



Uttarakhand Forest
Department



उत्तराखण्ड वानिकी अनुसंधान संस्थान
Uttarakhand Forest Research Institute

Silva News

Uttarakhand's Largest Medicinal Conservatory

Public Health Garden at Lalkuan has been inaugurated, by Shri Anoop Malik, PCCF (HoFF), Uttarakhand Forest Department. This project has been funded by Japanese International Corporation Agency (JICA). This Garden is spread in an area of 9 acres and has around 270 medicinal plants consisting of various herbs, shrubs, trees, aquatic plants and medicinal orchids. It has largest collection of medicinal plants in State. The Garden has 10 different sections which includes **Manav Vatika**- plants which are associated with treatment of different organs; **Arogya Vatika**- medicinal plants which are used in the treatment of different diseases; **Dashmool Vatika**- consist 10 different tree and shrub species whose roots are used in this famous Ayurvedic formulation called 'Dashmoolarisht'; **Triphala Vatika**-consists the fruit of Harad, Baheda and anwala, which are ingredients of famous ayurvedic herbal formulation. Apart from these this garden also has **Mosquito repellent section, Antiviral plants section, Medicinal Orchids, Immune system booster plant and anti pollution plants section.**



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

Director General of Forests (DGF), MOEFCC, Visit at site of Lantana eradication model through Miyawaki Plantation at Kalsi, Dehradun

In June 2023, Mr. C.P. Goyal, the Director-General of Forests (DGF) at MOEFCC, applauded the Research Wing for successfully implementing an efficient model aimed at mitigating invasive species and restoring biodiversity through Miyawaki plantation in Kalsi area of Chakarata Forest Division. This experiment to eradicate the *Lantana camara* and rehabilitate the area through native tree and shrub species by Miyawaki method was approved by Research Advisory Committee (RAC) in July 2019. In August 2020, 9900 plants of 60 native species (which has reached 74 now by addition of more species subsequently and also by natural regeneration). Due to very close spacing, there was fierce competition, resulting in very fast growth (on an average 1.31 meters in 3 years) along with very high survival rate (92.84 %). Another beneficial impact was in checking soil erosion and stabilization of area because of dense tree growth and effective soil binding by root system of large number of tree and shrub species. Apart from these benefits, this trial area will also act as a good Germ plasm /seed bank of many native species.



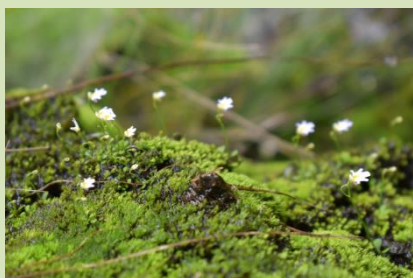
Observations From the Field



The Forest Research Wing team has recorded an extremely rare terrestrial orchid species, *Calanthe davidii*, in Gini Band at Munsyari. In the 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. Given its extreme rarity in the Western Himalaya and limited collection in India, it is of utmost importance to determine its complete geographical range for conservation purposes.

A new locality of the extremely rare insectivorous species *Utricularia kumaonensis* in Uttarakhand



has been documented by the Forest Research Wing team in the Kalamuni region of the Pithoragarh

district. Previously, this species had only been reported in the Bishnugarh area near the Badrinath shrine. *Utricularia kumaonensis* produces beautiful, delicate flowers above the water's surface. Due to its specialized habitat requirements and relatively limited distribution, it is essential to protect and conserve the natural habitats of this species to ensure its survival.

Ceropegia macrantha, commonly known as the



African parachute flower or African wax flower is recorded from the Lumti area of Pithoragarh district. A very rare twining vine known for its unique and beautiful flowers, which have an unusual

appearance and are often used as ornamental houseplants.



A rare and partial mycoheterotrophic orchid species *Cymbidium macrorhizon* has been recorded from Bijrani range of Corbett National Park. It is native to Southeast Asia and typically grows in shady, humid forests at moderate to high elevations.



A sighting of Rufous Woodpecker at Tungsa region of KWLS. A medium sized woodpecker, it mostly feeds on ants and termites. This woodpecker is known for building nest within

nest of acrobat ants.

MEDIA HIGHLIGHTS

नैटाली 2.93 हेक्टर में बनाया जा रहे सेक्टर 70 70 फीट की चौड़ाई वाला, आर्किड व कोटपशी पौधों की प्रजाति जा रहे, इन पौधों की देखभाल

जौलीग्राम में एयरपोर्ट के पास बन रहा नेचर एजुकेशन सेंटर

चतुर्विध संरक्षण

जौलीग्राम: जौलीग्राम में एयरपोर्ट के पास जौलीग्राम में बनाया जा रहे सेक्टर 70 70 फीट की चौड़ाई वाला, आर्किड व कोटपशी पौधों की प्रजाति जा रहे, इन पौधों की देखभाल

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चोपता घाटी में मिला सिंबिडियम आर्किड

लाभगर्भ संभारक, हस्तग्रीह चतुर्विध संरक्षण वन विभाग को अनुसंधान यात्रा की टीम को आर्किड प्रजाति की पहचान में सफलता हाथ लगी है। अभी तक पृथ्वी पर से विदेशों में आर्किड संतुष्ट प्रजाति सिंबिडियम लैसिपोलिथम को चोपता घाटी में चोपता घाटी में 1761 मीटर की ऊंचाई पर मिला है। भारत में पृथ्वी पर अत्यंत दुर्लभ प्रजाति सिंबिडियम लैसिपोलिथम को चोपता घाटी में 1761 मीटर की ऊंचाई पर पहचाना गया है। भारत में पृथ्वी पर अत्यंत दुर्लभ प्रजाति सिंबिडियम लैसिपोलिथम को चोपता घाटी में 1761 मीटर की ऊंचाई पर पहचाना गया है।

चोपता घाटी में 1761 मीटर की ऊंचाई पर मिला सिंबिडियम आर्किड

अनुसंधान केंद्र की चौथी बड़ी उपलब्धि

वर्ष 2020 में चतुर्विध संरक्षण वन विभाग द्वारा चोपता घाटी में चोपता घाटी में 1761 मीटर की ऊंचाई पर पहचाना गया है। भारत में पृथ्वी पर अत्यंत दुर्लभ प्रजाति सिंबिडियम लैसिपोलिथम को चोपता घाटी में 1761 मीटर की ऊंचाई पर पहचाना गया है।

इस टीम ने की पहचान

जुनिअर रिसर्च फेलो मनोज सिंह, ज्योतिष प्रकाश जोशी के अलावा रोज अधिकारी हरीश मेहता व राजेश प्रसाद जोशी दुर्लभ प्रजातियों की तलाश में घाटी क्षेत्र में निकले थे। इस दौरान उन्होंने आर्किड की इस प्रजाति की पहचान की। भारतीय वनस्पति सर्वेक्षण के विशेषज्ञ डॉ. एसके सिंह का सिंबिडियम लैसिपोलिथम की पहचान करने में विशेष सहयोग रहा। जेआरएफ मनोज सिंह ने बताया कि पिछले पांच साल से यह अनुसंधान विभाग के साथ जुड़कर इस तरह के अभियान में शामिल हो रहे हैं।

Forest authorities conduct seed ball broadcasting using drone in Nainital

Neeraj Santoshi
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DEHRADUN: Uttarakhand forest department's research wing conducted seed ball broadcasting on Monday using a drone in the landslide-affected areas in Manora Range of Nainital Forest Division, officials familiar with the matter said. This has been the first of its kind initiative in the state.

The broadcast seeding method involves scattering seeds by hand or mechanically over a relatively large area. When such seeds germinate and grow, their roots hold onto soil, check soil erosion and thus increases the slope stability of a landslide-prone hillside.

Kundan Kumar, deputy conservator of forests (research wing) said around 500 seed balls of five different native species including Bauhinia nutans (Kaanun), Coraria nena-

employing drone technology to distribute seed balls, the research wing of Uttarakhand forest department is taking a proactive step towards ecological restoration and conservation efforts. Regular monitoring will also be carried out to assess the germination and possibility of survival for these species," the deputy conservator of forests said.

Kumar said in challenging terrains like landslide-affected areas, traditional reforestation methods face numerous obstacles due to inaccessibility and steep terrain.

"The soil erosion and unstable terrain hinder successful seed germination and plant growth. Seed ball broadcasting offers a unique advantage in such environments, as it allows seeds to be dispersed more effectively across large areas, even on inaccessible or unstable terrain," he said.

Kumar said the project was approved by the forest department's research advisory committee (RAC) in 2021 with two primary objectives.

"First to reforest vast stretches of inaccessible and denuded hill slopes especially southern aspects using drones and second to find the most suitable species and method for reforestation for inaccessible sites by making comparison with traditional methods."

"This progressive approach not only accelerates the natural regeneration process but also aids in preventing soil erosion and maintaining the ecological balance of the region. Additionally, it serves as a model for sustainable conservation practices that can be applied in other inaccessible areas, promoting biodiversity and the overall health of the forest ecosystem," the deputy conservator of forests added.

'मॉडल के रूप में विकसित करें पौधशाला'

महानिदेशक वन ने किया कालसी वन प्रभाग के जंगलों का निरीक्षण

संवाद यूज एंजनी

कालसी महानिदेशक वन भारत सरकार सीपी गोयल ने कालसी और चकराता वन प्रभाग के जंगलों का निरीक्षण किया। इस दौरान उनके साथ महानिरीक्षक वन भारत सरकार रामेश कुमार पांडेय भी मौजूद रहे। उन्होंने प्रमुख वन संरक्षक उत्तराखंड अनूप मलिक को ज़रूरी दिशा निर्देश दिए। कालसी स्थित वन अनुसंधान रेंज में पौधशाला को देखा और उसे मॉडल के रूप में विकसित करने का सुझाव दिया।

वृक्षमलिनार को महानिदेशक और महानिरीक्षक ने सबसे पहले कालसी और चकराता वन प्रभाग के कार्यालयों का निरीक्षण किया। डीएफओ चकराता कल्याणी और डीएफओ कालसी अमरेश कुमार से वन प्रभाग के अंतर्गत वन संरक्षण और संवर्धन के लिए किए गए चर्चा

निरीक्षण के दौरान अधिकारियों से जानकारी लेते महानिदेशक वन भारत सरकार।

वन अनुसंधान रेंज में किए गए पौधरोपण को भी देखा

प्रयासों की विलुप्त जानकारी ली। उन्होंने कालसी स्थित अनुसंधान रेंज देहरादून में जापानी पद्धति मियावाकी विधि से किए गए पौधरोपण को भी देखा। उन्होंने पौधशाला को मॉडल के रूप में विकसित करने का सुझाव दिया। चकराता पहुंच कर घुंघरे और कनसरा के जंगलों को भी देखा। उन्होंने कनसरा रेंज स्थित देवदार म्यूजियम को भी देखा। चकराता स्थित ब्रिटिश कालीन डीएफओ बंगाल का भी निरीक्षण किया। अर्धनरेश अधिकारियों को वन संरक्षण और संवर्धन के निर्देश दिए।

International Day for Biological Diversity: Uttarakhand Forest Department Releases Report On Conservation Of 2035 Plant Species

Haldwani: On the occasion of International Day for Biological Diversity, the Research Wing of Uttarakhand Forest Department, has released its 4th annual report highlighting the successful conservation of a total of 2035 plant species through in-situ and ex-situ conservation measures across seven different ranges of Research Wing, an official statement said. Chief Conservator of Forest (Research), Sanjay Chaturvedi, said,

This exercise was initiated in the year 2020, to create awareness about the conservation of plant species, which are facing serious existential threat, from climate change as well as anthropogenic activities like mining and unplanned construction activities.

Also Read: Union Environment Minister Launches Project To Boost Climate Resilience Of Aravallis, Combat Desertification

"However, the conservation of plant species, attracts less popular attention than faunal species like Tigers and Elephants, because of the greater glamour quotient associated with these wildlife species. This is despite the fact that plants play a much important ecological role by way of carbon sequestration and also provide the raw material for a number of important medicines," he added.

Uttarakhand Forest Department is the only one in the country which undertakes this exercise and has perhaps the largest inventory of various plant species, across all the State Forest Departments, he added.

He further said,

The idea behind the release of this report was to counter the concept of 'Plant Blindness'. The term coined in 1998 by Elisabeth Schussler and James Wandersee, a pair of US botanists and biology educators, indicates the under-appreciation of plants and a limited interest in plant conservation. Plant conservation not only matters for environmental health but also, for human health, in the long run.

In the year 2020, the number of conserved plant species was 1145, it rose to 1576 in the year 2021, and in 1943 in the year 2022 and this year number has crossed 2000 and reached 2035 plant species. Out of these 2035 plant species, there are 468 tree species, 177 herbs, 161 shrubs, 46 bamboo, 86 wild climbers, 12 species of cane, 107 types of grass, 179 Ferns, 110 orchids, 87

Nainital: 'Public health garden' with 270 medicinal plants opens

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Dehradun: A 'public health garden', with around 270 medicinal plants, including herbs, shrubs, trees, aquatic plants and medicinal orchids, was inaugurated at Nainital's Lalkuan by principal chief conservator of forests Anoop Malik on Friday. Developed by the state's forest department over the last two years, authorities say it is the 'first of its kind' in the state and has the largest collection of medicinal herbs, which are "rapidly disappearing" due to climate change and overuse. The initiative was funded by the Japanese International Cooperation Agency (JICA).

Forest officials said this garden was established to conserve the declining medicinal plants, create awareness and link it with livelihood. Sanjeev Chaturvedi,

The garden also has a Dashmool Vatika, having five tree species and five shrub species whose roots are used in Ayurvedic formulation. Another section has immune system boosting plants. The forest official said that to educate the public, they have developed a section having anti-pollution plants. "In this section, we also have bamboo species, which releases 35% more oxygen than an equivalent stand of trees."

Another section has plants that can control indoor air pollution, which can cause various health problems including respiratory ailments. The plants here are mainly aloe vera, peace lily, rubber plant, areca palm and sansiveria. The forest department has also established a small processing unit for preparing extracts and a community training centre for local people.

Publications in Journals

Cymbidium lancifolium; New discovery from the Western Himalaya



An extremely rare and terrestrial orchid species, *Cymbidium lancifolium*, has recently been discovered from the western Himalayan region for the first

time. This remarkable finding took place during the plant exploration survey conducted by the team of Research Wing of the Uttarakhand Forest Department in and around the Chopta Valley of Chamoli district in July, 2022. On the basis of occurrence of population of *Cymbidium lancifolium*, it might be the westernmost geographical distribution of this species. The team consists of Junior Research Fellow Manoj Singh, Jyoti Prakash Joshi and Range Officer Harish Negi and Rajendra Prasad Joshi. The specialist from the Botanical Survey of India, Dr. S.K. Singh, Joint Director at the BSI, Dehradun, assisted in the identification of the species. The finding has been published in the prestigious Journal 'The Indian Forester' volume 149 (5): 578-580, 2023.

Strengthening of Human Resources

A training on Seedball Technology

The Forest Research Institute (FRI), Dehradun, conducted a one-day training program on seedball technology for various forest species. This training was organized for Range Officers and Junior Research Fellows of the Uttarakhand Forest Research Wing on June 16, 2023.

Drone Pilot Training

A one-day drone pilot training program was conducted by the Research Wing of the Uttarakhand Forest Department for Range Officers and Junior Research Fellows of the Uttarakhand Forest Research Wing on July 9, 2023.



A Training on Provenance Trial of Different Species



This training for Range Officers and Research Fellows was conducted by the Forest Research Institute (FRI), Dehradun and G. B. Pant University of Agriculture and Technology, Pantnagar on 08-08-2023.

Recent Developments

A Report on Species conserved Released on 22nd May 2023, on the occasion of International Day for Biological Diversity



On the occasion of International Day for Biological Diversity, the Research Wing of Uttarakhand Forest Department, has released its 4th annual report highlighting the successful conservation of a total of 2035 plant species through in-situ and ex-situ conservation measures across seven different ranges of Forest Research Wing. Out of the total species conserved, 107 species are currently listed under threat categories- a total of 12 species among these are critically endangered, 24 species are endangered; 13 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 list and 1 species is critically endangered, 1 species is endangered, 1 species is vulnerable and 2 species are rare as per Indian Biodiversity Portal. Out of 2035 total conserved species, 57 species are endemic to Uttarakhand/Indian Himalayan Region, of which 25 are near endemic, 7 species are endemic to Uttarakhand.

Seed ball broadcasting using drone in landslide-affected areas



Research Wing of Uttarakhand Forest Department has successfully conducted seed ball broadcasting using drone in landslide-affected areas in Manora Range of Nainital Forest Division. This innovative initiative aims to restore and revitalize the vegetation in the region, which has been impacted by landslides. By employing drone technology to distribute seed balls, the Research Wing of Uttarakhand Forest Department is taking a proactive step towards ecological restoration and conservation efforts.

Awareness Programme



The Research Wing of the Uttarakhand Forest Department recently organized a workshop on plantation techniques for high-altitude aromatic plants, such as Nairpati, Faran, Badri Tulsi, Jatamansi, Sameva, and Choru. The workshop focused on promoting the sustainable utilization of high altitude aromatic plants and skill development programs for local communities. Villagers from Khalla Van Panchayat, Chamoli and Naya Basti, Munsyari actively participated in this workshop.

Short Study

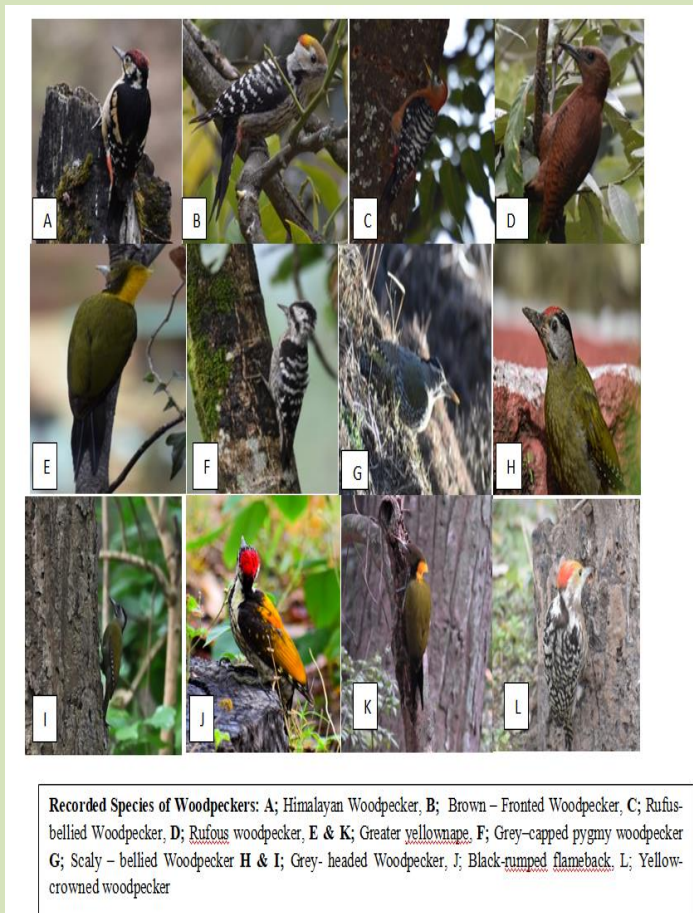
A NOTE ON THE WOODPECKER SPECIES DIVERSITY IN TWO DIFFERENT RESEARCH LOCATIONS OF THE UTTARAKHAND FOREST RESEARCH WING

Manoj Singh & Jyoti Prakash Joshi

Introduction: Uttarakhand, the picturesque northern state of India, is home to a diverse range of flora and fauna, and among its avian residents, the woodpecker stands out as a captivating and distinctive species. These feathered marvels are not only an integral part of the region's rich biodiversity but also a symbol of resilience and adaptability in their natural habitat. Woodpeckers (Family Picidae) are highly sensitive to changes in woody vegetation attributable to anthropogenic causes, including those related to forest management and exploitation (Short and Horne 1990; Winkler et al. 1995). Operations like logging, systematic manipulation for forest structure, plantations, and fuel wood extraction are therefore likely to have an impact on the extant woodpecker community (Mikusinski 2006). Around 710 species of birds have been recorded in Uttarakhand (D. Mohan, 2017), Out of these 11 Woodpecker species were currently recorded from study site. Woodpeckers play a crucial ecological role in various ecosystems, primarily through their foraging behavior, nesting activities, and their impact on tree health. Overall, woodpeckers contribute significantly to the health and balance of ecosystems by controlling insect populations, aiding in tree health, providing nesting sites for other species, and participating in various ecological processes. Preserving woodpecker populations and their habitats is vital for maintaining the overall well-being of ecosystems. Due to their significant ecological role in forest, a small study has been carried out by the Research Wing of Uttarakhand Forest Department in two different Research Ranges.

Methodology: The present study was conducted in two different Research Ranges of Uttarakhand Forest Research Institute i.e. Research Range Gopeshwar and Haldwani. The study was conducted in the month of January to August, 2023. Observations were made every day between 6.00 to 8.00 am at morning and 4.00 to 5.00 pm at evening. The Nikon D5600 camera with 200-500mm and 70-300mm lenses and Vortex field binoculars (8x40) were used as field instruments during the study. The identification of species was carried out with the help of a field guide and the book 'Birds of the Indian Subcontinent' written by Richard Grimmett (2011). All of the behaviors mentioned for the birds are based on direct sightings, and this information was also updated in the eBird application.

List of recorded species				
S. No	Local and Scientific name of Species	Detail of Compartment, Place, Range, Division)	Estimated population and gender	Habitat of sighting (Forest/wetland/residential area/grassland/shrub forest fringe etc.)
1	Brown – Fronted Woodpecker; <i>Dendrocopos auriceps</i>	Kedarnath division Gopeshwar	1- male	Pine – Oak mixed Forest forest
2	Grey- headed Woodpecker; <i>Picus canis</i>	Kedarnath WLS Chamoli, Mandal Valley and Tangsa & Corbett National Park	2 Male 1 Male 1 Male	Pine – Oak mixed Forest forest
3	Lesser Yellownap; <i>Picus chlorolophus</i>	Kedarnath WLS Chamoli, Gopeshwar	1 Female	Pine – Oak mixed Forest forest
4	Scaly – bellied Woodpecker; <i>Picus sibilans</i>	NDBR Auli	1- Male	Sub-alpine and Scrub.
5	Himalayan Woodpecker; <i>Dendrocopos himalayensis</i>	Kedarnath WLS Chamoli, Gopeshwar (Kanchula kharak)	2 Male	Fir, ... Kharshu mixed Forest.
6	Rufus-bellied Woodpecker; <i>Dendrocopos hyperythrus</i>	Kedarnath WLS Chamoli, Mandal	2 Male	Rhododendron –Oak Mixed forest
7	Greater yellownap; <i>Chrysophegma flavinucha</i>	Kedarnath WLS Chamoli, Tangsa & Fatehpur, Ramnagar Forest Division	5Male +Female 1 Male	Near Cultivated land Sal Forest
8	Grey – capped pygmy woodpecker; <i>Yungipicus canicapillus</i>	Kedarnath WLS Chamoli, Tangsa (Pokhari Road)	4 Male +Female	Rhododendron –Oak Mixed forest
9	Rufous woodpecker; <i>Micropternus brachyurus</i>	Kedarnath WLS Chamoli, Tangsa (Pokhari Road)	1 Male	Danced Oak-Mixed Forest
10	Black-rumped Flameback; <i>Dinopium benghense</i>	Pollinator Park, Haldwani, Research Centre, Lalkuan & Fatehpur Range, Ramnagar Forest Division	2 Male (Pollinator Park), 3 Male (Lalkuan), 1 Male (Fatehpur range)	Plantation Sal Forest
11	Yellow-crowned woodpecker <i>Dendrocopos mahrattensis</i>	Fatehpur Range, Ramnagar Forest Division & Pollinator Park Haldwani	1 Male (Fatehpur range), 1 Male (Pollinator Park)	Sal Forest Plantation



Result

A total of 11 woodpecker species were recorded in different forest types of the two different Research ranges. As per the data recorded, the Pine–Oak mixed forest and Sal forest exhibited the highest diversity in terms of woodpecker species. Black- rumped flameback, Greater yellow nape and Grey headed woodpecker were the most commonly observed species during the study. The study found that both the Grey-Headed Woodpecker and the Greater Yellownape exhibit the highest distributional variation and prefer a wide range of habitats, spanning various altitudes. However, the Rufous woodpecker was exclusively found in densely covered Oak forests. The restriction of the Rufous woodpecker to densely covered Oak forests highlights its reliance on a specialized habitat. While Scaly – bellied Woodpecker was observed Sub-alpine and Scrub.

Among the observed species, the Rufous woodpecker stood out as the rarest sighting.

Conclusion: The Pine–Oak mixed forests and Sal forests exhibited the highest diversity of woodpecker species, indicating their importance as preferred habitats followed by the Rhododendron–Oak mixed forests. These forests likely provide suitable resources and nesting opportunities for a variety of woodpecker species. The observed patterns of woodpecker distribution align with the concept of niche differentiation, where different woodpecker species exhibit preferences for specific forest types based on factors such as resource availability, tree composition, and microclimatic conditions. This study provides valuable insights into the distribution, diversity, and habitat preferences of woodpecker species in different forest types. The Pine–Oak mixed forests, Sal forests and Rhododendron–Oak mixed forest are identified as key habitats for maintaining woodpecker diversity. Overall, this research contributes to our understanding of woodpecker ecology and informs conservation efforts aimed at protecting these avian species and their habitats.

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Birds Recorded during Field Visits



Indian Roller



Indian grey hornbill



Scarlet minivet



Grey-headed Woodpecker



Grey-capped pygmy Woodpecker



Red-whiskered bulbul

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