



Uttarakhand Forest
Department



उत्तराखण्ड वानिकी अनुसंधान संस्थान
Uttarakhand Forest Research Institute

Silva News

Newsletter of Forest Research Wing of Forest
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India's first Ashtavarga Conservation Centre

India's first Ashtavarga Conservation Centre has been established by the Uttarakhand Forest Research Wing in the picturesque valley of Harshil in the Uttarkashi district. This project has been funded by JICA (Japan International Cooperation Agency). Ashtavarga is a group of eight herbs used to make the famous Ayurvedic formulation known as Chyawanprash, which are mainly found in the Indian Himalayan region within the altitude range of 1500-3800 meters. The use of Ashtavarga species in Ayurvedic medicine is based on the principle of balancing the three doshas or body humors, namely Vata, Pitta, and Kapha. Each plant has a distinct effect on these doshas. However, these herbs currently face threats due to habitat loss, over-extraction, and climate change. The main objective of establishing the Ashtavarga Conservation Centre is to identify propagation techniques, promote sustainable development practices, and raise awareness among local people about the importance of these species in the Himalayan ecosystem. Such initiative will contribute to the socio-economic development of the region while ensuring the conservation of valuable natural resources.



Establishment of Landslide Mitigation Model

The Uttarakhand Forest Research Wing has successfully established a model for mitigating landslides in the Rusi Bypass area near Nainital city. The project was started in 2019 in a 1.70 hectare area with main objective of stabilizing slope, reducing intensity of landslides, and protecting the nearby areas from the risk of landslides. The Research Wing has employed strategies such as catchment area treatment by constructing a Pirul check dam, and soil stabilization measures by planting soil binder species i.e. Bamboo, Grass and shrub species to reduce chances of a landslide. This technique will also be implemented in other areas as well which are very vulnerable to landslides.



Site photographs: Before & After

Observations From the Field

Phlogacanthus thyriformis commonly known as Red Nongmangkha is an important ethno-botanical plant, recorded from Sonanadi WLS. It is primarily found in moist, shady patches in subtropical Himalayas. Whole plant has stimulant, astringent, aphrodisiac, diuretic, anti-dysenteric and antipyretic properties.

This plant is an integral part of rites and rituals, myths, food items, taboos, medicinal, customs and traditions of *Meetei* community in Manipur.

Flowering in **Golden Himalayan Spike** (*Eremostachys superba*) was recorded in 3 different Research centers of Forest Research Wing. A threatened species near endemic to Shiwaliks or North Western India and Pakistan and has ornamental and medicinal value. In Uttarakhand, it is on verge of extinction from its only reported locality near Mohand at Dehradun due to over-exploitation, trampling, grazing and invasion of alien species. Hence, it requires urgent conservation attention to prevent its extinction from the state.

The leopard cat (*Prionailurus bengalensis*) was captured in camera trap at Gangotri National Park. A fascinating and beautiful wild cat found in a wide range of habitats, including tropical and subtropical forests, grasslands, scrublands, and agricultural areas. The leopard cat is named for its

distinctive coat pattern, which resembles that of a leopard. Populations of leopard cats are declining due to habitat loss, fragmentation, and degradation, as well as hunting for their fur.



The team of Uttarakhand Forest Research Wing has documented a new locality for *Pinguicula alpina* at Mana in Badrinath. An extremely rare and threatened insectivorous species, found in moist rocky slopes in sub-alpine and alpine habitats. Earlier, it was only reported from three localities of Uttarakhand e.g Nopalchu Nala (Byans), Nanda Devi Biosphere Reserve, and Ralam Valley.



The Forest Research Wing team has recorded a rare and endangered root parasitic plant species, *Balanophora involucrata*, in Ghangariya. In the western Himalayas, this plant species has only been reported from Ghangariya. Traditionally, it has been used in the treatment of fevers, stomach ailments, and skin diseases.



Stone Marten

(*Martes foina*) was spotted in Gangotri National Park. A solitary, nocturnal carnivore animal found in a variety of habitats, including forests, farmlands, and sub-urban areas. It feeds on a variety of small animals, including rodents, birds, insects, and reptiles. They are also known to raid bird nests and beehives to feed on eggs and honey.



species was only reported from two localities in Chamoli district, namely Chopta and Urgam valley. It has been used in traditional medicine for centuries to treat a variety of ailments.

Awareness programme

On the occasion of the International Day of Forests 2023, the Uttarakhand Forest Research Wing organized a quiz competition for school children's in seven different research ranges. The aim was to promote awareness of the importance of forests and their conservation. Local people also enthusiastically participated in this program. Such efforts will inspire local people to take action to protect our precious natural resources.

Flowering in *Calanthe mannii* at Mandal



Nursery of Research Range in Gopeshwar. An extremely rare orchid species, native to Southeast Asia. In Western Himalaya this species has been rediscovered by the team of Uttarakhand Forest Research Wing in 2023 from Kalamuni area of Pithoragarh district, after a gap of 39 years. The plant has long been used in

traditional medicine to treat a range of ailments, including fever, coughs, and sore throats.

Cypripedium cordigerum, also known as the Lady Slipper orchid, has been recorded in Auli of Chamoli district. This endangered and near-endemic terrestrial species of orchid is mainly found in the Himalayan region at an altitude between 2500-3500 m. Earlier, this



Media Highlights

Govt sets up Ashtvarg conservation centre

► Continued from P 1

The Ashtvarg includes Jeevaka (*Malaxis acuminata*), Rishabhak (*Coniostylyls muscifera*), Riddhi (*Thabernaia intermedia*), Vriddhi (*Thabernaia edgeworthii*), Kakoli (*Ornithoglossum polyphyllum*), Kshirkakoli (*Bilium polyphyllum*), Meda (*Polygonatum verticillatum*) and Mahameda (*Polygonatum cirrhifolium*) - all rare medicinal herbs found only in Indian Himalayan region. Now, to propagate and conserve these herbs, the research has set up an Ashtvarg conservation centre in Harsil region of Uttarkashi. Spread across sprawling three-acre land in a picturesque valley this centre is one of its kind in the country.

Under this project, funded by the Japanese International Cooperation Agency (JICA), the department will work on propagation of these herbs, conservation of their natural habitat, spreading awareness and promoting farming of medicinal herbs among villagers.

Sanjiv Chaturvedi, chief conservator of forest research, said, "Ashtvarga is a group of eight medicinal herbs belonging to the orchid and Lily families. In Indian tradition, it is believed that these eight species were first used by the god of medicine, Ashwani Kumara, to revitalise rishi Chyawan and, hence, it was named Chyawanprash." Chaturvedi said, "These herbs are very rare due to specific habitat require-

ments. Natural regeneration and propagation of these herbs are also very difficult. Besides, the degradation of natural habitats and illegal extraction have worsened the matter. In the black market, these herbs are sold at a price ranging from Rs 10,000 to Rs 40,000 per kg. Due to this, Kakoli and Kshirkakoli have become critically endangered, and Rishabhak has become vulnerable, as per IUCN red list. Because of unavailability, several companies are using cheaper substitutes."

Taking note of this alarming situation, the department has decided to conserve and propagate these species. In the past four years, they did intense field and scientific surveys in Uttarkashi, Pithoragarh, Chamkara, Ranikhet and Chamoli districts. They also visited other Himalayan states, including Himachal Pradesh and J&K, before getting well-prepared to set up a dedicated Ashtvarga conservation centre, which will be operational by March 2023. "We decided to set up a centre in Uttarkashi because we found all the eight herbs in this region at 1,200-4,000m altitude. In other regions, only one or two species were available naturally," said Chaturvedi.

"We aim to conserve these species and prevent them from extinction. We will also link it with livelihood by transferring knowledge of the propagation techniques to villagers so that they can opt for farming of these herbs," he added.

'Rare Ashtvarg herbs found only in Uttarkashi in N India'

Abhyudaya Kotnala | TNN

Uttarkashi: Uttarakhand's Uttarkashi is the "only place in the Himalayan states of Uttarakhand, Himachal Pradesh and Jammu & Kashmir where rare Ashtvarg (group of eight) herbs are found."

In Indian tradition, it is believed that these eight medicinal plants were first used to prepare Chyawanprash for "good health".

Some of these herbs are even termed critically endangered and vulnerable as per IUCN red list and this fact after studying the flora in the three Himalayan states of north India for around four years.

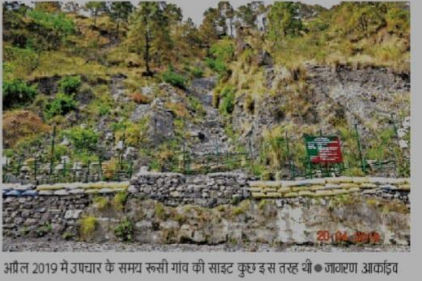
► Continued on P 2

भूस्खलन को रोकने में प्रभावी होगा नैनीताल का रूसी माडल

पिरलु के चेकडेम व झाड़ी प्रजाति से हुआ है रूसी गांव का ट्रीटमेंट

उत्तराखंड वन अनुसंधान की ओर से शहर के समीपवासी रूसी गांव में भूकटाव व धंसाव रोकने के लिए पिरलु (चाड़ पत्ती) के चेकडेम, घास व झाड़ी प्रजाति के पौधों का रोपण, जुट के जाल का माडल स्मकल रहा है। जोशीमठ आपदा के बाद अब वन महकमा राज्य के अन्य हिस्सों में भी इस माडल को लागू करेगा। करीब साढ़े चार एकड़ क्षेत्रफल में मात्र पांच लाख रुपये की लागत से किए गए इस स्मकल प्रयोग से सीख लेकर रूसी गांव में पंचायत ने भी भूकटाव रोकने के लिए यही तरीका अपनाया है।

वर्ष 2019 में मुख्य वन संरक्षक (अनुसंधान) संजीव चतुर्वेदी के निर्देशन में वन अनुसंधान की ओर से रूसी गांव में भूकटाव व धंसाव रोकने के लिए प्रयोग शुरू किया गया। भूस्खलन के ट्रीटमेंट के लिए 1.7 हेक्टेयर क्षेत्रफल में पिरलु के चेकडेम बनाए गए। इसके लिए जुट के जाल बनाए गए और मृदा में मजबूत पकड़ वाली घास, झाड़ी प्रजाति के पौधे रोपे गए। इस ट्रीटमेंट का असर यह हुआ कि भूस्खलन व भूकटाव बंद हो गया। प्रमुख मुख्य वन संरक्षक (कौशल विकास) धर्मेजय मोहन ने रूसी गांव में इस ट्रीटमेंट कार्य का हाल में निरीक्षण किया तो वह भी तीन साल में बदलाव देखकर प्रेरित हुए। उनका कहना है कि इस माडल को पूरे प्रदेश में लागू किया जाएगा।



अंत 2019 में उपचार के समय रूसी गांव की साइट फुट इस तरह थी • जागरण आर्टगैट



उपचारित रूसी गांव के लैसलाबड क्षेत्र का अगस्त 2022 का दृश्य • जागरण आर्टगैट

ऐसे सफल रहा प्रयोग

नैनीताल से करीब 10 किमी दूर रूसी बाईपास का पूरा क्षेत्र भूस्खलन से प्रभावित है। वन क्षेत्राधिकारी निमित्त पता बताते हैं कि विभाग ने 1.7 हेक्टेयर क्षेत्र को विभिन्न कर उसका ट्रीटमेंट शुरू किया। घास, जुट की रूसी व पिरलु से गट्टर बनाए। जुट की रूसियों से पिरलु के गट्टरों को भी फिर एक दूसरे से बांधा गया। बायो मैकेनिकल पद्धति के ट्रीटमेंट में मुख्यतः अरि, बाबुयो प्रजाति की घास का रोपण किया गया। इसकी जड़ें मिट्टी को मजबूती से पकड़े रहती हैं। इसके अलावा मछौल (मसुरी), घिंगारू, राम बांस, खगसुरी, गुडिया, भीमल, किफुई घास, कुमोरीया घास, हाथी घास, अंगु, पदम, मेहल, किलमी व, तुख्यारी, गाविला घास, खौना, अमेश, चल्मी छ आदि घास व झाड़ियां भूस्खलन रोकने में कारगर साबित हुई हैं। 12019 में शुरू काम को एक साल के भीतर पूरा किया गया।

हरिषिल बना देश का पहला अष्टवर्ग संरक्षण केंद्र

केंद्र में होगा अष्टवर्ग की आठ जड़ी-बूटियों का संरक्षण, विलुप्त होने के कगार पर है यह जड़ी-बूटी

जागरण संरक्षण उपकरण: मसुराल से 2745 मीटर की ऊंचाई पर उत्तराखण्ड जिले की हरिषिल घाटी में देश का पहला अष्टवर्ग संरक्षण केंद्र वर्ष 2023 से विधिक संरक्षण होने लगेगा। यह केंद्र जंगल इंटरनेशनल को-ऑपरेशन एजेंसी (जाकब) के सहयोग से वन अनुसंधान संरक्षण निदेशाल में स्थापित किया है। यह अष्टवर्ग में आठ वाली आठ जड़ी-बूटियों का संरक्षण किया जाये है। उत्तराखण्ड जिले में मसुराल से 1300 मीटर से लेकर 4000 मीटर की ऊंचाई तक अष्टवर्ग की आठ जड़ी-बूटियाँ मिलती हैं। चरक सिलक में भी इन जड़ी-बूटियों का उपलब्ध है।

अष्टवर्ग प्रजाति को संरक्षण देने के लिए जंगल में जाकर अष्टवर्ग, शंकराक्षरी, कुट्ट, मूंग, तिहुँ, कुमकम व बाबुयो संरक्षण में।

विज्ञानियों के अक्षर पर पंच पत्तों जड़ी-बूटियों के संरक्षण को भी मसुराल जड़ी-बूटियों में शामिल है। इनमें से मसुराल जड़ी-बूटियों का संरक्षण किया जा रहा है।

अष्टवर्ग जड़ी-बूटियों चयनमात्र बनने में दरम्यान होने है, जो संरक्षण के क्षेत्र में अष्टवर्ग प्रजाति को संरक्षण देगी।

जड़ी-बूटियों के संरक्षण के लिए अष्टवर्ग प्रजाति को संरक्षण देना होगा। अष्टवर्ग प्रजाति को संरक्षण देना होगा। अष्टवर्ग प्रजाति को संरक्षण देना होगा।

हिन्दुस्तान

तेयारी | वन विभाग की रिसर्च टीम ने डेढ़मै रीप्राइजर का काम शुरू किया, झाड़ी प्रजाति के फूल बिखेरे में रेणु की छटा

कैलास मानसरोवर, चारधाम यात्रा मार्ग राज्य वृक्ष बुरांश से सजेंगे

■ **डोबल स्ट्रट**
डोबल स्ट्रट नाम के जड़ी-बूटी का उपयोग कैलास मानसरोवर, चारधाम यात्रा मार्ग राज्य वृक्ष बुरांश से सजेंगे।

असल में इस जड़ी-बूटी का उपयोग कैलास मानसरोवर, चारधाम यात्रा मार्ग राज्य वृक्ष बुरांश से सजेंगे।

इस प्रजाति के फूल लाल-सफेद रंग के होते हैं।

असल में इस जड़ी-बूटी का उपयोग कैलास मानसरोवर, चारधाम यात्रा मार्ग राज्य वृक्ष बुरांश से सजेंगे।

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असल में इस जड़ी-बूटी का उपयोग कैलास मानसरोवर, चारधाम यात्रा मार्ग राज्य वृक्ष बुरांश से सजेंगे।

Short Study

Feeding Behavior of Avian Diversity in Two Different Research Locations of the Uttarakhand Forest Research Wing

Manoj Singh & Jyoti Prakash Joshi

Introduction: Uttarakhand state is extremely rich in biodiversity as major portion of the state is mountainous and these Himalayan Mountains have wide altitudinal ranges from tropical to alpine meadows. This rich multitude of forest habitats supports an enormous diversity of bird life. Around 710 species of birds have been recorded in this small state (D. Mohan, 2017), which attests to the fact that the state provides abundant food and habitat for these species. Food and habitat are the only components necessary for the survival of any organism, and these essential components represent the primary relationship between organisms and their environment. However, very little is known about the feeding behavior of avifaunal species in their specific habitats. Understanding bird feeding ecology is an essential conservation activity in an urbanizing world as most of the suitable habitats for these species are steadily decreasing due to various human interventions.

Methodology: The present study was conducted in two different Research Ranges of Uttarakhand Forest Research Institute i.e. Mandal valley of Research Range Gopeshwar and Biodiversity Park, Haldwani of Research Range Haldwani. The study was conducted in the month of January to May, 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 eBirds application.

Result

1: NECTAR FEEDERS:

(i) ***Rhododendron arboreum***: Rufous sibia (*Heterophasia capistrata*), Rusty-cheeked Scimitar Babbler (*Pomatorhinus erythrogenys*), Variegated Laughingthrush (*Garrulax cineraceus*), and Green-tailed Sunbird (*Aethopyga nipalensis*).

(ii) ***Woodfordia fruticosa***: Red-vented Bulbul (*Pycnonotus cafer*), Himalayan Bulbul (*Pycnonotus leucogenys*), Purple Sunbird (*Cinnyris asiaticus*), Oriental White-eye (*Zosterops palpebrosus*) and Russet Sparrow (*Passer retilans*).

(iii) ***Bombax ceiba***: Rufous treepie (*Dendrocitta vagabunda*), Drongo spp. (*Dicruridae*), Common myna (*Acridotheres tristis*), Plum-headed parakeet (*Psittacula cyanocephala*) and Jungle babbler (*Turdoides striata*)

(iv) ***Butea monosperma***: Purple Sunbird (*Cinnyris asiaticus*), Parakeet spp. (*Psittacula*) and Common myna (*Acridotheres tristis*).

(v) ***Holmskioldia sanguine***: Purple Sunbird (*Cinnyris asiaticus*) and Oriental White-eye (*Zosterops palpebrosus*)

2: SEED EATERS:

(i) ***Prunus cerasoides***: Spot-winged Grosbeak (*Mycerobas melanozanthos*) and Black Bulbul (*Hypsipetes leucocephalus*).

(ii) ***Myrica esculenta***: Spot-winged Grosbeak (*Mycerobas melanozanthos*) and Black Bulbul (*Hypsipetes leucocephalus*).

(iii) ***Elaeocarpus ganitrus***: Great Barbet (*Megalaima virens*), and Blue-Throated Barbet (*Megalaima franklinii*).

(iv) ***Cinnamomum tamala***: Great Barbet (*Megalaima virens*), Blue-Throated Barbet (*Megalaima franklinii*), Striated Laughingthrush (*Garrulax striatus*), Spot-winged Grosbeak (*Mycerobas melanozanthos*).

(v) **Melia azedarach**: Indian grey hornbill (*Ocyceros birostris*)

(Vi) **Cascabela thevetia**: Indian grey hornbill (*Ocyceros birostris*)

(Vii) **Anogeissus latifolia**: Indian grey hornbill (*Ocyceros birostris*)

3. SOFT SEEDS /BERRIES EATERS:

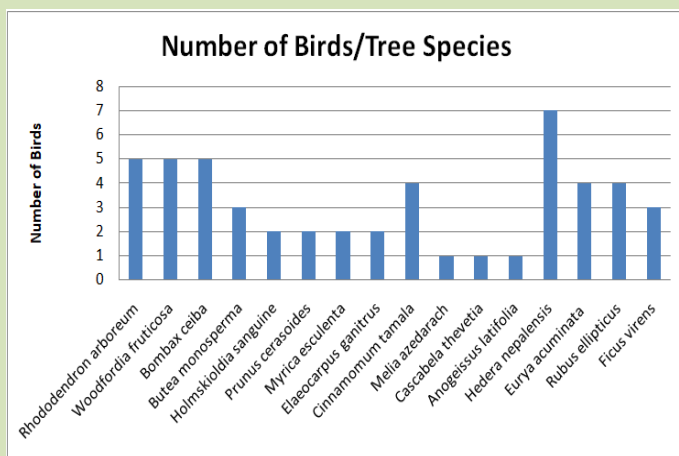
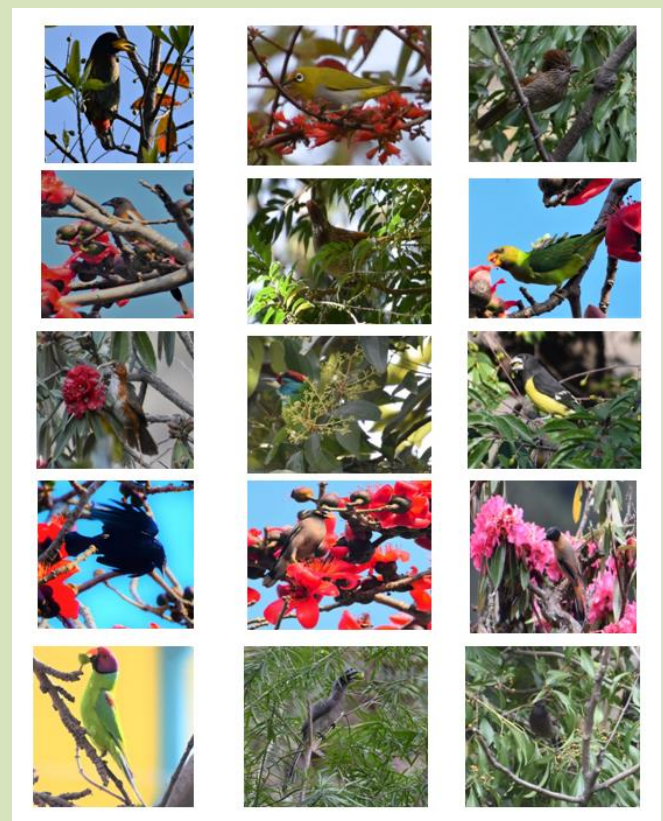
(i) **Hedera nepalensis**: Great Barbet (*Megalaima virens*), Blue-Throated Barbet (*Megalaima franklinii*), Striated Laughingthrush (*Garrulax striatus*), Red- vented Bulbul (*Pycnonotus cafer*), Himalayan Bulbul (*Pycnonotus leucogenys*), and Yellow-billed Blue Magpie (*Urocissa flavirostris*) and Chestnut-crowned laughingthrush (*Trochalopteron erythrocephalum*)

(ii) **Eurya acuminata**: Great Barbet (*Megalaima virens*), Blue-Throated Barbet (*Megalaima franklinii*), Striated Laughingthrush (*Garrulax striatus*), and Wedge-tailed Green Pigeon.

(iii) **Rubus ellipticus**: Red- vented Bulbul (*Pycnonotus cafer*), Himalayan Bulbul (*Pycnonotus leucogenys*), Black Bulbul (*Hypsipetes leucocephalus*) and Grey Treepie (*Dendrocitta formosae*).

(iv) **Ficus virens**: Indian grey hornbill (*Ocyceros birostris*), Plum-headed parakeet (*Psittacula cyanocephala*) and Jungle babbler (*Turdoides striata*).

recorded while feeding on hard seed and 9 species were recorded while feeding on berries and soft seed. The study identified three bird species as both nectar and soft berry feeders, and four species as both hard seed and soft berry feeders. The genus *Pycnonotus* (Bulbul) was found to be the most diversified group of birds, feeding on all three food sources: nectar, hard-coated seeds, and berries. In contrast, the Spot-winged Grosbeak was observed to exclusively feed on hard-coated seeds from *Prunus* and *Myrica* species.



A total of 22 birds species were identified in 16 plants species, out of which 14 species of birds are observed while nectaring, 6 species were

Reference

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- (II) Grimmett. R, Inskipp. C & Inskipp. T; 2018. Birds of the Indian Subcontinent, Christopher helm London.
- (III) Mohan. D, and Sondhi. S; An Updated Checklist and Bibliography of the Birds of Uttarakhand; Published by Uttarakhand Forest Department, 2017.

Educational Visits to Our Centers

Botany students from Govt. PG College Churu, Rajasthan visited Moss Garden, Nainital.



Students from Aligarh Muslim University visited Fernery at Kalika, Ranikhet.



Childrens from Doon Star Public School visited Nature Learning Centre at Shyampur



Forest Guard trainees of Forest Training Academy, Haldwani visited Public Health Garden, Lalkuan



Students from Govt. Girls School, Himmatpur Choumwal visited Biodiversity Park, Haldwani.



Students from G.I.C Bairgana, Gopeshwar visited Orchid Conservation Centre, Khalla (Mandal).



Birds Recorded during Field Visits



Changeable hawk eagle



Monal



Indian paradise flycatcher



Chestnut-bellied rock thrush



Indian peafowl



Long-tailed shrike

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