

Documentation of Wild Decorative Plants of Tribhuvan Highway in Makawanpur District, Nepal

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Abstract

The present study highlights the exploration of wild decorative flowering plants which were documented on the roadside of the Tribhuvan highway from Hetauda to Tistung. This study area consists of tropical, sub-tropical and temperate vegetation types. This study was carried out during the year 2021-2023 and several field visits were performed. Plants were collected from the 17 transect line starting from Hetauda to Tistung Botanical Garden, Tistung. Each transect line was 200 m in length measuring from the center of the road to 100 m left and 100 m right sides of the Tribhuvan Highway. From this survey altogether 120 species of wild ornamental plants belonging to 89 genera and 47 families were recorded. The most dominant family in terms of species richness was Orchidaceae having 30 species, followed by Fabaceae with 13 species. In terms of genera, *Dendrobium* and *Coelogyne* were the most dominant genera having seven species in each. Similarly, in analysis based on life form, the herb category was largest containing 61 species, followed by shrub with 31 species. Climber and tree consisted of 16 and 12 species respectively. The result also depicted that the diversity along the Tribhuvan Highway (Hetauda to Tistung) had an abundance of wild ornamental plants which comprises a wide range of diversity in terms of taxa, habit and life forms. This study suggests that this research work will be helpful for students, researchers and people who keep an interest in the gardening of indoor plants and outdoor landscape practices. Furthermore, in order to protect, conserve, and perpetuate these plants, the florists, horticulturists, nurserymen, and concern authorities are advised to introduce some potential native wild ornamental plants for the domestication.

Keywords: Exploration, Herb, Native flora, Orchidaceae, Ornamental plants, Vegetation

Introduction

Wild ornamental plants are those that grow naturally in the field and have decorative traits which includes flowers, leaves and fruits (Li & Zhou, 2005; Reddy, et al., 2012). Their major features include shape & size of the plant, color, texture, line & form, lush foliage, and showy flowers (Khaleghi & Khadivi 2022; Vabrit 2001; Zucchi et al. 2020). They grow in natural habitats at various natural places under shade, partial shade, or full sun exposure. In comparison to cultivated and domesticated plants, they have a wide range of composition and density (Raju, 2000). These plants are of incredible interest and play a vital importance to floriculture (Joshi, 2008). These decorative plants possess certain biological features with different interesting adaptations physiology, morphology and flower colors. These plants glorify and intensify our environments and surroundings and add happiness in human life (Harris 1992;

Rocha et. al., 2022). The majority of flowers in use today are mostly descended from wild progenitors (Binu et al., 2011). The wild relatives of plants contribute to the vast genetic resources for their varietal improvements and genetic manipulations. Ornamental landscaping has been a part of human civilization in many ways from time immemorial native species are of great value because of their ability to adapt to abiotic stresses such as heat, drought and salinity (Hossain et al., 2022; Ochoa et al., 2010). They also need less care and attention since they have evolved strong resilience to harsh environmental factors such as drought, cold, disease, and pest tolerance (Bhattacharya, 2022; Dreyer, 1993). There are numerous wild flowering plants in natural habitat, with their attractive flowers, fruits, and foliage which can be specially used as ornamental plants for the purpose of beauty and pleasant aroma (Joshi, 2011).

Nepal is considered rich in biodiversity due to its distinct climate and varied vegetation from tropical to temperate and alpine regions (National Biodiversity Strategy [NBS] 2002), and playing a magnificent role in preserving the natural ecosystem. Natural vegetation are essential to the planning of both urban and rural environments, helping to reduce pollution (Kapoor & Sharga, 1993). By promoting the use of native species, horticulture, and floriculture professionals will not only select and grow superior plants to managed different landscapes, but there will be a significant contribution in the preservation of our natural environment as well (Raju, 2000). However, many non-native plants have become a valuable asset to gardens and landscape (Kendel & Rose, 2000). While, many native plants are used in soil management for controlling soil erosion, and wetland mitigation, and all contribute greatly to the beauty of the landscapes in which they were planted to restore. The beauty brought out by the use of native ornamental plants is best (Weston, 1990). The main objective of the present work is to scientifically characterize and document the natural grown wild plants in the area to prepare the checklist and also to study the status of native ornamental plants in natural state.

Materials and Methods

The study was performed in different seasons from 2021-2023 on the way from Hetauda to Daman-Tistung pathways focusing mainly on wild decorative plants. Sites of occurrence were identified through extensive field explorations. Plants were collected identified, photographed and ornamental characterization of each species was noted.

Study area

The study area comprises mainly three types of forests covering three different vegetation zones tropical, sub-tropical and temperate zones (District Development Committee Makawanpur [DDCM], 2015). The tropical forests encompass sal and riverine forests having major species such as *Shorea robusta* Roth, *Terminalia chebula* Retz, *Terminalia bellirica* Gaertn. Roxb., *Adina cordifolia* (Roxb.)

Brandis, *Acacia catechu* (L.) Willd., Oliv., *Dalbergia sissoo* Roxb., *Bombax ceiba* L. etc. Similarly, Sub-tropical forests consist of *Schima-Castanopsis*, Chir pine and Alder forests with *Schima wallichii* (DC).Korth, *Castanopsis india* (Roxb. ex Lindl.) A.DC., *Castanopsis tribuloides* (Sm.) A.DC., *Pinus roxburghii* Sargh. as dominating species. Likewise, the temperate forests are dominated by *Myrica esculenta* Buch.-Ham. ex D.Don, *Lyonia ovalifolia* (Wall.) Drude, *Quercus semicarpifolia* Sm.etc. In the study area, Shorea (Sal) forest is dominant in lower zones whereas *Quercus* forest, *Alnus.-Rhododendron*, *Quercus -Lyonia* and *Quercus -Symlocos* forests at higher elevation (Bhattarai et al., 2018).

An extensive field survey was made to explore the diversity of potential ornamental native plants from the study area during the years 2021-2023. During the field expedition, the plants were photographed in their habitat and were collected to prepare herbarium specimens. The plant species were mainly collected from the transect lines that were made during the field collections. The first transect line started near from the Samari river and the last was made at Tistung Botanical Garden. Between those starting and ending points 15 transect lines were made. Plants were collected and recorded from all the 17 transect line sites. Each transect line was made of 200 meters in length measuring from the center of the road to 100m left and 100m right sides of the Tribhuvan Highway (Figure 1). The plants were collected, tagged, and pressed in blotters for drying following Jain & Rao (1977). They were identified with the help of different relevant taxonomic literature like Chapagain et al., (2017), Malla (2003), Pollunin & Stainton (1987), Rajbhandari & Bhattarai (2001), Raskoti et al., (2016), Rajbhandari et al., (2016), Shrestha, (1998), Stainton (1997), Watson et al., (2011), White & Sharma (2000) and also with the help of experts from National Herbarium & Plant Laboratories (KATH), Godawari, Lalitpur. The collected plant specimens were dried and pressed. Herbarium specimens were prepared and deposited at the information centre section of Brindaban Botanical Garden (BBG), Makawanpur.

Results and Discussion

The field expeditions conducted along the Tribhuvan Highway on the road side of Hetauda to Tistung for wild ornamental vegetation resulted into valuable insights into floristic diversity and its potentiality for ornamental use in home. The present research documented a total of 120 wild ornamental plant species belonging to 47 families and 89 genera (Appendix 1). The plants are alphabetically arranged with their botanical names (Appendix 1). The primary characteristics of wild ornamental plants include their habits, habitats, morphological

structures, eye-catching flower colors, fruits, leaves, and fragrant plants (Joshi, 2011). Among the documented wild ornamental species a few species are being planted by the local people in their houses and gardens for the purpose of outdoor beautification like *Reinwardtia indica* Dumort, *Begonia picta* Sm, *Eranthemum pulchelum* Andrews, *Euphorbia royleana* Boiss while the species like *Opuntia monacantha* (Willd.) Haw., *Agave americana* L. have been used for the indoor decorations. *Erythrina stricta* Roxb. has been widely used for the fence at Churiya region especially to protect the farmland. Some people are also utilizing wild orchid species

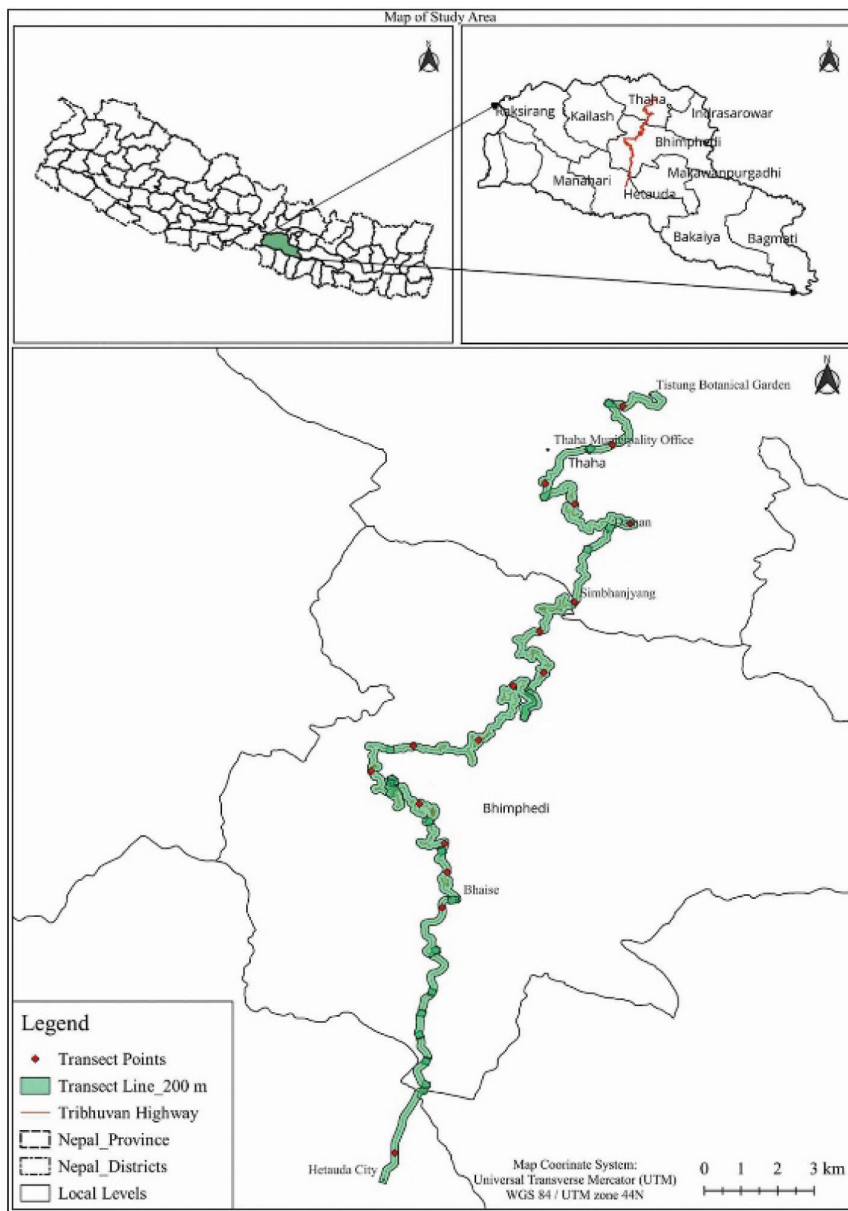


Figure 1: Study area of Tribhuvan highway from Hetauda to Tistung

for various purposes. Looking at this scenario, it is meaningful to say that with the promotion of these species among floriculturist and other various interested groups, will definitely help people to generate some income and then eventually enhance nation prosperity.

The vibrant floriculture sector is always on the lookout for fresh goods, innovative ideas, and untapped markets. The cost of domestication and maintenance of wild ornamental species is also very less in comparison to cultivated ones (Reddy et al., 2012). These species may be grown for their commercial value as well as to aid in the conservation of endangered, uncommon, and endemic plant species. When it comes to social and rural forestry, wasteland development, afforestation and the landscaping of both indoor and outdoor spaces with ornamental plants are crucial for the environmental planning of both urban and rural areas. Establishing eco-friendly human environments through landscape gardening and bio-aesthetic planning is a contemporary trend (Babu et al., 2017). The present survey also reported that, some of the threatened factors like forest-fires, destruction of natural habitat in the name of road extension and construction, invasion of weeds and invasive species and unsustainable utilization of natural resources for fodder and grazing may adversely affect the existing wild plant vegetation.

Species composition

From this study, it was found that Orchidaceae was the dominant family amongst the 47 families having 30 species. The plants belonging to this family are CITES-listed plants placed in Appendix II. This most superior family was followed by the Fabaceae with 13 species and the third position of species richness was recorded in the family Acanthaceae holding seven species in it. The other dominant families were Primulaceae, Rubiaceae and Convolvulaceae with four species in each family. Similarly, Zingiberaceae, Thymelaeaceae, Melastomaceae and Hypericaceae contain three species in each family. The families Apocynaceae, Araliaceae, Cucurbitaceae, Ericaceae, Lamiaceae, Lythraceae, Oxalidaceae, Polygonaceae, Verbenaceae and Viburnaceae possess two species in each of the families. Remaining all families

like Asparagaceae, Amaryllidaceae and others are monotypic just having single species (Figure 2).

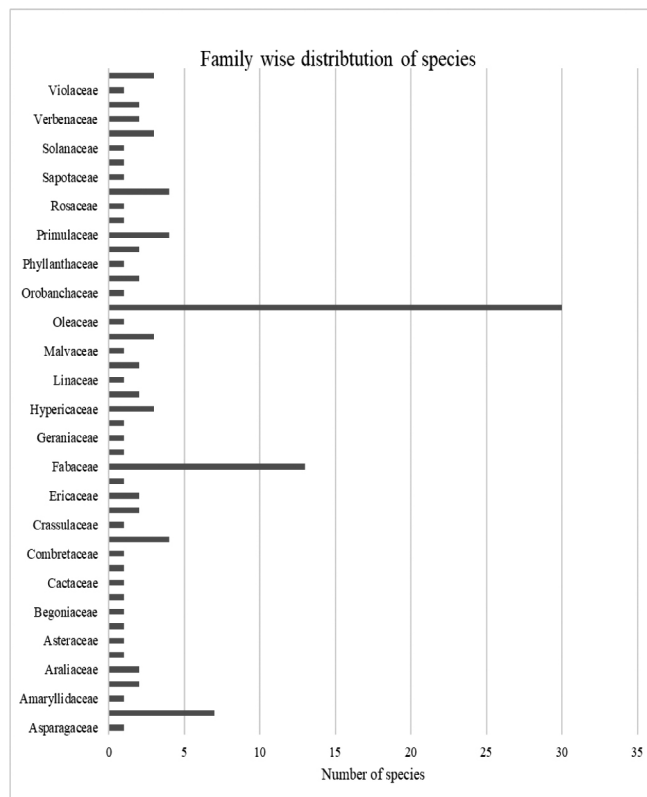


Figure 2: Family-wise distribution of ornamental plant species

The genus *Dendrobium* and *Coelogyne* were recorded as dominant genera having seven species in each genus. This was followed by the genera *Hypericum*, *Thunbergia* and *Cymbidium* reporting three species in each genus. The third dominant genera position were highlighted by the ten genera namely *Bauhinia*, *Bulbophyllum*, *Butea*, *Daphne*, *Erythrina*, *Hedychium*, *Impatiens*, *Indigofera*, *Ipomoea* and *Oxalis* having two species in each. Remaining all the genera were monotypic possessing single species. Pradhan & Joshi (2019) also reported that the Orchidaceae as the largest family in wild ornamental flowers documentation.

Habit-wise distribution

In the present study, based on the analysis of life form category of the collected species, out of the total of 120 species, herb was the dominant life form with 61 species. Likewise, shrub was the second largest life form plant possessing 31 species of ornamental plants. Moreover, climbers and tree habit forms

encountered 16 and 12 species respectively (Figure 3). 61 tree species having 51 genera were recorded from the same study site by Bhattarai et al. (2018).

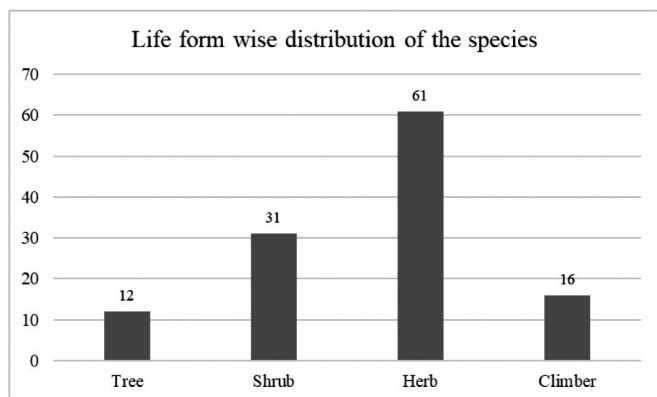


Figure 3: Life form-wise distribution of ornamental plant species

The wild ornamental climbing plant species is mainly based on their attractive flower colors and various plant parts with their beautiful appearance. The present observation on the ornamental potentiality of 120 wild decorative plant species collected from various habitats of Tribhuvan Highway was

categorized based on their attractiveness of flower colors. Among the attractive flowers, white color is dominant with 24 species followed by yellow and mixed color plants each having 22 species, pink color with 15 species, red color 11 species, purple color 8 species, green color 5 species, bright red color 2 species and blue and violet color with single species in each (Figure 4, Appendix 1). According to Sarvalingam & Rajendran (2014), white color was the dominant color in the study of wild ornamental climbing plants at Southern Western Ghats, Tamil Nadu, India.

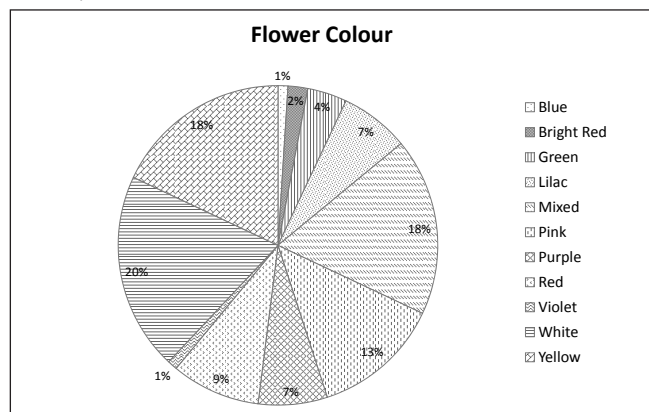


Figure 4: Flower color analysis of ornamental plants



Bergenia ciliata (Haw.) Sternb.



Bistorta amplexicaulis (D.Don.) Greene



Thunbergia fragrans Roxb.



Erythrina arborescens Roxb.



Osbeckia nepalensis Hook.



Thunbergia grandiflora (Roxb. ex Rottler) Roxb.



Hypericum choisyianum Wall. ex N. Robson



Clematis buchananiana DC.



Begonia picta Sm.



Pleione praecox (Sm.)D.Don



Ipomoea quamoclit L.



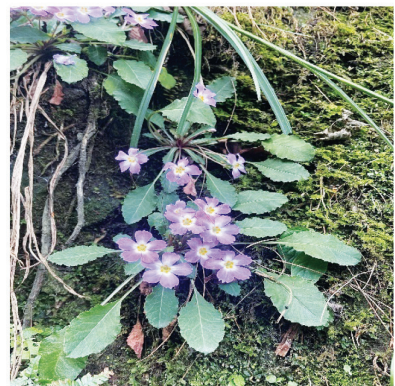
Justicia adhatoda L.



Primula denticulata Sm.



Primula malacoides Franch.



Primula petiolaris Wall.



Eranthemum pulchelum Andrews



Rhododendron arboreum Sm.



Roscoea purpurea Sm.



Dendrolirium lasiopetalum (Willd.)
S.C.Chen & J.J.Wood



Coelogyne cristata Lindl.



Dendrobium longicornu Lindl.



Diplomeris hirsuta (Lindl.) Lindl.



Rhynchostylis retusa (L.) Blume



Holmskioldia sanguinea Retz.



Lindenbergia grandiflora (Buch.-
Ham. ex D. Don) Benth.



Eria coronaria (Lindl.) Rchb.f.



Mahonia napaulensis DC.

Figure 5: Photographs of some collected decorative ornamental plants

Conclusion

From the present study, a total of 120 species of beautiful ornamental plants belonging to 89 genera and 47 families were reported. Among the collected plant species, the dominant family was Orchidaceae displaying 30 species. The other major families were Fabaceae, Acanthaceae, Convolvulaceae, Primulaceae, Zingiberaceae, Thymelaeaceae, Rubiaceae, Melastomataceae etc. It also suggested that this will help the researcher and people who are interested in native, wild, and ornamental plants. This study also surveyed that people are collecting and growing some wild ornamental plants in their home gardens for the decorations of their landscapes. Therefore, it is essential to work on the domestication of those native wild plants which will definitely enhance the economic growth of the people, state and ultimately the country. Furthermore, due to biotic and abiotic threatened factors these beautiful plants may be at risk level so it is essential to conserve these plants at *in-situ* or *ex-situ* level. Additionally, this type of research will help to create awareness actions in terms of identification and preservation and plays a significant positive impact on local people, visitors and various levels of policy makers.

Author Contributions

R R Parajuli conceptualized this study. Both authors performed field works including data collection, herbarium preparations and photography of plants. C K Thakur prepared the draft of the manuscript with the supervision of R R Parajuli. Both the authors reviewed and approved the final manuscript.

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References

- Babu, M. S., Reddy, S. R., & Reddy, A. M. (2017). Exploration of wild ornamental flowering plants in palakonda hills of eastern ghats, India. *Asian Journal of Conservation Biology*, 6(1), 21-30.
- Bhattacharyya, N. (2022). Naturally growing native plants of Wastelands: Their stress management strategies and prospects in changing climate. In S. Roy, P. Mathur, A. P. Chakraborty, & S. P. Saha (Eds.), *Plant stress: Challenges and management in the new decade* (pp. 149-168). Springer International Publishing.
- Bhattarai, S., Bhatta, B., & Tamang, R. (2018). Distribution pattern of tree species from tropical to temperate regions in Makawanpur District, central Nepal. *BankoJanakari*, 28(1), 20-25
- Bir, R. E. (1987). A practical approach to native plant production. *American nurseryman (USA)*. 166(11), 46-48.
- Burrell, C. C. (Ed.) (1997). *The natural water garden: pools, ponds, marshes & bogs for backyards everywhere* (Vol. 151). Brooklyn Botanic Garden.
- Chapagain, N. H., Thakur, C. K., & Tamang, R. (2017). *Plant diversity in central Chure region, Nepal*. District Plant Resources Office, Makawanpur.
- District Development Committee, Makawanpur. (2015). *District development plan of Makawanpur*.
- Dreyer, G. (1993). Native shrubs: A growing market. *Yankee Nursery Quarterly*. Summer 1993. 15-20.
- Harris, R. W. (1992). *Arboriculture: Integrated management of landscape trees, shrubs, and vines* (2nd ed.). Prentice-Hall International.
- Hossain, A., Maitra, S., Pramanick, B., Bhutia, K. L., Ahmad, Z., Moulik, D., Syedg, A. M., Shankarb, T., Adeelh, M., Hassani, M. M., & Aftab, T. (2022). Wild relatives of plants as sources for the development of abiotic stress tolerance in

- plants. In T. Aftab, & A. Roychoudhury (Eds.), *Plant perspectives to global climate changes* (pp. 471-518). Academic Press.
- Jain, S. K., & Rao, R. R. (1977). *A handbook of field and herbarium methods*. Today & Tomorrow's Printers and Publishers.
- Joshi, N. (2008). *Flowers of national botanical garden*, Godawari, Lalitpur, Nepal. Department of Plant Resources.
- Kapoor, S. L., & Sharga, A. N. (1993). *House plants*. Vatika Prakashan.
- Kendel, A. D., & Rose, J. E. (2000). The aliens have landed! What are the justifications for 'native only' policies in landscape plantings? *Landscape and Urban Planning*, 47, 19-31.
- Khaleghi, A., & Khadivi, A. (2022). Genetic diversity of wild grape hyacinth (*Muscari neglectum* Guss. ex Ten.) germplasm with ornamental potential in the central region of Iran. *South African Journal of Botany*, 148, 307-314.
- Li, X. X., & Zhou, Z. K. (2005). Endemic wild ornamental plants from northwestern Yunnan, China. *Hort Science*, 40(6), 1612-1619.
- Malla, K. J. (2003). Some potential wild flora of Nepal for the development of commercial floriculture. In B. Pradhan, S. Bista, U. Pun, & B. Rai (Eds.), *Floriculture Trade Fair 2003 Souvenir* (pp. 46-50). Floriculture Association of Nepal.
- Nepal Biodiversity Strategy. (2002). *Nepal biodiversity strategy*. Ministry of Forests and Soil Conservation.
- Ochoa, J., Muñoz, M., Vicente, M. J., Martínez-Sánchez, J. J., & Franco, J. A. (2010). Native ornamental species for urban landscaping and xero-gardening in semi-arid environments. *Acta Horticulturae*, 881, 425-428, <https://doi.org/10.17660/ActaHortic.2010.881.68>
- Polunin, O., & Stainton, A. (1987). *Concise flowers of himalaya*. Oxford University Press.
- Pradhan, N. J., & Joshi, N. (2019). Wild flowers of Ghyachok VDC, Gorkha District, Nepal. *Pleione*, 13 (1), 41-54.
- Rajbhandari, K. R., & Bhattarai, S. (2001). *Beautiful orchids of Nepal*. Keshab R. Rajbhandari.
- Rajbhandari, K. R., Rai, S. K., & Bhatt, G. D. (2016). *Endemic flowering plants of Nepal. An update. Bul. Dept. Pl. Res.*, 38, 106-144.
- Raju, R. A. (2000). *Wild plants of Indian sub-continent and their economic use*. CBS HB.
- Raskoti, B. B., Jin, W. T., Xiang, X. G., Schuiteman, A., Li, D. Z., Li, J. W., & Huang, L. Q. (2016). A phylogenetic analysis of molecular and morphological characters of *Herminium* (Orchidaceae, Orchideae): Evolutionary relationships, taxonomy and patterns of character evolution. *Cladistics*, 32(2), 198-210.
- Reddy, S. R., Reddy, A. M., & Yasodamma, N. (2012). Exploration of wild ornamental flora of YSR District, Andhra Pradesh, India. *Indian J Fundam Appl Life Sci*, 2, 2231-6345.
- Rocha, C. S., Rocha, D. C., Kochi, L. Y., Carneiro, D. N. M., Dos Reis, M. V., & Gomes, M. P. (2022). Phytoremediation by ornamental plants: A beautiful and ecological alternative. *Environmental Science and Pollution Research*, 29(3), 1-19.
- Sarvalingam, A., & Rajendran, A. (2014). Wild ornamental climbing plants of Maruthamalai hills in the Southern Western Ghats, Tamil Nadu, India. *World Journal of Agricultural Sciences*, 10(5), 204-209.
- Shrestha, K. (1998). *Dictionary of nepalese plants names*. Mandala Book Point.
- Stainton, A. (1997). *Flowers of the himalaya- A supplementary*. Oxford University Press.
- Thomas, B., Rajendran, A., Aravindhana, V., & Maharajan, M. (2011). Wild ornamental chasmophytic plants for rockery. *Global Journal of Modern Biology and Technology*, 1(3), 20-21.
- Vabrit, S. (2001). Morphological aspects for selecting new bedding plants. *XX International Eucarpia Symposium, Section Ornamentals, Strategies for New Ornamentals-Part II* 572 (pp. 67-74).

- Watson, M. F, Akiyam, S., Ikeda, H. Pendry, C., Rajbhandari, K. R., & Shrestha, K. K. (2011). *Flora of Nepal (magnoliaceae-rosaceae)* (Vol 3). Royal Botanic Garden Edinburgh.
- Weston, J. (1990). Using native plants in the golf course landscape. *USGA Green Section Record*, 28(1), 12-16.
- White, K., & Sharma, B. (2000). *Wild orchids in Nepal: the guide to the himalayan orchids of the Tribhuvan Rajpath and Chitwan jungle*. White Lotus Press.
- Zucchi, M. R., Silva, M. W. D., Sibov, S. T., & Pires, L. L. (2020). Ornamental and landscape potential of a bromeliad native to the Cerrado. *Ornamental Horticulture*, 25, 425-433.

Appendix 1: Plant list of wild decorative plants

S.N.	Scientific name	Family	Distribution Range (m)	Life form	Flower Colour
1	<i>Agave americana</i> L.	Asparagaceae	200-1400	H	Yellow
2	<i>Alstonia scholaris</i> (L.) R. Br.	Apocynaceae	500-900	T	Green
3	<i>Argyreia hookeri</i> C.B. Clarke	Convolvulaceae	800-2300	C	Liac
4	<i>Arundina graminifolia</i> (D.Don) Hochr.	Orchidaceae	200-2300	H	Pink
5	<i>Barleria cristata</i> L.	Acanthaceae	200-2000	H	violet
6	<i>Bauhinia purpurea</i> L.	Fabaceae	100-1600	T	Pink
7	<i>Bauhinia variegata</i> L.	Fabaceae	150-1900	T	Pink
8	<i>Begonia picta</i> Sm.	Begoniaceae	600-2800	H	Mixed
9	<i>Bergenia ciliata</i> (Haw.) Sternb.	Saxifragaceae	800-3000	H	Pink
10	<i>Bistorta amplexicaulis</i> (D.Don.) Greene	Polygonaceae	2000-3500	C	Red
11	<i>Bombax ceiba</i> L.	Malvaceae	200-1500	T	Red
12	<i>Breynia retusa</i> (Dennst.) Alston	Phyllanthaceae	1500-2000	H	Red
13	<i>Bulbophyllum leopardinum</i> (Wall.) Lindl. ex Wall.	Orchidaceae	1400-3200	H	Mixed
14	<i>Bulbophyllum reptans</i> (Lindl.) Lindl.	Orchidaceae	1500-2600	H	Purple
15	<i>Butea buteiformis</i> (Voigt) Grierson	Fabaceae	200-2300	S	Bright Red
16	<i>Butea monosperma</i> (Lam.) Taub.	Fabaceae	150-1200	T	Bright Red
17	<i>Calanthe tricarinata</i> Lindl	Orchidaceae	1500-3200	H	Mixed
18	<i>Calicarpa macrophylla</i> Vahl.	Lamiaceae	200-1500	S	Pink
19	<i>Cassia fistula</i> L.	Fabaceae	150-1400	T	Yellow
20	<i>Clematis buchananiana</i> DC.	Ranunculaceae	1800-3300	C	White
21	<i>Clitoria ternatea</i> L.	Fabaceae	100-400	C	Purple
22	<i>Coelogyne fimbriata</i> Lindl.	Orchidaceae	500-2600	H	Mixed
23	<i>Coelogyne cristata</i> Lindl.	Orchidaceae	1000-2000	H	White
24	<i>Coelogyne longipes</i> Lindl.	Orchidaceae	1500-2300	H	White
25	<i>Coelogyne nitida</i> (Wall. ex D.Don) Lindl.	Orchidaceae	1300-2400	H	Mixed
26	<i>Coelogyne ovalis</i> Lindl.	Orchidaceae	500-1700	H	Mixed
27	<i>Coelogyne prolifera</i> Lindl.	Orchidaceae	1000-2300	H	Yellow
28	<i>Coelogyne stricta</i> (D.Don) Schltr.	Orchidaceae	1200-200	H	White
29	<i>Colebrookea oppositifolia</i> Sm.	Lamiaceae	250-1700	H	White
30	<i>Combretum indicum</i> (L.) DeFilipps	Combretaceae	180-600	C	Mixed
31	<i>Crassula</i> sp.	Crassulaceae		H	Yellow
32	<i>Cymbidium elegans</i> Lindl.	Orchidaceae	1500-2800	H	Yellow
33	<i>Cymbidium erythraeum</i> Lindl.	Orchidaceae	1100-2500	H	Mixed
34	<i>Cymbidium iridioides</i> D.Don.	Orchidaceae	1500-2800	H	Mixed
35	<i>Daphne bholua</i> Buch.-Ham.ex D.Don	Thymelaeaceae	1700-3100	S	White
36	<i>Daphne papyracea</i> Wall. ex Steud.	Thymelaeaceae	1500-2600	S	White
37	<i>Datura stramonium</i> L.	Solanaceae	200-2200	S	Mixed
38	<i>Dendrobium amoenum</i> Wall.ex Lindl.	Orchidaceae	1100-2900	H	White
39	<i>Dendrobium anceps</i> Sw.	Orchidaceae	200-400	H	Green
40	<i>Dendrobium densiflorum</i> Lindl.	Orchidaceae	300-2900	H	Yellow
41	<i>Dendrobium fugax</i> Rchb.F.	Orchidaceae	400-1600	H	White
42	<i>Dendrobium longicornu</i> Lindl.	Orchidaceae	1600-2500	H	Mixed
43	<i>Dendrobium moschatum</i> (Banks) Sw.	Orchidaceae	200-1200	H	Yellow
44	<i>Dendrobium nobile</i> Lindl.	Orchidaceae	400-3400	H	Purple

S.N.	Scientific name	Family	Distribution Range (m)	Life form	Flower Colour
45	<i>Dendrolirium lasiopetalum</i> (Willd.) S.C.Chen & J.J.Wood	Orchidaceae	100-1600	H	Green
46	<i>Diploknema butyracea</i> (Roxb.) H.J.Lam	Sapotaceae	100-1500	T	White
47	<i>Diplomeris hirsuta</i> (Lindl.) Lindl.	Orchidaceae	200-1900	H	White
48	<i>Duabanga grandiflora</i> (Roxb. ex DC.) Walp.	Lythraceae	200-2000	T	White
49	<i>Eranthemum pulchellum</i> Andrews	Acanthaceae	200-1200	H	Purple
50	<i>Eria coronaria</i> (Lindl.) Rchb.f.	Orchidaceae	1500-2300	H	Mixed
51	<i>Erythrina arborescens</i> Roxb.	Fabaceae	1400-3000	S	Red
52	<i>Erythrina stricta</i> Roxb.	Fabaceae	1000-1600	S	Red
53	<i>Euphorbia royleana</i> Boiss.	Euphorbiaceae	1000-1700	S	Green
54	<i>Gastrochilus distichus</i> (Lindl.) Kuntze	Orchidaceae	1700-2800	H	Green
55	<i>Gentiana capitata</i> Buch.-Ham. ex D.Don.	Gentianaceae	1500-4500	H	Purple
56	<i>Geranium nepalense</i> Sweet	Geraniaceae	1100-4000	H	Liac
57	<i>Hedera nepalensis</i> K. Koch	Araliaceae	1900-3200	C	Mixed
58	<i>Hedychium coccineum</i> Buch-Ham. ex Sm.	Zingiberaceae	100-2000	H	Red
59	<i>Hedychium ellipticum</i> Buch.-Ham. ex Sm.	Zingiberaceae	300-3500	H	White
60	<i>Heptapleurum venulosum</i> (Wight & Arn.) Seem.	Araliaceae	300-1800	T	Mixed
61	<i>Herpetospermum pedunculatum</i> (Ser.) C. B. Clarke	Cucurbitaceae	1500-3600	C	Yellow
62	<i>Holarrhena pubescens</i> Wall. ex. G.Don	Apocynaceae	100-1500	T	Mixed
63	<i>Holmskioldia sanguinea</i> Retz.	Verbenaceae	300-1500	C	Red
64	<i>Hydrangea febrifuga</i> (Lour.) Y. De Smet & C. Granados	Hydrangeaceae	900-2500	H	Blue
65	<i>Hypericum choisyianum</i> Wall. ex N. Robson	Hypericaceae	2200-3600	S	Yellow
66	<i>Hypericum elodeoides</i> Choisy	Hypericaceae	1200-3300	H	Yellow
67	<i>Hypericum uralum</i> Buch.-Ham. ex D. Don	Hypericaceae	1200-3600	S	Yellow
68	<i>Impatiens racemosa</i> DC.	Balsaminaceae	700-1700	H	Yellow
69	<i>Impatiens scabrida</i> DC.	Fabaceae	1000-3600	H	Yellow
70	<i>Indigofera atropurpurea</i> Buch.-Ham.ex Horn.	Fabaceae	700-3200	S	Pink
71	<i>Indigofera cassioides</i> Rottler ex DC.	Fabaceae	700-3200	S	Pink
72	<i>Ipomoea purpurea</i> (L.) Roth	Convolvulaceae	300-1800	C	Purple
73	<i>Ipomoea quamoclit</i> L.	Convolvulaceae	100-2200	C	Red
74	<i>Jasminum officinale</i> L.	Oleaceae	1200-3000	C	White
75	<i>Justicia adhatoda</i> L.	Acanthaceae	500-1600	S	Mixed
76	<i>Lindenbergia grandiflora</i> (Buch.-Ham. ex D.Don) Benth.	Orobanchaceae	700-2400	H	Yellow
77	<i>Liparis odorata</i> (Willd.) Lindl.	Orchidaceae	200-1400	H	Mixed
78	<i>Lobelia chinensis</i> Lour.	Campanulaceae	1300-1500	H	White
79	<i>Luculia gratissima</i> (Wall.) Sweet	Rubiaceae	1000-2100	S	Pink
80	<i>Maesa chisia</i> Buch.-Ham. ex D. Don	Primulaceae	1200-2600m	S	Mixed
81	<i>Mahonia napaulensis</i> DC.	Berberidaceae	1200-3600	S	Yellow
82	<i>Melastoma malabathricum</i> L.	Melastomataceae	500-1200	S	Pink
83	<i>Mussaenda macrophylla</i> Wall.	Rubiaceae	300-1500	S	White
84	<i>Opuntia monacanthos</i> (Willd.) Haw.	Cactaceae	100-2000	H	Yellow
85	<i>Osbeckia nepalensis</i> Hook.	Melastomataceae	400-2300	S	Mixed
86	<i>Oxalis corniculata</i> L.	Oxalidaceae	100-2900	H	Yellow
87	<i>Oxalis latifolia</i> Kunth	Oxalidaceae	600-2600	H	Liac
88	<i>Oxyspora paniculata</i> (D. Don) DC.	Melastomataceae	1100-30000	S	Pink
89	<i>Papilionanthe uniflora</i> (Lindl.) Garay	Orchidaceae	400-2100	H	White

S.N.	Scientific name	Family	Distribution Range (m)	Life form	Flower Colour
90	<i>Persicaria capitata</i> (Buch.-Ham. ex D. Don) H.Gross	Polygonaceae	600-2400	H	Pink
91	<i>Pieris formosa</i> (Wall.) D. Don	Ericaceae	2000-3500	S	White
92	<i>Piptanthus nepalensis</i> (Hook.) Sweet	Fabaceae	2000-3800	S	Yellow
93	<i>Pleione humilis</i> (Sm.) D.Don	Orchidaceae	1800-3000	H	Mixed
94	<i>Pleione praecox</i> (Sm.) D.Don	Orchidaceae	1500-3200	H	Pink
95	<i>Porana grandiflora</i> Wall.	Convolvulaceae	200-1200	C	Liac
96	<i>Primula denticulata</i> Sm.	Primulaceae	2000-3500	H	Liac
97	<i>Primula malacoides</i> Franch.	Primulaceae	1500-3000	H	Liac
98	<i>Primula petiolaris</i> Wall.	Primulaceae	1500-3000	H	Liac
99	<i>Pseudocaryopteris bicolor</i> (Roxb. ex Hardw.) P.D. Cantino	Verbenaceae	400-2100	S	Mixed
100	<i>Reinwardtia indica</i> Dumort.	Linaceae	300-2300	S	Yellow
101	<i>Rhododendron arboreum</i> Sm.	Ericaceae	1100-3300	T	Red
102	<i>Rhynchostylis retusa</i> (L.) Blume	Orchidaceae	300-1500m	H	Pink
103	<i>Rosa macrophylla</i> Lindl.	Rosaceae	2100-4400	C	White
104	<i>Roscoea purpurea</i> Sm.	Zingiberaceae	1500-3000	H	Purple
105	<i>Sambucus canadensis</i> L.	Viburnaceae	1000-1600	S	White
106	<i>Senna alata</i> (L.) Roxb.	Fabaceae	200-800	S	Yellow
107	<i>Spermacietyon suaveolens</i> Roxb.	Rubiaceae	400-2300	S	Liac
108	<i>Spiranthes australis</i> (R.Br.) Lindl.	Orchidaceae	1700-3700	H	Pink
109	<i>Strobilanthes atropurpureus</i> Nees	Acanthaceae	500-2000	H	Purple
110	<i>Thunbergia coccinea</i> Wall. ex D.Don	Acanthaceae	100-2100	C	Red
111	<i>Thunbergia fragrans</i> Roxb.	Acanthaceae	500-1800	C	White
112	<i>Thunbergia grandiflora</i> (Roxb. ex Rottler) Roxb.	Acanthaceae	60-1300	C	Liac
113	<i>Trichosanthes tricuspidata</i> Lour.	Cucurbitaceae	700-3200	C	White
114	<i>Viburnum erubescens</i> Wall. ex DC	Viburnaceae	1500-3600	T	White
115	<i>Viburnum mullaha</i> Buch.-Ham. ex D.Don	Viburnaceae	1700-3200	S	White
116	<i>Viola biflora</i> L.	Violaceae	2100-4500	H	Yellow
117	<i>Wikstroemia canescens</i> Wall. ex Meisn.	Thymelaeaceae	1800-3200	S	Yellow
118	<i>Woodfordia fruticosa</i> (L.) Kurz	Lythraceae	200-1800	S	Red
119	<i>Zephyranthes carinata</i> Herb.	Amoryllidaceae	300-1500	H	Pink
120	<i>Zinnia peruviana</i> (L.) L.	Asteraceae	1300-2500	H	Mixed

Note: H = Herb; S = Shrub; C = Climber; T = Tree