

Acknowledgement

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All of us know about the huge floral diversity of Valley of Flowers. Identification of such a huge number of flora that we encountered during the trek would not have been possible without the untiring guidance of **Dr. Praveen Kumar Verma, Scientist-B, Botany Division, FRI**. We sincerely thank him for igniting that interest and love towards the true colours and real beauty of this rainbow world. Without such interest, this endeavour would not have been possible.

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We also extend our thanks to the **resource persons from EDC, Byunder (Ghangaria)** who accompanied us during our trek to Valley of flowers and helped in floral identification.

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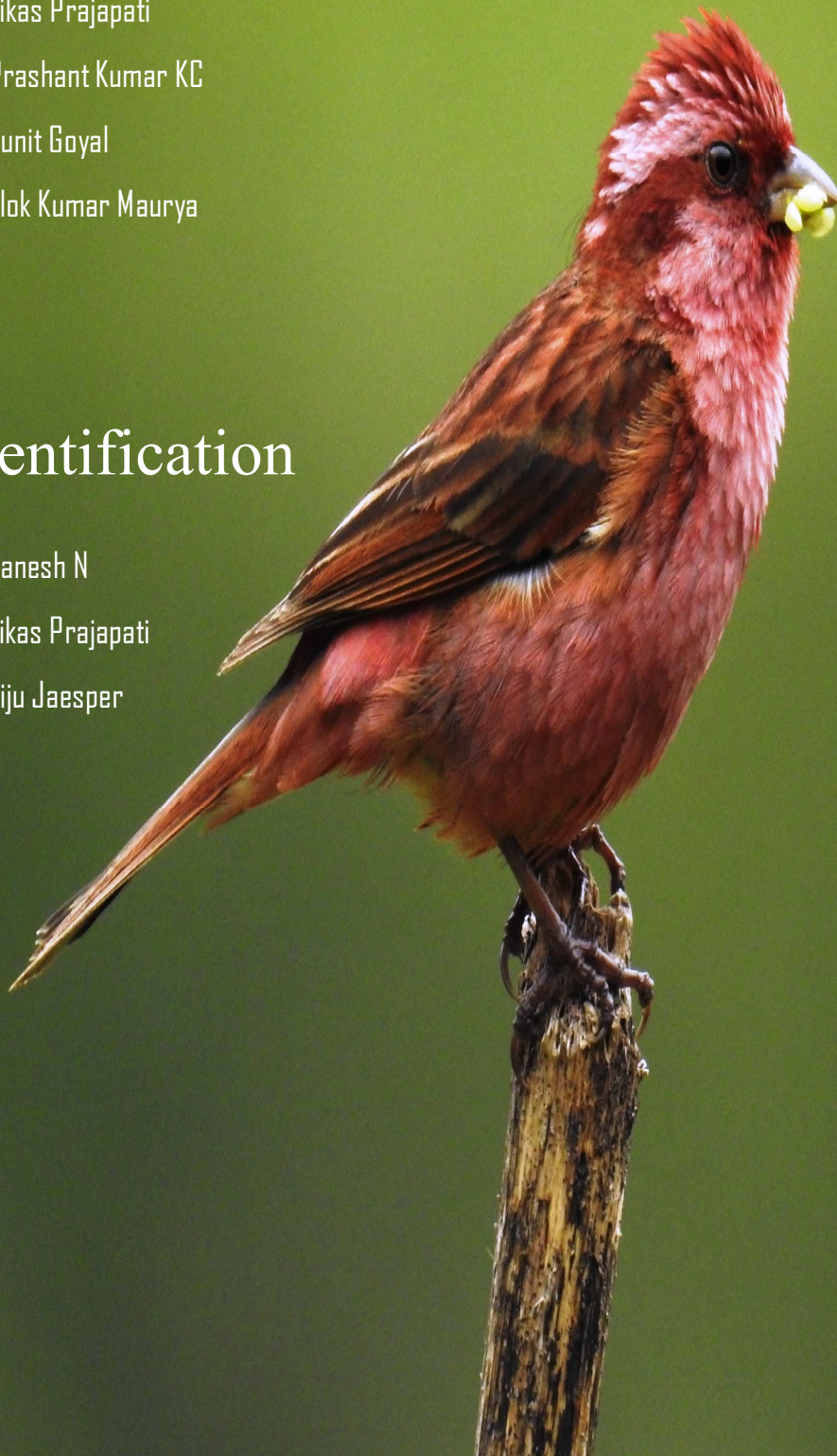
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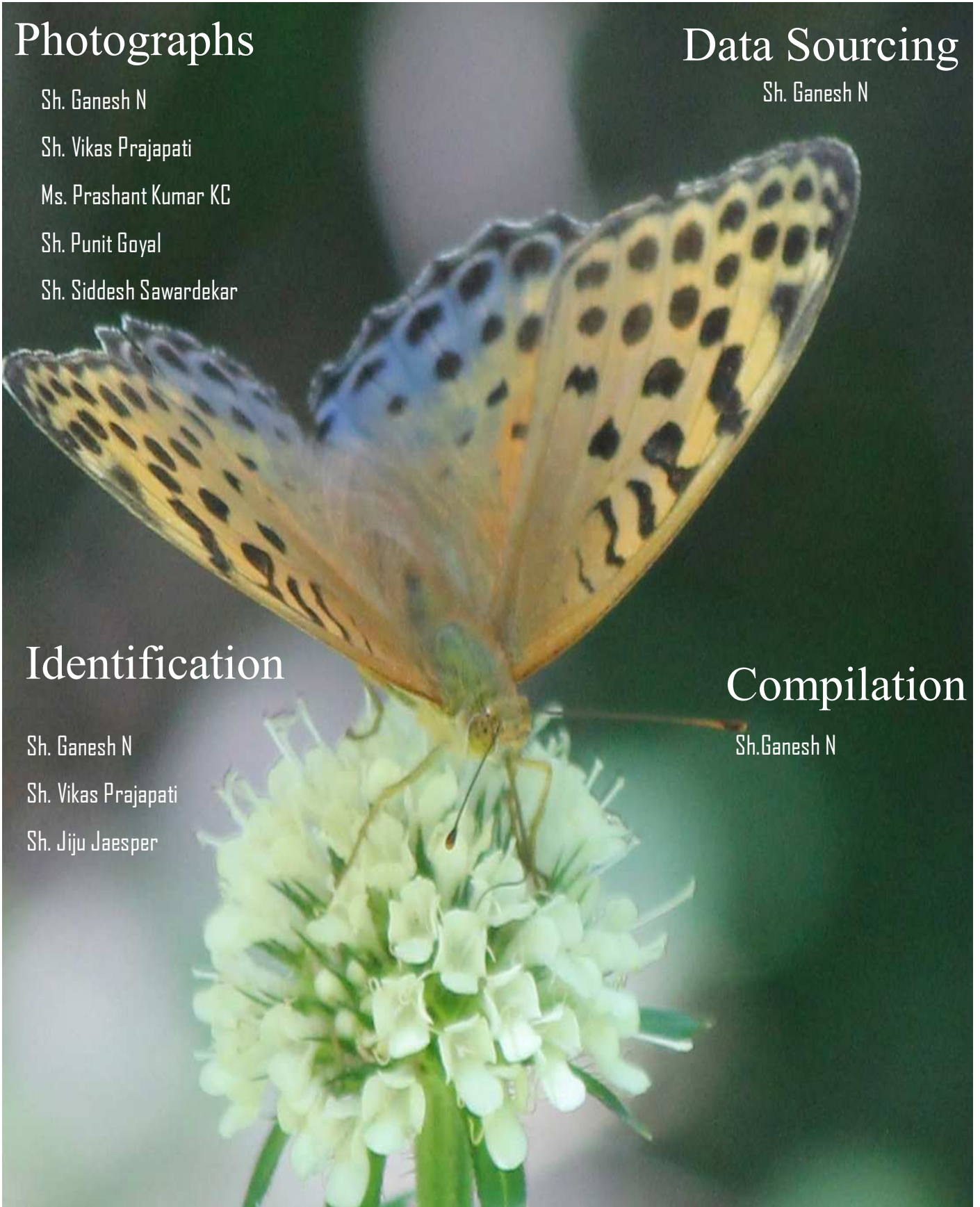
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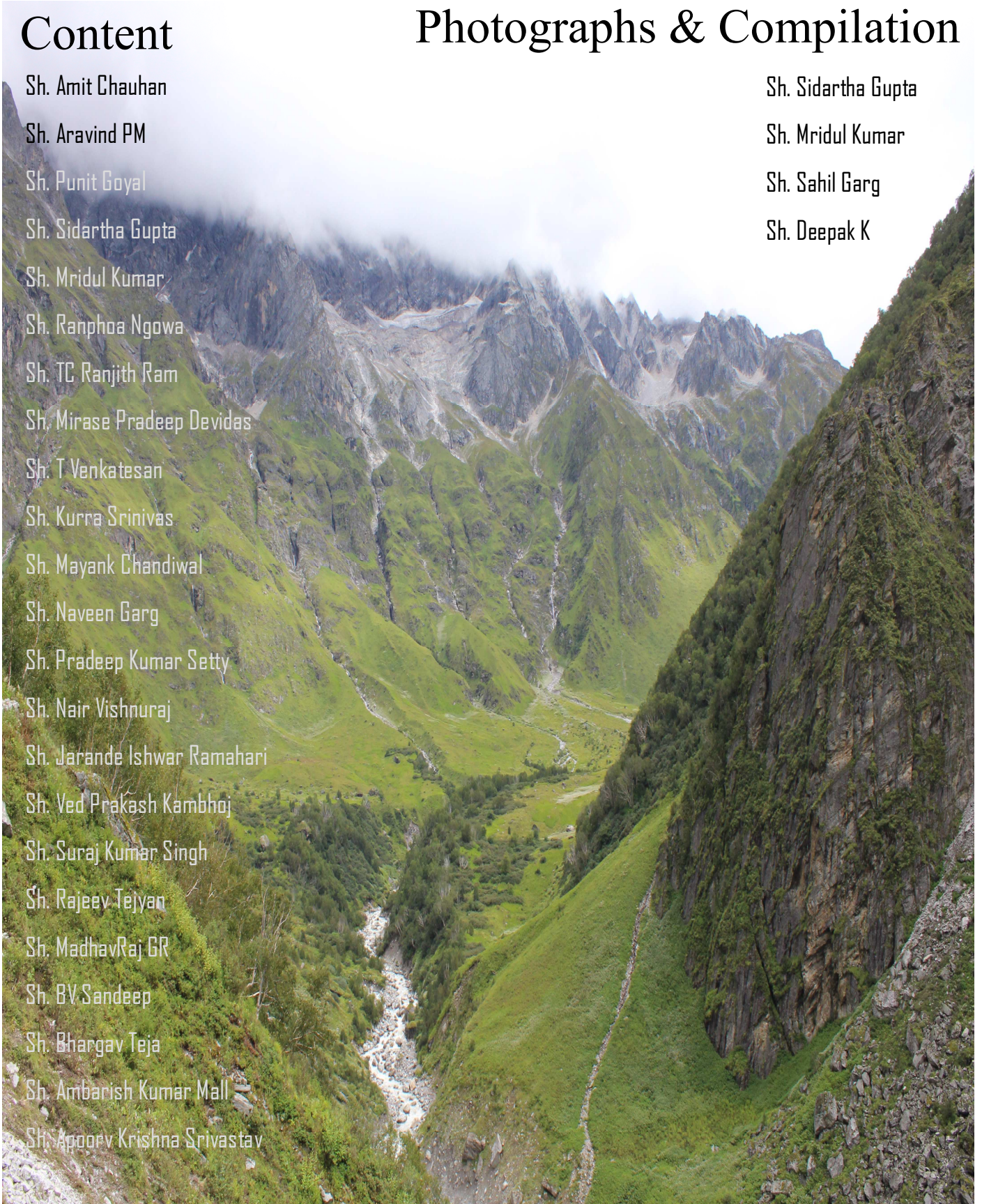
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VALLEY OF FLOWERS EXCURSION REPORT



Geography of the area

The Valley of Flowers was first discovered by Col Edmund Smythe of the Indian Army in 1862. Legendary British mountaineers Frank S Smythe and PL Holdsworth accidentally reached this valley while returning from a successful expedition of Mt. Kamet in 1931. Frank S Smythe was so fascinated by its sheer natural beauty and variety of flowers that he revisited the valley in 1937 and published a book titled 'The Valley of Flowers'. His writings made this valley world famous destination for nature tourism.

The Valley of Flowers National Park is located in the Chamoli district of the state of Uttarakhand. It is the second core zone of the Nanda Devi Biosphere Reserve. Total area of the park is 87.50 Km². It is a high-altitude Himalayan valley that has long been acknowledged for its natural landscape by renowned mountaineers, botanists, and in literature. Historically, the valley was the home of migratory pastoralists.

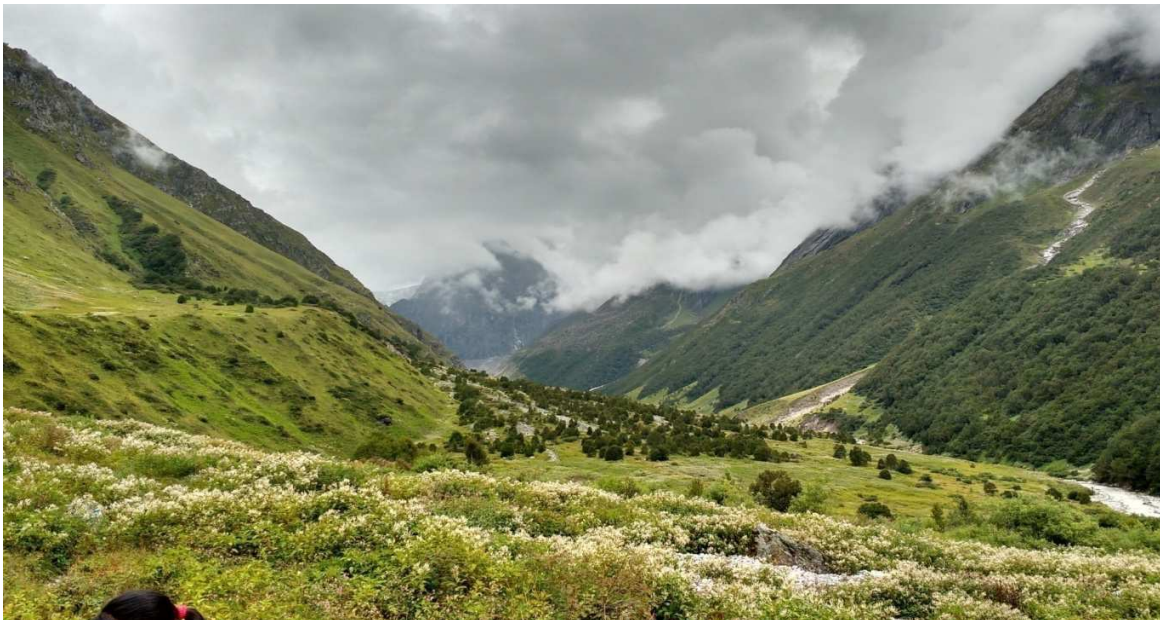


Figure 1: View point from a mountain in the valley of flowers

The Valley of Flowers lies in the Pushpawati valley 23 km north-northwest of Nanda Devi Park, across the wide valley of the Bhyundar Ganga. It stretches between 30° 41' to 30° 48'N and 79° 33' to 79° 46'E. It is one of two hanging valleys lying at the head of the Bhyundar valley, the other being the shorter Hemkund valley which runs parallel some 10 km south. It runs east-west approximately 15 km by an average of 6 km wide, in the basin of the Pushpawati River, a small tributary flowing from the Tipra glacier which descends from Gauri Parbat in the east. Its central valley, lying at about 3,500m, is a gently inclined basin of some 1,000 hectares of alpine meadows, known as the Kundalinisen plateau.

The high surrounding mountains are not impassable and open to the south at Ghangriya (3,072m), 7 km downstream. There, the Pushpawati meets the Lakshman Ganga, becoming the

Bhyundar Ganga which flows 15 km to Govindghat at its confluence with the Alaknanda, a tributary of the Ganges. The main surrounding peaks are Nar Parbat (5,245m) to the northwest, Nilgiri Parbat (6,479m) to the north, Rataban (6,126m) across the Bhyundar Pass, with Gauri Parbat (6,708m) to the east and Saptasring (5,038) to the south. The Lakshman Ganga flows from Lokpal Lake (4,150m) in the Hemkund valley, a much visited place of pilgrimage.



Figure 2: Cloud cover melting glacier forming a waterfall in the valley of flowers

The Valley has tremendous variety colorful flowers, taking on various shades of colors as time progresses. Endowed with a diverse range of endemic flora, it is picturesque in its beauty. More than 650 species of flowers including Brahmakamal, Blue Poppy and Cobra Lily have been recorded in the park.

It is a place where the nature blooms in full vigor with its entire vista being accessible by a strenuous but picturesque trek. Breathtaking spectacles like the cascading waterfalls, rapid streams and the flowery meadows keep the visitors company all through the walk.

The Valley of Flowers has gained recognition as a region containing a diversity of alpine flora, representative of the Western Himalayan Alpine Shrub and Meadows Ecosystem. The rich diversity of species reflects the valley's location within a transition zone between the Zaskar ranges of the Himalayas ranges to the north and south, respectively, and between the Eastern Himalaya and Western Himalaya flora.

The valley has the typical microclimate which is associated with Inner Himalayan valleys. The monsoons are heavy, from late June to early September resulting in mist and low cloudy conditions. Therefore, the vegetation is plenty compared to other drier inner Himalayan valleys.

Both Basin and Valley remain snow-bound for a period of 6-7 months between late October and late March. The snow accumulated is deeper and at lower altitudes on the shadowed southern aspect than on the northern side of the valleys.



Figure 3: Snow covered mountains in the background in the valley of flowers

Boundary Description

Northern Boundary- Northern boundary starts from Narparbat and goes upto Khuliaghata peak (5029 m) and from this point goes up to Neelgiri (6474 m) and then passes through Bhyundar Khal (5090 m), terminates at Rataban (6163 m).

Eastern Boundary- Beginning from Rataban Peak, running along the mountain ridges situated at the western side of Koshakunar Glacier, terminates at the peak of Gauri parbat.

Southern Boundary- Starting from Gauri parbat and running along the mountain ridges which divides the watershed of Pushpawati river, goes up to Chota (5700 m) and then touches the river Pushpawati which is situated in the northern side of Hemkund & Ghangaria and then it turns towards northern direction along the river and after touching the northern point of Bhyundar Van panchayat, goes up to the peak of Kunthkhal Peak running along the ridges.

Western Boundary- It starts from Kuntkhal and runs along the parallel direction of Narparbat. The Valley of Flowers National Park is a flat valley 5 km. long and 2 km. wide. The Valley has an admixture of forest and alpine grass lands with high snow covered peaks around. Its altitudinal range varies from 3200 to 6675 m. The park is surrounded by Gauri Parbat (6590 m) and Rataban (6126 m) in the east, Kuntkhal (4430 m) in the west), in the west, saptsring in the south and Nilgiri Par vat (6479 m) in the north. The Valley of Flowers National Park lies between at $30^{\circ}41'1''$ - $30^{\circ}48'1''$ N and longitude $79^{\circ}33'1''$ - $79^{\circ}46'1''$ E. The park is nestled among the snow summits viz Nilgiri Parvat (6407 m), Gauri Parvat (6590 m) Rataban (5400 m), Sapta

Srinya (5025 m) and Kunt Khal (5855 m) and is surrounded by Ghangaria of Bhyundar valley in the south.



Figure 4: Location Map of Valley of flowers national park

Other Geographical Aspects

- Geology of the area falls in Zaskar range
- Sedimentary rocks with mica schist and shale.
- Soil is acidic in nature (pH 3.8-6.1)
- Some of the important localities within the Park are as follows- Paira (3200 m), Lower nagtal (3300 m), Bamni dhaur (3450 m), Semar (3500 m), Kundaliyasain (3500 m.), Dronagar (3500-3600 m), Sewachand (3600 m), Tipra kharak (3700 m) etc

Climate and Vegetation

The valley has the typical microclimate which is associated with Inner Himalayan valleys. The conditions are usually dry and the annual precipitation is also low. However, the monsoons are heavy, from late June to early September. The presence of mist and low cloudy conditions during the monsoon keeps the soil moisture high. Therefore, the vegetation is plenty than is usual in the other drier inner Himalayan valleys.

The Great Himalaya range lying to the south acts as a barrier against the influence of the southwest summer monsoons. The climate is such that dense fog and rain are normal during late summer monsoon. Both Basin and Valley remain snow-bound for a period of 6-7 months between late October and late March. The snow accumulated is deeper and at lower altitudes on the shadowed southern aspect than on the northern side of the valleys.



Figure 5: Beautiful green valley of flowers, a typical monsoon delight

The valley has three zones – sub-alpine between 3,200m and 3,500m which is the limit for trees, lower alpine between 3,500m and 3,700m, and higher alpine above 3,700m. The habitats include valley bottom, river bed, small forests, meadows, eroded, scrubby and stable slopes, moraine, plateau, bogs, stone desert and caves. The lower surrounding hills in the buffer zone are thickly forested. The Forest Research Institute in 1992 recorded 600 species of angiosperms and 30 pteridophytes in the valley and surroundings, discovering 58 new records for the valley of which 4 were new for Himalayan state. Of these plants, 5 out of 6 species globally threatened are not found in Nanda Devi National Park or elsewhere in Uttarakhand: *Aconitum falconeri*, *A. balfourii*, Himalayan maple (*Acer caesium*), the blue Himalayan poppy (*Meconopsis aculeata*) and *Saussurea atkinsoni*. Kala classified 31 species of rare and endangered categories within the national park in 1998. Further his studies report that the dominant family in Valley of Flowers is Asteraceae with 62 species. 45 medicinal plants are used by local villagers and several species,

such as *Saussurea obvallata* (brahmakamal) are collected as religious offerings to goddesses Nanda Devi and Sunanda Devi. The site is designated a Centre of Plant Diversity.

Characteristic of the sub-alpine zone are high altitude forests which help to retain moisture and snow and support a large number of floral and faunal communities. It is dominated by the uncommon Himalayan maple *Acer caesium* (VU), west Himalayan fir *Abies pindrow*, Himalayan white birch *Betula utilis*, and *Rhododendron campanulatum* with Himalayan yew *Taxus wallichiana*, *Syringaemodi* and *Sorbus lanata*. Some of the common herbs are *Arisaema jacquemontii*, *Boschniakia himalaica*, *Corydalis cashmeriana*, *Polemonium caeruleum*, *Polygonum polystachyum* (a rampant tall weed), *Impatiens sulcata*, *Geranium wallichianum*, *Galiumaparine*, *Morina longifolia*, *Inula grandiflora*, *Nomochoris oxypetala*, *Anemone rivularis*, *Pedicularis pectinata*, *P. bicornuta*, *Primula denticulate* and *Trillidium govanianum*. In trampled areas where past livestock congregated, Himalayan knotweed *Polygonum polystachyum* is a rampant weed.

How to reach Valley of flowers

Mode of travel

The Valley of flowers is around 328 km from Dehradun and it is not possible to reach there in one day. We have to plan a halt at Joshimath during the first day of journey, which is at around 35 km from valley of flower and it has a number of good hotels. Road distance from Dehradun city to Joshimath is around 290 km. The most convenient and fastest way to reach from Dehradun to Joshimath is by taxi. Rishikesh is the major starting point for road journey to Joshimath. Public transport buses to Joshimath are available from Rishikesh, which is around 45 km from Dehradun. Buses from Dehradun to Joshimath are also available but their frequency is low.

Journey

The journey from Rishikesh to Joshimath is through rugged Himalayan terrain and average speed of vehicle varies from 30-40 kmph. During the journey we are treated with panoramic views of the Himalayan ranges and river valleys. The height of Dehradun from mean sea level is 435 m and for Joshimath it is 1890 m, therefore vehicle has to climb up and down on the way. The journey to Joshimath should start early in the morning as it takes around 10 hours by taxi and 12 hours by bus. A stop at Rudraprayag or Srinagar can be made for lunch as there are many good hotels along the national highway. It is advisable to book hotel in advance at Joshimath to avoid rush during peak season.



Figure 6: The mighty Ganges captured enroute to Joshimath

Govindghat is a pilgrimage town, 21 km from Joshimath. It can be reached via taxi or bus which is easily available at taxi/bus stand at Joshimath. It takes around 45-60 minutes to reach Govindghat from Joshimath. The road is narrow, sometimes just makeshift after a landslide, and we can see river Alaknanda flowing along down below.

Valley of flowers is around 17 km from Govindghat. To reach Valley of flowers, we have to reach Ghangaria village, which is the last human habitation on the way to valley of flowers. Ghangaria is base camp for both valley of flowers and Hemkund sahib. It is not connected by motorable road and is accessible on foot only. Govindghat is at a height of 1676 m and Ghangaria is at a height of 3109 m, therefore the trek is not easy. From Govindghat to Ghangaria, we come across two villages, Pulna and Bhyundar. Pulna which is at 4 km from Govindghat is connected by single lane motorable road.

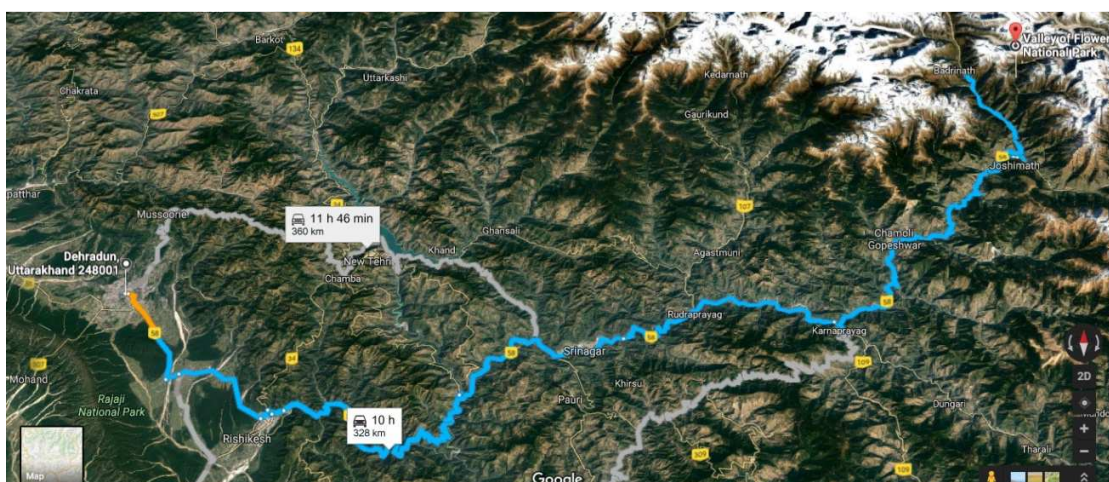


Figure 7: Google map of route from Dehradun to Valley of flower

There are mainly following four ways to reach Ghangaria from Govindghat:-

1. Helicopter service is available from Govindghat to Ghangaria at Rs. 3200/- per head. Helipad is located at 1 km from Ghangaria village.
2. Jeeps are available at Govindghat bus station to Pulna village located at 4 km along the route to Ghangaria. The cost of hiring Jeep from Govindghat to Pulna is around Rs 400/-. From Pulna, it is 10 km trek along a steep, narrow, but well defined mountain trail to base camp at Ghangaria. The trek will take around 3-5 hours.
3. Mules are available from Govindghat to Ghangaria at Rs. 800 to Rs. 2000 depending upon demand and supply. Generally, the mules are costly in the month of June and it is less expensive in July to September.
4. Porters are also available from Govindghat to Ghangaria at Rs. 1000 to Rs. 2000/-. However, they do not carry weight more than 50 kg.



Figure 8: Chopper taking people from Govindghat to Ghangaria

*Management Aspects
Of
Valley Of Flowers*

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Introduction

Nanda Devi Biosphere Reserve is located in the northern part of west Himalaya in the biogeographical classification zone 2B. The Biosphere Reserve spreads over three districts of Uttarakhand - Chamoli in Garhwal and Bageshwar and Pithoragarh in Kumaun. Like any biosphere reserve it has a core zone, buffer zone and a transition zone. The core zones are the areas having highest conservational value. In this case, both the national parks – Nanda devi and Valley of Flowers form 2 core zones of the reserve. Both the core zones are designated as a UNESCO World Heritage Site. But this successful conservation of natural ecosystem is based on a successful model of management involving all stakeholders at the local level along with many community based institutions.

The buffer zone of the Valley of Flowers (VoF) National Park and adjacent Hemkund shrine (4200 m) in Chamoli District, Uttaranchal shared common conservation concern since early 1980s till 2002 due to want of a system for managing religious tourism in an environmentally responsible manner. Four to five lakh pilgrims converged in 19 kms of Bhyundar Valley, the common access to VoF and Hemkund shrine during May to September every year. The ecosystem of the whole Bhyundar Valley was under great duress due to accumulation of garbage and plastic waste. The problem had multiplied manifold due to the ever increasing pilgrims with environmentally irresponsible behaviour. The initiative to redefine the conservation strategy started in the year 2002.

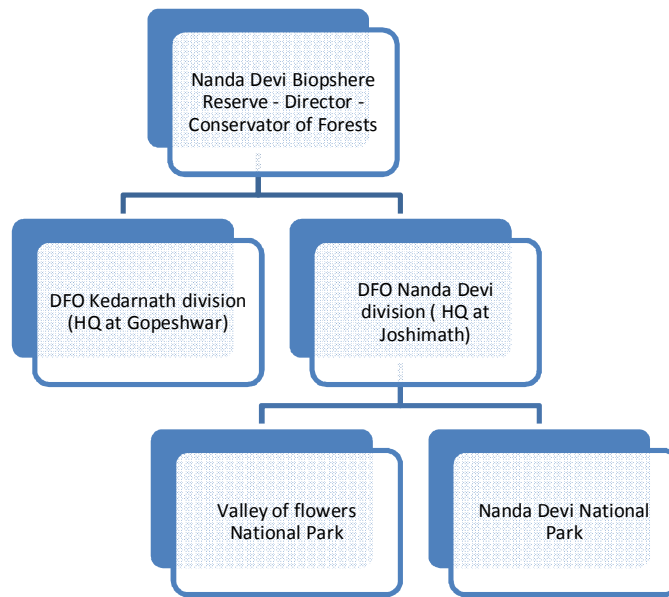
The process involved churning a multi-stakeholder partnership by the Uttaranchal Forest Department. Effort was to evolve a system of responsible tourism with active participation of locals, pilgrims and the Shrine Management Committee. The management systems evolved since 2002 led the local community mobilizes funds to the tune of Rs. 4.68 million in three years (2003, 2004 and 2005). This win-win exercise initiated with primary stakeholder community by the Government resulted in removal of illegal encroachments by the locals from 400 to 76 in 2002 & 2003. Most importantly it *relieved Bhyundar valley of 123 tons non-biodegradable waste accumulated over last 20 years* with local community of two gateway villages taking lead in the whole cleaning operation through their Eco Development Committees. The garbage collected was sent to different destinations for recycling.

This experiment is a telling example how a cost effective and productive management system for conservation can be evolved in difficult areas by keeping public at the center stage in resource building, resource sharing and resource handling with well planned capacity building and accountability processes through institutional and government policy support. The economic analysis of VoF garbage collection catapulted to creating a new business model for handling plastic waste in high hills. As a result, the Uttaranchal Government made operational first waste plastic densification (lumping) plant of 10 tones capacity per month at Srinagar (Garhwal) in Jan 2006 under public private partnership. More of such plants are offing in Uttaranchal thus realizing the relationship of economics in environment and equity. This unique effort ultimately

rewarded the Valley of Flowers and Nanda Devi National Park with the World Natural Heritage Site status in July 2005.

Administrative setup

Nanda Devi biosphere reserve with an area of falls under 3 districts of Uttarakhand – Chamoli in Garhwal and Bageshwar and Pithoragarh in Kumaun. It is headed by a director of rank of Conservator of Forests. Both Valley of Flowers National Park and Nanda Devi National park fall in Chamoli district and comes under active control of DFO office, Joshimath.



Management Institutional Arrangement



A plethora of institutions exist at different levels having different roles and responsibilities. All these institutions play a role in active community participation, decentralization of planning and implementation, eco-friendly development and conservation activities.

Eco Development Committee (EDC)

History

An Eco-Development Committee (EDC) is similar to JFMCs, but meant for villages in Protected Areas and their buffer zones. Their setup, working, role, responsibilities, powers, funds etc. are as per the state level orders. Their area of operation is restricted to protected Areas, and forest and non-forest areas near protected areas. EDCs are set up with twin objectives – to protect wildlife and other biodiversity, and also undertake eco-development activities in the villages.

From 1982 - 2002, the cleanliness of the trek path and solid waste collection was done by various agencies, including the State Department of Health (DoH) and by Zila Panchayat with some contribution from Mahila Mandal/Pulna village for a distance of 6 km from Govind Ghat upto 3 km before Bhyundar in October to November.

The Youth Valley Development Committee (YVDC)/Yuvak Mandal also worked from 1999-2000, and which contributed in providing dustbins, solid waste cleaning, and signage development.

Later in 2003 **EDC, Bhyundar and EDC-Govind Ghat** were set up under the provisions of State's **Joint Forest Management Rules**, and they took up the task of solid waste collection from June 2003 onwards. A total of 123 tons non-biodegradable waste accumulated over last 20 years was cleared from the two villages with local community taking lead in the whole cleaning operation through their Eco Development Committees.

EDC Aim

- To keep the trek trail clean
- To keep this valley region free from polythene / plastics
- To provide employment opportunity to rural unemployed
- To conserve the environment of this valley region.

Structure

Funds to EDCs have been provided from the World Bank Forestry Project for the purpose of setting up revolving fund, basically for forestry related works.

Since Joint Forest Management (JFM) is based on the concept of “*Care and Share Philosophy*”, the JFM concept/EDC cannot be introduced in the Valley of Flowers National Park area (which is a core area of NDBR) as per the provisions of the Wild Life Protection Act, 1972 (as amended in 1991).

In general, the EDC's have helped the Department of Forest to a great extent to conserve and protect diverse flora and fauna of the reserve through their joint support, knowledge and skill.

Though, EDC can assist in conservation and eco-tourism, it does not have the authority to construct/develop infrastructure as per Forest (Conservation) Act, 1980.

Any local host community/EDC involvement in the core zones (VOFNP area) has to be in a very restricted and regulated way as decided and directed by the Department of Forests.

Governing General Body

- President of EDC who will chair the general body meetings. He/she will be elected for two years by consensus/majority vote. It will be ensured that a woman member is elected as President at least for alternative terms.
- All adult villagers, subject to their willingness, are members of the general body.
- Concerned Block Officer (BO) or Range Officer (RO) is the ex-officio member of the General Body.

Executive Body

- President of EDC who will chair the general body meetings. He/she will be elected for two years by consensus/majority vote.
- Concerned Block Officer (BO) or Range Officer (RO) is the Member Secretary of the Executive Body.
- Six of the General Body members (out of which three shall be women) who will be elected by a majority of General Body.
- A treasurer shall be appointed by the Member Secretary in consultation with the President from among the Executive Body members.
- At least one member from the forest-based artisan community, and if no such community is residing in the village, then a representative of the socially most marginal community shall be a member.
- There will be two ex-officio Members who will be nominated by the Member Secretary from the Panchayat of the area in which EDC falls. One of member will be a woman.

Functioning

- EDC, Bhyundar also prepares micro plans for Bhyundar/Pulna villages within the general aims and objectives of the Plan of Management of Nanda Devi Biosphere Reserve for site and individual beneficiary specific proposals. NDBR Management will direct the funds received from the Central Govt. to the EDC to carry out the envisaged works as incorporated in the Annual Plan of the Operation of the Reserve. EDC is entitled to share the resources/economic returns as per the State's Joint Forest Management Rules. The revolving fund already in the possession of EDC will continue to be used as their own Bhyundar/Pulna village bank fund and that fund will not be routed for carrying out the works of the micro plan. The Forest Department provides the services of social scientist and staff working as facilitators for the preparation and implementation of this plan
- Anybody can become a member by paying a nominal membership fee of Rs. 100.
- EDC Check-post Staff: 6 members (2 persons each at three Check-posts of Govind Ghat, return from Ghangharia and for Hemkunt Sahib trek).

- Cleaning Staff
- EDC Trained Guides
- Residential Requirement of Cleaning Staff: All the cleaning staff is non-resident of this region. These normally stay in the nearby settlements depending upon their assigned portion of trek path like, Govind Ghat, Ghangharia or in between with polythene huts.

Waste Management by EDC

The cleaning staff of the EDC takes the lead role in waste management at the cutting edge level. They collect both biodegradable and non-biodegradable waste averaging about 2-3 sacks of harmful waste per day per km for the Govind Ghat – Ghangharia – Hemkunt stretch. The cleaning staff receives a commission of Rs5-7 per sack of waste collected.

This waste is brought down to Govind Ghat on regular basis through mules on contract (these are those mules which normally bring food/ration supplies for various establishments from Govind Ghat and when returning they carry non-biodegradable waste sacks to Govind Ghat). For instance, each mule carries about 5 sacks and charges Rs. 150/- per mule from Ghangharia to Govind Ghat (20-25 such trips are made per day) and Rs. 250/- per mule is charged from Hemkunt Sahib to Govind Ghat (12-15 such trips are made per day).

The garbage collected is sent to Srinagar (Garhwal) and Dehradun for re-cycling. In 2013 one compressed machine was installed at Govindghat which greatly reduced the overall cost of re-cycling.





EDC Revenue

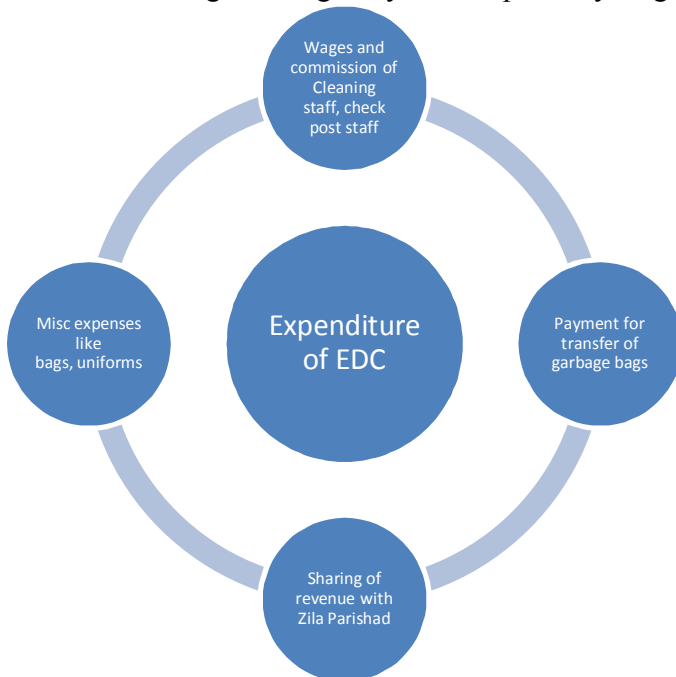
- Registration fee from mule owners and porters (dandi / kandi) of Rs. 100 is charged along with Rs. 20/- eco development fee per mule is charged on this trek path near Govind Ghat and at Ghangharia for Hemkunt Sahib trek and return from Ghangharia
- Eco-fee from Commercial Establishments: Earlier there used to be about 400 hundred unregistered commercial stalls/establishments, which now have been regularised and only 78 registered stalls/establishments exist along trek path (63 from Govind Ghat to Ghangharia and 15 from Ghangharia to Hemkunt Sahib). While at Ghangharia another 43 are regularised as hotels/lodges/restaurants/ photo studios/souvenir shops, etc. Those establishments/stalls, which are erected on the Private/Nap land, are registered as “Chak” and those on the land of Department of Forest’s are registered as “Chatti”. These stalls/establishment on registration are held accountable for proper solid waste collection and sanitation in their premises. Rs. 2500/- is collected as fee from Hotels/Lodges/Restaurants at Ghangharia while Rs. 1500/- is collected from Chatti’s and only Rs. 750/- is collected from Chak Stalls in two installments for the 4-month tourist season. The eco-fee is decided with participation of EDC and local host community in consensus.

Each EDC has a separate account in a Nationalised Bank or a Cooperative Bank or a Post Office, which is jointly operated by the President and the Member Secretary.



EDC Expenditure

- Wages: The Cleaning staff and the supervisor is paid the monthly wage of Rs. 1000.00. At every sack collected by the cleaning staff, they are paid additional commission of Rs. 7.00. The check-post staff is paid a total of Rs. 12,500/- per person for four month’s tourist season. The members of the EDC governing body are not paid any wages.



Needs

- To ensure adequate arrangements are made to bring down the collected waste from Hemkunt Sahib as well.
- EDC Cleaning staff's compensation is paltry keeping in mind the commendable job they have been trying to accomplish. This amount is very meagre as compared to their temporary residential/ clothing (including rain proof wear, water proof trek shoes) /food needs when they are at work in tourist season and knowing the fact that they are not resident of this region and have come on employment from other areas/states.
- Proper Mule Shed/Rest Areas and Mule Waste Disposal infrastructure.

Recommendations

- To ensure fairness EDC should introduce small receipts to be given to cleaning staff when the filled up sacks are collected from them, which they can produce either at Ghangharia / Govind Ghat and collect their commissions per sack.
- EDC may facilitate in providing cheap dormitory accommodation and toilet facilities for use of porters, mule operators, and palki/dandi carriers.
- EDC may revise the monthly wages given to cleaning staff and commission, so that they have access to better shelter/food / life. For collecting mule excreta in sacks to be deposited at designated locations near Bhyundar/Pulna villages, per sack commission may be decided upon and which could be higher (say 1.5 times) than that of what could be charged for a sack of non-biodegradable waste.
- EDC may revise the number of cleaning staff deployed and increase the deployment by providing 1 cleaning staff per 0.75 km for better waste collection and cleanliness of the trek path/surroundings at all times.
- EDC should monitor the compliance of registered stalls/establishments towards their responsibilities of not using fire wood for cooking/heating, ensuring cleanliness and not dumping any waste in forest/streams in open, ensuring provisions for proper waste collection and segregation of organic & inorganic wastes, requesting/encouraging customers to use waste bin and keeping surroundings clean, display fixed price rate charts & eco-awareness signages, and clearing of shop belongings & dis-assembling of shop structure once tourist season is over.
- EDC should utilize funds from its revenue in future on training/capacity building of the local community members and local service providers with the assistance of Department of Forests, Department of Tourism etc.

Van Panchayat

History

The State Government passed the Forest Panchayat Act (Forest Councils Act) of 1931. This Act empowered villagers to form relatively autonomous (at local level) management committees for

hill forests. This devolution of powers to control and manage forest for subsistence purpose is the earliest example of co-management of natural resources by the state and local communities in India

Since then, **Van Panchayats or Forest Panchayats have been incorporated under Section 28(2) of the Indian Forest Act, 1927.** Their objectives are to protect and develop forests and distribute their produce among stakeholders in an equitable manner. About 12,064 Van Panchayats have been established in Uttarakhand. These Van Panchayats manage a forest area of about 5,23,289 hectares forming about 14 percent of the total area of the state⁴ in eleven hill districts (administrative units) in the State

Van Panchayat is a valuable people-centric concept in Uttarakhand for the management and protection of the forest. Through their personal experiences and cultural background, local people have a deep understanding of economic and ecological issues associated with the forest.⁵ Earlier two types of Van Panchayats existed: (i) carved out of reserve forests and governed by the Indian Forest Act, 1927 and (ii) carved out of civil soyam land and governed by the District Schedule Act, 1931. However, the 'Van Panchayat regulation 2005' have consolidated these two types of Van Panchayats into "Gram-Van" (village forest).

Application for Van Panchayat

Minimum of the one fifth residents of the village or a resolution of the gram panchayat can apply to the SDM. No area shall be declared as Panchayat forest/Village forest if gram sabha or half or more than half residents object to the proposal.

Structure/constitution of the Van Panchayat

The SDM calls upon the residents of the village to assemble and constitute a VP through elections. There are total 9 members out of which 4 are reserved for women of which one is for SC/ST. Of remaining 5 seats one seat is reserved for male belonging to SC/ST. Elected members will elect a Sarpanch from amongst themselves.

Management of Van Panchayat

DFO prepares a composite management plan of all panchayati forests/Village forests under his control for a period of 5 years which shall be approved by the conservator of forests of the concerned region. The van Panchayat prepares a microplan under the guidance of the Ranger or Deputy Ranger of forests. This microplan is to be finally approved by the ACF in the concerned region.

Duties of the Van Panchayat

Duties as mentioned in the Rule 19 of the Uttarakhand Panchayati Forest (Van Panchayat) Rules, 2005

- Prepare five year microplan
- Protect trees from damage
- To prevent encroachment, illegal felling
- To ensure protection of the catchment areas and areas of water sources
- To promote natural regeneration
- Preservation of wildlife

Van Panchayat Funds

Panchayati Forest Fund shall be created for every VP and the income from the following sources shall be deposited in it (a) the sale of proceeds of forest produce (b) government grants (c) any other source of revenue (d) money being the share of VP lying unutilised with the collectors. VP shall manage the Panchayati Forest Fund under the overall control of the DFO. The account shall be operated by the Sarpanch.

Distribution and utilisation of Panchayati government shall be done in the following manner:

- a) 30% to Gram Panchayat for implementing general utility development schemes
- b) 40% for protection and development of Panchayat forest
- c) 30% for maintenance and development of local utility schemes.

Department of forests

The management of the Valley of Flowers National Park has been based on the following objectives and considerations:

- Keeping control on the extent and wide spread growth of the fast growing and pioneering flowering herb – the Polygonum polystachyum.
- Development and upkeep of the trek route within the tourism zone of the park.
- Maintenance of the park and keeping it free from any kind of polluting material.
- Providing impetus to the tourism and providing local employment (through EDC, etc.).
- Strict control on illicit removal of herbs and on poaching.
- Infrastructure development.

The habitat management works and other patrolling and related works are carried out from the funds received under management of “Parks and Sanctuaries” from the Department of Forest under State Budget every year.

Establishments

- A Forest Range Officer with a team of Beat Guards is deployed in the region with facilities of a FRH at Govind Ghat and Ghangharia,
- one Valley of Flowers Information Centre at Ghangharia and

- one Forest Ranger's Check-post after Ghangharia at the VOFNP entrance.

The Department of Forests plays an active role in the National Park area and plays a facilitator role in the local body created for management of the ecology and tourism (e.g. EDC, Bhyundar and EDC, Govind Ghat) It has representation in Van Panchayats of the area also where the local ACF approves the micro plan of the van panchayats.

From point of view of awareness/orientation to environmental protection and conservation, concerted efforts from the Department of Forests have been made like the Valley of Flowers Information Centre. Other Activities and management interventions of the forest department are discussed in detail later.

Revenue Department

The part of district administration including law and order in the Valley of Flowers-Hemkunt region falls under the jurisdiction of Patwari, Department of Revenue, *Pandukeshwar*. A Revenue Chowki is positioned at Ghangharia during the tourist season. Any accidents/crimes are reported to Patwari through wireless available at FRH/telephones.

The development at Ghangharia has happened in a very haphazard and unregulated manner over the past years. It was informed that attempts are being made to get the Ghangharia land to be regularised as per the provisions of the Forest (Conservation) Act, 1980, so that the current land/plot holdings are regularised as lands diverted for non-forest use and future development can be controlled and regulated by the Department of Revenue as per a revenue map till the tree line at Ghangharia. But as of now, the process of regularisation has not been completed and all the commercial establishments in the area are encroachments in legal terms.

Mahila Mandal Structure

Mahila Mandal, of the local village has been operating from many years. All the women folk of the village are the members of this organisation, and elect their governing board of Chairperson, Vice Chairperson, and Treasurer every 5 years.

Mahila Mandal Responsibilities

- Mahila Mandal has contributed in past in cleaning of the trek trail before EDC was formed and were paid for the services by the Department of Forest.
- Mahila Mandal has also contributed in environmental patrolling of the chak and chatti stalls to check whether they use eco-friendly fuel's like Kerosene/LPG or burnt wood. From those who burnt wood, a fine of Rs. 500/- per tourist season was collected. It is proposed that these kinds of control measures be continued and exercised.
- Wherever it is the Forest land /Van Panchayat land /Village land it should be the additional responsibility of the overall local community including the members of Mahila Mandal/EDC/Gram Sabha/Van Panchayat that tree felling is not undertaken.

- Mahila Mandal is interested in contributing to plantation activities (tree plantation, fodder grass plantation, etc.) along the areas demarcated by Department of Forest / Van Panchayat to increase the tree coverage, to check erosion along landslide/avalanche prone areas, and grow fodder grass.

Gram Sabha

As per the 73rd Constitutional Amendment of 1992, the 'Gram Sabha', consisting of all eligible voters, has been made the soul of the Panchayat institutions to discuss and decide their own problem and to further people's participation in various development programmes in a democratic way. This will foster maximum accountability and transparency of administration and public awareness at the village level. The village people elect members of the Gram Sabha and Gram Pradhan for 5 years. Gram Sabha have been empowered with such powers and authorities as are necessary to enable them to function as institutions of self-governance.

The amendment also emphasizes representation for women and SCs and STs to be ensured through reservation of a minimum of 1/3rd of members. In the 11th schedule, "Minor Forest Produce, "Social forestry and Farm Forestry," and "Fuel and fodder" are amongst the 29 departments transferred to the panchayats. Thus, ideally this would mean that the women elected to the panchayats would play a key role in the management of the forests.

Apart from the normal social and welfare activities for the Bhyundar/Pulna village, the Gram Sabha also undertakes the responsibility of operating and minor maintenance of the Micro-Hydel Plant (2x50KW turbines) at Ghangharia. The staff is trained by UREDA and collects the monthly electricity consumption charges at the rate of Rs. 35/- per bulb point connection from establishment at Ghangharia. Full season (4 months) contracts are also done by Govind Dham Gurdwara for Rs. 80,000/- if it wants to receive power fully from the above micro-hydel plant. Gram Sabha may also get some revenue shared by Van Panchayat as donation, which Van Panchayat collects on account of giving permission to interested village households for cutting and sale of grazing grass.

Trade Community

Keeping in mind the eco-tourism requirements the local accommodation & food providers and other commercial establishments shall adhere to the following guidelines:

- Get registered with the local eco-development committee, qualify for and retain the eco-certification. Display clearly and prominently the rates & tariffs. Pay eco-fee as decided.
- Offer a site-sensitive accommodation that is not wasteful of local resources or destructive to the environment and rather is inclined/contribute to protect threatened areas, species, and aesthetics of hill regions.
- Practice energy conservation.
- Conform to the laws of eco-sensitive zones and the height of structures above ground should not exceed 2 floors (G+1) at base settlements.
- Reduce wasteful consumption, make arrangements for easy & proper collection of waste, bury biodegradable waste, and send non-biodegradable waste for recycling, and do not litter or

dispose waste in open along the access/trek paths. Do not burn any non-biodegradable waste in open within valley region

- Practice fresh water management, harvest rainwater (for any other use except drinking purposes), control sewage disposal (use septic tanks and soak pits) and ensure any such effluent/waste is about 100 m away from the water bodies.
- Treat water directly collected from streams/springs for potable use, if the treated drinking water supply is not available.
- Control and diminish air emissions, and pollutants. Use LPG gas / energy efficient kerosene stoves for cooking/heating. Avoid burning fuel wood for cooking/heating.
- If electricity is unavailable, use energy efficient kerosene generators / minimise use of diesel generators. At least during periods of good sunshine using solar lanterns for lighting.
- Avoid or control environmentally unfriendly products, such as asbestos and toxic pesticides.
- Monitor, control, and reduce noise levels.
- Sale of cheap plastic raincoats is prohibited in the region. Good quality rain coats could be made available on rent on submitting the necessary deposit of money.

Local Transport Providers- Mules/ Palki Providers/ Porters

The local transport providers including mule and palki providers and porters have a big role in the environmental management of the area.. The main role of them would include:

- Mules, Porters and Palki owners/ operators have to be registered with EDC Govind Ghat.
- They should carry a photo certificate/ identify cards, this would induce confidence among the tourists.
- They shall abide by the standard fares decided at the beginning of the season
- These service operators will also have responsibility of making sure that the tourists abide by the environmental guidelines and also ensure the safety of tourists.
- Mule owners should try to also help in mule excreta collection and disposal management; they will also subject the mules for compulsory health checkups and proper feeding of mules.

Gurudwara Sri Hemkunt Sahib Management Trust

In 1959-60, shortly before his death Modan Singh established a seven-member Gurdwara Sri Hemkunt Sahib Management Trust to take over the management responsibilities of the Hemkunt shrine. Today this Trust oversees the operation of seven Gurdwaras along the route from Haridwar to Hemkunt.

At the Gurdwaras of Govind Ghat, Ghangharia/Govind Dham, and Hemkunt funds, supplies, and labour for operations, maintenance, and buildings are donated by *Jathas* and individual pilgrims, and managed by the Trust. The Trust has normally provided:

- Free accommodation (along with mattresses & blankets), Langar food, cloak room, and toilets at Gurdwaras to visitors of all faiths and nationality.
- Arrangements for health care and free medical treatment at Gurdwara dispensaries, including 2 ambulances at Govind Ghat.
- Tin shed room for Government Dispensary at Ghangharia and 1 patient room with 3 beds for this dispensary within the Gurdwara building.
- Support in cases of any deaths along the trek journey and bears the cost voluntarily for carrying the body down to Govind Ghat on a palki, informing Patwari at Pandukeshwar through phone/wireless to arrange for post-mortem and inform Police Chowki at Govind Ghat for any assistance required, and providing facility of Gurdwara Ambulance to carry the body to the place of choice of their relatives within India, irrespective of the deceased person belonging to any faith/nationality.
- Tin shed room for Revenue Police Chowki at Ghangharia.
- Awareness programme, which apart from giving the message of keeping the trek path clean, is said to be announced after every “ardaas” (prayer) that all those who are – children below 10 years age, patients of Asthma/Cardiac, persons above 70 years of age, physically handicapped should avoid to travel on this trek path to minimise medical emergencies.
- Some parking facility/space at Govind Ghat
- Funds (Rs. 50,000.00) for maintenance/cleanliness for trek path to EDC in each tourist season.
- Mules hired on contract for carrying Gurdwara supplies to Hemkunt to help in carrying the waste bags down.
- Assistance through Gurdwara *Sevadars* (volunteers) for clearing/repair of trek path at higher altitudes after any avalanche enroute to Hemkunt

Land Status

Land at the VOFNP

The Government of Uttar Pradesh (as Chamoli district was earlier in Uttar Pradesh) created “The Valley of Flowers National Park” as per **Notification No. 4278/XIV-3-66-80** with effect from September 6, 1982. The land at the valley of flowers national park comes under the jurisdiction and administration of the Forest department.

Of the 87.50 sq.km area of the Valley of Flowers National Park,

- 63.58 sq.km under perpetual Snow and Glaciers (72.66%)
- 05.29 sq.km under Forests (6.04%)
- 18.63 sq.km under Alpine Meadows (21.30%)

Land-use at Ghangharia

Total Area : 2.638 Ha

Category	Survey No.	No. of Units / Establishments	Area (Ha)	Percentage Break-up
State Govt. Land				
<i>Vacant Land</i>	3	1	0.220	8.3
<i>Trek Path</i>	46	1	0.063	2.4
Dept. of Forest Land	15	1	0.120	4.5
GMVN Land	6, 11, 12	3	0.273	10.3
UREDA Land	43	1	0.040	1.5
Gurdwara Land	45	1	0.620	23.5
Other Commercial Establishments	1-2, 4-5, 7-10, 13-14, 16-42, 44, 47-53	45	1.302	49.4
Total		53	2.638	100.0

The development in about 2.638 ha (area of current developed land under encroachment) has mostly happened in a linear fashion along the trek path within Ghangharia settlement. Department of Revenue Joshimath has conducted a survey of the land holdings in Nov. ;2002 and has prepared a revenue map of Ghangharia settlement – a step towards the process of regularisation for diversion of land with forest cover, as per the requirements of the Forest (Conservation) Act, 1980. But as of now, the process of regularisation has not been completed and all the commercial establishments in the area are encroachments.

Management Practices Undertaken by Department of Forests in the Valley of Flowers National Park

Overview

The Government of Uttar Pradesh (as Chamoli district was earlier in Uttar Pradesh) created “The Valley of Flowers National Park” as per **Notification No. 4278/XIV-3-66-80** with effect from September 6, 1982, the intention having been declared under Notification No. 5795/XIV-3-66-80 of 1 January 1981. After notification of the Park, grazing and camping is not permitted in the same. After notification of the Park the villagers have shifted their grazing activities to the lower and side valleys away from the National Park viz., Kanjila (to the south of Ghangharia), and Roopdhunga, Semartoli, and Rajkharak (towards west from Bhyundar village). The Valley of Flowers National Park is one of the core zones of NDBR.

Though the valley of flowers national park has an area of 87.5 sq km but available movable space is only 0.6 ha or 6000 sqm in the main valley.

Regulatory Activity

All the visitors to the national park have to register at the Forest Ranger’s Check-post after Ghangharia at the VOFNP entrance. A permit is granted to the visitor after payment of entrance fees and any other fees if applicable. The permit is valid for 3 days thereafter separate permit is required for each additional day.

The forest department staff at the check post maintains a log of entry/exit of visitors to ensure no one camps or is lost inside the park. If someone is inside the park beyond the stipulated time then a search team of forest staff goes inside to look for them



Fees

For initial 3 days permit, RS.150 is the fee for any Indian visitor while Rs.500 for any foreign visitor. Thereafter for each additional day, the fee is Rs.50/-

There is fees for using professional camera , making documentaries or feature films. The revenue from the fees collection is shared with the EDC.

No	Description	Indian (INR)	Foreigner (INR)
1	3) Entrance Fee/Entry Fee - head for first three days	150.00	500.00
1	4) For additional each days	50.00	175.00
2	Camera fee		
2) 2A) camera (non professional)		Free	Free
3) " " (professional)		Free	Free
3) 3) Video (non professional)		Free	Free
4) 4) Video (professional)		100.00	1500.00
3	Filming charges		
3) 3) Feature Film per day		10000.00	20000.00
4) 4) Documentary Film per day		2000.00	30000.00
4	Staying charges		
4) 4) Feature film per day		10000.00	20000.00
5) 5) Documentary film per day		2000.00	30000.00

Guidelines for the visitors

The visitors entering the Valley of Flowers National Park have to abide by the following rules and regulations in general:

- The visitors as individuals/teams shall ensure that the necessary clearances from the competent authorities have been obtained.
- Entry will be restricted to holders of valid permits.
- All visitors shall travel along the permitted route only and no deviations will be allowed.
- Staying overnight inside the national park is not allowed.
- The visitors shall ensure proper disposal of garbage and also ensure to bring back non-biodegradable waste with them. They must also refrain from polluting the waters with human and any other kind of wastes.
- The visitors shall not enter the national park with weapons which can injure, harm or kill any wild life or indulge in hunting and poaching of animals or kindle fires or leave burning embers, or destroy or remove any wild life, trees, herbs, shrubs, sign-posts, etc. within the National Park area.

Activities prohibited in the park

1. Do not camp or stay for the night inside the park.
2. Do not destroy, trample, collect or remove any plant and animal specimen whether live or dead or any geological specimen.
3. Do not carry and introduce any alien seeds or propagation material of any plant species and don't carry and introduce any exotic animals or pets.
4. Do not kindle fire, throw lighted matches, and cigarette or bidi butts.
5. Don't go for mountaineering, climbing, swimming, or any type of adventure activity.
6. Don't carry instruments, implements, tools, arms, firearms or chemicals harmful to wildlife and vegetation.
7. Don't shout, hoot, play audio /videotapes or transistor/radio inside the park.
8. Don't try to feed any wild animal.
9. Don't damage, break or distort the facilities provided by the park authorities.
10. Don't deface, put signboards, write or paint on the tree trunks / rocks, or any infrastructure (boundary walls / boundary pillars).



Trek Route Maintenance

Due to the fragile nature of the ecosystem, the trek route is sensitive to landslides during rainy season along with changes in stream course, bank erosion etc. The forest dept has laid down a path in dry stone kharanja (RR masonry) over soil/bridle path, with railings in some parts to ensure some permanency in the trek path.

Foliage that covers from both sides about 2/3 rd of the already narrow path are regularly pruned by the staff.



Bridges

The river Pushpawati already has a permanent steel truss bridge at 0.9 km point after Ghangharia. Three other strong rivulets - Gushadhar Garh, Dev Mangri Garh and Bistoli Garh require folding bridges. Small rivulets in the valley of flower are provided with make shift bridges.

The forest staff has also laid down makeshift bridges in the path to maintain continuity. These makeshift bridges are easy to handle and construct after heavy rainfall/floods.



Signage

The Department of Forests and local NGOs have put up signages to make tourists aware of the eco-sensitivity of the region and solid waste disposal issues. These signages are formal (painted mild steel sheet display boards & walls of stone masonry pits) as well as informal (at most of such signage location, information is painted on rock faces).



Erosion Control

The forest department regularly constructs gabion structures to reduce stream bank erosion and reduce impact on trek route. In the images below we can see the newly constructed part of the trek route which was damaged in the floods in 2013\



Weeding

The Dominant species are *Polygonum polystachyum* (Himalayan knotweed) and pinkish *Impatiens sulcata* take over the parts of valley in the month of September. These species are supposed to suppress the growth of other flowering species. *Polygonum polystachyum*, which is commonly called as “Saran”, tends to suppress some of flowering herbs and hinders a good view of the flowers. Polygonum grows mostly at an elevation of 3,300-3,500 m on disturbed habitats such as eroded slopes, boulder areas, avalanche prone areas and fragmented tree line zones. Flowering plants, on the other hand, dominate stable undulating areas and slopes.

Some 1,000 ha of meadow are infested with the tall fast growing Himalayan knotweed which controls erosion but crowds out and smothers the subalpine flora. Its increase where livestock used to congregate is related to the prohibition of grazing. While livestock overgraze and over-enrich the soil, they may enhance floral diversity by limiting the growth of taller more vigorous plants. Valley covered with *Polygonum polystachyum* (white flowers) and *Impatiens sulcata* (pink flowers)



Naturalists argue that there is a real threat of the Valley of Flowers turning into “Valley of Polygonum” resulting into grave loss of biodiversity. As such, Department of Forests has undertaken removal of Polygonum to allow other flowering herbs to grow.

Removal of Polygonum is done through manual uprooting of the entire plant (Rao method of weed control is applied). It is done before the plant starts flowering. The deweeding operation is done between 15th June and 15th July. The process is done only on some patches of the valley. The plant comes back in subsequent seasons but show lower dominance. As such, regular weeding operations are needed to keep the population of Polygonum under check.

It is important to note that Polygonum is a native species and acts as a good soil binder. As such, complete eradication of the plant is not desired.

Apart from this, the suggestion that controlled grazing should be allowed as a method of weed control in the National Park does not bear scientific scrutiny. Grazing would also impact other rare and endangered flowering species.

Awareness

One fully equipped nature interpretation-cum-information centre at Ghangharia is available in the Forest Rest House complex. At this nature interpretation centre, regular (30 minute) slide shows on Valley of Flowers and wild life are held in the evening hours (from 6:00 pm – 7:30 pm) throughout the 4-5 months of tourist season. Currently this slide show is conducted by few nature enthusiasts / interpreters / guides from the EDC members/local host community of Bhyundar / Pulna village trained by the office of the DFO & Deputy Conservator of Forest, Nanda Devi National Park, Joshimath. A nominal fee of Rs. 5.00 per person is charged for this show and these trained guides are available for hire by visitors while visiting the Valley of Flowers-Hemkund region at a charge of Rs. 500.00 per day.

Others

Apart from the slide shows, books and guides are readily available for reference. A board displaying the species found is setup at the entry gate. The forest department also facilitates educational and awareness visits for students.

FLORAL DIVERSITY OF VALLEY OF FLOWERS

Valley of Flowers is a **monsoon trek** and the drive to Govind Ghat itself offers **brehtaking rain-washed landscape** as the swollen **Alaknanda** accompanies you. It is a **pleasant walk** through lush greenery, streams and hill side hamlets. This Valley is a **botanists delight** as the entire valley is generally a **carpet of colours** – green, yellow, red, blue. The flowering pattern of the valley apparently changes every few days from March to November. While the flowers grow in abundance, these flowers are **rare**. It is **surrounded by mountains** with trees at lower levels, brown and grey soil in the middle and bright snow at the top.

During this five day trekking, we trekked from Govind ghat, the lowest altitude location to Hemkund Sahib, the highest altitude location. Enroute we have seen about **183** flowering species belonging to **64** families of flowering plants. The analysis of species shows that about eight families have more than five species (Figure 1). They have a variety of habits including herb, climbers, shrub, trees and orchids too (Figure 2). We are excited to see some of the IUCN Red Listed species, though many species do not have IUCN status corresponding to IUCN Red list data base (Figure 3).

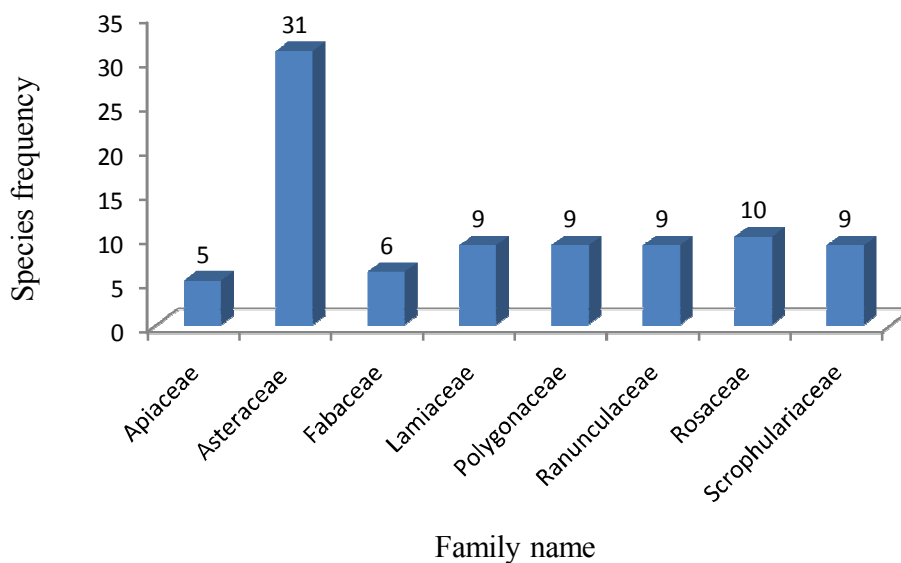


Figure 1. Frequency of species in each family

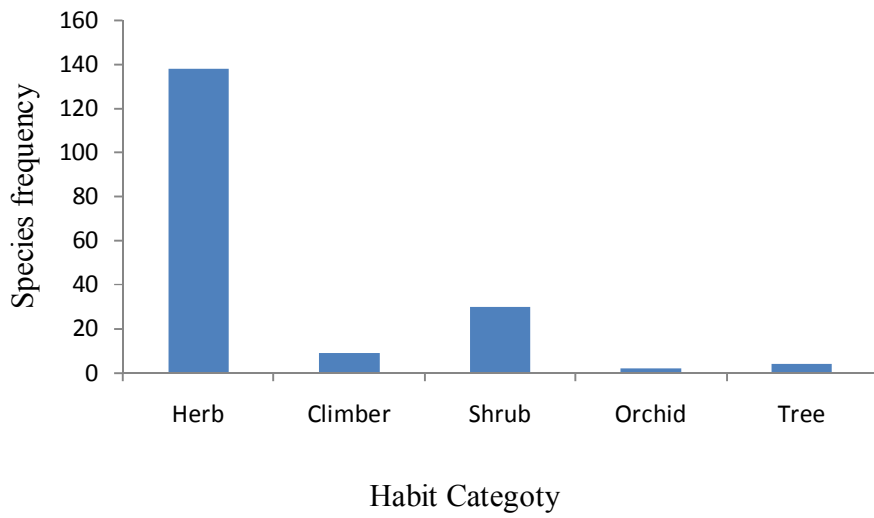


Figure 2. Number of species and their habit

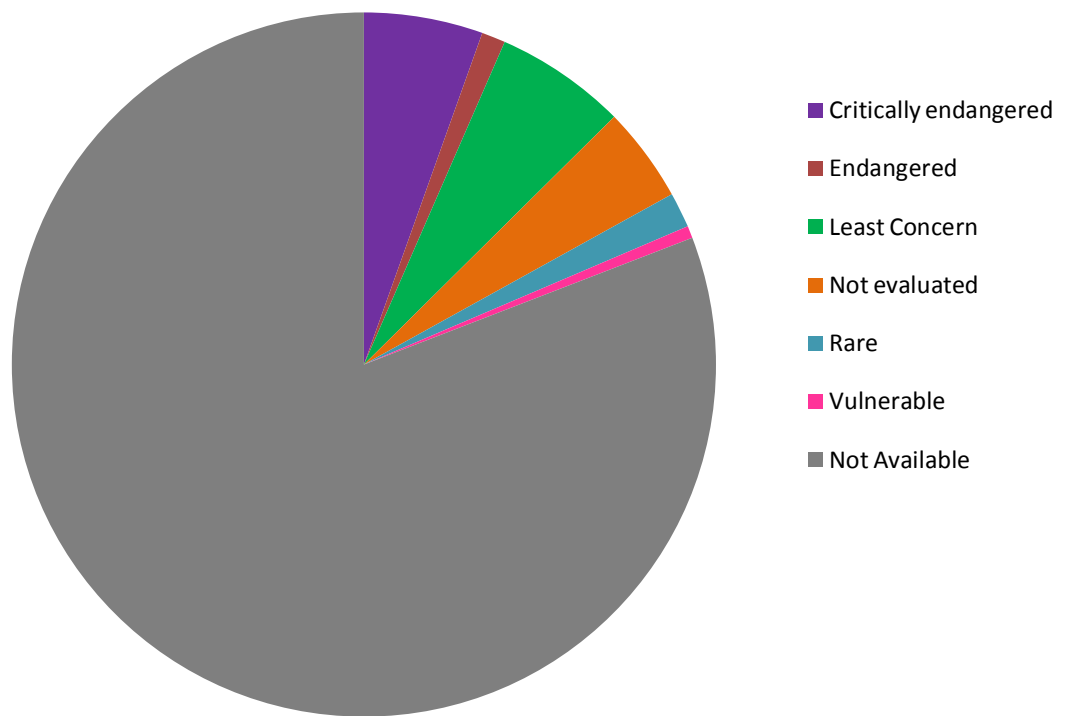


Figure 3. IUCN status of reported species

We have followed three major trek routes (Figure 4). However, for better understanding of flora, we are presenting the species along trekking route into eight location based segments. They are as follows:

1. Joshimath – 3 species
2. Phulna to Ghangaria – 49 species
3. Phulna to Valley of Flowers – 10 species
4. Ghangaria – 21 species
5. Ghangaria to Valley of Flowers – 25 species
6. Valley of Flowers – 52 species
7. Ghangaria to Hemkund – 16 species
8. Flora present both in Hemkund & Valley of Flowers – 7 species

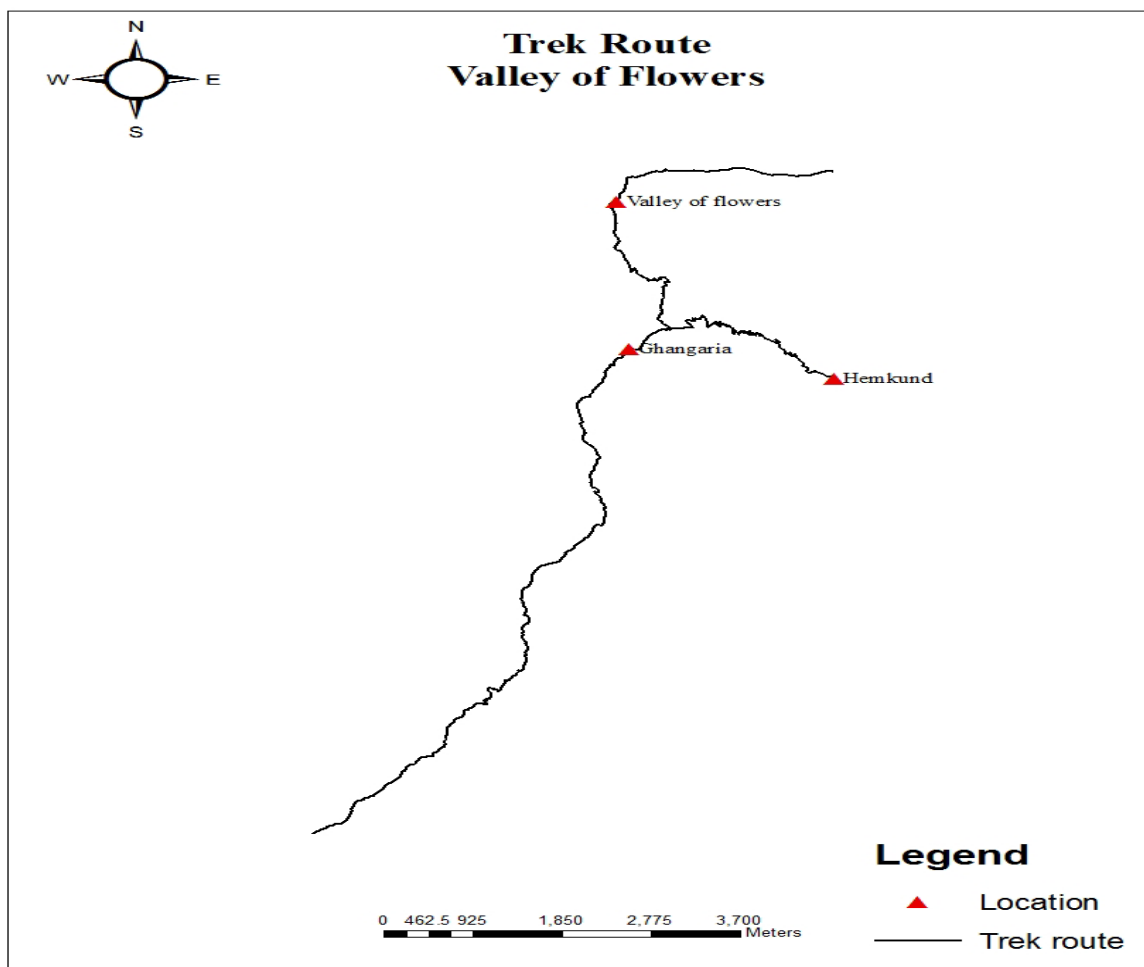


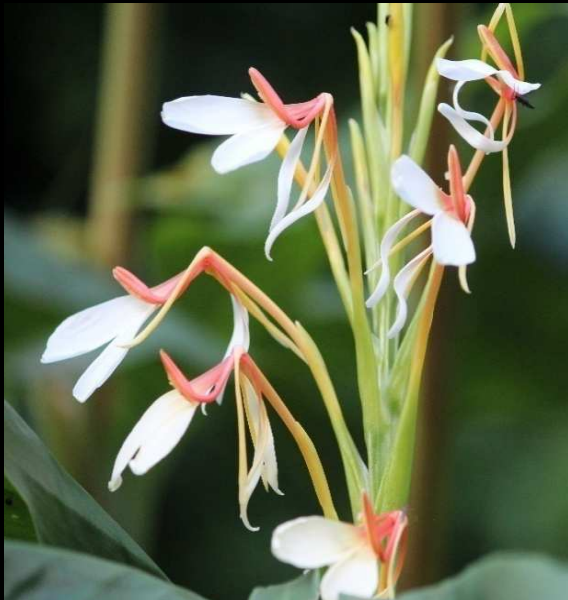
Figure 4. Trek route with major locations

Dicliptera roxburghiana



Common name	:	Roxburgh's Foldwing, Somni.
Habit	:	Herb
Family	:	Acanthaceae
Altitude range (m)	:	1900-2500
Flowering season	:	July-December
Uses	:	Leaves - to treat bleeding, cough, gastro-enteritis. Potent source of natural antioxidants.
Source	:	www.bmccomplementaltermmed.biomedcentral.com
IUCN category	:	NA

Hedychium spicatum



Common name	:	Spiked Ginger Lily, Kachri.
Habit	:	Herb
Family	:	Zingiberaceae
Altitude range (m)	:	1800-3000
Flowering season	:	June-August
Uses	:	Rhizome is used as bronchodilator & has anti-histaminic, anti-inflammatory & analgesic property.
Source	:	www.catalogueoflife.org , www.ncbi.nlm.nih.gov
IUCN category	:	NA

Kniphofia spp



Common name	:	Poker plant
Habit	:	Perennial herb
Family	:	Asphodelaceae
Altitude range (m)	:	1800-2500
Flowering season	:	July-August
Uses	:	NA
Source	:	www.en.wikipedia.org
IUCN category	:	NA

Achyranthes bidentata



Common name	:	Ox Knee
Habit	:	Herb
Family	:	Amaranthaceae
Altitude range (m)	:	1200-3200
Flowering season	:	July-September
Uses	:	Root juice - To treat toothache. Plant- to treat Leech bite. Its decoction is used as diuretic.
Source	:	www.flowersofindia.net , www.pfaf.org
IUCN category	:	NA

Anemone vitifolia



Common name	:	Grape Leaf Anemone
Habit	:	Herb
Family	:	Ranunculaceae
Altitude range (m)	:	2100-3000
Flowering season	:	August-September
Uses	:	Roots, Leaves used in Ringworm infections, eczema.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Artemisia nilagirica



Common name	:	Indian Wormwood, Nagdona
Habit	:	Perennial Shrub
Family	:	Asteraceae
Altitude range (m)	:	Upto 2400
Flowering season	:	August-October
Uses	:	In Manipur, leaves are used to prepare a local hair-care lotion Chinghi.
Source	:	www.envis.frlht.org
IUCN category	:	NA

Berberis aristata



Common name	:	Indian Barberry, Tree Turmeric
Habit	:	Shrub
Family	:	Berberidaceae
Altitude range (m)	:	1800-2800
Flowering season	:	March-June
Uses	:	Anti-cancer, revered herb in Ayurvedic medicine.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Bidens bipinnata



Common name	:	Yellow Flowered Blackjack
Habit	:	Shrub
Family	:	Asteraceae
Altitude range (m)	:	100–1800
Flowering season	:	June-August
Uses	:	Leaf juice-Used to treat eye & ear affections.It is applied to skin infections, as a haemostatic on wounds.
Source	:	www.plants.jstor.org
IUCN category	:	NA

Bidens pilosa



Common name	:	Begger Tick, Kumra
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	500-2500
Flowering season	:	Throughout the year.
Uses	:	Plant -To treat more than 40 disorders like inflammation, immunological & digestive disorders, infectious diseases, cancers, metabolic syndrome,
Source	:	www.flowersofindia.net
IUCN category	:	NA

Boenninghausenia japonica



Common name	:	NA
Habit	:	Perennial herb
Family	:	Rutaceae
Altitude range (m)	:	500-2800
Flowering season	:	May-Nov
Uses	:	NA
Source	:	http://www.efloras.org
IUCN category	:	NA

Colquhounia coccunea



Common name	:	Himalayan Mint Shrub
Habit	:	Shrub
Family	:	Lamiaceae
Altitude range (m)	:	1200-3000
Flowering season	:	August-September
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Coraria nepalensis



Common name	:	Masuri Berry
Habit	:	Shrub
Family	:	Coriariaceae
Altitude range (m)	:	800-2700
Flowering season	:	February-April
Uses	:	It might be a promising antimicrobial agent.
Source	:	Flowers of the Himalaya- O.Polunin & A.Stainton
IUCN category	:	NA

Corylus jacquemontii



Common name	:	Jacquemont's Hazel
Habit	:	Tree
Family	:	Betulaceae
Altitude range (m)	:	1800-3000
Flowering season	:	March-April
Uses	:	Nuts are edible
Source	:	www.flowersofindia.net
IUCN category	:	NA

Cyathula tomentosa



Common name	:	Woolly Pastureweed
Habit	:	Deciduous Shrub
Family	:	Amaranthaceae
Altitude range (m)	:	1400-2400
Flowering season	:	June-August
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Cynoglossum wallichii var. *glochidiatum*



Common name : Barbed Forget-Me-Not
Habit : Biennial herb
Family : Boraginaceae
Altitude range (m) : 1500-4000
Flowering season : May-August
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Datura stramonium



Common name	:	Jimson Weed, Thorn apple, Devil's snare.
Habit	:	Shrub
Family	:	Solanceae
Altitude range (m)	:	200-2200
Flowering season	:	March-September
Uses	:	Poisonous. It act as insect repellent, so protects other plants. Juice is applied over the scalp to treat hair fall, hair loss & dandruff.
Source	:	www.flowersofindia.net , www.rhs.org.uk
IUCN category	:	Critically endangered

Desmodium elegans



Common name	:	Elegant tick clover, Chamlai.
Habit	:	Shrub
Family	:	Fabaceae
Altitude range (m)	:	1000-3000
Flowering season	:	June-September
Uses	:	The roots are used as a carminative, diuretic & tonic. They are used in the treatment of biliousness & epilepsy.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Dioscorea deltoidea



Common name	:	Shingli-mingli
Habit	:	Climber
Family	:	Dioscoreaceae
Altitude range (m)	:	2500-3500
Flowering season	:	May-July
Uses	:	Tuber-to treat urinogenital diseases. Plant-manufacture progesterone & other steroid drugs
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Elsholtzia fruticosa



Common name	:	Shrubby Mint, Pothi.
Habit	:	Shrub
Family	:	Lamiaceae
Altitude range (m)	:	1800-3200
Flowering season	:	July-October
Uses	:	Seeds are used as a condiment in flavouring dishes & to get relief from Sciatica.
Source	:	www.pfaf.org , www.icimod.org
IUCN category	:	NA

Galinsoga quadriradiata



Common name	:	Peruvian daisy, Hairy galinsoga
Habit	:	Annual herb
Family	:	Asteraceae
Altitude range (m)	:	2000-3000
Flowering season	:	July-October
Uses	:	NA
Source	:	www.cabi.org , www.pfaf.org
IUCN category	:	NA

Galium asperuloides



Common name	:	Rough Goose Grass
Habit	:	Annual Herb
Family	:	Rubiaceae
Altitude range (m)	:	1000-2800
Flowering season	:	June-September
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Girardinia diversifolia



Common name	:	Bichchoo, Indian Stinging Nettle
Habit	:	Shrub
Family	:	Urticaceae
Altitude range (m)	:	800-3600
Flowering season	:	June-October
Uses	:	Leaves & roots are used in treating swollen joints & constipation respectively.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Hackelia uncinata



Common name	:	Hooked Stickseed, Forget me not
Habit	:	Herbaceous perennial
Family	:	Boraginaceae
Altitude range (m)	:	2700-3500
Flowering season	:	June-August
Uses	:	Tibetan medicine in treating cough, swelling, tumours & wounds
Source	:	www.flowersofindia.net
IUCN category	:	NA

Herpetospermum pedunculatum



Common name	:	Beej Karela, Balsam apple.
Habit	:	Herbaceous climber
Family	:	Cucurbitaceae
Altitude range (m)	:	2300-2500
Flowering season	:	July-October
Uses	:	In Tibetan medicine, seeds are used to treat inflammations, cholera, fever & piles.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Hypericum perforatum



Common name	:	Common St. John's wort, Basant
Habit	:	Herb
Family	:	Hypericaceae
Altitude range (m)	:	1000-3000
Flowering season	:	June-October
Uses	:	Leaves are used in alleviating fever.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Impatiens leggei



Common name : Mary Legge's Balsam
Habit : Annual erect herb
Family : Balsaminaceae
Altitude range (m) : 2400-3450
Flowering season : July-October.
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Impatiens scabrida



Common name : Rugged Yellow Balsam, Areli
Habit : Herb
Family : Balsaminaceae
Altitude range (m) : 1200-3000
Flowering season : May-September
Uses : Edible seeds.

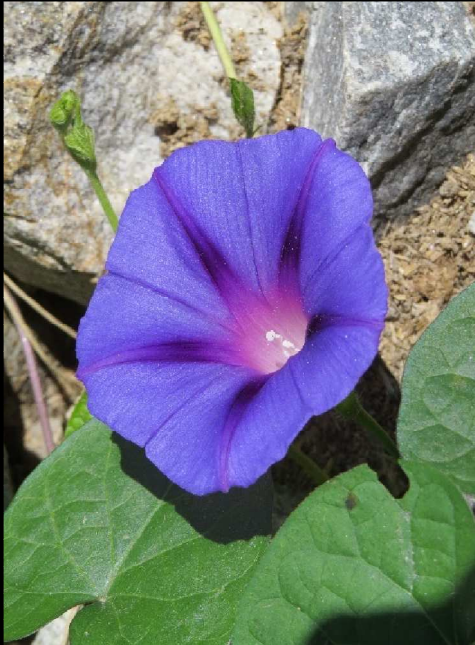
Source : www.flowersofindia.net
IUCN category : NA

Indigofera heterantha



Common name	:	Himalayan Indigo
Habit	:	Deciduous Shrub
Family	:	Fabaceae
Altitude range (m)	:	1500-3000
Flowering season	:	May-October
Uses	:	Flowers s are used as vegetable & leaves in alleviating dysentery and cough.
Source	:	www.valleyofflowers.net
IUCN category	:	NA

Ipomea purpurea



Common name	:	Common morning-glory, Kaphlaga
Habit	:	Climber
Family	:	Convolvulaceae
Altitude range (m)	:	1000-2400
Flowering season	:	April to October
Uses	:	Seeds are considered to have anthemintic, diuretic & laxative properties.
Source	:	www.valleyofflowers.net
IUCN category	:	NA

Lactuca dolichophylla



Common name : Long Leaved Lettuce
Habit : Herb
Family : Asteraceae
Altitude range (m) : 1300-3300
Flowering season : July-October
Uses : NA

Source : www.valleyofflowers.net
IUCN category : NA

Leptodermis lanceolata



Common name	:	Lanceleaf Leptodermis
Habit	:	Herb
Family	:	Rubiaceae
Altitude range (m)	:	2000-3500
Flowering season	:	June-August
Uses	:	The leaves & flowers were burned as incense in Nepal
Source	:	www.flowersofindia.net
IUCN category	:	NA

Lindenbergia indica



Common name	:	Nettle Leaved Lindenbergia
Habit	:	Herb
Family	:	Scrophulariaceae
Altitude range (m)	:	1000-2800
Flowering season	:	July-August
Uses	:	Plant Juice is given in chronic bronchitis & mixed with coriander plant applied to skin eruptions.
Source	:	www.flowersofindia.net
IUCN category	:	Least Concern

Myriactis javanica



Common name	:	Bakura
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	1500-3000
Flowering season	:	June-August.
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Nicandra physalodes



Common name	:	Shoo-fly plant
Habit	:	Herb
Family	:	Solanaceae
Altitude range (m)	:	800-2200
Flowering season	:	June-September
Uses	:	Whole plant used as a sedative and a cough remedy. It is accredited with pain killing, vermicide, antibacterial & anti-inflammatory properties.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Opuntia vulgaris



Common name	:	Yellow Prickly Pear
Habit	:	Xerophytic Shrub
Family	:	Cactaceae
Altitude range (m)	:	upto 1800
Flowering season	:	July-October
Uses	:	Commercially used in juices & alcoholic drinks.
Source	:	www.valleyofflowers.net
IUCN category	:	NA

Origenum vulgare



Common name	:	Oregano
Habit	:	Herb
Family	:	Lamiaceae
Altitude range (m)	:	1500-3000
Flowering season	:	July-August
Uses	:	Used in treating bronchitis, colic, diarrhoea, hysteria, menstrual disorders
Source	:	www.valleyofflowers.net
IUCN category	:	Least Concern

Parochetus communis



Common name : Shamrock pea, Blue oxalis
Habit : Herb
Family : Fabaceae
Altitude range (m) : 1500-3000
Flowering season : July-August
Uses : NA

Source : www.flowersofindia.net
IUCN category : Least Concern

Peristrophe paniculata



Common name	:	Atrilal
Habit	:	Herb
Family	:	Acanthaceae
Altitude range (m)	:	100-1800
Flowering season	:	July-October
Uses	:	In Ayurveda medicine, roots are used in treatment of Leucorrhoea, wounds & snake bites.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Persicaria nepalensis



Common name	:	Atrilal
Habit	:	Herb
Family	:	Acanthaceae
Altitude range (m)	:	100-1800
Flowering season	:	July-October
Uses	:	In Ayurveda medicine, roots are used in treatment of Leucorrhoea, wounds & snake bites.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Phytolacca acinosa



Common name	:	Indian Poke weed
Habit	:	Herb
Family	:	Phytolaccaceae
Altitude range (m)	:	1500-4300
Flowering season	:	June-September.
Uses	:	Plant alleviates body ache, Leaves & twigs are used as vegetables.
Source	:	www.flowersofindia.net
IUCN category	:	Not evaluated

Polygonum amplexicaule



Common name	:	Amlī
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	2100-4800
Flowering season	:	July-September
Uses	:	Leaves are used to treat dysentery & wounds. Whole plant is believed to cause abortion.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Prochetus communis



Common name : Shamrock pea or Blue oxalis
Habit : Herb
Family : Fabaceae
Altitude range (m) : 1500-3000
Flowering season : July-September
Uses : NA

Source : www.flowersofindia.net
IUCN category : Least Concern

Rubia manjith



Common name	:	Indian Madder, Manjith
Habit	:	Climbing Shrub
Family	:	Rubiaceae
Altitude range (m)	:	1200-2700
Flowering season	:	June-November.
Uses	:	Stem-snake & scorpion bites. Plant-manjeeth (valuable dye). Essential oil of flower & root showed highest cytotoxicity against lung cancer cell lines.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Solanum nigrum



Common name	:	Black nightshade
Habit	:	Perennial herb
Family	:	Solanaceae
Altitude range (m)	:	Upto 3000
Flowering season	:	Throughout the year.
Uses	:	Plant is used for skin diseases, rheumatism, and gout. Juice of the herb is given in chronic enlargement of the liver.
Source	:	www.flowersofindia.net
IUCN category	:	Not evaluated

Sorbaria tomentosa



Common name	:	Kashmir false Spiraea, Kathi.
Habit	:	Shrub
Family	:	Rosaceae
Altitude range (m)	:	1800-2900
Flowering season	:	June-September
Uses	:	Fruits are used in treatment of asthma & lung infections.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Stachys melissaefolia



Common name	:	Bee Leaf Woundwort
Habit	:	Herb
Family	:	Lamiaceae
Altitude range (m)	:	2100-2400
Flowering season	:	June-August
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Stellaria semivestita



Common name	:	NA
Habit	:	Herb
Family	:	Caryophyllaceae
Altitude range (m)	:	2000-2800
Flowering season	:	May-September
Uses	:	Plant has Anti-cancer property against human epidermoid carcinoma.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Stiphenia glabra



Common name	:	Gindaru, Aaknadi, Raja Patha
Habit	:	Climbing Shrub
Family	:	Menispermaceae
Altitude range (m)	:	2000-2200
Flowering season	:	May-August
Uses	:	Tubers are used in treating asthma, convulsions, dysentery, fever & hysteria.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Strobilanthes atropurpurea



Common name	:	Deep-Blue Curved Bells, Kandi
Habit	:	Perennial herb
Family	:	Acanthaceae
Altitude range (m)	:	2500-3600
Flowering season	:	June-August
Uses	:	Young shoot is used as vegetable.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Not evaluated

Urtica dioica



Common name	:	Common Nettle, Bichchu
Habit	:	Shrub
Family	:	Urticaceae
Altitude range (m)	:	1000-2500
Flowering season	:	August-october
Uses	:	Plant is used to treat disorders of kidney, urinary tract, rheumatism, gastrointestinal tract & gout.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Verbascum thapsus



Common name	:	Aaron's rod, Cow's lungwort.
Habit	:	Herb
Family	:	Scrophulariaceae
Altitude range (m)	:	1800-4000
Flowering season	:	January-June
Uses	:	Treatment of bronchitis & asthma. Flowering spikes to treat leucoderma & Seeds- to treat hysteria and also narcotic.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Arisaema jaquemontii



Common name	:	Jacquemont's Cobra Lily
Habit	:	Herb
Family	:	Araceae
Altitude range (m)	:	2300-4000
Flowering season	:	June-July
Uses	:	Fruits are used as antidote in snakebites.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Least Concern

Cirsium wallichii



Common name	:	Wallich's Thistle, Bursa.
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	2400-3500
Flowering season	:	August-October
Uses	:	In Tibet medicine, whole plant is used in treating fever.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Fragaria nubicola



Common name	:	Himalayan Strawberry
Habit	:	Perennial Herb
Family	:	Rosaceae
Altitude range (m)	:	1800-3800
Flowering season	:	June-August
Uses	:	The juice of the plant is used in the treatment of profuse menstruation. The unripe fruit is chewed to treat blemishes on the tongue.
Source	:	www.practicalplants.org
IUCN category	:	NA

Geranium wallichianum



Common name	:	Crane's bill, Laljar
Habit	:	Herbaceous perennial
Family	:	Geraniaceae
Altitude range (m)	:	2400-3600
Flowering season	:	June-September
Uses	:	Root is used in treating peptic ulcer, hair loss, ear & eye diseases.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Impatiens sulcata



Common name	:	Gigantic Himalayan Balsam , Dog flower
Habit	:	Herb
Family	:	Balsaminaceae
Altitude range (m)	:	1800-4000
Flowering season	:	July-September
Uses	:	Edible seeds, paste of whole plant is used to treat various skin diseases.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Leonurus cardiaca



Common name	:	Motherwort
Habit	:	Herb
Family	:	Lamiaceae
Altitude range (m)	:	2400-3600
Flowering season	:	June-August
Uses	:	Plant is used as a uterine tonic & to treat cardiac & liver diseases, insomnia.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	`

Mazus surculosus



Common name : Suckering Mazus
Habit : Herb
Family : Scrophulariaceae
Altitude range (m) : 1000-3300
Flowering season : June-August.
Uses : NA

Source : www.efloras.org
IUCN category : NA

Rosa microphylla



Common name	:	Double Chestnut Rose, Wild Rose.
Habit	:	Mounding bushy Shrub.
Family	:	Rosaceae
Altitude range (m)	:	2500-3000
Flowering season	:	June-August
Uses	:	Fruit pulp is edible, flowers are used in treatment of skin diseases.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Senecio graciliflorus



Common name : Ground sel, Luchee
Habit : Herb
Family : Asteraceae
Altitude range (m) : 2100-4100
Flowering season : June-October
Uses : NA

Source : Valley of Flowers - K. R. Keshava Murthy
IUCN category : Rare

Taxus baccata



Common name	:	Himalayan Yew, Thuner.
Habit	:	Tree
Family	:	Taxaceae
Altitude range (m)	:	2100-3400
Flowering season	:	March-July
Uses	:	Taxol- potential anti cancer drug. Bark & leaves- to treat fever associated with oedema, and rheumatism.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Rare

Anagalis arvensis



Common name	:	Scarlet Pimpernel
Habit	:	Annual herb
Family	:	Primulaceae
Altitude range (m)	:	1300-2200
Flowering season	:	June-September.
Uses	:	In homeopathy, it is used against various rashes & nervous complaints.
Source	:	www.pfaf.org , www.luontoportti.com
IUCN category	:	NA

Cardamine hirsuta



Common name	:	Hairy bitter cress
Habit	:	Herb
Family	:	Brassicaceae
Altitude range (m)	:	700-2500
Flowering season	:	May-October
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Clematis connata



Common name	:	Himalayan Clematis
Habit	:	Climbing Shrub
Family	:	Ranunculaceae
Altitude range (m)	:	1800-3300
Flowering season	:	July-September.
Uses	:	The juice of the plant is inhaled to relieve sinusitis.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Commelina benghalensis



Common name	:	Bengal spiderwort.
Habit	:	Annual herb
Family	:	Commelinaceae
Altitude range (m)	:	upto 3500
Flowering season	:	July-October
Uses	:	Whole plant is used to treat Dysentry. It has diuretic, febrifuge & anti-inflammatory properties.
Source	:	www.indiabiodiversity.org
IUCN category	:	Least Concern

Commelina maculata



Common name	:	Kopla, Spotted Dayflower
Habit	:	Annual herb
Family	:	Commelinaceae
Altitude range (m)	:	upto 2900
Flowering season	:	July-September.
Uses	:	Leaves & tender shoots are used as vegetables.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Corydalis casimiriana



Common name	:	Casimir's Fumitory, Blue Corydalis.
Habit	:	Perennial herb
Family	:	Fumariaceae
Altitude range (m)	:	2200-4700
Flowering season	:	May-August
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Cynoglossum wallichii



Common name	:	Woolly Pastureweed
Habit	:	Deciduous Shrub
Family	:	Amaranthaceae
Altitude range (m)	:	1400-2400
Flowering season	:	June-August
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Epilobium coloratum



Common name	:	Cinnamom Willowherb
Habit	:	Herb
Family	:	Onagraceae
Altitude range (m)	:	3000-4500
Flowering season	:	July-September
Uses	:	NA
Source	:	www.wildflower.org
IUCN category	:	Least Concern

Erysimum hieraciifolium



Common name	:	European Wallflower, Siberian wallflower
Habit	:	Perennial Herb
Family	:	Brassicaceae
Altitude range (m)	:	2000-3500
Flowering season	:	June-September
Uses	:	Young shoots are edible.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Euphorbia pilosa



Common name	:	Chounpalu, Chuplya
Habit	:	Shrub
Family	:	Euphorbiaceae
Altitude range (m)	:	2000-3600
Flowering season	:	May-September
Uses	:	Roots have laxative & emetic properties.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Geranium nepalense



Common name : Nepal Geranium, Nepalese crane's bill
Habit : Herbaceous perennial
Family : Geraniaceae
Altitude range (m) : 1500-2900
Flowering season : June-September
Uses : Root is used in colouring medicinal oil.

Source : www.catalogueoflife.org
IUCN category : Not evaluated

Impatiens devendrae



Common name : NA
Habit : Annual Herb
Family : Balsaminaceae
Altitude range (m) : 2900-3100
Flowering season : June-September
Uses : NA

Source : Valley of Flowers - K. R. Keshava Murthy
IUCN category : NA

Leucas lanata



Common name	:	Woolly Leucas, Gumma.
Habit	:	Herb
Family	:	Lamiaceae
Altitude range (m)	:	700-3000
Flowering season	:	June-October
Uses	:	Plant is used to treat head ache, stomach ache, whooping cough & wounds.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Oxalis corniculata



Common name	:	Indian Sorrel, Katti-bhuti
Habit	:	Herb
Family	:	Oxalidaceae
Altitude range (m)	:	Upto 2400
Flowering season	:	Throughout the year.
Uses	:	Leaves are used as appetizer & to treat cough, cuts, wounds, constipation, Jaundice & skin diseases.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Least Concern

Piptanthus nepalensis



Common name	:	Evergreen Laburnum
Habit	:	Shrub
Family	:	Fabaceae
Altitude range (m)	:	2100-3600
Flowering season	:	March-May
Uses	:	NA
Source	:	Flowers of the Himalaya- O.Polunin & A.Stainton.
IUCN category	:	Not evaluated

Polygonum capitatum



Common name	:	Kaflya
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	100-4800
Flowering season	:	June-September.
Uses	:	Plant is used as an antidote for snake poison, boil & insect sting.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Rhodiola trifida



Common name : Trifid Sedum
Habit : Perennial herb
Family : Crassulaceae
Altitude range (m) : 2000-3500
Flowering season : July-September
Uses : NA

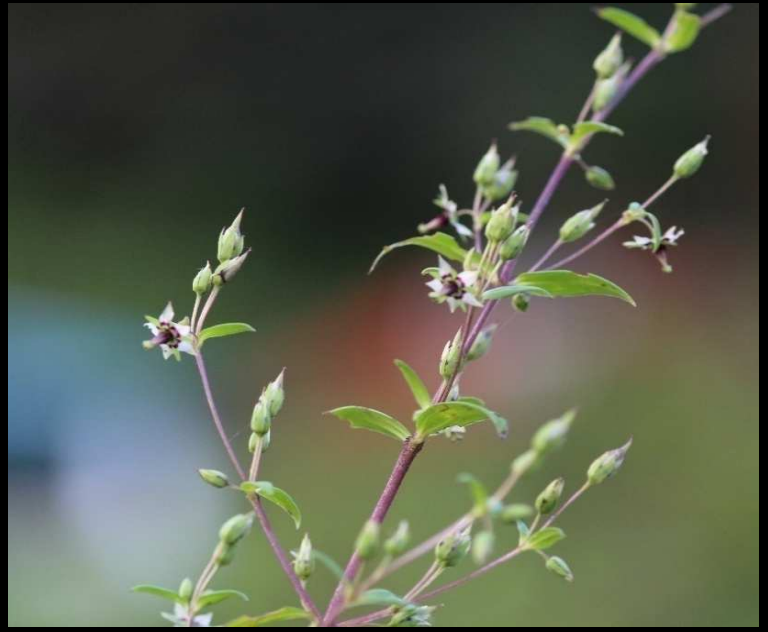
Source : www.flowersofindia.net
IUCN category : Not evaluated

Spiranthus sinensis



Common name	:	Phirlya
Habit	:	Erect orchids
Family	:	Orchidaceae
Altitude range (m)	:	2800-3300
Flowering season	:	July-September
Uses	:	Whole plant is used in treatment of fever & Tuber is used as a tonic.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Swertia ciliata



Common name : Ciliated Swertia
Habit : Herb
Family : Gentianaceae
Altitude range (m) : 2800-4000
Flowering season : July-September
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Trifolium repens



Common name	:	White clover,ladino
Habit	:	Herb
Family	:	Fabaceae
Altitude range (m)	:	1650-2500
Flowering season	:	July-September
Uses	:	Fodder. Leaves has astringent property & used in Gout treatment.
Source	:	www.montana.plant-life.org
IUCN category	:	NA

Trollius acaulis



Common name	:	Dwarf Globe Flower
Habit	:	Herb
Family	:	Ranunculaceae
Altitude range (m)	:	3000-4300
Flowering season	:	May-June
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Anaphalis royleana



Common name : NA
Habit : Herb
Family : Asteraceae
Altitude range (m) : 1800-3300
Flowering season : June-August
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Anaphalis triplinervis



Common name	:	Woolly Pearly Everlasting
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	1800-3300
Flowering season	:	July-October
Uses	:	Leaves and flowers are dried in sunlight and ground. The powder is taken orally to treat acidity.
Source	:	www.niscair.res.in , www.flowersofindia.net
IUCN category	:	NA

Angelica archangelica



Common name	:	Mountain Angelica, Holy Ghost
Habit	:	Herb
Family	:	Apiaceae
Altitude range (m)	:	2500-4000
Flowering season	:	May-September
Uses	:	Treatment of asthma, bronchitis.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Aster albescens



Common name	:	Himalayan Aster
Habit	:	Shrub
Family	:	Asteraceae
Altitude range (m)	:	800-3600
Flowering season	:	June-September
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Campanula pallida



Common name	:	Pale Bellflower
Habit	:	Herb
Family	:	Campanulaceae
Altitude range (m)	:	1000-4500
Flowering season	:	April-October
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Corydalis cornuta



Common name : Horned Corydalis
Habit : Herb
Family : Papavaraceae
Altitude range (m) : 2300-4300
Flowering season : July-September
Uses : Ornamental plant.

Source : www.flowersofindia.net, www.ncbi.nlm.nih.gov.
IUCN category : Critically endangered

Cuscuta reflexa



Common name	:	Amar Bel, Sky creeper
Habit	:	Parasitic herbaceous climber
Family	:	Cuscutaceae
Altitude range (m)	:	1000-3300
Flowering season	:	August-September
Uses	:	Whole plant is used in the treatment of fracture, burn, eye diseases, rheumatism and stomach ache.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Least Concern

Cyananthus lobatus



Common name	:	Trailing Bellflower
Habit	:	Perennial herb
Family	:	Campanulaceae
Altitude range (m)	:	3200-4500
Flowering season	:	July-September
Uses	:	Tibetan medicine in treating Constipation
Source	:	www.flowersofindia.net
IUCN category	:	NA

Erigeron multiradiatus



Common name	:	Himalayan fleabane, Rayhanda.
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	2600-4400
Flowering season	:	August-September
Uses	:	Whole plant is used as a brain tonic & to treat Renal disorders & stomach ache.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Fagopyrum dibotrys



Common name	:	Perennial Buckwheat
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	1500-3400
Flowering season	:	May-September
Uses	:	Anodyne, anthelmintic, antiphlogistic, carminative, depurative & febrifuge. Leaf -treatment of lumbago, menstrual issues.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Geranium robertianum



Common name	:	Bloodwort, Fox Geranium, Red Robin
Habit	:	Sprawling herb
Family	:	Geraniaceae
Altitude range (m)	:	2100-3500
Flowering season	:	July-September
Uses	:	Used as a remedy for toothache and nosebleeds.
Source	:	www.catalogueoflife.org
IUCN category	:	Not evaluated

Inula grandiflora



Common name	:	Showy Inula
Habit	:	Hairy perennial Herb
Family	:	Asteraceae
Altitude range (m)	:	2000-3500
Flowering season	:	June-September
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Ligularia amplexicaulis



Common name	:	NA
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	3000-4500
Flowering season	:	July-September
Uses	:	In Tibetan medicine, stem & leaf is used to treat digestive disorders, vomiting & indigestion. Root - poultice to sprains & dislocated bones.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Morina longifolia



Common name	:	Whorl flower, Biskandru
Habit	:	Herb
Family	:	Dipsacaceae
Altitude range (m)	:	3000-4000
Flowering season	:	June-September
Uses	:	Roots in used treating boild and wounds, digestive disorder, vomiting & nausea.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Nepeta laevigata



Common name	:	Smooth Catmint
Habit	:	Herb
Family	:	Lamiaceae
Altitude range (m)	:	3200-4500
Flowering season	:	June-August.
Uses	:	Used medicinally as a diaphoretic.
Source	:	www.efloras.org
IUCN category	:	NA

Parnassia nubicola



Common name	:	Himalayan Bogstar
Habit	:	Herb
Family	:	Parnassiaceae
Altitude range (m)	:	2900-4300
Flowering season	:	July-September
Uses	:	Treatment of food poisoning, rootstocks are used externally in snakebites.
Source	:	www.plants.jstor.org
IUCN category	:	NA

Phlomis bracteosa



Common name	:	Jamtikle
Habit	:	Herb
Family	:	Lamiaceae
Altitude range (m)	:	1200-4000
Flowering season	:	July-September
Uses	:	Nectar of flowers is used in treating eye infections.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Potentilla cuneata



Common name	:	NA
Habit	:	Herbaceous perennial
Family	:	Rosaceae
Altitude range (m)	:	2400-4500
Flowering season	:	June-September.
Uses	:	NA
Source	:	Flowers of the Himalaya- O.Polunin & A.Stainton.
IUCN category	:	NA

Potentilla cuneifolia



Common name	:	NA
Habit	:	Herbaceous perennial
Family	:	Rosaceae
Altitude range (m)	:	2700-5600
Flowering season	:	July-October
Uses	:	Ornamental, garden variety.
Source	:	www.catalogueoflife.org
IUCN category	:	NA

Prenanthes brunoniana



Common name : Nimula, Himalayan Rattlesnake Root
Habit : Herbaceous perennial
Family : Asteraceae
Altitude range (m) : 1800-4500
Flowering season : July-October
Uses : Leaves are used to treat sores & wounds.

Source : www.catalogueoflife.org
IUCN category : NA

Rosa sericea



Common name	:	Silky Rose
Habit	:	Erect Shrub
Family	:	Rosaceae
Altitude range (m)	:	2500-4500
Flowering season	:	June-September
Uses	:	Fruit pulp is edible, petals are used for flavouring tea.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Salvia nubicola



Common name : Himalayan Cloud Sage, Yellow Sage
Habit : Perennial Herb
Family : Lamiaceae
Altitude range (m) : 2100-4300
Flowering season : July-September
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Selinum wallichianum



Common name	:	Milky Parsely, Bhuktesi
Habit	:	Herb
Family	:	Apiaceae
Altitude range (m)	:	2700-4000
Flowering season	:	June-September
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Thalictrum foliolosum



Common name	:	Indian Meadow-Rue, Mamera
Habit	:	Herb
Family	:	Ranunculaceae
Altitude range (m)	:	1500-3200
Flowering season	:	June-september
Uses	:	Root is used for treatment of ophthalmia, colic pain & fever.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Viburnum



Common name	:	Aaron's rod, Cow's lungwort.
Habit	:	Herb
Family	:	Scrophulariaceae
Altitude range (m)	:	1800-4000
Flowering season	:	January-June
Uses	:	Treatment of bronchitis & asthma. Flowering spikes to treat leucoderma & Seeds- to treat hysteria and also narcotic.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Aconitum balfourii



Common name	:	Himalayan monkshood
Habit	:	Herb
Family	:	Ranunculaceae
Altitude range (m)	:	2200-4000
Flowering season	:	August-September.
Uses	:	The entire plant is used in Tibetan medicine. Highly Poisonous
Source	:	www.flowersofindia.net
IUCN category	:	Endangered

Allium wallichii



Common name	:	Himalaya Onion, Jimbur
Habit	:	Herb
Family	:	Alliaceae
Altitude range (m)	:	2300-6600
Flowering season	:	July-August
Uses	:	The bulbs are eaten for treating cholera and dysentery.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Anemone tetrasepala



Common name	:	Four petal Anemone
Habit	:	Herb
Family	:	Ranunculaceae
Altitude range (m)	:	1800-3300
Flowering season	:	July- August
Uses	:	Root - Insecticidal properties, antirheumatic and vermifuge, to treat dysentery, toothache & scabies. Leaf powder on the scalp to treat head lice.
Source	:	www.practicalplants.org
IUCN category	:	NA

Arnebia benthamii



Common name	:	Himalayan Arnebia
Habit	:	Herb
Family	:	Boraginaceae
Altitude range (m)	:	3000-4300
Flowering season	:	May-July
Uses	:	Roots have Antiseptic property
Source	:	www.flowersofindia.net
IUCN category	:	Least Concern

Aster diplostephioides



Common name	:	NA
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	3000-4800
Flowering season	:	June-September
Uses	:	Flower used in treating fever, influenza & poisoning.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Astralagus himalananum



Common name	:	Himalayan Milk Vetch
Habit	:	Herb
Family	:	Fabaceae
Altitude range (m)	:	3500-4500
Flowering season	:	June-September
Uses	:	Seeds used in treatment of Colic pain, Leprosy
Source	:	www.flowersofindia.net
IUCN category	:	NA

Berberis jaeschkeana



Common name	:	Berberry
Habit	:	Shrub
Family	:	Berberidaceae
Altitude range (m)	:	1800-2200
Flowering season	:	June-August
Uses	:	Plants used as an astringent, roots for treating cuts and wounds, jaundice, urinary disorder & skin disease.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Bupleurum candollei



Common name	:	Himalayan Thorowax, Hare's Ear.
Habit	:	Perennial herb
Family	:	Apiaceae
Altitude range (m)	:	2400-4000
Flowering season	:	June-August
Uses	:	Its roots are used in traditional Chinese medicine “chai hu” for treatment of coughs, fevers, & influenza.
Source	:	Flowers of the Himalaya- O.Polunin & A.Stainton.
IUCN category	:	NA

Bupleurum lanceolatum



Common name : NA
Habit : Herb
Family : Apiaceae
Altitude range (m) : 2000-3000
Flowering season : June-August
Uses : NA

Source : Valley of Flowers - K. R. Keshava Murthy
IUCN category : NA

Carex cruenta



Common name : NA
Habit : Shrub
Family : Cyperaceae
Altitude range (m) : 3000-5500
Flowering season : July-August
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Chaerophyllum acuminatum



Common name : West Himalayan Chervil
Habit : Herb
Family : Apiaceae
Altitude range (m) : 2200-4000
Flowering season : June-August
Uses : Roots are used as leaves.

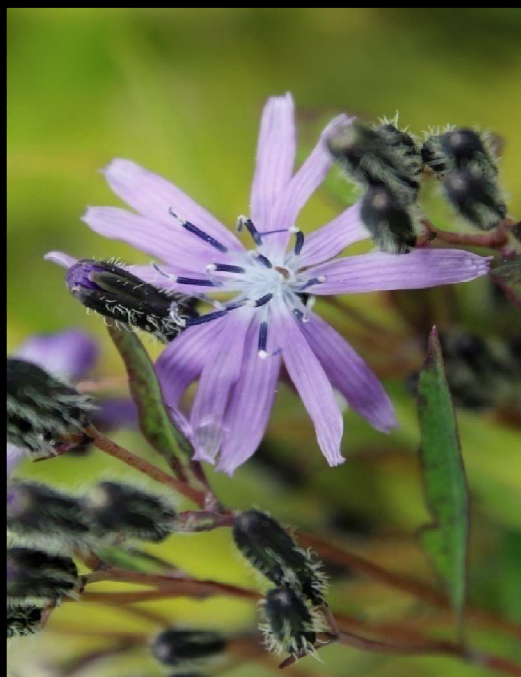
Source : www.flowersofindia.net
IUCN category : NA

Cicerbita cyanea



Common name	:	NA
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	2100-3900
Flowering season	:	September-October
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Cicerbita macrorhiza



Common name	:	Violet Dandelion
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	2500-3500
Flowering season	:	August-October
Uses	:	In Tibet medicine, whole plant is used in treating fever.
Source	:	www.flowersofindia.net , www.valleyofflowers.info
IUCN category	:	NA

Clematis montana



Common name	:	Anemone clematis, Kaunia
Habit	:	Climber
Family	:	Ranunculaceae
Altitude range (m)	:	1600-3200
Flowering season	:	April-August.
Uses	:	Leaves used in treatment of diabetes & juice of leaves is useful in Sinusitis
Source	:	www.flowersofindia.net
IUCN category	:	NA

Codonopsis rotundifolia



Common name	:	Bell wort.
Habit	:	Climber
Family	:	Campanulaceae
Altitude range (m)	:	2800-3600
Flowering season	:	July-August
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Cotoneaster microphyllus



Common name	:	Rockspray Cotoneaster, Wali
Habit	:	Mat-forming shrub
Family	:	Rosaceae
Altitude range (m)	:	2000-5400
Flowering season	:	May-October
Uses	:	A rose-tan dye is obtained from the edible fruit. Whole plant has astringent property. Leaves- scabies treatment
Source	:	www.flowersofindia.net , www.valleyofflowers.net
IUCN category	:	Not evaluated

Cuscuta europaea



Common name	:	Greater Dodder
Habit	:	Climber
Family	:	Convolvulaceae
Altitude range (m)	:	upto 3600
Flowering season	:	NA
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Cyananthus microphyllus



Common name : Mall-leaved Trailing Bellflower

Habit : Herb

Family : Campanulaceae

Altitude range (m) : 3000-4800

Flowering season : August-October

Uses : Used in Erosion Control.

Source : www.flowersofindia.net

IUCN category : NA

Dubyaea hispida



Common name : Bristly Dubyaea
Habit : Perennial Herb
Family : Asteraceae
Altitude range (m) : 2700-4300
Flowering season : August-October
Uses : NA

Source : Valley of Flowers - K. R. Keshava Murthy
IUCN category : NA

Epilobium latifolium



Common name	:	River Beauty, Dwarf Fireweed.
Habit	:	Herb
Family	:	Onagraceae
Altitude range (m)	:	3600-4500
Flowering season	:	July-October
Uses	:	The entire plant is used as an Analgesic, antidote, anti-inflammatory, antipruritic, antirheumatic and febrifuge.
Source	:	www.pfaf.org , www.icimod.org
IUCN category	:	NA

Epilobium laxum



Common name : Lax Willow herb
Habit : Herb
Family : Onagraceae
Altitude range (m) : 2100-4200
Flowering season : July-September
Uses : Used to relieve inflammation.

Source : www.flowersofindia.net
IUCN category : NA

Euphrasia platyphylla



Common name	:	NA
Habit	:	Herb
Family	:	Scrophulariaceae
Altitude range (m)	:	2700-3700
Flowering season	:	June-August
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Fritillaria roylei



Common name	:	East Himalayan Fritillary
Habit	:	Herb
Family	:	Liliaceae
Altitude range (m)	:	2700 - 4000
Flowering season	:	June-July
Uses	:	Tubers used for treating is asthma, fever, tuberculosis, ophthalmic and oxytocic
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Critically endangered

Gaultheria trichophylla



Common name	:	Himalayan Snowberry
Habit	:	Shrublet
Family	:	Ericaceae
Altitude range (m)	:	2700-4500
Flowering season	:	May-July
Uses	:	A useful ground cover for shady places.
Source	:	www.valleyofflowers.net , www.pfaf.org
IUCN category	:	Critically endangered

Halenia elliptica



Common name	:	Spurred Gentian
Habit	:	Herbaceous perennial
Family	:	Gentianaceae
Altitude range (m)	:	1800-4100
Flowering season	:	July-October
Uses	:	Tibetan medicine in treating fever, inflammations & stomach disorders.
Source	:	www.catalogueoflife.org
IUCN category	:	NA

Hemiphragma heterophyllum



Common name	:	Nash Jhaar
Habit	:	Herb
Family	:	Scrophulariaceae
Altitude range (m)	:	1800-3600
Flowering season	:	June-August
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Leontopodium brachyactis



Common name	:	Lion's foot
Habit	:	Soft woolly Herb
Family	:	Asteraceae
Altitude range (m)	:	2000-4100
Flowering season	:	June-August
Uses	:	NA
Source	:	www.valleyofflowers.net
IUCN category	:	NA

Leycesteria formosa



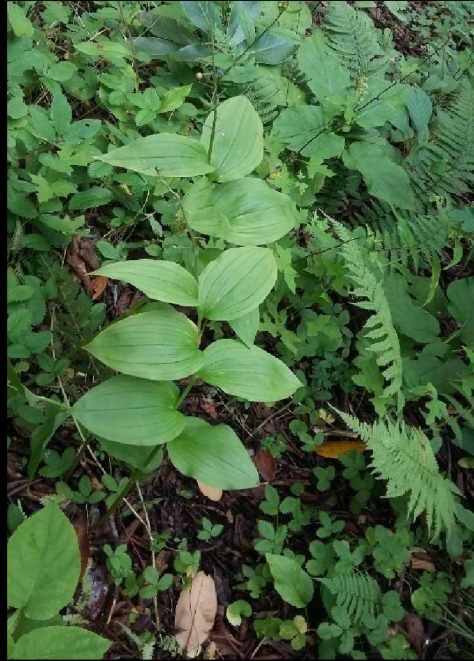
Common name	:	Himalayan honeysuckle, Gulnar.
Habit	:	Shrub
Family	:	Caprifoliaceae
Altitude range (m)	:	1000-2800
Flowering season	:	June-August
Uses	:	Leaf paste is used to treat dandruff & to kill lice.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Lonicera obovata



Common name	:	Blueberry honey suckle
Habit	:	Shrub
Family	:	Caprifoliaceae
Altitude range (m)	:	3000-4000
Flowering season	:	May-July
Uses	:	NA
Source	:	www.inaturalist.org
IUCN category	:	NA

Mianthemum purpureum



Common name	:	Himalayan Mayflower
Habit	:	Herb
Family	:	Asparagaceae
Altitude range (m)	:	2400-4200
Flowering season	:	April-June
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	Critically endangered

Nepeta erecta



Common name	:	Erect Catmint
Habit	:	Herb
Family	:	Lamiaceae
Altitude range (m)	:	2100-3600
Flowering season	:	June-August.
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Pedicularis hoffmeisteri



Common name : Haldya Phool
Habit : Herb
Family : Scrophulariaceae
Altitude range (m) : 2500-4500
Flowering season : June-September
Uses : NA

Source : www.valleyofflowers.info
IUCN category : NA

Pedicularis bicornuta



Common name	:	Horned Lousewort
Habit	:	Herb
Family	:	Scrophulariaceae
Altitude range (m)	:	2700-4500
Flowering season	:	July- August
Uses	:	In Tibetan medicine, flowers are used to treat diseases related to seminal & vaginal discharges.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Pedicularis porrecta



Common name : Paired Flower Lousewort
Habit : Perennial Herb
Family : Scrophulariaceae
Altitude range (m) : 3600-4500
Flowering season : June-August.
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Polygonatum verticillatum



Common name	:	Whorled Solomon's Seal
Habit	:	Herb
Family	:	Liliaceae
Altitude range (m)	:	1500-3700
Flowering season	:	June-September.
Uses	:	Roots & leaves are edible. Root is used in gastric complaints, cuts & wounds.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Potentilla artrisanaguinea



Common name	:	Cinquefoil
Habit	:	Herbaceous perennial
Family	:	Rosaceae
Altitude range (m)	:	2700-5600
Flowering season	:	June-August
Uses	:	Ornamental, garden variety.
Source	:	www.catalogueoflife.org
IUCN category	:	NA

Prenanthes violaeifolia



Common name	:	Pityla, Viola-Leaved Blue Snow-Thistle
Habit	:	Herbaceous perennial
Family	:	Asteraceae
Altitude range (m)	:	2700-4500
Flowering season	:	June-October
Uses	:	Leaves are used to treat dysmenorrhoea.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Primula reidii



Common name	:	NA
Habit	:	Herbaceous perennial
Family	:	Primulaceae
Altitude range (m)	:	3300-4500
Flowering season	:	June-September.
Uses	:	NA
Source	:	www.encyclopaedia.alpinegardensociety.net
IUCN category	:	NA

Ranunculus laetus



Common name : NA
Habit : Perennial herb
Family : Ranunculaceae
Altitude range (m) : 1200-2700
Flowering season : June-August
Uses : NA

Source : www.Valleyofflowers.info, www.efloras.org
IUCN category : NA

Rheum webbianum



Common name	:	Indian Rhubarb or Small Himalayan Rhubarb
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	2000-4500
Flowering season	:	June-August
Uses	:	Roots are used in treating abdominal disorders. Leaves are used as appetiser & making Chutney.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Rhododendron anthopogan



Common name	:	Dwarf Rhododendron, Shrublet
Habit	:	Shrub
Family	:	Ericaceae
Altitude range (m)	:	3000-4800
Flowering season	:	May-July
Uses	:	Used as incense. Leaves-treatment of bronchitis, cold, digestive disorders & skin diseases
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Vulnerable

Ribes himalense



Common name	:	Himalayan Gooseberry, Himalayan Currant
Habit	:	Erect Shrub
Family	:	Grossulariaceae
Altitude range (m)	:	2400-3300
Flowering season	:	April-June
Uses	:	Edible berries are used in jams & cakes.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Rumex acetosa



Common name	:	Bladder Dock, Blister sorrel.
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	2200-4300
Flowering season	:	June-August
Uses	:	Plant is used as laxative, antipyretic. Treatment of spasms & skin diseases in Homoeopathic medicine
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Senecio laetus



Common name	:	Ragwort, Zerjum
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	2400-4000
Flowering season	:	June-September
Uses	:	Whole plant is used in treatment of debility, body swelling & sore throat.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Rare

Silene indica



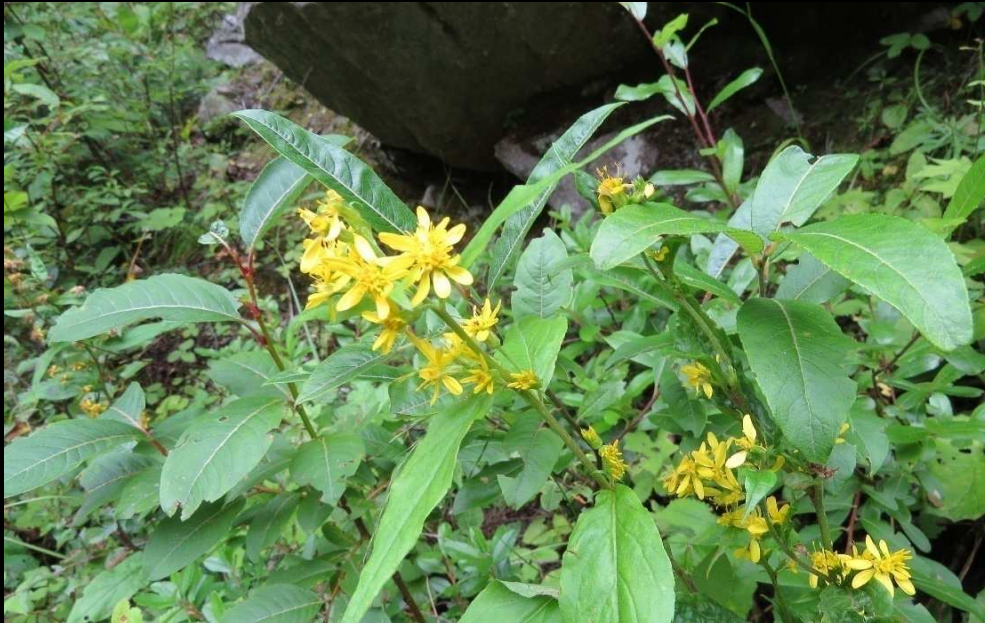
Common name	:	Indian Campion
Habit	:	Herb
Family	:	Caryophyllaceae
Altitude range (m)	:	2400-2700
Flowering season	:	August-September
Uses	:	Whole plant is edible.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Silene vulgaris



Common name	:	NA
Habit	:	Herb
Family	:	Caryophyllaceae
Altitude range (m)	:	1800-4000
Flowering season	:	June-September
Uses	:	Young shoots & leaves are used as vegetables. Leaves are used in treating bronchitis.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Solidago virgaurea



Common name	:	Golden Rod, Sonali.
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	1800-3500
Flowering season	:	June-September
Uses	:	To treat asthma,rheumatism,cuts & wounds. Leaves - kidney trouble. Roots- to treat throat infections.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Sonchus oleraceus



Common name : Common Sowthistle
Habit : Annual herb
Family : Asteraceae
Altitude range (m) : 2500-3500
Flowering season : June-August
Uses : NA

Source : www.pfaf.org
IUCN category : NA

Sorbus wallichii



Common name : Wallich's rowan
Habit : Tree
Family : Rosaceae
Altitude range (m) : 2400-3100
Flowering season : April-June
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Spiraea canescens



Common name	:	Jhair-mairala
Habit	:	Shrub
Family	:	Rosaceae
Altitude range (m)	:	1500-2800
Flowering season	:	May-October
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Taraxacum officinale



Common name	:	Bitter wood,Dandelion
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	1500-4000
Flowering season	:	March-November
Uses	:	Whole plant is used to treat blisters, dysentery & wounds. A magenta-brown dye is obtained from the root.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Thymus linearis



Common name	:	Balma jhar, Ban-Ajwain
Habit	:	Creeping Herb
Family	:	Lamiaceae
Altitude range (m)	:	1500-4300
Flowering season	:	May-September
Uses	:	Whole plant is used in treatment of eye diseases, post-natal complications, liver complaints, skin diseases & stomach ache.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Acer cappadocicum



Common name	:	Caucasian Maple
Habit	:	Deciduous tree
Family	:	Aceraceae
Altitude range (m)	:	2100-3000
Flowering season	:	March-May
Uses	:	Knotty burs used in making Tibetan cups.
Source	:	www.flowersofindia.net
IUCN category	:	Least Concern

Aconitum violaceum



Common name	:	Violet Monkshood, Tilla
Habit	:	Herb
Family	:	Ranunculaceae
Altitude range (m)	:	3600-4800
Flowering season	:	July-September
Uses	:	Used in Tibetan medicine, Highly Poisonous.
Source	:	www.flowersofindia.net
IUCN category	:	Vulnerable

Bistorta affinis



Common name	:	Himalayan Knotweed
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	3000-4800
Flowering season	:	June-September
Uses	:	Entire plant used in treatment of cold, Diarrhoea
Source	:	www.flowersofindia.net
IUCN category	:	NA

Corydalis meifolia



Common name : Threadleaf Corydalis
Habit : Herb
Family : Papavaraceae
Altitude range (m) : NA
Flowering season : June-August
Uses : Ornamental plant.

Source : www.flowersofindia.net
IUCN category : Endangered

Cremanthodium arnicoides



Common name : Himalayan Daisy
Habit : Herb
Family : Asteraceae
Altitude range (m) : 3300-4800
Flowering season : July-September.
Uses : NA

Source : www.flowersofindia.net
IUCN category : NA

Juncus thomsonii



Common name	:	Thomson's Rush
Habit	:	Herb
Family	:	Juncaceae
Altitude range (m)	:	3000-5200
Flowering season	:	June-September
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

leontopodium himalayanum



Common name	:	Himalayan Edelweiss
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	2000-3500
Flowering season	:	June-September
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Lomatogonium carinthiacum



Common name	:	NA
Habit	:	Herb
Family	:	Gentianaceae
Altitude range (m)	:	2600-3300
Flowering season	:	June-August
Uses	:	NA
Source	:	www.flowersofindia.net
IUCN category	:	NA

Meconopsis aculeata



Common name	:	Blue Poppy, Gul-e Nilam
Habit	:	Herb
Family	:	Papavaraceae
Altitude range (m)	:	3000-4500
Flowering season	:	June-September
Uses	:	Whole plant is used as tonic, pain killer.
Source	:	www.flowersofindia.net
IUCN category	:	Critically endangered

Oxyria digyna



Common name	:	Mountain sorrel
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	2400-5500
Flowering season	:	June-August.
Uses	:	Whole plant is used as appetizer. The leaves are rich in vitamin C & are used to treat scurvy.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Pedicularis punctata



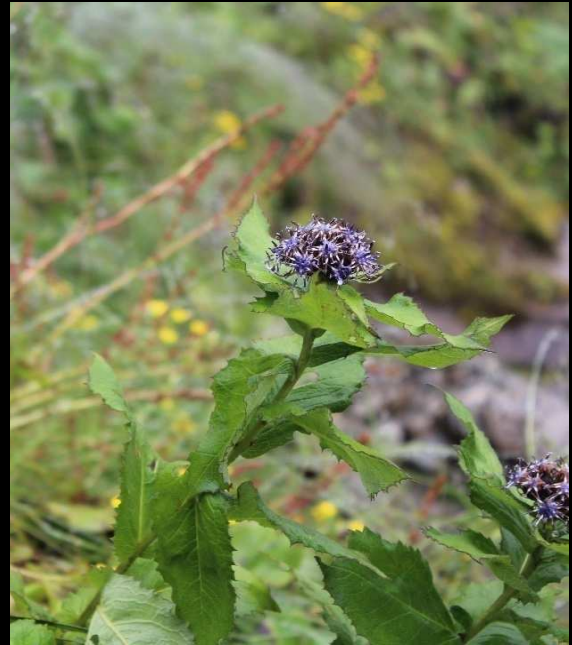
Common name	:	Kashmir Lousewort
Habit	:	Herb
Family	:	Scrophulariaceae
Altitude range (m)	:	2700-4500
Flowering season	:	August-October.
Uses	:	Locals use roots to treat flatulence in cattle.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Saussurea obvallata



Common name	:	Sacred Lotus, Brahmakamal.
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	3800-4600
Flowering season	:	June-September
Uses	:	Roots-to treat cuts and bruises. Whole plant-Tibetan medicine to treat paralysis of limbs, flowers-effective in treating hydrocele
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Critically endangered

Saussurea piptathera



Common name : NA
Habit : Herb
Family : Asteraceae
Altitude range (m) : 3200-3800
Flowering season : July-September
Uses : NA

Source : Valley of Flowers - K. R. Keshava Murthy
IUCN category : NA

Saxifraga brachypoda



Common name : NA
Habit : Herb
Family : Saxifragaceae
Altitude range (m) : 3000-5000
Flowering season : July-September
Uses : NA

Source : Valley of Flowers - K. R. Keshava Murthy
IUCN category : NA

Sedum oreades



Common name	:	Mountain Sedum
Habit	:	Annual succulent herb.
Family	:	Crassulaceae
Altitude range (m)	:	3000-4000
Flowering season	:	June-September.
Uses	:	NA
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Bistorta vacciniifolia



Common name	:	Inuri, Rose Carpet Knotweed
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	2000-4800
Flowering season	:	June-September
Uses	:	Leaves are used as vegetables & roots are used to treat tuberculosis.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Dactylorhiza hatagirea



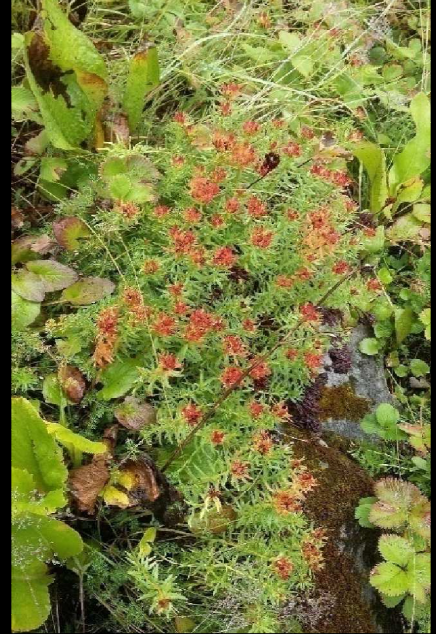
Common name	:	Panch anguli
Habit	:	Orchid
Family	:	Orchidaceae
Altitude range (m)	:	2800-4100
Flowering season	:	June-August
Uses	:	Tuber is used in treating bone fracture, bronchitis & wounds.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Critically endangered

Polygonum polystachyrum



Common name	:	Kaflya
Habit	:	Herb
Family	:	Polygonaceae
Altitude range (m)	:	100-4800
Flowering season	:	June-September.
Uses	:	Plant is used as an antidote for snake poison, boil & insect sting.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	NA

Rhodiola wallichiana



Common name	:	Wallich's rhodiola
Habit	:	Herb
Family	:	Crassulaceae
Altitude range (m)	:	3000-4500
Flowering season	:	June-September
Uses	:	Ornamental plant.
Source	:	www.flowersofindia.net
IUCN category	:	NA

Saussurea auriculata



Common name	:	Nuri, Nurya, Thimra
Habit	:	Perennial herb
Family	:	Asteraceae
Altitude range (m)	:	2000-4300
Flowering season	:	August-late October
Uses	:	Leaves are used as vegetables.
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Critically endangered

Saussurea costus



Common name	:	Costus, Koot, Kushta
Habit	:	Herb
Family	:	Asteraceae
Altitude range (m)	:	2000-3800
Flowering season	:	June-September
Uses	:	Root -to treat dysentery,rheumatism,skin disorder,ulcer, mental ailment,snake bite.Tibetan medicine-to treat menstrual issues
Source	:	Valley of Flowers - K. R. Keshava Murthy
IUCN category	:	Critically endangered

Saxifraga parnassifolia



Common name : NA
Habit : Herb
Family : Saxifragaceae
Altitude range (m) : 2200-5500
Flowering season : August-October
Uses : NA

Source : Valley of Flowers - K. R. Keshava Murthy
IUCN category : NA

Birds
&
Butterflies




Tits

Bird	Description
	<p>Common Name: Great Tit Scientific Name: <i>Parus major</i> Habitat: Forest and well-wooded country</p>
	<p>Common Name: Green-backed Tit Scientific Name: <i>Parus monticolus</i> Habitat: Forest</p>
	<p>Common Name: Rufous-naped Tit Scientific Name: <i>Periparus rufonuchalis</i> Habitat: Coniferous forest</p>
	<p>Common Name: Coal Tit Scientific Name: <i>Periparus ater</i> Habitat: Coniferous and broadleaved forest</p>



Common Name: **Black-throated Tit**
 Scientific Name: *Aegithalos concinnus*
 Habitat: **Broadleaved & coniferous forests and secondary growth**





Redstarts

Bird	Description
	<p>Common Name: White-capped Redstart Scientific Name: <i>Chaimarrornis leucocephalus</i> Habitat: Mountain streams and rivers</p>
	<p>Common Name: Plumbeous Water Redstart (Male) Scientific Name: <i>Rhyacornis fuliginosa</i> Habitat: Mountain streams and rivers</p>
	<p>Common Name: Plumbeous Water Redstart (Female) Scientific Name: <i>Rhyacornis fuliginosa</i> Habitat: Mountain streams and rivers</p>

Flycatchers

Bird	Description
	<p>Common Name: Dark-sided Flycatcher Scientific Name: <i>Muscicapa sibirica</i> Habitat: Temperate and subalpine forest</p>
	<p>Common Name: Ultramarine Flycatcher Scientific Name: <i>Ficedula superciliaris</i> Habitat: Temperate broadleaved or pine forest (in summer)</p>
	<p>Common Name: Grey-headed Canary Flycatcher Scientific Name: <i>Culicicapa ceylonensis</i> Habitat: Forest and wooded areas</p>
	<p>Common Name: Blue-throated Blue Flycatcher (Juvenile) Scientific Name: <i>Cyornis rubeculoides</i> Habitat: Open forest and wooded areas</p>

Finches / Rosefinches

Bird	Description
	<p>Common Name: Scarlet Finch Scientific Name: <i>Haematospiza sipahi</i> Habitat: Broadleaved forest</p>
	<p>Common Name: Yellow-breasted Greenfinch Scientific Name: <i>Carduelis spinoides</i> Habitat: Open forest and shrubs</p>
	<p>Common Name: Pink-browed Rosefinch (Male) Scientific Name: <i>Carpodacus rodochroa</i> Habitat: High-altitude shrubs (in summer)</p>
	<p>Common Name: Pink-browed Rosefinch (Female) Scientific Name: <i>Carpodacus rodochroa</i> Habitat: High-altitude shrubs (in summer)</p>




Sparrows / Pipits / Bullfinchs

Bird	Description
	<p>Common Name: House Sparrow (Male) Scientific Name: <i>Passer domesticus</i> Habitat: Human habitations</p>
	<p>Common Name: House Sparrow (Female) Scientific Name: <i>Passer domesticus</i> Habitat: Human habitations</p>
	<p>Common Name: Olive-backed Pipit Scientific Name: <i>Anthus hodgsoni</i> Habitat: Open forest</p>
	<p>Common Name: Red-headed Bullfinch Scientific Name: <i>Pyrrhula erythrocephala</i> Habitat: Broadleaved forest</p>

Thrushes / Laughingthrushes

Bird	Description
	<p>Common Name: Blue Whistling Thrush Scientific Name: <i>Myophonus caeruleus</i> Habitat: Forest and wooded areas, usually close to streams</p>
	<p>Common Name: Streaked Laughingthrush Scientific Name: <i>Garrulax lineatus</i> Habitat: Hill scrub, secondary growth and cultivation</p>
	<p>Common Name: Chestnut-crowned Laughingthrush Scientific Name: <i>Garrulax erythrocephalus</i> Habitat: Undergrowth in forest and bushes</p>
	<p>Common Name: Variegated Laughingthrush Scientific Name: <i>Garrulax variegatus</i> Habitat: Forest undergrowth and rhododendron shrubs</p>

Drongos / Bulbuls

Bird	Description
	<p>Common Name: Black Drongo Scientific Name: <i>Dicrurus macrocercus</i> Habitat: Around habitation and cultivation</p>
	<p>Common Name: Ashy Drongo Scientific Name: <i>Dicrurus leucophaeus</i> Habitat: Forest and well-wooded areas</p>
	<p>Common Name: Black Bulbul Scientific Name: <i>Hypsipetes leucocephalus</i> Habitat: Broadleaved forest and plantations</p>
	<p>Common Name: Himalayan Bulbul Scientific Name: <i>Pycnonotus leucogenys</i> Habitat: Hillsides with scattered bushes, Bushes around habitation</p>



Warblers

Bird	Description
	<p>Common Name: Buff-barred Warbler Scientific Name: <i>Phylloscopus pulcher</i> Habitat: Breeds in subalpine shrub and forest; winters in broadleaved forest</p>
	<p>Common Name: Grey-hooded Warbler Scientific Name: <i>Phylloscopus xanthoschistos</i> Habitat: Forest and secondary growth</p>
	<p>Common Name: Hume's Leaf Warbler Scientific Name: <i>Phylloscopus humei</i> Habitat: Breeds in subalpine shrub and forest; winters in forest and secondary growth</p>
	<p>Common Name: Whistler's Warbler Scientific Name: <i>Seicercus whistleri</i> Habitat: Forest understory, also in high altitude shrub in summer</p>



Yuhina

Bird	Description
	<p>Common Name: Whiskered Yuhina Scientific Name: <i>Yuhina flavicolis albicolis</i> Habitat: Broad leaved subtropical and temperate forests and woodlands, and secondary growth</p>
	<p>Common Name: Whiskered Yuhina Scientific Name: <i>Yuhina flavicolis</i> Habitat: Broad leaved subtropical and temperate forests and woodlands, and secondary growth</p>
	<p>Common Name: Stripe-throated Yuhina Scientific Name: <i>Yuhina gularis</i> Habitat: Temperate broadleaved and mixed forest</p>



Wagtails

Bird	Description
	<p>Common Name: White Wagtail Scientific Name: Motacilla alba Habitat: Breeds by running waters in open country in hills and mountains; winters near water in open country</p>
	<p>Common Name: Grey Wagtail Scientific Name: Motacilla cinerea Habitat: Breeds by mountain streams; winters by slower streams in lowlands and foothills</p>



Woodpeckers

Bird	Description
	<p>Common Name: Himalayan Woodpecker(F) Scientific Name: Dendrocopos himalayensis Habitat: Forest</p>
	<p>Common Name: Himalayan Woodpecker(M) Scientific Name: Dendrocopos himalayensis Habitat: Forest</p>

Doves

Bird	Description
	<p>Common Name: Spotted Dove Scientific Name: <i>Malacias capistratus</i> Habitat: Cultivation, habitat and open forest</p>
	<p>Common Name: Oriental Turtle Dove Scientific Name: <i>Streptopelia orientalis</i> Habitat: Open forest</p>



Minivets

Bird	Description
	<p>Common Name: Long-tailed Minivet (F) Scientific Name: <i>Pericrocotus ethologus</i> Habitat: Forest; also well wooded areas in winter</p>
	<p>Common Name: Long-tailed Minivet (M) Scientific Name: <i>Pericrocotus ethologus</i> Habitat: Forest; also well wooded areas in winter</p>

Grosbeak

Bird	Description
	<p>Common Name: Spot-winged Grosbeak (F) Scientific Name: Mycerobas melanozanthos Habitat: Breeds in mixed forest; winters in broadleaved forest.</p>
	<p>Common Name: Spot-winged Grosbeak (M) Scientific Name: Mycerobas melanozanthos Habitat: Breeds in mixed forest; winters in broadleaved forest.</p>

Others

Bird	Description
	<p>Common Name: Yellow-billed Blue Magpie Scientific Name: Urocissa flavirostris Habitat: Temperate mixed forest</p>
	<p>Common Name: Long-tailed Shrike Scientific Name: Lanius schach Habitat: Bushes in cultivation, scrub and secondary growth</p>



Common Name: Rufous-bellied Niltava
Scientific Name: *Niltava sundara*
Habitat: Undergrowth in broadleaved or mixed forest and secondary growth







Common Name: Yellow-bellied Fantail
Scientific Name: *Chelidorhynch hypoxantha*
Habitat: Forest



Common Name: Bar-throated Siva
Scientific Name: *Siva strigula*
Habitat: Broadleaved and mixed forest



Common Name: Bar-tailed Treecreeper
Scientific Name: *Certhia himalayana*
Habitat: Breeds in coniferous forest; also in well wooded areas in winter

	<p>Common Name: Grey Bushchat Scientific Name: Saxicola ferreus Habitat: Bushes and secondary growth</p>
	<p>Common Name: Slaty-headed Parakeet Scientific Name: Psittacula himalayana Habitat: Hill forest and well wooded areas, especially near orchards and cultivation</p>
	<p>Common Name: Yellow-billed Blue Magpie Scientific Name: Urocissa flavirostris Habitat: Temperate mixed forest</p>
	<p>Common Name: Long tailed Shrike Scientific Name: Lanius schach Habitat: Bushes in cultivation, scrub and secondary growth</p>



Common Name: Rufous-bellied Niltava
Scientific Name: *Niltava sundara*
Habitat: Undergrowth in broadleaved or mixed forest and secondary growth



Common Name: Yellow-bellied Fantail
Scientific Name: *Chelidorhynch hypoxantha*
Habitat: Forest



Common Name: Chestnut-bellied Nuthatch
Scientific Name: *Sitta cinnamoventris*
Habitat: Forest



Common Name: Rufous Sibia
Scientific Name: *Malacias capistratus*
Habitat: Broadleaved forests, favours oak

Butterflies(Family:Papilionidae)

Description



Common Name: Common Yellow Swallow tail

Scientific Name: *Papilo machaon*

Habitat: alpine meadows



Common Name: Common Mormon

Scientific Name: *Papilio polytes*

Habitat: Rainforest, Semi-deciduous woodland

Butterflies(Family:Pieridae)

Description



Common Name: Striped Albatross

Scientific Name: *Appias albina*

Habitat: upto 4000 ft

Butterflies(Family:Pieridae)

Description



Common Name: Common Cabbage
Scientific Name: *Peiris rapae*
Habitat: Moderate humid mountaneous region



Common Name: Lemon Emigrant
Scientific Name: *Catopsilia pomona*
Habitat: Wide distribution



Common Name:Himalayan common
brimston
Scientific Name:*Gonepteryx rhamni*
nepalensis
Habitat:Western Himalayas

Butterflies(Family:Pieridae)

Description



Common Name:Himalayan common
brimston

Scientific Name:Gonepteryx rhamni
nepalensis

Habitat:Western Himalayas

Butterflies(Family:Lycaenidae)

Description



Common Name: continental large four
line blue

Scientific Name:Nacaduba pactolus

Habitat:



Common Name: Golden Sapphire

Scientific Name: Heliophorous brahma

Habitat: Himalayas

Butterflies(Family:Lycaenidae)	Description
	<p>Common Name: White banded hedge Blue Scientific Name: <i>Lestranicus transpectus</i> Habitat: Himalayas</p>
Butterflies(Family:Nymphalidae)	Description
	<p>Common Name: Common Forester Scientific Name: <i>Lethe insana</i> Habitat: Forest, altitude < 2200m</p>
	<p>Common Name: Common Sailor Scientific Name: <i>Neptis hylas</i> Habitat: Forest edge and altitude of 600-2000m</p>

Butterflies(Family:Nymphalidae)

Description



Common Name:Himalayan Seargent
Scientific Name: *Athyma Opalina*
Habitat: Forests,Mountaneous area



Common Name:Himalayan Seargent
Scientific Name: *Athyma Opalina*
Habitat: Forests,Mountaneous area



Common Name:Himalayan pale forester
Scientific Name: *Lethe latiaris*
Habitat: Sub Alpine

Butterflies(Family:Nymphalidae)

Description



Common Name: Indian Firtellery
Scientific Name: *Argynnis hyperbius*
Habitat:Tropical rainforest to Sub Alpine forest



Common Name: Large Silver stripe
Scientific Name: *Argynnis childreni*
Habitat: Subtropical and Temperate valleys



Common Name: Painted Lady
Scientific Name: *Vanessa cardui*
Habitat: Wide distribution

Butterflies(Family:Nymphalidae)

Description



Common Name: Pallid argus
Scientific Name: *Callerebia scanda*
Habitat: Grassland and Open Valley



Common Name: Small Tawny wall
Scientific Name: *Rhaphicera moorei*
Habitat:Subtropical to temperate



Common Name: Aulocera saraswati
Scientific Name: *Striated Satyr*
Habitat: Woodland and Mountains

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Joshimath



Phulna to Ghangaria



Phulna to Valley of Flowers



Ghangaria



Ghangaria to Valley of Flowers



Valley of Flowers



Ghangaria to Hemkund



Valley of Flowers and Hemkund

