

Floristic Diversity of Vascular Plants in Gyasumbdo Valley, Lower Manang, Central Nepal

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Abstract

The study documented a total of 490 vascular plant species belonging to 288 genera and 92 families, including 50 species of ferns and fern allies, 10 species of gymnosperms and 430 species of angiosperms from the Gyasumbdo valley of Manang district. Asteraceae with 21 genera and 40 species was found to be the largest family, followed by Ranunculaceae (8 genera, 28 species), Rosaceae (13 genera, 23 species), Orchidaceae (18 genera, 23 species), Apiaceae (13 genera, 18 species), Pteridaceae (10 genera, 17 species) and Lamiaceae (13 genera, 17 species). *Thalictrum* was found to be the largest genera with 11 species, which was followed by *Pedicularis* (9), *Carex*, *Saxifraga*, *Primula* with eight species each. The rich flora of Gyasumbdo valley reflects that the valley serves as a meeting place for both western and eastern Himalayan floristic elements.

Keywords: Checklist, Compositae, Enumeration, Flora

Introduction

Biodiversity is the variation of life at different levels of biological organizations. Thus, it includes diversity within species and between species and ecosystems (Chaudhary, 1998). Himalayan region is considered as the hotspot of biodiversity with diverse vegetation, community and floral diversity (Sharma et al., 2014). Biodiversity is essential for the survival as well as economic well-being and for the ecosystem functioning and its stability. Therefore, it is necessary to conserve the biodiversity. Biodiversity conservation and sustainability cannot be achieved without adequate knowledge of vegetation of any area. As per the Convention on Biological Diversity 1992, documentation of the biodiversity is one of the most prioritized tasks by the world, which is possible only through extensive botanical exploration and floristic studies.

Floristic study refers to the documentation of all plants species in a given geographical region (Simpson, 2006). These studies help in botanical enumeration, updating nomenclature changes of the species, adding herbarium specimens in the existing herbaria and comparison of close or distantly related plants. Together, they also help to protect and preserve threatened plant species, monitor their

status and provide effective management strategies for the particular vegetation type (Sahu & Dhal, 2012). The results of such floristic works mostly come in the form of floras (Palmer et al., 1995) which may be local, regional, country-wise and so on or they may be in the form of checklists too.

Nepal comprises a unique and enormous diversity of flora within a relatively small geographical area due to variation in topography, altitude (60 m asl in Southern Terai to over 8000 m asl towards the Himalayas in the north) and climate. Nepal lies in a transitional zone between Eastern and Western Himalayan flora (Takhtajan, 1986). Thus, Nepal has a gift of over 7000 species of vascular plants among which, 6653 are flowering plants (Poudel, 2011).

Dobremez (1976) divided Nepal Himalaya into four regions: Eastern, Central, Western and Trans-Himalayan biogeographic regions. He included Mustang and Manang into trans-Himalayan biogeographic regions. Manang district lies in the arid zone northward of the massif Himalayas, the vegetation of the study area is quite similar to that of Tibetan Plateau (Chaudhary, 1998). The vegetation is mostly composed of scarce and scattered patches of the thorny cushion plants, whereas sheltered places have *Juniperus* and blue

pine while moist ravines and riverbanks have poplars and seabuckthorn (Dobremez, 1976).

Adhikari (2007) studied the flora of lower Manang and adjoining area and reported 245 species under 203 genera and 79 families. Pohle (1990) reported 239 useful plants from Manang district, of which 77 were from Gyasumbdo valley alone. Joshi (2011) reported 176 species of vascular plants, belonging to 96 genera and 49 families from upper Manang. Shrestha et al. (1995) reported 90 species of medicinal and aromatic plants (MAPs) belonging to 81 genera and 51 families have been recorded from the lower valleys of Manang district.

Materials and Methods

Study site

Gyasumdo valley lies on the south eastern part of the Manang district thus; it receives comparatively higher precipitation compared to the other valleys of the district. Monsoon enters from south-east, resulting a decreasing moisture from east to west in

Manang valley, thus, the south-facing slopes are significantly drier and warmer than those facing north (Baniya et al., 2009). Depending upon the rainfall extent Manang is categorized into Upper Manang and Lower Manang. Lower Manang consists of single large valley; the Gyasumbdo valley. There is still a relatively rich subtropical vegetation, predominant with dense oak (*Quercus* species) and *Rhododendron* forests in the lower belt and conifers (*Pinus wallichiana*, *Picea smithiana*, *Taxus contorta*, *Tsuga dumosa* and *Abies spectabilis*) in the upper belt (Shrestha et al., 1995). The study area partially lies within the territory of the Annapurna Conservation Area.

Methods

Voucher specimens of each species of the vascular plants on the state of either flowering or fruiting or both were collected from the study area during three field visits from September, 2015 to August, 2017, especially along the trail and herbarium specimens were prepared. Identification of those voucher specimens was carried out by following standard

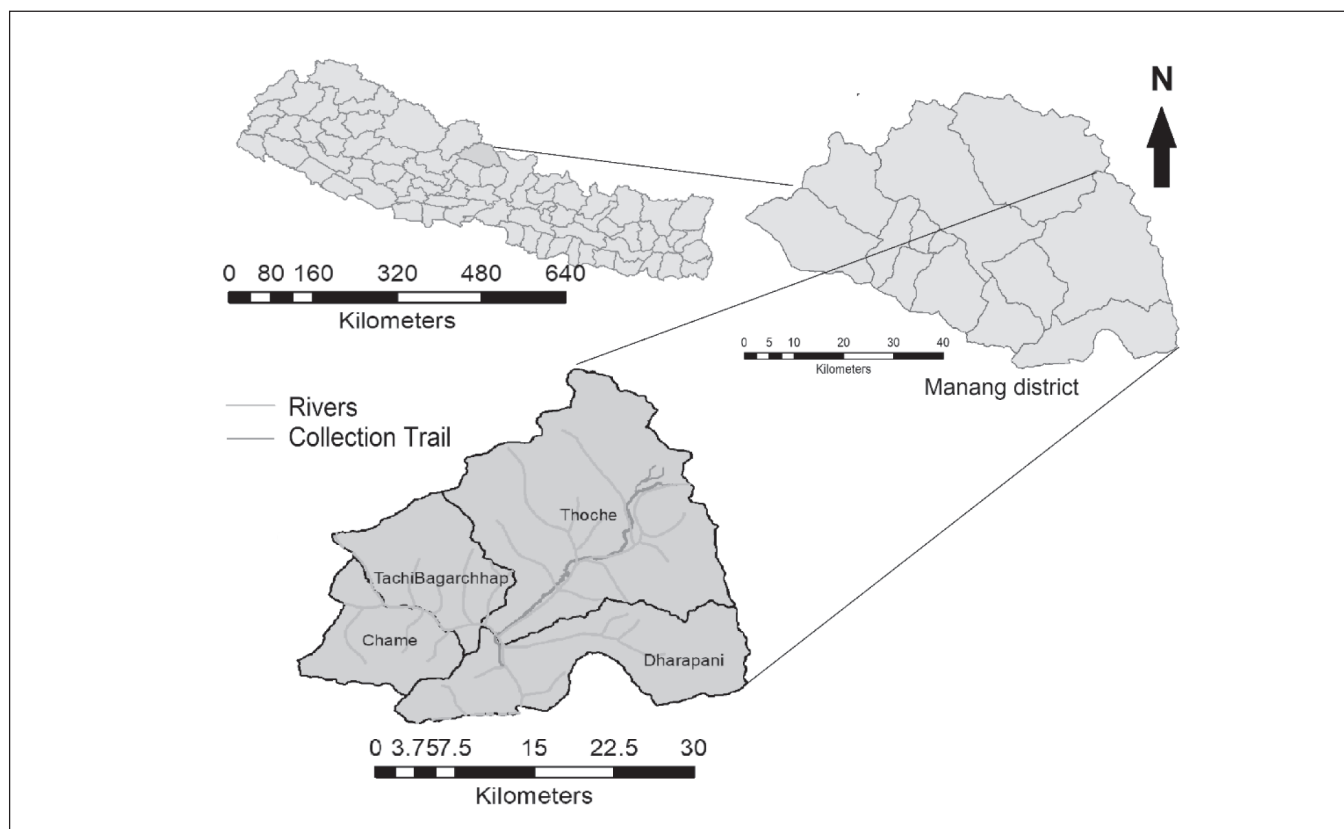


Figure 1: Map of Nepal showing Manang district & collection trail in Gyasumbdo valley.

literatures (Grieson and Long 1983-2001; Polunin and Stainton 1984; Stainton 1988; Zheng-Yi and Raven 1996-2003; Press et al. 2000; Ohba et al. 2008; Fraser-Jenkins 2015), expert consultation and visit to the herbaria (TUCH and KATH). Nomenclature follows the Catalogue of Life (www.catalogueoflife.org 2019) and Plants of the World Online (plantsoftheworldonline.org 2019).

Results and Discussion

The present study documented a total of 490 vascular plant species belonging to 288 genera and 92 families, including 50 species of ferns and fern allies, 10 species of gymnosperms and 430 species of angiosperms (357 dicots and 73 monocots). The dominant family was Asteraceae with 40 species belonging to 21 genera, which is similar to the findings from previous studies (Joshi, 2011; Chapagain, 2014). It was followed by Ranunculaceae (28), Rosaceae (23), Orchidaceae (23), Apiaceae (18), Pteridaceae, Lamiaceae and Fabaceae (17 each). *Thalictrum* was found to be the largest genera with 11 species, which was followed by *Pedicularis* (9), *Carex*, *Saxifraga*, *Primula* (8 species each), *Potentilla* (7), *Polystichum*, *Juncus*, *Anaphalis*, *Clematis* (6 species each) and so on. The voucher specimens collected during the study have been

deposited at Tribhuvan University Central Herbarium (TUCH).

Asteraceae (21 genera and 40 species) was found to be the largest family of dicots whereas Orchidaceae (18 genera, 23 species) was found to be the largest genera of monocots. Together, Pteridaceae (10 genera, 17 species) was found to be the largest family of pteridophytes whereas Pinaceae (4 genera, 5 species) was found to be the largest family of Gymnosperms.

Typical eastern Himalayan elements such as *Heracleum walichii*, *Codonopsis thalictrifolia*, *Bromus himalaicus*, *Boenninghausenia albiflora*, *Coriaria nepalensis* and some characteristic western Himalayan elements such as *Abies pindrow*, *Picea smithiana*, *Androsace robusta* were recorded during this study (Takhatajan, 1984; Welk, 2015). Some of the characteristic taxa endemic to Nepal, such as *Hedysarum manaslense*, *Carex himalaica*, *Berberis mucrifolia* etc were also recorded. This indicates that Gyasumbdo valley serves as a meeting place of both western and eastern Himalayan floristic elements as well as characteristic taxa endemic to eastern and western Nepal. Some potentially high valued medicinal plants such as *Dactylorhiza hatagirea*, *Neopicrorhiza scrophulariiflora*, *Nardostachys grandiflora*, *Rheum australe*, *Lilium nanum* etc. were also recorded.

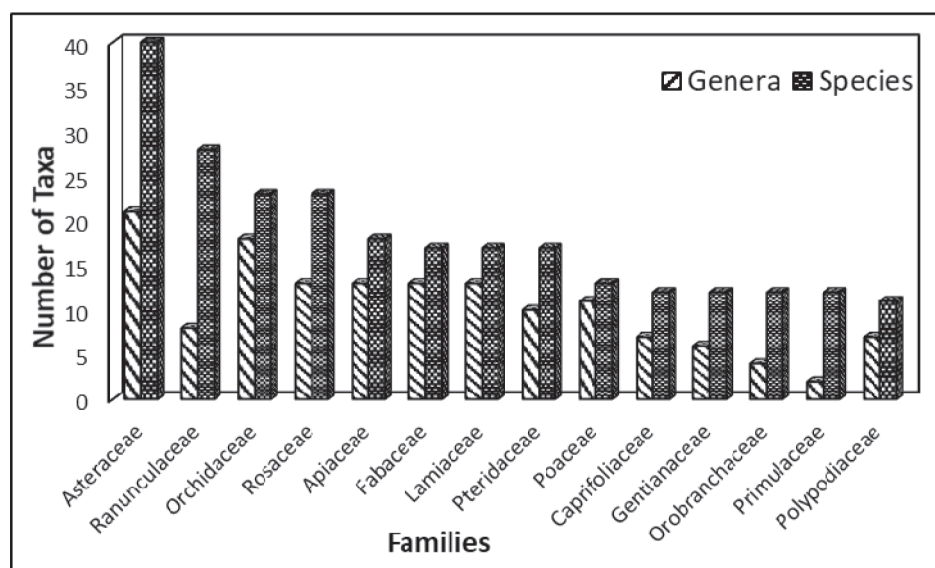


Figure 2: Bar- diagram showing the dominant families of vascular plants in terms of the number of genera & species.

Conclusion

The study came up with a basic idea about the diversity of vascular plants in Gyasumbdo valley of Manang district. Asteraceae and Orchidaceae were found to be the largest families of dicots and monocots respectively. Similarly, Pinaceae was found to be the largest family of Gymnosperms and Pteridaceae was found to be the largest family of pteridophytes. Thus the valley is rich in terms of biodiversity. Together, it provides homage to characteristic taxa endemic to eastern as well as western Nepal. This divine valley also serves as a meeting place of both western and eastern Himalayan floristic elements which is possible due to its complex, unique topography and varied ecosystems. There are many virgin places still to be explored as collection was made only along transects and there is still high possibility of recording a higher number of species from this valley.

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Appendix: 1a- Dicotyledons

S. N.	Scientific Name	Family	Tag No.
1	<i>Strobilanthes attenuata</i> (Wall. ex Nees) Jacq. ex Nees	Acanthaceae	MP.762
2	<i>Viburnum cotinifolium</i> D. Don	Adoxaceae	MP.198
3	<i>Viburnum erubescens</i> Wall.	Adoxaceae	MP.317
4	<i>Viburnum mullaha</i> Buch.-Ham. ex D. Don	Adoxaceae	MP.089
5	<i>Achyranthes aspera</i> L.	Amaranthaceae	MP.650
6	<i>Chenopodium album</i> L.	Amaranthaceae	MP.175
7	<i>Acronema tenerum</i> (DC.) Edgew.	Apiaceae	MP.592
8	<i>Bupleurum falcatum</i> L.	Apiaceae	MP.194
9	<i>Bupleurum hamiltonii</i> Balak.	Apiaceae	MP.639
10	<i>Bupleurum longicaule</i> Wall.	Apiaceae	MP.732
11	<i>Chaerophyllum villosum</i> Wall. ex D. C.	Apiaceae	MP.127
12	<i>Cortia depressa</i> (D. Don) C. Norman	Apiaceae	MP.040
13	<i>Eriocyclus nuda</i> Lindl.	Apiaceae	MP.653
14	<i>Heracleum candicans</i> Wall. ex DC.	Apiaceae	MP.452
15	<i>Heracleum nepalense</i> D. Don	Apiaceae	MP.670
16	<i>Heracleum wallichii</i> D. C.	Apiaceae	MP.335
17	<i>Hymenidium apiolens</i> (C. B. Cl.) M.G. Pimenov & E. V. Kljuykov	Apiaceae	MP.719
18	<i>Hymenidium benthamii</i> (Wall. ex DC.) M.G. Pimenov & E. V. Kljuykov	Apiaceae	MP.782
19	<i>Ligusticopsis wallichiana</i> (DC.) Pimenov & Kljuykov	Apiaceae	MP.671
20	<i>Pterocyclus forrestii</i> (Diels) M.G. Pimenov & E. V. Kljuykov	Apiaceae	MP.368
21	<i>Sanicula elata</i> Buch.-Ham. ex D. Don	Apiaceae	MP.155
22	<i>Tordyliopsis brunonis</i> Wall. ex DC.	Apiaceae	MP.668
23	<i>Torilis japonica</i> (Houtt.) DC.	Apiaceae	MP.640
24	<i>Vicatia coniiifolia</i> Wall. ex DC.	Apiaceae	MP.126
25	<i>Ceropegia meyeri</i> Decne.	Apocynaceae	MP.472
26	<i>Tylophora tenerrima</i> Wall. ex Wight	Apocynaceae	MP.458
27	<i>Vincetoxicum callialatum</i> (Buchanan-Hamilton ex Wight) Kuntze	Apocynaceae	MP.432
28	<i>Ilex dipyrena</i> Wall.	Aquifoliaceae	MP.071
29	<i>Aralia leschenaultii</i> (DC.) J.Wen	Araliaceae	MP.599
30	<i>Hedera nepalensis</i> K.Koch	Araliaceae	MP.104
31	<i>Panax pseudoginseng</i> Wall.	Araliaceae	MP.559
32	<i>Aristolochia griffithii</i> Hook. fil. & Thoms. ex Duch.	Aristolochiaceae	MP.224
33	<i>Ageratina adenophora</i> (Spreng.) R. King & H. Rob.	Asteraceae	
34	<i>Ainsliaea latifolia</i> (D. Don) Sch. Bip.	Asteraceae	MP.227
35	<i>Anaphalis busua</i> (Buch.-Ham.) Hand.-Mazz.	Asteraceae	MP.027
36	<i>Anaphalis contorta</i> (D. Don) Hook. f.	Asteraceae	MP.622
37	<i>Anaphalis margaritacea</i> (L.) Benth. & Hook.f.	Asteraceae	MP.075
38	<i>Anaphalis nepalensis</i> (Spreng.) Hand.-Mazz.	Asteraceae	MP.007
39	<i>Anaphalis royleana</i> DC.	Asteraceae	MP.688
40	<i>Anaphalis triplinervis</i> (Sims) C. B. Cl.	Asteraceae	MP.566
41	<i>Artemisia dubia</i> Wall. ex Bess.	Asteraceae	MP.170
42	<i>Aster albescens</i> (DC.) Wall. ex Hand.-Mazz.	Asteraceae	MP.641
43	<i>Aster asteroides</i> (DC.) Kuntze	Asteraceae	MP.698
44	<i>Aster diplostephioides</i> (DC.) C. B. Cl.	Asteraceae	MP.395
45	<i>Aster himalaicus</i> C. B. Cl.	Asteraceae	MP.024
46	<i>Cirsium verutum</i> (D. Don) Spreng.	Asteraceae	MP.546

S. N.	Scientific Name	Family	Tag No.
47	<i>Cremanthodium arnicoides</i> (DC. ex Royle) R.D. Good	Asteraceae	MP.706
48	<i>Cremanthodium purpureifolium</i> Kitam.	Asteraceae	MP.010
49	<i>Cremanthodium reniforme</i> (Wall. ex DC.) Benth.	Asteraceae	MP.509
50	<i>Dubyaea hispida</i> (D. Don) DC.	Asteraceae	MP.663
51	<i>Erigeron emodi</i> I.M.Turner	Asteraceae	MP.173
52	<i>Erigeron multiradiatus</i> (Lindl. ex DC.) Benth.	Asteraceae	MP.595
53	<i>Inula hookeri</i> C. B. Cl.	Asteraceae	MP.371
54	<i>Leibnitzia nepalensis</i> (Kunze) Kitam.	Asteraceae	MP.514
55	<i>Leontopodium stracheyi</i> (Hook. f.) C. B. Cl. ex Hemsl.	Asteraceae	MP.303
56	<i>Ligularia fischeri</i> (Ledeb.) Turcz.	Asteraceae	MP.603
57	<i>Melanoseris brunoniana</i> (Wall. ex DC.) N.Kilian & Ze H.Wang	Asteraceae	MP.383
58	<i>Melanoseris lessertiana</i> (DC.) Decaisne	Asteraceae	MP.384
59	<i>Melanoseris macrorhiza</i> (Royle) N.Kilian	Asteraceae	MP.210
60	<i>Nannoglottis hookeri</i> (Clarke ex Hook. fil.) S. Kitam.	Asteraceae	MP.790
61	<i>Oreoseris nivea</i> Wall. ex DC.	Asteraceae	MP.346
62	<i>Pseudognaphalium affine</i> (D. Don) A.A. Anderberg	Asteraceae	MP.589
63	<i>Saussurea eriostemon</i> Wall. ex C. B. Cl.	Asteraceae	MP.159
64	<i>Saussurea uniflora</i> (DC.) Wall. ex Sch. Bip.	Asteraceae	MP.729
65	<i>Synotis acuminata</i> (Wall. ex DC.) C. Jeffrey & Y.L. Chen	Asteraceae	MP.070
66	<i>Synotis cappa</i> (Buch.-Ham. ex D. Don) C. Jeffrey & Y.L. Chen	Asteraceae	MP.093
67	<i>Synotis chenopodiifolia</i> (DC.) M.Tang, C.Ren & Q.E.Yang	Asteraceae	MP.563
68	<i>Synotis kunthiana</i> (Wall. ex DC.) C. Jeffrey & Y.L. Chen	Asteraceae	MP.751
69	<i>Synotis wallichii</i> (DC.) C. Jeffrey & Y.L. Chen	Asteraceae	MP.550
70	<i>Tagetes minuta</i> L.	Asteraceae	MP.098
71	<i>Taraxacum eriopodum</i> (D. Don) DC.	Asteraceae	MP.612
72	<i>Taraxacum officinale</i> F.H. Wigg.	Asteraceae	MP.781
73	<i>Impatiens glandulifera</i> Royle	Balsaminaceae	MP.541
74	<i>Impatiens racemosa</i> DC.	Balsaminaceae	MP.487
75	<i>Begonia dioica</i> Buch.-Ham. ex D.Don	Begoniaceae	MP.440
76	<i>Begonia picta</i> Sm.	Begoniaceae	MP.467
77	<i>Berberis aristata</i> DC.	Berberidaceae	MP.250
78	<i>Berberis erythroclada</i> Ahrendt	Berberidaceae	MP.516
79	<i>Berberis mucrifolia</i> Ahrendt	Berberidaceae	MP.219
80	<i>Berberis napaulensis</i> (DC.) Spreng.	Berberidaceae	
81	<i>Alnus nepalensis</i> D.Don	Betulaceae	
82	<i>Betula alnoides</i> Buch.-Ham. ex D.Don	Betulaceae	MP.535
83	<i>Betula utilis</i> D.Don	Betulaceae	MP.312
84	<i>Cynoglossum furcatum</i> Wall.	Boraginaceae	MP.747
85	<i>Eritrichium canum</i> (Benth.) Kitamura	Boraginaceae	MP.749
86	<i>Maharanga emodi</i> (Wall.) A. DC.	Boraginaceae	MP.414
87	<i>Cardamine flexuosa</i> With.	Brassicaceae	MP.569
88	<i>Crucihimalaya himalaica</i> (Edgew.) Al-Shehbaz, O'Kane & R.A. Price	Brassicaceae	MP.553
89	<i>Erysimum hieraciifolium</i> L.	Brassicaceae	MP.485
90	<i>Nasturtium officinale</i> W.T. Aiton	Brassicaceae	MP.174
91	<i>Thlaspi arvense</i> L.	Brassicaceae	MP.241
92	<i>Sarcococca saligna</i> (D. Don) Mull. Arg.	Buxaceae	MP.072
93	<i>Campanula pallida</i> Wall.	Campanulaceae	MP.636
94	<i>Codonopsis thalictrifolia</i> Wall.	Campanulaceae	MP.713

S. N.	Scientific Name	Family	Tag No.
95	<i>Codonopsis viridis</i> Wall.	Campanulaceae	MP.391
96	<i>Cyananthus hookeri</i> C.B.Clarke	Campanulaceae	MP.700
97	<i>Cyananthus lobatus</i> Wall. ex Benth.	Campanulaceae	MP.655
98	<i>Cyananthus microphyllus</i> Edgew.	Campanulaceae	MP.664
99	<i>Himalacodon dicentrifolius</i> (C.B.Clarke) D.Y.Hong & Qiang Wang	Campanulaceae	MP.769
100	<i>Lobelia pyramidalis</i> Wall.	Campanulaceae	MP.330
101	<i>Pankycodon purpureus</i> (Wall.) D.Y.Hong & X.T.Ma	Campanulaceae	MP.388
102	<i>Pseudocodon convolvulaceus</i> (Kurz) D.Y.Hong & H.Sun	Campanulaceae	MP.623
103	<i>Dipsacus inermis</i> Wall.	Caprifoliaceae	MP.555
104	<i>Leycesteria formosa</i> Wall.	Caprifoliaceae	MP.530
105	<i>Lonicera hispida</i> Pall. ex Roem. & Schult.	Caprifoliaceae	MP.389
106	<i>Lonicera hypoleuca</i> Decne.	Caprifoliaceae	MP.242
107	<i>Lonicera obovata</i> Royle	Caprifoliaceae	MP.775
108	<i>Lonicera quinquelocularis</i> Hardw.	Caprifoliaceae	MP.627
109	<i>Lonicera spinosa</i> (Jacquem. ex Decne.) Walp.	Caprifoliaceae	MP.692
110	<i>Morina nepalensis</i> D.Don	Caprifoliaceae	MP.731
111	<i>Morina polyphylla</i> Wall. ex DC.	Caprifoliaceae	MP.026
112	<i>Nardostachys jatamansi</i> (D. Don) DC.	Caprifoliaceae	MP.720
113	<i>Triosteum himalayanum</i> Wall.	Caprifoliaceae	MP.582
114	<i>Valeriana jatamansi</i> Jones	Caprifoliaceae	MP.240
115	<i>Arenaria densissima</i> Wall. ex Edgew. & Hook.f.	Caryophyllaceae	MP.014
116	<i>Arenaria orbiculata</i> Royle ex Edgew. & Hook. f.	Caryophyllaceae	MP.281
117	<i>Shivparvatia glanduligera</i> (Edgew.) Pusalkar & D.K.Singh	Caryophyllaceae	MP.659
118	<i>Silene conoidea</i> L.	Caryophyllaceae	MP.637
119	<i>Silene gonosperma</i> (Rupr.) Bocquet	Caryophyllaceae	MP.596
120	<i>Silene indica</i> Roxb.	Caryophyllaceae	MP.624
121	<i>Silene vulgaris</i> (Moench) Garcke	Caryophyllaceae	MP.400
122	<i>Stellaria congestiflora</i> H. Hara	Caryophyllaceae	MP.754
123	<i>Stellaria himalayensis</i> Majumdar	Caryophyllaceae	MP.275
124	<i>Euonymus fimbriatus</i> Wall.	Celastraceae	MP.609
125	<i>Euonymus hamiltonianus</i> Wall.	Celastraceae	MP.209
126	<i>Euonymus tingens</i> Wall.	Celastraceae	MP.195
127	<i>Parnassia nubicola</i> Wall. ex Royle	Celastraceae	MP.707
128	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	MP.185
129	<i>Coriaria nepalensis</i> Wall.	Coriariaceae	MP.069
130	<i>Crassula schimperi</i> Fisch. & C.A.Mey.	Crassulaceae	MP.492
131	<i>Rhodiola bupleuroides</i> (Wall. ex Hook. fil. & Thoms.) Fu	Crassulaceae	MP.705
132	<i>Rhodiola prainii</i> (R.-Hamet) H. Ohba	Crassulaceae	MP.787
133	<i>Sedum filipes</i> Hemsl.	Crassulaceae	MP.433
134	<i>Sedum himalense</i> D.Don	Crassulaceae	MP.689
135	<i>Sedum oreades</i> (Decne.) R.-Hamet	Crassulaceae	MP.376
136	<i>Sedum trullipetalum</i> Hook. & Thoms.	Crassulaceae	MP.314
137	<i>Herpetospermum pedunculatum</i> (Ser.) C.B. Clarke	Cucurbitaceae	
138	<i>Elaeagnus parvifolia</i> Wall.	Elaeagnaceae	MP.235
139	<i>Hippophae salicifolia</i> D. Don.	Elaeagnaceae	MP.197
140	<i>Hippophae tibetana</i> Schldl.	Elaeagnaceae	
141	<i>Cassiope fastigiata</i> (Wall.) D.Don	Ericaceae	MP.291
142	<i>Gaultheria nummularioides</i> D. Don	Ericaceae	MP.515

S. N.	Scientific Name	Family	Tag No.
143	<i>Gaultheria trichophylla</i> Royle.	Ericaceae	MP.117
144	<i>Pieris formosa</i> (Wall.) D. Don	Ericaceae	MP.200
145	<i>Rhododendron anthopogon</i> D. Don	Ericaceae	MP.295
146	<i>Rhododendron arboreum</i> Sm.	Ericaceae	MP.208
147	<i>Rhododendron barbatum</i> Wall. ex G. Don	Ericaceae	MP.259
148	<i>Rhododendron campanulatum</i> D. Don	Ericaceae	MP.036
149	<i>Rhododendron lepidotum</i> Wall.	Ericaceae	MP.518
150	<i>Euphorbia stracheyi</i> Boiss.	Euphorbiaceae	MP.374
151	<i>Euphorbia wallichii</i> Hook.f.	Euphorbiaceae	MP.415
152	<i>Astragalus himalayanus</i> Kl.	Fabaceae	MP.398
153	<i>Astragalus rhizanthus</i> Benth.	Fabaceae	MP.053
154	<i>Astragalus strictus</i> Grah. ex Benth.	Fabaceae	MP.370
155	<i>Caragana gerardiana</i> Benth.	Fabaceae	MP.233
156	<i>Colutea multiflora</i> Ali.	Fabaceae	MP.180
157	<i>Desmodium elegans</i> DC.	Fabaceae	MP.186
158	<i>Desmodium williamsii</i> H. Ohashi	Fabaceae	MP.401
159	<i>Erythrina arborescens</i> Roxb.	Fabaceae	MP.177
160	<i>Hedysarum manaslense</i> (Kitam.) H. Ohashi	Fabaceae	MP.503
161	<i>Indigofera cassioides</i> DC.	Fabaceae	MP.648
162	<i>Indigofera dosua</i> Buch.-Ham. ex D. Don.	Fabaceae	MP.143
163	<i>Parochetus communis</i> D. Don	Fabaceae	MP.468
164	<i>Phyllolobium donianum</i> (DC.) M.L. Zhang & Podlech	Fabaceae	MP.677
165	<i>Piptanthus nepalensis</i> (Hook.) D. Don	Fabaceae	MP.536
166	<i>Pueraria peduncularis</i> (Benth.) Benth.	Fabaceae	MP.386
167	<i>Trigonella emodi</i> Benth.	Fabaceae	MP.486
168	<i>Vicia sativa</i> subsp. <i>nigra</i> (L.) Ehrh.	Fabaceae	MP.760
169	<i>Castanopsis indica</i> (Roxb. ex Lindl.) A. DC.	Fagaceae	
170	<i>Quercus lanata</i> Sm.	Fagaceae	MP.206
171	<i>Quercus semecarpifolia</i> Sm.	Fagaceae	
172	<i>Crawfordia speciosa</i> Wall.	Gentianaceae	MP.095
173	<i>Gentiana capitata</i> Buch.-Ham. ex D. Don	Gentianaceae	MP.257
174	<i>Gentiana crassuloides</i> Bureau & Franch.	Gentianaceae	MP.380
175	<i>Gentiana depressa</i> D. Don	Gentianaceae	MP.255
176	<i>Gentiana tubiflora</i> (Wall. ex G. Don) Griseb.	Gentianaceae	MP.724
177	<i>Gentiana urnula</i> H. Smith	Gentianaceae	MP.164
178	<i>Gentianella azurea</i> (Bunge) Holub	Gentianaceae	MP.015
179	<i>Halenia elliptica</i> D. Don	Gentianaceae	MP.464
180	<i>Lomatogonium micranthum</i> H. Smith	Gentianaceae	MP.063
181	<i>Swertia chirayita</i> (Roxb.) H. Karst.	Gentianaceae	MP.214
182	<i>Swertia cuneata</i> Wall.	Gentianaceae	MP.772
183	<i>Swertia nervosa</i> (Wall. ex G. Don) C. B. Cl.	Gentianaceae	MP.600
184	<i>Geranium donianum</i> Sweet	Geraniaceae	MP.629
185	<i>Geranium lambertii</i> Sweet	Geraniaceae	MP.722
186	<i>Geranium nakaoanum</i> H. Hara	Geraniaceae	MP.587
187	<i>Geranium pratense</i> L.	Geraniaceae	MP.632
188	<i>Geranium wallichianum</i> D. Don ex Sweet	Geraniaceae	MP.628
189	<i>Corallodiscus lanuginosus</i> (Wall. ex R. Brown) B.L. Burt	Gesneriaceae	MP.471
190	<i>Didymocarpus oblongus</i> D. Don	Gesneriaceae	MP.253

S. N.	Scientific Name	Family	Tag No.
191	<i>Platystemma violoides</i> Wall.	Gesneriaceae	MP.474
192	<i>Ribes griffithii</i> Hook. f. & Thomson	Grossulariaceae	MP.519
193	<i>Ribes orientale</i> Desf.	Grossulariaceae	MP.753
194	<i>Philadelphus tomentosus</i> Wall.	Hydrangeaceae	MP.188
195	<i>Hypericum elodeoides</i> Choisy.	Hypericaceae	MP.608
196	<i>Hypericum oblongifolium</i> Choisy	Hypericaceae	MP.616
197	<i>Hypericum uralum</i> Buch.-Ham. ex D. Don	Hypericaceae	MP.097
198	<i>Juglans regia</i> L.	Juglandaceae	MP.230
199	<i>Ajuga macrosperma</i> Wall. ex Benth.	Lamiaceae	MP.427
200	<i>Anisomeles indica</i> (L.) Kuntze	Lamiaceae	MP.196
201	<i>Colquhounia coccinea</i> Wall.	Lamiaceae	MP.256
202	<i>Elsholtzia eriostachya</i> (Benth.) Benth.	Lamiaceae	MP.004
203	<i>Elsholtzia fruticosa</i> (D.Don) Rehder	Lamiaceae	MP.580
204	<i>Elsholtzia strobilifera</i> (Benth.) Benth.	Lamiaceae	MP.735
205	<i>Lamium album</i> L.	Lamiaceae	MP.204
206	<i>Lamium amplexicaule</i> L.	Lamiaceae	MP.254
207	<i>Leucosceptrum canum</i> Sm.	Lamiaceae	MP.092
208	<i>Micromeria biflora</i> (Buch.-Ham. ex D.Don) Benth.	Lamiaceae	MP.327
209	<i>Nepeta discolor</i> Royle ex Benth.	Lamiaceae	MP.366
210	<i>Nepeta laevigata</i> (D.Don) Hand.-Mazz.	Lamiaceae	MP.577
211	<i>Origanum vulgare</i> L.	Lamiaceae	MP.080
212	<i>Prunella vulgaris</i> L.	Lamiaceae	MP.232
213	<i>Salvia nubicola</i> Wall. ex Sweet	Lamiaceae	MP.100
214	<i>Scutellaria discolor</i> Colebr.	Lamiaceae	MP.363
215	<i>Stachys sericea</i> Cav.	Lamiaceae	MP.465
216	<i>Stauntonia latifolia</i> (Wall.) Christenh.	Lardizabalaceae	MP.407
217	<i>Utricularia</i> sp.	Lentibulariaceae	
218	<i>Tinospora sinensis</i> (Lour.) Merr.	Menispermaceae	MP.447
219	<i>Chrysojasminum humile</i> (L.) Banfi.	Oleaceae	
220	<i>Circaea alpina</i> L.	Onagraceae	MP.564
221	<i>Epilobium latifolium</i> L.	Onagraceae	MP.499
222	<i>Epilobium wallichianum</i> Hausskn.	Onagraceae	MP.006
223	<i>Pedicularis gracilis</i> Wall. Ex Benth.	Orobanchaceae	MP.610
224	<i>Pedicularis hoffmeisteri</i> Klotzsch	Orobanchaceae	MP.617
225	<i>Pedicularis megalantha</i> D. Don	Orobanchaceae	MP.734
226	<i>Pedicularis mollis</i> Wall. ex Benth.	Orobanchaceae	MP.737
227	<i>Pedicularis roylei</i> Maxim.	Orobanchaceae	MP.426
228	<i>Pedicularis scullyana</i> Prain ex Maxim.	Orobanchaceae	MP.728
229	<i>Pedicularis siphonantha</i> D. Don	Orobanchaceae	MP.702
230	<i>Aeginetia indica</i> L.	Orobanchaceae	MP.513
231	<i>Boschniakia himalaica</i> Hook. f. & Thomson	Orobanchaceae	MP.276
232	<i>Euphrasia himalayica</i> Wettst.	Orobanchaceae	MP.665
233	<i>Pedicularis elwisii</i> Hook f.	Orobanchaceae	MP.381
234	<i>Pedicularis rhinanthoides</i> Schrenk	Orobanchaceae	MP.135
235	<i>Corydalis calycina</i> Liden	Papaveraceae	MP.532
236	<i>Corydalis juncea</i> Wall.	Papaveraceae	MP.316
237	<i>Corydalis rutifolia</i> (Sm.) DC.	Papaveraceae	MP.221
238	<i>Corydalis thyrsoiflora</i> Prain.	Papaveraceae	MP.410

S. N.	Scientific Name	Family	Tag No.
239	<i>Meconopsis horridula</i> Hook.f. & Thomson	Papaveraceae	MP.784
240	<i>Meconopsis paniculata</i> (D.Don) Prain	Papaveraceae	MP.062
241	<i>Hemiphragma heterophyllum</i> Wall.	Plantaginaceae	MP.105
242	<i>Neopicrorhiza scrophulariiflora</i> (Pennell) D.Y. Hong.	Plantaginaceae	MP.292
243	<i>Plantago asiatica</i> subsp. <i>erosa</i> (Wallich) Z. Y. Li	Plantaginaceae	MP.682
244	<i>Veronica beccabunga</i> L.	Plantaginaceae	MP.562
245	<i>Polygala arillata</i> Buch.-Ham. ex D. Don	Polygalaceae	MP.459
246	<i>Polygala tatarinowii</i> Regel	Polygalaceae	MP.477
247	<i>Bistorta affinis</i> (D. Don) Greene	Polygonaceae	MP.064
248	<i>Bistorta emodi</i> (Meisn.) Hara	Polygonaceae	MP.191
249	<i>Bistorta vivipara</i> (L.) Delarbre	Polygonaceae	MP.690
250	<i>Fagopyrum acutatum</i> (Lehm.) Mansf. ex K. Hammer	Polygonaceae	MP.362
251	<i>Koenigia mollis</i> (D.Don) T.M.Schust. & Reveal	Polygonaceae	MP.551
252	<i>Oxyria digyna</i> (L.) Hill	Polygonaceae	MP.547
253	<i>Rheum australe</i> D. Don	Polygonaceae	MP.786
254	<i>Androsace globifera</i> Duby	Primulaceae	MP.160
255	<i>Androsace robusta</i> (R. Knuth) Hand.-Mazz.	Primulaceae	MP.150
256	<i>Androsace sarmentosa</i> Wall.	Primulaceae	MP.511
257	<i>Androsace strigillosa</i> Franch.	Primulaceae	MP.645
258	<i>Primula atrodentata</i> W.W. Sm.	Primulaceae	MP.280
259	<i>Primula capitata</i> Hook.	Primulaceae	MP.759
260	<i>Primula glomerata</i> Pax	Primulaceae	MP.758
261	<i>Primula involucrata</i> Wall. ex Duby.	Primulaceae	MP.056
262	<i>Primula minutissima</i> Jacquem. ex Duby	Primulaceae	MP.306
263	<i>Primula primulina</i> (Spreng.) H. Hara	Primulaceae	MP.313
264	<i>Primula sikkimensis</i> Hook.	Primulaceae	MP.311
265	<i>Primula walshii</i> Craib.	Primulaceae	MP.397
266	<i>Anemone obtusiloba</i> D. Don.	Ranunculaceae	MP.223
267	<i>Anemonidium polyanthes</i> (D. Don)	Ranunculaceae	MP.727
268	<i>Clematis barbellata</i> Edgew.	Ranunculaceae	MP.190
269	<i>Clematis buchananiana</i> DC.	Ranunculaceae	MP.120
270	<i>Clematis connata</i> DC.	Ranunculaceae	MP.121
271	<i>Clematis montana</i> Buch.-Ham. ex DC.	Ranunculaceae	MP.207
272	<i>Clematis paniculata</i> J. F. Gmel.	Ranunculaceae	MP.431
273	<i>Clematis tibetana</i> Kuntze.	Ranunculaceae	MP.122
274	<i>Delphinium kamaonense</i> Huth	Ranunculaceae	MP.539
275	<i>Delphinium vestitum</i> Wall.	Ranunculaceae	MP.393
276	<i>Eriocapitella rivularis</i> (Buch.Ham. ex DC.) Christenh. & Byng	Ranunculaceae	MP.638
277	<i>Eriocapitella vitifolia</i> (Buch.-Ham. ex DC.) Nakai	Ranunculaceae	MP.463
278	<i>Oxygraphis polypetala</i> Royle ex D. Don	Ranunculaceae	MP.179
279	<i>Ranunculus brotherusii</i> Freyn.	Ranunculaceae	MP.394
280	<i>Ranunculus diffusus</i> DC.	Ranunculaceae	MP.531
281	<i>Ranunculus membranaceus</i> Royle	Ranunculaceae	MP.011
282	<i>Ranunculus pulchellus</i> C.A. Mey.	Ranunculaceae	MP.377
283	<i>Thalictrum alpinum</i> L.	Ranunculaceae	MP.681
284	<i>Thalictrum chelidonii</i> DC.	Ranunculaceae	MP.405
285	<i>Thalictrum cultratum</i> Wall.	Ranunculaceae	MP.444
286	<i>Thalictrum dalzellii</i> Hook.	Ranunculaceae	MP.504

S. N.	Scientific Name	Family	Tag No.
287	<i>Thalictrum elegans</i> Wall.	Ranunculaceae	MP.500
288	<i>Thalictrum foliolosum</i> DC.	Ranunculaceae	MP.481
289	<i>Thalictrum javanicum</i> Bl.	Ranunculaceae	MP.430
290	<i>Thalictrum punduanum</i> Wall.	Ranunculaceae	MP.404
291	<i>Thalictrum rostellatum</i> Hook. fil. & Thoms.	Ranunculaceae	MP.618
292	<i>Thalictrum saniculiforme</i> DC.	Ranunculaceae	MP.403
293	<i>Thalictrum virgatum</i> Hook. f. & Thomson	Ranunculaceae	MP.576
294	<i>Agrimonia pilosa</i> Ledeb.	Rosaceae	MP.498
295	<i>Cotoneaster frigidus</i> Wall.	Rosaceae	MP.594
296	<i>Cotoneaster microphyllus</i> Wall. ex Lindl.	Rosaceae	MP.003
297	<i>Dasiphora fruticosa</i> (L.) Rydb.	Rosaceae	MP.739
298	<i>Fragaria nubicola</i> Lindl.	Rosaceae	MP.345
299	<i>Potentilla argyrophylla</i> Wall.	Rosaceae	MP.278
300	<i>Potentilla atrosanguinea</i> G.Lodd. ex D.Don	Rosaceae	MP.711
301	<i>Potentilla coriandrifolia</i> D. Don	Rosaceae	
302	<i>Potentilla griffithii</i> Hook. f.	Rosaceae	MP.584
303	<i>Potentilla indica</i> (Andr.) Wolf	Rosaceae	MP.244
304	<i>Potentilla reptans</i> L.	Rosaceae	MP.231
305	<i>Potentilla sundaica</i> (Bl.) Kuntze	Rosaceae	MP.268
306	<i>Prinsepia utilis</i> Royle	Rosaceae	MP.088
307	<i>Prunus armeniaca</i> L.	Rosaceae	MP.228
308	<i>Pyracantha crenulata</i> (D. Don) M. Roemer	Rosaceae	MP.450
309	<i>Rosa sericea</i> Lindl.	Rosaceae	
310	<i>Rubus acuminatus</i> Smith	Rosaceae	
311	<i>Rubus biflorus</i> Buch.-Ham. ex Sm.	Rosaceae	MP.138
312	<i>Rubus hoffmeisterianus</i> Kunth & Bouché	Rosaceae	MP.549
313	<i>Rubus nepalensis</i> (Hook. fil.) Kuntze	Rosaceae	MP.084
314	<i>Sibbaldia cuneata</i> Hornem. ex Kuntze	Rosaceae	MP.716
315	<i>Sorbus foliolosa</i> (Wall.) Spach	Rosaceae	MP.694
316	<i>Spiraea arcuata</i> Hook. f.	Rosaceae	MP.142
317	<i>Galium asperifolium</i> Wall.	Rubiaceae	MP.085
318	<i>Galium hirtiflorum</i> Req. ex DC.	Rubiaceae	MP.557
319	<i>Leptodermis kumaonensis</i> R.Parker	Rubiaceae	MP.490
320	<i>Leptodermis stapfiana</i> H.J.P.Winkl.	Rubiaceae	MP.489
321	<i>Boenninghausenia albiflora</i> (Hook.) Rchb. ex Meisn.	Rutaceae	
322	<i>Zanthoxylum armatum</i> DC.	Rutaceae	MP.225
323	<i>Salix calyculata</i> Hook. fil. ex Andersson	Salicaceae	MP.741
324	<i>Salix daltoniana</i> Andersson	Salicaceae	MP.229
325	<i>Salix lindleyana</i> Wall. ex Andersson	Salicaceae	MP.302
326	<i>Salix sikkimensis</i> Andersson	Salicaceae	MP.273
327	<i>Acer pectinatum</i> Wall. ex Brandis	Sapindaceae	MP.246
328	<i>Astilbe rivularis</i> Buch.-Ham. ex D. Don	Saxifragaceae	MP.442
329	<i>Saxifraga aristulata</i> Hook.f. & Thoms.	Saxifragaceae	MP.770
330	<i>Saxifraga brachypoda</i> D. Don	Saxifragaceae	MP.666
331	<i>Saxifraga brunonis</i> Wall. ex Ser.	Saxifragaceae	MP.687
332	<i>Saxifraga diversifolia</i> Wall.	Saxifragaceae	MP.308
333	<i>Saxifraga filicaulis</i> Wall.	Saxifragaceae	MP.524
334	<i>Saxifraga parnassifolia</i> D. Don	Saxifragaceae	MP.625

S. N.	Scientific Name	Family	Tag No.
335	<i>Saxifraga stella-aurea</i> Hook. fil. & Thoms.	Saxifragaceae	MP.284
336	<i>Saxifraga strigosa</i> Wall.	Saxifragaceae	MP.510
337	<i>Schisandra grandiflora</i> (Wall.) Hook. f. & Thoms.	Schizandraceae	MP.408
338	<i>Scrophularia decomposita</i> Royle ex Benth.	Scrophulariaceae	MP.766
339	<i>Scrophularia pauciflora</i> Benth.	Scrophulariaceae	MP.030
340	<i>Verbascum thapsus</i> L.	Scrophulariaceae	MP.478
341	<i>Myricaria rosea</i> W.W. Sm.	Tamaricaceae	MP.287
342	<i>Daphne bholua</i> Buch.-Ham. ex D. Don	Thymelaeaceae	MP.189
343	<i>Daphne papyracea</i> Wall. ex Steud.	Thymelaeaceae	MP.212
344	<i>Boehmeria virgata</i> var. <i>macrostachya</i> (Wight) Friis & Wilmot-Dear	Urticaceae	MP.192
345	<i>Debregeasia saeneb</i> (Forssk.) Hepper & Wood	Urticaceae	MP.193
346	<i>Elatostema sessile</i> J.R. Forster & G. Forster	Urticaceae	MP.441
347	<i>Girardinia diversifolia</i> (Link.) Friis	Urticaceae	
348	<i>Lecanthus peduncularis</i> (Wall. ex Royle) Wedd.	Urticaceae	MP.491
349	<i>Pilea racemosa</i> (Royle.) Tuyama.	Urticaceae	
350	<i>Pouzolzia hirta</i> (Bl.) Hassk.	Urticaceae	MP.392
351	<i>Viola biflora</i> L.	Violaceae	MP.527
352	<i>Viola canescens</i> Wall.	Violaceae	MP.331
353	<i>Viola pilosa</i> Bl.	Violaceae	MP.237
354	<i>Viola thomsonii</i> Oudemans	Violaceae	MP.251
355	<i>Viola wallichiana</i> Ging. ex DC.	Violaceae	MP.526
356	<i>Cissus javana</i> DC.	Vitaceae	MP.182
357	<i>Tetrastigma campylocarpum</i> (Kurz) Planch.	Vitaceae	MP.453

Appendix: 1b- Monocotyledons

S. N.	Scientific Name	Family	Tag No.
1	<i>Allium wallichii</i> Kunth	Amaryllidaceae	MP.525
2	<i>Arisaema jacquemontii</i> Blume	Araceae	MP.598
3	<i>Arisaema nepenthoides</i> (Wall.) Mart.	Araceae	MP.215
4	<i>Arisaema propinquum</i> Schott	Araceae	
5	<i>Arisaema utile</i> Hook.f. ex Schott	Araceae	MP.125
6	<i>Asparagus racemosus</i> Willd.	Asparagaceae	MP.773
7	<i>Chlorophytum nepalense</i> (Lindl.) Bake	Asparagaceae	MP.497
8	<i>Maianthemum fuscum</i> (Wall.) LaFrankie	Asparagaceae	MP.765
9	<i>Polygonatum hookeri</i> Baker	Asparagaceae	MP.674
10	<i>Polygonatum multiflorum</i> (L.) All.	Asparagaceae	MP.750
11	<i>Polygonatum verticillatum</i> (L.) All.	Asparagaceae	MP.247
12	<i>Theropogon pallidus</i> (Wall. ex Kunth) Maxim.	Asparagaceae	MP.542
13	<i>Disporum cantoniense</i> (Lour.) Merr.	Colchicaceae	MP.633
14	<i>Cyanotis vaga</i> (Lour.) Schult. & Schult.f.	Commelinaceae	MP.488
15	<i>Carex atrata</i> L.	Cyperaceae	MP.147
16	<i>Carex filicina</i> Nees.	Cyperaceae	MP.693
17	<i>Carex gracilentia</i> Boott ex Boeckeler	Cyperaceae	MP.715
18	<i>Carex himalaica</i> T.Koyama	Cyperaceae	MP.679
19	<i>Carex kokanica</i> (Regel) S.R.Zhang	Cyperaceae	MP.730
20	<i>Carex nubigena</i> D.Don	Cyperaceae	MP.399
21	<i>Carex parvula</i> O.Yano	Cyperaceae	MP.684

S. N.	Scientific Name	Family	Tag No.
22	<i>Carex unciniiformis</i> Boeckeler	Cyperaceae	MP.130
23	<i>Dioscorea deltoidea</i> Wall. ex Griseb.	Dioscoreaceae	MP.418
24	<i>Iris goniocarpa</i> Baker	Iridaceae	MP.315
25	<i>Juncus concinnus</i> D. Don	Juncaceae	MP.575
26	<i>Juncus duthiei</i> (C.B. Clarke) H.J. Noltie	Juncaceae	MP.390
27	<i>Juncus himalensis</i> Klotzsch	Juncaceae	MP.300
28	<i>Juncus sphacelatus</i> Decne.	Juncaceae	MP.746
29	<i>Juncus thomsonii</i> Buch.	Juncaceae	MP.299
30	<i>Juncus triglumis</i> L.	Juncaceae	MP.736
31	<i>Lilium nanum</i> Klotzsch	Liliaceae	MP.290
32	<i>Streptopus simplex</i> D.Don	Liliaceae	MP.199
33	<i>Aletris pauciflora</i> (Klotzsch) Hand.-Mazz.	Nartheciaceae	MP.662
34	<i>Calanthe tricarinata</i> Lindl.	Orchidaceae	MP.572
35	<i>Cephalanthera longifolia</i> (L.) Fritsch	Orchidaceae	MP.325
36	<i>Crepidium acuminatum</i> (D.Don) Szlach.	Orchidaceae	MP.570
37	<i>Cypripedium himalaicum</i> Rolfe	Orchidaceae	MP.691
38	<i>Dactylorhiza hatagirea</i> (D.Don) Soó	Orchidaceae	MP.710
39	<i>Dendrobium eriiflorum</i> Griff.	Orchidaceae	MP.437
40	<i>Dienia cylindrostachya</i> Lindl.	Orchidaceae	MP.521
41	<i>Epipactis royleana</i> Lindl.	Orchidaceae	MP.529
42	<i>Goodyera fusca</i> (Lindl.) Hook.f.	Orchidaceae	MP.077
43	<i>Goodyera repens</i> (L.) R.Br.	Orchidaceae	MP.506
44	<i>Habenaria</i> sp.	Orchidaceae	MP.568
45	<i>Herminium duthiei</i> Hook.f.	Orchidaceae	MP.675
46	<i>Herminium josephi</i> Rchb.f.	Orchidaceae	MP.798
47	<i>Herminium lanceum</i> (Thunb. ex Sw.) Vuijk	Orchidaceae	MP.507
48	<i>Herminium macrophyllum</i> (D.Don) Dandy	Orchidaceae	MP.780
49	<i>Liparis</i> sp.	Orchidaceae	MP.667
50	<i>Malaxis monophyllos</i> (L.) Sw.	Orchidaceae	MP.522
51	<i>Oreorchis micrantha</i> Lindl.	Orchidaceae	MP.654
52	<i>Pleione humilis</i> (Sm.) D.Don	Orchidaceae	MP.264
53	<i>Ponerorchis chusua</i> (D.Don) Soó	Orchidaceae	MP.676
54	<i>Ponerorchis cucullata</i> var. <i>calcicola</i> (W.W.Sm.) X.H.Jin, Schuit. & W.T.Jin	Orchidaceae	MP.502
55	<i>Satyrium nepalense</i> D.Don	Orchidaceae	MP.742
56	<i>Spiranthes sinensis</i> (Pers.) Ames	Orchidaceae	MP.643
57	<i>Agrostis hookeriana</i> C.B.Clarke ex Hook.f.	Poaceae	MP.761
58	<i>Agrostis pilosula</i> Trin.	Poaceae	MP.107
59	<i>Bromus himalaicus</i> Stapf	Poaceae	MP.140
60	<i>Calamagrostis pseudophragmites</i> (Haller f.) Koeler	Poaceae	MP.560
61	<i>Calamagrostis scabrescens</i> Griseb.	Poaceae	MP.552
62	<i>Eragrostis nigra</i> Nees ex Steud.	Poaceae	MP.630
63	<i>Festuca cumminsii</i> Stapf	Poaceae	MP.672
64	<i>Isolepis setacea</i> (L.) R.Br.	Poaceae	MP.344
65	<i>Miscanthus nepalensis</i> (Trin.) Hack.	Poaceae	MP.162
66	<i>Poa pratensis</i> L.	Poaceae	MP.213
67	<i>Setaria viridis</i> (L.) P.Beauv.	Poaceae	MP.419
68	<i>Tenaxia cumminsii</i> (Hook.f.) N.P.Barker & H.P.Linder	Poaceae	MP.124

S. N.	Scientific Name	Family	Tag No.
69	<i>Trisetum spicatum</i> (L.) K.Richt.	Poaceae	MP.049
70	<i>Smilax aspera</i> L.	Smilacaceae	MP.171
71	<i>Smilax elegans</i> Wall. ex Kunth	Smilacaceae	MP.123
72	<i>Smilax menispermoidea</i> A. DC.	Smilacaceae	MP.168
73	<i>Hedychium spicatum</i> Sm.	Zingiberaceae	MP.153

Appendix: 1c- Gymnosperms

S. N.	Scientific Name	Family	Tag No.
1	<i>Juniperus indica</i> Bertol.	Cupressaceae	MP.037
2	<i>Juniperus recurva</i> Buch.-Ham. ex D. Don	Cupressaceae	MP.060
3	<i>Juniperus squamata</i> Buch.-Ham. ex D. Don	Cupressaceae	MP.293
4	<i>Ephedra gerardiana</i> Wall. ex Klotzsch & Garcke	Ephedraceae	MP.046
5	<i>Abies pindrow</i> (Royle ex D. Don) Royle	Pinaceae	
6	<i>Abies spectabilis</i> (D. Don) Mirb.	Pinaceae	MP.286
7	<i>Picea smithiana</i> (Wall.) Boiss.	Pinaceae	MP.365
8	<i>Pinus wallichiana</i> A.B. Jacks.	Pinaceae	MP.109
9	<i>Tsuga dumosa</i> (D. Don) Eichler	Pinaceae	MP.102
10	<i>Taxus contorta</i> Griff.	Taxaceae	MP.591

Appendix: 1d- Pteridophytes

S. N.	Scientific Name	Family	Tag No.
1	<i>Cystopteris fragilis</i> subsp. <i>Kansuana</i> (C.Chr.) Fraser-Jenk.	Aspleniaceae	MP.201
2	<i>Athyrium biserrulatum</i> Christ.	Athyriaceae	MP.597
3	<i>Athyrium rupicola</i> (Hope) C. Chr.	Athyriaceae	MP.579
4	<i>Athyrium</i> sp.	Athyriaceae	MP.205
5	<i>Athyrium wallichianum</i> Ching	Athyriaceae	MP.211
6	<i>Diplazium spinulosum</i> Bl.	Athyriaceae	MP.343
7	<i>Woodwardia unigemmata</i> (Mak.) Nakai	Blechnaceae	MP.435
8	<i>Davallia pulchra</i> D. Don	Davalliaceae	MP.428
9	<i>Dennstaedtia appendiculata</i> (Wall. ex Hook.) J. Sm.	Dennstaedtiaceae	MP.456
10	<i>Cyrtomium anomophyllum</i> (Zenker) Fraser-Jenk.	Dryopteridaceae	MP.439
11	<i>Dryopteris barbigera</i> (Hook.) O. Kuntze	Dryopteridaceae	MP.717
12	<i>Dryopteris fructuosa</i> (Christ) C. Chr.	Dryopteridaceae	MP.217
13	<i>Polystichum mehrae</i> Fraser-Jenk. & Khullar	Dryopteridaceae	MP.396
14	<i>Polystichum neolobatum</i> Nakai	Dryopteridaceae	MP.421
15	<i>Polystichum obliquum</i> (D. Don) Moore	Dryopteridaceae	MP.412
16	<i>Polystichum oblongum</i> Ching ex W. M. Chu & Z. R. He	Dryopteridaceae	MP.355
17	<i>Polystichum shensiense</i> Christ	Dryopteridaceae	MP.443
18	<i>Polystichum woodsiioides</i> Christ	Dryopteridaceae	MP.385
19	<i>Phlegmariurus phlegmaria</i> (L.) Holub	Lycopodiaceae	MP.108
20	<i>Botrychium lunaria</i> (L.) Sw.	Ophioglossaceae	MP.673
21	<i>Japanobotrychium lanuginosum</i> (Wall. ex Hook. & Grev.) M. Nishida ex Tagawa	Ophioglossaceae	MP.420
22	<i>Ophioglossum petiolatum</i> Hook.	Ophioglossaceae	MP.086
23	<i>Aglaomorpha mollis</i> (Bedd.) Hovenkamp & S.Linds.	Polypodiaceae	MP.445
24	<i>Goniophlebium argutum</i> (Wall. ex Hook.) J. Sm.	Polypodiaceae	MP.413
25	<i>Lepisorus clathratus</i> (C. B. Cl.) Ching	Polypodiaceae	MP.484
26	<i>Lepisorus mehrae</i> Fraser-Jenkins	Polypodiaceae	MP.482

S. N.	Scientific Name	Family	Tag No.
27	<i>Lepisorus thunbergianus</i> (Kaulf.) Ching	Polypodiaceae	MP.483
28	<i>Microsorium membranaceum</i> (D. Don) Ching	Polypodiaceae	MP.454
29	<i>Pichisermollodes malacodon</i> (Hook.) Fraser-Jenk.	Polypodiaceae	MP.703
30	<i>Pichisermollodes quasidivariata</i> (Hayata) Fraser-Jenk.	Polypodiaceae	MP.602
31	<i>Polypodiodes amoena</i> (Wall. ex Mett) Ching	Polypodiaceae	MP.402
32	<i>Polypodiodes lachnopus</i> (Wall. ex Hook.) Ching	Polypodiaceae	MP.438
33	<i>Pyrrosia porosa</i> (C. Presl) Hovenk.	Polypodiaceae	MP.436
34	<i>Adiantum tibeticum</i> Ching & Y.X.Lin	Pteridaceae	MP.216
35	<i>Aleuritopteris anceps</i> (Blanf.) Panigr.	Pteridaceae	MP.288
36	<i>Coniogramme affinis</i> (Wall. ex C. Presl) Hieron.	Pteridaceae	MP.545
37	<i>Cryptogramma brunoniana</i> Wall. ex Hook. & Grev.	Pteridaceae	MP.709
38	<i>Cryptogramma stelleri</i> (Gmel.) Prantl	Pteridaceae	MP.712
39	<i>Haplopteris mediosora</i> (Hayata) X. C. Zhang	Pteridaceae	MP.581
40	<i>Hemionitis marantae</i> (L.) Christenh.	Pteridaceae	MP.696
41	<i>Onychium cryptogrammoides</i> Christ	Pteridaceae	MP.429
42	<i>Paragymnopteris borealisinensis</i> (Kitag.)	Pteridaceae	MP.236
43	<i>Pteris cretica</i> subsp. <i>cretica</i>	Pteridaceae	MP.425
44	<i>Pteris aspericaulis</i> Wall. ex Ag.	Pteridaceae	MP.476
45	<i>Pteris cretica</i> L.	Pteridaceae	MP.446
46	<i>Pteris dactylina</i> Hook.	Pteridaceae	MP.611
47	<i>Pteris</i> sp.	Pteridaceae	MP.455
48	<i>Aleuritopteris albomarginata</i> (C. B. Cl.) Ching	Pteridaceae	MP.466
49	<i>Pteridium revolutum</i> (Bl.) Nakai	Pteridaceae	MP.479
50	<i>Selaginella chrysocaulos</i> (Hook. & Grev.) Spring.	Selaginellaceae	MP.493