Uncultivated Plants and Livelihood Support – A case study from the Chepang people of Nepal

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Research

Abstract

This study documents the use of uncultivated plants, their status and contribution to the livelihoods of Chepang people in the mid-hills of Nepal. Diversity fairs, key informant surveys, group discussions and individual household surveys were conducted. The plants identified were used as food, vegetables, medicine, and for cultural and economic reasons. The uses of 85 uncultivated plant species were documented of which 72% had multiple functions. The uncultivated foods contributed significantly to food requirements of the households (mean 2.6 months a year). Fifteen species were stored for future use, e.g., *Dioscorea* species. Almost all species (87%) were also culturally important or medicinal (43%). The availability of these species has declined over time. However, people have started *in-situ* conservation and domestication of several important species, e.g., *Asparagus racemosus* Willd., *Dioscorea bulbifera* L., and *Diploknema butyracea* (Roxb.) H.J. Lam, but these resources are neglected in research and development activities.

Introduction

Throughout the world, wild or uncultivated plants provide a 'green social security' to hundreds of millions of people in the form of food, materials for clothes and shelter (Cunningham 2001). These plants add diversity to local food systems, reinforce culture and contribute with diversity to farming systems, and could be important for household food security, health, and nutrition and income generation (Machakaire 2001, Scoones *et al*. 1992, Warinwa 2000). Foods from uncultivated species forms an integral part of the daily diets of many rural households (Cromwell 1997, Shrestha 2001). Between 60-70% of populations in developing countries living between agricultural and forest land areas collect various parts of uncultivated plants such as roots, leaves, fruits, and nuts (Heywood 1999, Hladik & Dounias 1993). For instance, Shore (2000) indicated that in Bangladesh uncultivated foods such as leafy greens, tubers and wild fruits constituted nearly 40% of food requirements of communities. In rural India local people consumed uncultivated foods at least 50-80 days in a year (DDS 2002). In addition to providing food directly, uncultivated plants provide an opportunity for cash generation (Harris & Mohammed 2003). Many uncultivated plant resources have significant economic value derived from their collection and sale (Melnyk 1994). Moreover, uncultivated food is an important component of the local society and culture, and loss of those means a loss of important components of culture and religion (Akhtar 2001). Uncultivated plants are also used as folk medicines for common ailments such as headache, swellings, wounds, scabies, and digestion problems (DDS 2002).

Over 90% of the Nepalese people live between farmland and forest, and they depend on natural resources for their basic needs. In particular, the hill people depend on a combination of forest products, livestock and agricultural products, and their livelihoods would not be sustainable without these resources (Manandhar 1995, 2002). Ary-

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al & Awasthi (2004) showed that about two thirds of the households in hill districts of Nepal suffer from food shortages due to insufficient agricultural production on available land.

Shifting cultivation is the traditional land-use for farmers from various ethnic groups in Nepal, and is practiced in about 20 districts (Regmi *et al*. 2003). The Chepang of central Nepal are one of the ethnic groups known for practicing shifting cultivation, but also for being among the most marginalized communities (Kerkhoff & Sharma 2006). Food security is a major concern, and a study in Kharsang village, where 47% of the population were Chepang, showed that 97% of the people suffered from varying degrees of food deficiency during 3-9 months per year (Balla *et al*. 2002). Because the land is hardly fit for permanent cultivation, the ability to practice shifting cultivation contributes to their subsistence, but this practice might lead to periods of food insecurity. The search for wild and uncultivated foods might therefore be an important supplement for livelihood support (Aryal *et al*. 2007).

Diversity of uncultivated plant species, their occurrence and relationship with cultivated species and their use by humans has rarely been studied systematically (Grivetti & Ogle 2000, Vázquez-García *et al*. 2004). The value and potential of uncultivated foods in the food security and nutrition of rural people is also neglected in agricultural and environmental programs (Gari 2002, Ogle 2001, Ogle *et al*. 2003). Little is known about the large variety of land use types, cultural knowledge of indigenous people and the vast number of uncultivated plant species associated with shifting cultivation by policy makers, authorities and scientists (Kerkhoff & Sharma 2006). Some uncultivated plant species are probably used by many rural households in Nepal in the daily life. However, detailed studies about their availability, status, and contribution in the livelihood support are few (Regmi *et al*. 2006, Shrestha 2001, Shrestha & Dhillion 2006).

In this study we investigated the use of uncultivated plants for foods, medicines, cultural purposes and their importance as income generation sources among Chepang communities in the Dhading district of Nepal. The principle aim was to identify uncultivated plant species and understand their status and contribution to the livelihood support of the Chepang people. We hypothesized that uncultivated plants were important for livelihood support and income for the Chepang community.

Materials and methods

Study site and study population

The field research was conducted in Bumrang village of Dhusa Village Development Committee (VDC) in the Dhading districts of Nepal (Figure 1). Dhading is situated in the central development regions of Nepal between 27° 40' to 28° 14' N and 84° 0' to 85° 1' E (Rimal *et al*. 2002). The study site is situated at elevations of 450 to 1400 m above sea level with warm sub-tropical to temperate climate. The area is sensitive to erosion due to steep hill slopes. The number of households of the VDC is 1012 (CBS 2003).

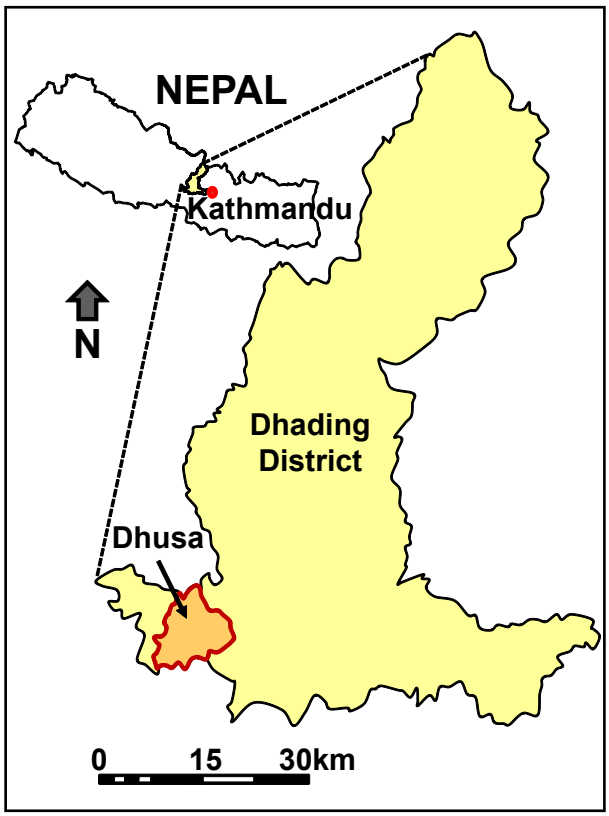

Figure 1. Location of the study area (Dhusa Village Development Committee) in the Dhading district in the middle hills of Nepal. Modified from map prepared by ICIMOD April, 2007 used in Aryal 2007.

The population of Chepangs in Nepal total about 52,000 (0.23% of Nepal's population) and are considered to be one of the less developed communities with only 13.9% being literate (CBS 2003). Chepangs are the ancient settlers of the study area with 350 households recorded in the VDC (Chepang District Profile 2006). Chepangs have traditionally lived as semi-nomads depending on shifting cultivation farming systems supplemented with hunting and gathering of uncultivated foods (Chepang 2006, Manandhar 2002). The major crops are maize (*Zea mays* L.) and finger millet (*Eleusine coracana* (L.) Gaertn.). The household production is generally sufficient for about 5 months subsistence per year and only 1% of the Chepang have sufficient food for the whole year from their own agricultural production (Gurung 2006). During the rest of the year they depend on wage labor work and uncultivated foods (Regmi *et al*. 2006).

Methods

The main methods used for identification of uncultivated plants that were being used were 1) diversity fairs, 2) key informants interviews and group discussions, and 3) individual household surveys.

Diversity fairs of uncultivated foods were organized in the study site with the objective of quickly assessing the general richness and status of uncultivated plants. Diversity fairs provided unique opportunities for individuals and community members to display their local plant material, as well as to share and document associated knowledge (Rijal *et al*. 1998, Sthapit *et al*. 2003). During the fair, specimens of uncultivated plant species were collected, identified, and vouchers were deposited at the district office of Nepal Chepang Association (NCA), Chepang Sangrahalaya (Chepang Museum), Dhading. These fairs were useful for identifying the uncultivated species, and their use values. Important species were collected for group discussions about different species habitat and, uses as foods, vegetables, medicines, or in cultural ceremonies.

Ten key informants (seven farmers and three people from the staff at local institutions) were selected for interviews. The community people identified the farmers whereas the researchers identified the informants from local institutions. Key informants were considered to have good knowledge about the local people in general and about use of uncultivated plants in particular. All initially selected key-informants agreed to participate in the study. Key informants were interviewed about their perceptions and experience concerning the role of uncultivated foods in sustainable livelihoods, and conservation actions taken to maintain these species. During repeated visits to the study site further group discussions (8-12 people) were held with: i) old-age key informants, and ii) with women who the key-informants knew were especially skilled in the use of uncultivated plants.

Sixty-two households (18% of the households) were selected for interviews by using random sampling of all households. All households were visited at least once for approximately three hours (some household were visited twice for verification). The household survey was designed to get data on farming practices, subsistence, use of uncultivated plants and their management, as well as personal demographic features. The household survey questionnaire consisted of four sections. The first section consisted of demographic and socio-economic information on the household, including variables such as sex, age, wealth categories, education, household size, major occupation, food sufficiency, and household income. The second section concerned information about the shifting cultivation practices and the third section concerned uncultivated plant species. The final section concerned information about the conservation and management of uncultivated plant species.

In addition, field visits were made with the key informants to areas where the respondents collected the uncultivated species. During the visits, harvesting methods, parts used, harvest quantity as well as treatment and storage of different species for future use was discussed in semi-structured and open-ended interviews.

Results and Discussion

General features of the respondents

The farmers in the study site live under different socio-economic conditions in terms of education, income sources, food sufficiency levels, family size, age and occupation. The number of interviewed persons was 62 (37 men and 25 women). The mean age of the respondents was 39 years (44.5% of the respondents were older than 41 years and 42% were 26-40 years old.) The average household size of the study site was 6.5 people, which is somewhat higher than the national average of 5.4 persons (CBS 2003). In general, the literacy rate was very low; 73% of the respondents were illiterate and only 27% could write their own name. This can be compared to the national literacy rate of 54% (CBS 2003). The average yearly household income was $209. Food sufficiency was a major problem in the area; about 70% of the households could only live 7-10 months on products from their own agricultural production and 16% of the households could live less than 6 months a year on their own agricultural production. During the food deficit periods, these households depended on multiple coping strategies such as share cropping, i.e., growing of crops on land owned by others, (40% of the households), wage labour (90%), collection of wild foods (92%), and selling of products (24% of the households). All households used uncultivated plants however, the quantity and forms of use differed widely between the households due to socio-economic and cultural factors (see below).

Richness of uncultivated plants and their status

Uncultivated plants in this study include all plant resources that are collected for human consumption from natural and semi-natural environments (e.g., slash and burn areas, agriculture fields, grasslands with natural vegetation). However, the term ‘uncultivated’ does not necessarily imply a total absence of human influence because plants may be collected from common property areas in some regions but protected and managed in home gardens in other areas (Cromwell *et al*. 1997).

Diversity fairs in the area recorded a total of 85 uncultivated plant species (see Appendix 1). Of these, 61 species (72%) had multiple functions as food, medicine, or had cultural or economic importance. Most of the recorded species are also used in other parts of the country (Manandhar 2002, Shrestha 2001, Shrestha & Dhillion 2006).

The availability of most uncultivated plants (62%) was classified as intermediate (medium availability and possible to use on a daily basis). For 20% of the species, the status in the wild was classified as scarce (difficult to find, and could not be used as much as desired), and 18% of the species as abundant in their natural habitat (sufficiently available and could be used as much as desired regularly). Interestingly, almost all the species with low availability were those used for medicinal purposes or species used for their food value. The collection and marketing of *Asparagus racemosus* Willd., *Cissampelos pareira* L., *Dioscorea bulbifera* L., *Juglans regia* L., *Swertia chirayita* (Roxb. ex Fleming) Karsten, *Tectaria macrodonta* (Fée) C. Chr., *Terminalia chebula* Retz., and *Tinospora sinensis* (Lour.) Merr. have been shown to have good profitability (Manandhar 2002). However, over-exploitation and illegal harvesting and trading are threatening some of these species (Chaudhary 1999). Similarly, uncultivated plants are over-exploited in other parts of the worlds (Balemie & Kebebew 2006, Begossi *et al*. 2002, Gari 2002, Tabuti *et al*. 2004). During group discussions, decreasing forest cover, heavy dependency of people on these resources and illegal harvesting and trade were suggested as the major causes for perceived declining abundance of these species.

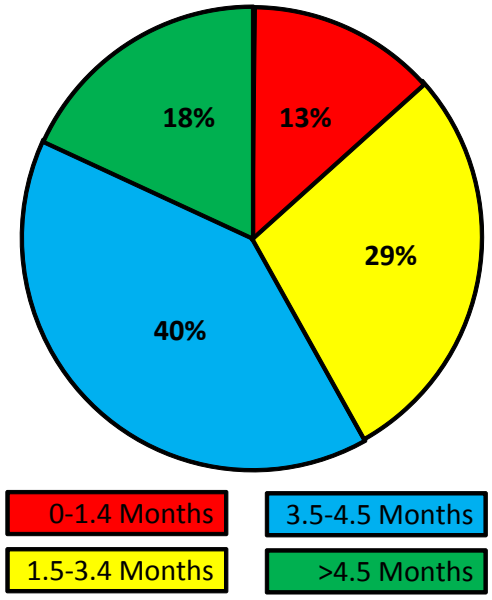

Figure 2. Contribution of uncultivated foods to food support in Dhading District, Nepal study site. Percentage of households (n= 62) depending on uncultivated food crops for time periods of different length during a year.

Use of uncultivated foods

All respondents reported that they use uncultivated resources in their daily life. 94% of all households responded that they used uncultivated foods due to insufficiency and because they are freely available. Medicinal value (43% of all households) and nutritional aspects (32% of all households) were also mentioned by a relatively large proportion of the respondents. A conclusion from the group discussions was that the use of medicinal plants for health care is declining. An important reason for this change is that the traditional healers, who used to treat people, are few at present and the transfer of knowledge and practice to prepare such medicines is low. The younger generation is not interested in studying such traditional ways of medication (Bista 2004, Ladio & Lozada 2004).

The uncultivated foods contributed significantly to the food requirements of the households. A majority (58%) of the households used food from uncultivated sources more than 3.5 months per year (Figure 2). Similar contributions from uncultivated foods have been found by Balla *et al*. (2002) in the Tanahun and Chitwan districts of Nepal. Shrestha (2001) reported that 20-30% of the food requirements in rural communities of Nepal were met by uncultivated food crops.

The importance of uncultivated foods is supported by studies in other countries. For instance, a study carried out in India, reported that the poor consumed uncultivated crops at least 50-80 days in a year, but also that these resources used to have larger importance in the past (DDS 2002). Similarly, Shore (2000) reported that in communities in Bangladesh 40% of the food requirement came from uncultivated foods, and in a study in Burkina Faso Smith *et al*. (1995) reported that 20% of all food items were from the wild. Cromwell *et al*. (1997) showed that the value of all wild plant resources to rural communities was calculated to be more than 8% of the agricultural gross domestic product (GDP) in Tanzania. Thus, contributions to the food supply by uncultivated plants are considerable but they vary between regions and ethnic groups (Heywood 1999).

In our study, uncultivated foods were less important as a source for income (only about 4% of the households reported that uncultivated foods contributed significantly to their income), but people have started to sell some species with potential market value. In fact, 11.3% of the households had started to sell *A. racemosus*, *Castanopsis indica* (Roxburgh ex Lindl.) A.DC., *Diploknema butyracea* (Roxb.) H.J. Lam, *Dryopteris cochleata* (D. Don) C. Chr., *Phyllanthus emblica* L., *Tamarindus indica* L., and *Thysanolaena maxima* (Roxb.) Kuntze although in small amounts at present but with significant potential in the future as the demand rises in the market. The selling of uncultivated foods is not new in this area however; there were people who used to collect and sell products originating from other areas with a tradition of marketing wild foods and products. Other studies have shown that many uncultivated plant resources have significant economic value by preventing the need for cash expenditures, and income derived from the collection and sale of these re-

Table 1. Frequently used uncultivated plant species in Dhading District, Nepal study site.

Species	Plant types	Uses									Parts used
		Cultural	Economic	Food	Fresh Fruit	Medicine	Pickles	Religious	Stable Food	Vegetable	
Arundinaria falcata Nees	Short type bamboo		X								Stem
Asparagus racemosus Willd.	Straggling, slender shrub					X				X	Tender shoots
Castanopsis indica (Roxburgh ex Lindl.) A.DC.	Evergreen tree			X							Cotyledons
Crataeva unilocularis Buch. -Ham.	Deciduous tree									X	Tender leaves & buds
Dioscorea bulbifera L.	Perennial herbaceous climber								X		Tubers
Dioscorea deltoidea Wall. ex Griseb.	Climbing herb								X	X	Tubers
Diploknema butyracea (Roxb.) H.J. Lam	Deciduous tree	X	X		X						Juicy pulp, seed
Dryopteris cochleata (D. Don) C. Chr.	Terrestrial fern									X	Tender shoots
Phyllanthus emblica L.	Deciduous tree		X				X				Fruits
Rubus ellipticus Sm.	Straggling shrub				X						Ripe fruits
Schima wallichii (DC.) Korth.	Evergreen tree							X			Fruits, leaves
Urtica dioica L.	Perennial herb									X	Tender shoots & leaves

sources could be important for poor people as a source of cash (Guinand & Lemessa 2001, Melnyk 1994).

Frequently used species and their use

The most frequently used species reported by informants and their uses are presented in Table 1. These include trees, shrubs and herbs that were mainly used as vegetables and other foods.

Information on the frequency of harvest and use was compiled for species that were often used (Table 2). Species used as staple foods were harvested from one to more than 25 times per month. *D. bulbifera* and *D. deltoidea* were harvested regularly and used more than 20 times a month by a large proportion of the households. Other *Dioscorea* species were harvested and used on a regular basis although not as frequently as the two species above (Table 2). Several of the species can be stored for future use and therefore the frequency of harvest was lower than the frequency of use (Table 2). The most commonly stored species were *D. bulbifera* (95% of the households) and *D. deltoidea* (42%). Both species were prioritized food crops in the area. Collection of these species has shown that people used to harvest up to 50 kg per harvest. The analysis on the quantity per harvest showed that 71% of the household used to harvest 11-30 kg per harvest.

People in the study site also stored uncultivated staple foods, vegetables and medicines for future use. The uncultivated starchy foods and vegetables were processed

Table 2. Proportion of households with different frequency of harvest/use of important food species each month in Dhading District, Nepal study site.

Species	Frequency of harvest/use per month				
	1-6	7-12	13-18	19-24	> 25
Dioscorea bulbifera L.	31/0	37/5	23/8	8/32	2/55
Dioscorea deltoidea Wall. ex Griseb.	44/5	27/27	18/21	6/27	2/16
Dioscorea pentaphylla L.	71/39	42/44	13/26	3/21	0/0
Dryopteris cochleata (D. Don) C. Chr.	40/19	10/27	5/6	2/3	0/0
Urtica dioica L.	0/0	10/11	31/27	31/32	21/21

in local ways for storage to prolong their availability. Some uncultivated starchy foods like *D. bulbifera* are cut into small slices and dried either under sun light or hung above a fire place to dry before storing in an airtight container for future use. Similarly, vegetables were sun dried when fresh while others are boiled or blanched, for later use during the dry season (see also Dhillion & Shrestha n.d., Gautam *et al*. 2006, Ngugi 2000, Regmi *et al*. 2006, Sullivan 2000).

Conservation and management practices

The focus group discussion and interviews of key informants suggested that the availability of the uncultivated foods from the area has declined during the last 40 years. During the group discussions 90% of the people had the opinion that 40 years ago, i.e., in 1965, uncultivated food availability was not a problem the availability of uncultivated foods since then has been halved. More than 70% of the informants mentioned that the major reasons for such changes were the depletion of natural vegetation and uncontrolled harvesting due to heavy dependency of local people on uncultivated plants. These factors are also often cited as underlying causes of the decline in use of uncultivated resources in other studies (Akhtar 2001, Fouere *et al*. 2000).

98% of respondents reported that they are involved in management of uncultivated plant species. Moreover, 90% mentioned that they are doing *in-situ* conservation of wild populations and 71% mentioned domestication as a major way of maintaining these uncultivated food resources. However, farmers also suggested two other factors to facilitate sustainable use of uncultivated food plants: i) increased awareness (17% of the households), and ii) restrictions in the use of these plant resources (36%). Fewer households suggested technical solutions or increased cooperation between households. A general conclusion from group discussions and key informant interviews was that participatory natural resources management programs are needed to encourage local people to work with conservation and management of these natural resources.

This study showed that people in the study site have been using uncultivated resources for generations and, because of their close associations with nature and natural system, have developed sophisticated knowledge systems (Etkin 2002) about the plants and their ecosystems. However, the present trends in harvesting of some of the species are probably not sustainable and the way of harvesting negatively impacts the species availability in the future (see also Chaudhary 1999, Dhillion & Shrestha n.d., Shrestha & Dhillion 2003). Policy support mechanisms, especially on effective management and conservation of uncultivated species, are lacking (Kerkhoff & Sharma 2006, Shrestha 2001). It would be a tragedy if people such as the Chepang who maintain their livelihoods by the combination of different strategies such as gathering of uncultivated foods, hunting, wage labouring and subsistence agriculture (shifting cultivation) lost a key component of their food, i.e., uncultivated plants.

Conclusions

This study has revealed that the Chepang people of Nepal continue to rely on uncultivated plant species for consumption at times of food shortage and that these species have the potential to become valuable staple foods and important alternatives to the usual food crops cultivated by farmers. Analysis of the use of species such as *Dioscorea* showed that there is a growing pressure on wild plant resources, which suggests that there is an urgent need for an awareness program among the local people. There is a need of integrated research and development programs for forest dwelling communities such as the Chepang in Nepal who have food sufficiency problems, where uncultivated foods provide key supplements to the main diet and are of considerable medicinal and cultural importance. Without an understanding of the relationship between staple crop foods and uncultivated food intake, agricultural planning will continue to be dominated by few major crops and exclude diverse and important resources. The contribution of uncultivated plants needs to be taken into account in planning. Rural families in the study site involved in the use of such species are specifically poor, so investment in the development of these resources will make a major contribution to the alleviation of poverty.

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Appendix1. Uncultivated plant species used by Chepang in the Dhading district, Nepal. Plant names are given in Nepali (commonly used local Nepali name given by key informants). Parts used: Ba=Bark, Bu=Buds, B=Bulb, Fl=Flower, F=Fruits, L=Leaf, La=Latex, S=Seeds, Sh=Shoots, S=Stem, R=Root, W=Whole plant, O=Others; Availability: 1=Fairly enough, 2=Medium, 3=Low. Specimens of uncultivated plant species were collected, identified, and vouchers were deposited at the district office of Nepal Chepang Association (NCA)

Nepali name	Chepang name	English name	Scientic name	Habit	Availability	Uses									Parts used
						Fodder	Food	Fruit	Medicine	Religious	Spices	Tradition	Vegetable	Other	
Ainselu (Red)	**Lyangsai**	Raspberry	*Rubus acuminatus* Sm. Rosaceae	P	3		X								F
Ainselu	**Lyangsai**	Raspberry	*Rubus ellipticus* Sm. Rosaceae	P	2		X								F
Amala	**Amala**	Emblic myrobalan	*Phyllanthus emblica* L. Phyllanthaceae	P	2		X		X					X	F
Amaro	**Pakmaru**	Golden apple	*Spondias cytherea* Sonn. Anacardiaceae	P	3		X		X						F
Amrisho	**Phek**	Broom grass	*Thysanolaena maxima* (Roxb.) Kuntze Poaceae	P	2	X								X	S L
Badhar	**Dhausi**	Monkey jack	*Artocarpus lokoocha* Roxb. Moraceae	P	2		X							X	F L
Ban kera	**Ban maisai**	Banana	*Musa balbisiana* Colla. Musaceae	P	3		X								F
Ban tarul	**Brangoi**	Wild yam	*Dioscorea bulbifera* L. Dioscoreaceae	P	3		X			X				X	B
Bankakri	**Banaisai**	-	*Solena heterophylla* Lour.Cucurbitaceae	A	2		X						X		F
Bans	**Chyas**	Bamboo	*Bambusa nepalensis* Stapleton Poaceae	P	2	X	X							X	Sh S
Bayar	**Bayar**	Bayar	*Zizyphus mauritiana* Lam. Rhamnaceae	P	2			X						X	F
Bel	**Bel**	Wood apple	*Aegle marmelos* (L.) Corrêa Rutaceae	A	2					X				X	F, L
Bethe sag	**Bethu**	Lamb's quarter	*Chenopodium album* L. Chenopodiaceae	A	1								X		Sh
Bhakyamlo	**Rusai**	Nepalese sumac	*Rhus javanica* L. Anacardiaceae	P	3				X	X					F
Bhimsen pati	**Goihomro**	Butterfly bush	*Buddleja asiatica* Lour. Scrophulariaceae	P	2				X	X					L
Bhorla	**Maklo**	Camel's foot climber	*Bauhinia vahlii* Wight & Am. Fabaceae	A	2			X					X		F, Te
Bhuin kafal	**Salyangsai**	-	*Fragaria daltoniana* J. Gay Rosaceae	A	2			X							F
Bhyakur	**Pass**	Cush-cush yam	*Dioscorea deltoidea* Wall. ex Griseb. Dioscoreaceae	A P	2		X					X			B
Bojho	**Bojo**	Sweet Flag	*Acorus calamus* L. Acoraceae	A	2				X						C

Nepali name	Chepang name	English name	Scientic name	Habit	Availability	Uses									Parts used
						Fodder	Food	Fruit	Medicine	Religious	Spices	Tradition	Vegetable	Other	
Camuna	**Camuna**	-	*Syzygium cerasoides* (Roxb.) Raizada Myrtaceae	P	2			X	X						F Ba
Chalne sisnu	**Bannelau**	China grass	*Boehmeria platyphylla* Buch.-Ham. ex D. Don Urticaceae	P	2				X	X					L Fl
Chariamilo	-	Creeping sorrel	*Oxalis corniculata* L. Oxalidaceae	A	3			X	X						L
Chilaune	**Kyangsi**	Needle wood	*Schima wallichii* (DC.) Korth. Theaceae	P	3				X	X					B
Chiraito	**Chiraito**	Chiretta	*Swertia chirayita* (Roxb. ex Fleming) Karsten Gentianaceae	A	3				X						W
Chiuri	**Yosai**	Butter tree	*Diploknema butyracea* (Roxb.) H.J. Lam Sapotaceae	P	2	X		X				X			F Se L
Dante okhar	-	Thin-shelled walnut	*Juglans regia* L. Juglandaceae	P	2			X		X					F
Dumri	**Dumri**	Cluster fig	*Ficus racemosa* L. Moraceae	P	2	X	X								F L
Ganja	**Banjorok**	Indian hemp	*Cannabis sativa* L. Cannabaceae	A	3				X		X				Se
Ghod tapre	**Tokre jhar**	Water pennywort	*Centella asiatica* (L.) Urb. Apiaceae	P	2				X						R
Gayo	**Rabe ghas**	Gambles man	*Bridelia retusa* (L.) A. Juss. Euphorbiaceae	P	2	X				X					S
Ghiukumari	-	Indian Aloe	*Aloe vera* (L.) Burm.f. Asphodelaceae	P	2				X					X	L
Githa	**Lak**	Air potato	*Dioscorea bulbifera* L. Dioscoreaceae	A	2		X					X	X		B
Gogan	**Omsi**	-	*Saurauia napaulensis* DC. Actinidiaceae	P	2	X									
Gujargano	**Gujargano**	Velvet leaf	*Cissampelos pareira* L. Menispermaceae	P	3				X						W
Gurjo ko iahara	**Jyumra**	Guancha	*Tinospora sinensis* (Lour.) Merr. Menispermaceae	P	2				X					X	W
Hadchur	-	Mistletoe	*Viscum album* L. Santalaceae	P	2				X						W
Harro	**Lisai**	-	*Terminalia chebula* Retz.Combretaceae	P	2				X					X	F
Imli, Titri	-	Tamarind	*Tamarindus indica* L. Fabaceae	P	1			X						X	F
Jaluko	**Fyaksa**	-	*Remusatia vivipara* (Roxb.) Schott Araceae	A	1								X		Sh

Nepali name	Chepang name	English name	Scientic name	Habit	Availability	Uses									Parts used
						Fodder	Food	Fruit	Medicine	Religious	Spices	Tradition	Vegetable	Other	
Jamun	-	Black plum	*Eugenia formosa* Wall. Myrtaceae.	P	2			X							F
	-	Indian gooseberry	*Syzygium cumini* (L.) Skeels Myrtaceae.	P	2	X	X								F
Jangali aanp	**Bantaksai**	Wild mango	*Mangifera indica* L. Anacardiaceae	P	3			X						X	F
Jaringo	-	Poker weed	*Phytolacca acinosa* Roxb.Phytolaccaceae	A P	3								X		L
Kabro	**Kabra**	Elephant fig	*Ficus lacor* Buch.-Ham. Moraceae	P	2	X							X		Bu
Kali nieuro	**Galo nenggarya**	Fern	*Tectaria macrodonta* (Fée) C. Chr. Aspidiaceae	A	3				X				X		Sh
Kansi amala	-	Star gooseberry	*Phyllanthus acidus* (L.) Skeels Phyllanthaceae	P	3			X							F
Kaphal	**Kaphal**	Box myrtle	*Myrica esculenta* Buch.-Ham. ex D. Don Myrtcaceae	A	1			X							F
Katus	**Ekai**	Chestnut	*Castanopsis indica* (Roxb. ex Lindl.) A. DC. Fagaceae	P	2			X		X					F
Khaniyo (**Rai**)	**Koksai**	-	*Ficus semicordata* Buch.-Ham.ex Sm. Moraceae	P	1	X		X							F L
Kharane	**Kharane**	-	*Viburnum cylindricum* Buch.-Ham. ex D. Don Caprifoliaceae	P	2		X		X						Sh
Khasreto	**Cheksi**	Hairy fig	*Ficus hispida* L.f. Moraceae	P	2	X		X							L
Khirro	**Miktalang**	-	*Sapium insigne* (Royle) Benth. & Hook.f. Euphorbiaceae	P	2	X			X						L, Ba
Khole sag	**Simsag**	Brooklime	*Veronica beccabunga* L. Scrophulariaceae	A	1								X		L
Kimbu	**Nemaksai**	Mulberry	*Morus alba* L. Moraceae	P	2	X	X								F L R
Koiralo	**Rimsi**	-	*Bauhinia purpurea* L. Fabaceae	P	1	X							X		Bu
Kurilo	**Jyordum**	Wild asparagus	*Asparagus racemosus* Willd. Asparagaceae	A P	3				X				X	X	Sh
Kutilkosa	**Nakatisai**	Clover vetch	*Vicia angustifolia* L. ex Reichard Fabaceae	A	1	X	X								F W
Lapsi	**Lapsi**	Monbin	*Choerospondias axillaris* (Roxb.) B.L. Burtt & A.W. Hill Anacardiaceae	P	2			X						X	F
Latte sag	**Dakhinsag**	Amaranth	*Amaranthus spinosus* L. Amaranthaceae	A	1								X	X	Sh
Lunde	**Armulya**	Pigweed	*Amaranthus viridis* L. Amaranthaceae	A	1								X		Sh

Nepali name	Chepang name	English name	Scientic name	Habit	Availability	Uses									Parts used
						Fodder	Food	Fruit	Medicine	Religious	Spices	Tradition	Vegetable	Other	
Marcha Jhar	**Michyano**	Iron weed	*Vernonia cinerea* (L.) Less. Asteraceae	A	1				X					X	L
Mel	**Mayal**	Wild pear	*Pyrus pashia* Buch.-Ham. ex D.Don Rosaceae	P	3		X			X			X		F S
Nigalo	**Monyanro**	Himalayan bamboo	*Arundinaria falcata* Nees Poaceae	P	2	X								X	S
Nimaro	**Nemsi**	Eve's apron	*Ficus auriculata* Lour. Moraceae	P	2	X		X							F L
Niuro	**Niuro**	Edible fern	*Dryopteris cochleata* (D. Don) C. Chr. Dryopteridaceae	A	3				X				X		Sh
Pakhanbed	**Pakhanbed**	Rock foil	*Bergenia ciliata* (Haw.) Sternb. Saxifragaceae	P	2				X						W
Pandel	**Yausi**	-	*Ziziphus incurva* Roxb. Rhamnaceae	P	2	X		X							F
Pani amala	**Tisai**	Fern	*Nephrolepis cordifolia* (L.) C. Presl. Nephrolepidaceae	P	2			X							F
Pudina	**Pudina**	Mint	*Mentha arvensis* L. Lamiaceae	P	1				X					X	L
Raikhanyu	**Koksi**	Nepal fodder fig	*Ficus semicordata* Buch.-Ham. ex Sm. Moraceae	P	2	X		X							F L
Ratigeri	**Ratigeri**	Bead vine	*Abrus precatorius* L. Fabaceae	P	2		X		X						F Ba
Rudilo	**Nampuni**	-	*Pogostemon glaber* Benth. Lamiaceae	P	2				X						W
Sal	**Raksi**	Sal	*Shorea robusta* Gaertn. Dipterocarpaceae	P	2					X				X	La L
Shikari lahara	**Sikari lahara**		*Periploca calophylla* (Wight) Falc. Apocynaceae	P	2				X						W
Shiplican	**Dyoyaisag**	Garlic pear	*Crataeva unilocularis* Buch.-Ham. Capparaceae	P	1								X	X	Bu
Sim sag	**Papinja**	Water cress	*Rorippa nasturtium-aquaticum* (L.) Hayek Brassicaceae	A	2								X		L
Simali	**Glausigoi**	Orange jasmine	*Murraya paniculata* (L.) Jack Rutaceae	P	2				X						S
Sisno	**Nelau**	Nettle	*Urtica dioica* L. Urticaceae	P	1				X				X		L Sh
Siundi	**Kituki**	-	*Euphorbia* sp. Euphorbiaceae	P	2				X	X					F S
Tanki	**Saga**	Pink bauhinia	*Bauhinia purpurea* L. Fabaceae	P	1	X							X		Bu F

Nepali name	Chepang name	English name	Scientic name	Habit	Availability	Uses									Parts used
						Fodder	Food	Fruit	Medicine	Religious	Spices	Tradition	Vegetable	Other	
Thirjo	**Khirsi**	-	*Aeschynanthus parviflorus* (D. Don) Spreng. Gesneriaceae	P	2				X						W L
Timoor	**Umpur**	Nepal pepper	*Zanthoxylum armatum* DC. Rutaceae	P	2				X		X				F
Tindu	**Tindu**	Tindu	*Diospyros malabarica* (Desr.) Kostel. Ebenaceae	A	2			X							F
Titepati	**Pati**	Mug wort	*Artemisia indica* Wild. Asteraceae	P	1				X	X					L
Tyaguna	-	-	Dioscorea pentaphylla L. Dioscoreaceae	A	2		X						X		B