Mai Pokhari

Information Sheet on Ramsar Wetlands (RIS) – 2006-2008 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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DD MM YY

Designation date Site Reference Number

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2. Date this sheet was completed:
18 May 2008

3. Country:
Nepal

4. Name of the Ramsar site:
The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Mai Pokhari

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only)**:**
a) Designation of a new Ramsar site √❑; or

b) Updated information on an existing Ramsar site ❑

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged: ❑

or
If the site boundary has changed:
i) the boundary has been delineated more accurately ❑; or
ii) the boundary has been extended ❑; or
iii) the boundary has been restricted** ❑

and/or

If the site area has changed:
i) the area has been measured more accurately ❑; or
ii) the area has been extended ❑; or
iii) the area has been reduced** ❑

** **Important note**: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site

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7. Map of site:
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:
i**) a hard copy** (required for inclusion of site in the Ramsar List): √❑; **ii) an electronic format** (e.g. a JPEG or ArcView image) √❑;

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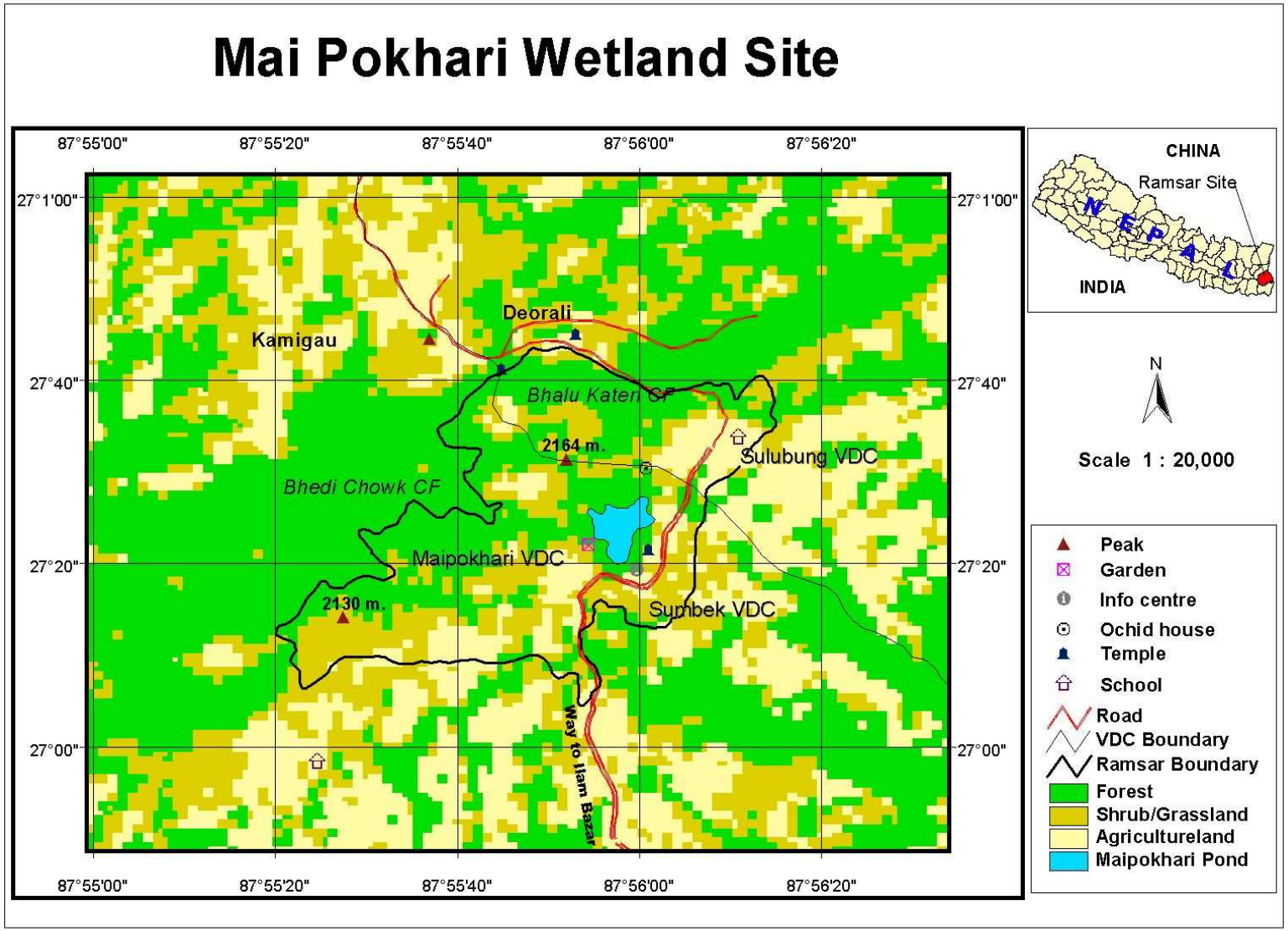
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables ❑.**



b) Describe briefly the type of boundary delineation applied:
e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a water body, etc.

Boundary of Mai Pokhari wetland has been delineated on the basis of catchment with the view that the wetland could be ecologically and hydrologically sustained, and potential eutrophication from adjoining settlements might have less or no impact on the water bodies.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

87º 55' 50" East and 27º 00' 20" North

9. General location:
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.
Mai Pokhari wetland locating in the mid-hill of east Nepal lies 85 km south of Mt. Kanchenjunga (8,584 m. altitude), world's 3rd highest peak. It lies in Ilam district, administrative unit, which consists populations of 282,822. Ilam Bazaar, the district headquarter is the nearest town (about 17 km road distance). It extends over the land surfaces of three Village Development Committees (Mai Pokhari, Sulubung and Sumbek), which have 1,959 households and 10,481 populations.

10. Elevation: (in metres: average and/or maximum & minimum)
Average 2122 meter from mean sea level (msl)(2080 meter to 2164 meter)

11. Area: (in hectares)
Total area is 90 hectare covering a permanent natural pond with 2 hectare and two seasonal ponds (smaller than 0.5 hectare).

12. General overview of the site:
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.
Mai Pokhari is a natural wetland originated from an oligotrophic tectonic pond that is recharged by rainwater and natural springs. Located in the interface of upper subtropical and collinean temperate bioclimatic zones, it is characterized by humid climate and rich biodiversity. It is one of the major sources of fresh water for local communities.

13. Ramsar Criteria:
Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

14. Justification for the application of each Criterion listed in 13 above:
Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Group B of the Criteria: Sites of international importance for conserving biological diversity.
Criteria based on species and ecological communities

Criteria 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

White-rumped Vulture (*Gyps bengalensis, IUCN*-Critically Endangered, CMS-II), Bengal Monitor Lizard (*Varanus bengalensis,* CITES-I), Eurasian Otter *(Lutra lutra,* CITES-I) Chinese Pangolin (*Manis pentadactyla, GoN-Protected),* and Leopard cat (*Prionailurus bengalensis, GoN-Protected*) are some of the major conservation target species in the wetland with national and global importance (Annex 2).

Some major conservation target species found at Mai Pokhari :

SNo	Scientific name	Vernacular Name	IUCN RedList (2007)	CITES Appendix	Nepal Government	CMS
Fauna						
Mammal						
	Manis pentadactyla	**Chinese Pangolin**	LR/nt ver 2.3 (1994) (needs updating)	**II**	**P**	**-**
	Prionailurus bengalensis	**Leopard cat**	LC	**II**	**P**	**-**
Bird	***Gyps bengalensis***	**White-rumped Vulture**	CR	**-**	**-**	**II**
Amphibian	***Varanus benghalensis***	**Bengal monitor lizard**	-	**I**	**-**	**-**
	Lutra lutra	**Eurasian Otter**	NT	**I**	**-**	**-**

Source for IUCN : IUCN 2007. *2007 IUCN Red List of Threatened Species.* <www.iucnredlist.org>. Downloaded on **27 September 2008**

Criteria 3: A wetland should be considered internationally important if it supports population of plant and/or animal species important for maintaining diversity of a particular geographic region.

Mai Pokhari wetland is the main habitat of a unique and endemic moss *Sphagnum nepalense* one of the high water holding capacitors, which prevents the evaporation of pond water supporting to maintain the cool and moist habitats necessary for a number of habitat sensitive rare species. In addition a number faunal species like Chheparo, Hariyo Chheparo *(Japalura variegata*)- endemic of east Himalaya)- reptile; Tyang Paha *(Limnonetes nepalensis*)-endemic to Nepal and Khasre bhyaguto, Dhudaribyang, Khatkhyarri meghoba *(Bufo himalayanus*)-TYPE locality in Nepal)-amphibians deserve special significant at international level, have been reported from the wetland.

Criteria 4: A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions

Mai Pokhari watershed has been identified as a potential biodiversity corridor for long-term conservation of protected species of Kanchenjunga Transboundary Landscape Complex, a biodiversity hotspot (Myers, 1988 & 1990). Besides, it serves as a resting and breeding site for more than 300 bird species including rare birds like Yellow-cheeked Tit (*Parus spilonotus*) and Rufous-backed Sibia (*Heterophasia annectens*). The humid environment of the area is very significant for the reproduction of tree frog *Polypedates maculates* (rare species). Likewise, Himalayan warty newt (*Tylototricton verrucosus)* requires water and land substrates to complete its life cycle. Water body is the primary substrate in its life cycle. In the absence of wetland, the rare and endangered species become unable to complete their life cycle resulting to be prone to extinction.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) **biogeographic region:**
Phytogeographically lying in the oriental realm, it serves as the meeting places of four floristic provinces of Asia namely Sino-Japanese, South-east Asiatic, Indian and Central Asiatic. Zoogeographically it extends over Indo-Malayan realm with the overlap of Indian and Indo-Chinese regions. It lies in the region that was identified as the biodiversity hotspot at global level. It covers the land surface of temperate broad-leaved forest, which is one of the WWF Global 200 eco-regions.

b) **biogeographic regionalisation scheme** (include reference citation):
Two major realms of the earth i.e. paleartic and oriental passes through Nepal, and based on the species distribution pattern, Nepal has been understood as cross-road for six floristic provinces (Shrestha, 1999). According to Udvardy (1982) zoogeographical classification, paleartic and Indo-Malayan realms interpenetrates along the Himalaya. Eastern Nepal is characterized by the overlap of Indian and Indo-Chinease zoogeographic regions. Myers's Kanchenjunga biodiversity hotspot covers the eastern part of Nepal as the area of global conservation concern (Myers, 1988 and 1990). WWF's Global 200 ecoregions are the latest biogeographic regionalisation scheme identified for the conservation of biodiversity at international level (WWF and ICIMOD, 2001).

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Mai Pokhari wetland is located at the hill top of 2164 m high. Rainwater and natural springs recharge the water bodies in the wetland. The water in pond is acidic (5.7 pH) in nature with organic context at negligible amount compared to typical domestic waste water composition. Total hardness as $CaCO_3$ (Calcium Carbonate) in the water is 2 mg/litre while total alkalinity as $CaCO_3$ is 2.5 mg/litre. Geologically Mai Pokhari watershed lies in the Higher Himalayan Crystalline group characterized by the presence of 5-10 km thick slab of

high grade metamorphic rocks representing the Precambrian basement. Precambrian high-grade metamorphic rocks comprises gneisses, quartzite and marbles. In the wetland, maximum temperature reaches to 18º C and minimum temperature to 2º C. The area receives about 3000 mm rainfall per year of which monsoon rain covers about 80 %. Climatic data from 1972 to 2003 reveals that climatic condition in the region has not changed significantly over last 30 years.

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17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

Mai Pokhari watershed area covers wide range of land surface extending from Daragaon in the south to Deorali in the north. The overall climate in the area is cold and humid type. A total of about four months from June to September is influenced by monsoon rain. Land use pattern (2000) reveals that 50.4% of the watershed (within 400 ha around Mai pokhari pond) is covered by forest, 23.1% by shrub/grassland and 25.8% by agriculture land.

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18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Lying at the top of the hill, Mai pokhari watershed remains moist almost throughout the year indicating it can serve as natural reservoir for the settlements of lower elevation. As such, a number of spring waters, a major drinking water source of the settlements are found in the watershed. Although, scientific information regarding the water table and ground water recharging system is lacking, existence of spring waters and permanent pond at hill top clearly indicate the area with high hydrological value.

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19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • (Tp) (Ts) • (U) • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

Tp, Ts and U

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20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Mai Pokhari wetland lies in the ecotone of *Schima-Castanopsis* and Oak-laurel forest belts. The natural forest has been largely affected by the introduction of exotic tree species

Japanese pine (*Cryptomeria japonica*). More than 200 species of plant species covering 17 species of orchids, 3 species of magnolias, 36 species of trees, 9 species of ephiphytic orchids, 5 species of rhododendron etc have been recorded from the area. Similarly, the area has been reported to have a total of 22 species of herpetofauna, 32 species of resident birds and 10 species of mammals. In addition, Mai Pokhari watershed is the main habitat for sphagnum moss (*Sphagnum nepalense*). Evapo-transpiration of the broad-leaved forest in adjoining areas of the pond and topographical structure of the area keeps the watershed cool and humid almost throughout the year. This supports to maintain the habitats for number of sensitive species like tree frog, warty newt and other wetland species. In the consequence, the area maintains the fresh water supply for local communities.

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21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

In addition to globally significant species, Mai pokhari wetland shelters large number of economically and ecologically valuable species. As such, an oak tree (*Quercus lamellosa*), a dominant component of Oak-laurel vegetation type is one of the noteworthy flora of the area because it serves as a main habitat for globally significant epiphytic orchids which can not flourish in the pine tree. Similarly, Lali gurans *(Rhododendron arboreum*)-National flower, *R. dalhousiae, R. campanulatum,* Ghoge Champ (*Magnolia campbellii*), Seto Champ *(Michelia doltsopa*), Gogai Champ (*M. velutina*) are some of the tree species of the area with significant values. Such biodiversity rich area is being affected by Japanese pine (*Cryptomeria japonica*), alien tree species. This species was introduced into area by local people from Darjeeling, India about 40 years ago.

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22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Mai Pokhari wetland is significant not only for the conservation of nationally and globally important species but also for a number of species of frogs and toads group like *Bufo himalayanus* (Lekali Khashre), *Amolops marmoratus* (Tite Pahaa), *Limnonetes nepalensis, L. syhadrensis* (Jhikre Bhyagute), *Megophrys parva* (Jhari Bhyagute), *Polypedates maculatus* (Rukh Bhyagute) which deserves special significance. Among them, *Megophrys parva* prefers edge of water source in subtropical oak forest. And Mai pokhari wetland lies within the territory of Mai Valley, an important area of forest's bird conservation (Inskipp, 1989) with a record of more than 300 species. As such, some of them, which occur in the wetland like White-browed Bush Robin (*Tarsiger indicus)*, Grey-winged Blackbird (*Turdus boulboul*) and Indian Blue Robin (*Luscinia brunnea*), are internationally significant for which Nepal may hold internationally significant breeding population. Likewise Yellow-vented Warbler (*Phylloscopus cantator),* Barred Cuckoo Dove (*Macropygia unchall),* Banded Bay Cuckoo (*Cacomantis sonneratti)* and Pale-Blue Flycatcher (*Cyornis Unicolor),* are locally rare birds occurred in the wetland. Similarly, a number of lizards like Bhaise gohoro, Nirbud, Kalogohati (*Varanus bengalensis*), Chheparo, Hariyo Chheparo

***(Oriotaiaris tricarninatus*) , Bhanemungro, Chikani girgit *(Sphaenomorphus indicus*) have also been found in the area. *Trichyschium* sps, Sarpa, Sanbe Sarpa *(Elaphe cantoris*), Chankhe Sarpa, Rato sarpa (*Amphiesma paltyceps*), Sarpa, Gurube, Andho Sarpa, Chhirbire Sarpa *(Ovophis monticola*), Sarpa *(Sibynophis collaris*) etc are some of snakes of the area with special significance.**

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23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

Mai Pokhari (Mai=Mother and Pokhari=Pond) is a site of highly significant religio-cultural value. It is the convergence point of Mundhumism (Animism), Hinduism and Buddhism religious traditions as *Mai-Religio-Culture*. Traditionally, the Mai is also known as a powerful deity to relieve children from chicken pox/small pox. Hence, it is recognized as a sacred pond for religio-cultural pilgrimage having high eco-tourism prospect.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box √❑ and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

There are three local management authorities (Mai Pokhari Religious Forest Group that takes care of the pond and its vicinity, and Bhedi Chowk Community Forest Users Group and Bhalu Kateri Community Forest Users Group that manage nearby forests of the area) found within the wetland site having their own rules and regulations developed through mass meetings of the local users/communities and endorsed with the District Forest Office to use and maintain the wetland site.

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

Mythlogically, it was one of the comical places of Paruhang and Sumnima (Maha Deva and Parvati, the god and goddess, both as creator and destroyer of universe in Hindu mythology), the ancestors of indigenous Kirant people of eastern Nepal. Historically, it was a place of religious performance and meditation of different devotees and holy persons of different religion and sects, which resulted to establish hermitages, shrines, temples and monasteries on the site recently.

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

Every year, thousands of people from different traditions and geographical areas gather to pray and wish with the Mai Pokhari in Thulo Ekadashi of Kartik month, the 11th lunar and auspicious day of November. Shamans, monks, priests, hermits

and devotees come to visit the pond-shrines and worship the Mai in the full moon of Baishak month (April and May). The pond-shrines are visited by a large number of devotees all the year round.

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

The pond is revered as Mother-Goddess of water and it has fostered shrines, temples, hermitages and monasteries on the site as *Mai-Religio-Culture*. The *Mai-Religio-Culture* does not allow pollution in the wetland; it demands natural atmosphere and inviolability. For instance, the district authorities introduced boating on the pond for tourism development in 2000, but it did not go for long due to a strong complaint raised by *Mai-Religio-Cultural* people.

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24. Land tenure/ownership:

a) within the Ramsar site:
The site is owned by both community forests and private lands

b) in the surrounding area:
The surrounding area is also owned by both community forests and private lands

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25. Current land (including water) use:

a) within the Ramsar site:

The site includes about 15 households with 80 populations along with 2 hermitages amid scattered settlements. Locals cultivate crops, tea and vegetables in the terraces around homesteads and graze animals. They collect firewood, fodder, leaf litter, wild vegetables and timber from the forests. Pilgrims and hermitages perform religious activities including the arrangement of marriage ceremony. People use water for drink, animals and irrigation.

Nature loving people visit the site for peace and recreation.
The Department of Plant Resources of Ministry of Forest and Soil Conservation has a botanical garden and an orchid house in the area.

b) in the surroundings/catchment:

The catchments is followed by forests, shrubs, springs, agricultural terraces fields and settlements with about 50 households and 260 populations, and they also collect firewood, fodder, leaf litter, wild vegetables and timber from the forests. The residents graze livestock, practice agriculture along with tea and big cardamom plantation and use water for drink, animals and irrigation.

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26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

Factors affecting in the site's ecological characters in the past were introduction of Japanese pine (*Cryptomeria japonica*), an exotic species: Since biodiversity is the composite of species communities and mai pokhari wateshed is rich in species communities including the epiphytic orchids, birds etc, indigenous floral and faunal (specially birds) species do not prefer pine tree. In the consequence, the indigenous species might be lost from the area.

- Introduction of exotic fish like gold fish (*Carassius auratus*) in the pond: Mai pokhari wetland is the prime habitat of Sphagnum moss and Himalayan Newt. The gold fish used to eat the eggs of the newt, which results an adverse impact on the life cycle of the significant amphibian.
- Multiple authorities of government line agencies (District Forest Office, District Development Committee, Botanical Garden Project of the Department of Plant Resource, District Soil Conservation Office, Village Development Committees, Community Forest User Groups etc which claim their own type of authorities on the wetland site)
- Boating on the pond
- Removed endemic moss mats and floating carpets from the pond
- Development of botanical garden by clearing local species and by introducing exotic flowering plants
- Trash pollution caused by hermitages and religious performance
- Mud collection and soil erosion
- Pond edge damaged due to intractable flow of pilgrims and visitors
- Collection of firewood, fodder, leaf litter, medicinal plants as well as timber
- Path construction around the main pond
- Concreted construction of guesthouse, picnic huts, hermitages, gully dams, statue, gates and resting place
- Poaching and grazing
- Sanskrit school
- Land encroachment and settlement increase along the road
- Chemical fertilizer and pesticide use for agriculture practices

Factors affecting in the site's ecological characters at present are

- Large coverage of Japanese pine/coniferous trees (*Cryptomeria japonica*),
- Existence of gold fishes (*Carassius auratus*)
- Existence of botanical garden and expansion of exotic species
- Motorable road passing nearby the pond
- Multiple authorities of government line agencies (District Forest Office, District Development Committee, Botanical Garden Project of the Department of Plant Resource, District Soil Conservation Office, Village Development Committees, Community Forest User Groups, Mai Pokhari Religious Forest Group etc which claim their own type of authorities on the wetland site)
- Development of botanical garden by clearing local species and by introducing exotic flowering plants
- Extensive performance of hermitages
- Soil erosion
- Sanskrit school
- Settlement increase along the road
- Chemical fertilizer and pesticide use for agriculture practices

Potential factors affecting in the site's ecological characters are

- Existence of multiple authorities
- Existence of Japanese pine(*Cryptomeria japonica*)
- Existence of gold fishes(*Carassius auratus*)
- Population and settlement growth along with hotels
- Expansion of tea gardens and big cardamom cultivation
- Extensive performance of temple hermitages

- Existence of road
- Continuation of chemical fertilizer and pesticide use
- Land encroachment
- New concreted construction
- Irregularity of existing conservation rules and regulations developed by Mai Pokhari Religious Forest Group

b) in the surrounding area:
Same as in wetland site

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27. Conservation measures taken:
a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

Mai Pokhari Religious Forest Group was established in April 2005 based on Nepal Government's Forest Act and National Wetlands Policy-2003 and registered with the District Forests Office. It lies in the midst of 16 protected areas (11 in northeast India i.e. Khangchendzonga, Shimba, Kyongnosta, Fabong Lho, Maenam, Barsey, Singalila, Senchal, Neora Valley, Mahananda and Jor Pokhari; 4 in Nepal i.e. Sagarmatha, Makalu-Barun, Kangchenjunga and Koshi Tappu and 1 in China i.e. Qomolungma) in east Himalayan eco-region, recognized as one of the hotspots in the world.

The East Foundation (TEF), which launched Mai Pokhari Wetland Conservation Project with the financial support from the Netherlands Committee for IUCN, Small Grants for Wetlands Program (NC-IUCN/SWP) in 2005/2006, has established biodiversity conservation measures in the site.

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ❑;Ib ❑; II ❑; III ❑; IV ❑; V ❑; VI ❑

c) Does an officially approved management plan exist; and is it being implemented?:

NA (Not Available)

d) Describe any other current management practices:

Religious forest management and Community forest management practice s at local level along with wetland conservation rules & regulations.

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28. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

The rules & regulations, an 8-years strategic plan and monitoring sheets including the constitution of Mai Pokhari Religious Forest Group for Mai Pokhari wetland conservation have been prepared and being implemented by Mai Pokhari Religious Forest Group since 2006 through the facilitation of Mai Pokhari Wetland Conservation Project (TEF/NC-IUCN/SWP). But they are not formally approved yet by the District Forests Office due to

long administrative process. Likewise, Mai Pokhari Conservation and Development Master Plan is also being prepared by Ilam District Development Committee with the financial support from Mai Pokhari Wetland Conservation Project.

29. Current scientific research and facilities:
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

There are Mai Pokhari Information Center, Mai Pokhari Eco-Herpetofauna Conservation Center, Eco-Germplasm Nursery, division of species conservation blocks/areas, pollution control mechanism and local women and students' eco-clubs along with monitoring sheets developed by Mai Pokhari Wetland Conservation Project in 2005/2006. Besides, there are green and orchid houses developed by botanical garden project of the Department of Plant Resources. Natural science students do make field trip for their post graduate thesis.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:
e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

In and for Mai Pokhari wetland site, Mai Pokhari Wetland Conservation Project has established Mai Pokhari Information Center and developed brochure (in Nepali) and posters of the wetland and Himalayan warty newt lifecycle. The project provided trainings on wetland and wetland management, monitoring sheets use, organizational capacity building, leadership development, gender & social inclusion, monitoring & evaluation and program planning.

31. Current recreation and tourism:
State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Mai Pokhari is highly favored destination of pilgrims as well as naturalists/students. A record that was taken during the period from May 28, 2006 to June 26, 2006 shows that there were 200 people visited the site within the period from different places. The area adds recreational values for the people.

32. Jurisdiction:
Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Territorial state owned by Ministry of Forests and Soil Conservation
Functional Department: Department of Forests

33. Management authority:
Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Sudhir Koirala, (Mr.), District Forest Officer
District Forests Office, Ilam District, Nepal
Ph: +977-027-520027 (o), +977-027-520052 ®

Purna Mukhiya, (Mr.), Chairperson of MARFOG
Mai Pokhari Religious Forest Group (MARFOG) with Bhedi Chowk and Bhalu Kateri Community Forest User Groups (CFUGs)
Jasbire, Mai Pokhari VDC-1, Ilam, Nepal

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

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Annex 1: Nationally and globally significant flora of Mai Pokhari wetland area

Family	Genus	Species	Local Name	Nepal Government Protected	IUCN	CITES
MAGNOLIACEAE	*Magnolia*	*campbellii*	Ghoge Champ			II
MAGNOLIACEAE	*Michelia*	*doltsopa*	Seto Champ			II
MAGNOLIACEAE	*Michelia*	*velutina*	Gogai Champ			II
ORCHIDACEAE	*Calanthe*	*brevicornu*				II
ORCHIDACEAE	*Calanthe*	*plantaginea*				II
ORCHIDACEAE	*Cymbidium*	*iridioides*				II
ORCHIDACEAE	*Cymbidium*	*longifolium*				II
ORCHIDACEAE	*Dendrobium*	*aphyllum*				II
ORCHIDACEAE	*Dendrobium*	*longicornu*				II
ORCHIDACEAE	*Pleione*	*hookeriana*				II
ORCHIDACEAE	*Vandopsis*	*undulata*				II
PINACEAE	*Pinus*	*Wallichiana*	Salla		LC	II
TAXACEAE	*Taxus*	*baccata*	Loth Salla	Yes	DD	II

Annex 2: Nationally and globally significant fauna of Mai Pokhari wetland area

Group	Genus	Species	English name	Nepal Government Protected	IUCN	CITES
Bird	Spilornis	*cheela*	Crested Serpent Eagle		LC	II
Bird	*Falco*	*tinnunculus*	Common Kestrel		LC	II
Bird	*Leiothrix*	*lutea*	Red-billed Leiothrix		LC	II
Mammal	Canis	*aureus*	Golden Jackal		LC	III
Mammal	*Macaca*	*Mulatta*	Rhesus Macaque		NT	II
Mammal	*Felis*	*Chaus*	Jungle Cat		LC	II
Mammal	*Herpestes*	*edwardsii*	Common mongoose		LC	III

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Annex III: List of Non-flowering plants recorded in Mai Pokhari wetland area

Family	Genus	Species
SPHAGNACEAE	*Sphagnum*	*nepalense*
BOTRYCHIACEAE	*Botrychium*	*multifidum*
DAVALLIACEAE	*Leucostegia*	*immersa*
GLEICHNENIACEAE	*Gleichenia*	*gigantean*
LYCOPODIACEAE	*Lycopodiella*	*cernua*
LYCOPODIACEAE	*Lycopodium*	*japonicum*
POLYPODIACEAE	*Arthromeris*	*wallichiana*
POLYPODIACEAE	*Goniophlebium*	*argutum*
POLYPODIACEAE	*Lepisorus*	*loriformis*
POLYPODIACEAE	*Lepisorus*	*nudus*
PTERIDACEAE	*Pteris*	*biaurita*
PTERIDACEAE	*Pteris*	*wallichiana*

Annex IV: List of flowering plants recorded in Mai Pokhari wetland area

Family	Genus	Species
ACANTHACEAE	*Dicliptera*	*bupleuroides*
ACANTHACEAE	*Hypoestes*	*triflora*
ACANTHACEAE	*Justicia*	*procumbens*
ACANTHACEAE	*Thunbergia*	*coccinea*
ACERACEAE	*Acer*	*sikkimense*
AMARANTHACEAE	*Cyathula*	*capitata*
ANACARDIACEAE	*Dobinea*	*vulgaris*
ANACARDIACEAE	*Rhus*	*succedanea*
AQUIFOLIACEAE	*Ilex*	*dipyrena*
ARACEAE	*Arisaema*	*consanguineum*
ARACEAE	*Arisaema*	*costatum*
ARACEAE	*Arisaema*	*erubescens*
ARACEAE	*Arisaema*	*tortuosum*
ARALIACEAE	*Hedera*	*nepalensis*
ARALIACEAE	*Panax*	*pseudoginseng*
ARALIACEAE	*Schefflera*	*impressa*
ASCLEPIADACEAE	*Ceropegia*	*hookeri*
ASCLEPIADACEAE	*Ceropegia*	*pubescens*
BALANOPHORACEAE	*Balanophora*	*involucrata*
BALSAMINACEAE	*Impatiens*	*graciliflora*
BALSAMINACEAE	*Impatiens*	*racemosa*
BEGONIACEAE	*Begonia*	*megaptera*
BERBERIDACEAE	*Berberis*	*aristata*
BERBERIDACEAE	*Berberis*	*chitria*
BERBERIDACEAE	*Mahonia*	*napaulensis*
BETULACEAE	*Alnus*	*nepalensis*
BETULACEAE	*Betula*	*utilis*
CAMPANULACEAE	*Campanula*	*pallida*
CAMPANULACEAE	*Codonopsis*	*convolvulacea*
CAMPANULACEAE	*Codonopsis*	*viridis*
CAPRIFOLIACEAE	*Lonicera*	*glabrata*
CARYOPHYLLACEAE	*Drymaria*	*diandra*
COMMELINACEAE	*Amischophacelus*	*axillaris*
COMMELINACEAE	*Streptolirion*	*volubile*
COMPOSITAE	*Adenostemma*	*lavenia*
COMPOSITAE	*Ageratina*	*adenophora*
COMPOSITAE	*Ainsliaea*	*latifolia*
COMPOSITAE	*Anaphalis*	*contorta*
COMPOSITAE	*Anaphalis*	*margaritacea*
COMPOSITAE	*Artemisia*	*dubia*
COMPOSITAE	*Aster*	*tricephalus*
COMPOSITAE	*Bidens*	*bipinnata*
COMPOSITAE	*Conyza*	*stricta*
COMPOSITAE	*Erigeron*	*bellidioides*
COMPOSITAE	*Galinsoga*	*parviflora*

Family	Genus	Species
COMPOSITAE	*Gnaphalium*	*affine*
COMPOSITAE	*Lactuca*	*glaucifolia*
COMPOSITAE	*Senecio*	*scandens*
COMPOSITAE	*Siegesbeckia*	*orientalis*
COMPOSITAE	*Spilanthes*	*calva*
CRUCIFERAE	*Pycnoplinthopsis*	*bhutanica*
CRUCIFERAE	*Rorippa*	*nasturtium-aquaticum*
CUCURBITACEAE	*Edgaria*	*darjeelingensis*
CYPERACEAE	*Bulbostylis*	*densa*
CYPERACEAE	*Carex*	*filicina*
CYPERACEAE	*Pycreus*	*sanguinolentus*
ERICACEAE	*Agapetes*	*incurvata*
ERICACEAE	*Agapetes*	*serpens*
ERICACEAE	*Gaultheria*	*nummularioides*
ERICACEAE	*Lyonia*	*ovalifolia*
ERICACEAE	*Rhododendron*	*arboreum*
ERICACEAE	*Rhododendron*	*campanulatum*
ERICACEAE	*Rhododendron*	*cinnabarinum*
ERICACEAE	*Rhododendron*	*dalhousiae*
ERICACEAE	*Rhododendron*	*triflorum*
ERICACEAE	*Vaccinium*	*gaultheriifolium*
ERICACEAE	*Vaccinium*	*retusum*
ERICACEAE	*Vaccinium*	*vacciniaceum*
EUPHORBIACEAE	*Baliospermum*	*corymbiferum*
EUPHORBIACEAE	*Macaranga*	*pustulata*
FAGACEAE	*Castanopsis*	*hystrix*
FAGACEAE	*Lithocarpus*	*pachyphylla*
FAGACEAE	*Quercus*	*glauca*
FAGACEAE	*Quercus*	*lamellosa*
GENTIANACEAE	*Gentiana*	*pedicellata*
GENTIANACEAE	*Swertia*	*angustifolia*
GENTIANACEAE	*Swertia*	*bimaculata*
GENTIANACEAE	*Swertia*	*chirayita*
GESNERIACEAE	*Didymocarpus*	*primulifolius*
GRAMINEAE	*Arthraxon*	*lancifolius*
GRAMINEAE	*Arundinaria*	*falcata*
GRAMINEAE	*Arundinaria*	*maling*
GRAMINEAE	*Bothriochloa*	*intermedia*
GRAMINEAE	*Capillipedium*	*assimile*
GRAMINEAE	*Cyrtococcum*	*accrescens*
GRAMINEAE	*Dactylis*	*Sps*
GRAMINEAE	*Eragrostis*	*nigra*
GRAMINEAE	*Erianthus*	*ravennae*
GRAMINEAE	*Imperata*	*cylindrica*
GRAMINEAE	*Microstegium*	*ciliatum*

Family	Genus	Species
GRAMINEAE	*Setaria*	*geniculata*
GRAMINEAE	*Sporobolus*	*fertilis*
GRAMINEAE	*Thysanolaena*	*maxima*
HAMAMELIDACEAE	*Exbucklandia*	*populnea*
HYDRANGEACEAE	*Dichroa*	*febrifuga*
HYDRANGEACEAE	*Hydrangea*	*robusta*
HYPERICACEAE	*Hypericum*	*choisianum*
HYPERICACEAE	*Hypericum*	*uralum*
JUNCACEAE	*Juncus*	*prismatocarpus*
LABIATAE	*Clinopodium*	*umbrosum*
LABIATAE	*Elsholtzia*	*flava*
LABIATAE	*Elsholtzia*	*strobilifera*
LABIATAE	*Leucosceptrum*	*canum*
LABIATAE	*Melissa*	*axillaris*
LABIATAE	*Notochaete*	*hamosa*
LARDIZABALACEAE	*Holboellia*	*latifolia*
LAURACEAE	*Lindera*	*neesiana*
LAURACEAE	*Lindera*	*pulcherrima*
LAURACEAE	*Persea*	*clarkeana*
LEGUMINOSAE	*Erythrina*	*arborescens*
LEGUMINOSAE	*Parochetus*	*communis*
LEGUMINOSAE	*Piptanthus*	*nepalensis*
LILIACEAE	*Cardiocrinum*	*giganteum*
LILIACEAE	*Chlorophytum*	*nepalense*
LILIACEAE	*Hemerocallis*	*fulva*
LILIACEAE	*Lilium*	*wallichianum*
LILIACEAE	*Paris*	*polyphylla*
LILIACEAE	*Polygonatum*	*oppositifolium*
LILIACEAE	*Smilacina*	*oleracea*
LILIACEAE	*Smilax*	*lanceifolia*
LILIACEAE	*Smilax*	*menispermoidea*
LILIACEAE	*Smilax*	*rigida*
LOGANIACEAE	*Buddleja*	*asiatica*
LORANTHACEAE	*Scurrula*	*elata*
MAGNOLIACEAE	*Magnolia*	*campbellii*
MAGNOLIACEAE	*Michelia*	*doltsopa*
MAGNOLIACEAE	*Michelia*	*velutina*
MELASTOMATACEAE	*Osbeckia*	*stellata*
MELASTOMATACEAE	*Sarcopyramis*	*napalensis*
MORACEAE	*Ficus*	*neriifolia*
MYRSINACEAE	*Maesa*	*chisia*
NYMPHAEACEAE	*Nymphaea*	*stellata*
OLEACEAE	*Jasminum*	*dispermum*
ORCHIDACEAE	*Arundina*	*graminifolia*
ORCHIDACEAE	*Calanthe*	*brevicornu*

Family	Genus	Species
ORCHIDACEAE	*Calanthe*	*plantaginea*
ORCHIDACEAE	*Calanthe*	*tricarinata*
ORCHIDACEAE	*Coelogyne*	*corymbosa*
ORCHIDACEAE	*Coelogyne*	*cristata*
ORCHIDACEAE	*Cymbidium*	*iridioides*
ORCHIDACEAE	*Cymbidium*	*longifolium*
ORCHIDACEAE	*Dendrobium*	*aphyllum*
ORCHIDACEAE	*Dendrobium*	*longicornu*
ORCHIDACEAE	*Epigenium*	*rotundatum*
ORCHIDACEAE	*Eria*	*musicola*
ORCHIDACEAE	*Eulophia*	*herbacea*
ORCHIDACEAE	*Habenaria*	*pectinata*
ORCHIDACEAE	*Pleione*	*hookeriana*
ORCHIDACEAE	*Spiranthes*	*sinensis*
ORCHIDACEAE	*Vandopsis*	*undulata*
OXALIDACEAE	*Oxalis*	*corniculata*
PHYTOLACCACEAE	*Phytolacca*	*acinosa*
PINACEAE	*Pinus*	*roxburghii*
PINACEAE	*Pinus*	*wallichiana*
PLANTAGINACEAE	*Plantago*	*erosa*
PLANTAGINACEAE	*Plantago*	*major*
POLYGONACEAE	*Aconogonum*	*molle*
POLYGONACEAE	*Persicaria*	*chinensis*
POLYGONACEAE	*Persicaria*	*hydropiper*
POLYGONACEAE	*Persicaria*	*nepalensis*
POLYGONACEAE	*Persicaria*	*runcinata*
POLYGONACEAE	*Rumex*	*nepalensis*
RANUNCULACEAE	*Clematis*	*acuminata*
RANUNCULACEAE	*Clematis*	*buchananiana*
RANUNCULACEAE	*Ranunculus*	*hirtellus*
ROSACEAE	*Duchesnea*	*indica*
ROSACEAE	*Fragaria*	*nubicola*
ROSACEAE	*Potentilla*	*fulgens*
ROSACEAE	*Potentilla*	*kleiniana*
ROSACEAE	*Prunus*	*cerasoides*
ROSACEAE	*Rosa*	*sericea*
ROSACEAE	*Rubus*	*acuminatus*
ROSACEAE	*Rubus*	*biflorus*
ROSACEAE	*Rubus*	*calycinus*
ROSACEAE	*Rubus*	*ellipticus*
ROSACEAE	*Rubus*	*paniculatus*
ROSACEAE	*Rubus*	*rugosus*
ROSACEAE	*Rubus*	*treutleri*
ROSACEAE	*Spiraea*	*arcuata*
RUBIACEAE	*Galium*	*aparine*

Family	Genus	Species
RUBIACEAE	*Luculia*	*gratissima*
RUBIACEAE	*Rubia*	*manjith*
RUTACEAE	*Euodia*	*fraxinifolia*
RUTACEAE	*Zanthoxylum*	*acanthopodium*
SAMBUCACEAE	*Viburnum*	*cylindricum*
SAMBUCACEAE	*Viburnum*	*erubescens*
SAURAUIACEAE	*Saurauia*	*napaulensis*
SAXIFRAGACEAE	*Astilbe*	*rivularis*
SAXIFRAGACEAE	*Bergenia*	*ciliata*
SAXIFRAGACEAE	*Saxifraga*	*Sps*
SCHISANDRACEAE	*Schisandra*	*grandiflora*
SCROPHULARIACEAE	*Hemiphragma*	*heterophyllum*
SCROPHULARIACEAE	*Mimulus*	*nepalensis*
SCROPHULARIACEAE	*Torenia*	*cordifolia*
SOLANACEAE	*Cestrum*	*elegans*
SOLANACEAE	*Nicotiana*	*tabacum*
SYMPLOCACEAE	*Symplocos*	*ramosissima*
TAXACEAE	*Taxus*	*baccata*
TAXODIACEAE	*Cryptomeria*	*japonica*
THEACEAE	*Camellia*	*sinensis*
THEACEAE	*Eurya*	*cerasifolia*
THYMELAEACEAE	*Daphne*	*bholua*
THYMELAEACEAE	*Edgeworthia*	*gardneri*
UMBELLIFERAE	*Heracleum*	*nepalense*
UMBELLIFERAE	*Hydrocotyle*	*himalaica*
UMBELLIFERAE	*Oenanthe*	*thomsonii*
UMBELLIFERAE	*Selinum*	*wallichianum*
URTICACEAE	*Boehmeria*	*clidemioides*
URTICACEAE	*Chamabainia*	*cuspidata*
URTICACEAE	*Gonostegia*	*Hirta*
URTICACEAE	*Lecanthus*	*peduncularis*
URTICACEAE	*Urtica*	*dioica*
VALERIANACEAE	*Valeriana*	*hardwickii*
VIOLACEAE	*Viola*	*hamiltoniana*
VITACEAE	*Tetrastigma*	*serrulatum*
ZINGIBERACEAE	*Cautleya*	*gracilis*
ZINGIBERACEAE	*Roscoea*	*purpurea*