Uttarakhand Forest Department

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Uttarakhand Forest Research Institute

Silva News

Newsletter of Forest Research Wing of Forest Department, Uttarakhand (Vol V, Year 2023)

India's First Gymnsoperm Garden

India's First Gymnsosperm Garden has been developed by the Research Wing of Uttarakhand Forest Department in Uttarakashi district. This project has been approved by Research Advisory Committee (RAC) in the year 2021. Gymnosperms are cone-bearing plants that bear naked seeds and around 82 species of gymnosperms are found in India. This garden is spread in an area of over 1.0 hectare, houses 27 gymnosperm including rare and endangered species like Ginkgo (termed as the living fossil, present on earth since the Jurassic era) and Thuner (it contains taxol which possess anti cancerous properties). Gymnosperms are good source of food for both wildlife and and humans, and are used for producing various food products and these plants also have great medicinal, ornamental and economic values. The main objective of establishing Gymnosperm garden is to identify propagation techniques and preservation of these fascinating plant species, contributing to scientific research and raise awareness among general public about their ecological and economic importance.

Success Story of conservation and propagation techniques of threatened medicinal herb By Research Wing of Uttarakhand Forest Department

The Research Wing of the Uttarakhand Forest Department has successfully developed propagation techniques for highly valued medicinal herbs found in the high-altitude regions of Uttarakhand, in its four different Research Ranges. This study includes several valuable medicinal herbs such as Himalayan Gentian/Trayman, Atees, Meetha Vish, Jatamansi, Naagchatri, Ksheerkakoli, Rishbhak, Meda, Mahameda, and Balchaddi/Lalchadi. Unfortunately, these herbs are currently under threat due to habitat loss, over-extraction, and the impact of climate change. In response to these challenges, the Research Wing has initiated conservation efforts for these species at its Devvan, Gopeshwar, Pithoragarh, Uttarkashi and Ranikhet research centers. These initiatives focus on the sustainable preservation and propagation of these endangered species, employing rhizome, seed, and bulb-based techniques. This proactive approach aims to mitigate the vulnerability of these Himalayan species to the risk of extinction, thereby contributing to the long-term conservation of the region's biodiversity.

Observations From the Field

Flowering in a rare and lesser known tree species *Magnolia kisopa* has been recorded in Pandukesar, Joshimath in Chamoli district. It is mainly found in temperate biomes from Himalaya to Tibet. Its natural habitat in India is restricted to Uttarakhand, Sikkim and Arunachal Pradesh.

Two Near Threatened species of vultures, namely the Cinereous vulture and Himalayan vulture, have been recorded together feeding on decaying carcasses in Wayali fold in Uttarkashi. Vultures are among the most efficient scavengers in the world and play a crucial role in maintaining a safe and carrion-free environment.

Fossombronia himalayensis, a rare liverwort species, is reported in its fruiting stage from Cryptogamic Garden, Deovan. The species is endemic to India and was previously documented in scattered populations from a few localities in Uttarakhand, including Nainital, Ranikhet, and Mussoorie.Beyond its geographic rarity, this liverwort species has garnered attention for its remarkable antifungal properties.

A rare and very distinctive monotypic liverwort *Ricciocarpus natans* have been found in Ghinghrad, Gopeshwar. It is typically found in small ponds and wetlands, but as water bodies dry up, the plant becomes stranded and subsequently shifts its development to terrestrial forms, with rhizoids anchoring the plant.

Flowering has been recorded in a rare and threatened Himalayan undershrub *Catamixis baccharoides* near Kalsi-Chakrata road. It is near endemic to Uttarakhand, commonly known as Vishpatra. The plant has very limited population in and around Shivalik region, Dehradun. The Research Wing has identified the propagation techniques for this plant and has successfully developed over 50 plants at the Kalsi nursery.

A very rare sighting of a pair of migratory Mallard ducks has been recorded from agricultural wetland in Gopeshwar. In Uttarakhand, most Mallard sightings have typically been recorded in Tarai wetlands. This medium-sized diving duck species migrates to Uttarakhand and other parts of India from Europe and Central Asia. The male ducks of this species are easily distinguished by their vibrant appearance.

A pair of Himalayan Monal sighted at Tungnath in Chamoli district after recent snowfall. State bird of Uttarakhand, which is decked out in all the colors of the rainbow, and male being the image of iridescence, it found mainly along timberline ecotone. It feeds mostly on the ground and roosts on the Kharsu and fir trees. In Uttarakhand it is found mostly in protected areas of chamoli, Uttarakashi and Pithoragarh, between 2700-4500.

MEDIA HEIGHLIGHTS

Country's first Gymnosperm garden established in Uttarkashi's Radi Top

Abhyudaya Kotnala | TNN

Dehradun: The research wing of the Uttarakhand forest department has established India's first Gymnosperm garden at the Radi Top region in Uttarkashi. Situated at an elevation of 8,000 feet and spanning approximately one hectare, this botanical haven hosts a diverse array of 27 crucial gymnosperm plant species, including endangered varieties such as Ginkgo and Thuner, according to the International Union for Conservation of Nature (IUCN)'s Red List of Threatened Species.

The research wing has been making remarkable strides in botanical exploration, establishing unique centres across the state, from the Lichen garden in Pithoragarh to the Himalayan spice garden in Ranikhet. Adding to this series, the country's first Gymnosperm garden in Uttarkashi district is set to open its gates to the public by March 2024. Gymnosperms, a vital but often overlooked group in the plant kingdom, has 44 genera and 82 species in India, with the majority flourishing in the Himalayan region, desert areas,

The garden hosts a diverse array of 27 crucial gymnosperm plant species, including endangered varieties such as Ginkgo and Thuner

and southern hills. Sanjiv Chaturvedi, the chief conservator of forest research, highlighted the significance of Gymnosperms, saying, "Apart from being a good source of food for both wildlife and humans, these plants also have great medicinal, ornamental, and economic values."

The project, approved by the Research Advisory Committee in 2021, aims to showcase, conserve, and raise awareness about this essential plant group. Chaturvedi said, "In this garden, we have displayed 27 live samples of Gymnosperm plants, including rare species like Ginkgo, termed as the living fossil, present on Earth since the Jurassic era. Believed to be a possible treatment for Alzheimer's disease, this endangered species has been successfully grown by our research team, focusing now on its propagation."

To enrich the visitor experience, an interpretation centre within the park showcases various types of cones and provides information on the history and facts of gymnosperm plants. Chaturvedi added, "This place will become a centre of knowledge for students and researchers interested in plants, attracting a large number of tourists. We are aiming to add many more species of gymnosperm plants in the garden soon."

Furthermore, the garden's doors will open to the public in March 2024, offering free entry for school students and a nominal fee for other visitors. This initiative promises to not only serve as a botanical marvel but also as an educational hub for plant enthusiasts and researchers alike.

A juvenile Barn owl known for its distinctive heart-shaped facial disc, long legs, and relatively short tail, has been spotted by the the team of Research Wing of Uttarakhand Forest Department. A nocturnal hunter, primarily feed on small mammals, such as mice and voles, and is known for its exceptional ability to locate prey by sound alone. Found in a variety of habitats, including grasslands, agricultural areas, and open woodlands.

Forest dept's Krishna Vatika attracts devotees and tourists

Mohan Rajput

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RUDRAPUR: Uttarakhand forest department's Krishna Vatika that features plants associated with Hindu God Krishna is emerging as a big attraction among devotees and tourists

Uttarakhand forest department has developed Shri Krishna Vatika in its Uttarakhand Forest Research Institute (UFRI) in Haldwani. Various plant species have been grown and conserved here.

Sanjeev Chaturvedi, chief conservator of forest (Research), Haldwani said, "We have developed Shri Krishna Vatika in the premises of the institute in which various species of plants which are associated with Lord Krishna have been grown and conserved in the Vatika. It has emerged as a big attraction among devotees and tourists, especially on the occasion of Shri Krishna Janmashtami when many people visit the Vatika"

Various plant species have been grown and conserved in the Vatika.

UFRI was set up in 2005 in Haldwani. It is spread over 18 acres and various kinds of plants and trees have grown here in a bid to conduct research. Forest personnel developed the Krishna Vatika and five plants that have been associated with Lord Krisha have been grown here.

Chaturvedi said plants like Vaijayanti (Coix lacryma), Kadamb (Anthocephalus cadamba). Maulshree (Mimusops elengi), Krishna Vat (Ficus krishnae) and Krishna Kamal (Passiflora incarnata) have been preserved here. "These plants collected from local forests, have been associated with Lord Krishna according to Hindu mythology", he said. Vatika serves as both a spiritual and cultural attraction and plays an important role in promoting biodiversity conservation among the public from a religious perspective, he added.

"According to scriptures, Lord Krishna used to wear the garland of Vaijayanti. Vaijayanti Mala is a significant and sacred garland and also considered a symbol of victory. This garland is made up of small round shaped Vaijaynti seeds," said Chaturvedi.

{ FROM 2020 TO AUGUST 2023 }

31 species of orchids found in Corbett Tiger Reserve: Study

HT Correspondent
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DEHRADUN: The research wing of the Uttarakhand forest department conducted a comprehensive orchid diversity survey in Corbett Tiger Reserve (CTR) from 2020 to August 2023 and found the existence of 31 orchid species, representing 23 genus within the Orchidaceae family in CTR, a senior forest official said on Wednesday.

Among these species, 11 are terrestrial, 2 are saprophytic, and 18 are epiphytic, the survey stated.

This project was approved by the Research Advisory Committee (RAC) led by the head of forest force, Uttarakhand in 2020.

Orchid species hold a unique and vital place in the world of plants, captivating both scientists and enthusiasts alike. Their importance extends far beyond their aesthetic beauty, as these they play a crucial role in various ecological, economic, and cultural aspects.

Officials said they are very valuable and highly threatened and therefore, protected under schedules of Wildlife Protection Act 1972 as well as under Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

As per the officials, Orchid species play a significant role in various ecological, economic, and cultural aspects. HT PHOTO

Sanjiv Chaturvedi, chief conservator of forests in research wing of Uttarakhand forest department, said, "The novel orchid diversity study conducted in CTR marks the first of its kind in CTR, which was exclusively for assessment of orchid diversity."

"The study has revealed existence of important threatened species, like Phaius tankervilleae, also known as Red Cane Orchid or Nun's Orchid, and Pecteilis gigantean, known as Butterfly Orchid. Both these species have already been declared as a threatened species by State Biodiversity Board. Furthermore, the research has identified Eulophia flava (Yellow Eulophia), Eulophia explanata (Flattened Eulophia), Cymbidium macrorhizon (Large Root Cymbidium) and Epipogium roseum (Rosy Ghost Orchid), as rare species documented during the study. The finding of Eulophia explanata is a significant event, which was discovered after a 36-year gap in Uttarakhand state. The study's findings underscore the significance of Sal (Shorea robusta) as the foremost favored host plant among epiphytic orchid species within the reserve area. Another significant species was Checkered Vanda which is very significant medicinal orchid used in 'Ayurvedic shamans' and in Tantric cult," he said.

"The study's findings would be invaluable for shaping a conservation strategy dedicated to orchid species," he said, adding that these orchids may turn out to be a major tourist attraction in the future.

Almost extinct, Himalayan plant with med value blooms again

Sonali Mishra | TNN

Nainital: Efforts of experts in the research wing of the Uttarakhand Forest Department have brought back a 'critically endangered' plant from the brink of extinction, state forest department officials said on Wednesday. Endemic to the Western Himalayas, Gentiana Kurroo, commonly known as Himalayan Gentian or Trayman, is a unique and revered medicinal herb.

The highly valued plant holds a rich history in traditional medicine and has promising prospects in modern healthcare – it is known to help treat liver ailments digestive disorders, diabetes, bronchial asthma, and urinary infection. The remarkable feature of this plant is its distinctive vibrant, trumpet-shaped blue flowers (the presence of blue-colored flowers in angiosperms is relatively uncommon). These flowers typically bloom from mid-September to October and feature a characteristic white or yellow spot at their base.

The highly valued plant holds a rich history in traditional medicine and has promising prospects in modern healthcare

▶Continued on P3

600-odd Himalayan Gentian specimens successfully conserved at 3 centres

▶Continued from P1

The root of the Himalayan Gentian is known for its therapeutic properties – particularly in treating liver ailments. As a result, it has always been subjected to overexploitation, taking it to the verge of extinction. Classified as 'critically endangered' by the International Union for Conservation of Nature (IUCN), the Himalayan Gentian is one of the 16 plant species in the Uttarakhand Biodiversity Board list of 'threatened species' in the state.

Taking cognisance of the existential threat to the plant, the research wing of the Uttarakhand Forest Department launched conservation efforts for the Himalayan Gentian in 2020 at its Deoban centre in Dehradun.

The initiatives focused on the sustainable preservation and propagation of this endangered species through the rhizome-based technique – a process in

ves, roots or stems. It can occur through fragmentation or the regeneration of unique vegetative plants.

As of now, 600-odd Himalayan Gentian specimens have been successfully conserved across the forest department centres at Deoban, Gopeshwar and Ranikhet.

Chief conservator of forests (CCF) Sanjeev Chaturvedi told **TOI** that the plant is primarily found in scattered populations at altitudes ranging from 1,700 to 2,100 metres in the Garhwal Himalayas.

He said, "We are determined to save this plant from extinction. It starts flowering from the third week of August to the first week of November. On average, one plant produces 20 flowers, and the ideal time for seed harvest is the first fortnight of November."

He added, "In the past few years, we have been successful in in situ conservation, monitoring and developing sufficient plant stock at our high-altitude centres and conservation gardens by

OTHER RARE HERBS

- Aconitum Heterophyllum: Its roots are used to cure various ailments
- Aconitum Balfourii: Its roots are used in treating rheumatism, fever, gastric disorders, swelling and sciatica
- Nardostachys Jatamansi: The rhizome is used to treat hysteria, insomnia, dysmenorhoea and skin diseases.
- Trillium govanianum: Its roots have powerful steroids, hence illegal exploitation in Himanchal Pradesh and J&K

developing propagation techniques."

Dr G S Rawat of Wildlife Institute of India said the plants mostly grow on moist limestone rocks and the habitat of this species is threatened due to quarrying and road widening. He added, "The medicinal plant is heavily exploited for root and rhizome. Due to its endemic nature and the high rate of exploitation, *this species has become critically endangered."*

FORESTERS TO ENHANCE HIGHWAY ECOLOGY; CONSERVATORY TRANSFORMS HILLTOP

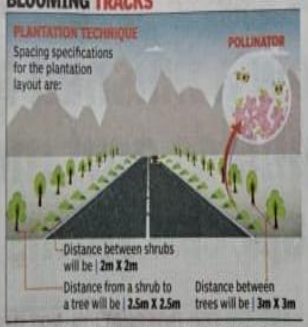
Pollinator-friendly hills: Forest dept to plant native flower species on roadside

Sonali Mishra | TNN

Nainital: The research wing of the Uttarakhand forest department is initiating a pilot project of planting aesthetic flower species on hilly roads. The dual objectives, as highlighted by Sanjeev Chaturvedi, chief conservator of forest (CCF) are, "Create visually appealing, colourful roads that contribute to the ecological balance by supporting biodiversity. It will offer habitat and nourishment for various endangered pollinators, enhancing their survival."

Chaturvedi emphasised the abundance of native flowering shrub species in the Himalayas, blooming year-round, which serve as excellent sources for pollinators. He said, "Alongside trees like the Himalayan Cherry, Rhododendron, and Himalayan Coral tree, numerous other trees play crucial roles in the local ecology and pollination that are often overlooked due to lack of aesthetic consideration. The forest department will plant these indigenous species along hill roads, aiming to suppress invasive species like kala bansa, rapidly encroaching our hillsides."

Regarding site selection, Chaturvedi said, "The project has commenced along 1-km stretch of road in each location, spanning Pithoragarh, Chamoli, Nainital, Uttarkashi district, Chakrata, and Ranikhet regions."



"The primary objective is to showcase lesser-known Himalayan beauties to the world, transforming our hill roads into pollinator-friendly spectacles adorned with vibrant colours," said Chaturvedi.

Botanist Vinod Pandey told **TOI**, "Pollinators are under threat worldwide due to which the overall wild floral diversity has declined. Increasing usage of pesticides in agriculture and horticulture poses a threat to pollinators and overall biodiversity. It is important to curb pollution impacting pollinators and reduce pesticide dependency by offering alternatives."

Pandey further said that insecticide sprays not only harm insects and pollen but also contribute to environmental degradation. Citing the title of a book, he said the forest department's initiative aligns with global efforts to counter the 'Insect Apocalypse', potentially averting a larger ecological crisis.

A junior research fellow under Chaturvedi, Tanuja (goes by first name) said, "Native species are best suited for the plantation project as they are adapted to the specific ecological niche and are more likely to thrive with minimal intervention. The chosen shrub species promises an engaging and visually appealing roadside landscape year-round, ensuring a continuous display of colours along the roadsides."

अमर उजाला | my city | ऋषिकेश | देहरादून | शुक्रवार | 03.11.2023 | 04

थ्रीडी बॉयो डॉयवर्सिटी गैलरी में होंगे दुर्लभ वन्य जीव व वनस्पतियों के दीदार

वन अनुसंधान रेंज में थ्रीडी बॉयो डायवर्सिटी गैलरी और इंटरप्रिटेशन सेंटर बनकर तैयार

नगर पालिका अध्यक्ष ने गिनाई पालिका की उपलब्धियां

जौलीग्रांट में बनकर तैयार हुई थ्रीडी बॉयो डायवर्सिटी गैलरी और इंटरप्रिटेशन सेंटर। संवा

तीन दशक बाद मिलीं आर्किड की कई प्रजातियां

उपलब्धि

सीटीआर में पहली बार हुआ आर्किड विविधता सर्वे, 31 प्रजातियों को किया गया दर्ज

संवाद न्यूज एजेंसी

रामनगर के कॉर्बेट टाइगर रिजर्व में पाया गया आर्किड। सौजन्य वन विभाग

Publications in Journals

EL NIÑO YEARS DECIMATE BUTTERFLY COMMMUNITY IN A WEST HIMALAYAN FOREST

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EL NIÑO YEARS DECIMATE BUTTERFLY COMMMUNITY IN A WEST HIMALAYAN FOREST

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ABSTRACT

The collapse of the butterfly community in Maheshkhan Reserve Forest, Uttarakhand following dry winters in 2009 and 2023 caused by El Niño is documented. 44% of the 95 species recorded in normal years were recorded in 2009 and 49% in 2023. More than 50% of butterfly species comprising the normal community were absent in both El Niño years. There were practically no butterflies on the wing in March and April, 2023 compared to hundreds of individuals belonging to 50+ species in normal years. In May and June, very few individuals were on the wing. All butterfly species using *Quercus leucotrichophora* as a larval hostplant were present in 2023, although only 57% were present in 2009.

INTRODUCTION

The emergence of butterflies from their pupae is triggered by certain environmental conditions such as day length, humidity and temperature. North and south of the tropics, the emergence of butterflies is restricted to particular seasons, with some being univoltine and others bi- or multi-voltine. Dry weather spells often cause the desiccation of larvae and pupae of Lepidoptera resulting in comparatively greatly reduced populations (Smetacek, 2011). Hailstorms, prolonged inclement weather, such as dry periods and untimely wet spells and forest fires are some of the other factors known to cause widespread damage to Lepidopteran communities.

The El Niño effect refers to the unusual warming of the eastern Pacific Ocean in the Southern Hemisphere. The results are widespread, affecting global climatic patterns. The association between El Niño and deficient winter rainfall or drought is statistically significant over the subdivisions west of longitude 80° East and north of 12° North (Mooley & Parthasarathy, 1983). In the western Himalaya, this causes the failure of winter rains and very humid summers. The effects of the prolonged dry spell during winter on insect populations have not been previously studied, mainly because El Niño events are unpredictable.

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A study on butterfly populations was conducted by the Forest Research Wing of Uttarakhand in collaboration with the Butterfly Research Centre in Bhimtal. The research team, consisting of Miss Ambica Agnihotri (Research Associate) and Mr. Peter Smetacek, conducted a comparative analysis of butterfly populations during El Niño years and normal years. The study indicated that, owing to various climatic irregularities, butterfly populations experience a significant decline during El Niño years. The findings were published in the October issue of Bionotes, Volume 25(3): 27-45, 2023.

Strengthening of Human Resources

Training on Cultivation Techniques of Orchid Species

A training program on the cultivation of orchid species was organized by the Research Wing of the Uttarakhand Forest Department in Siliguri, West Bengal, for villagers from Munsiyari, Ranikhet, and Gopeshwar. This program aims to empower villagers by enhancing livelihood opportunities and promoting sustainable practices.

Recent Initiative

Developing Pollinator Friendly and Aesthetic Hill Roads in Uttarakhand

The Research Wing of the Uttarakhand Forest Department is developing pollinator friendly and aesthetic roads in hilly regions of Uttarakhand. This approach involves the plantation of native flowering plants particularly flowering shrubs and trees that are well-suited to the local conditions. Initially, this strategy has shown promising results, demonstrating its effectiveness in enhancing the beauty of landscapes and supporting native biodiversity. The main aim of this approach is strategically aligning the roads with a pleasant colourful ambitious throughout the year and to create a picturesque landscape and also contributes significantly to ecological balance and biodiversity conservation.

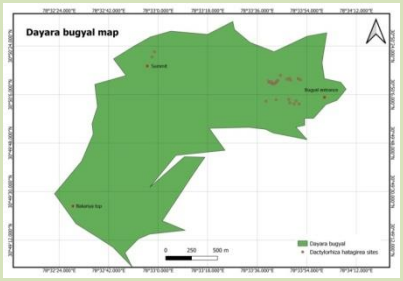
Short Study

Distribution of *Dactylorhiza hatagirea* in Dayara bugyal in Uttarkashi district, Western Himalaya: An observation

Dixit Kumar Pathak

Introduction: *Dactylorhiza hatagirea* is an important medicinal herb belonging to the Orchidaceae family; it is commonly known as the Himalayan marsh orchid (Bhatt et al., 2005). In Hindi *D. hatgirea* is known as Salam panja and Hatha jadi. It is one of the most important orchid species used in wide medicinal practices (Chauhan, 1990).

Methodology: An observation of the species



distribution was conducted during the field visits in June 2021, August 2021, and May 2022 was done. During the field visits GPS coordination of *D. hatagirea* has been noted in a field book. A total of 25 Coordinates were collected and data of was analyzed on Q GIS.

Result: Distribution of *D. hatagirea* in Dayara bugyal: The previous literature records had shown the presence of *D. hatagirea* in Dayara bugyal. Density of *D. hatagirea* was recorded about 0.23 ind/ m2 (Kuniyal et al., 2021). The present study shown that the D. hatagirea is found in patches in Dayara bugyal; distribution of *D. hatagirea* is restricted from entrance to the summit area. A total 35 different plant species have been identified which were common in Dayara Bugyal among these; the presence of *D. hatagirea* is recorded mostly with *Morina longifolia* and *Iris sp*. (Fig. 2)

Fig.2. The presence of *D. hatagirea* with *Morina longifolia* and *Iris sp.*

Diversity of Dayara Bugyal:

During the field visits 35 different plant species has been identified which were common in Dayara bugyal.

S.No.	Botanical name	Hindi name
1	*Aconogonon tortuosum*	-
2	*Allium humile*	-
3	*Anemone obtusiloba*	-
4	*Arnebia benthami*	Baal chhadi
5	*Bergenia stracheyi*	-
6	*Bistorta vivipara*	-
7	*Carex nubigena*	-
8	*Carex setigera*	-
9	*Carum carvi*	Kala jeera
10	*Corydalis govaniana*	-
11	*Dactylorhiza hatagirea*	Salam panja
12	*Danthonia cachemyriana*	-
13	*Euphorbia pilosa*	Dudhya
14	*Geranium wallichianum*	-
15	*Iris kemaonensis*	-
16	*Morina longifolia*	Bushlyad
17	*Nardostachys jatamansi*	Jatamansi
18	*Nomocharis oxypetala*	-
19	*Origanum vulgare*	-
20	*Podophyllum hexandrum*	Van kakdi
21	*Polygonatum verticillatum*	Mahameda
22	*Potentilla fulgens*	-
23	*Primula denticulata*	-
24	*Prunella vulgaris*	-
25	*Rhododendron campanulatum*	-
26	*Rhododendron lepidotum*	-
27	*Roscoea alpine*	-
28	*Rumex nepalensis*	-
29	*Saussurea roylei*	-
30	*Smilacina purpurea*	-
31	*Tanacetum dolichophyllum*	Dhoop
32	*Thermopsis barbata*	-
33	*Trifolium repens*	-
34	*Valeriana hardwickii*	-
35	*Viola biflora*	Vanafsa

Conclusion: The current study refines our understanding by highlighting the restricted distribution of *D. hatagirea* from the entrance to the summit area. The density of *D. hatagirea* was recorded at approximately 0.23 individuals per square meter, offering a quantitative measure of its occurrence in the studied area. The association of *D. hatagirea* with other plant species, particularly *Morina longifolia* and *Iris* sp., underscores the importance of studying ecological relationships for conservation and sustainable management of this orchid. As *D. hatagirea* holds significant medicinal value, its precise distribution information becomes crucial for conservation efforts and sustainable harvesting practices.

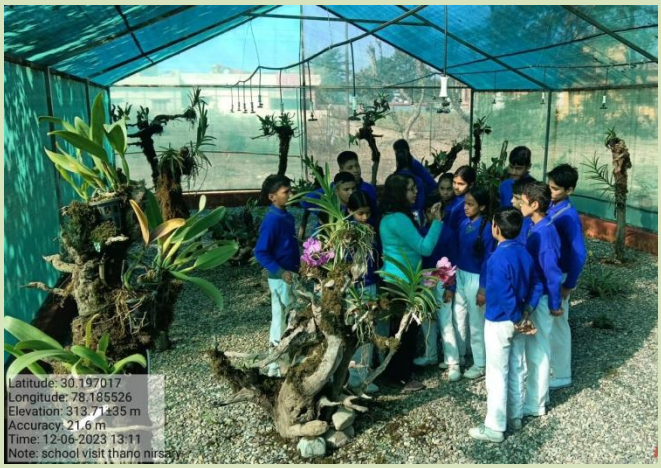
Educational Visits to Our Centers

Students from Saraswati Secondary School, Ranikhet visited our Healing canter and Open Air Fernery at Research Range Kalika.

Students from Pharmacy department of Amarpali Institute, Haldwani visited our Public Health Garden at Lalkuan research centre.

Childrens from S.K.M Senior Secondary School, Haldwani visited our biodiversity park on Christmas day.

Students from Maa Sharda Junior Highschool visited our Jollygrant nursery at Research Range Dehradun.



Students from Govt. Inter college, Lumti visited our Orchid conservation area at Lumti.

Students from Munsiyari Public School visited our Lichen Garden at Munsiyari.

Butterflies Recorded during Field Visits