



# Silva News

Newsletter of Forest Research Wing of Forest Department, Uttarakhand (Vol I, Year 2022)

## Biodiversity Gallery set-up at Haldwani

State's first Biodiversity gallery was inaugurated inside the premises of Uttarakhand Forestry Research Institute Haldwani with an aim to showcase 101 iconic floral and faunal species native to the state, including largest lily of the world (Giant Himalayan lily), largest rhododendron species in the world (*Rhododendron arboreum*), largest moth in the world (Atlas moth), largest marten in the world (Yellow-throated marten), largest honeybee in the world (Giant Himalayan honey bee), and other interesting species peculiar to the state. Padmashri Shri Anup Shah inaugurated and dedicated the Biodiversity Gallery to the public on 19<sup>th</sup> December 2021.



## Shivalik Arboretum Inaugurated at Jeolikote

Noted environmental historian Dr Ajay Rawat inaugurated a new arboretum at Jeolikote, Nainital on 1<sup>st</sup> February 2021. Spread over 3 acres of land, this arboretum has over 200 species of trees along with shrubs, herbs and climbers of the Shivalik region of Uttarakhand. Largest and first of its kind, it aims to spread knowledge about trees of Shivalik region to locals as well as tourists visiting Nainital.

## India's first Cryptogam Garden

Cryptogams are species which hidden reproductive structures. Algae, lichens, fungi, bryophytes (mosses) and pteridophytes (ferns) are five groups of plants which are cryptogams. Owing to their ecological and environmental importance, India's first cryptogam garden was inaugurated at Devvan near Chakrata in Dehradun.



पृथ्वी पर बिना बीज के ही संवर्धित होने वाली प्राचीनतम वनस्पति प्रजातियों में से एक क्रिप्टोगेमिक प्रजाति के बारे में लोगों को जागरूक करने के उद्देश्य से देववन, देहरादून में देश का पहला क्रिप्टोगेमिक उद्यान स्थापित

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## Uttarakhand's first Orchid Conservation Centre opened in Chamoli



State's first conservation centre dedicated to Orchids in Mandal (Chamoli District) was opened to public on 30<sup>th</sup> July 2021. The centre was inaugurated by Dr SK Singh, Joint Director, BSI (Dehradun). A book on Orchids of Chamoli authored by Sh. Harish Negi and Sh. Manoj Singh, JRF was also unveiled.

The Mandal area is known to have one of the highest diversity of orchids in western Himalaya. A total 38 species of orchids are being conserved at the centre.



## India's first Moss Garden opened

In another first, Forest Research Wing of Uttarakhand opened to public first of its kind, a Garden dedicated to Bryophytes (a division of plants consisting of Mosses, Liverworts and Hornworts) at Khurpatal, Nainital. Environmentalist and water conservationist Sh. Rajendra Singh Rana, also known as the 'waterman of India' inaugurated the garden.



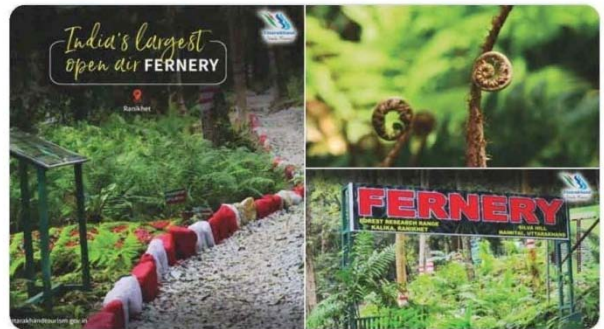
## India's Largest Open-air Fernery

India's largest open-air and northern India's largest fernery was inaugurated on 14<sup>th</sup> September 2021 by Dr. Pitamber Punetha. More than 100 species of local, endemic and ferns from different parts of the country are being conserved at this fernery.



Uttarakhand Tourism  
@UTDBofficial

To conserve various fern species and create awareness about its ecological role among general public, India's largest open air Fernery has been developed in complete natural surroundings in Ranikhet. Pics by Office of Chief Conservator of Forest (Research)



## India's first Lichen Park



Adding another feather to its hat, the research wing inaugurated India's first Lichen park in picturesque hill station Munsyari in Pithoragarh District. Spread over 1.5 acres, the park has over 80 species of lichens. Lichenologist Dr DK Upreti inaugurated the park which is aimed to create awareness about lichens and Himalayan ecology.



## Aromatic Garden Lalkuan

India's largest Aromatic Garden at Lalkuan, Nainital District was inaugurated by Smt. Veena Rao, Aromatic Plants Consultant from Maharashtra on 24<sup>th</sup> October 2021. About 140 species of aromatic plants are conserved in an area spread over 1 hectare.



## Ramayan Vatika

Valmiki's Ramayana highlights 182 different species of plants and 6 different types of forests of the subcontinent. This vatika aims to showcase our ethnobotanical heritage and create awareness.



## Bharat Vatika

This thematic vatika at Haldwani was inaugurated on 26<sup>th</sup> June 2021 by girl students of Government Girls Inter College, Dhaulakhera, Haldwani. This vatika has state trees of all the states and union territories of the Union of India.

## Pollinator Park

To attract different pollinator species and to highlight their importance, pollinator park was inaugurated at Utrakhand Forestry Research Institute campus Haldwani by renowned expert on Lepidopterans, Sh. Peter Smetacek of Butterfly Research Centre, Bhimtal on 29<sup>th</sup> December 2020.



## Forest Healing Center

Based on Indian and Japanese traditions which recognize the healing properties of forests, Forest Healing Centre was inaugurated on 7<sup>th</sup> March 2021 by Sh Joginder Singh Bisht, noted environmentalist from Ranikhet. Spread over 15 acres of pine forests representative of middle Himalayan region, this is first of its kind in India.



## Highest Herbal Garden

India's Highest Herbal Garden at Mana near Badrinath, Chamoli district was inaugurated by Sh Pitambar Maulfa, sarpanch and Sh Sanjeev Chaturvedi, IFS (CCF/CF Research, Haldwani) on 21<sup>st</sup> August 2021. Situated at an altitude of 11,000 feet above mean sea level, this garden boasts of high altitude Himalayan rare and endemic species of high medicinal value, including the Ashtavarga group plants, species related to Lord Badrinath and Brahmakamal group of species.



## Publications in Journals

The research assistants and field staff of Research Wing have continuously endeavored to observe new and interesting information on flora and fauna. Some of their findings have been published in reputed national and international scientific publication. This page highlights some snippets of our work.

### **Liparis pygmaea from Western Himalaya:**



*Liparis pygmaea* King & Pantling, a rare orchid, has been reported for the first time (gap of 124 year) in the Western Himalaya Uttarakhand. Spotted in the month of June 2020, by Manoj Singh & R.O Harish Negi from

Saptakund in Chamoli district at an altitude of 3800m. Paper was published in "RICHARDIANA" volume 4, ISSN 2262-9017, 30/07/2020.

### **Cephalanthera erecta var. ob lanceolata from India :**

*Cephalanthera erecta* var. *ob lanceolata* N.Pearce & P.J. Cribb a Vulnerable orchid, has been found for the first time in the India. Spotted in the month of May 2021, by Manoj Singh & R.O Harish Negi from Mandal



Valley in Chamoli district at an altitude of 1870m. Paper was published in "Nelumbo " volume 63(1), (20-24)2021.

### **Recent collection of Calanthe alpina from Garhwal Himalaya :**

*Calanthe alpina* Hook.f. ex Lindl. a rare and very potential for commercial utilization orchid was recent collected from Kanchulakharak at about 2600m. Spotted by Manoj Singh & R.O Harish Negi in the month of June 2021. Paper was published in ENVIS NEWSLETTER Vol.26(2),2021 p.g. 4-5.



### **First Record of King Crow Butterfly in Nainital**

Its first sighting was reported in Nainital By Km Ambica Agnihotri, Research Assistant November 2021 at Bhujiyaghat Nursery. This record also marks its western most presence. Usually it occurs in two forms brown and blue in Northeast; here its brown form was recorded. Published in Binotes.

### **Sighting of Papilioalcmenor Redbreast butterfly in Uttarakhand after 110 years**

*Papilioalcmenor* found in Himalaya, Indo China and Hainan. Hannyngton (1910) recorded the butterfly in Kumaon in Uttarakhand. After that, a male was photographed in year 2020 in July in Mukteshwar, in August again a male was photographed in Betalghat, village Bhatraunj Khan. In September research wing's Junior research fellow or our wing collected both male and female specimen from Bhowali. Three males were recorded like this, which were all different forms. So this confirms various forms of the butterfly in the state which was observed after a period of 110 years. Published in Bionotes.

## Strengthening of Human Resources

Uttarakhand Forestry Research Institute with the help from other national and state level institutions, universities and experts, continuously upgrades the capacities of its research fellows and field staff to meet continuously evolving challenges and take up new and wider opportunities. Here we briefly present some of the training programs and workshops undertaken.

### Training and demonstration programme on Ashtavarga Group of Medicinal Plants

This training for field staff and research fellows was conducted by the Himalayan Forest Research Institute, Conifer Campus, Panthaghathi, Shimla from 9<sup>th</sup> to 13<sup>th</sup> September 2020.



### Training on Climate change, Carbon Sequestration, Long-term ecological Monitoring and Species Migration

This demand based hands-on training for field staff and research fellows was conducted by the G.B. Pant National Institute of Himalayan Environment (GBPNIHE), Kosi-Katarmal, Almora on 26-27 April 2022.



### A Field-based Training on Lichens in Forestry

Indian Lichenological Society and CSIR-NBRI, Lucknow in association with Uttarakhand Forestry Research Institute conducted this field-based training for field staff and research fellows of Research Wing, UKFD from 3<sup>rd</sup> -6<sup>th</sup> May 2022.



### Training programme on Bird Identification and Research

This training for research fellows was conducted by the Wildlife Institute of India, Dehradun from 14<sup>th</sup> to 16<sup>th</sup> January 2021 in Dehradun.



### Training Programme on Forest Seeds

The Forest Research Institute (FRI), Dehradun conducted a training on different aspects of Forest Seeds for field staff of seed and statistical ranges from 9<sup>th</sup> to 12<sup>th</sup> May 2021.

### Training on Cultivation Techniques of Orchid Species

This training for field staff, research fellows and local people from orchid rich areas of Uttarakhand was conducted at Kalimpong, WB on 22-23 March 2022.

## मण्डल घाटी में आर्किड प्रजातियों का स्वस्थाने (In-situ) संरक्षण

हरीष नेगी वन क्षेत्राधिकारी  
मनोज सिंह शोध सहायक  
वन अनुसंधान रेंज गोपेष्वर

उत्तराखण्ड राज्य अपनी नैसर्गिक सुन्दरता के लिए विष्व विख्यात है। आर्किड प्रजाति की उपस्थिति यहाँ की जैवविविधता को और समृद्ध करती आर्किड समूह समशीतोष्ण वनों से लेकर बुगयाली क्षेत्रों तक पाये जाते हैं। उत्तराखण्ड राज्य में आर्किड की 238 प्रजातियां पाई जाती हैं। मण्डल घाटी (चमोली) व गोरी घाटी (पिथौरागढ़) उत्तराखण्ड में आर्किड प्रजातियों के लिए प्रसिद्ध है। मण्डल घाटी में आर्किड की 67 प्रजातियां विद्यमान हैं जिनमें से 23 अधिपादप तथा 44 स्थलीय हैं जो कि उत्तराखण्ड में पाई जाने वाली प्रजातियों का 28 प्रतिशत है।

वनों के विघटन, अत्यधिक दोहन, अध्ययन व व्यापार हेतु आर्किड प्रजातियों का एकत्रीकरण, चारे व जलौनी लकड़ी हेतु पोषक (होस्ट) पेड़ों का कटान, प्राकृतिक आपदाओं एवं जलवायु परिवर्तन के कारण आर्किडों का ह्रास हो रहा है। आर्किडों के संरक्षण की आवश्यकता को महसूस करते हुए वन अनुसंधान शाखा द्वारा वन अनुसंधान रेंज गोपेष्वर के अन्तर्गत मण्डल घाटी में खल्ला वन पंचायत में आर्किडों के स्वस्थाने संरक्षण हेतु एक आर्किड संरक्षण स्थल की स्थापना की गई है।

**मण्डल घाटी** :- जनपद चमोली के मध्य विद्यमान यह घाटी समुद्र तल से 1400 मीटर से 3000 मीटर तक फैली है तथा शीतोष्ण, सम शीतोष्ण व बुग्याल क्षेत्रों का प्रतिनिधित्व करती है। अपनी विषेष भौगोलिक परिस्थितियों के कारण यह घाटी गढवाल हिमालय के चेरापूँजी के नाम से जानी जाती है। यहाँ के घने आर्द्र वन समृद्ध जैव विविधता को समाये हुए है। मानसून समय में यह क्षेत्र अच्छी वर्षा प्राप्त करता है तथा शीतकाल में अच्छा हिमपात होने से आर्द्रता बने रहने के कारण आर्किड प्रजातियों के लिए यह क्षेत्र सर्वथा उपयुक्त है। चैम्पियन व सेठ के वर्गीकरण के अनुसार इस क्षेत्र में उपोष्ण चीड वन, शीतोष्ण बांज वन, मैपल वन, सब एल्पाइन बांज वन, फर वन पाये जाते हैं। पारिस्थितिक परिस्थितियां इस घाटी को जैवविविधता में समृद्ध बनाती हैं। इसलिए इस घाटी (मण्डल – तुंगनाथ– कुण्ड) को राज्य में आर्किड हॉट स्पॉट का दर्जा प्राप्त है।

**आर्किड** :- अपने खूबसूरत फूलों की विविधता, आकृति, आकार, एवं संरचना व लम्बे समय तक खिले रहने की क्षमता इन्हें विषेष बनाती है। आर्किड पुष्पीय पौधों का सबसे बड़ा परिवार है जो आर्किडेसी कुल से सम्बन्धित है। आर्किड शब्द की उत्पत्ति ग्रीक भाषा के आर्किस शब्द से हुई है, जिसका अर्थ है

अण्डकोष। बल्बनुमा कन्दिल जड़ें होने के कारण यह नाम दिया गया है। आर्किडों की उत्पत्ति आज से 76 –84 मिलियन वर्ष पूर्व मीसोजोइक युग के क्रिटेषियस काल में हुई। विष्व भर में आर्किड की 27000 प्रजातियां हैं जिसमें 10000 मानव निर्मित संकर प्रजातियां हैं। आर्किडों को उनके विभिन्न स्वभावों और फूलों की संरचना के आधार पर जैसे माइकोहेटेरोटापिक, (मृत और क्षय पदार्थों पर), स्थलीय, व एपिफाइटिक समूहों में वर्गीकृत किया गया है। स्थलीय आर्किडों में कन्दिल जड़ें होती हैं जबकि एपिफाइटिक आर्किडों में जड़ें लम्बी धागेनुमा (वेलामेन जड़ें) होती हैं। इनमें एकबीजपत्री पौधों की तरह समानान्तर षिरा विन्यास वाली पत्तियां होती हैं। आर्किड पुष्पों में तीन वाह्यदल और तीन पंखुडियां होती हैं। मध्य पंखुडियां आपस में चिपक जाती हैं जिसे लिप या लेबेलम कहते हैं। पुमंग और जायांग आपस में चिपक कर गायनोस्टेमियम बनाते हैं, जो आर्किड कुल का विषेष लक्षण है।

**आर्किडों का स्वस्थाने (in-situ) संरक्षण** :- आर्किड संरक्षण हेतु अनुसंधान परामर्ष समिति द्वारा वर्ष 2019–20 में अनुमोदन के उपरान्त मण्डल घाटी के खल्ला वन पंचायत के 1 हैक्ट0 क्षेत्र में आर्किड संरक्षण स्थल की स्थापना की गई है। अभी तक 39 आर्किड प्रजातियों का संरक्षण किया गया है। इस पार्क के साथ साथ मण्डल पौधालय में भी 75 से अधिक प्रजातियों को संरक्षित किया गया है। क्षेत्र में पायी जाने वाली अन्य स्थानीय आर्किड प्रजातियों को भी संरक्षित करने का सतत प्रयास किया जा रहा है।

**आर्किडों का आर्थिक महत्व** :- आर्किड आर्थिक दृष्टि से भी महत्वपूर्ण हैं। आर्किड की चार प्रजातियां अष्टवर्ग औषधियों में सम्मिलित हैं जिनका उपयोग च्यवनप्रास बनाने में किया जाता है। सालम पंजा आर्किड प्रजाति का औषधि के रूप में उपयोग किया जाता है। इसके अतिरिक्त आर्किडों का उपयोग मसाले, रंग, खाद्य व पेय पदार्थों में किया जाता है। भारत के पूर्वोत्तरी राज्यों में फेलेनोप्सिस, सिम्बाइडियम, जाइगोपेटेलम आदि प्रजातियों का उपयोग (कट फ्लावर) व्यावसायिक रूप में किया जाता है।

भारत वर्ष के सिक्किम, अरुणाचल प्रदेश जैसे उत्तरपूर्वी राज्यों में आर्किड संरक्षण एवं व्यवसायीकरण में उल्लेखनीय कार्य किया गया है। उत्तराखण्ड राज्य जिसमें पर्यटन महत्वपूर्ण स्थान रखता है, स्थानीय लोगों को आर्किड संरक्षण एवं संवर्धन में जोड़कर पर्यटन को भी बढ़ावा दिया जा सकता है। वन अनुसंधान शाखा द्वारा आर्किड संरक्षण के क्षेत्र में किया गया प्रयास न केवल जैवविविधता को समृद्ध करने में बल्कि स्थानीय लोगों के आजीविका संवर्धन में भी सहायक सिद्ध होगा।

## RECENT DEVELOPMENTS

Research Wing, UKFD signed a **Memorandum of Understanding** with **Jawaharlal Nehru Tropical Botanical Garden and Research Institute (JNTBGRI)**, Thiruvananthapuram on 26<sup>th</sup> March 2022 to facilitate and expedite exchange of plant resources, visits of faculty, staff and students, and provide training programs.

**Report on Species Conserved Released on 22<sup>nd</sup> May 2022 on the occasion of International Day for Biological Diversity.** Research Wing has conserved total **1943 species** through in situ and ex situ measures. Out of these, 1847 species have been identified and 96 are yet to be identified. 12 species among these are critically endangered, 23 species are endangered; 12 species are vulnerable and 14 are near threatened as per IUCN categorization; while 1 species is endangered, 3 species are vulnerable, and 5 species are rare as per ENVIS; and 5 are critically endangered, 7 are endangered, 5 are vulnerable as per BSI; 13 species are threatened as per Uttarakhand Biodiversity Board. 62 species are endemic, of which 35 are near endemic, 7 species endemic to Uttarakhand, and 14 endemic to Indian Himalayan Region and 10 species are endemic to India.



Five Mahindra **Bolero Camper** SUVs were provided by **ONGC India** under its Corporate Social Responsibility commitments to Research Wing on 31<sup>st</sup> December 2021. This generous shall further help the research wing to strengthen its conservation efforts.



**King Cobra mating** was reported by Sh. Jyoti Prakash Joshi, research assistant from Ramgarh, Nainital in May 2021. This rare sight was captured after months of observations in the field.



Research Wing, UKFD signed a **Memorandum of Understanding** with **Salim Ali Centre for Ornithology and Natural History**, Coimbatore on 14<sup>th</sup> February 2022 to facilitate productive, long-term collaborative work and to jointly promote scientific biodiversity research in Uttarakhand.

**Website and logo unveiled:** The [website](#) and logo of Uttarakhand Forestry Research Institute were unveiled by Shri Rajiv Bhartari, IFS (PCCF



/Chairman, Uttarakhand Biodiversity Board) on 21<sup>st</sup> March 2022 to mark 21<sup>st</sup> International Day of Forests at Gaja Research Range Office, Jeolikote.

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