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# BOTANY OF THE VALLEY OF FLOWERS NATIONAL PARK AND ITS ENVIRONS

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ABSTRACT

The Valley of Flowers National Park is in the Garhwal Himalayas and this paper provides a list of plant species found there with their flowering time, altitude range of distribution, habit, vegetation, climate and topography. The rare plants deserving conservation have also been listed.

The fabulous upper Bhyunder Valley, which remained obscure for long was brought to limelight by Frank S. Smythe, a member of the successful Kamet (a mountain 7770 m high in the Garhwal Himalayas) British Expedition of 1931, who gave it the name "The Valley of Flowers" and by his lucid writing made it world famous. Smythe and R.L. Holdsworth the botanist member of the team had stumbled upon this valley just by chance while returning from the expedition through the Bhyunder Pass (5090 m) with the intention of exploring the mountainous regions at the sources of the two principle tributaries of the Ganges. Smythe was so much impressed by the beauty of the place that he revisited it six years later, explored it extensively and found it a valley of peace and perfect beauty, where the human spirit may find repose and wrote a fascinating account of it in his famous travelogue "The Valley of Flowers" published in 1938.

The Valley of Flowers lies between the main valleys of Alakananda and Dhauli Ganga in the Zaskar ranges of the Garhwal Himalayas in Chamoli district of Uttar Pradesh. River Pushpavati which flows through this valley has its source in the Tipra Glacier, which extends up to Ghori Parbat peak. It is a flat valley, about 5 km long and 2 km wide with an altitudinal range 3500 m-3733 m and stretches east to west. The most convenient and easy entrance to the valley is from the south, where the river Pushpavati flows through a deep gorge. Besides, there are two more approaches/outlets, but preferred by shepherds and mountaineers. The one on the western side leads to Hanumanchatti (a small hamlet on Badrinath road), through Kunt Khal Glacier Pass, and the other on the eastern side goes to Ghamsali via Lakshman Pass. Both these places are of 3 days' trekking distance from the valley. The river Pushpavati meets the river Lakshman Ganga, which originates from Hemkund (Lokpal, Lakshman Kund) Lake at Ghangharia (Govind Dham), where it takes the name Bhyunder Ganga which in turn joins the Alakananda at Govindghat.

Govindghat located at an altitude 1800 m, is a small hamlet on the right bank of the river Alakananda on the main Rishikesh-Badrinath pilgrimage route and is the first camping place for the tourists/visitors to the Valley of Flowers and Hemkund (Sikh pilgrimage centre at an altitude 4200 m).

The journey to Govindghat from Rishikesh-the foothill town and the main rail/motor head for the Valley of Flowers/Hemkund is by road (276 km) and passes through river valleys (mostly Alakananda Valley). At Govindghat, the path leading to the Valley of Flowers/Hemkund separates from the main road. Gangharia (Govind Dham) at an altitude 3200 m and at a distance of 12.5 km from Govindghat is the last human outpost and is the second camp (base camp) for the Valley of Flowers/ Hemkund shrine and this distance can be either trekked or covered by ponies. All through the track runs along Bhyunder Ganga and goes through one of the most picturesque surroundings. After crossing the Alakananda by a suspension bridge at Govindghat, the bridle-path takes a steep and continuous weary climb for about 2 km through the scrub forest and then emerges on the cultivated fields overlooking a small village-Punn. The noteworthy shrubs found here are *Berberis chitria* (Barberry), *Berberis lycium* (Barberry), *Hypericum* spp. *Indigofera heterantha, Rhus parviflora, Pyracantha crenulata, Rosa macrophylla* (wild Rose), *Rubus ellipticus, Callicarpa macrophylla, Desmodium elegans, Lonicera quinquelocularis, Skimmia laureola* (Skimmi) and among climbers, *Dioscorea belophylla, Clematis buchananiana* and *Asparagus filicinus* are commonly seen, while *Cuscuta europaea* as a parasite on these shrubs meets the eyes frequently. The all-round view and the steep climb at the start of trekking, give a poor introduction to the beauty lying ahead.

Beyond this, one comes across some breath - taking landscapes. The path passes through a beautiful forest and the valley narrows into a gorge with vast sheets and curtains of rock on either side shimmering here and there with water-falls. The gradient of the river is steep and the flow is fast, and the fog thus generated by the water beating against the massive boulders is wafted far and wide. Its cool touch wipes the sweat and removes the fatigue caused by the arduous uphill journey. The main tree components, to mention a few, of the forest are : *Acer caesium* and *A. acuminatum* (Maple), *Populus ciliata* (Poplar) *Juglans regia* (Walnut), *Ulmus wallichiana* (Elm), *Lyonia ovalifolia, Aesculus indica* (Horse-chestnut), *Carpinus viminea* (Hornsbeam), *Prunus cornuta* and *P. cerasioides* (Bird-cherry), *Toona ciliata* (Toon), *Rhododendron arboreum* (tree Rhododendron), *Quercus leucotrichophora* and *Q. dilatata* (Oak), *Alnus nepalensis* (Alder), *Corylus* sp. and *Morus serrata* (Mulberry). The roaring river flows on its way on the right till one crosses over to the left bank, by a bridge consisting of two tree trunks, held in position by pieces of wood at right angles to them, a little beyond the Bhyunder village, populated by cheerful peasants and shepherds who migrate to Punn village during winter months. A side valley ascending to Hathi Parbat and Gori Parbat emanates from the Bhyunder village and these snow-covered peaks look magnificient in bright morning light. Beyond this, the path passes through the moist temperate mixed forest with trees *viz., Quercus dilatata* and *Q. semicarpifolia* (Oak), *Rhododendron arboreum* (tree Rhododendron). *Corylus jacquemontii* (the Himalayan Hazelnut), *Salix* spp. (Willows) and *Arundinaria* sps. (Bamboos) to mention a few, with dense undergrowth of shrubs and herbs. The proof of the moist climate is afforded by the rich growth of epiphytic ferns on the trees laden with mosses. In the undergrowth, an Arum (*Arisaema propinquum*) which is most striking than beautiful with evil looking cobra-like heads is commonly seen whilst in the open places there are abundant plants like *Anaphalis* spp. (Everlastings), *Chrysanthemum indicum* (Daisy), *Fragaria nubicola* and *Duchesnea indica* (Strawberries) and *Ranunculus* spp. (Buttercups) and also an interesting primi-

tive plant species *Circaeaster agrestis* among mosses in the shade and *Balanophora involucrata*, a root parasite on tree Rhododendrons.

Further, the path climbs steeply and the vegetation changes to tall massive conifers—*Abies pindrow* (Silver-fir) and *Taxus baccata* (Yew) and the smell of decaying leaves of broad-leaved mixed forest is replaced by the warm incense of resin. The difference between the lower and upper Himalayan forests must be experienced to be appreciated. The lower forests up to 2100 m are full of insects while the upper forests are known for their silence. There is no wind, not a whisper in the conifers' tops, the only sound is of the thunder of the valley torrent. The sunlight slips between the tree tops casting brilliant pools amidst the shadow revealing moss plastered boulders and a tracery of ferns. Again after crossing a small alpine pasture land (at an alt. 3200 m) one enters a thick silver-fir forest with tall massive trees, growing between enormous boulders. This place is Gangharia.

Gangharia is a hamlet with facilities of a forest rest house, a tourist rest house, a gurdwara with a few huts for stay and a few shops. This place is approachable only during mid May to mid November. The Valley of Flowers is a 5 km trek from here and Hemkund (Lokpal) about 6 km. One can also hire a pony. The path is common for about 0.5 km or so through alpine meadows which have many blue or white anemones, buttercups (*Ranunculus* spp.) *Paeonia emodi* (paeony) and also under the rocky shade are found *Circaeaster agrestis* and other herbs *viz.*, *Geranium* spp. (geraniums) and *Myosotis* spp. (forget-me-not).

The ascent to the Valley of Flowers is gradual and as one walks across the last alpine pasture land, the valley narrows down into a deep gorge and the forest is compressed between immense walls of rock, of which the cliff guarding the southward entrance to the valley is almost vertical and to the east actually overhanging, rising to ± 1000 m. They block the view of the valley so effectively that one concludes that the valley ends abruptly at the base of these cliffs. For the entrance to the gorge, the path zig-zags steeply downwards to a long bridge, spanning the river, between two large boulders and then up through a conifer forest on the other bank, till the gorge widens and the climb becomes easy. The vegetation changes conspicuously as one climbs up the valley. Birch (*Betula utilis*), dwarf Rhododendrons (*Rhododendron lepidotum, R. campanulatum* and *R. anthopogon*) and *Sorbus foliolosa* now dominate. Here the path traverses a steep grassy hill-side, where the valley widens out and bends eastwards almost at a right angle under the wall of peaks that from below the gorge seems to form an impasse. A little beyond one gets a clear view of the valley with Kunt Khal glacier on the North-west end.

*The weather :* The weather in the valley is very uncertain. Mornings are clear and sparkling bright mostly with fleecy clouds floating in a sky of enamelled blue colour, but by 10 am dense fog starts funneling up from the gorge end of the valley which swirls up and sweeps up the valley. Rain generally comes towards the late afternoon and is quite heavy and prolonged.

During late September, when the first snow has already fallen on the higher ranges, the day temperature in the valley at 3600 m is around 7°-8° C and 1°-2°C at Hemkund with the night temperature at the latter place as low as minus 8°C to 10°C.

*The Valley :* The Valley of Flowers is a wide alpine meadow which gradually slopes up till it meets the snout of the glacier. In the middle of the valley facing the yonder hills is the grave of Miss. Joan Margaret

Legge, who lost her life here in 1939, while collecting plants. The marble tablet on the grave bears an inscription "I will lift up mine eyes unto the hills from whence cometh my help"

The visitors/tourists may camp near Miss. Legge's grave and fan out in various directions every day but more rewarding is if one camps near the glacier, though it is more arduous. From here surrounded by an azure horizon, towering peaks and perennial snow fields, one gets an unsurpassed view of the valley. Each day as the rainy spring advances, the creeping tide of flowers moves a step closer to camp and with a little luck, the visitors may awake one fine morning to find that the flowers in their gregarious best have swirled into the tent.

The valley is snow bound from mid November to mid May during which period it is a frozen wasteland and remains hostile, desolate and unapproachable. But when the snow starts melting and the rain commences, the miracle that has made this valley famous all over the world starts unfolding. In swift brush strokes, nature spreads out its rainbow tapestry of blossoms on the valley floor. The dwarf Rhododendrons (*R. campanulatum, R. lepidotum* and *R. anthopogon*) are the first to come into flower. The early variety of flowers *e.g. Primula denticulata,* the most charming of plants opens up peeping out from the ledges and crannies and with it *Androsace sarmentosa* and *A. rotundifolia* (rock-jasmines), *Iris kumaonensis, Viola biflora* and *V. serpens* (pansies), *Fritillaria roylei, Potentilla microphylla, P. argyrophylla* and *P. atrosanguinea* (yellow, orange, red Potentillas) and many other annuals burst forth carpeting the valley floor. The peak period of flowering is from mid July to mid August. The flowers of all description and colours cover the valley with gay and reckless abondon and it is so densely strewn with beautiful flowers that it is impossible to take even one step without crushing a rare and delicate flower. Even in this riot of floral colours, nature never looses symmetry nor spoils the harmonious composition. But more than the variety of the flowers and range of colours, it is the ethereal and heavenly quality of their hues which fascinates the tourists most.

The succession of plants moves so perfectly, replacing each other with perfect precision, that one has to wonder at the rhythm of nature. Smythe pointed out some of the ecological aspects of the valley which are responsible for the amazing cycle of growth, the splendour of the high mountain flora and their pattern of colours peculiar to the Valley of flowers. For example, no one knows why purple-flowered orchid(*Dactylorhiza hatagirea*)loves the near presence of thistle (*Carduus nutans* and *Cirsium* sp.) or what interacting effect do the Fritillarias exercise over the Potentillas. It seems that it is not only the time factor but also the edaphic (soil) factor and also the plant associations which play a role in this perfect harmonious cycle. Only an uninterrupted cycle of growth can maintain such a perfect balance.

The flowers are so numerous and the colours so varied that it would be almost impossible to enumerate all of them here. Excepting a few very common ones which are mentioned here, the others are in a separate appended list. The common beautiful flowering plants during the rainy and spring season are :*Anemone obtusiloba, A. rupicola* and *A. polyanthes* (white and blue Anemones), *Anaphalis cuneifolia, A. contorta* and *A. nepalensis* (white or yellow everlastings), *Meconopsis aculeata* (blue poppy), *Delphinium* spp. (blue or blue-purple larkspurs), *Gentiana tubiflora, G. stipitata, G. argentea* and *G. cachemirica* (blue-purple Gentians), *Myosotis caespitosa* and *M. sylvatica* (blue coloured forget-me-nots), *Polygonum vaccinifolium, P. affine, P. polystachyum, P. delicatulum*

and *P. viviparum* (white, pink, rose-purple and red Polygonums), *Androsace rotundifolia* and *A. sarmentosa* (pink-pale purple rock-jasmines), *Thymus linearis* (purple thymes), *Gagea lutea* (yellow star of Bethlehem,) *Caltha palustris* (marsh marigold), *Nomocharis oxypetala* (golden Nomocharis), *Epilobium latifolium, E. roseum* and *E. leiophyllum* (pink purple and red willow herbs), *Phlomis bracteosa* (blue-purple Jerusalem-sage), *Geranium wallichianum* and *G. lambertii* (purple to purple-blue Geraniums), *Paeonia emodi* (white paeony), *Geum elatum* (bright yellow Geums), *Saxifraga diversifolia, S. granulifera. S. brunonis, S. jacquemontiana* (white or yellow Saxifragas rockfoil), *Primula denticulata, P. involucrata, P. petiolaris* (white to pale purple Primulas), *Potentilla microphylla, P. argyrophylla, P. atrosanguinea* (red and yellow Potentillas), *Senecio chrysanthemoides* (yellow Ragwort), *Aster* spp. (lilac or purple starwort), *Leontopodium alpinum* (cream coloured edleweiss), *Lactuca violaefolia, L. macrorrhiza* (yellow or blue Lettuce), *Impatiens glandulifera, I. scabrida* and *I. thomsoni* (pale-pink to yellow balsams), *Corydalis govaniana, C. meifolia* and *C. cashemeriana* (yellow and blue Corydalis), *Ranunculus hyperboreus* and *R. hirtellus* (yellow buttercups), *Aconitum heterophyllum, A. balfourii* and *A. violaceum* (blue or violet blue Aconites), *Cyananthus lobatus, C. microphyllus* (blue bellworts), *Pedicularis* spp. (yellow to bright purple-red flowers), *Gaultheria trichophylla* (sky-blue creeping winter-green) and *Fritillaria roylei* (yellow-green Fritillarias).

In late September, the Birch trees (*Betula utilis*) starts shedding their leaves and the smooth freshly peeled bark grows in the bright autumn sun and the cloudless blue sky. The vegetation starts drying up but in some patches it still looks dense and one has to brush through the thickets of *Aconitum heterophyllum* (blue Aconite) and *Osmunda cleytoniana* (alpine fern.) The most spectacular spread is of *Polygonum vaccinifolium* and *P. affine* and other herbs, *viz. Parnassia nubicola* (white flowered), *Corydalis nana, Gentiana stipitata, Cyananthus* spp. (blue bellworts), *Geum elatum.* (yellow flowered), *Saxifraga diversifolia, Meconopsis aculeata* (blue poppy), *Saussurea* spp and *Polygonum polystachyum* (white flowered) can be still seen in flowers here and there. *Epilobium roseum* and *E. latifolium* (willow herbs) now in their majestic style near the water puddles (in dehisced fruits bearing silky haired seeds) and along with them is *Capsella bursapestoris* (a weed). The Potentillas in their attractive beautiful flowers are spread in open places and *Dipsacus inermis* looks charming due to its flowers. *Nomocharis oxypetala* is common but in fruit. Many plants *e.g. Cassiope fastigiata* (in white flowers) and *Gaultheria trichophylla* (with sky blue flowers) are in their classical habitats *i.e.* exposed rocky slopes, while *Sedum trulipetalum, S. ewersii* etc. grow in the rocky crevices.

The conspicuous shrubs spreading on the valley floor like *Juniperus communis, Myricaria germanica, Cotoneaster rotundifolia* and *C. microphylla* and *Salix flabellaris* (Willow) form intricate mats.

Many of these flowering alpine herbs are known for high medicinal value such as *Aconitum heterophyllum, A. balfourii, Nardostachys grandiflora* (The Himalayan spikenard), *Gentiana* spp., *Thalictrum* spp. (Mamira), *Viola* spp. and *Rheum emodi* (Rhubarb). These are widely exploited, while others like Brahm Kamal (*Saussurea obvallata*) are collected in thousands for floral offerings to Hindu deities of the region.

The rainy spring of the valley is very short lived. For a period of just 3 months, nature splashes the valley with very beautiful colours. While green is the predominant shade, the July mood of the valley is different from June and with the advent

of September all the colour starts fading away. The autumn bids farewell to the flowers which go to seed, lying in the expectation of the next rainy spring. The exuberant carnival of colour comes to a close, the multi-hued tapestry gives way to the brown and russet and gold of the dying leaves and the withering grass gives the whole landscape a soft hue before becoming snowbound. A similar trend is discernable at the Hemkund shrine, which is closed by the end of October and the placid, clear water of the lake becomes a big sheet of ice.

## THE CONSERVATION ASPECT

The secrets of the valley ecosystem has to be studied as each species is suited to its particular environment and each through its life process affects its immediate environment. Though sheep grazing has been banned altogether, it has resulted in excessive weed growth indirectly affecting the valley ecosystem. However, no control is exercised on the movement of the ponies (normally taken by the tourists) which move frequently and spoil the environment. The heavy influx of the tourists/visitors needs immediate attention to reduce or eliminate the biotic interference. The excessive exploitation of wild medicinal plants *viz.*, Rhubarb, Aconites, Gentians, etc., and plants like Brahm Kamals for floral offerings to deities and many other beautiful plants for horticulture have to be minimised, if not stopped completely.

There is a genuine fear that if these trends go unchecked, the beautiful Valley of Flowers may cease one day to unfold its spectrum of floral riot after the winter snowy period and nature's gift of red Potentillas, cream and blue coloured Anemones, blue and white Primulas, blue and yellow Corydalis, pink and purple Geraniums and blue prickly poppy would be all too shy to blossom again.

Caution is therefore necessary before natural beauty is destroyed and it becomes too late. Such unique and non-renewable resources of nature should be preserved in their pristine glory for future generations.

TABLE 1: Rare plants found in the Park

| Vernacular name | Botanical name | Family |
|---|---|---|
| Atis | *Aconitum heterophyllum* Wall. ex Royle | Ranunculaceae |
| Papra | *Podophyllum hexandrum* Wall. ex Royle | Podophyllaceae |
| | *Circaeaster agrestis* Maxim. | Circaeasteraceae |
| Kant-Swarnyus (Blue Poppy) | *Meconopsis aculeata* Royle | Papaveraceae |
| Garuvi | *Michelia kisopa* Buch.-Ham. ex DC. | Magnoliaceae |
| Balchhar, Jatamansi (Spikenard). | *Nardostachys grandiflora* DC. | Valerianaceae |
| Katki, Kuru. | *Picrorhiza scrophulariiflora* Pennell. | Scrophulariaceae |
| Hatagira | *Dactylorhiza hatagirea* (D. Don) Soo. | Orchidaceae |
| Salampanja, Salap | | |
| | *Balanophora involucrata* Hook. f. | Balanophoraceae |



Hanging bridge over Alakananda river at Govindghat enroute to Valley of Flowers.

View of temperate forest with broad leaved forests in the forefront and coniferous forests at the background





*Spiraea canescens* D. Don – a common shrub enroute to Valley.

*Geranium pratense* L. – a common purple flowered herb in the Valley

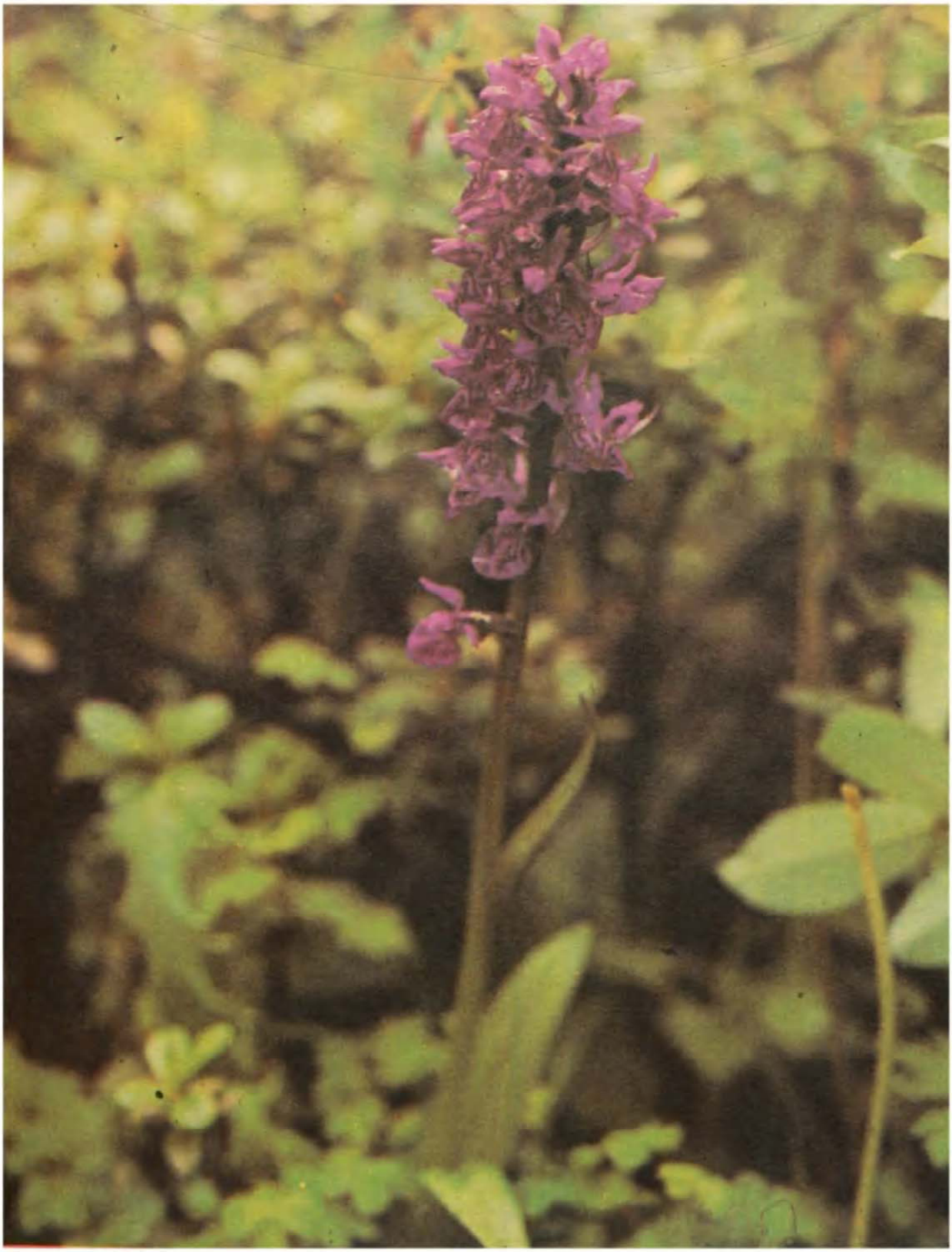




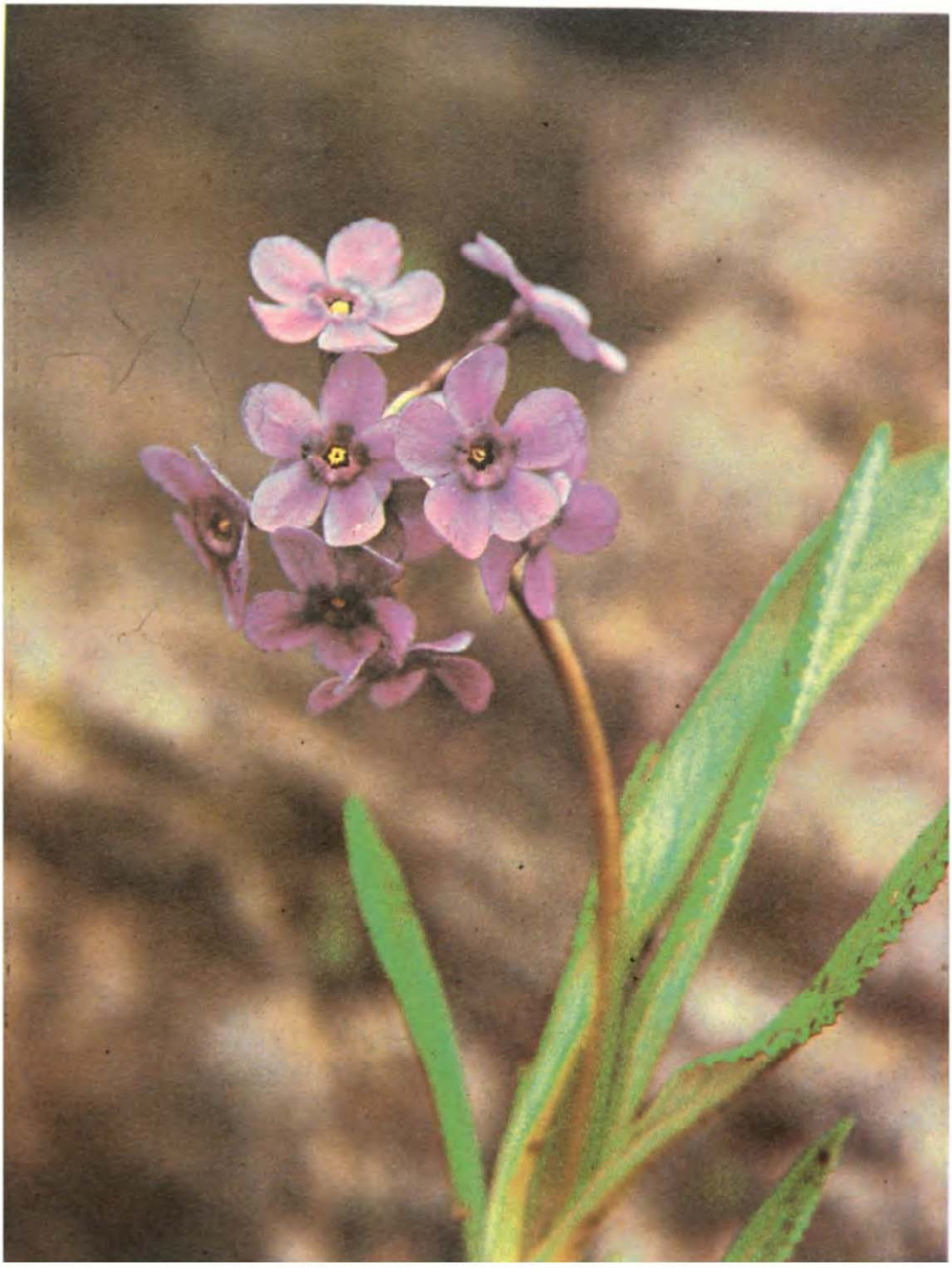
View of the entrance to the Valley.

*Thermopsis barbata* Royle — a common herb in the Valley





*Dactylorhiza hatagirea* (D Don) Soo -- a common medicinal plant in the valley.



*Primula macrophylla* D. Don var. *moocroftiana* (Wall. ex Klatt) Sm. & Fletch. — a beautiful alpine herb



*Rhododendron anthopogon* D. Don — an alpine dwarf shrub in the valley



*Cremanthodium arnicoides* Good — an alpine elegant herb.



*Cremanthodium arnicoides* Good forma ***maximowiczii*** — an alpine herb.

*The Hemkund Lake :* Located at an altitude 4200 m, its crystal clear water encircled by high mountain walls, presents a magnificient spectacle. This lake is associated with the 10th Guru of the Sikhs, Sri Guru Gobind Singh (the founder of Sikhism), who is said to have meditated on its banks. Its old name is Lakshman Kund and a small old temple bearing this name still stands there.

The approach to this place involves a steep climb through a Birch (*Betula utilis*) forest followed by a track along moist boulder strewn slopes and can be covered either by foot or on pony. Associated with Birch, is *Sorbus foliolosa* a plant which is quite conspicuous. Its fruits are eaten by the Himalayan Bear which moves to higher places during the day time and moves down in the evening hours in search of food of which *Sorbus* fruits seem to be prominent. *Podophyllum hexandrum* (ducks'-foot-leaf or May Apple with scarlet coloured fruits), is met with occasionally in the undergrowth of Birch forest.

The rainy spring plants are practically the same as those of the Valley of Flowers, but their effect is somewhat different due to the topography of the area. Many alpine herbs with different colours and hues are visible alround strewn on/or peeping out of the boulders, but in September most of them come into fruit. In drier areas the blue poppy *(Meconopsis aculeata)* is common and in upper areas on slopes one observes many Brahm Kamals/or Saw-worts (*Saussurea obvallata*) with large bracts and dark purple heads. Many everlasting (*Anaphalis* spp.) and sky blue flowered *Swertia* spp. (Marsh-felwort) are also seen still in flower.

Some of the high altitude Primulas, Aconites and *Cassiope fastigiata* can be still seen in profusion on the bouldery slopes. Beyond lake on the glacial moraine, singular woolly Saussureas–a soft woolly, blue-purple headed *Saussurea simpsoniana* and thick cottony woolly with dark-purple heads, ± 12 cm across, *Saussurea gossypiphora*, grow majestically and give a soothing view.

Recently, an octagonal-shaped Gurudwara (a Sikh temple) has been built at the cost of ± 4-5 million rupees facing the lake and this has become a pilgrimage centre for the last few years. The devouts visit this shrine in thousands every year, where they get free hospitality in the form of food, medicine and shelter, offered by the Gurudwara Management, irrespective of religion, caste and creed.

This high altitude lake is virtually a paradise for painters and photographers and for taking relief from a busy life.

TABLE 2: Plants reported from the Core-zone and the adjacent areas

| Botanical name | English name | Family | Habit | Colour of flower | Flowering time | Altitude in metres |
|---|---|---|---|---|---|---|
| *Actaea acuminata* Wall. ex Royle | | Ranunculaceae | Herb | White | June | 2800-3400 |
| *Aconitum balfourii* Stapf | Aconites, Monkshood | " | Herb | blue | Aug.-Sept. | 3400-3900 |
| *A. falconeri* Stapf | | | Herb | blue | July-Aug. | 3200-4000 |
| *A. heterophyllum* Wall. ex Royle | " | | Herb | blue | July-Sept. | 3300-4500 |
| *A violaceum* Jacq. Stapf | " | | Herb | blue | July-Aug. | 3400-4500 |

Contd. Table — 2

| | | | | | | |
|---|---|---|---|---|---|---|
| *Anemone obtusiloba* D Don | Anemony, Wind-flower | Ranunculaceae | Herb | white & blue | June-Aug | 2400-4500 |
| *A. polyanthes* D Don | " | " | Herb | white | June-Aug. | 3000-4000 |
| *A. rivularis* Buch.-Ham | " | " | Herb | white | July-Aug | 2100-3500 |
| *A rupicola* Camb. | " | " | Herb | white | June-July. | 3200-4200 |
| *Aquillegia pubiflora* Wall ex Royle | Columbine | " | Herb | purple | June-July | 2400-3200 |
| *Callianthemum pimpinelloides* (D Don) Hook f & Thoms. | | " | Herb | pinkish-yellow | June-July | 3000-4200 |
| *Caltha palustris* L. | Marshmari gold | " | Herb | yellow | June-Sept. | 2400-3500 |
| *C. scaposa* Hook. f & Thoms. | " | " | Herb | yellow | May-June | 2400-3500 |
| *Clematis barbellata* Edgew | | | Cl | pale-purplish | May-Aug | 2800-3000 |
| *C. buchananiana* DC | | " | Cl | yellowish-green | Aug -Sept. | 1000-2000 |
| *C. connata* DC. | | " | Cl | creamy-white | Aug.-Oct. | 2400-3000 |
| *C. grata* Wall | | " | Cl. | creamy yellow | July-Sept | 1200-2400 |
| *C. montana* Buch-Ham ex DC | | " | Cl | pinkish-white | May June | 1500-3200 |
| *Delphinium brunonianum* Royle | Larkspurs | " | Herb | bluish-grey | Aug -Sept. | 4200-4500 |
| *D. densiflorum* Duthie ex Maxim | " | " | Herb | purplish-white | June-Aug | 4000-4600 |
| *D. denudatum* Wall ex Hook f & Thoms | " | " | Herb | blue | Apr.-July | 1800-2200 |
| *D. vestitum* Wall. ex Royle | " | " | Herb | blue | June-July | 2800-3600 |
| *Oxygraphis polypetala* (Royle) Hook f & Thoms | | " | Herb | yellow | May-Aug | 3000-4000 |
| *Paraquilegia anemonoides* (Willd ) Ulbr. | | " | Herb | bluish-orange | July | 3200-4200 |
| *P. microphylla* (Royle) Drumm. et Hutch. | | " | Herb | purplish-white | June-July | 3400-4500 |
| *Ranunculus hirtellus* Royle ex D. Don | Buttercups | " | Herb | yellow | June-Aug. | 2200-3700 |
| *R. hyperboreus* Rotb. | " | " | Herb | yellow | Aug -Sept. | 3500-4500 |
| *Thalictrum alpinum* L | | " | Herb | purple | June-Aug | 4200-4500 |
| *T. chelidonii* DC | Meadow-rue | " | Herb | lilac/ purple | June | 2400-3200 |
| *T. cultratum* Wall | " | " | Herb | greenish-white | July-Aug | 2400-3600 |
| *T. elegans* Wall. ex Royle | " | " | Herb | greenish-white | June-Aug | 3200-3800 |
| *T minus* L var *majus* (Jacq ) Hook f & Thoms | " | " | Herb | purple | June-Aug. | 2800-3500 |

## Contd. Table — 2

| | | | | | | |
|---|---|---|---|---|---|---|
| *Thalictrum pauciflorum* Royle | Meadow-rue | Ranunculaceae | Herb | purple | June-Sept. | 2200-3600 |
| *T. reniforme* Royle | " | " | Herb | green | Aug.-Sept. | 3000-3500 |
| *T. saniculaeforme* DC. | " | " | Herb | white | July-Aug | 2500-3000 |
| *Trollius acaulis* Lindl. | Globe-flower | " | Herb | yellow | July-Aug. | 3300-4000 |
| *Paeonia emodi* Wall. ex Royle | Paeony | Paeoniaceae | Herb | white | May-June | 1500-3200 |
| *Michelia kisopa* Buch.-Ham ex D. Don | | Magnoliaceae | Tree | white | Sept.-Oct | 1800-2000 |
| *Circaester agrestis* Maxim. | | Circaeaster-aceae | Herb | greenish-white | Sept.-Oct. | 2500-3200 |
| *Stephania gracilenta* Miers. | | Menisperma-ceae | Cl. | greenish | July-Oct. | 2200-2500 |
| *Berberis chitria* Lindl. | Barbery | Berberidaceae | Sh. | yellow | May-June | 1500-2800 |
| *B. jaeschkeana* Lindl. Schneid. | | | Sh | yellow | May-June | 2600-3400 |
| *B. lycium* Royle | | " | Sh. | pale-yellow | Apr.-June | 1000-2700 |
| *B. umbellata* Wall. ex G. Don. | " | | Sh. | yellow | May-Aug. | 2700-3500 |
| *Podophyllum hexandrum* Royle | May-apple | Podophyllaceae | Herb | white | Apr.-May | 2700-3200 |
| *Meconopsis aculeata* Royle | Blue Poppy | Papaveraceae | Herb | blue | July-Sept. | 3000-3800 |
| *Corydalis cashemeriana* Royle | Fumatory | Fumari-aceae | Herb | blue | June-July | 3000-3600 |
| *C. cornuta* Royle | " | | Herb | yellow | July-Aug. | 2000-2800 |
| *C. gortschakovii* Schrank | | " | Herb | yellow | July-Aug. | 3500-4500 |
| *C. govaniana* Wall. | | " | Herb | yellow | June-July | 3300-3700 |
| *C longipes* DC. | | " | Herb | yellow | July-Aug. | 3000-3500 |
| *C. meifolia* Wall. | | " | Herb | yellowish-purple | July-Aug. | 3000-3200 |
| *C. naina* Royle | | " | Herb | yellow | July-Aug. | 3900-4500 |
| *C. vaginans* Royle | | " | Herb | yellow | July-Aug. | 3000-3500 |
| *Arabidopsis himalaica* (Edgew.) Schultz | | Brassicaceae | Herb | purple | June | 3500-4200 |
| *A. stricta* (Camb.) M. Bush. | | " | Herb | | Aug. | 3100-3600 |
| *Arabis amplexicaulis* Wall,ex Edgew | Cress, rock cress | " | Herb | white | June-July | 2400-3000 |
| *A bijuga* Watt | | " | Herb | white | June-July | 2500-3500 |
| *A nova* Vill., | " | " | Herb | white | May-June | 2800-3200 |
| *A. pterosperma* Edgew | | " | Herb | white | June-July | 2600-3300 |
| *Arcyosperma primulifolium* (Thoms.) Schultz | | | Herb | | May-June | 3000-3800 |
| *Berberes vulgaris* R. Br. | | " | Herb | yellow | June-July | 1800-3600 |

Contd. Table — 2

| | | | | | | |
|---|---|---|---|---|---|---|
| *Capsella bursa-pestoris* (L.) Medik. | | Brassicaceae | Herb | white | Mar.-July | 1500-3600 |
| *Draba gracillima* Hook. f. & Thoms. | | " | Herb | yellow | June | 4000-4400 |
| *D. lasiophylla* Royle | Willow grass | " | Herb | white | June-Aug. | 4200-4800 |
| *D. winterbottomii* (Hook. f. & Thoms.) Pchle. | " | " | Herb | white | June-Aug. | 3500-4000 |
| *Erysimum hieracii-folium* L. | | " | Herb | yellow | May-Oct. | 2000-3500 |
| *E. repandum* L. | Alpine wall flower | " | Herb | yellow | May-June | 3000-3400 |
| *Megacarpaea polyandra* Benth. | | " | Herb | creamy-yellow | June-July | 3500-4000 |
| *Turritis glabra* L. | | " | Herb | white/ pale-yellow | July-Sept. | 2500-3000 |
| *Viola biflora* L. | Violet pansy | Violaceae | Herb | yellow | June | 2300-3000 |
| *V. pilosa* Bl. | " | " | Herb | blue | June-July | 1500-3000 |
| *Polygala crotalarioides* Buch. Ham. ex D.C. | | Polygalaceae | Herb | | April-Oct. | 2000-2500 |
| *Arenaria glanduligera* Edgew. ex Hook. f. | Sandworts | Caryophyllaceae | Herb | white | July-Aug. | 3500-4200 |
| *A. orbiculata* Royle ex Edgew. et Hook. f. | | " | Herb | white | April-Oct. | 4000 |
| *A. perlevis* (Williams) Hand.-Mazz. | " | " | Herb | white | July | 3000-3400 |
| *Cerastium glomeratum* Thuill. | | " | Herb | white | June | 1500-2500 |
| *Cucubelus baccifer* L. | | " | Cl. | white-yellow | June | 2500 |
| *Gypsophila cerastioides* D. Don | Chalk plant | " | Herb | lilac | July-Aug. | 2400-2500 |
| *Minuartia kashmirica* (Edgew.) Matt. | | " | Herb | white | July-Aug. | 3000-3500 |
| *Silene edgeworthii* Bocquet | Cathfly | " | Herb | white | June-Aug. | 2400-3300 |
| *S. falconeriana* Benth. | " | " | Herb | | Sept.-Oct. | 2000-2500 |
| *S. gonosperma* (Rupr.) Bocquet subsp. *himalensis* (Ruprhrb.) Bocquet | " | " | Herb | purplish | Aug. | 4200-4600 |
| *S. indica* Roxb. ex Otth | " | " | Herb | purplish-green | Aug.-Oct. | 2400-2700 |
| *S. persica* Boiss. ssp. *moorcroftiana* (Rohrb.) Chaudhery | " | " | Herb | white | July-Aug. | 3000-3600 |
| *S. vulgaris* (Moench.) Gorcke | " | " | Herb | | May-Oct. | 2200-2300 |

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|---|---|---|---|---|---|---|
| *Stellaria alsine* Grimm. | | Caryophyllaceae | Herb | white | Mar-June | 3800 |
| *S. decumbens* Edgew. | | " | Herb | white | Aug-Sept. | 3400-4000 |
| *S. monosperma* Buch.-Ham. ex D. Don | | " | Herb | white | Aug.-Oct. | 3500-4000 |
| *S. monosperma* var. *paniculata* (Edgew.) Majumdar | | " | Herb | white | Aug.-Oct. | ± 3500 |
| *Myricaria bracteata* Royle | | Tamaricaceae | Sh. | white-pink | June-July | 3300-3500 |
| *Hypericum elodeoides* Choisy | St. John's Wort | Hypericaceae | Herb | yellow | Mar.-July | 1500-3000 |
| *H. hookerianum* Wt. & Arn. | | " | Sh. | yellow | July-Aug. | 3000-3500 |
| *H. monanthemum* Hook. f. & Thoms. | | " | Herb | yellow | Aug.-Sept. | 3700-3900 |
| *H. oblongifolium* Choisy | | " | Sh. | yellow | Mar-June. | 1500-2000 |
| *Malva verticillata* L. | | Malvaceae | Herb | pink-white | | 2000-3200 |
| *Geranium colinum* Steph. ex Willd. | Crane's bill | Geraniaceae | Herb | pink | July-Aug. | 3000-3600 |
| *G. himalayense* Klotz. | " | " | Herb | purple | Aug-Sept. | 3000-3400 |
| *G. lamberti* Sweet | " | " | Herb | blue | Aug-Sept. | 3000-3400 |
| *G. nepalense* Sweet | | " | Herb | pink | June-Sept. | 1400-3200 |
| *G. pratense* L. | " | " | Herb | purple | Aug.-Sept. | 3600-4200 |
| *G. wallichianum* Don ex Sweet. | " | " | Herb | purple | July-Aug. | 2000-3500 |
| *Impatiens amplexicaulis* Edgew | Balsam | Balsaminaceae | Herb | purple | Aug-Sept. | 3000 |
| *I. bicolor* Royle | " | " | Herb | pinkish-purple | July-Aug. | 1500-2400 |
| *I. glandulifera* Royle | " | " | Herb | pink | July-Aug. | 2300-3800 |
| *I. racemosa* DC. | " | " | Herb | yellow | Aug.-Oct. | 2500-4000 |
| *I. scabrida* DC. | " | " | Herb | yellow | July-Aug. | 2000-3000 |
| *I. sulcata* Wall. ex Roxb. | " | " | Herb | purple | July-Aug | 3200-4000 |
| *I. thomsonii* Hook. f. & Thoms. | | " | Herb | pink | July-Aug. | 3000-3600 |
| *Skimmia laureola* Sieb. & Zicc.ex Walp | Skimmi | Rutaceae | Sh | yellow | May-June | 2000-2600 |
| *Toona ciliata* Roem. (=*Cedrela toona* Roxb. ex Rottl. et Willd.) | Toon | Meliaceae | Tree | white | Mar.-Apr | 600-2000 |
| *Euonymus fimbriatus* Wall. ex Roxb. | | Celastraceae | Sh. | white | Apr.-May | 2000-2600 |
| *E. hamiltonianus* Wall. | | " | Sh. | greenish-white | May-Sept. | 2700-2800 |
| *Acer acuminatum* Wall. ex D. Don | Maple | Aceraceae | Sh. | green | Apr.-Nov. | 3000-3500 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| *Acer caesium* Wall ex Brandis | Maple | Aceraceae | Tree | yellowish-green | Mar.-April | 1800-2200 |
| *A. cappadocium* Gledt. var. *indicum* (Pax) Rehdr | | " | Tree | greenish-yellow | Mar.-June | 2400-2600 |
| *A. sterculiaceum* Wall. | " | " | Tree | yellowish-green | Mar.-April | 2000-2800 |
| *Aesculus indica* Colebr. ex Camb. | Horse-chestnut | Hippocastanaceae | Tree | pinkish-yellow | Apr.-May | 1200-3000 |
| *Meliosma simplicifolia* (Roxb.) Walp | | Sabiaceae | Tree | white | Apr.-Nov. | 2500-2700 |
| *Rhus parviflora* Roxb. ex DC. | | Anacardiaceae. | Sh. | yellowish-green | May-June | 1000-2000 |
| *R. punjabensis* Stewart | | " | Sh. | yellowish-green | June-July | 2000-3000 |
| *Astragalus candolleanus* Royle ex Benth. | Milk-vetch | Papilionaceae | Sh. | yellow | June-Aug. | 2400-4000 |
| *A. chlorostachys* Lindl. | " | " | Herb | yellow | July-Aug. | 2500-3700 |
| *A. himalayanus* Klotz. | " | " | Herb | | Aug.-Sept. | 3500-4000 |
| *Campylotropis eriocarpa* (Maxim.) Schindler | | " | Sh. | purple | Aug.-Oct. | 1800-2000 |
| *Caragana brevispina* Royle | | " | Sh. | yellow | May-Aug. | 2300-2500 |
| *C. gerardiana* Royle ex Benth. | | " | Sh. | yellow | July-Aug | 2800-3500 |
| *C. nubigena* Bunge | | " | Sh. | orange-yellow | July | 3500-4500 |
| *Desmodium elegans* DC. | | " | Sh. | pink | July-Aug. | 1500-2000 |
| *D. floribundum* (D. Don) G. Don | | " | Sh. | pinkish | June-Aug. | 1500-2800 |
| *Dumasia villosa* DC. | | " | Twiner | yellow | Aug.-Sept. | 2000-2200 |
| *Guldenstaedtia himalaica* Baker | | " | Herb | blue | July-Aug. | 3200-4500 |
| *Indigofera hebepetala* Benth. ex Baker | | " | Sh. | purple | June | 1800-2200 |
| *I. heterantha* Wall. ex Brandis | | " | Sh. | purple | Feb. | 1000-2000 |
| *I. heterantha* var. *gerardiana* (Wall. ex Baker) Ali. | | " | Sh. | pink | June-July | 1800-2800 |
| *I. dosua* Buch.-Ham. ex D. Don | | " | Sh. | pink | May-June | 1500-2500 |
| *Lespedeza juncea* (L.f.) Pers. var. *sericea* (Thunb.) Forbes & Hemsley | | " | Sh. | purple | July-Oct. | 2000 |
| *Moghania vestita* (Benth ex Baker) Kuntz | | " | Sh. | red | Aug.-Sept. | 2500-2700 |

Contd. Table — 2

| | | | | | | |
|---|---|---|---|---|---|---|
| *Parochaetus communis* Buch.-Ham. ex D Don | | Papilionaceae | Herb | blue | May-June | 2000-3500 |
| *Piptanthus nepalensis* (Hook. f.) D. Don | Nepal Laburnum | | Sh. | yellow | May-June | 2800-3200 |
| *Pueraria peduncularis* (Benth.) Grah ex Benth | | | Twiner | red | June-July. | 3900 |
| *Rhynchosia himalensis* Benth. ex Baker | | " | Cl. | yellowish | May-June | 2000-2500 |
| *Thermopsis barbata* Royle | | " | Herb | purplish | July-Aug. | 3000-3500 |
| *Trigonella corniculata* L. | | " | Herb | yellow | June-July | 2800-3400 |
| *Vicia bakeri* Ali | | " | Twiner | yellow | Aug.-Sept. | 1900-2500 |
| *Acomastylis elata* (Wall. ex Royle) F. Bolle | | Rosaceae | Herb | yellow | Aug.-Sept. | 3000-4000 |
| *Agrimonia pilosa* Ledeb. var. *nepalensis* (D. Don) Nakai | | | Herb | yellow | June-July | 2000-2600 |
| *Aruncus dioicus* (Walter) Fernald. subsp. *triternatus* (Maxim.) Hara. | Meadow Sweet | | Herb | white | July | 3000-3400 |
| *Cotoneaster duthiana* (Schneid.) Klotz | | | Shrub | red | June-Oct. | 3000-4000 |
| *C. microphyllus* Wall. ex Lindl. | | " | Shrub | white-pink | Apr.-May | 2000-3300 |
| *C. obtusa* Wall. ex Lindl. | | " | Shrub | white | May-Oct. | 1700-2000 |
| *C. rotundifolius* Wall. ex Lindl. | Quince leaved Medlar | " | Shrub | white | June-July | 3000-3800 |
| *Duchesnea indica* (Andr.) Focke (*Fragaria indica* Andr.) | Straw-berries | " | Herb | yellow | Apr.-May | 1000-2400 |
| *Fragaria nubicola* Lindl. ex Lacaita | " | " | Herb | white | May-June | 3000-3600 |
| *Filipendula vestita* (Wall. ex D. Don) Maxim. | | " | Under-sh. | white | May-Oct. | 2500-4000 |
| *Geum roylei* Bolle | | " | Herb | yellow | June-July | 2000-3200 |
| *Potentilla argyrophylla* Wall. ex Lehm. | Cinquefoil | " | Herb | yellow | July-Aug. | 3000-4200 |
| *P. atrosanguinea* Lodd. | " | " | Herb | orange-red | July-Aug. | 3200-4000 |
| *P. cuneata* Wall. ex Lehm. | " | " | Herb | yellow | July-Aug. | 3200-4500 |
| *P. eriocarpa* Wall. ex Lehm. | " | " | Sh. | yellow | Aug.-Sept. | 2800-3400 |
| *P. fruticosa* L. var. *pumila* Hook. f. | " | " | Herb | yellow | July-Oct. | 2500-3500 |

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|---|---|---|---|---|---|---|
| *Potentilla fruticosa* L. var. *rigida* (Wall. ex Lehm.) Wolf. | | Rosaceae | Sh. | yellow | Aug.-Oct. | 2500-4000 |
| *P. fulgens* Wall. ex Hook. | | " | Herb | yellow | July-Aug. | 2000-3200 |
| *P. gelida* C.A. Mey | | " | Herb | yellow | June-Oct. | 3400 |
| *P. leschenaultiana* Ser. | | " | Herb | white | July-Aug. | 2000-3200 |
| *P. leuconota* D. Don | | " | Herb | yellow | June-July | 3000-3500 |
| *P. microphylla* D Don var. *achilaefolia* Hook. f. | | " | Herb | yellow | July-Aug. | 3000-4200 |
| *P. polyphylla* Wall. ex Linn. | | " | Herb | yellow | Aug.-Sept. | 2700-3500 |
| *Prinsepia utilis* Royle | | " | Sh | white | Sept.-Jan. | 1000-2500 |
| *Prunus cerasioides* D. Don | Bird-cherry | " | Tree | pink | Oct.-Nov. | 2100-2800 |
| *P. cornuta* (Wall. ex Royle) Steud. | | " | Tree | white | May-June | 2000-3000 |
| *Pyracantha crenulata* (D. Don) Roem. | | " | Sh. | white | Mar.-May | 1500-2800 |
| *Rosa macrophylla* Lindl. | Wild rose | " | Sh. | red | June | 2000-2800 |
| *R. sericea* Lindl. | | " | Sh | white | June | 2300-3900 |
| *Rubus ellipticus* Smith | | " | Sh. | white | May-June | 1200-2200 |
| *R. foliolosus* D. Don | | " | Sh. | pink | June-Oct. | 2300-3000 |
| *Sibbaldia parviflora* Willd. | | " | Herb | yellow | May-Oct. | 3000-4000 |
| *Sorbus aucuparia* L. | | " | Tree | pink | June-Oct | 3000-4000 |
| *S. cuspidata* (Spach) Hedlund | | " | Tree | white | May-Oct. | 2500-2800 |
| *Spiraea bella* Sims. | | " | Sh. | pink | May-June | 2600-3000 |
| *S. canescens* D. Don | | " | Sh | white | May | 1500-2400 |
| *Astilbe rivularis* Buch. Ham ex D. Don | False Goat's beard | Saxifragaceae | Herb | white | July-Aug. | 1800-2800 |
| *Bergenia stracheyi* (Hook. f. & Thoms.) Engl. | | " | Herb | pink | June-July | 3000-3500 |
| *Chrysosplenium tenellum* Hook. f. & Thoms. | | " | Herb | yellow | May-June | 3000-3500 |
| *Saxifraga asarifolia* Sternb | | " | Herb | white | Aug. | 4000 |
| *S. brachypoda* D. Don var. *fimbriata* (Wall. ex DC.) Engl. & Irmsch. | | " | Herb | yellow | Aug.-Sept. | 3000-3500 |
| *S. brunonis* Wall. ex Ser. | Rockfoil | " | Herb | yellow | July-Aug. | 2000-3200 |
| *S. diversifolia* Wall. ex Ser. | | " | Herb | yellow | Aug.-Sept. | 3300-4300 |

Contd. Table — 2

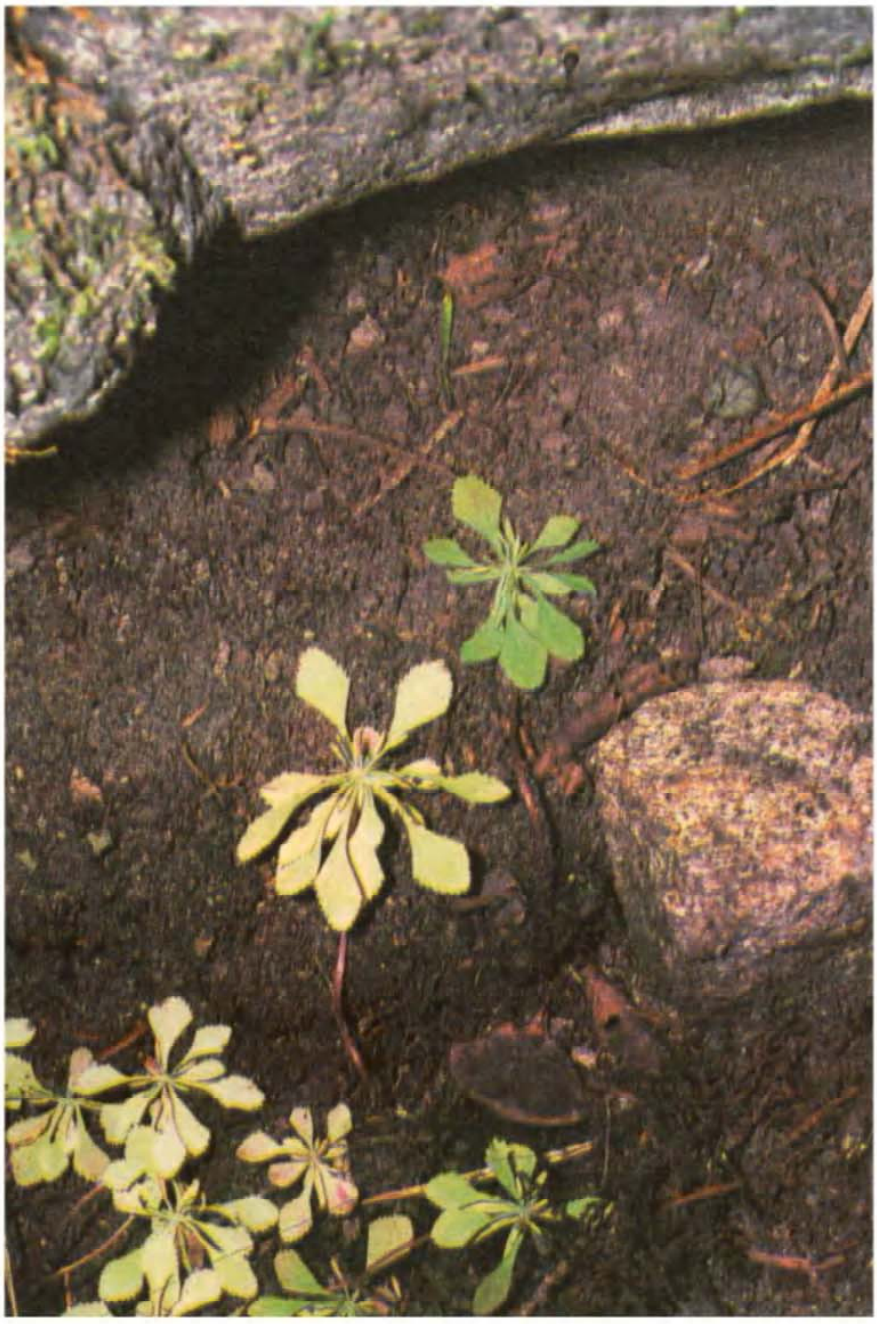
| | | | | | | |
|---|---|---|---|---|---|---|
| *Saxifraga filicaulis* Wall. ex Ser. | | Saxifragaceae | Herb | yellow | July-Aug. | 3200-3700 |
| *S. granulifera* H. Smith | | " | Herb | white | Aug.-Sept | 3600-4200 |
| *S. hirculus* L. | | " | Herb | yellow | July.-Aug. | 3500-4500 |
| *S. jacquemontiana* Dcne | | " | Herb | yellow | July.-Aug. | 3600-4500 |
| *S. moorcroftiana* (Wall. ex Ser.) Sternb | | " | Herb | | Aug.-Sept. | 3500-3800 |
| *S. mucronulata* Royle | | " | Herb | yellow | Aug.-Sept. | 3500-4500 |
| *S. pulvinaria* H. Sm. | | " | Herb | white | May-June | 3000-4000 |
| *Parnassia nubicola* Wall ex Royle | Grass of parnassus | Parnassiaceae | Herb | white | July.-Aug. | 2200-3300 |
| *Deutzia staminea* R. Br. ex Wall. | | Philadelphaceae | Sh. | yellow-white | June | 1600-2400 |
| *Ribes glaciale* Wall. | Red currant | Grossulariaceae | Sh. | brownish-green | June | 2200-3500 |
| *R. himalense* Royle ex Dcne. | | " | Sh. | greenish-yellow | June-July | 2500-3500 |
| *Sedum bupleuroides* Wall. ex Hook. f. | | Crassulaceae | Herb | purplish | Sept. | 3500-4500 |
| *S. crassipes* Wall. ex Hook. f. et Thoms. | | " | Herb | red | June-Sept. | 3000-4000 |
| *S. crenulatum* Hook. f. & Thoms. | Stone-crop | " | Succ. herb | red | July-Aug. | 3000-4000 |
| *S. ewersii* Ledeb. | | " | Herb | red. | July-Aug. | 3000-4500 |
| *S. heterodontum* Hook. f. & Thoms. | | " | Herb | red | Aug. | 4000-4600 |
| *S. imbricatum* (Edgew.) Walp | | " | Herb | greenish-yellow | July-Aug. | 3000-3400 |
| *S. multicaule* Wall. ex Lindl. | | " | Herb | yellow | July-Oct. | 2500-2700 |
| *S. quadrifidum* Pall | | " | Herb | red | June-Oct. | 3500-3600 |
| *S. sinuatum* Royle | | " | Herb | white | July-Aug. | 2200-3100 |
| *S. tibeticum* Hook. f. & Thoms. var. *stracheyi* Hook. f. & Thoms. | | " | Herb | purplish | July | 3300-4500 |
| *S. trullipetalum* Hook. f. & Thoms. | | " | Herb | yellow | July-Sept. | 3200-4000 |
| *Sempervivum mucronatum* Edgew. | | " | Herb | rose purple | July-Aug. | 3500-4500 |
| *Drosera peltata* Sm. var. *lunata* (Buch.-Ham. ex DC.) Cl. | | Droseraceae | Herb | violet | July-Aug | 1500-3000 |
| *Circaea alpina* L. subsp. *imaicola* (Ascher. et Magn.) Kitam. | | Onagraceae. | Herb | white | Aug.-Oct. | 2500-3500 |
| *Epilobium ammurense* subsp. *laetus* (Wall. ex Hausskn.) Raven | | " | Herb | purple | Oct. | 3600 |
| *E. cylindricum* D. Don | | " | Herb | pink | June-Sept. | 2500-4000 |

Contd. Table — 2

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|---|---|---|---|---|---|---|
| *Epilobium latifolia* L. | Willow herb | Onagraceae | Herb | purple | Aug.-Sept. | 3000-4200 |
| *E. leiophyllum* Hausskn. | | | Herb | pink | July.-Aug. | 3300-3800 |
| *E. palustre* L. | " | " | Herb | pink | Aug.-Sept. | 1650-3000 |
| *E. roseum* (Schreb.) Pers. | | " | Herb | pink-rose | Aug.-Sept. | 2500-3500 |
| *Angelica archangelica* L. | | Apiaceae | Herb | white | Aug.-Oct. | 3000-4000 |
| *A. glauca* Edgew. | | " | Herb | purplish white | Aug.-Oct. | 2500-3000 |
| *Anthriscus nemorosa* Spreng. | Chervil | " | Herb | pink | Aug. | 3000-3400 |
| *Bupleurum candolli* Wall. ex DC. | | " | Herb | yellow | July-Aug. | 2500-4000 |
| *B. falcatum* L. var. *marginatum* (Wall. ex DC.) Cl. | | " | Herb | yellow | Aug.-Oct. | 1800-4000 |
| *B. hamiltonii* Balak. | | " | Herb | yellow | May-Oct. | 3000 |
| *B. himalayense* Klotz. | Hare's ear. | " | Herb | brown | July-Aug. | 3000-3500 |
| *Chaerophyllum acuminatum* Lindl. | | " | Herb | white greenish | June-Aug. | 1800-3000 |
| *Chamaesciadium garhwalicum* (Wolff) Norman | | " | Herb | yellowish-white | Aug.-Oct. | 3000-5300 |
| *Cortia depressa* (D. Don) Norman | | " | Herb | white | July-Aug. | 3000-4000 |
| *Osmorrhiza aristata* (Thunb.) Rydb. | | " | Herb | white | June-July. | 4000 |
| *Pimpinella acuminata* (Edgew.) Cl. | | " | Herb | yellow-green | Aug.-Oct. | 1800-2700 |
| *P. diversifolia* DC. | | " | Herb | white | June-Oct. | 3350-3500 |
| *Pleurospermum angelicoides* (DC.) Cl. | | " | Herb | white | Aug.-Oct. | 2500-4000 |
| *P. candollii* (DC.) Cl. | | " | Herb | white | Aug-Sept. | 3000-4000 |
| *Selinum elatum* (Edgew.) Hiroe | | " | Herb | white | July-Aug. | 3800 |
| *S. vaginatum* (Edgew.) Cl. | | " | Herb | white | Sept.-Oct. | 3200-4000 |
| *S. wallichianum* (DC.) Raizada | | " | Herb | white | Sept.-Oct. | 2000-4000 |
| *Torilis japonica* (Houtt.) DC. | | " | Herb | purplish-white | June-Oct. | 2500-3000 |
| *Vicatia coniifolia* DC. | | " | Herb | purple | May-Aug. | 2000-5000 |
| *Lonicera obovata* Royle ex Hook.f. & Thoms. | | Caprifoliaceae | Sh. | yellow | July-Aug. | 3200-3800 |
| *L. purpurascens* Walp | | " | Sh. | dull purple | May-June | 3500-4500 |
| *L. quinquelocularis* Hardw | | " | Sh. | yellow | May-June | 1200-2800 |



*Balanophora involucrata* Hook. f. — a rare root parasite



***Circaeaster agrestis* Maxim.** – a primitive plant with dichotomously veined leaves



*Oxygraphis* polypetala (Royle) Hook. f. & Thoms. — an alpine herb



*Impatiens sulcata* Wall. ex Roxb. — a beautiful herb in the valley.

*Polygonum affine* D. Don — a common herb in the valley.

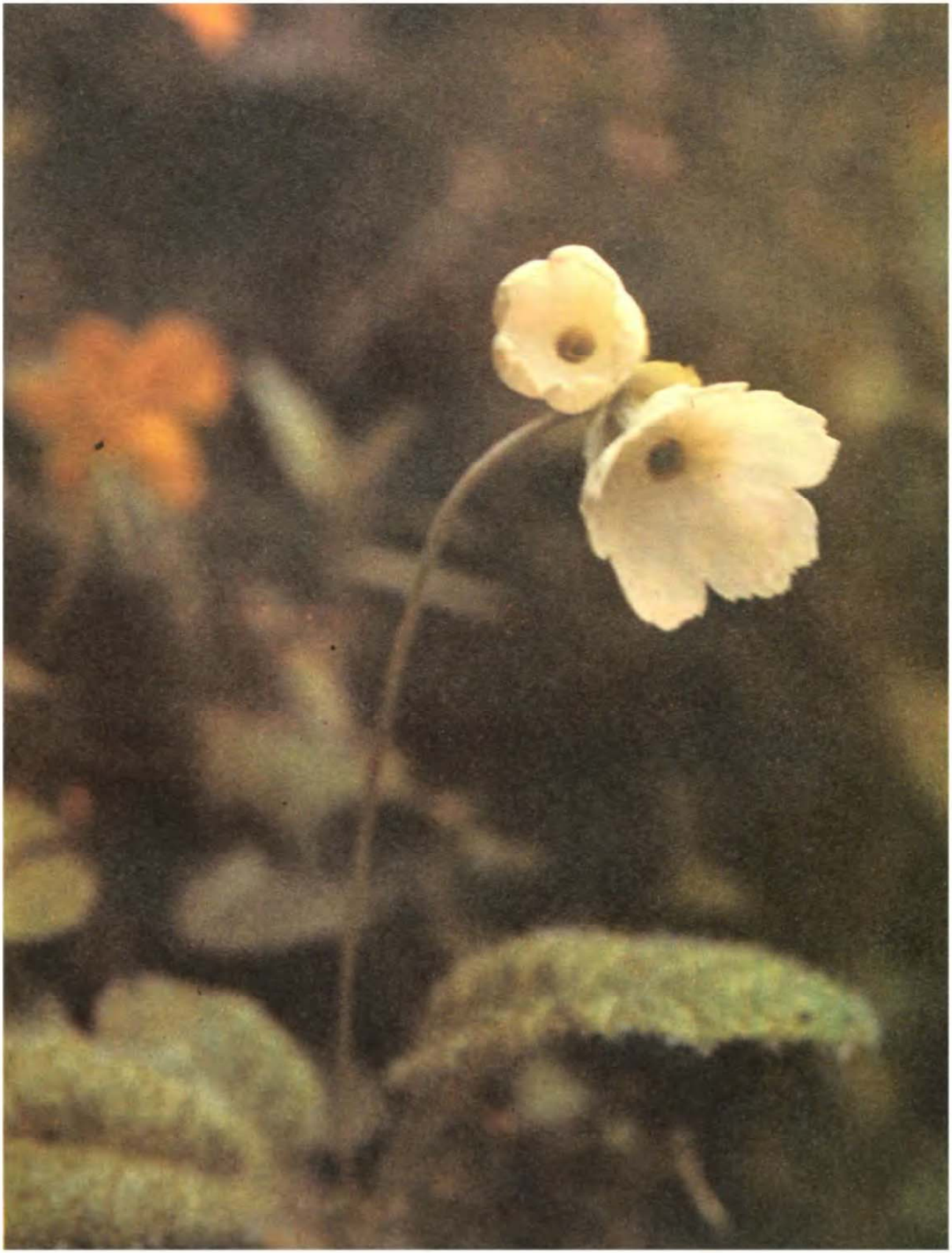




*Rubus ellipticus* Sm. — a common evergreen shrub.

*Lloydia longiscapa* Hook. f. — a beautiful alpine herb.





*Primula reidii* Duthie — an alpine herb.



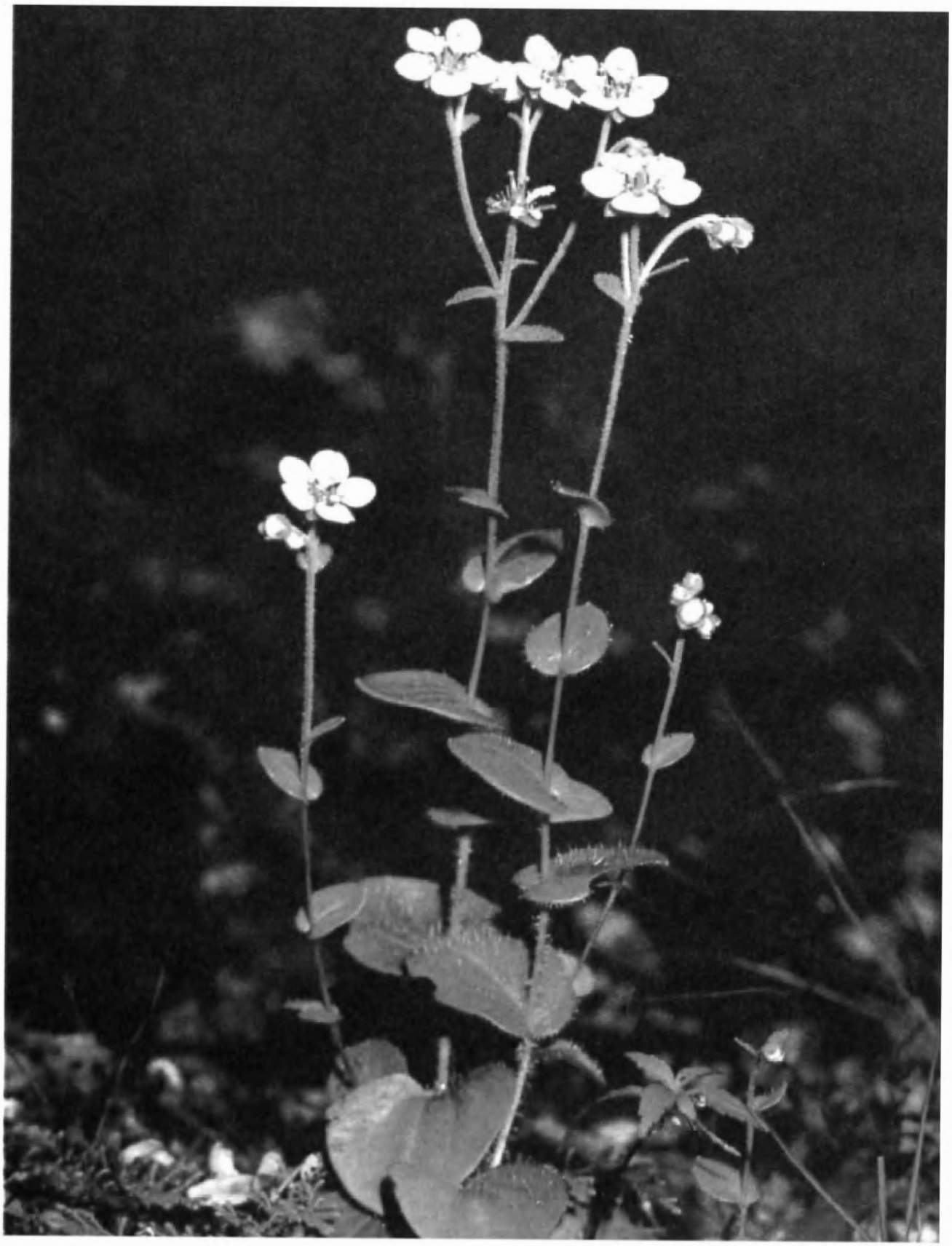
*Morina longifolia* Wall ex DC — an alpine herb.



*Pedicularis longifolia* Radolph ssp. *tubiformis* (Klotz.) Pennell — an alpine beautiful herb



*Primula munroi* Lindl. — a rare alpine herb



*Saxifroga diversifolia* Wall. ex Ser. — a beautiful herb.

Contd. Table — 2

| | | | | | | |
|---|---|---|---|---|---|---|
| *Viburnum cotinifolium* D Don | | Caprifoliaceae | Sh. | pinkish-white | May-June | 2100-3200 |
| *V. erubescens* Wall | Snowball tree | " | Sh. | pink | June | 2300-2800 |
| *V. grandiflorum* Wall. ex DC. | | " | Sh. | white-pink tinged | July-Aug | 2500-3500 |
| *Galium acutum* Edgew. | Woodruff | Rubiaceae | Cr. herb | white/yellow | Aug.-Sept | 2800-3200 |
| *G. aparine* L. | | " | Cr. herb | white | Aug.-Sept | 3000-4000 |
| *G. asperuloides* Edgew. | | " | Herb | white | June-July | 2700-3300 |
| *G. hirtiflorum* Req. | " | " | Herb | red | July-Aug. | 2500 |
| *G. odoratum* (L.) Scop | | " | Cr. herb | | July-Aug | 2700-3300 |
| *Leptodermis lanceolata* Wall. | | " | Sh. | purple | June-Oct. | 2000 |
| *Rubia manjith* Roxb. ex Flem. | | " | Cl. | dark purple | July-Oct. | 3000 |
| *Nardostachys grandiflora* DC. | Jatamansi | Valeriaceae | Herb | white | July-Aug. | 3500-4000 |
| *Valerianla himalayana* Grub. | Gretan spikenard | | Herb | pink | Aug | 3800-4200 |
| *Dipsacus inermis* Wall. | | Dipsacaceae | Herb | white | July-Oct. | 1800-2800 |
| *Morina longifolia* Wall. ex DC. | | Morinaceae | Herb | white-pink | July-Sept | 3000-4500 |
| *M. wallichii* Royle | | " | Herb | pink-white | June-July | 2000-2800 |
| *Ainsliaea aptera* DC. | | Asteraceae | Herb | greenish-white | May-Sept. | 2800-4000 |
| *Anaphalis adnata* Wall. ex DC. | | " | Herb | white | Sept.-Oct. | ca 2000 |
| *A. busua* (Buch -Ham.) DC. | Everlasting | | Herb | white | Aug.-Sept. | 2000-3200 |
| *A. contorta* (D. Don) Hook. f. | " | " | Herb | white | Aug.-Sept | 1500-3000 |
| *A. cuneifolia* (DC.) Hook. f. | | " | Herb | yellow | Sept. | 3200 |
| *A. nepalensis* (Spr.) Hand.-Mazz. (=*A. nubigena* DC.) | | " | Herb | white | Aug. | 3600-4200 |
| *A. royleana* DC. | | " | Herb | white | Sept.-Oct. | 2800-3300 |
| *A. triplinervis* Cl | | " | Herb | pale yellow | Aug. | 3000-3500 |
| *Artemesia absinthium* L. | | " | Herb | brown-yellow | June-July | 2800-3800 |
| *A. japonica* Thunb. | | " | Herb | greenish white | Sept.-Oct. | ca 2600 |
| *A. nilagirica* (Cl.) Pamp | | " | Sh. | brownish-yellow | Aug.-Sept. | 3000 |
| *A. roxburghiana* Besser | Lad's love | " | Herb | brown | Aug. | 2100-3400 |
| *Aster albescens* (DC.) Wall. ex Hand.-Mazz | | " | Herb | white | Aug. | 3000-3300 |

Contd. Table — 2

| | | | | | | |
|---|---|---|---|---|---|---|
| *Aster diplostephioides* (DC.) Cl. | | Asteraceae | Herb | purple | Aug.-Oct. | 3000-3500 |
| *A. peduncularis* Wall. ex Nees | | " | Herb | pink | July-Aug. | 1800-3000 |
| *A. thomsonii* Cl. | | " | Herb | pink | Aug. | 1800-3000 |
| *Bidens pilosa* L. | | " | Herb | yellowish-white | Sept.-Oct | ca 2500 |
| *Brachyactis anomalum* (DC.) Kitam. | | " | Herb | pale-blue | Aug.-Oct. | 3500-4000 |
| *B. pubescens* (DC.) Aitch. & Cl. | | " | Herb | yellow | Sept.-Oct. | 3800 |
| *Carduus edelbergii* Rech. f. | | " | Herb | purple | Aug.-Sept. | 1800-3500 |
| *Carpesium nepalensis* Less. | | " | Herb | yellow | Aug. | 2200-3300 |
| *Chrysanthemum nubigenum* (DC.) Hand.-Mazz. | | " | Herb | yellow | Sept.-Oct. | 3500-3700 |
| *Cicerbita cyanea* (D. Don) Beauv. | | " | Herb | purple | Sept.-Oct. | 3000-4000 |
| *C. lessertiana* DC. | | " | Herb | purple | Sept.-Oct. | 3800-4000 |
| *C. macrorhiza* (Royle) Beauv. | | " | Herb | purple | Aug.-Oct. | 3000-4000 |
| *Cirsium wallichii* DC. | | " | Herb | pink | July-Sept. | 2000-3400 |
| *Cremanthodium arnicoides* Good forma *maximowiczii* | | " | Herb | yellow | Aug.-Sept. | 3200-3600 |
| *C. decaisei* Cl. | | " | Herb. | yellow | Aug. | 3500-4000 |
| *Dubyaea hispida* (D. Don) DC. | | " | Herb | blue | Aug. | 2200-3400 |
| *Erigeron alpinus* L. | Fleabene | " | Herb | blue | July-Aug. | 2200-2800 |
| *E. multiradiatus* (Lindl. ex DC.) Cl. | | " | Herb | blue | July-Aug. | 2200-2800 |
| *Gerbera gossypina* (Royle) Beauv. | | " | Herb | pink | April | 1800-2500 |
| *G. kunzeana* Braun et Asch. | Transvall Daisy | " | Herb | white-pink | Sept.-Oct. | 2400-3200 |
| *Gnaphalium affine* D. Don | | " | Herb | golden yellow | Sept.-Oct. | ca 2500 |
| *Inula cappa* (Buch-Ham. ex D. Don) DC. | | " | Herb | yellow | Apr.-Aug. | 1500-2800 |
| *I. cuspidata* (DC.) Cl. | | " | Herb | yellow | May-Oct. | 1500-2000 |
| *I. grandiflora* Willd. | | " | Herb | yellow | Aug. | 2800-3000 |
| *Lactuca dissecta* D. Don | Lattuce | " | Herb | blue | May-June | 1000-2200 |
| *L. dolichophylla* Kitam. | | " | Herb | purple | Aug.-Oct. | 2000-3000 |
| *L. violaefolia* (Dcne.) Cl. | | " | Herb | violet blue | Aug. | 2700-3200 |
| *Leontopodium himalayanum* DC. | Edleweiss | " | Herb | white | July-Aug. | 3000-4500 |
| *L. jacotianum* Beauv. | | " | Herb | white | June-Oct. | 3500-4000 |
| *Ligularia amplexicaulis* DC. | | " | Herb | yellow | Aug.-Oct. | 3500-4000 |

Contd. Table — 2

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|---|---|---|---|---|---|---|
| *Ligularia sibirica* Cass. | | Asteraceae | Herb | | Aug-Sept. | 3500 |
| *Myriactis nepalensis* Less. | | " | Herb | yellow-white | Aug.-Oct. | 2000-3500 |
| *Saussurea albescens* (DC.) Sch.-Bip. | Saw-wort | | Herb | purple | Aug -Sept. | 2200-3200 |
| *S. auriculata* (DC.) Sch.-Bip. | | | Herb | purple | Sept.-Oct. | 3000-4000 |
| *S. fastuosa* (Dcne.) Sch.-Bip. | | " | Herb | purple-blue | Aug-Sept | 2200-3300 |
| *S. gnaphalodes* (Royle) ex DC. | | " | Herb | purple | Aug.-Sept. | 4000-4500 |
| *S. gossypiphora* D. Don | | " | Herb | purple | Aug-Sept. | 3500-4500 |
| *S. obvallata* (DC.) Edgew. | | " | Herb | purple | Aug-Sept. | 3500-4500 |
| *S. piptathera* Edgew. | | " | Herb | purple | Aug. | 3200-3800 |
| *S. simpsoniana* (Field. & Gard.) Lipsch. | | " | Herb | purple | Sept. | 3300-4300 |
| *S. taraxicifolia* Wall. ex DC. | | " | Herb | purple | Sept. | 3000-3600 |
| *Senecio chrysanthemoides* DC. | Ragwort | " | Herb | yellow | July-Aug. | 2400-3800 |
| *S. connatus* Balak. | " | " | Herb | yellow | Aug | 3300-3800 |
| *S. duthie* M.A. Rau | " | " | Herb | yellow | July-Aug. | 3500-4000 |
| *S. nudicaulis* Buch.-Ham. ex D. Don | | " | Herb | yellow | Aug.-Sept. | 1800-2800 |
| *S. rupinervis* DC. | " | " | Herb | yellow | July-Oct. | 2500-4000 |
| *Siegesbeckia orientalis* L. | | " | Herb | yellow | Aug. | 1500-2500 |
| *Solidago virgaaurea* L. | Golden rod | " | Herb | yellow | Sept. | 1800-2200 |
| *Tanacetum longifolium* Wall. ex DC. | | " | Herb | yellow | Aug-Sept. | 3000-3800 |
| *T. nubigenum* Wall. ex DC. | Tansy | " | Herb | yellow | Sept. | 3300-3700 |
| *Waldheimia glabra* (Dcne.) Royle | | " | Herb | white | July | 4200-4600 |
| *W. tomentosa* (Dcne.) Royle | | " | Herb | pink | Aug. | 3600-4600 |
| *Campanula arista* Wall. ex Roxb. | Bellflower | Campanulaceae | Herb | blue | Aug. | 3600-4400 |
| *C. argyrotricha* Wall. ex DC. | | " | Herb | blue | Aug. | 2400-3300 |
| *C. cashmeriana* Royle | | " | Herb | pink | Aug-Sept | 3400-3800 |
| *C. colorata* Wall. | " | " | Herb | blue | Aug-Sept. | 1800-3500 |
| *C. latifolia* L. | " | " | Herb | purple | Aug. | 2400-3200 |
| *C. sylvatica* Wall. | | | Herb | blue | Aug. | 1500-2200 |
| *Codonopsis rotundifolia* Benth. | Bellwort | " | Herb | purple-green | Aug. | 3000-3200 |
| *Cyananthus integer* Wall. ex Benth. | | " | Herb | blue | Aug. | 3000-3400 |
| *C. lobatus* Wall. ex Benth. | | " | Herb | blue | Aug. | 3000-3500 |
| *C. microphyllus* Edgew | | " | Herb | blue | July-Aug. | 3200-4000 |
| *Lobelia pyramidalis* Wall. | | " | Herb | purple | Sept.-Oct. | 2500-3000 |

Contd. Table — 2

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|---|---|---|---|---|---|---|
| *Cassiope fastigiata* (Wall.) D. Don | | Ericaceae | Herb | pink | June-July | 3200-4200 |
| *Gaultheria trichophylla* Royle | Creeping winter green | " | Herb | pink | June | 3000-3500 |
| *Lyonia ovalifolia* (Wall.) Drude. | | " | Tree | white | Aug.-Sept. | 2200-3000 |
| *Rhododendron arboreum* Sm. | | " | Tree | red | Apr.-May | 1200-3200 |
| *R. campanulatum* D. Don | | " | Sh. | lilac | June-July | 3000-3400 |
| *R. anthopogon* D. Don | | " | Sh. | yellow | June | 3000-4200 |
| *R. lepidotum* Wall. ex D. Don | | " | Sh. | pink | June-July | 2700-4000 |
| *Androsace chamae-jasme* Host. | Rock jasmine | Primulaceae | Herb | purple | July-Aug. | 3200-4300 |
| *A. primuloides* (Hook. f.) Juby. | | " | Herb | purple | June | 3800-4000 |
| *A. rotundifolia* Hardw. | " | " | Herb | pink | June | 3000-3500 |
| *A. sarmentosa* Wall. | " | " | Herb | purple | July | 2500-4500 |
| *Primula denticulata* Sm | | " | Herb | purple | Apr.-June | 2200-3200 |
| *P. elliptica* Royle | | " | Herb | | June-Aug. | 2500-4000 |
| *P. floribunda* Wall. | | " | Herb | yellow | Feb.-Mar. | 1200-3200 |
| *P. heydei* Watt. | | " | Herb | lilac | June | 3500-4000 |
| *P involucrata* Wall. ex Duby | | " | Herb | white | June-July | 3000-4000 |
| *P. macrophylla* D. Don | | " | Herb | dark purple | June-July | 3200-3600 |
| *P. macrophylla* var. *moorcroftiana* (Wall. ex Klatt) Sm. & Fletch. | | " | Herb | purple | Aug. | 4200 |
| *P. minutissima* Jack. ex Duby. | | " | Herb | purple | July | 3900-4500 |
| *P. reidii* Duthie | | " | Herb | white | June-Oct. | 3000-4000 |
| *Jasminum humile* L. | Jasmine | Oleaceae | Sh. | yellow | May-June | 1800-2500 |
| *Syringa emodi* Wall. ex Royle. | | " | Sh. | white | May | 2400-3300 |
| *Gentiana aprica* Dcne. | Gentian | Gentianaceae | Herb | blue | April | 1800-2000 |
| *G. argentea* (D. Don) Cl. | " | " | Herb | blue. | June | 3000-3400 |
| *G. capitata* Buch. Ham. ex D. Don | " | " | Herb | blue | Apr.-May | 1800-3500 |
| *G. stipitata* Edgew. | " | " | Herb | blue white | Aug. | 3200-3700 |
| *G. tubiflora* (G. Don) Griseb. | " | " | Herb | purple | Aug.-Sept. | 3800-4200 |
| *G. venasta* (G. Don) Griseb. | " | " | Herb | purple | Sept.-Oct. | 4000-4500 |
| *Gentianella peduncullata* (D. Don) H. Sm. | | " | Herb | blue | Sept. | 4000-4500 |
| *Lomatogonium carinthiacum* (Wulf.) A. Br. | | " | Herb | blue | Aug.-Sept. | 3500-4200 |
| *Swertia alata* (Royle ex D. Don) Cl. | | " | Herb | yellowish-green | Aug.-Oct. | 2500-4000 |
| *S. alternifolia* Royle | Marsh-felwort | " | Herb | bluish-yellow | Aug. | 3000-3600 |

Contd. Table — 2

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|---|---|---|---|---|---|---|
| *Swertia angustifolia* var. *pulchella* Burt. | | Gentianaceae | Herb | yellow | June-Aug | 1800-2000 |
| *S. ciliata* (D. Don ex G. Don) Burt. | | " | Herb | purple | Aug. | 1800-3000 |
| *S. cuneata* Wall ex D. Don | | " | Herb | blue | Aug.-Sept | 3200-3800 |
| *S. tetragona* Edgew. | | " | Herb | white | Sept.-Oct | 3000 |
| *Polemonium coeruleum* L. subsp. *himalayanum* (Baker) Hara | Jacob's ladder | Polemoniaceae | Herb | blue | Aug | 3200-3500 |
| *Arnebia euchroma* (Royle) Johnston | | Boraginaceae | Herb | blue | July.-Aug. | 3500-4000 |
| *Cynoglossum glochidiatum* Wall. ex Benth. | | " | Herb | blue | July.-Aug | 3000-3500 |
| *Erytrichum rupestre* (Pall.) Bunge var. *pectiniata* (Pall.) Brand. | | " | Herb | blue | Aug | 3800-4400 |
| *Hackelia uncinata* (Royle ex Benth.) Fischer | | " | Herb | blue | June-Sept. | 3000-3500 |
| *Myosotis caespitosa* Schultz. | Forget-me-not | " | Herb | blue | Aug.-Sept | 2000-3200 |
| *M. sylvatica* Ehrh ex Hoffm | | " | Herb | blue | July | 3200-3500 |
| *Cuscuta europaea* L. | Doddar | Cascutaceae | Par. Herb | pale-yellowish to pink | Aug.-Sept | 2800-3800 |
| *C. reflexa* Roxb. | | " | Par Twinger | yellow | Aug.-Sept. | 2800-3800 |
| *Euphrasia kurramensis* Pennell | | Scrophulariaceae | Herb | white | Oct. | 3800 |
| *E. officinalis* L. | | " | Herb | yellowish-white | June | 2400-3500 |
| *Hemiphragma heterophyllum* Wall. | | " | Herb | pink | June-Oct. | 2500-3500 |
| *Leptorhabdos parviflora* (Benth.) Benth. | | " | Herb | pale | Aug.-Oct | 2200 |
| *Mazus surculosus* D. Don | | " | Herb | pinkish-purple | Mar.-Apr | 1200-2800 |
| *Pedicularis bicornuta* Klotz. et Garcke | | " | Herb | yellow | July | 3000-3500 |
| *P. bifida* (Buch.-Ham.) Pennell | | " | Herb | red | Aug. | 1800-2800 |
| *P. gracilis* Wall. ex Benth. | | " | Herb | pink-purple | Aug.-Sept. | 2500-4000 |
| *P. hoffmeisteri* Klotz et Garcke | | " | Herb | yellow | Aug.-Oct | 3000-3500 |
| *P. oderi* Vahl | | " | Herb | yellow | Aug.-Sept | 3000 |
| *P. pectinata* Wall ex Benth | | " | Herb | red | Aug | 2400-3200 |
| *P. porrecta* Wall. ex Benth | | " | Herb | purple | Aug. | 4000-4500 |
| *P. roylei* Maxim | | " | Herb | pinkish | Aug. | 3200-4400 |
| *P. siphonantha* D. Don | | " | Herb | red | Aug. | 3200-3500 |
| *Picrorhiza scrophulariifolia* Pennell | Katki, Kuru | " | Herb | brown-purple | June | 2200-3500 |

Contd. Table — 2

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|---|---|---|---|---|---|---|
| *Scrophularia edgeworthii* Benth. | | Scrophulariaceae | Herb | yellow | June-July | 2500-3000 |
| *Sopubia trifidda* Buch.-Ham. | | " | Herb | yellow | July-Aug | 1800-2400 |
| *Verbascum thapsus* L. | Aaron's rod | " | Herb | yellow | July-Aug. | 1800-3600 |
| *V. deltigera* Wall. ex Benth. | Speedwell | " | Herb | blue | July-Aug. | 3000-3800 |
| *Veronica cana* Wall. ex. Benth. | | " | Herb | blue | June-Aug. | 3500-4000 |
| *V. umbelliformis* Pennell | | " | Herb | blue | July-Aug. | 3500-4500 |
| *V. himalensis* D. Don | | " | Herb | blue | July-Aug. | 4000 |
| *Orobanche alba* Staphon ex Willd.. | | Orobanchaceae | Root parasite | red-brown | July-Aug. | 2800-3000 |
| *Boschniakia himalaica* Hook. f. & Thoms. ex Hk. f | | " | Herb | purplish-white | Sept-Oct. | 2800-3500 |
| *Dicliptera bupleuroides* Nees | | Acanthaceae | Herb | purplish | June-Sept | 2000 |
| *Goldfussia dalhousiana* Nees | | " | Sh. | lilaic | July-Aug. | 2100-2400 |
| *Strobilanthes atropurpureus* Nees | | " " | Undersh. | purple-dark | July-Oct | 2000-3500 |
| *Callicarpa macrophylla* Vahl | | Verbenaceae. | Sh. | lilac | Aug-Sept. | 1200-1900 |
| *Ajuga brachystemon*. Maxim. | | Lamiaceae | Herb | purplish | Sept-Oct. | 2000-3000 |
| *Clinopodium umbrosum* (M.Bieb.) Roch. | | " | Herb | bluish | Sept | 1200-3800 |
| *C. vulgare* L. | Calamint | " | Herb | blue | Aug. | 3000-3500 |
| *Colquhounia coccinea* Wall. | | " | Sh. | scarlet orange | June | 1800-2200 |
| *Craniotome furcata* (Link.) O. Ktze | | " | Herb | white | July-Aug. | 2500 |
| *Elsholtzia ciliata* (Thunb.) Hylander | | " | Herb | purple | Sept. | 2500 |
| *E. eriostachya* (Benth.) Benth. | | " | Herb | yellow | Aug. | 3300-3800 |
| *E. flava* (Benth.) Benth. | | " | Herb | yellow | June-Oct. | 2500 |
| *E. fruticosa* (D. Don) Rehdr. | | " | Herb | white to pale-yellow | June-Oct. | 2500 |
| *E. strobilifera* (Benth.) Benth. | | " | Herb | yellow | July-Aug. | 2200-3200 |
| *Lamium album* L. | White dead Nettle | " | Sh. | white | May-June | 2200-2800 |
| *Nepeta govaniana* (Benth.) Benth. | | " | Herb | yellow | Aug-Oct. | 3000-4000 |
| *N. laevigata* (D. Don) Hand. Mazz. | | " | Herb | purplish | Mar. Oct. | 3000-3800 |
| *Origanum vulgare* L. | Sweet Marjoram | " | Herb | pink | Aug. | 3000-3500 |
| *Phlomis bracteosa* Royle ex Benth. | Jerusalem sage. | " | Herb | purple | July | 2800-3400 |
| *Plectranthus alatus* (Wall. ex Nees) Bramekamp | | " | Sh. | blue | July-Aug. | 1800-2200 |
| *P. gerardianus* Benth. | | " | Herb | white | Sept. | 1800-2200 |
| *P. japonicus* (Burm. f.) Koidzuma | | " | Herb | violet | Sept-Oct. | 3300-3700 |

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|---|---|---|---|---|---|---|
| *Prunella vulgaris* L. | | Lamiaceae | Herb | purple | Aug. | 1800-3000 |
| *Salvia nubicola* Wall. ex Sw. | | " | Herb | | Aug-Oct. | 2000-2800 |
| *Scutellaria prostrata* Jacq. ex Benth. | Helmet flower | | Herb | purplish-yellow | Aug. | 3000-3500 |
| *Stachys melissaefolia* Benth. | | " | Herb | pink | Oct | 3000-3500 |
| *S. sericea* Wall. | Chinese artichoke | " | Herb | lilac | July | 1800-2600 |
| *Thymus linearis* Benth. | Thyme | " | Herb | pink | Aug. | 3300-4000 |
| *Cyathula capitata* Moq. | | Amaranthaceae | Herb | green | Sept. | 2500 |
| *C. tomentosa* (Roth) Moq. | | " | Herb | green | June-Oct. | 2500 |
| *Chenopodium botrys* L. | | Chenopodiaceae | Herb | green | Aug. | 1800-3800 |
| *Fagopyrum esculentum* (L.) Moench. | | Polygonaceae. | Herb | pink | July | 1500-3400 |
| *Oxyria digyna* (L.) Hill | | " | Herb | Pink-green | July | 3200-4500 |
| *Polygonum affine* D. Don | Knotweed | " | Herb | cream | Sept. | 3200-3800 |
| *P. amplexicaule* D. Don | " | " | Herb | red | June | 1800-2800 |
| *P. convolvulus* L. | | " | Herb | green | July-Sept. | 2000-2500 |
| *P. delicatulum* Meissn. | | " | Herb | pink | Aug. | 3200-3500 |
| *P. filicaulae* Wall. ex Meissn. | | " | Herb | white | Aug. | 3500-4500 |
| *P. polystachyum* Wall. ex Meissn. | | " | Sh. | pink-white | Aug-Sept. | 2800-3300 |
| *P. rumicifolium* Royle ex. Beb. | | " | Herb | green-yellow | Aug. | 3000-3400 |
| *P. vaccinifolium* Wall. ex. Meissn. | | " | Herb | pink | Aug. | 3200-3800 |
| *P. viviparum* L. | | " | Herb | pink | Aug | 3200-4500 |
| *Rheum emodi* Wall. ex Meissn. | Rhubarb | " | Herb | pink | July-Aug. | 2200-3400 |
| *R. moorcroftianum* Royle | " | " | Herb | pink | July-Aug. | 3200-4400 |
| *R. webbianum* Royle | | " | Herb | pale-yellowish | June-Oct. | 4500 |
| *Rumex acetosa* L. | | " | Herb | pink | June | 2400-3500 |
| *R. nepalensis* Spr. | | " | Herb | green | April-May | 1200-2200 |
| *Daphne oleoides* Schreb | | Thymelaeaceae | Sh. | yellow-white | June | 2200-2600 |
| *Hippophae rhamnoides* Serv. ssp. *solicifolia* (D. Don) Serv. | | Elaeagnaceae | Sh. | white | June | 2800-3500 |
| *Balanophora involucrata* Hook. f. | | Balanophoraceae | Par. Herb | red-yellow | Aug | 2200-2500 |
| *Euphorbia pilosa* L. | Spurge | Euphorbiaceae | Herb | yellow | June | 2000-3200 |
| *E. sharmae* U.C. Bhatt. | | " | Herb | yellow | June-July | 3500-4500 |
| *Ulmus wallichiana* Planch. | Elm. | Ulmaceae | Tree | purplish | Mar-Apr | 2100-2500 |

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|---|---|---|---|---|---|---|
| *Morus serrata* Roxb. | Mulberry | Moraceae | Tree | green | May | 1600-2800 |
| *Gonostegia hirta* (Bl.) Meq. | | Urticaceae | Herb | greenish | July-Aug. | ca 2000 |
| *Lecanthus peduncularis* (Royle) Wedd. | | " | Herb | greenish | Aug-Oct | 1700-3000 |
| *Juglans regia* L. | Walnut | Juglandaceae | Tree | green | May | 1500-2500 |
| *Betula alnoides* Buch. Ham. ex D. Don | | Betulaceae | Tree | green | Mar-May | 2200-3500 |
| *B. utilis* D. Don | Berch | " | Tree | green | May-June | 3000-3500 |
| *Alnus nepalensis* D. Don | Alder | " | Tree | | Oct. | 1500-2800 |
| *Carpinus viminea* Lindl | Horns been | " | Tree | green | Mar-Apr. | 2200-2800 |
| *Corylus jacquemontii* Dcne. | Himalayan Hazelnut | Corylaceae | Tree | green | Apr-June | 2800 |
| *Quercus leucotrychophora* A. Camus ex Bah. | Oak | Fagaceae | Tree | | April | 1400-2200 |
| *Q. dilatata* Royle | | " | Tree | green | April | 1800-2800 |
| *Q. semicarpifolia* Sm. | | " | Tree | green | May | 2200-3300 |
| *Populus ciliata* Wall. | Poplar | Salicaceae | Tree | green | April | 2000-3000 |
| *Salix denticulata* Anders | Willow | " | Sh. | | May | 2200-3400 |
| *S. flabellaris* Anders. | " | " | Sh. | | May | 2200-3400 |
| *S. fruticulosa* Anders. | | " | Sh. | | May | 2200-3400 |
| *Abies pindrow* (Royle) Spach. | Silver Fir | Pinaceae | Tree | purple blue cones | May | 2200-3200 |
| *A. spectabilis* (D. Don) Marle | | " | Tree | purple cones | Sept | 3000 |
| *Picea smithiana* (Wall.) Boiss | Spruce | " | Tree | dark brown cones | April | 2800-3200 |
| *Juniperus communis* L. | | Cupressaceae | Sh. | blue cones | May | 3000-4000 |
| *J. indica* Bertol. | | " | Sh. | | Aug. | 2800-3000 |
| *J. squamata* Buch-Ham. ex D. Don | | " | Sh. | black | Aug-Oct. | 3000-4000 |
| *Taxus baccata* L. subsp. *wallichiana* (Zucc.) Pilger | Yew | Taxaceae | Tree | bright red cones | April | 2200-3200 |
| *Calanthe brevicornu* Lindl. | | Orchidaceae | Herb | purple-white | Sept-Oct. | 2000-2800 |
| *Cephalanthera longifolia* (L.) Fritch. | | " | Herb | white | July | 3000 |
| *Cypripedium cordigerum* D. Don | | " | Herb | purple-brown | Mar.-Sept. | 3300-3800 |
| *Cyperipedium elegans* Rechb. f. | | " | Herb | greenish-purple | June | 3000-4000 |
| *Dactylorhiza hatagirea* D. Don | Hatajira, Salam Panja | " | Herb | purple | June | 3000-3600 |
| *Didiciea cunninghamii* King & Pantl. | | " | Herb | amber | Aug-Sept. | 3100 |
| *Epipactis helleborine* (L.) Crantz | | " | Herb | green | June-Sept. | 1500-3000 |
| *Epipogium aphyllum* (Schmidt.) Sw. | | " | Herb | yellow | July-Sept. | 3000 |
| *E. roseum* (D. Don) Lindl. | | " | Herb | pink-rose | Sept-Oct | 2500-2800 |

## Contd. Table — 2

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|---|---|---|---|---|---|---|
| *Goodyera fusca* (Lind) Hook.f. | | Orchidaceae | Herb | greenish white | Sept-Oct. | 3500-4000 |
| *G. repens* (L.) R. Br. | | " | Herb | white | Aug-Oct. | 2000-2400 |
| *Habenaria latilabris* (Lindl.) Hook. f. | | " | Herb | green | Aug-Sept. | 1500-2500 |
| *H. pectinata* D. Don | | " | Herb | greenish white | July-Sept. | 1500-2000 |
| *H. stenopetala* Lindl. | | " | Herb | pale-brownish | Aug. | 2100 |
| *Listera longicaulis* King & Pantl. | | " | Herb | green | Aug-Sept. | 3000 |
| *L. tenuis* Lindl. | | | Herb | green | Aug-Sept. | 3000-3500 |
| *Malaxis muscifera* (Lindl ) Kuntz. | | " | Herb | green | June-Oct | 3500-4500 |
| *Oreorchis indica* (Lindl.) Hook. f. | | " | Herb | purplish | Sept. | 3000 |
| *O. foliosa* (Lindl.) Lindl. | | " | Herb | pale red | June-July | 3000-3200 |
| *O. micrantha* Lindl. | | " | Herb | yellow | June-July | 2500-3500 |
| *Ponerorchis chusua* (D. Don) Soo | | | Herb | purple | Aug. | 3300-3400 |
| *Satyrium nepalense* D. Don | | " | Herb | dark-pink to white | July-Oct. | 1800-4000 |
| *Roscoea alpina* Royle | | Zingiberaceae | Herb | purple | June | 2100-2300 |
| *Aletris pauciflora* (Klotz,) Hand. -Mazz. | | Haemodoraceae | Herb | white | July | 3400-4200 |
| *Ophiopogon intermedia* D. Don | Snake's beard | " | Herb | white | May-June | 2100-2400 |
| *Iris kumaonensis* D. Don ex Royle | | Iridaceae | Herb | purple-blue | June-July | 3000-4000 |
| *Dioscorea belophylla* (Prain) Voigt. ex Hains | | Dioscoreaceae | Cl. | | Aug-Sept. | 1500-2000 |
| *D. deltoidea* Wall. ex Griseb. | | " | Cl. | | May-Oct. | 2000-2500 |
| *Allium consanguineum* Kunth | | Alliaceae | Herb | white with purple spot | July-Sept. | 2800-3000 |
| *A. humile* Kunth. | | " | Herb | white | June-July | 3000-3400 |
| *Asparagus filicinus* Buch. Ham. ex D. Don | | Liliaceae | Cl. | white | June | 2000-2500 |
| *Clintonia udensis* Trautv. et Meyer var. *alpina* (Kunth) Hara | | " | Herb | white | June | 3000-3300 |
| *Gagea elegans* Wall ex D Don | Yellow star of Bethlehem | " | Herb | yellow | June | 2400-3600 |
| *Fritillaria roylei* Hook. | | " | Herb | yellow-green | June | 2400-3600 |
| *F. cirrhosa* D. Don. | | " | Herb | greenish-yellow | June-Sept. | 3800- |
| *Lloydia serotina* (L.) Reichb. | Mountain spiderwort | " | Herb | white with purple streaks | June-Sept. | 4200 |
| *L. longiscapa* Hook. | | " | Herb | white-brown purple | June-Sept. | 4200 |
| *L. tibetica* Baker ex Oliver | | " | Herb | yellow | July | 3400-4400 |

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|---|---|---|---|---|---|---|
| *Nomocharis nana* (Klotz.) Wils. | | Liliaceae | Herb | purple-blue | June | 3500 |
| *N. oxypetala* (Royle) Wilson | | " | Herb | cream yellow | June-July | 3000-3500 |
| *Polygonatum hookeri* Baker | | | Herb | purple | July-Aug. | 3000-3600 |
| *P. multiflorum* (L.) All | | " | Herb | white-yellow | June-Oct. | 2500-3500 |
| *Smilacina purpurea* Wall. | False spikenard | " | Herb | white-purple | June | 2500-3300 |
| *Trillidium govanianum* (D. Don) Kunth | Wood Lily | " | Herb | dark-purple | June-Aug. | 3000-3500 |
| *Smilax menispermoidea* A.DC. | | " | Herb | brownish | May-Aug. | 1600-2000 |
| *Aneilema scaberrima* (Bl.) | | Commelinaceae | Herb | purple-blue | June-July | 3000-3300 |
| *Commelina paludosa* Bl. | | " | Herb | pale-blue | July-Sept. | 1500-2000 |
| *Cyanotis vaga* (Lour.) Schult. f. | | " | Herb | blue | July-Sept. | 2000 |
| *Juncus elegans* Royle ex. D. Don | | Juncaceae | Herb | white | Aug. | 1800-2800 |
| *J. himalensis* Klotz. | | " | Herb | white | Sept. | 3600-4000 |
| *J. leucanthus* Royle ex D. Don | | " | Herb | pale-yellow | Aug. | 4000 |
| *J. membranaceus* Royle ex. D. Don. | | " | Herb | white | Sept-Oct. | 4200-4500 |
| *Luzula multiflora* (Retz.) Lej | | " | Herb | purple-brown spathe with white stripes | June-Aug. | 2500-3000 |
| *Arisaema flavum* (Forsk.) Schott | Arum | Araceae | Herb | yellow-green | June-July | 2000-3300 |
| *A. jacquemontii* Bl. | | " | Herb | spathe white striped | June-July | 2100-3600 |
| *A. propinquum* Schott | | " | Herb | purple-brown | June-Aug. | 2500-3000 |
| *A. tortuosum* (Wall.) Schott var. *tortuosum* Hook. f. | | " | Herb | pale-yellow | June-July | 1800-2800 |
| *Carex cruciata* Wall. | | Cyperaceae | Herb | red-brown | Sept. | 3500 |
| *C. inanis* Kunth | | " | Herb | green-grey | June | 2200 |
| *C. infuscata* Nees | | " | Herb | dark-black | June-Sept. | 4000 |
| *C. nivalis* Boott. | | " | Herb | red-brown | Aug. | 4200-4500 |
| *C. obscura* Nees | | " | Herb | dark chestnut | June | 3000-3200 |
| *Kobresia laxa* Nees | | " | Herb | green | July-Aug. | 3000-3300 |
| *Agrostis munroana* Aitch. et Hemsl. | | Poaceae | Herb | green | Sept-Oct. | 4200 |
| *A. pilosula* Trin | | " | Herb | | Aug-Sept. | 2500-3500 |
| *Arthraxon prionodes* Dandy (Steud.) | | " | Herb | | May-June | 2700 |
| *Arundinella nepalensis* Trin. | | " | Herb | | Oct. | 2500 |

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|---|---|---|---|---|
| *Arundinella setosa* Trin. | Poaceae | Herb | Sept. | 2700 |
| *Arundo donax* L. | " | Herb | Sept.-Oct. | 2700 |
| *Bothriochola pertusa* (L.) A. Camus | " | Herb | Sept.-Oct. | 2200 |
| *Brachiaria villosa* (Lam.) A.Camus. | " | Herb | Aug.-Sept. | 2200 |
| *Brachypodium sylvaticum* (Huds.) Beauv. | " | Herb | Aug.-Sept. | 2000-2500 |
| *Briza media* L. | " | Herb | Oct. | 3800 |
| *Bromus ramosus* Huds. | " | Herb | Sept.-Oct. | 3000 |
| *Calamagrostis emodensis* Griseb. | " | Herb | Aug.-Sept. | 3500-4500 |
| *C. pseudophragmites* (Hall. f.) Koeler | " | Herb | Sept. | 3300-3500 |
| *Capillipedium parviflorum* (R. Br.) Stapf | " | Herb | Oct.-Nov. | 2600 |
| *Cymbopogon pospischilii* (K Schum.) C.E. Hubb. | " | Herb | Sept.-Oct. | 1400 |
| *Danthonia schneidri* Pilger | " | Herb | Sept. | 3300-3900 |
| *Dactylis glomerata* L. | " | Herb | Aug.-Sept. | 2800-3300 |
| *Deyeuxia pulchella* (Griseb.) Hook. f. | " | Herb | Aug.-Sept. | 3800-4200 |
| *Eragrostis nigra* Nees ex Steud. | " | Herb | Aug.-Sept. | 2500-2800 |
| *Eremopoa persica* (Trin.) Roshev. | " | Herb | July | 3000-3600 |
| *Eulalia hirtifolia* (Hack.) A. Camus | " | Herb | Sept.-Oct. | 2200 |
| *E. mollis* (Griseb.) Kuntz. | " | Herb | Oct. | 2600 |
| *E. quadrinervis* (Hack.) Kuntz. | " | Herb | Sept.-Oct. | 2600 |
| *Festuca gigantea* (L.) Vill | " | Herb | Sept.-Oct. | 2000-3500 |
| *F. polycolea* Stapf | " | Herb | Sept.-Oct. | 3800 |
| *Helictotrichon virescens* (Nees ex Steud.) Henr. | " | Herb | Aug.-Sept. | 1600 |
| *Heteropogon contortus* (L.) P. Beauv. ex Roem. et Schult. | " | Herb | Sept.-Oct. | 2600 |
| *Hierochloa laxa* R. Br. ex Hook. f. | " | Herb | Sept.-Oct. | 3900 |
| *Miscanthus nepalensis* (Trin.) Hack. | " | Herb | Sept.-Oct. | 2500-2700 |
| *Muhlenbergia himalayensis* Hack. ex Hook. f. | " | Herb | Sept.-Oct. | 2500 |
| *Phelum alpinum* L. | " | Herb | Aug. | 3000-3900 |
| *Poa pagophila* Bor | " | Herb | Sept.-Oct. | 3800 |
| *P. polycolea* Stapf | " | Herb | Sept.-Oct. | 3800 |
| *P. supina* Schrad | " | Herb | Sept.-Nov. | 2500-3500 |
| *Sporobolus piliferus* (Trin.) Kunth | " | Herb | Sept.-Oct. | 1500-2500 |
| *Stipa roylei* (Nees) Mez. | " | Herb | Sept.-Oct. | 3800 |
| *Themeda triandra* Forssk | " | Herb | Oct. | 2200 |

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|---|---|---|---|---|
| *Themeda anathera* (Nees ex Steud.) Hack. | Poaceae | Herb | Sept-Oct. | 2400 |
| *Trisetum aeneum* (Hook.f.) Stewart | " | Herb | Sept-Oct. | 3800-4000 |
| *T. spicatum* (L.) Reich. | " | Herb Per | Aug-Oct. | 3800 |
| *Arundinaria faicata* Nees | Bambusaceae | Herb | | 1800-2200 |
| *Thamnocalamus falconeri* Hook f. ex Munro | | | | 2300-3200 |
| | **Ferns and Fern allies** | | | |
| *Adiantum venustum* D. Don | Adiantaceae | | | 2000-3000 |
| *Asplenium trichomanes* L. | Aspleniaceae | | | 1800-3300 |
| *Ceterachopsis dalhousiae* (Hook.) Ching | " | | | 2000-2500 |
| *Athyrium duthie* (Bedd.) Bedd. | Athyriaceae | | | 1500-2000 |
| *A. filix-femina* (L.) Roth var. *intermedia* Dhir | " | | | 3000 |
| *A. fimbriatum* (Wall.ex Hook.)Moore | " | | | 2400 |
| *A. schimperi* Moug ex Fee | " | | | 2500 |
| *A. wallichianum* Ching | " | | | 3000 |
| *Cystopteris fragilis* (L.) Benth. | " | | | 2000-4000 |
| *Diplazium asperum* Bl. | " | | | 2500-2800 |
| *Botrychium lanuginosum* Wall. ex Hook.et Grev. | Botrychiaceae | | | 1400-2800 |
| *B. lunaria* (L.) Sw. | " | | | 3200-3600 |
| *B. ternatum* (Thunb.) Sw. | " | | | 1500-3000 |
| *Cryptogramma crispa* (L.) R. Br. | Cryptogrammaceae | | | 3200-3400 |
| *C. brunoniana* Wall. ex Hook. et Grev. | " | | | 3000-4300 |
| *Onychium contiguum* Wall. ex Hope | " | | | 1800-3500 |
| *Dryopteris barbigera* (Hook.) O. Ktze. | Dryopteridaceae | | | 2200-3500 |
| *D. blanfordii* (Hope) C. Chr. | " | | | 2200-3500 |
| *Polystichum acanthophyllum* (French) Christ | " | | | 2200-2500 |
| *P. aculeatum* (L.) Schott | " | | | 2200-2500 |
| *P. prescottianum* (Wall. ex Mett.) Moore | " | | | 2500-3000 |
| *P. squarrosum* (D. Don) Fée | " | | | 2700-3900 |
| *Osmunda claytoniana* L. | Osmundaceae | | | 2800-3000 |
| *Pteris cretica* L. | Pteridaceae | | | 3300-3600 |
| *Cheilanthes duthiei* Bak | Sinopteridaceae | | | 1800-2500 |
| *Mildella nitidula* (Wall ex Hook.) Hall et Lelling | | | | 2000 |
| | | | | 1200-2500 |

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| | | |
|---|---|---|
| *Macrothelypteris gracilescens* (Bl.) Ching | Thelypteridaceae | 2500-2800 |
| *Lycopodium japonicum* Thunb. | Lycopodiaceae | 1500-2000 |
| *Selaginella chrysocaulis* (Hook. et Grev.) Spring | Selaginellaceae | 900-2500 |

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*Abbreviations used* : (a) Standard abbreviations : Jan. — January; Feb. — February; Mar. — March; Apr. — April; Jun. — June; Jly. — July; Aug. — August; Sept. — September; Oct. — October; Nov. — November; Dec. — December. (b) Other abbreviations : Bulb. Herb — Bulbous herb; Cr. Herb — Creeping herb; T. Herb — Tall herb; Par. Herb — Parastic herb; Pr. Herb — Perennial herb; Succ. herb — Succulent herb; Cl. — Climber; L. Cl. — Large climber; Sh. — Shrub; Under Sh. Under shrub; Tr. Tree.