiphytic orchid species like *Agrostophyllum* spp., *Bulbophyllum* spp., *Dendrobium* spp., *Eria* spp., *Gastrochilus* spp., *Vanda* etc. species mainly in subtropical, temperate and sub-temperate zones of the region.

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## REFERENCES

**Bose, T. K and Bhattacharjee, S. K. (1999).** *Orchids of India*. Revised Edition. Naya Prokash. Calcutta, India.

**King, G and Pantling, R. (1898).** The Orchids of the Sikkim-Himalaya. *In Annals of the Royal Botanic Garden*, Calcutta 8, India.

**Lucksom, S. Z., 2007.** *The Orchids of Sikkim and North East Himalaya*. Development Area, Jiwan Thing Marg, Gangtok, Sikkim. **pp.** 421 & 442.

**Pearce, N. R and Cribb, P. J. (2002).** *Flora of Bhutan. The Orchids of Bhutan*. Vol. 3, part 3. Royal Botanic Garden, Edinburgh.

**Pradhan U. C. (1976).** *Indian Orchids Guide to Identification and Culture* Vol. I. Premulaceae Books, Kalimpong, India.

**Pradhan, U. C. (1979).** *Indian Orchids Guide to Identification and Culture*, (Vol. II) Premulaceae Books, Kalimpong, India.

**Pradhan, U. C. and Pradhan, S. C. (1997).** 100 Beautiful Himalayan Orchids and how to grow them, Premulaceae Books, Kalimpong, India.

**Yonzone, Rajendra. Bhujel, R. B., Lama, D. and S, Rai. (2012).** Orchid species Diversity of Darjeeling Himalaya of India. *Int. J. Pharm. Lif. Sci.* **3**(3): 1533-1550.

**Yonzone, Rajendra. (2015).** Studies on the Orchid Flora of Darjeeling Himalaya. *Ph.D. Thesis.* University of North Bengal, Raja Rammohunpur, P.O. N.B.U., Siliguri, West Bengal, India.

**Yonzone, Rajendra. And Rai. Samuel, (2016).** *Dendrobium Diversity in Darjeeling Himalaya, Taxonomic Details with Cultivation Practices*, Directorate of Cinchona and Other Medicinal Plants, Mungpoo, District Darjeeling, West Bengal, India. http://dx.doi.org/10.5958/2454-8634.2018.00009.8


**Plate 3. A.** *Chiloschista parishii* Seidenf., **B.** *Otochilus lancilabius* Seidenf., **C.** *Pleione praecox*, **D.** *Podochilus cultratus* Lindl.


**Plate 4. A.** *Agrostophyllum planicauli* Wall. *ex* Lindl.) Rchb. f., **B.** *Bulbophyllum reptans* (Lindl.) Lindl., **C.** *Eria paniculata* Lindl., and **D.** *Goodyera schlechtendaliana* Rchb. f.