

## Wetland Flora of Rupandehi District, Nepal

Kalpana Sharma (Dhakal)\*, Dammar Singh Saud and Nirmala Joshi

Department of Plant Resources, Thapathali, Kathmandu, Nepal

\*Email: kalpanasharmadhakal@gmail.com

### Abstract

The present study was carried out to document the wetland flora of three wetlands of Rupandehi district during the year of 2016-2018. Macrophytes plant specimens were collected up to 5 m around the wetland. Altogether 115 species belonging to 45 families were recorded. Out of these, 33 species were alien which include 12 invasive species that seems wetland flora were in threats.

**Keywords:** Alien Species, Conservation, Invasive Plants, Local Use, Macrophytes

### Introduction

National Wetland Policy (2003) defines wetlands as “natural or artificially created areas, such as swamp, marsh, riverine flood plain, lake, water storage area and agricultural land containing water from underground water resources or atmospheric precipitation that may be permanent or temporary, static or flowing, and freshwater or saline”. Chaudhary (1998) explained wetland dependent flora as the plants that flourish well in wetland habitats such as marshes, swamps, floodland, in rivers or river banks.

In Nepal, wetland covers around 5.57%, which comprises river 48.2%, lakes 0.6%, reservoirs 0.2%, pond 0.9 %, marginal swamps 1.5% and irrigated field 48.6% (Gurung, 2018). There are 19 types of natural and 10 types of man-made inland wetlands in Nepal (Siwakoti, 2007) ranging from perennially flowing rivers to seasonal streams, lowland oxbow lakes, high altitude glacial lakes, swamps, marshes, paddy fields, reservoirs and ponds. These wetlands are biologically diverse and are known to support more than 20,000 waterfowl (HMGN/MoFSC, 2002). The Nepal Biodiversity Strategy (2002) identified 10 wetland sites in the Terai as meriting legal protection because of their significant biodiversity values. These include 9 lakes (Beeshazar, Gaidahawa, Badahiya, Narcrodi, Rampur, Deukhuria, Patriyani, Betkot and Ghodaghodi) and one reservoir Jagdishpur. Among them two lakes Beeshazari and Ghodaghodi and one reservoir Jagdishpur already listed in Ramsar sites. Remaining other are nationally important wetlands.

In Nepal, about 10% of ethnic communities depended on wetlands resources for the subsistence. The Nepalese wetlands consist of many threatened and endangered flora and fauna and provide excellent ecological habitats for internationally important winter migratory birds, aquatic fauna and other wildlife (IUCN, 2004). One species of protected plants under the Forest Regulation 1994 such as *Dalbergia latifolia* as well as wild cultivar of rice such as *Oryza rufipogon*, *Oryza nivara*, *Oryza officinalis* are known recorded from Terai wetlands (Siwakoti, 2006). About 26 endemic species considered as wetland dependent (IUCN, 2004). Among these, eight species occurs in Terai wetlands (Siwakoti, 2006). Terai including Siwalik region (< 1000 m) houses 1885 (37%) plant species (BPP, 1995) out of which 318 plant species are wetland dependent (Siwakoti, 2006).

Wetland biodiversity is now decreasing day by day due to drainage and encroachment for agriculture, diversion and abstraction of water for irrigation, unsustainable exploitation of wetland resources, including overfishing and destructive fishing, invasion of alien species into wetland ecosystem, climate change, inadequate knowledge about its importance, lack of awareness about conservation and science based information and documentation (MoFE, 2018). For the conservation of wetlands, Nepal formulated number of policies guiding the conservation of the wetlands and also became a signatory to Ramsar Convention in 1988. Now there are 10 Ramsar sites in Nepal with a surface area of 60,561 hectares (Ramsar, 2019). Based on

importance of wetland, Nepal Wetland Policy (2012) has classified wetland into three parts as: (a)Local: Small wetlands which are in use or going to be used and managed by private or local bodies (b)National: Nationally important wetlands which have the opportunity to be enlisted in Ramsar list and (c) International: Wetlands enlisted in Ramsar site. Gaidahawa, Gajedi, Nandabhauju, Sukaiya are the important lakes of Rupandehi district (DFO, 2072).

However, documentation of wetland flora was carried out on few wetlands in Nepal but no detail documentation of wetland flora in Rupandehi district. This study will support in the documentation of wetland flora in Rupandehi as well help in conservation of important wetland flora and its associated biodiversity in future.

## Materials and Methods

### Study area

Rupandehi District is one of the twelve district of Province No. 5 of Nepal and lies between the latitudes 27°20'00" N to 27°47'25"N, and longitudes

83°12'16"E to 83°38'16"E covering an area of 1,360 km<sup>2</sup> in Terai region of Nepal. The elevation of the district lies between 100 m to 1229 m from sea level with 16.1% in Churia Range and rest in the Terai region (DCCO, 2018). As per the National Census 2011, the population of Rupandehi was 880,196. It lies in tropical region with characteristic monsoon rainfall and three distinct season hot and dry summer (March to May), hot and moist rainy season (June to September) and cold and dry winter (October to January). Temperature ranges from maximum 44°C to minimum 9°C. Average annual rainfall is 1391mm (DCCO, 2018). Location map of the study area was prepared by using Arc GIS (Figure 1).

Gaidahawa, Gajedi-Danapur, Nanda/Bhauju three wetlands were selected in Rupandehi district on the basis of floral diversity, livelihood, eco-tourism and socio-cultural value.

**Gaidahawa Tal:** Gaidahawa Tal (latitudes 27°35'47" N, longitudes 83°16'49"E and altitude 88 m) lies in Gaidahawa Rural Municipality-4 which covers about 29.05 hectare (DFO, 2073). Yadav is the major ethnic

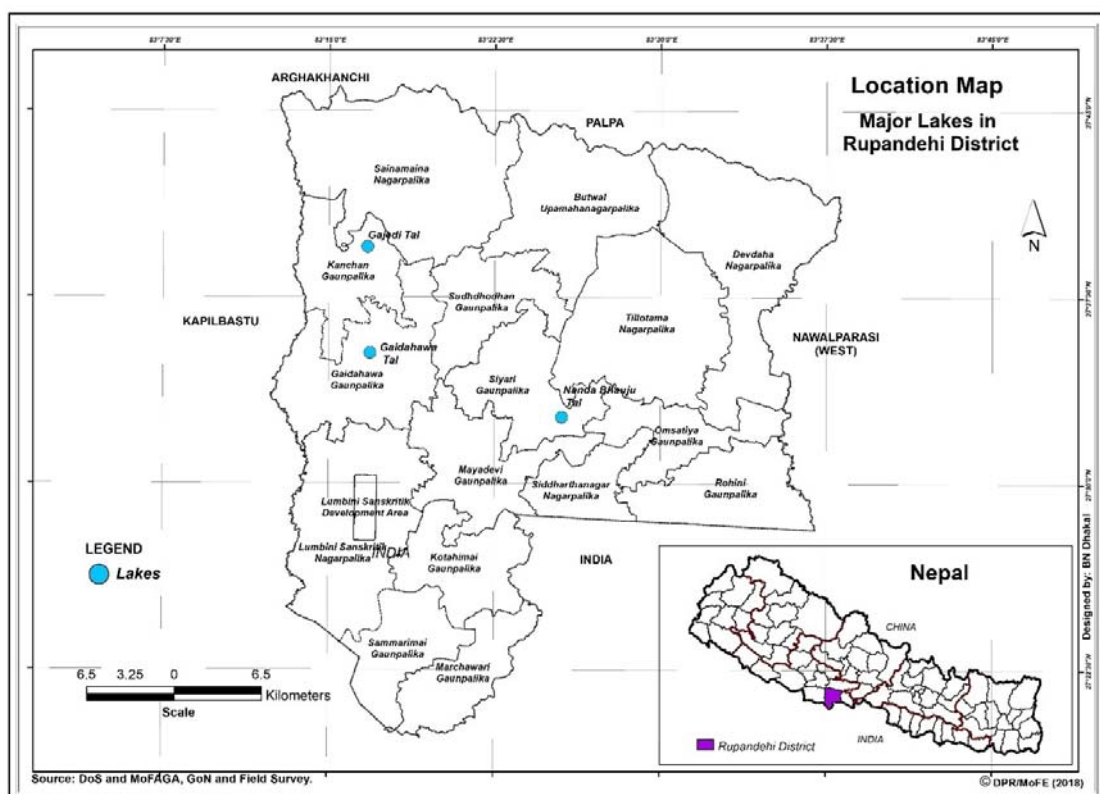


Figure 1: Location Map of Three lakes of Rupandehi district

group consisting of 11.3 % population of Gaidahawa Rural Municipality (GRM, 2074). The lake is surrounded by forest of *Shorea robusta* and associated species such as *Syzygium cumini*, *Aegle marmelos*, *Terminalia bellirica*, *Schleichera oleosa*, *Adina cordifolia* etc. to West- North, private land to the East and forest area and settlement area to the South.

**Gajedi-Danapur Tal:** Gajedi-Danapur Tal (latitudes 27°39'51" N, longitudes 83°16'34"E and altitude 133 masl) lies in Kanchan Rural Municipality-1 which covers about 19 hectare (DFO, 2073). Magar is the major ethnic group of Kanchan Rural Municipality-1 (CBS, 2011). The lake is surrounded by forest of *Shorea robusta* and associated species such as *Dalbargia sissoo*, *Terminalia alata*, *Terminalia bellirica*, *Terminalia chebula*, *Acacia catechu*, *pterocarpus marsupium* *Dalbergia latifolia* *Schleichera oleosa*, *Adina cordifolia* etc. to East & North-West; private land and settlement area to South-West.

**Nanda/Bhauju:** Nanda/Bhauju (latitudes 27°33'41"N, longitudes 83°26'40"E and altitude 98 masl) lies in Siyari rural municipality-1 which covers approximately 0.68/0.68 hectare (DFO, 2073). Magar is the major ethnic group of Siyari Rural Municipality-1 (CBS, 2011). The lake is surrounded by cultivated forest of *Tectona grandis*.

### **Plant Collection and Identification**

Field trips were performed in selected wetlands (Gaidahawa, Nanda/bhauju and Gajedi- Danapur Tal) of Rupandehi district during the period of 2016-2018. The macrophytes plant specimens and their photographs were collected up to 5 m around the wetland. Some plants were identified in field and unidentified plants were collected, prepared herbarium and identified by comparing it with deposited herbarium at National Herbarium and Plant Laboratories (KATH), Godawari, Lalitpur, Nepal and housed at KATH. Similarly, the threats to wetland were also identified through direct observation. For the Nepali names, Press et al. (2000) & Shrestha, K. (1998) and <http://www.theplantlist.org> was followed for nomenclature.

### **Plant Categorization**

Plants were classified into the categories of native, alien on the basis of its origin by consulting Global register of introduced and invasive species (GRIIS, 2019) and for invasive plant (Shrestha et al., 2017).

### **Interviews**

Questionnaires were prepared for interviews and informants were chosen randomly. Prior to interview, the purpose of research background was explained to each informant. During the interview, collected plants or photographs were shown. Data about the importance of wetlands, use and threats to plants were collected through interview with local people and key informants.

## **Results and Discussion**

### **Wetland floral diversity**

Altogether 115 plant species belonging to 45 families were recorded in Gaidahawa, Gajedi-Danapur and Nanda/Bhauju wetlands of Rupandehi district. 74 species in Gaidahawa Tal, 69 species in Gajedi-Danapur Tal and 54 species in Nanda/Bhauju Tal whereas 20 species are found common in all three Tal. Out of 115 species, 82 species were native, 33 species were alien including 12 invasive species. Out of 12 alien invasive species, nine species (*Ageratum houstonianum*, *Argemone mexicana*, *Eichhornia crassipes*, *Hyptis suaveolens*, *Ipomoea carnea*, *Mimosa pudica*, *Parthenium hysterophorus*, *Senna tora* and *Xanthium strumarium*), eight species (*Ageratum houstonianum*, *Argemone mexicana*, *Chromolaena odorata*, *Eichhornia crassipes*, *Ipomoea carnea*, *Mimosa pudica*, *Senna tora* and *Xanthium strumarium*) and six species (*Ageratum houstonianum*, *Chromolaena odorata*, *Lantana camara*, *Mikania micrantha*, *Mimosa pudica* and *Parthenium hysterophorus*) are recorded in Gaidahawa, Gajedi-Danapur and Nanda/Bhauju respectively (Appendix 1).

By taxonomic group, the highest number of species is represented by Dicotyledons 33 families, 69 genera, 82 spp. followed by Monocotyledons eight families, 22 genera, 29 spp. and Pteridophytes four

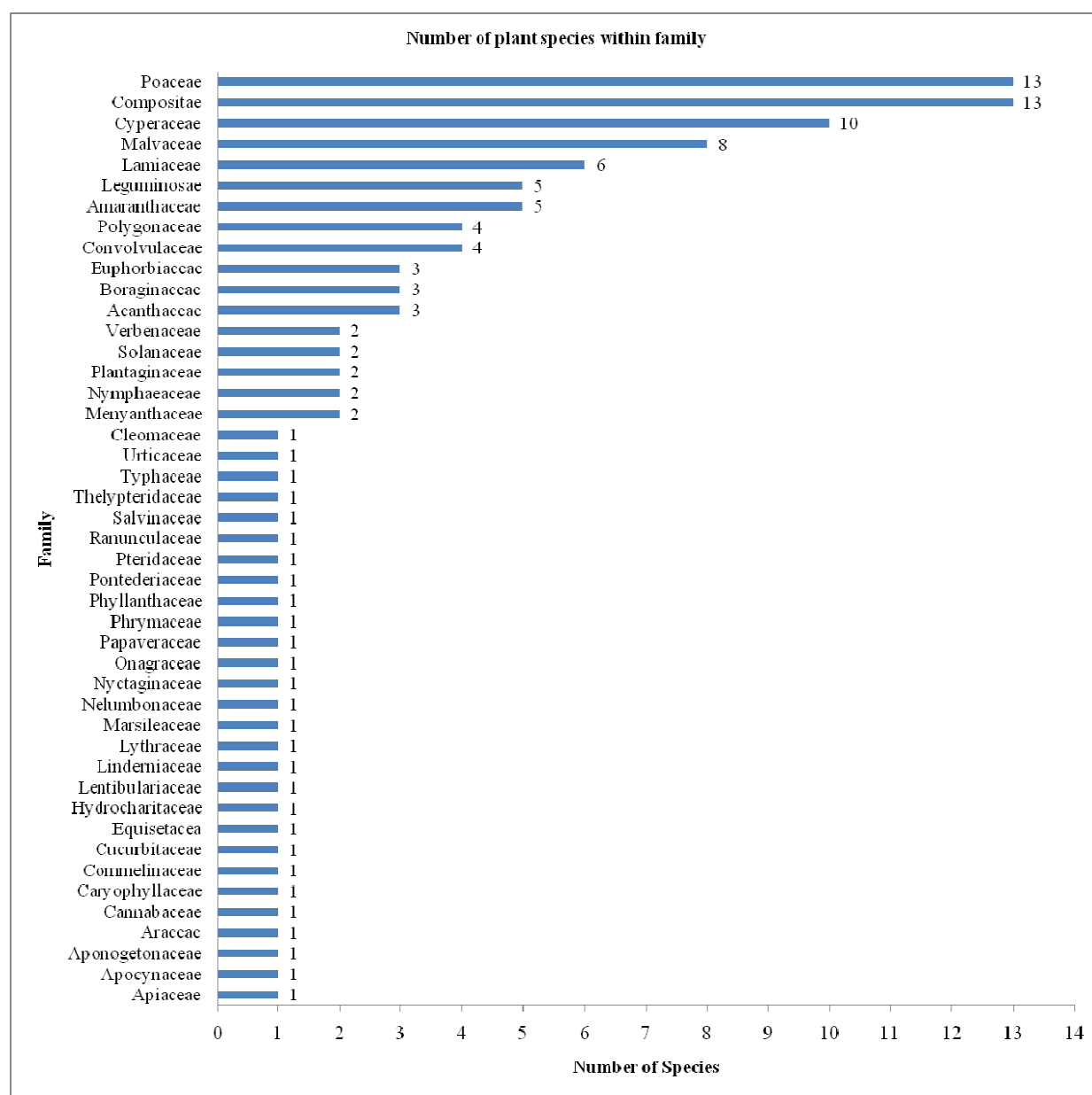
families four genera four spp. The major species rich family include Poaceae (13 spp.) and Compositae (13 spp.) followed by Cyperaceae (10 spp.), Malvaceae (8 spp.), Lamiaceae (6 spp.) etc (Figure 2). Shrestha (1999) presented a list of 240 aquatic macrophytes of Nepal belonging to 124 genera and 58 families. This study represents about 45% of aquatic macrophytes. According to GRIIS (2019) there are 179 alien plant species in Nepal. However, 33 alien species are reported in this study. Shrestha et al. (2017) had reported 26 alien invasive plant species in Nepal whereas this study recorded 12

species as alien invasive species. Out of these *Lantana camara*, *Chromolaena odorata*, *Mikania micrantha* and *Eichhornia crassipes* are among the 100 of the world's worst invasive alien species (Lowe et al., 2000).

### Local Use

Some of the wetland plants are used by local people for different purposes.

**Medicinal use:** *Nelumbo nucifera* (seeds in Jaundice), *Mimosa pudica* (whole plant in uterine



**Figure 2 :** Number of plant species within family



disorder), *Euphorbia hirta* and *Euphorbia heterophylla* (latex in cuts), *Centella asiatica* (whole plant as tonic), *Merremia hederacea* (root in stomach pain).

**Edible use:** Seeds of *Nelumbo nucifera* are eaten by children, like wise *Ipomoea aquatica* is used as vegetable, seeds of *Nymphaea nouchali* eaten by cooking in milk during fasting.

**Religious use:** Flower of *N. nucifera* is sold in the market during Tihar; *Equisetum* is essential during marriage ceremony; *Desmostachya bipinnata* is used for ritual purpose; *Achyranthes aspera* (stem in Rishipanchami), *Calotropis procera* (men get married with this plant to remove the bad effect of possibility of second marriage).

**Traditional use:** *Ipomoea carnea* is used as fuel, *Cyanthillium cinereum* for preparation of local alcohol.

**Commercial use:** Fish farming in three sites, picnic spot, boating in Gajedi-Danapur Tal.

### Threats

Major threats seen in wetlands are extraction and diversion of water for irrigation, invasion of alien species, overharvest of resources including commercial fishery. Some invasive species such as *Ageratum houstonianum*, *Ipomoea carnea* have been found dominantly affecting other flora and habitats of wetland dependent fauna of Gajedi-Danapur Tal. Similarly, the Gaidahawa Tal is also invasion by *Eichhornia crassipes*, *Ipomoea carnea*, *Hyptis suaveolens*, *Senna tora* and Nanda/Bhauju Tal is invasion by *Ageratum houstonianum*. While rest of the invasive species are found few around the wetland till the study time. According to the local people previously there were found wild rice in Gajedi-Danapur Tal but now this study could not found wild rice species. This seems that some plant species are disappearing from the area.

Many free floating plants like *Nelumbo nucifera*, *Vallisneria natans* are taken out for fish farming and also used herbicides for killing weeds in Gaidahawa Tal. Likewise, in Nanda Tal also different plant

species inside water are taken out yearly for fish farming. Aryal et al. (2009) found that Water lily (*Nymphaea* spp.), water chestnut (*Trapa bispinosa*), Makhan (*Eurale ferox*) as over exploited wetland resources for the livelihoods of the local people of Rupandehi district due to which the Sarus crane (*Grus antigone antigone*) population is facing negative impacts.

### Conclusion

These wetlands are found to be important for socio-economical, cultural and biodiversity aspect. Such type of work can be beneficial for the exploration of flora. The wetlands are mostly threatened due to fish farming, invasion of alien species, inadequate knowledge about its importance, lack of awareness about conservation. If timely not documented and conserved there is high chance of extinction of these biodiversity due to different types of threats. Therefore, it is an urgent need for conserving and protecting these important resources of Nepal. It is necessary to aware the local people about the importance of wetland and also train up for organized cultivation and marketing of wetland flora. It will be definitely helped not only in conservation but also for the upliftment of economic condition of local people of these areas.

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**Appendix 1:** Wetland flora of Gaidahawa (G), Gajedi-Danapur (Gd) and Nanda/Bhauju (Nb) Tal of Rupandehi district, Nepal. Note: \* Presence of Plant

S.N.	Family	Scientific Name	English Name	Nepali Name	Origin (Native, Alien)	Alien Invasive species (Yes/No)	G	Gd	Nb	Collection No.
1	Amaranthaceae	<i>Achyranthes aspera</i> L.	Prickly chaff flower	अपमार्ग, दतिवन	Native	No	*	*	*	G69/Gd160/Nb95
2	Compositae	<i>Ageratum houstonianum</i> Mill.	Blue Billygoat Weed	निलो गन्धे	Alien	Yes	*	*	*	G05/Gd159/Nb112
3	Amaranthaceae	<i>Alternanthera paronychioides</i> A.St.-Hil.	Smooth Chaff Flower	-	Alien	No	*		*	G79/Nb122
4	Amaranthaceae	<i>Alternanthera pungens</i> Kunth	Khaki weed	-	Alien	No			*	Nb87
5	Amaranthaceae	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC.	Sessile joyweed	भिरिङ्गि झार	Alien	No	*	*	*	G45/Gd135/Nb114
6	Leguminosae	<i>Alysicarpus vaginalis</i> (L.) DC.	Alyceclover	झार	Native	No			*	Nb88
7	Amaranthaceae	<i>Amaranthus viridis</i> L.	Rough pigweed	लुडे साग	Alien	No	*		*	G31/Nb105
8	Lythraceae	<i>Ammannia baccifera</i> L.	Blistering Ammania	अम्बार	Native	No	*			G23
9	Thelypteridaceae	<i>Ampelopteris prolifera</i> (Retz.) Copel.	-	-	Native	No	*			G34
10	Aponogetonaceae	<i>Aponogeton crispus</i> Thunb.	-	-	Native	No	*			G77
11	Papaveraceae	<i>Argemone mexicana</i> L.	Prickly poppy	थाकल	Alien	Yes	*	*		G41/Gd161
12	Salvinaceae	<i>Azolla pinnata</i> R. Br.	-	पानी उन्चू	Native	No		*		Gd162
13	Compositae	<i>Blumea laciniata</i> (Wall. ex Roxb.) DC.	Cutleaf Blumea	-	Native	No	*	*		G55/Gd174
14	Nyctaginaceae	<i>Boerhavia diffusa</i> L.	Hogweed	पुनर्नवा	Native	No	*		*	G58/Nb107
15	Poaceae	<i>Bothriochloa pertusa</i> (L.) A.Camus	Indian couch grass	-	Native	No	*			G20
16	Apocynaceae	<i>Calotropis procera</i> (Aiton) Dryand.	French-cotton	सेतो आँक	Native	No	*			G11
17	Cannabaceae	<i>Cannabis sativa</i> L.	Marijuana	भाङ्ग	Native	No	*			G71
18	Apiaceae	<i>Centella asiatica</i> (L.) Urb.	Water pennywort	घोड ताप्रे	Native	No	*	*	*	G14/Gd149/Nb115
19	Pteridaceae	<i>Ceratopteris thalictroides</i> (L.) Brongn.	Water fern	पानी धनिया	Native	No	*			G24
20	Compositae	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	Christmas bush	सेतो वनमारा	Alien	Yes		*	*	Gd144/Nb99
21	Euphorbiaceae	<i>Chrozophora rotleri</i> (Geiseler) A.Juss. ex Spreng.		सुर्यवर्त	Native	No	*			G73
22	Poaceae	<i>Chrysopogon aciculatus</i> (Retz.) Trin.	Love Grass	कुर कुरे घाँस	Native	No	*		*	G28/Nb77
23	Poaceae	<i>Chrysopogon zizanioides</i> (L.) Roberty	Khas-Khas	खसखस	Native	No	*			G47

S.N.	Family	Scientific Name	English Name	Nepali Name	Origin (Native, Alien)	Alien Invasive species (Yes/No)	G	Gd	Nb	Collection No.
24	Cleomaceae	<i>Cleome viscosa</i> L.	Tick weed	हुरहुरे	Native	No	*			G48
25	Lamiaceae	<i>Clerodendrum infortunatum</i> L.	Hill glory bower	राजवेली	Native	No			*	Nb119
26	Cucurbitaceae	<i>Coccinia grandis</i> (L.) Voigt	Ivy gourd	गोल कांकी	Alien	No			*	Nb121
27	Malvaceae	<i>Corchorus aestuans</i> L.	Red weed	वनपाते	Alien	No	*	*	*	G66/Gd138/ Nb113
28	Commelinaceae	<i>Cyanotis axillaris</i> (L.) D.Don ex Sweet	Creeping Cradle Plant	काने	Native	No		*		Gd168
29	Compositae	<i>Cyanthillium cinereum</i> (L.) H.Rob.	Purple flea bane	झुरझुरे	Native	No	*		*	G70/Nb102
30	Poaceae	<i>Cymbopogon jwarancusa</i> (Jones) Schult.	Karnkusa grass	ढड्डी, उर्वा	Native	No	*			G78
31	Poaceae	<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	दुबो	Native	No	*	*	*	G67/Gd145
32	Boraginaceae	<i>Cynoglossum lanceolatum</i> Forssk.	-	-	Native	No		*	*	Gd167/Nb101
33	Cyperaceae	<i>Cyperus compressus</i> L.	Annual sedge	झुसुना	Native	No	*	*		G09/Gd79
34	Cyperaceae	<i>Cyperus difformis</i> L.	Variable flatsedge	मोथे	Native	No		*		Gd80
35	Cyperaceae	<i>Cyperus iria</i> L.	Grasshopper's cyperus	मोथे	Native	No	*			G82
36	Cyperaceae	<i>Cyperus rotundus</i> L.	Nut grass	मोथे	Native	No	*	*		G13/Gd81
37	Poaceae	<i>Dactyloctenium aegyptium</i> (L.) Willd.	Durban crowfoot	माकुरे घाँस	Alien	No			*	Nb78
38	Leguminosae	<i>Desmodium triflorum</i> (L.) DC.	Threeflower Beggarweed	बुटे कनिके	Native	No			*	Nb120
39	Poaceae	<i>Desmostachya bipinnata</i> (L.) Stapf	Sacrificial grass	कुश	Native	No	*	*	*	G57/Gd139/ Nb80
40	Poaceae	<i>Digitaria ciliaris</i> (Retz.) Koeler	Henry's crabgrass	वन्सो	Native	No			*	Nb126
41	Compositae	<i>Eclipta prostrata</i> (L.) L.	False daisy	भृगराज	Alien	No	*	*		G68/Gd146
42	Pontederiaceae	<i>Eichhornia crassipes</i> (Mart.) Solms	Common water hyacinth	जलकुम्भी	Alien	Yes	*	*		G36/Gd131
43	Poaceae	<i>Eleusine indica</i> (L.) Gaertn.	Crabgrass	कोदो घाँस	Native	No	*	*	*	G85/Gd63/ Nb81
44	Compositae	<i>Emilia sonchifolia</i> (L.) DC. ex DC.	-	-	Native	No		*		Gd158
45	Equisetaceae	<i>Equisetum</i> sp.	-	आँखली घाँस	Native	No		*		Gd62
46	Poaceae	<i>Eragrostis atrovirens</i> (Desf.) Trin. ex Steud.	-	-	Native	No		*		Gd61
47	Euphorbiaceae	<i>Euphorbia heterophylla</i> L.	Japanese poinsettia	सानो लालुपाते	Alien	No	*	*		G89/Gd56



S.N.	Family	Scientific Name	English Name	Nepali Name	Origin (Native, Alien)	Alien Invasive species (Yes/No)	G	Gd	Nb	Collection No.
48	Euphorbiaceae	<i>Euphorbia hirta</i> L.	Asthma spurge	दुधे झार	Alien	No	*	*	*	G39/Gd153/Nb123
49	Convolvulaceae	<i>Evolvulus nummularius</i> (L.) L.	Agracejo rastrero	-	Alien	No	*	*	*	G43/Gd175/Nb90
50	Cyperaceae	<i>Fimbristylis dichotoma</i> (L.) Vahl	Common fringe-rush	पानी मोथे	Native	No	*		*	G88/Nb79
51	Cyperaceae	<i>Fimbristylis ovata</i> (Burm.f.) J.Kern	Flat spike sedge	मोथे, भुल्ना	Native	No		*	*	Gd49/Nb82
52	Cyperaceae	<i>Fimbristylis quinquangularis</i> (Vahl) Kunth	Hoorahgrass	ज्वानो झार	Native	No		*		Gd82
53	Compositae	<i>Grangea maderaspatana</i> (L.) Poir.	-	गोत्रे झार	Native	No	*	*	*	G75/Gd151/Nb124
54	Boraginaceae	<i>Heliotropium indicum</i> L.	Indian heliotrope	हात्ती सुडे झार	Native	No	*		*	G64/Nb94
55	Boraginaceae	<i>Heliotropium strigosum</i> Willd.	-	मृगराज	Native	No		*	*	Gd42/Nb32
56	Acanthaceae	<i>Hemigraphis hirta</i> (Vahl) T.Anderson	-	वन पान	Native	No	*	*	*	G62/Gd164/Nb96
57	Lamiaceae	<i>Hyptis suaveolens</i> (L.) Poit.	Pignut	ठूलो मिर्रे	Alien	Yes	*			G17
58	Poaceae	<i>Imperata cylindrica</i> (L.) Raeusch.	Blady Grass	सिरु	Native	No	*	*	*	G74/Gd157/Nb76
59	Convolvulaceae	<i>Ipomoea aquatica</i> Forssk.	Chinese water-spinach	करमी साग	Native	No	*	*	*	G72/Gd140/Nb116
60	Convolvulaceae	<i>Ipomoea carnea</i> Jacq.	Gloria de la manana	अजमरी	Alien	Yes	*	*		G04/Gd150
61	Acanthaceae	<i>Justicia adhatoda</i> L.	Malabar nut	असुरो	Native	No	*			G10
62	Cyperaceae	<i>Kyllinga brevifolia</i> Rottb.	Green kyllinga	मोथे				*		Gd83
63	Cyperaceae	<i>Kyllinga nemoralis</i> (J.R.Forst. & G.Forst.) Dandy ex Hutch. & Dalziel	White kyllinga	मोथे	Native	No	*	*	*	G137/Gd35/Nb84
64	Verbenaceae	<i>Lantana camara</i> L.	Common lantana	वन फाँडा	Alien	Yes			*	Nb106
65	Lamiaceae	<i>Leucas lavandulifolia</i> Sm.	-	गुम्मी	Native	No	*	*	*	G35/Gd141/Nb110
66	Linderniaceae	<i>Lindernia anagallis</i> (Burm.f.) Pennell	-	-	Native	No	*	*		G50/Gd72
67	Onagraceae	<i>Ludwigia hyssopifolia</i> (G.Don) Exell	Seedbox	खुर्सानी झार	Alien	No	*	*		G32/Gd142
68	Marsileaceae	<i>Marsilea minuta</i> L.	Small water clover	धाप उन्चू	Native	No	*	*		G03/Gd32
69	Plantaginaceae	<i>Mecardonia procumbens</i> (Mill.) Small	Baby jump-up	-	Alien	No		*		Ph1
70	Malvaceae	<i>Melochia corchorifolia</i> L.	-	पटुवा झार	Native	No		*	*	Gd152/Nb117
71	Convolvulaceae	<i>Merremia hederacea</i>	Ivy		Native	No		*		Ph2

S.N.	Family	Scientific Name	English Name	Nepali Name	Origin (Native, Alien)	Alien Invasive species (Yes/No)	G	Gd	Nb	Collection No.
		(Burm. f.) Hallier f.	woodrose							
72	Compositae	<i>Mikania micrantha</i> Kunth	Chinese creeper	लहरे वनमारा	Alien	Yes			*	Nb86
73	Leguminosae	<i>Mimosa pudica</i> L.	Sensitive plant	लज्जावती	Alien	Yes		*	*	Gd169/Nb118
74	Leguminosae	<i>Mimosa rubicaulis</i> Lam.	-	बोक्सी घाँस	Native	No		*		Ph3
75	Phrymaceae	<i>Mimulus tenellus</i> var. <i>nepalensis</i> (Benth.) Tsoong	-	-	Native	No	*			G26
76	Nelumbonaceae	<i>Nelumbo nucifera</i> Gaertn.	East Indian lotus	कमल	Native	No	*	*		G59/Gd154
77	Nymphaeaceae	<i>Nymphaea nouchali</i> Burm.f.	Blue Lotus	निल कमल	Native	No		*		Gd172
78	Nymphaeaceae	<i>Nymphaea tetragona</i> Georgi	Pygmy water-lily	-	Native	No	*	*	*	G40/Gd143/Nb109
79	Menyanthaceae	<i>Nymphoides hydrophylla</i> (Lour.) Kuntze	-	-	Native	No	*	*		G1/Gd171
80	Menyanthaceae	<i>Nymphoides indica</i> (L.) Kuntze	Banana-plant	-	Native	No		*		Gd156
81	Lamiaceae	<i>Ocimum americanum</i> L.	American basil	बाबरी, तुलसी	Native	No	*			G02
82	Lamiaceae	<i>Ocimum basilicum</i> L.	Basil	वन तुलसी	Native	No	*			G08
83	Compositae	<i>Parthenium hysterophorus</i> L.	Santa Maria	-	Alien	Yes	*		*	G65/Nb100
84	Malvaceae	<i>Pentapetes phoenicea</i> L.	Copper-cups	दोपहरे फूल	Native	No	*			G49
85	Polygonaceae	<i>Persicaria barbata</i> (L.) H.Hara	Field sedge	पिरे	Native	No	*	*	*	G53/Gd73/Nb92
86	Polygonaceae	<i>Persicaria hydropiper</i> (L.) Delarbre	Marsh-pepper smartweed	पिरे	Native	No			*	Nb91
87	Polygonaceae	<i>Persicaria lapathifolia</i> (L.) Delarbre	-	-	Native	No			*	Nb125
88	Verbenaceae	<i>Phyla nodiflora</i> (L.) Greene	Capeweed	कुर कुरे झार	Native	No	*		*	G68/Nb98
89	Phyllanthaceae	<i>Phyllanthus urinaria</i> L.	Chamber bitter	भुई अमला	Native	No		*		Gd166
90	Solanaceae	<i>Physalis peruviana</i> L.	Cape-gooseberry	रसबरी	Alien	No	*	*		G76/Gd165
91	Polygonaceae	<i>Polygonum plebeium</i> R.Br.	Common knotweed	मसिनो पिरे	Native	No	*	*	*	G63/Gd148/Nb111
92	Urticaceae	<i>Pouzolzia zeylanica</i> (L.) Benn.	Graceful pouzolzsbus h	निचा साग	Native	No			*	Nb104
93	Ranunculaceae	<i>Ranunculus sceleratus</i> L.	Blister buttercup	नाक कुरो	Native	No		*		Gd176

S.N.	Family	Scientific Name	English Name	Nepali Name	Origin (Native, Alien)	Alien Invasive species (Yes/No)	G	Gd	Nb	Collection No.
94	Acanthaceae	<i>Rungia pectinata</i> (L.) Nees	-	-	Native	No	*			G37
95	Poaceae	<i>Saccharum spontaneum</i> L.	Fodder cane	काँस	Alien	No		*		Gd74
96	Lamiaceae	<i>Salvia plebeia</i> R.Br.	Australian sage	-	Native	No	*			G46
97	Cyperaceae	<i>Schoenoplectiella juncoides</i> (Roxb.) Lye	-	-	Native	No	*			G07
98	Plantaginaceae	<i>Scoparia dulcis</i> L.	Licorice weed	मिठा झार	Alien	No	*	*	*	G12/Gd147/Nb93
99	Leguminosae	<i>Senna tora</i> (L.) Roxb.	Foetid Cassia	सोनो ताप्रे	Alien	Yes	*	*		G6/Gd132
100	Poaceae	<i>Setaria pumila</i> (Poir.) Roem. & Schult.	Knotroot bristle grass	-	Native	No	*	*	*	G30/Gd78/Nb127
101	Malvaceae	<i>Sida acuta</i> Burm.f.	Broomweed	बलु झार	Alien	No			*	Nb103
102	Malvaceae	<i>Sida cordata</i> (Burm.f.) Borss.Waalk.	Heartleaf fanpetals	बलु झार	Alien	No	*			G29
103	Malvaceae	<i>Sida rhombifolia</i> L.	Cuban jute	सानो चिल्या	Alien	No	*	*		G54/Gd141
104	Solanaceae	<i>Solanum surattense</i> Burm. f.	Bitter brinjal	कन्टकारी	Native	No	*	*		G56/Gd163
105	Compositae	<i>Sonchus wightianus</i> DC.	Corn Sowthistle	दुधे, मुलापाते	Native	No		*		Ph4
106	Compositae	<i>Spilanthes acmella</i> (L.) L.	Para cress	लाटो घाँस	Native	No	*	*		G01/Gd134
107	Araceae	<i>Spirodela polyrrhiza</i> (L.) Schleid.	Common duckweed	-	Native	No		*		Gd170
108	Caryophyllaceae	<i>Stellaria media</i> (L.) Vill.	Chickweed	-	Alien	No	*			G15
109	Compositae	<i>Tridax procumbens</i> (L.) L.	Coat-buttons	हुसुरे झार	Alien	No	*	*	*	G06/Gd133/Nb97
110	Malvaceae	<i>Triumfetta rhomboidea</i> Jacq.	Chinese burr	डल्ले कुरो	Native	No			*	Nb83
111	Typhaceae	<i>Typha angustifolia</i> L.	-	पटेर	Native	No		*		Ph5
112	Malvaceae	<i>Urena lobata</i> L.	Caesar weed	नालुकुरो	Native	No		*	*	Gd173/Nb85
113	Lentibulariaceae	<i>Utricularia aurea</i> Lour.			Native	No		*	*	Gd155/Nb108
114	Hydrocharitaceae	<i>Vallisneria natans</i> (Lour.) H.Hara	Tape-grass	सलिल कुन्ताला	Native	No	*			G38
115	Compositae	<i>Xanthium strumarium</i> L.	Burweed	भेडे कुरो	Alien	Yes	*	*		G18/Gd136