Research Article

SPECIES COMPOSITION, DISTRIBUTION, LIFE FORMS AND FOLK NOMENCLATURE OF FOREST AND COMMON LAND PLANTS OF WESTERN CHITWAN, NEPAL

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ABSTRACT

This paper enumerates 349 plant species belonging to 77 families of vascular plants collected in the winter seasons of 1996 and 2000 by the flora teams of the Population and Ecology Research Laboratory, Nepal. Of the total species, 249 species belong to dicotyledons, 87 species to monocotyledons and 13 species to pteridophytes. Among the families, dicotyledons contributed the highest number of families (55 in number) followed by monocotyledons and pteridophytes. In the study areas, species composition varies with the type of habitats in the study plots. Some species are unique in distribution. The highest unique species are contributed by common lands (87 spp.), followed by the Chitwan National Park forest (36 spp.) and Tikauli forest (32 spp.). *Ageratum houstonianum* Mill., *Cynodon dactylon* (L.) Pers., *Imperata cylindrica* (L.) Beauv., *Rungia parviflora* (Retz.) Nees, *Saccharum spontaneum* L. and *Thelypteris auriculata* (J. Sm.) K. Iwats are the most common species across all the research blocks. Of the listed plants, many plants have local names either in Nepalese or other tribal languages. Plants are named in different ways on the basis of habit, habitat, smell, taste, and morphological characters of the plants, which are also the basis of nomenclature in plant taxonomy.

Key words: Folk name, plant biodiversity, plant distribution, species composition analysis

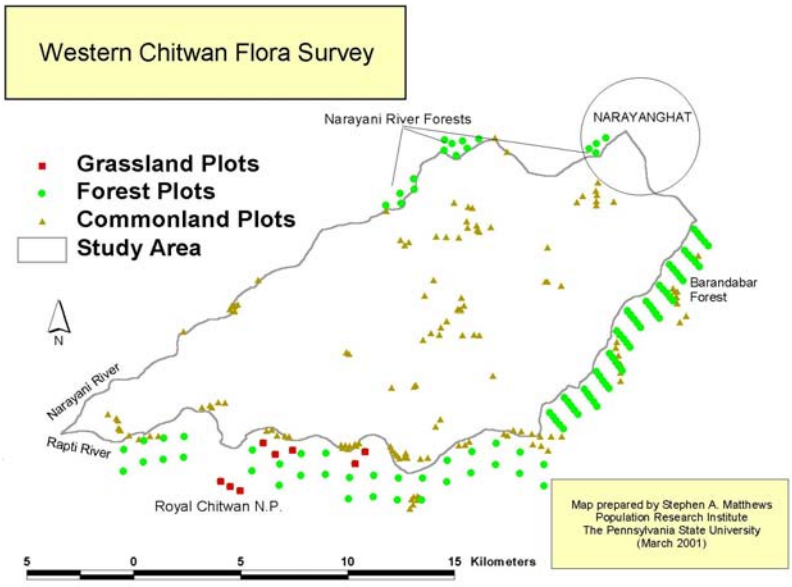
INTRODUCTION

Plants, people and culture are very closely linked with each other and one factor affects others in any ecosystem of the world (Bhuju and Rana, 2000; Cosgriff *et al.*, 1999; Dinerstein, 1992, Ghimire *et al.*, 1999; Roy and Pokharel, 2000). The dependence of people on the plants of any area is affected by many biotic and environmental factors. The utilization of plants also depends on the knowledge of the people, and their choice of resources for their existence (IUCN, 1994). Therefore, people of any area are the key factors for the loss or replacement or introduction of the plant diversity from/in a particular place. To understand what, how, and when people extract/exploit the plant wealth for the benefit of the people or understanding the status of the plants and people relationship, first we have to know the kinds of flora and vegetation of a particular locality (Penitsa *et al.*, 1994; Turner, 1997). We also have to explore how the people and environment are interacting with each other. In this context we have collected data on population and the environment to understand the reciprocal relation of people, plants and the environment at micro-level. Matthews *et al.* (2000) examined reciprocal relation of population and the environment in the western Chitwan. In this paper, plant specimens collected in winter seasons of 1996 and 2000 will be dealt with to highlight species diversity, life forms, distribution and folk nomenclature of plants in the selected study areas of western Chitwan.

METHODOLOGY

Plant specimens were collected from research plots located in three forests and 138 common lands of western Chitwan (Map 1). The forest plots were distributed in three natural forests and three *Dalbergia sissoo* plantation forests. Of the three natural forests, one forest lies in the Royal Chitwan National Park, the first national park of Nepal which is also cited in CITES list. Ten other plots were located in the savanna grassland of the same national park. The common land plots were scattered in 38 neighborhoods. The present list is prepared from the plants encountered inside the research plots of different sizes (10 x 10; 3 x 3; and 1 x 1 m^2). This catalogue includes all the plant resources of the forests and common lands of western Chitwan listed in the flora forms and the specimens collected by flora teams supervisors and author himself during January-April, 1996 and January-April, 2000.

Nomenclature follows the "Annotated checklist of the flowering plants of Nepal" (Press et al., 2000), "Enumeration of the vascular plants of west Nepal" (Rajbhandari et al., 1994), "The plant book: a portable dictionary of the higher plants" (Mabberley, 1987) and "CRC world dictionary of plant names" (Quattrochhi, 2000).



Map 1. Flora plots in western Chitwan, Nepal

RESULTS AND DISCUSSION

Species composition analysis

This checklist includes a total of 349 species belonging to 249 genera and 77 families of vascular plants of western Chitwan. Among the taxa, dicotyledons contributed the highest number of families (55), genera (180) and species (249), followed by monocotyledons and pteridophytes (Figure 1). Earlier studies also reported the Poaceae as the most important family in Rampur condition (Dangol, 1998-1999; Dangol and Gurung, 1998: 1989). Asteraceae was reported as the largest family in the flora of Nepal (Hara *et al.* 1978, 1979, 1982) and Leguminosae recorded as the largest family in Morang district and adjoining areas of Nepal (Jha and Jha, 2000). This indicates that the dominance of a family varies from place to place. The Poaceae are the largest family in terms of number of genera and species, followed by Leguminosae, Asteraceae, Cyperaceae, Labiatae, Rubiaceae, Scrophulariaceae and Euphorbiaceae (Table 1). The Acanthaceae, Commelinaceae, Tiliaceae, Verbenaceae and Boraginaceae also increase the diversity of species in the study areas. The families with few species are comparatively more, for example, 6 families of pteridophytes, 20 of dicotyledons and 5 of monocotyledons contributed one species each (Table 2).

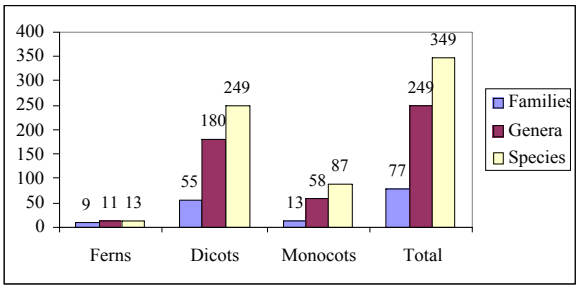


Figure 1. Floristic analysis of plants of western Chitwan

Table 1. Families with the largest number of genera and species in the vascular flora of western Chitwan, Nepal

Families	Genera	Species
Poaceae	31	45
Leguminosae	23	39
Asteraceae	29	36
Cyperaceae	9	16
Rubiaceae	7	15
Scrophulariaceae	7	15
Labiatae	10	15
Euphorbiaceae	6	10
Acanthaceae	7	9
Commelinaceae	4	8

Table 2. Species checklist of the plants of western Chitwan, Nepal

Family	Specific epithet	Nepali name	Life form	Distribution
Acanthaceae	*Barleria cristata* L.	Kuro	S	TF, RF, CL
Acanthaceae	*Hemigraphis hirta* (Vahl) T. Anderson		H	TF, RF
Acanthaceae	*Hygrophila auriculata* (Schumach.) Hein		H	CL
Acanthaceae	*Hygrophila polysperma* (Roxb.) T. Anderson		H	CL
Acanthaceae	*Justicia quinqueangularis* Koenig.		H	CL
Acanthaceae	*Justicia* sp.		H	NF
Acanthaceae	*Lepidagathis incurva* Buch.-Ham. ex D. Don	Bankuro	H	NF
Acanthaceae	*Nelsonia canescens* (Lam.) Spreng.		H	RF
Acanthaceae	*Rungia parviflora* (Retz.) Nees	Runche jhar	H	TF, RF, NF, GL, CL
Amaranthaceae	*Achyranthes aspera* L.	Datiwan	H	TF, NF, CL
Amaranthaceae	*Aerva lanata* Juss.		H	NF
Amaranthaceae	*Alternanthera sessilis* (L.) DC.	Bhiringi jhar	H	CL
Anacardiaceae	*Buchanania latifolia* Roxb.	Bhalayo	T	TF
Anacardiaceae	*Semecarpus anacardium* L. f.	Bhalayo	T	TF
Apiaceae	*Centella asiatica* (L.) Urb.	Ghodtapre	H	TF, NF, GL, CL
Apiaceae	*Hydrocotyle sibthorpioides* Lam.	Sano ghodtapre	H	RF, NF, CL
Apiaceae	*Oenanthe javanica* (Blume) DC.		H	RF, CL
Apocynaceae	*Alstonia scholaris* (L.) R. Br.	Chhatiwan	T	CL
Apocynaceae	*Holarrhena pubescens* (Buch.-Ham.) Wall. ex G. Don	Dudhkhirro	T	TF, RF
Apocynaceae	*Trachelospermum lucidum* (D. Don) K. Schum.	Salikal	CS	RF
Apocynaceae	*Vallaris solanacea* (Roth) Kuntze	Dudhe lahara	CS	TF, NF
Araceae	*Colocasia esculenta* (L.) Schott.	Pidalu	H	RF
Arecaceae	*Phoenix humilis* Royle ex Becc. & Hook. f.	Dhotipate/ Thakal	DT	TF, RF
Asclepiadaceae	*Calotropis gigantea* (L.) Dryand	Aank	S	CL
Asteraceae	*Adenostemma lavenia* (L.) Kuntze		H	RF, CL.
Asteraceae	*Ageratum conyzoides* L.	Gandhe (Seto)	H	NF, CL
Asteraceae	*Ageratum houstonianum* Mill.	Gandhe (Nilo)	H	TF, RF, NF, GL, CL
Asteraceae	*Artemisia dubia* Wall. ex Besser	Titepati	H	NF
Asteraceae	*Bidens pilosa* L.	Kalo kuro	H	CL
Asteraceae	*Blumea lacera* (Burm. f.) DC.	Thulo mulapate	H	CL
Asteraceae	*Blumea laciniata* DC.	Thulo mulapate	H	TF, RF, GL, CL
Asteraceae	*Blumea* sp.	Thulo mulapate	H	RF
Asteraceae	*Blumeopsis flava* (DC.) Gagnep.	Torigande	H	TF, RF, CL
Asteraceae	*Breea arvensis* (L.) Less.	Gainda kande	H	TF, RF, CL
Asteraceae	*Caesulia axillaris* Roxb.	Thuk jhar	H	CL
Asteraceae	*Centipeda minima* (L.) A. Braun & Asch.		H	CL

Table 2. Cont. ……

Family	Specific epithet	Nepali name	Life form	Distribution
Asteraceae	*Conyza canadensis* (L.) Cronquist	Mulapate	H	NF, CL
Asteraceae	*Conyza leucantha* (D. Don) Ludlow & R. H. Raven	Mulapate	H	NF
Asteraceae	*Eclipta prostrata* (L.) L.	Bhringraj	H	TF, RF, GL, CL
Asteraceae	*Elephantopus scaber* L.	Thinko	H	TF, RF
Asteraceae	*Emilia sonchifolia* (L.) DC.	Mulapate	H	CL
Asteraceae	*Eupatorium odoratum* L.	Banmara	H	TF, NF
Asteraceae	*Galinsoga quadriradiata* Ruiz & Pav.	Chitlange jhar	H	CL
Asteraceae	*Gnaphalium affine* D. Don	Boki jhar	H	CL
Asteraceae	*Gnaphalium polycaulon* Pers.	Boki jhar	H	RF, CL
Asteraceae	*Gnaphalium purpureum* L.	Boki jhar	H	CL
Asteraceae	*Grangea maderaspatana* (L.) Poir.		H	CL
Asteraceae	*Hemistepta lyrata* Bunge		H	NF
Asteraceae	*Inula rubricaulis* (DC.) C. B. Clarke	Kan pate	H	TF, RF
Asteraceae	*Ixeris polycephala* Cass.	Dudhe jhar	H	NF, CL
Asteraceae	*Launaea aspleniifolia* (Willd.) Hook. f.	Sano mulapate	H	TF, RF, GL, CL
Asteraceae	*Launaea procumbens* (Roxb.) Ramayya & Rajagopala		H	CL
Asteraceae	*Senecio ramosus* Wall. ex DC.		H	CL
Asteraceae	*Sphaeranthus indicus* L.		H	GL, CL
Asteraceae	*Spilanthes uliginosa* Swarts	Marethi	H	CL
Asteraceae	*Synedrella nodiflora* Gaertn.	Pahele jhar	H	NF
Asteraceae	*Tridax procumbens* L.	Putali jhar	H	CL
Asteraceae	*Vernonia cinerea* (L.) Less.	Jhurjhure	H	TF, RF, NF, CL
Asteraceae	*Xanthium strumarium* L.	Bhende kuro	H	TF, CL
Asteraceae	*Youngia japonica* (L.) DC.	Dudhe jhar	H	RF
Azollaceae	*Azolla* sp.	Leu	H	CL
Bombacaceae	*Bombax ceiba* L.	Simal	T	RF, NF, GL, CL
Boraginaceae	*Bothriospermum zeylanicum* (J. Jacq.) Druce		H	CL
Boraginaceae	*Cynoglossum* sp.		H	GL
Boraginaceae	*Heliotropium strigosum* Willd.	Hanthi sunde	H	CL
Boraginaceae	*Trichodesma indicum* (L.) R. Br.	Gerguj	H	GL
Boraginaceae	*Ehretia laevis* Roxb.	Dhatrung	T	TF, RF, NF
Burseraceae	*Garuga pinnata* Roxb.	Dabdabe	T	TF, RF
Campanulaceae	*Campanula pallida* Wall.	Ghante jhar	H	CL
Campanulaceae	*Lobelia alsinoides* Lam.		H	TF, CL
Campanulaceae	*Wahlenbergia marginata* (Thunb.) A. DC.	Nilo tike	H	CL
Cannabaceae	*Cannabis sativa* L.	Ganja	H	NF, CL
Caryophyllaceae	*Polycarpon prostratum* (Forssk.) Asch. & Schweinf. ex Asch.		H	CL
Celastraceae	*Maytenus thomsonii* (Kurz.) Raju & Babu	Deri	H	RF
Chenopodiaceae	*Chenopodium album* L.	Bethe	H	CL
Combretaceae	*Terminalia alata* Heyne ex Roth	Saj	T	TF, RF
Combretaceae	*Terminalia bellirica* (Gaertn.) Roxb.	Barro	T	TF, RF
Combretaceae	*Terminalia chebula* Retz.	Harro	T	RF
Commelinaceae	*Amischophacelus axillaris* (L.) Rao & Kammathy		H	CL
Commelinaceae	*Commelina benghalensis* L.	Bankane		
		Jangali kane	H	TF, RF, NF, CL
Commelinaceae	*Commelina diffusa* Burm. f.	Kane	H	TF
Commelinaceae	*Commelina palludosa* Blume	Kane	H	TF
Commelinaceae	*Commelina* sp.	Jangali kane	H	CL
Commelinaceae	*Floscopa scandens* Lour.	Simkane	H	CL
Commelinaceae	*Murdannia nudiflora* (L.) Brenan	Kane	H	TF

Table 2. Cont. ……

Family	Specific epithet	Nepali name	Life form	Distribution
Commelinaceae	*Murdannia spirata* (L.) Brueckn.	Kane	H	TF, CL
Convolvulaceae	*Argyreia atropurpurea* (Wall.) Raizada		HC	TF
Convolvulaceae	*Evolvulus nummularius* (L.) L.	Badampate jhar	H	TF, CL
Convolvulaceae	*Merremia kingii* Prain	Dudhe jhar	HC	TF
Convolvulaceae	*Merremia vitifolia* (Burm. f.) Hallier f.		HT	NF
Cornaceae	*Swida oblonga* (Wall.) Sojak	Latikath	T	TF, RF
Cucurbitaceae	*Momordica charantia* L.	Ban kareli	HC	NF
Cucurbitaceae	*Solena heterophylla* Lour.	Gol kankari	HC	TF, RF
Cyperaceae	*Carex inanis* C. B. Clarke	Mothe	H	CL
Cyperaceae	*Cyperus compressus* L.	Mothe	H	TF
Cyperaceae	*Cyperus haspan* L.	Mothe	H	CL
Cyperaceae	*Cyperus iria* L.	Chhate mothe	H	CL
Cyperaceae	*Cyperus rotundus* L.	Mothe	H	CL
Cyperaceae	*Cyperus* sp.	Mothe	H	TF, RF, NF, CL
Cyperaceae	*Eleocharis pellucida* Presl	Jwane jhar	H	CL
Cyperaceae	*Fimbristylis dichotoma* (L.) Vahl	Mothe	H	CL
Cyperaceae	*Fimbristylis falcata* (Vahl) Kunth		H	CL
Cyperaceae	*Kyllinga brevifolia* Rottb.	Dalle mothe	H	CL
Cyperaceae	*Mariscus aristatus* (Rottb.) T. Tang & F. T. Wang	Sano mothe	H	TF
Cyperaceae	*Mariscus sumatrensis* (Retz.) T. Koyama		H	TF, RF
Cyperaceae	*Pycreus flavidus* (Retz.) T. Koyama	Chiure mothe	H	CL
Cyperaceae	*Schoenoplectus juncoides* (Roxb.) Palla	Suire jhar	H	CL
Cyperaceae	*Scleria alta* Boeck		H	TF
Cyperaceae	*Scleria parvula* Steud.		H	TF
Dilleniaceae	*Dillenia pentagyna* Roxb.	Tantari	T	TF, RF
Dioscoreaceae	*Dioscorea bulbifera* L.	Ban tarul	CH	TF, RF
Dioscoreaceae	*Dioscorea deltoidea* Wall. ex Griseb.	Bantarul	CH	TF, RF
Dioscoreaceae	*Dioscorea hamiltonii* Hook. f.	Bantarul	CH	RF
Dipterocarpaceae	*Shorea robusta* Gaertn.	Sal	T	TF, RF
Dryoptericaceae	*Diplazium esculentum* (Retz.) Sw. ex Shrad.	Neuro	H	RF
Dryoptericaceae	*Tectaria macrodonta* (Fee) C. Chr.	Kali neuro	H	RF
Equisetaceae	*Equisetum debile* Roxb. ex Vaucher	Hadjorni/ Ankhle jhar	H	RF, NF, GL, CL
Eriocaulaceae	*Eriocaulon cinereum* R. Br.	Buche jhar	H	TF
Euphorbiaceae	*Aporusa octandra* (Buch.-Ham. ex D. Don) A. R. Vickery ex M. J. Short & A. R. Vickery	Archal	S/T	TF, RF
Euphorbiaceae	*Bridelia retusa* (L.) Spreng.	Gayo/ Lahare gayo	T	RF
Euphorbiaceae	*Euphorbia hirta* L.	Dudhe jhar	H	TF, CL
Euphorbiaceae	*Euphorbia parviflora* L.	Sano dudhe jhar	H	CL
Euphorbiaceae	*Euphorbia prostrata* Aiton	Sano dudhe jhar	H	CL
Euphorbiaceae	*Mallotus philippensis* (Lam.) Muell.-Arg.	Sindure	T	RF
Euphorbiaceae	*Phyllanthus emblica* L.	Amala	T	RF
Euphorbiaceae	*Phyllanthus glaucas* Wall. ex Muell.-Arg.		S	GL
Euphorbiaceae	*Phyllanthus urinaria* L.	Bhuiamala	H	TF, RF, CL
Euphorbiaceae	*Phyllanthus virgatus* G. Forst.	Amala jhar	H	CL
Euphorbiaceae	*Trewia nudiflora* L.	Vellar	T	TF, RF, NF, CL
Gentianaceae	*Canscora decussata* (Roxb.) Schult. & Schult. f.	Seto phule jhar	H	TF
Juncaceae	*Juncus prismatocarpus* R. Br.	Gund	H	CL
Labiatae	*Acrocephalus indicus* (Burm. f.) Kuntze	Lerui jhangi (D)	H	TF, CL

Table 2. Cont. ……

Family	Specific epithet	Nepali name	Life form	Distribution
Labiatae	*Anisomeles indica* (L.) Kuntze		H	TF, NF
Labiatae	*Colebrookea oppositifolia* Sm.	Dhurseli	S	RF, NF
Labiatae	*Hyptis suaveolens* (L.) Poit.	Jangali silam	H	TF, CL
Labiatae	*Isodon coetsa* (Buch.-Ham. Ex D. Don) Kudo		H	NF
Labiatae	*Isodon ternifolia* (D. Don)	Bhimsenpati jhar	S	RF
Labiatae	*Leucas cephalotes* (Rottb.) Spreng.	Gumpate	H	CL
Labiatae	*Leucas indicus* (L.) R. Br. Ex Vatke (L. lavandulaefolia Smith)	Gumpate	H	RF
Labiatae	*Leucas mollissima* Wall. ex Benth.	Gumpate	H	NF
Labiatae	*Leucas plukenetii* (Roth) Spreng.	Gumpate	H	CL
Labiatae	*Mosla dianthera* (Buch.-Ham. ex Roxb.) Maxim.		H	RF
Labiatae	*Ocimum basilicum* L.	Babari	H	TF, NF
Labiatae	*Pogostemon benghalensis* (Burm.f.) Hassk.	Rudilo	H	RF, NF, CL
Labiatae	*Salvia plebeia* R. Br.		H	RF, GL, CL
Lauraceae	*Litsea chartacea* (Wall. ex Nees) Hook. f.		T	NF
Lauraceae	*Litsea monopetala* (Roxb.) Pers.	Kutmiro	T	TF, RF, GL, CL
Lecythidaceae	*Careya arborea* Roxb.	Kumbhi	T	TF, RF
Leeaceae	*Leea crispa* Royen ex L.	Guithe Padari		
		Padari	S	TF, RF
Leeaceae	*Leea macrophylla* Roxb. ex Hornem.	Galeni	S	TF, RF
Leguminosae	*Acacia catechu* (L. f.) Willd.	Khayer	T	RF
Leguminosae	*Acacia pennata* (L.) Willd.	Ararikanda	CS	TF, NF
Leguminosae	*Alysicarpus vaginalis* (L.) DC.		H	CL
Leguminosae	*Atylosia scarabaeoides* (L.) Benth.	Bangahat	H	TF
Leguminosae	*Bauhinia malabarica* Roxb.	Amili	T	RF
Leguminosae	*Bauhinia vahlii* Wight & Arn.	Bhorla	WC	TF
Leguminosae	*Butea monosperma* (Lam.) Kuntze	Palans	T	RF
Leguminosae	*Cassia fistula* L.	Rajbrikchhya	T	TF, RF
Leguminosae	*Cassia occidentalis* L.	Bhaise tapre	H/S	TF, CL
Leguminosae	*Cassia tora* L.	Tapre jhar	H	TF, CL
Leguminosae	*Codariocalyx motorius* (Houttuyn) Ohashi		S	TF, RF
Leguminosae	*Crotalaria pallida* Ait.		H	RF, GL
Leguminosae	*Crotalaria prostrata* Rottb. ex Willd.	Chhinchhine baja/ Chepte kuro/ Bilhul	H	TF, GL, CL
Leguminosae	*Crotalaria sessiliflora* L.	Chhinchhine baja	H	GL
Leguminosae	*Crotalaria* sp.	Boksi ghanger	H	TF, RF
Leguminosae	*Crotalaria* sp.	Chhippi	H	GL
Leguminosae	*Dalbergia latifolia* Roxb.	Satisal	T	TF, RF
Leguminosae	*Dalbergia sissoo* Roxb. ex DC.	Sisau	T	NF
Leguminosae	*Desmodium gangeticum* (L.) DC.	Bhattamase jhar	S	RF, GL, CL
Leguminosae	*Desmodium laxiflorum* DC.		S	RF, GL, CL
Leguminosae	*Desmodium oojeinense* (Roxb.) H. Ohashi	Sandan	T	TF
Leguminosae	*Desmodium podocarpon* (Poir.) DC.		H	TF
Leguminosae	*Desmodium triflorum* (L.) DC.	Chariamiliki mausi	H	TF, RF, GL, CL
Leguminosae	*Desmodium volutinum* (Willd.) DC.		S	RF
Leguminosae	*Flemingia macrophylla* (Willd.) Merr.	Bhattamasi Tinpate ghans	S	TF, RF, GL
Leguminosae	*Flemingia strobilifera* (L.) W. T. Aiton	Bhatmas jhar	S	TF, RF
Leguminosae	*Indigofera linifolia* (L. f.) Retz.		H	CL
Leguminosae	*Indigofera pulchella* Roxb.	Sagino	S	TF, RF

Table 2. Cont. ……

Family	Specific epithet	Nepali name	Life form	Distribution
Leguminosae	*Lens culinaris* Medikus	Musuro	H	CL
Leguminosae	*Medicago lupulina* L.	Jhuppe pyauli	H	CL
Leguminosae	*Millettia extensa* (Benth.) Baker	Gaujo	WC	TF, RF
Leguminosae	*Mimosa pudica* L.	Lajabati	H/S	CL
Leguminosae	*Phaseolus mungo* L.	Ban masyang	HC	TF, RF
Leguminosae	*Phyllodium pulchellum* (L.) Desv.	Kanni jhangi	S	TF, GL
Leguminosae	*Smithia sensitiva* Ait.	Lajaune jhar	H	TF, RF, CL
Leguminosae	*Spatholobus parviflorus* (Roxb.) Kuntze	Debre lahara, Madane, Sal lahara,	WC	TF, RF
Leguminosae	*Tadehagi triquetrum* (L.) Ohashi	Jhumke lahara, Suruwale jhar	S	TF
Leguminosae	*Uraria lagapodioides* (L.) Desv.		S	TF, RF, CL
Leguminosae	*Uraria lagopus* DC.	Nilo tanki	S	TF, RF
Leguminosae	*Vicia angustifolia* L.	Kutlikosa	H	CL
Leguminosae	*Vicia tetrasperma* Moench.	Aankura	H	TF, CL
Liliaceae	*Asparagus racemosus* Willd.	Kurilo	H	RF
Liliaceae	*Chlorophytum nepalense* (Lindl.) Baker	Pyaje	H	TF
Liliaceae	*Smilax ovalifolia* Roxb. ex D. Don	Kukur daino	CS	TF, RF
Lythraceae	*Ammannia baccifera* L.		H	RF
Lythraceae	*Lagerstroemia parviflora* Roxb.	Botdhairo	T	TF, RF
Lythraceae	*Rotala indica* (Willd.) Koehne	Belauti jhar	H	TF, CL
Lythraceae	*Rotala rotundifolia* (Buch.-Ham. ex Roxb.) Koehne	Ambapate jhar	H	CL
Malvaceae	*Kydia calycina* Roxb.	Kubindo	S	TF, RF
Malvaceae	*Sida rhombifolia* L.	Balu	H/S	TF, RF, NF, CL
Malvaceae	*Thespesia lampas* (Cav.) Dalz. et Gibs.	Ban kapas	S	TF, NF
Malvaceae	*Urena lobata* L.	Balu /Chhipi, Bhendichirchut	H	TF, NF, CL
Marsileaceae	*Marsilea crenata* Presl	Charpate jhar	H	CL
Melastomataceae	*Osbeckia stellata* Buch.-Ham. ex D. Don	Angeri	S	TF
Meliaceae	*Azadirachta indica* A. Juss.	Nim	T	NF, CL
Meliaceae	*Melia azedarach* L.	Bakaino	T	NF, CL
Menispermaceae	*Cissampelos pareira* L.	Batulpate	HC	TF, RF, NF
Menispermaceae	*Stephania elegans* Hook. f. & Thomson	Batulpate	HC	RF, NF, CL
Menispermaceae	S*tephania japonica* var. *discolor* (Miq.) Forman	Batulpate	HC	TF, GL
Menispermaceae	*Tinospora sinensis* (Lour.) Merr.	Gudargano	HC	NF
Myrsinaceae	*Maesa chisia* Buch.-Ham. ex D. Don	Bilaune	S	TF, RF
Myrsinaceae	*Myrsine semiserrata* Wall.	Kalikath (Karauta)	S/T	TF, NF
Myrsinaceae	*Myrsine* sp.	Damai kath	T	TF, RF, NF
Myrtaceae	*Cleistocalyx operculatus* (Roxb.) Merr. & Perry	Kyamun	T	TF, RF, GL
Myrtaceae	*Syzygium cumini* (L.) Skeels	Jamun	T	TF, RF, CL
Onagraceae	*Ludwigia perennis* L.	Lwang jhar	H	TF, CL
Ophioglossaceae	*Ophioglosum petiolatum* Hook.	Jibre sag	H	TF, RF, NF,
Orchidaceae	*Eulophia herbacea* Lindl.		H	CL
Orchidaceae	*Zeuxine flava* (Lindl.) Trimen		H	NF, CL
Orchidaceae	*Zeuxine strateumatica* (L.) Schlechter		H	CL
Oxalidaceae	*Oxalis corniculata* L.	Chariamili	H	TF, RF, NF, CL
Piperaceae	*Piper longum* L.	Pipla	HC	TF, RF, NF, CL
Poaceae	*Apluda mutica* L.		H	RF, NF
Poaceae	*Arundinella benghalensis* (Spreng.) Druce		H	CL

Table 2. Cont. ……

Family	Specific epithet	Nepali name	Life form	Distribution
Poaceae	*Axonopus compressus* (Swartz) P. Beauv.	Makai banso/ Thulo banso	H	TF, CL
Poaceae	*Bothriochloa glabra* (Roxb.) A. Camus		H	TF, RF
Poaceae	*Bothriochloa intermedia* (R. Br.) A. Camus		H	TF
Poaceae	*Brachiaria distachya* (L.) Stapf	Banso	H	TF, CL
Poaceae	*Brachiaria miliiformis* (Presl & C. Presl) A. Chase	Banso	H	TF
Poaceae	*Brachiaria mutica* (Forssk.) Stapf	Banso	H	CL
Poaceae	*Brachiaria* spp.	Banso	H	TF, RF, NF, CL
Poaceae	*Chloris dolichostachya* Lagasca		H	RF
Poaceae	*Chrysopogon aciculatus* (Retz.) Trin.	Kuro ghans	H	TF, NF, CL
Poaceae	*Cymbopogon jwarancusa* (Jones) Schult.		H	CL
Poaceae	*Cymbopogon osmastonii* R. N. Parker		H	GL
Poaceae	*Cynodon dactylon* (L.) Pers.	Dubo	H	TF, RF, NF, GL, CL
Poaceae	*Desmostachys bipinnata* (L.) Stapf	Kush	H	TF, RF, GL, CL
Poaceae	*Dicanthium annulatum* (Forssk.) Stapf	Jhuse ankhle jhar	H	CL
Poaceae	*Digitaria ciliaris* (Retz.) Koeler	Chitre banso	H	TF, NF
Poaceae	*Digitaria longiflora* (Retz.) Pers.	Chitre banso	H	CL
Poaceae	*Digitaria* spp.	Chitre banso	H	CL
Poaceae	*Echinochloa colona* (L.) Link	Sama ghans	H	TF, CL
Poaceae	*Eleusine indica* (L.) Gaertn.	Kode jhar	H	TF, CL
Poaceae	*Eragrostis atrovirens* (Desf.) Trin ex Steudel	Banso	H	CL
Poaceae	*Eragrostis tenella* (L.) Beauvois ex Roem. & Schultes	Junge banso	H	TF, NF, GL, CL
Poaceae	*Eragrostris unioloides* (Retz.) Nees ex Steudel	Chiure banso	H	TF, NF, CL
Poaceae	*Hemarthria compressa* (L. f.) R. Br.	Ghode dubo	H	TF, RF, GL, CL
Poaceae	*Imperata cylindrica* (L.) P. Beauv.	Siru	H	TF, RF, NF, GL, CL
Poaceae	*Isachne globosa* (Thunb.) Kuntze		H	CL
Poaceae	*Ischaemum rugosum* Salisb.	Madilo	H	CL
Poaceae	*Leersia hexandra* Swartz	Karaute ghans	H	CL
Poaceae	*Oplismenus burmannii* (Retz.) P. Beauv.	Ote banso	H	TF, RF, CL
Poaceae	*Oplismenus compositus* (L.) P. Beauv.	Ote banso	H	TF, NF
Poaceae	*Panicum notatum* Retz.		H	RF
Poaceae	*Paspalum distichum* L.	Mane banso	H	TF
Poaceae	*Paspalum scrobiculatum* L.	Mane banso	H	TF, RF, NF, CL
Poaceae	*Phragmites karka* (Retz.) Trin. ex Steudel	Masino narkat	H	RF, GL, CL
Poaceae	*Pogonatherum crinitum* (Thunb.) Kunth	Khari banso	H	TF, CL
Poaceae	*Polypogon monspeliensis* (L.) Desf.	Puchhre jhar	H	CL
Poaceae	*Pseudopogonatherum contortum* (Brongn.) A. Camus		H	TF, RF
Poaceae	*Saccharum benghalense* Retz.	Worela	H	RF, GL
Poaceae	*Saccharum spontaneum* L.	Kans; Th: Jhaksi	H	TF, RF, NF, GL, CL
Poaceae	*Sacciolepis indica* (L.) A. Chase		H	TF, CL
Poaceae	*Sacciolepis myosuroides* (R. Br.) A. Camus		H	TF
Poaceae	*Setaria pallide-fusca* (Schumach.) Stapf & C. E. Hubbard	Bale banso/ Jhusile banso	H	TF, CL
Poaceae	*Sporobolus diander* (Retz.) P. Beauv.		H	CL
Poaceae	*Themeda arundinacea* (Roxb.) Ridley	Khadahi	H	TF, RF, GL
Polygalaceae	*Polygala* sp.		H	CL
Polygonaceae	*Polygonum barbatum* L.	Pire bikh	H	NF, CL
Polygonaceae	*Polygonum hydropiper* L.	Pire jhar	H	TF
Polygonaceae	*Polygonum lanigerum* R. Br.	Pire bish	H	CL
Polygonaceae	*Polygonum plebeium* R. Br.	Sukul jhar	H	TF, RF, CL

Table 2. Cont. ……

Family	Specific epithet	Nepali name	Life form	Distribution
Pontederiaceae	*Monochoria hastata* (L.) Solms	Jaluki	H	CL
Primulaceae	*Anagallis arvensis* L.	Krishnanil	H	CL
Primulaceae	*Androsace umbellata* (Lour.) Merr.	Chhate primula	H	NF, CL
Pteridaceae	*Adiantum caudatum* L.	Rani sinka	H	RF
Pteridaceae	*Adiantum lunalatum* Buru	Rani sinka	H	RF
Pteridaceae	*Pteris biaurita* L.		H	RF, CL
Pteridaceae	*Pteris incisa* Thunb.		H	NF
Rhamnaceae	*Zizyphus mauritiana* Lam.	Bayer	T	GL
Rhamnaceae	*Zizyphus nummularia* (Burm. f.) Wight & Arn.	Jangali bayer	S	TF, RF
Rhamnaceae	*Zizyphus rugosa* Lam.	Dumarai	T	TF
Rosaceae	*Fragaria indica* Andr.	Bhuin kafal	H	NF
Rosaceae	*Potentilla supina* L.	Jangali bajradanti, Dhaniya pate	H	RF, CL
Rubiaceae	*Anthocephalus chinensis* (Lam.) A. Rich. ex Walp.	Karam	T	RF
Rubiaceae	*Borreria alata* (Aubl.) DC.		H	CL
Rubiaceae	*Borreria articularis* (L.f.) F. N. Williams		H	TF, RF, CL
Rubiaceae	*Borreria pusilla* (Wall.) DC.		H	TF, CL
Rubiaceae	*Borreria repens* DC.		H	CL
Rubiaceae	*Coffea benghalensis Heyne* ex Roem et Schult		S	NF
Rubiaceae	*Hedyotis brachypoda* (A. P. de Candolle) V. P. Sivarajan		H	TF
Rubiaceae	*Hedyotis corymbosa* (L.) Lam.		H	TF, CL
Rubiaceae	*Hedyotis diffusa* Willd.		H	TF, CL
Rubiaceae	*Hedyotis gracilis* Hook. f.		H	CL
Rubiaceae	*Hedyotis lineata* Roxb.		H	TF
Rubiaceae	*Mitragyna parviflora* (Roxb.) Korth.	Kaim	T	RF
Rubiaceae	*Wendlandia puberula* DC.	Kainyo	T	TF
Rubiaceae	*Xeromphis spinosa* (Thunb.) Keay	Mainkanda	S	TF, RF, NF, GL
Rubiaceae	*Xeromphis uliginosa* (Retz.) Maheshwari	Pidar	T	RF
Rutaceae	*Clausena pentaphylla* DC.		S	TF, RF
Rutaceae	*Murraya koenigii* (L.) Spreng.	Asare	S	TF, RF, NF, GL
Rutaceae	*Skimmia arborescens* T. Anderson ex Gamble	Asare	S	TF, RF
Sapindaceae	*Schleichera oleosa* (Lour.) Oken	Kusum	T	TF, RF
Schizaeaceae	*Lygodium flexuosum* (L.) Sw.	Janai lahara	HC	TF, RF
Scrophulariaceae	*Bacopa hamiltoniana* (Benth.) Wettst.		H	RF
Scrophulariaceae	*Bacopa monnieri* (L.) Pennell		H	TF
Scrophulariaceae	*Lindernia anagallis* (Burm. f.) Pennell		H	CL
Scrophulariaceae	*Lindernia antipoda* (L.) Alston		H	CL
Scrophulariaceae	*Lindernia ciliata* (Colsm.) Pennell	Karaute jhar	H	CL
Scrophulariaceae	*Lindernia crustacea* (L.) F. Muell.		H	TF, CL
Scrophulariaceae	*Lindernia oppositifolia* (L.) Mukerjee		H	CL
Scrophulariaceae	*Lindernia parviflora* (Roxb.) Haines		H	CL
Scrophulariaceae	*Lindernia pusilla* (Willd.) Bold.		H	CL
Scrophulariaceae	*Lindernia* sp.		H	GL
Scrophulariaceae	*Mazus pumilus* (Burm. f.) Steenis		H	CL
Scrophulariaceae	*Mecardonia procumbens* (Mill.) Small		H	RF, GL, CL
Scrophulariaceae	*Scoparia dulcis* L.	Chini jhar	H	CL
Scrophulariaceae	*Striga gesnerioides* (Willd.) Vatke		H	CL
Scrophulariaceae	*Veronica anagallis-aquatica* L.	Dhape jhar	H	CL
Selaginellaceae	*Selaginella ciliaris* (Retz.) Spring		H	TF, RF
Solanaceae	*Physalis divaricata* D. Don	Patpate	H	NF, CL

Table 2. Cont. ……

Family	Specific epithet	Nepali name	Life form	Distribution
Solanaceae	*Solanum aculeatissimum* Jacq.	Kantakari	H	NF
Solanaceae	*Solanum torvum* Sw.	Thulo bihid	H	NF
Solanaceae	*Solanum Virginianum* L.	Kantakari	H	RF, NF. GL, CL
Sterculiaceae	*Helicteres isora* L.	Simthi	S	TF, RF
Sterculiaceae	*Melochia corchorifolia* L.	Bankuro	H	CL
Sterculiaceae	*Pterospermum acerifolium* (L.) Willd.	Singane	T	RF
Tamaricaceae	*Tamarix dioica* Roxb. ex Roth.	Jheuwa	S/T	RF, CL
Theaceae	*Schima wallichii* (DC.) Korth	Chilaune	T	TF
Thelypteridaceae	*Thelypteris auriculata* (J. Sm.) K. Iwats.	Bishkoche	H	TF, RF, NF, GL, CL
Tiliaceae	*Corchorus aestuans* L.	Ban pat	H	TF, CL
Tiliaceae	*Grewia disperma* Rottb.		S	RF
Tiliaceae	*Grewia helicterifolia* Wall. ex G. Don	Kharbuja	H	TF, RF
Tiliaceae	*Grewia sapida* Roxb. Ex DC.	Pharsa	S	TF, RF, GL
Tiliaceae	*Grewia subinaequalis* DC.	Dafer	T	TF, RF
Tiliaceae	*Triumfetta rhomboides* Jacq.	Dalle kuro	H	CL
Typhaceae	*Typha angustifolia* L.	Pater	H	RF, GL, CL
Urticaceae	*Gonostegia pentandra* (Roxb.) Miq.	Sim chiple jhar	H	GL, CL
Urticaceae	*Pouzolzia zeylanica* (L.) J. Bennett & R. Br.	Chiple jhar	H	RF, CL
Verbenaceae	*Callicarpa macrophylla* Vahl	Dhaichamla	S	RF
Verbenaceae	*Clerodendrum viscosum* Vent.	Bhanthi	S	TF, RF, NF, CL
Verbenaceae	*Gmelina arborea* Roxb.	Khamari	T	RF
Verbenaceae	*Phyla nodiflora* (L.) Greene	Bhuin okra	H	TF, RF, GL, CL
Verbenaceae	*Premna integrifolia* L.	Gindari	T	TF, NF
Verbenaceae	*Vitex negundo* L.	Simali	S	CL
Vitaceae	*Cissus repens* Lam.	Charchare lahara	S	TF, NF
Vitaceae	*Tetrastigma dubium* (M. A. Lawson) Planch.		HC	RF
Zingiberaceae	*Alpinia* sp.		H	RF
Zingiberaceae	*Costus speciosus* (J. Koenig) Smith	Bet lauri	H	TF

TF=Tikauli forest, RF= Royal Chitwan National Park Forest, NF=Forests along Narayani river, GL= Grasslands of National Park Forest, and CL= common landa

The largest genera are listed in Table 3. *Lindernia* and *Desmodium* are the two largest genera, with 8 and 6 species, respectively. *Crotalaria, Cyperus* and *Hedyotis* represent 3 species each. One hundred ninety-four genera had only one species each. The largest genera of the present study such as *Lindernia* and *Cyperus* were also reported among the top 5 genera in the aquatic flora of the plains of eastern Nepal (Siwakoti and Varma, 1998).

Table 3. Genera with 3 to more number of species in the vascular flora of western Chitwan, Nepal

Genera	Total species
Lindernia All., Scrophulariaceae	8
Desmodium Desv., Leguminosae	6
Crotalaria L., Leguminosae	5
Cyperus L., Cyperaceae	5
Hedyotis L., Rubiaceae	5
Borreria G. Meyer, Rubiaceae	4
Brachiaria Griseb., Poaceae	4
Commelina L., Commelinaceae	4
Grewia L., Tiliaceae	4
Leucas R. Br., Labiatae	4
Phyllanthus L., Euphorbiaceae	4
Polygonum L., Polygonaceae	4
Blumea DC., Asteraceae	3
Cassia L., Leguminosae	3
Digitaria Heister ex Fabr., Poaceae	3
Dioscorea L., Dioscoreaceae	3
Eragrostis Wolf, Poaceae	3
Euphorbia L., Euphorbiaceae	3

Table 3. Cont. ……

Gnaphalium L., Asteraceae	3
Solanum L., Solanaceae	3
Terminalia L., Combretaceae	3
Zizyphus Mill., Rhamnaceae	3

Species distribution

The composition of species varies with the land types of the study plots. Some species are shared between two or more plots and others are unique (Table 4). The highest unique species are found in the common lands (87 spp.), followed by the Royal Chitwan National Park forest (36 spp.) and the Tikauli forest (32 spp.). The Tikauli forest and The National Park Forest (Table 4) shared 44 species (12.607%) followed by the Tikauli forest and the common land forest (24 species). *Ageratum houstonianum* Mill., *Cynodon dactylon* (L.) Pers., *Imperata cylindrica* (L.) P. Beauv., *Rungia parviflora* (Retz.) Nees, *Saccharum spontaneum* L. and *Thelypteris auriculata* (J. Sm.) K. Iwats are common species distributed in all the five blocks (Table 2, 4). Above species were also reported as common species in Ramput condition (Dangol, 1989-1999).

Table 4. Number of species unique or common to different research blocks in western Chitwan, Nepal

Single block		Two blocks		Three blocks		Four blocks		Five blocks	
Sites	**No.**	**Sites**	**No.**	**Sites**	**No.**	**Sites**	**No.**	**Sites**	**No.**
CL	87	GL+CL	2	RF+GL+CL	6	RF+NF+GL+CL	3	TF+RF+NF+GL+CL	6
GL	8	NF+CL	10	RF+NF+CL	3	TF+NF+GL+CL	2		
NF	19	RF+CL	7	TF+GL+CL	1	TF+RF+GL+CL	8		
RF	36	RF+GL	2	TF+NF+CL	4	TF+RF+NF+CL	10		
TF	32	RF+NF	2	TF+RF+CL	10	TF+RF+NF+GL	2		
		TF+CL	24	TF+RF+GL	4				
		TF+GL	2	TF+RF+NF	4				
		TF+NF	11						
		TF+RF	44						
Total	182		104		32		25		6
%	52.15		29.79		9.17		7.16		1.72

CL= Common lands, GL= Grasslands (national park); NF= Narayani river forest; RF= National park forest; and TF= Tikauli (Barandabar) forest

Life forms

In the study areas, the most prominent life form is herbs (239 spp.) followed by trees (46 spp.), shrubs (35 spp.), climbing herbs (15 spp.), and climbing shrub (4 spp.) (Table 2). The dominance of herns was also reported by Jha and Jha (2000) in the flora of Morang district and adjoining areas of Nepal. Herbs are the main component of the common lands, grasslands and ground flora of the forest vegetation. The herbaceous vegetation in the grasslands are represented by tall grasses like *Themeda arundinacea* (Roxb.) Ridley, *Saccharum benghalense* Retz., *Saccharum spontaneum* L. and *Imperata cylindrica* (L.) P. Beauv., *Spatholobus parviflorus* (Roxb.) Kuntze, *Millettia extensa* (Benth.) Baker and *Bauhinia vahlii* Wight & Arn. are three woody climbers of the forests of the western Chitwan. *Merremia vitifolia* (Burm. f.) Hallier f. is a herbaceous trailer that was recorded in the Tikauli forest.

Folk nomenclature of plants

Of the listed plants, many plants have local names either in Nepalese or other tribal languages (Table 2). The plants with less economic value generally lack local names. For instance, the small plants like *Androsace umbellate* (Lour.) Merr., *Canscorea decussata* (Roxb.) Schult. & R.S. Schult. f., *Hemigraphis hirta* (Vahl) T. Anderson, etc. do not have vernacular names. Plants are named in different ways on the basis of habit, habitat, smell, test, and morphological characters, which are also the basis of nomenclature in plant taxonomy.

The local names are given on the basis of structure, color, smell, etc. The Nepalese call *"Tinpate"* for the plants that possess three leaves and refer to the generas such as *Flemingia, Uraria,* and *Desmodium* of the Leguminosae family. Similarly, *"Gandhe"* meaning a bad or unpleasant smell, stands for the plants (*Hyptis suaveolens* (L.) Poit., *Ageratum conyzoides* L., *Ageratum houstonianum* Merr.). In Nepali, *"Chariamili"* stands for three species: *Oxalis corniculata* L., *O. corymbosa* DC. and *O. latifolia* Humb. The local name *"Boki jhar"*, meaning goat weed, is

given to *Gnaphalium purpureum* L., *Gnaphalium polycaulon* Pers. and *Gnaphalium affine* D. Don distributed in tropical and subtropical areas of Nepal. The *"lahara"* is given to the climbering plants. For instance, the woody climber, *Spatholobus parviflorus* (Roxb.) Kuntze, known by *"Debre lahara"*, has the habit or characteristic of climbing up to the left. *"Debre"* means left in Nepali. *"Sal lahara"* is the name given to the woody climber *Spatholobus parviflorus* (Roxb.) Kuntze, plant that climbs on *"Sal"* (*Shorea robusta* Gaertn.). Some of the authors searched the m eaning of local names for the plants and found simiar naming systems based on smell, habit, habitats, color of flower (Dangol, 2002-2003; Pohle, 1990; Sacherer, 1997). The local names for plants may create confusion when one local name stands for more than two types (species) of plants or when one plant has more than one local name. In such cases, those who need the botanical name should consult experts or authentic herbarium specimens for proper identifiction.

CONCLUSIONS

This species list includes only those plant species, which were encountered in or near the research plots in western Chitwan. These plot locations were designed to represent the diversity of land types in the region. For the taxonomic purposes, it is necessary to collect plant specimens from different locations of the entire district. These collections will allow us to recognize plant species correctly and follow changes in flora diversity and study how they are related to population change. Comprehensive interdisciplinary studies on plants and population are recommended to explore the reciprocal relations between population and the environment. Collaborations such as these between botanists and social scientists will help us better understand the connection between plants, people and culture.

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