



**Uttarakhand Forest  
Department**



**उत्तराखण्ड वानिकी अनुसंधान संस्थान  
Uttarakhand Forest Research Institute**

# Silva News

*Newsletter of Forest Research Wing of Forest  
Department, Uttarakhand (Vol VII, Year 2024)*

## Uttarakhand's First Bird Gallery

Research wing of Uttarakhand Forest Department has established Uttarakhand's first bird gallery at Nature Education center, Jolly Grant, Dehradun. This bird gallery is divided into ten distinctive sections, each representing a different category of birds, such as- Ground Foraging Birds, Raptors, Woodpeckers, Water Birds, Pheasants, Migratory Birds, Arboreal Birds, Bulbuls, Kingfishers and vultures. To enhance the immersive experience, the gallery has a sophisticated sound system that plays the chirping sounds of numerous birds, making the environment more realistic and active. This gallery also showcases a variety of abandoned bird nests and feathers. Bird gallery is an attempt to highlight Uttarakhand's avian diversity and promote a greater appreciation for these unique species. By educating visitors about the numerous bird species and their functions in the ecosystem, the gallery would facilitate conservation of these avian species and create awareness about these species.



## 14<sup>th</sup> RAC (Research Advisory Committee) Meeting, Dehradun:

The 14th Research Advisory Committee (RAC) meeting was held on 27th August 2024 in Dehradun, under the chairmanship of Dr. Dhananjai Mohan, PCCF (HoFF). The meeting was attended by key members of the committee, including representatives from various research institutions, forestry experts, and officials from the Forest Department. The focus of the meeting was to review the progress of research projects previously approved by the RAC and discuss new proposals for future research and development initiatives. During the meeting, Shri Sanjiv Chaturvedi, Chief Conservator of Forests, provided a comprehensive update on the progress of the ongoing projects, which had been approved in earlier RAC meetings. His presentation highlighted significant achievements, challenges faced, and the overall impact of the projects on forest conservation and biodiversity preservation. All committee members have appreciated the Research Wing for the research work conducted over the past years. On this occasion, Dr. Dhananjai Mohan, also launched several significant publications by the Research Wing including ARR 2023-24, 4 newly published book, plant inventory and two volumes of nursery technique.



## Observations From the Field

1. A rare and lesser-known species, *Petasites tricholobus*, was recorded from Go Village in the Darma Valley, with only four individuals reported from the locality. This species is associated with *Pinus wallichiana*. Interestingly, Uniyal (2007) mentioned it in a checklist without specifying the locality or herbarium, and no specimens were deposited in FRI or BSI. Furthermore, J.F. Duthie's Catalogue of the Plants of Kumaon (1918) does not mention this species.



2. The rare herb species *Ranunculus lingua* has been reported for the first time in Uttarakhand. Previously, this species was only recorded from two locations in India: Jammu & Kashmir (1831 and 1958) and Himachal Pradesh (1938). After a gap of 65 years, a specimen has now been collected from Martoli Village in Pithoragarh District.

3. An endangered species of *Ceropegia hookeri* has been recorded from Bedani Valley. Only three individuals were reported. Previously, this species was only reported in the Sikkim Himalayas. Recently, it was collected by Dr.



K.K. Joshi in 2022 from the Munsyari region of Kumaon. Our collection marks the third new population site for this species in the country.



4. Site enclosure work has been completed for a **King Cobra** (*Ophiophagus hannah*) nest at Lewsal, in the Ramgarh Block. The nest is primarily composed of Banj oak leaves (*Quercus leucotrichophora*) and Chir pine needles (*Pinus roxburghii*). Interestingly, while the nest is well-constructed, the female King Cobra, typically known to guard her nest, was not observed in this instance. However, a shed snakeskin was found over the nest, possibly indicating her recent presence. This year, two nests have been recorded, both from the Ramgarh Block.



5. A rare orchid species *Epipectis royale* has been reported for the first time in Chamoli District. Approximately 150 individuals were recorded in Malari region. This species had been recorded in only two localities in Uttarakhand: Budhhi, Pithoragarh district and in Uttarkashi.



6. *Lysurus gardneri*, a rare fungus, was recently recorded for the first time in the Tangsa region of Chamoli District in Uttarakhand. This discovery is notable because, until now, there had only been photographic evidence of *Lysurus gardneri* worldwide. Now, Research Wing has both physical specimens and photographic evidence. In Uttarakhand, it was recorded growing under pine forests in the month of July.







## Publications in Journals

### Note on the Recent Collection of Orchid *Calanthe Davidii* from Kumaun Western Himalaya

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**RESEARCH NOTES**

**Note on the Recent Collection of Orchid *Calanthe Davidii* from Kumaun Western Himalaya**

The genus *Calanthe* was established by R.Br. 1821 (Clayton, D. and P.J. Cribb 2013) and well known, very attractive genus in Orchidaceae family, in North Western Himalaya, Devo and Nathani (1998) revised and updated Duthie's *Crotels* of North-Western Himalaya based on recent collections and provided an illustrated account of 239 orchid species under 76 genera. They have included *Calanthe davidii* on the basis of Mackinnon's collection. Recently, Rawat et al. (2023) mentioned its occurrence from Bering W.S. Mussoorie on the basis of colouring photographs provided by Dr. Navinraj Singh. The interesting note is that the authentic collection of *Calanthe davidii* was only collected from two localities of Uttarakhand: near Mussoorie (Mackinnon, 1898, 21742 and H.B. Nathani (201) and near Maya Basti, Champawat (S.S. Karki 2002, 98457 (8543)). It was recently reported from Kasol, Solu, Himachal Pradesh, Koserka, Jaemu and Kashmir Western Himalaya and one more collection from India without mention locality most probably in Western Himalaya by Falconer. (1854K02008103077), Sharma et al. (2019) and Murthy et al. (2024). Due to its limited collection from N.W. Himalaya it is very important to know geographical range of this species for conservation. During a routine survey in June 2023 in Pithoragarh district of Uttarakhand, authors came across a small population of an unknown orchid. After detailed morphological studies, collection, herbarium and going through a monographic study on the genus *Calanthe* by Clayton and Cribb (2013), along with other regional flora and research papers, Duthie (1906), Devo and Nathani (1998), The Genus *Calanthe* F. J. W. Cribb (2013), J. Murthy (2019), Murthy et al. (2024), J. S. P. Kumar, G. S. Rawat and V. S. Prasad (2020), J. S. P. Kumar, G. S. Rawat and V. S. Prasad (2022), J. S. P. Kumar, G. S. Rawat and V. S. Prasad (2023) and P. Choudhary (2023). This species has been identified as *Calanthe davidii* in Kumaun in North-Western Himalaya. Description and photo plates are provided here to facilitate its future identification.

*Calanthe davidii* Franch. Nouv. Arch. Mus. Hist. Nat. ser. 2, 10, 85 (1867, publ. 1868). Type: China



The Forest Research Wing team has recorded an extremely rare terrestrial orchid species, *Calanthe davidii*, in Gini Band at Munsyari. In Western Himalaya, this orchid species had previously only been reported in two localities in Uttarakhand; near Mussoorie (Mackinnon 1898) and near Maya Basti, Champawat (S.S. Karki 2002). Since then, it has not been collected from any region in Uttarakhand. The team consists of Research Associates Manoj Singh and Jyoti Prakash Joshi. The finding has been published in the prestigious Journal 'The Indian Forester' volume 150 (7): 714-715, 2024.

JOURNAL OF HERBS, SPICES & MEDICINAL PLANTS  
https://doi.org/10.1007/s12094-024-23989-5

Taylor & Francis  
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**Distribution Pattern, Ecological Status and Ethnomedicinal Uses of Medicinal Plants Along an Altitudinal Gradient Among Jaunsar Tribes of Western Himalaya**

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**ABSTRACT**  
The medicinal plant usage by Jaunsari tribe in Chakrata forest of Dehradun district, India were documented. The study area was divided into five elevation gradients. The data was collected through interviews with local communities to document medicinal plants and their uses, while simultaneously assessing their ecological characteristics. A total of 105 plant species from 47 families were documented, with treatments identified for 43 ailments types. Thirteen different plant parts were recorded for their medicinal properties. Asteraceae had highest number of recorded plants. Herbaceous plants constituted the majority, accounting for 42%, followed by shrubs at 29%. The richness of medicinal trees and shrubs declined with increasing elevation while medicinal herb richness displayed positive correlation with elevation. The study identified three IUCN red-listed plant species in the study area.

**ARTICLE HISTORY**  
Received 11 March 2024

**KEYWORDS**  
Ecological indices; forest resource; elevation zone

The ethnomedicinal study and ecological status of plants in the Chakrata forest was conducted in

2022. The research took place across five different elevation gradients in the Chakrata forests. Medicinal plants were documented and assessed with ecological insights, including density and frequency, through designated quadrats along the elevation gradient. In total, 105 plant species from 47 families and 90 genera were recorded. This study was conducted by Research Associate Dixit Pathak and faculty members of Botany Department of D.S.B. Campus, Nainital. The finding has been published in "Journal of Herbs, Spices & Medicinal Plants" (2024) 1-25.

Vegetos  
https://doi.org/10.1007/s12535-024-00865-9

**RESEARCH ARTICLES**

**Seed germination and early seedling growth behavior of critically endangered *Catamixis baccharoides* to variation in soil type**

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**Abstract**  
*Catamixis baccharoides* Thoms. is a critically endangered chrysophytic shrub endemic to northern India, particularly Haryana, Himachal Pradesh, Uttarakhand, and Uttar Pradesh, as well as in western Nepal. The germination and early seedling growth of *C. baccharoides* were studied in response to three different soil types: sandy soil, normal field soil, and mixed soil (1:1 of normal field soil and compost). Germination properties of seeds were examined for percentage germination, mean germination time, seed vigour index, peak value, and seed mortality, while growth parameters were determined after 10 weeks of germination for shoot length, root length, total plant length, root/shoot ratio, and leaf numbers. Seeds sown in sandy soil recorded the maximum (47.92%) mean germination rate, while least percentage germination was recorded for the mixed soil (8.83%). The sandy soil had the highest seed vigour index (447.54) and peak value (2.32), while mixed soil had the lowest values (32.46 and 0.29, respectively). Seed mortality index was highest in mixed soil (327.54), and lowest (181.16) in sandy soil. This study also revealed that seeds germinated in sandy soil had the lengthiest mean root length (4.37 cm), shoot length (5.00 cm), total plant height (9.37 cm), and maximum leaf numbers (6.67). Normal field soil had highest root/shoot ratio (1.05), succeeded by sandy soil (0.92) and mixed soil (0.89). Thus sandy soil assured optimal seed germination, establishment and growth in *C. baccharoides* offering an ex-situ conservation strategy for this monotypic shrub.

**Keywords** *Catamixis baccharoides* · Germination · Seedling growth · Soil type

**Introduction**  
In the present scenario of continuously changing climatic conditions and increasing anthropogenic disturbances, a large number of species are facing high degree of threat (Bisht et al. 2022; Tomar and Kumar 2020). In this context, endemic species confined to any particular region are also experiencing elevated risks of extinction due to habitat destructions and altered environmental conditions (Srivastava and Puskal 2015). *Catamixis baccharoides* Thoms. commonly known as 'Vishpata' is a monotypic genus of family Asteraceae, subfamily Pertysiaceae, and tribe Pertyae (Srivastava and Puskal 2015). This endemic genus is distributed in a narrow range (650–1000 m asl) in India from Shivalk belt of Garhwal Himalaya to outer western Himalaya with distinct records from western Nepal (Kitamura and Gould 1982) and Haryana (Kumar 2001). *C. baccharoides* is habitat specific and restricted to dry, exposed, sandy cliffs and calcareous limestone-rich sloppy/rocky surfaces along the roadsides (Kanjal 1928). Distribution of the species was quite common in most of its reported sites but researchers noticed a consistent population drop in the second half of the twentieth century. Based on prior field surveys, conducted during 1997–2001, Pandir (2015) reported 60 individuals of *C. baccharoides* in Haridwar Siwalik area, 17 individuals from Mohand pass, Chandra et al. (2017) recorded only 15 individuals from the Soken/Berhulwara

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*Catamixis baccharoides*, a critically endangered plant belonging to the Asteraceae family. Based on field surveys conducted between 1997 and 2001, Pandir (2015) reported 60 individuals of *C. baccharoides* in the Haridwar Siwalik area and 17 individuals from the Mohand Pass. Due to the significant threat to this species, the Research Wing undertook ex-situ conservation efforts. After successful germination, the plants were conserved at three different sites of Research Range, Dehradun. The plants were provided habitats similar to their natural environment. Following the success of this ex situ conservation effort. The research team consist of Dixit Pathak and other field staff. This finding is published in reputed Journal 'Vegetos'.

## Strengthening of Human Resources

### Training on Quality Seed Production and Nursery Technology



On 14th June 2024, the Research Wing has organized a specialized training program on Quality Seed Production and Nursery Technology for its field staff. This training aimed to enhance the knowledge and skills of staff involved in seed collection, nursery management, and overall forest regeneration activities. The training was conducted by experienced faculty members from the Silviculture and Forest Management Division of the Forest Research Institute (FRI), Dehradun.

### Training on Data Collection Procedures of Preservation Plots



The Research Wing of the Uttarakhand Forest Department has established 42 preservation plots for long-term ecological monitoring across

different forest types in Uttarakhand. Of these, 30 plots are located in the hill ranges, while 12 are situated in the Terai region. To support the collection of data from these preservation plots, a two-day training program was organized by the Research Wing on the 4th and 5th of September. The training aimed to equip field personnel with the necessary skills for accurate data collection. Shri Ajay Maheshwari, Senior Statistical Officer at the Working Plan Office, led the sessions. Under his guidance, participants gained a thorough understanding of the methodologies for data collection and analysis, further strengthening the department's efforts in ecological monitoring.

### 'Be part of the Plan'

### International Day for Biological Diversity (IDB) 2024



The Research Wing of the Uttarakhand Forest Department celebrated the International Day of Biological Diversity on 22<sup>nd</sup> May 2024 with the participation of girl students from G.G.I.C. Haldwani. The event aimed to raise awareness about the importance of biodiversity conservation and inspire young minds to engage in environmental stewardship. Through interactive sessions, educational activities, and discussions on local biodiversity, the program emphasized the role of future generations in preserving ecological balance.



## Short Study

### Diversity and Status of Migratory and Resident Birds in Agricultural Wetland Dewar Taal, Gopeshwar, Uttarakhand, India

Manoj Singh & Jyoti Parkash Joshi

**Introduction:** Wetlands, both natural and artificial, support a high diversity of resident and migrant water birds (Cowardin et al. 1979). Water birds act as an important indicator of the health of wetland ecosystems as they form important links in the food web and nutrients cycles at the global level. Wetlands play an important role in providing suitable habitats for many avian species such as goose and ducks (Kumar et al., 2005). In Uttarakhand, a single wetland site and approximately 14 important birding areas (IBAs) have been identified across different regions (Islam and Rahmani, 2004). About 710 avian species have been reported from Uttarakhand (Mohan and Sondhi 2017). Out of these 591 migratory and resident birds have been reported in Chamoli district (Avibase, the world bird database, 2024). Dewar Taal is a agricultural wetland situated on Gingran road near the Devar-Khadora village in Chamoli District. Seasonally, local people cultivate rice and other grass species for their cattle in this area. The wetland have diverse aquatic plants species such as *Nymphoides hydrophylla* (Lour.) Kuntze *Potamogeton perfoliatus* L., *P. natans* L., *Ranunculus* sp., *Rotala rotundifolia* (Buch.-Ham. ex Roxb.) Koehne, *Acorus calamus* L., *Marsilea minuta* L. (Fern), *Ricciocarpus natans* (L.) Corda (Bryophytes) and *Utricularia aurea* Lour. (insectivorous) plants. This diversity creates a wide habitat and a source of food for avian species. Go through research paper and other litterateur available; Subrat Sharma et al, 2020, reveals that Devar Taal has not been previously studied and is not mentioned in any literature. Additionally, eBird data supports the fact that the area has never been studied before. Despite its ecological significance and keeping in view the importance of agricultural wetland water birds in

the ecosystem. The present study was an attempt to understand diversity of migratory and resident water bird in agricultural wetlands of Dewar taal, Uttarakhand, India.

**Methodology:** The present study was conducted in the Dewar Taal, Chamoli district of Uttarakhand from October to February, of 2023-2024. The Dewar Taal is situated (30°25'26.96" N, 078°20'37.87" E; 1594 m asl) between Gopeshwar town to Ghingran village and across 8.00 hectare area cover in wetland. Observations were made weekly basis during 8.00 am to 10.00 am at morning and 4.00 to 5.00 pm at evening, with the help of field binoculars (8x40), and Nikon D5600 camera was used for the observation, counting of the individuals, and photography. Identification of species was carried out with the help of a field guide and book of Birds of the Indian Subcontinent (Grimmett et al. 2016). All the sightings are based on direct observations. The information also added in eBirds application.

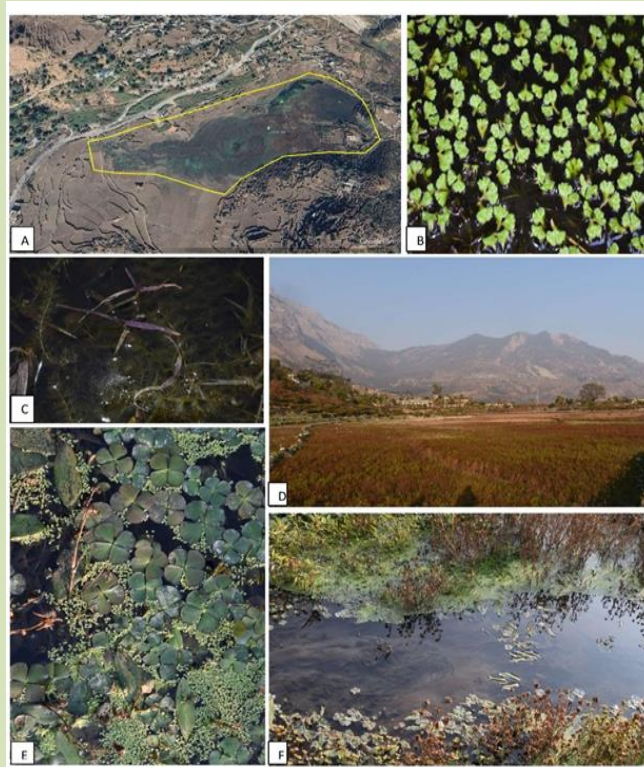


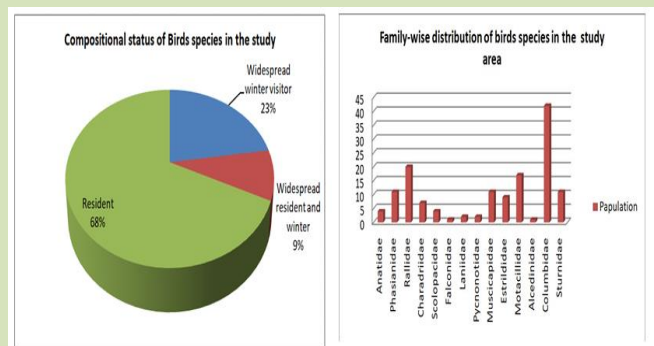
Fig. 1; A&D; view of study area, B; *Ricciocarpus natans* (L.), C; *Utricularia aurea* Lour., E; *Marsilea minuta* L. and F; close view of study area with population of *P. natans* L.



Fig. 2; A; Mallard (*Anas platyrhynchos*), B; Common Kestrel (*Falco tinnunculus*), C; Common Teal (*Anas crecca*), D; Green Sandpiper (*Tringa ochropus*), E; Common Moorhen (*Gallinula chloropus*), F; White-breasted Waterhen (*Amaurornis phoenicurus*), G; Red-wattled Lapwing (*Vanellus indicus*), H; Eurasian Coot (*Fulica atra*) and I; Common Stonechat (*Saxicola torquatus*).

**Results:** A total of 22 species of bird from 15 families were reported during the study. Out of these five species Mallard (*Anas platyrhynchos*), Common Teal (*Anas crecca*), Green Sandpiper (*Tringa ochropus*), Common Stonechat (*Saxicola torquatus*), and Richard's Pipit (*Anthus richardi*) are widespread winter visitor while two species Common Moorhen (*Gallinula chloropus*), and Eurasian Coot (*Fulica atra*) have been reported widespread resident and winter visitor and newly reported from the studied area. Mallard, Common Teal, Common Moorhen, White-breasted Waterhen, and Richard's Pipit are rare for studied area. Furthermore, Common Kestrel (*Falco tinnunculus*) and Long-tailed Shrike (*Lanius schach*) were observed as hunting birds in the study area. Columbidae (42), Rallidae (20), Motacillidae (17) Phasianidae (11), and Sturnidae (11) are the most dominant families were observed. It was the first time the area had been studied, and it was observed that Mallards (*Anas platyrhynchos*) were present for two months, from December to January, while Common Teal (*Anas*

*crecca*) persisted from January to February. Other species, including Common Stonechat (*Saxicola torquatus*), Richard's Pipit (*Anthus richardi*), Eurasian Coot (*Fulica atra*), Common Moorhen (*Gallinula chloropus*), and Green Sandpiper (*Tringa ochropus*), were observed from November to February. However, Mallards and Common Teal were observed for a shorter duration compared to other migratory birds due to their ecological role. Factors such as pond fertility, available food resources, water depth, and the amount of submerged vegetation were important in influencing their habitat preference and duration of stay.



**Conclusion:** This study explores the diversity and status of migratory and resident birds in Dewar Taal, an agricultural wetland located in Gopeshwar, Uttarakhand, India. Despite its ecological significance, Dewar Taal has remained unstudied until now. The study revealed that a total of five winter visitor and two resident winter visitor bird species inhabit the wetland, along with other important resident bird species. The agricultural wetland has a diverse species composition and habitat, providing suitable conditions for avian diversity. Furthermore, this area has been explored for the first time, and it is possible that many other migratory birds may visit in the future. The documentation of resident species, including previously unreported ones, underscores the importance of further research and conservation efforts in the area. Dewar Taal's role in supporting diverse avian populations highlights the need for its protection and management.



## Wild Mushrooms of Uttarakhand



*Morchella esculenta*



*Clavaria zollingeri*



*Hericium erinaceus*



*Lysurus gardneri*



*Geastrum fimbriatum*



*Tremella spp.*

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