

Wild Flowers of Ghyachok VDC, Gorkha District, Nepal

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Abstract

The present paper describes the wild flowers of Ghyachok in Gorkha District of Nepal. This study area occupies the tropical, subtropical, temperate and sub-alpine vegetation type. The study was conducted during May and early September, 2017. A list of 119 species (dicotyledons 98, monocotyledons 20 and one gymnosperm) belonging to 54 families and 100 genera were recorded of which 68 species herbs, 22 shrubs, 8 trees, 14 climbers, vine 5 and creeping 2 has been presented. Among 119 wild-flower species, 4 species [*Taxus wallichiana*, *Allium wallichii*, *Swertia angustifolia*, and *Arisaema costatum*] are endangered and 12 species were reported as rare and protected. This study will be useful to manage the diversity of potential ornamental species and to conserve rare, threatened, endemic and CITES listed plants species of Nepal.

Key words: Conservation, Ornamental, Plant diversity, Protected plants

INTRODUCTION

Nothing can excel the beauty of flowers and the nature. These are the main plant resources of recreational and aesthetic value for human beings. Nepal is rich in its culture and natural resources. There are numerous wild flowering plants in natural habitat, the attractive flowers, fruits, foliage which can be specially used as ornamental plants for the purpose of beauty and pleasant aroma (Joshi 2011). The Himalayan country Nepal is considered as rich in biodiversity due to its own unique climate and varied vegetation from tropical region to temperate and alpine region (NBS 2002). In the past, Hara *et al.* (1978, 1982), Hara and Williams (1979) enumerated 5067 species of flowering plants of Nepal. Well over 6000 species of flowering plants has so far been recorded from Nepal (Press *et al.* 2002). The floral diversity of Nepal includes 6973 species of Angiosperms (UNEP-WCMC 2004). However, according to latest publication, there are 5500 species of flowering plants (Rajbhandari 2015). Among the 5500 species of flowering plants, 324 species are endemic to Nepal (Rajbhandari *et al.* 2016). Most of the beautiful ornamental flowers have come from the wild which exist in natural habitat. But the population structure of most of them are decreasing in natural habitat due to different types of calamities such as forest fire, flood, landslides, erosion, infrastructure development, introducing of invasive species, lack of conservation awareness knowledge and exploitation etc. Therefore several such important plants have become endangered and finally led to extinction (Shrestha & Joshi 1996).

In this context, however such plants have not been fully described in illustrative form in modern botany. Today the role of education of botanical art and illustration is one of the powerful creative tool as visual communication to bring the awareness to explore, research and conserve such rich biodiversity of the natural heritage. The objective of the present study is to explore and describe scientifically the beautiful native, important wild flowers

distributed wildly within the area and document them both in possible illustrative form and prepare checklist.

Study area

Nepal is located in the central Himalayas and occupies 147,181 km² area. The country is situated between latitudes 26°22' and 30°27' N and longitudes 80°40' and 88°12' E. The country has 14 zones and 77 districts comprised within 7 provinces. Among them, Gorkha district lies in Gandaki zone of Gandaki Pradesh of Province No.4. Geographically the Gorkha district coordinates 28°20' latitude and 84°71' longitude. The district covers an area 3616 km². The elevation of the district ranges from 228m to 8163m above mean sea level. Its boundaries are surrounded by Dhading in the east, Tanhu, Lamjung and Manang in the west, Manang north then Chitwan and Tanahu in the south. Gorkha district comprises nine rural and two metropolitan municipalities. The district consists of 94 Wards (DPG 2017).

The present study was carried out in Ghyachok VDC (Village Development Committee) that is placed under Ajirkot rural municipality, Wards 1-2 (Figure 1). Ghyachok is the nearest village from Barpak, was an epicenter hit by devastating earthquake April 2015, which caused massive damages to its people and places. Ghyachok is located in between latitude 28°40'10" and 84°41'58" E longitude. The altitude of this VDC ranges from 1200 m to 3381 m. It is rich in its cultural diversity with various ethnic groups, 34.57% Gurungs, Brahmins 21.08% and Tamangs 12.92 % (DPG 2017). The average rainfall of this area is reported as 223.49 mm in June- September, 2017. Minimum Temperature in Summer is maximum 32.7° C while in winter is minimum 8.1° C, 2017 in Gorkha Municipality and snowy most of the time above 1750 m Ajirkot Rural municipality in winter season (DHM 2017).

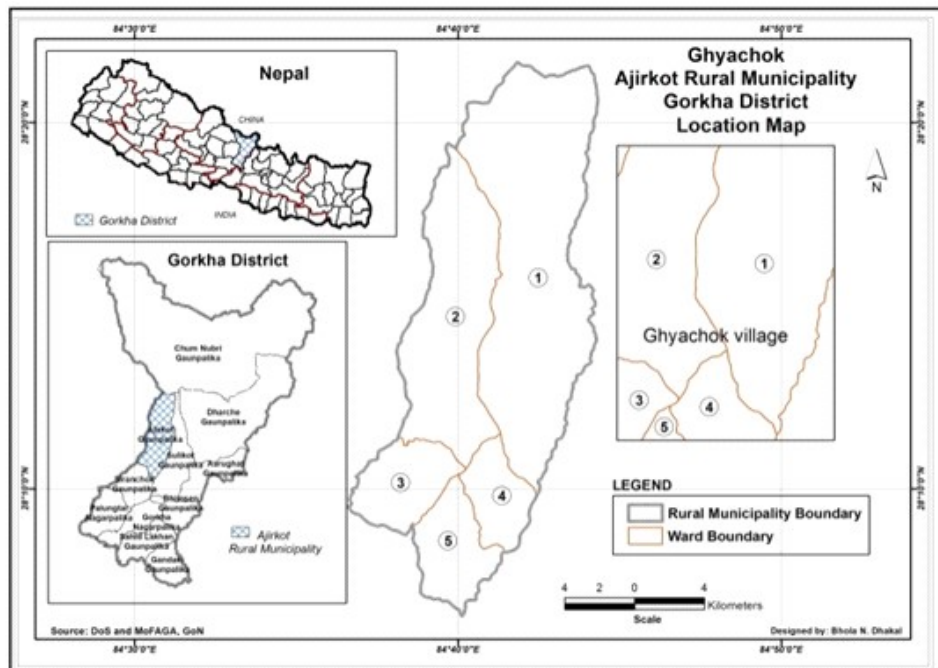


Figure 1. Location map of study sites of Ghyachok VDC

It covers subtropical and temperate to subalpine zone from 1200 m to above 3000 m in terms of vegetation. The vegetation types of Ghyachok Village are (i) *Schima wallichii*–*Alnus nepalensis* forest (between 1200-1700m); (ii) *Daphniphyllum* – *Myrsine* mixed forest is in between 1700 – 2100 m, is extensively widespread; (iii) *Daphniphyllum* – *Rhododendron* forest in between 2100 – 2300 m range is associated with many orchids including *Dendrobium eriflorum*, *Coelogyne nitida* etc.; (iv) *Rhododendron* – *Laurel* forest between 2300 – 2600 m; *Rhododendron arboreum*, *Alnus nepalensis*, *Berberis*, *Viburnum erubescens*, *Marsdenia sp.* etc. are the associated species where as among orchids, *Pleione hookeriana*, *Coelogyne sp.* *Dendrobium species* are found; (v) *Rhododendron arboreum* forest between 2600 – 3100 m only *Rhododendron arboreum* is dominant. Among *Taxus wallichiana*, *Lyonia ovalifolia*, and *Berberis species*. *Rhododendron arboreum* are found dominant upto 3100 m. Along with *Rhododendron arboreum*, *Taxus wallichiana*, *Berberis spp.* are also found associated; (vi) Above 3100 m the tree-line is occupied by shrubs of *Berberis spp.*, small trees of *Rhododendron arboretum*, *Abies sp.*, *Prunus sp.*, *Anemone obtusiloba*, *Fragaria nubicula*, *Potentilla sp.* and *Bistorta sp.*



Figure 2. Vegetation of Nagay Ra Pond area

At 3250 m, the Nagay Ra Pond (Ra means pond in Gurung language) is located and is a Hindu pilgrimage and is worshipped on every full-moon of August. The Pond is the source of drinking water for the shepherds. The range of Himalayas Manaslu (known as Himalchuli), Lamjung Himal, Boudha Himal, Rubinala pass, Ganesh Himal and Langtang are visible from the NagayRa. After Nagay Pokhari there are few small ponds on the way to Ram Bhanjyang 3260 m and Deurali 3360 m (Figure 2).

MATERIALS AND METHODS

The study area, Ghyachok VDC was selected firstly due to its virgin vegetation pending any scientific study on its rich biodiversity, historical importance, cultural richness and altitudinal variation. The objective of study and research were to prepare a checklist of the wild flora of Ghyachok VDC, Gorkha district in Nepal. Based on the altitudinal variations, plants were collected from lowland, midland and highland for understanding the phenology changes. The lowland (tropical) sites were selected near Baluwa Bazar 921m, midland (subtropical sites) were Sallaghari 1050m, Milinge 1106m, Kaldobesi 1267m Dhrapani, Ghyachok 1700, Dhodke Pokhari 1800m to Chihan Danda; temperate sites were Dhauldo Danda 2067m, Dobato Kharka 2278m, Bag Khor 2475m, Podu Chuatarra 2537, Najyu Kharka 2910m, and Bisauni 3092 m. The high land or subalpine sites includes way to Nagay Pokhari 3250m, Ram Bhanjyang 3264m to Deurali 3360m. Location Map of study sites Ghyachok village is shown in Figure 1.

Collection of specimens were carried out in two different seasons of blooming period of the flowering plants in May and early September, 2017. During the two field visits, the plants were collected from different habitats such as forest, roadsides and fallow land. Habit, habitat, locality, altitude, flower colour and flowering time were recorded in *Field Note Book*. The epiphytes are rare in the study sites, however, were also noted in *Field Note Book* and were photographed. At the same time, field drawings and sketching of habit, habitat and morphological structures of the epiphytes and some attractive plants were also executed in the *Field Sketch Book*. The plants were collected, tagged and pressed in blotters for drying following Jain and Rao (1977).

The collected specimens were identified in the field with local people's information and by consulting relevant references (Hara & Williams, 1979; Hara *et al.* 1978; 1982; Shrestha *et al.* 2018; Stainton & Polunin 1984; Stainton 1988; Watson *et al.* 2011). Pearce & Cribb (2002), Rajbhandari & Bhattarai (2001) and Raskoti (2009) were used as references for the identification of Orchids. The collected specimens were also cross-checked with authentic voucher specimens housed in the *National Herbarium and Plant Laboratories* (KATH) for confirmation. Nomenclature of the collected plant species and the six families such as Compositae (Asteraceae), Cruciferae (Brassicaceae), Labiatae (Lamiaceae), Leguminosae (Fabaceae) and Gramineae (Poaceae) are followed according to www.theplantlist.org and Rajbhandari *et al.* (2011, 2012).

The genera and species are enumerated alphabetically within the family (Table 1). The habit, locality, altitude, habitat, flower colour and flowering time were also incorporated. The collected herbarium specimens are deposited at KATH Herbarium.

Finally the completed morphological structures in pen and ink botanical illustrations (scientific line drawings) of 2 specimens of epiphytes i.e. *Pleione hookeriana* (Orchidaceae) and *Rhododendron dalhousiae* (Ericaceae) are presented in Figures 5 & 6.

The status of collected plants such as endemic, threatened, endanger, CITES Appendix are recorded from published references (CAMP 2001; Ghimire *et al.* 2008, Joshi *et al.* 2017). Abundance and/or rarity of a plants species are determined from the visual field observation (Table 1).

RESULTS AND DISCUSSION

The documentation of wild flowers in Ghyachok VDC (Village Development Committee) of the Gorkha district of Nepal showed the attractive rich floral diversity. The wild flowers are mainly based on their habit, habitat, morphological structure, attractive flower colour, fruits, foliage and plants with their aroma (Joshi 2011).

A total of 119 species of flowering plants, belonging to 54 families and 100 genera were collected, of which 118 species Angiosperms and one species Gymnosperm has been presented.

Among the studied species, dicotyledons were the most common groups distributed with 45 families consist of 98 species, monocotyledons in 8 families with 20 species and gymnosperm just one species. This study indicated that the maximum wild flowers are with the dicotyledons in comparison to monocots and gymnosperm.

The dominant families in the present study are Orchidaceae with 11 species, followed by Ranunculaceae and Rosaceae 9 species each, Compositae 8 species, Leguminosae with 7 species, Ericaceae and Polygonaceae 4 species each, Apocynaceae, Begoniaceae, Berberidaceae, Gentianaceae, Melastomataceae 3 species each and rest of families consist of 2 or 1 species (Figure 3; Table 1).

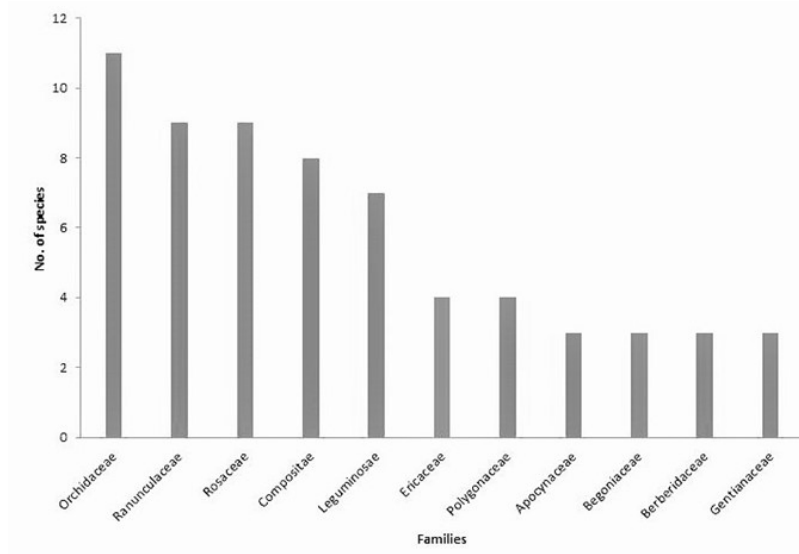


Figure 3. Dominant families of the study area

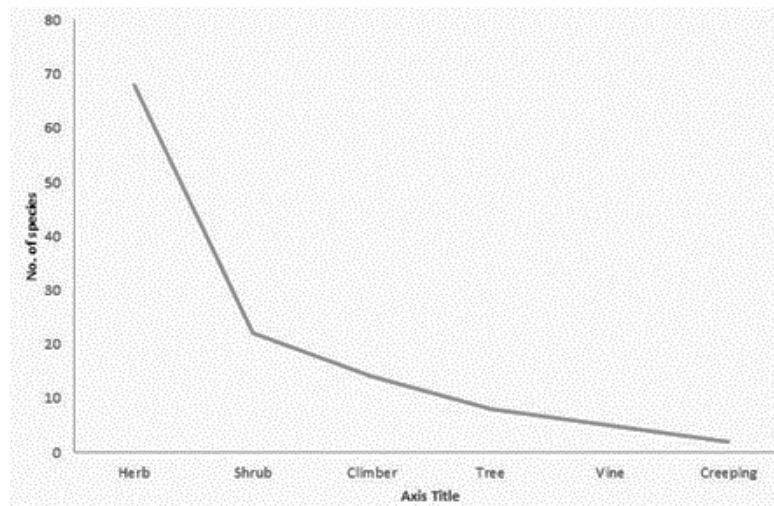


Figure 4. Habit-group representation of the collected wild flowers

The dominant genera in the recorded flora are *Anaphalis*, *Begonia*, *Desmodium* and *Rubus* with 3 species each followed by the second large genera with 2 species are *Aster*, *Berberis*, *Clematis*, *Codonopsis*, *Dendrobium*, *Gaultheria*, *Hypericum*, *Impatiens*, *Rhododendron*, *Saxifraga* and *Thalictrum* (Table 1).

Based on habit the enumerated wild flowers, maximum number of species were herbs 68 species, followed by 22 species shrubs, 14 species climbers, 8 species trees, creeping and vines 2 species each (Figure 4).

The present study recorded one endemic species to Nepal, *Delphinium himalayae* from the way to Nagpokhari at 3189 m altitude (Shrestha & Joshi 1996; Ghimire *et al.* 2008; Rajbhandari & Adhikari 2009).

Table 1. Checklist of wild flowers of Ghyachok VDC, Gorkha district of Nepal including scientific name, family, locality, altitude (m), habit, flower colour, flowering time, collector no. status [Abbreviations used: A = Abundant; CE = Critically Endangered; T = Threatened; R = Rare; E = Endemic; HE = Himalaya Endemic; App.II = CITES Appendix II]

Scientific name	Locality	Altitude (m)	Habit	Flower colour	Flowering time	Collection no.	Status
<i>Aeschynanthus parviflorus</i> (D. Don) Spreng. [Gesneriaceae]	Dharapani	1280	Herb	Orange	July-September	GG135	A
<i>Allium wallichii</i> Kunth [Amaryllidaceae]	Deurali	3278	Herb	Purple	July- October	GG122	T
<i>Alnus nepalensis</i> D. Don [Betulaceae]	Ghyachchok	1686	Tree	Brown	September-October	GG80	A
<i>Anaphalis busua</i> (Buch.-Ham. ex D. Don) DC. [Compositae]	Dhaunlodanda	2067	Herb	White	May - September	GG84	A
<i>Anaphalis contorta</i> (D. Don) Hook. f. [Compositae]	Milinge village	1635	Herb	White	May - September	GG70	A
<i>Anaphalis triplinervis</i> (Sims) C. B. Clarke [Compositae]	Dobato Kharka to Bagkhor	2358	Herb	White	May - September	GG95	A
<i>Anemone obtusiloba</i> D. Don [Ranunculaceae]	Damara, Ghyachok	2443	Herb	White	May - September	GG29	A/HE
<i>Aralia leschenaultii</i> (DC.) J. Wen [Araliaceae]	Belduchheldu, Ghyachowk	2011	Vine	Green	April -My	GG17	A
<i>Argyria hookeri</i> C. B. Clarke [Convolvulaceae]	Saalghari	1037	Climber	Purple	September-October	GG67	A
<i>Arisaema costatum</i> (Wall.) Mart. ex Schott [Araceae]	Chiyandanda, Ghyachowk village	1910	Herb	Dark purple	May -June	GG14	R/HE
<i>Aster albescens</i> (DC.) Koehne [Compositae]	Way to Nagepokhari	3037	Shrub	Purple	September-October	GG110	A
<i>Aster himalaicus</i> C. B. Clarke [Compositae]	Way to Nagepokhari	3189	Herb	Blue	September-October	GG111	A
<i>Bahumia vahlii</i> Wight & Arn. [Leguminosae]	Salghari: Between Baluwa and Kaldobensi	1050	Vine	White	March-May	GG1	A
<i>Begonia josephii</i> A. DC. [Begoniaceae]	On the way to Dobato Kharka	2358	Herb	White	September-October	GG105	R
<i>Begonia picta</i> Sm. [Begoniaceae]	Saalghari	1066	Herb	Pink	August-October	GG69	A
<i>Begonia rubella</i> Buch.-Ham. ex D. Don [Begoniaceae]	On the way to Bagkhor	2418	Herb	White	September-October	GG102	R/HE
<i>Berberis chitria</i> Buch.-Ham. ex D. Don [Berberidaceae]	Between Dhodke pokhari and Ghyachowk	1817	Shrub	Yellow.	April -June	GG24	A

Scientific name	Locality	Altitude (m)	Habit	Flower colour	Flowering time	Collection no.	Status
<i>Berberis wallichiana</i> DC. [Berberidaceae]	Between naag Pokhari Kharka and Najyu kharka	2910	Shrub	Greenish Yellow	April -June	GG48	A
<i>Bistorta amplexicaulis</i> (D. Don) Greene [Polygonaceae]	Way to Nagepokhri	3189	Herb	Dark Pink	July -september	GG113	A
<i>Boehmeria rugulosa</i> Wedd. [Urticaceae]	Saalghari to Milinge	1428	Tree	Brownish White	August-September	GG76	A
<i>Boeninghausenia albiflora</i> (Hook.) Rechb. es Meisn. [Rutaceae]	Saalghari	1037	Herb	White	April-May	GG62	A
<i>Caltha palustris</i> L. [Ranunculaceae]	Near Nage Pokhari	3250	Herb	Yellow	April-May	GG34	A
<i>Ceropegia pubescens</i> Wall. [Apocynaceae]	On the way to Dobato Kharka	2278	Climber	Greenish Yellow	July-October	GG90	R
<i>Chlorophytum nepalense</i> (Lindl.) Baker [Asparagaceae]	On the way to Bagkhor	2458	Herb	White	July-September	GG107	R
<i>Clematis acuminata</i> DC. [Ranunculaceae]	Rambhanjyang	3261	Climber	White	July-October	GG128	A
<i>Clematis montana</i> Buch.-Ham.ex DC. [Ranunculaceae]	Between Naag Pokhari Kharka and Baagkhor	3085	Climber	Pinkish White	April -May	GG33	A
<i>Codonopsis thalictrifolia</i> Wall. [Campanulaceae]	Deurali	3318	Herb	Blue	July- september	GG125	A
<i>Codonopsis viridis</i> Wall. [Campanulaceae]	On the way to Bagkhor	2418	Climber	Purplish Green	September- November	GG101	R
<i>Coelogyne nitida</i> (Wall. ex D. Don) Lindl. [Orchidaceae]	Gangrogo kharka	1963	Herb	White	April -June	Photo	App.II
<i>Corydalis leptocarpa</i> Hook.f. & Thomsom [Papaveraceae]	Belduchheldu , Ghyachowk	2055	Herb	Purple,	May -August	GG18	A
<i>Cotoneaster microphyllus</i> Wall. ex Lindl. [Rosaceae]	Near Poduchautara	2688	Shrub	White	April- May	GG52	A
<i>Crotalaria prostata</i> Rottl. ex Willd. [Leguminosae]	Saalghari to Milinge	1428	Herb	Yellow	September- October	GG74	A
<i>Dactylicapnos scandens</i> (D.Don) Hutch. [Papaveraceae]	Near Milinge village, Ghyachowk	1491	Climber	Yellow.	April -June	GG57	A
<i>Delphinium himalayae</i> Munz [Ranunculaceae]	Way to Nagepokhri	3189	Herb	Blue	August-September	Photo	E/
<i>Dendrobium eriiflorum</i> Griff. [Orchidaceae]	Damara, Ghyachok	2383	Herb	Cream Yellow	April-June	Photo	App.II
<i>Dendrobium moniliforme</i> (L.) Sw. [Orchidaceae]	Damara, Ghyachok	2383	Herb	White	April -June	Photo	App.II
<i>Desmodium confertum</i> DC. [Leguminosae]	Milinge to Ghyachchok	1635	Shrub	Purple	August-September	GG72	A
<i>Desmodium elegans</i> DC. [Leguminosae]	Milinge to Ghyachchok	1673	Shrub	Purple	August-october	GG136	A
<i>Desmodium heterocarpon</i> (L.) DC. [Leguminosae]	Milinge	1405	Herb	Purple	August-September	GG5	A
<i>Dichroa febrifuga</i> Lour. [Hydrangeaceae]	On the way to Dobato Kharka	2278	Shrub	Blue	August-October	GG88	A
<i>Dipsacus inermis</i> Wall. [Caprifoliaceae]	Way to Nagepokhri	3189	Herb	White	September- October	GG118	A
<i>Disporum cantoniense</i> (Lour.) Merr. [Colchicaceae]	Between Dhodke pokhari and Ghyachowk	1817	Herb	Light Green.	April -June	GG25	R
<i>Dubyaea hispida</i> (D.Don) DC. [Compositae]	Deurali	3318	Herb	Yellow	August-September	GG126	A

Scientific name	Locality	Altitude (m)	Habit	Flower colour	Flowering time	Collection no.	Status
<i>Erigeron trilobus</i> (Decne.) Boiss. [Compositae]	Milinge to Ghyachchok	1635	Herb	Yellow	August-September	GG75	A
<i>Euonymus echinatus</i> Wall. [Celastraceae]	Near Najyu Kharka	2761	Shrub	Light Green	May -June	GG49	R
<i>Euphorbia wallichii</i> Hook.f. [Ephorbiaceae]	Between naag Pokhari Kharka and Bisauni	3081	Herb	Yellow	April-June	GG45	A
<i>Fagopyrum tataricum</i> (L.) Gaertn. [Polygonaceae]	Ghyachowk village	1695	Herb	White	April-June	GG9	A
<i>Fragaria nubicola</i> (Lindl. ex Hook.f.) Lacaita [Rosaceae]	Between naag Pokhari Kharka and Bisauni	3092	Herb	White	April-June	GG42	A
<i>Gaultheria trichophylla</i> Royle [Ericaceae]	Near Nage Pokhari	3250	Herb	Pink	April-June	GG41	A
<i>Gaultheria nummularioides</i> D.Don [Ericaceae]	Dhaunlodanda	2067	Creeping on ground	White	September-October	GG86	A
<i>Gentiana ornata</i> (D.Don) Wall. ex Griseb. [Gentianaceae]	Deurali	3278	Herb	Purple	September-october	GG129	R
<i>Geranium lambertii</i> Sweet [Geraniaceae]	On the way to Bagkhor	2458	Herb	Pink	August-October	GG116	A
<i>Globba clarkei</i> Baker [Zingiberaceae]	Near Dobato Kharka	2278	Climber	Orange	August-September	GG92	A
<i>Holboellia latifolia</i> Wall. [Berberidaceae]	Between naag Pokhari Kharka and Bisauni	3060	Climber	Pale Green	September-October	GG44	R
<i>Hoya lanceolata</i> Wall. ex D.Don [Apocynaceae]	Between Milinge and Kaldobensi	1492	Climber	White	April-May	GG58	R
<i>Hydrangea anomala</i> D Don [Hydrangeaceae]	Near Baagkhor	2475	Vine	Light Green	April-May	GG54	R
<i>Hypericum choisianum</i> Wall. ex N.Robson [Hypericaceae]	On the way to Dobato Kharka	2278	Shrub	Yellow	August-September	GG89	R
<i>Hypericum uralum</i> Buch. -Ham. ex D. Don [Hypericaceae]	Dhaunlodanda	2067	Shrub	Yellow	August-September	GG85	A
<i>Impatiens bicornuta</i> Wall. [Balsaminaceae]	On the way to Bagkhor	2418	Herb	Yellow	July-September	GG98	A
<i>Impatiens puberula</i> DC. [Balsaminaceae]	Ghyachowk village	1746	Herb	Purple	July-September	GG12	A
<i>Indigofera exilis</i> Grierson & D.G.Long [Leguminosae]	Between Poduchautara and Baagkhor	2537	Shrub	Purple	April -June	GG53	A
<i>Juncus wallichianus</i> J.Gay ex Laharpe [Juncaceae]	Way to Nagepokhri	3189	Herb	White	August-October	GG117	R
<i>Leea macrophylla</i> Roxb. ex Hornem. [Vitaceae]	Saalghari	1037	Herb	White	August -September	GG66	A
<i>Leucas cephalotes</i> (Roth) Spreng. [Lamiaceae]	Saalghari	1037	Herb	White	August-September	GG65	R
<i>Marsdenia lucida</i> Edgew. ex Madden [Apocynaceae]	On the way to Bagkhor	2583	Climber	White	August-September	GG134	R
<i>Mazus surculosus</i> D. Don [Phrymaceae]	Ghyachowk village	1695	Herb	Purple.	April-June	GG11	A
<i>Melastoma malabathricum</i> L. [Melastomataceae]	Dharapani, Ghyachowk	1700	Shrub	Pink	April- June	GG6	A
<i>Mimosa rubicaulis</i> Lam. [Leguminosae]	Saalghari	1037	Tree	White	August-September	GG68	A
<i>Nicotiana tabaccum</i> L. [Solanaceae]	Ghyachchok	1686	Shrub	Pink	August-September	GG82	A

Scientific name	Locality	Altitude (m)	Habit	Flower colour	Flowering time	Collection no.	Status
<i>Nicotiana tabacum</i> L. [Solanaceae]	Ghyachchok	1686	Shrub	Pink	August-September	GG82	A
<i>Oberonia pyrulifera</i> Lindl. [Orchidaceae]	Near Ghyachowk village		Herb	White.	April -July	Photo	App.II
<i>Ophiopogon intermedius</i> D.Don [Asparagaceae]	Near Ghyachowk	1700	Herb	White	April- June	GG7	R
<i>Osbeckia nepalensis</i> Hook.f. [Melastomataceae]	Ghayachok	1686	Shrub	White	August - September	GG136	A
<i>Oxygraphis polypetala</i> (Raf.) Hook.f. & Thomson [Ranunculaceae]	Near Nage Pokhari	3250	Herb	Yellow	April-August	GG39	A
<i>Oxyspora paniculata</i> (D. Don) DC. [Melastomataceae]	Milinge to Ghyachchok	1635	Shrub	Pink	July-September	GG71	R
<i>Panisea uniflora</i> (Lindl.) Lindl. [Orchidaceae]	Between Milinge and Kaldobensi	1277	Herb	Light Yellowish	April-June	Sketch/ Photo	App.II
<i>Parnassia pusilla</i> Wall. ex Arn. [Celastraceae]	Deurali	3360	Herb	White	July-September	GG124	R
<i>Pavetta tomentosa</i> Roxb. ex Sm. [Rubiaceae]	Near Kaldobensi	1267	Shrub	White.	May-september	GG60	R
<i>Pedicularis megalantha</i> D.Don [Scrophulariaceae]	Deurali	3303	Herb	Pink	July -September	GG133	R/HE
<i>Pleione hookeriana</i> (Lindl.) Rolliison [Orchidaceae]		3081	Herb	Light Purple	April-June	Illustration	App.II
<i>Polygala arillata</i> Buch.-Ham. ex D. Don [Polygalaceae]	On the way to Bagkhor	2418	Tree	Yellow	July - September	GG100	R
<i>Polygonum molle</i> D.Don [Polygonaceae]	Near Dobato Kharka	2278	Herb	Whitish pink	July-Septempber	GG94	A
<i>Potentilla peduncularis</i> D.Don [Rosaceae]	Dhaunlodanda	2067	Herb	Yellow	June-October	GG87	A
<i>Primula denticulata</i> Sm. [Primulaceae]	Near Nage Pokhari	3250	Herb	Purple	March-May	GG38	R
<i>Prunus cornuta</i> (Wall. ex Royle) Steud. [Rosaceae]	Near Poduchautara	2688	Tree	White.	March-May	GG51	R
<i>Randia tetrasperma</i> (Wall. ex Roxb.) Benth. & Hook.f. ex Brandis [Rubiaceae]	Between Dhodke pokhari and Ghyachowk	1802	Shrub	Creamy White	March-May	GG23	R
<i>Ranunculus hirtellus</i> Royle [Ranunculaceae]		1910	Herb	Yellow	April-June	GG15	A
<i>Remusatia hookeriana</i> Schott [Araceae]	Near Dhodke Pokhari	2058	Herb	Yellow	April-June	GG19	A
<i>Rhododendron arboreum</i> Sm. [Ericaceae]	Between Baagkhor and Nage Pokhari Kharka	2984	Tree	White	April-June	GG32	A
<i>Rhododendron dalhousieae</i> Hook.f. [Ericaceae]	Damara, Ghyachok	2323	Shrub	White	April-June	Sketch	R
<i>Rhynchostylis retusa</i> (L.) Blume [Orchidaceae]	Salghari: Between Baluwa and Kaldobensi	1078	Herb	Purple	May-October	Photo	App.II
<i>Rosa brunonii</i> Lindl. [Rosaceae]	Between Dhodke pokhari and Ghyachowk	1938	Vine	White	April-June	GG22	A
<i>Roscoea purpurea</i> Smith [Zingiberaceae]	On the way to Bagkhor	2458	Herb	Purple	May-September	GG108	R
<i>Rubus hoffmeisterianus</i> Kunth & Bouche [Rosaceae]	Rambhanjyang	3261	Creepers	Pinkish White	May-June	GG131	R
<i>Rubus rugosus</i> Sm. [Rosaceae]	Milinge to Ghyachchok	1635	Climber	White	May-september	GG77	A

Scientific name	Locality	Altitude (m)	Habit	Flower colour	Flowering time	Collection no.	Status
<i>Rubus treutleri</i> Hook.f. [Rosaceae]	Near Dobato Kharka	2278	Climber	White	May-July	GG93	A
<i>Rumex nepalensis</i> Spreng. [Polygonaceae]	Near Ghyachowk	1700	Herb	Dark Red	May -June	GG8	A
<i>Sarcococca wallichii</i> Stapf [Buxaceae]	On the way to Dobato Kharka	2358	Shrub	White	April-June	GG106	A
<i>Satyrium nepalense</i> D.Don [Orchidaceae]	On the way to Bagkhor	2418	Herb	Pink	August-October	Photo	App.II
<i>Saxifraga strigosa</i> Wall.ex Ser. [Saxifrageae]	Way to Nagepokhri	3189	Herb	Yellow	August-September	GG112	R
<i>Saxifraga parnassifolia</i> D. Don [Saxifrageae]	On the way to Bagkhor	2458	Herb	Yellow	September october	GG114	R
<i>Schisandra grandiflora</i> (Wall.) Hook.f. & Thomson [Schisandraceae]	Between naag Pokhari Kharka and Bisauni	3081	Vine	White	April-May	GG43	R
<i>Senecio graciliflorus</i> DC. [Compositae]	Rambhanjyang	3264	Herb	Yellow	August-October	GG121	R
<i>Setaria parviflora</i> (Poir.) M.Kerguelen [Poaceae]	Ghyachchok	1686	Herb	Brownish Green	Agust -October	GG83	A
<i>Sibbaldia sikkimensis</i> (Prain) Chatterjee [Rosaceae]	Between Baagkhor and Nage Pokhari Kharka	2731	Herb	Yellow.	April -June	GG30	R
<i>Smilax menispermoidea</i> A.DC. [Smilacaceae]	Dobato Kharka to Bagkhor	2278	Climber	White Fruits green	August - September	GG 92	A
<i>Smitinandia micrantha</i> (Lindl.) Holttum [Orchidaceae]	Salghari: Between Baluwa and Kaldobensi	1108	Herb	Pink	March-May	Photo	App.II
<i>Spiranthes sinensis</i> (Pers.) Ames [Orchidaceae]	On the way to Dobato Kharka	2278	Herb	Pink	March-May	Photo	App.II
<i>Swertia angustifolia</i> Buch.-Ham. ex D. Don [Gentianaceae]	Milinge to Ghyachchok	1635	Herb	White with Purple spot	September	GG78	E
<i>Symplocos ramosissima</i> Wall. ex G. Don [Symplocaceae]	Between Dhodke pokhari and Ghyachowk	1938	Tree	White	May -June	GG21	R
<i>Tainia minor</i> Hook.f. [Orchidaceae]	Between Dhodke Pokhari and Ghyachowk	2023	Herb	Yellow	April-May	Photo	App.II
<i>Taxus wallichiana</i> Zucc. [Taxaceae]	Between naag Pokhari Kharka and Bisauni	3081	Tree	White	March-May	Photo	App.II /C E
<i>Thalictrum foliolosum</i> DC. [Ranunculaceae]	Milinge to Ghyachchok	1635	Herb	Yellowish Green	August-September	GG73	A
<i>Thalictrum reniforme</i> Wall. [Ranunculaceae]	On the way to Bagkhor	2458	Herb	Pink	August-September	GG115	A
<i>Tripterospermum volubile</i> (D. Don) H. Hara [Gentianaceae]	On the way to Bagkhor	2458	Climber	Purplish White	August-September	GG120	A
<i>Triumfetta pilosa</i> Roth [Malvaceae]	Saalghari	1037	Herb	Yellow	April-May	GG63	A
<i>Urena lobata</i> L. [Malvaceae]	Saalghari	1037	Shrub	Pink	April -May	GG64	A
<i>Viburnum erubescens</i> Wall. [Adoxaceae]	Damara, Ghyachok	2371	Shrub	White	April-May	GG31	A
<i>Viola canescens</i> Wall. [Violaceae]	Baagkhor - Nage Pokhari Kharka	2731	Herb	Purple	April-May	GG40	R
<i>Vitex negundo</i> L. [Lamiaceae]	Above Baluwa Bazar	921	Shrub	Light Purple.	April-May	GG61	A

The most interesting of this field study was also to record the attractive flowers of the epiphytic *Rhododendron dalhousiae* on the *Quercus* species tree of which, the line drawing of this epiphyte species of *Rhododendron dalhousiae* is given in Figure 5. Additionally 8 species of epiphytes of Orchids are also recorded.

Among 119 wild flowers species, 4 species such as *Taxus wallichiana*, *Allium wallichii*, *Swertia angustifolia*, *Arisaema costatum* are placed critically endangered, threatened, endangered and least concern respectively (CAMP 2001; Ghimire *et al.* 2008). Similarly, out of 119 species, Orchid species and *Taxus wallichiana* and 11 species of Orchids are included in CITES Appendix II (Joshi *et al.* 2017). The line drawing of CITES species *Pleione hookeriana* is shown in Figure 6. The proper *in situ* and *ex situ* conservation and cultivation practice of these species may be helpful to conserve vulnerable, endangered, endemic and protected species.

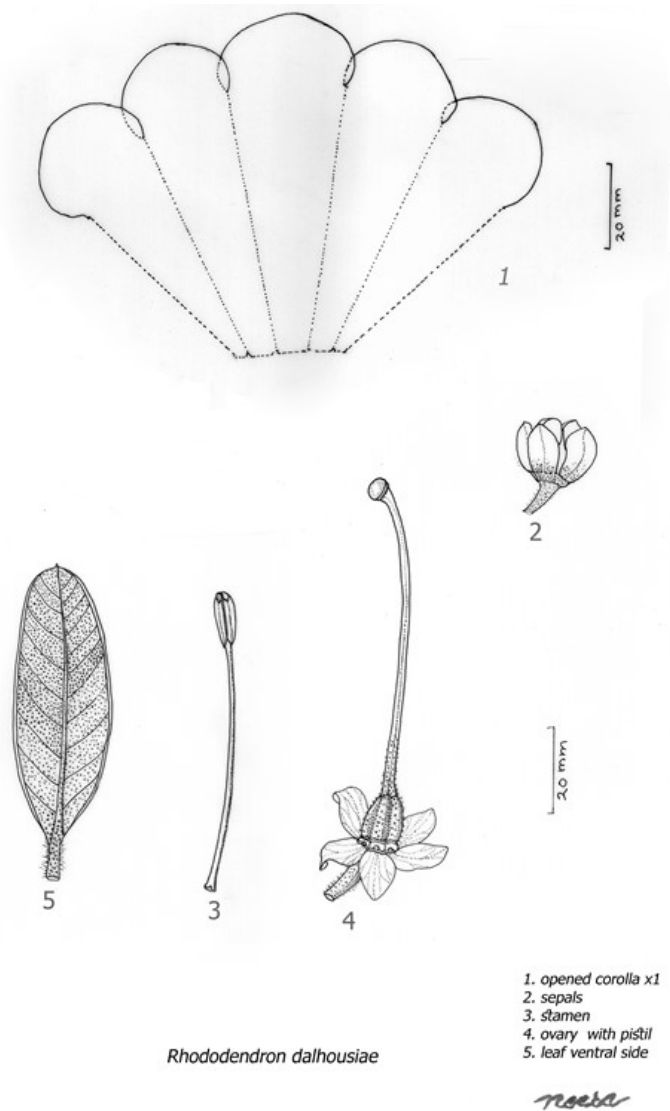


Figure 5. Line drawing of *Rhododendron dalhousiae* Hook.f.

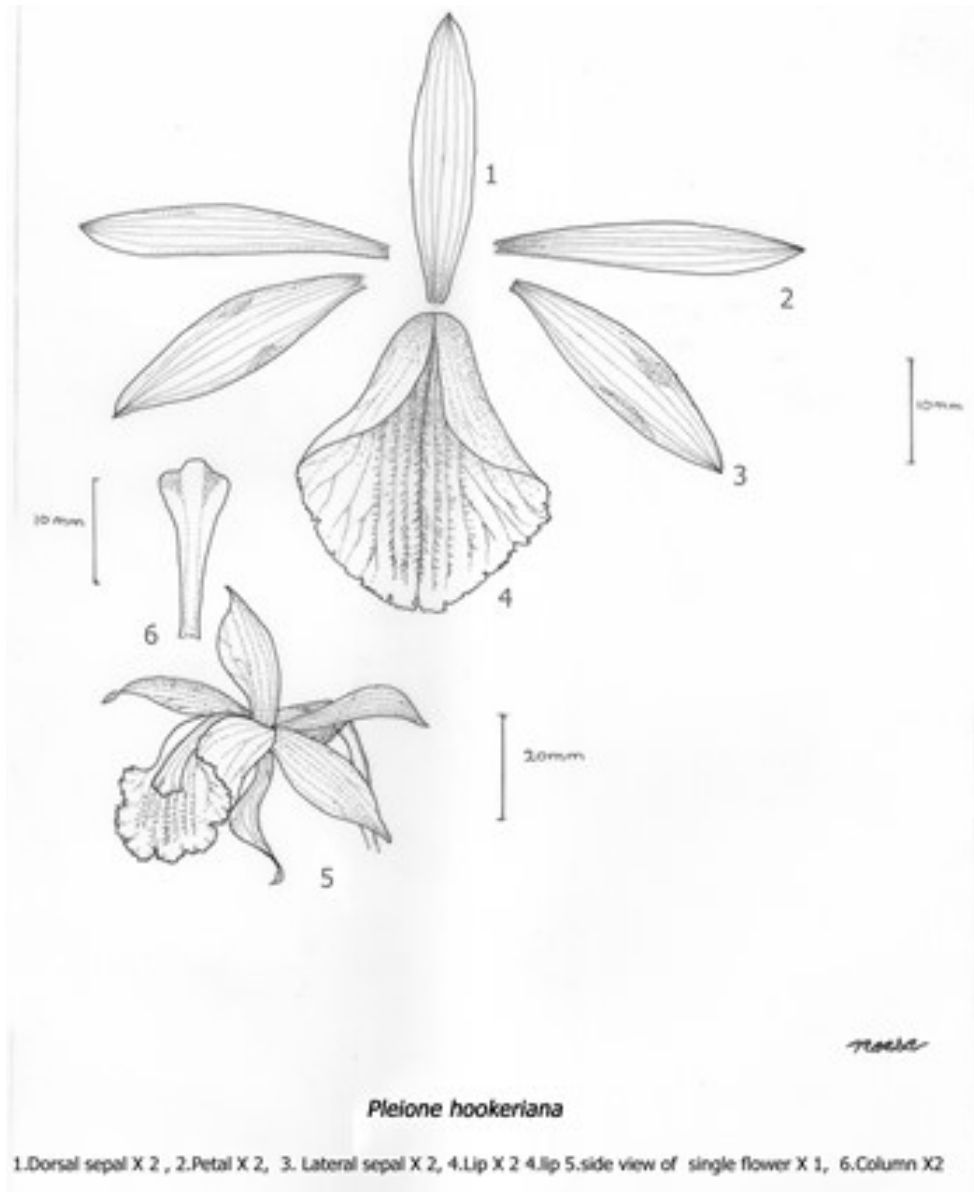


Figure 6. Line drawing of CITES Appendix II species *Pleione hookeriana* (Lindl.) Rollison

The most dominant flower colour is white with 41 species species. This is followed by yellow with 21 species, pink 12 species, purple 15 species, blue 4 species and light yellow, pinkish white with 3 species each, greenish yellow and light purple with 2 species each. There are many attractive beautiful flowers which may be utilized as ornamental, medicinal and edible value. So the the germplasm of this important species are to be conserved.

Conclusion

The checklist of the 119 flowering plants from Ghyachok VDC in two seasons is the debut collection from Ajirkot municipality, Gorkha district, belongs to 54 families of flowering plants. The result shows the collection is dominated by Orchidaceae which are placed in Appendix

II CITES and other interesting families such as Ranunculaceae, Rosaceae, Compositae, Leguminosae, Ericaceae, Polygonaceae, Berberidaceae, Begoniaceae, Gesneriaceae. The present information express the richness of flora of the study area ask for further researches in social, ethnobotanical, medicinal and commercial values. The urgent need to protect the CITES listed plants and other endangered plants are suggested to take conservation measures in the area by the concerned authorities. Hence the visual communication of such important plants would be one of the tools to bring awareness in identifying and protecting the rich heritage of the flora will definitely make a difference to local people, tourists, general people and policy makers. Hopefully concerned policy makers, scientists, botanists and explorer would add and take ahead further for study and research of the site.

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