

Plant Diversity in Western Ethiopia: Ecology, Ethnobotany and Conservation

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Abstract

The aim of this thesis is to investigate the ecology and ethnobotany of vegetation in Benishangul Gumuz Regional State (BGRS), western Ethiopia. The studies reported in this thesis have confirmed the existence of 1102 vascular plant species in BGRS. The region has, therefore, comparable vascular plant diversity to other floristic regions in Ethiopia. The study, which was carried out using classification and ordination techniques, revealed the existence of five plant communities and enabled to identify environmental variables that are structuring the plant composition. These plant communities could be used in conservation planning in BGRS. Potential threats to the vegetation were identified and found to increase with altitude. The study on *Tgetes patula* has revealed that the species has several characters that might facilitate invasiveness and may be considered as a threat to the natural landscapes in the absence of woodland fire to which the vegetation in the region is adapted. The result of the ethnobotanical study revealed that the people in BGRS and Kafa depend on diverse plant species which are mainly collected from wild population (ca. 70%). Over harvesting of wild plants that give immediate economic return, may increase the burden on wild plant populations. Such findings give hints for prioritization of plant species for *in-situ* and *ex-situ* conservation. In conclusion, this thesis has improved the understanding of the imperfectly known vegetation in BGRS and medicinal plants used by Kafficho people.

List of papers

This thesis is based on the following papers which will be referred to in the text by their Roman numerals.

- I. Sebsebe Demissew, Nordal, I., Herrmann, C., Friis, I., Tesfaye Awas & Stabbetorp, O. 2005. Diversity and endemism of the western Ethiopian escarpment – a preliminary comparison with other areas of the Horn of Africa. *Biol. Skr.* 55: 315-330.
- II. Tesfaye Awas, Inger Nordal and Sebsebe Demissew. 2007. Plant communities in woodland vegetation of Benishangul Gumuz Region, western Ethiopia. Submitted.
- III. Tesfaye Awas & Inger Nordal. 2007. Benishangul Gumuz Region in Ethiopia: A center of endemism for *Chlorophytum* – with the description of *C. pseudocaule* sp. nov. (*Anthericaceae*). *Kew Bulletin*. 62(2): in press.
- IV. Tesfaye Awas, Sebsebe Demissew, Inger Nordal and Ib Friis. 2007. New plant records for the Ethiopian flora from Benishangul Gumuz Region, western Ethiopia. Submitted.
- V. Agnethe B. Salvesen, Tesfaye Awas and Inger Nordal. 2007. Escape of introduced ornamentals in Asteraceae - with main focus on *Tagetes patula* L. in western Ethiopia. Submitted.
- VI. Tesfaye Awas, Zemedet Asfaw, Inger Nordal and Sebsebe Demissew. 2007. Ethnobotany of Berta and Gumuz People in western Ethiopia. Submitted.
- VII. Tesfaye Awas and Sebsebe Demissew. 2007. Ethnobotanical study of medicinal plants in Kafficho people, southwestern Ethiopia. Submitted.

Introduction

Ethiopia's boundaries encompass the major part of the eastern African highland massif. On the northern and western boundaries lie the foothills of the main massif. The Great Rift Valley cuts diagonally across the country from north east to south, creating a vast depression. The dry areas have isolated the highlands. Thus, there is great variation of altitude from 116 meters below sea level to 4620 meters above sea level. Rainfall also varies widely in amount and distribution. These factors strongly influence Ethiopia's extraordinary range of terrestrial and aquatic ecosystems, and have contributed to a high diversity and rate of endemism (Tesfaye Awas et al. 2003). The existence of such diverse ecosystems has endowed Ethiopia with diverse vegetation types.

Ethiopia being the land where the first humans have evolved, its vegetation has been exposed to various human induced impacts that have diminished its diversity for a longer period than anywhere else. The attention given to vegetation conservation and sustainable use has so far been inadequate. Some of the current contributory factors to accelerated decline of vegetation are: the size and pattern of the distribution of human and domestic animal populations, the level of resource consumption, market factors and policies. Under-valuation of vegetation conservation due to low-level of awareness about the rate at which it is deteriorated or lost and poor regard to the conservation problems have also contributed to under-investment in proper vegetation management.

The present vegetation of Ethiopia is physiognomically divided in to nine major vegetation types: 1) Desert and semi-desert scrubland; 2) Lowland (semi-) evergreen forest; 3) *Acacia-Commiphora* small-leaved, deciduous woodland; 4) *Combretum-Terminalia* broad-leaved deciduous woodland and savanna; 5) Evergreen scrub; 6) Moist evergreen montane forest / Afromontane rainforest; 7) Dry evergreen and montane forest and grassland; 8) Afro-alpine and subafroalpine zone; and 9. Riparian/riverine and swamp vegetation (Friis, 1992; Sebsebe Demissew et al. 1996; Conservation Strategy of Ethiopia, 1997; Friis and Sebsebe Demissew, 2001). This thesis focuses on the aspects of plant diversity, ecology and ethnobotany of vegetation type 4 and 9, particularly its part in Benishangul Regional State (BGRS), western Ethiopia. In addition, the study on the ethnobotany of medicinal plants of Kafficho, who are the dwellers of vegetation type 6, is included. Vegetation type 6 was also originally found in BGRS in areas above 1900m, though it is now completely lost and is

represented only by remnant trees that indicate that the area was once covered by Moist evergreen montane forest.

Vegetation type 9 consists of at least two physiognomically different vegetation types, riverine/riparian forest, and open, almost treeless vegetation. The riverine and riparian forest and *Combretum-Terminalia* broad-leaved deciduous woodland and savanna in western Ethiopian were named by White (1983) as *undifferentiated woodlands (Ethiopian type)*. Based on the floristic study made on the part of this woodland vegetation that occurs in Gambella Regional State in southwestern Ethiopia, five plant communities were recognized (Tsfaye Awas et al. 2001). They are *Commelina zambesica-Hygrophila auriculata*, *Sorghum purpureo-sericeum-Pennisetum thunbergii*, *Loudetia arundinacea-Hyparrhenia pilgeriana*, *Combretum adenogonium-Anogeissus leiocarpa* and *Tamarindus indica-Anogeissus leiocarpa* communities. The plant communities of the woodland vegetation in BGRS were not studied and there is a gap of information.

The woodland vegetation in western Ethiopia provides many resources to the inhabitants. Mengistu Wube (1995), Tsfaye Awas et al. (1997a), had studied and compiled information on the indigenous plant uses by Anywaa, Majangir and Nuer people in Gambella Regional State. Berta and Gumuz inhabited areas in the BGRS has never been studied. These studies had indicated the dependence of the people on this vegetation type for food, medicine and other uses.

Objectives

Recent botanical expeditions to the woodland vegetation in BGRS have come up with several new plant records that are either new to science (Nordal and Sebsebe Demissew 2002) or new for the Ethiopian flora (Edwards et al. 2000; Cribb et al. 2002). The Ethiopian Government has recognized this area as suitable for both rain fed and irrigated agriculture, which should be urgently developed through implementation of integrated development plans (Ministry of Information 2001). So far there is no area designated for any kind of conservation in BGRS. Conservationists are concerned that the new development plans may disrupt the ecosystem in general and the interaction of local people with indigenous plants in particular. Thus, there is an urgent need for information for conservation planning, sustainable biodiversity utilization

and environmentally sound decision-making as part of integrated economic development program in the region. This study was, therefore, initiated to generate data for plant diversity conservation planning and sustainable development of Benishangul Gumuz Regional State in western Ethiopia. Some specific objectives include:

- To identify the plant communities that could be used as biodiversity surrogates for conservation of woodland vegetation in BGRS.
- To identify the most important environmental gradients structuring the plant communities in the region.
- To document ethnobotanical knowledge of Berta and Gumuz, the two dominant socio-cultural groups in BGRS.
- To compile a checklist of all plants in BGRS.
- To investigate ecological and biological factors that facilitated the invasion of woodland vegetation in BGRS by *Tgetes patula*
- To document medicinal plants used by Kafficho people, southwestern Ethiopia

Materials and methods

Vascular plant diversity

The number of vascular plant species in BGRS reported in **Paper I** was based on the list compiled from Cribb et al. (2002), Nordal and Sebsebe Demissew (2002), Sebsebe Demissew et al. (2003) and published Flora of Ethiopia and Eritrea (Hedberg and Edwards (1989), Phillips (1995), Edwards et al. (1995, 1997 and 2000), Hedberg et al. (2003 and (2006) and Mesfin Tadesse (2004). The list was further updated in this thesis based on recent studies (**Paper II, III, IV, V and VI**; Chance 2006; Friis and Vollesen 2007).

Vegetation classification and ordination (Paper II)

A systematic sampling method was used to select homogenous vegetation stands along an altitudinal gradient on both sides of Blue Nile River. In all stands, the cover/abundance data of all flowering plants in relevés were recorded following the Braun-Blanquet approach (Braun-Blanquet 1965; Muller-Dombois and Ellenberg 1974). A total of 61 relevés were sampled using a square plot of 400 m² (20 m by 20 m). The percentage cover/abundance values were

transformed to a scale of ordinal transform values from 1 to 9 (van der Maarel 2005). Human impacts on the vegetation were also estimated subjectively on ordinal scales from zero to three. Environmental data on topographic and soil factors were gathered for each relevé. GPS was used to record the position (latitude and longitude) of each relevé. Everest Altimeter and GPS were used to measure altitude. Soil samples were collected from each relevé and analyzed by the National Soil Research Laboratory in Ethiopia.

Escape of introduced ornamentals (Paper V)

Vegetation stands that have been invaded by *T. patula* were found in Bulen, Dibatie and Mandura districts of BGRS. In each district, one site was selected and people were interviewed about the positive and negative impacts of *T. patula* on their life, when it arrived, if it was of any use, if it was eaten by animals, if it was actively or passively spread. The percentage cover of all plants associated with *T. patula* in 2m X 2m quadrat was recorded to investigate ecological preference of the species. The number of seed produced by *T. patula* was counted. The diaspores of *T. patula*, another escaped ornamental - *Zinnia elegans* and indigenous species - *Bidens prestinaria* were collected from ripe inflorescences for fire treatment experiments which was carried out at the University of Oslo. The later two species were included for comparison. Soils samples were collected to investigate whether *T. patula* and *B. prestinaria* survive in the soil seed bank.

Ethnobotanical data collection (Paper VI and VII)

The data collections have been conducted in two phases. In the first phase, pre-prepared semi-structured interview items were administered with extended discussion with informants. The local names of plants and use were recorded on the spot when informants reach to consensus. In the second phase, the plants were identified and their botanical names were listed along their respective local names. This list was used in preparing format for structured interview. The houses in each village were numbered starting from one corner and selected using random numbers for interview.

Data analysis

The cover/abundance data was analyzed using a FORTRAN Computer Program TWINSPAN, TWo-way Indicator SPecies ANalysis, Version 1.0 (Hill 1994). Detrended Correspondence Analysis (DCA) and Canonical Correspondence Analysis (CCA) were run to analyze patterns of variation in the species composition by using the computer program data package CANOCO version 4.5 (ter Braak and Smilauer 2002). One Way ANOVA statistics was used to find out if there were significant differences in seed germination fractions in the heat treatments. Ethnobotanic data was analyzed using multivariate computer program PAST (Ryan *et al.*, 1995).

Results and Discussion

Vascular plant diversity

The occurrence of 956 vascular plant species in BGRS was reported in **Paper I**. Based on this figure, the total number of vascular plants in BGRS was estimated to be between 1040 and 1180 species. Subsequent studies in BGRS have come up with verification of the occurrence of additional 147 plant species (**Paper II, III, IV, V and VI**; Chance 2006; Friis and Vollesen 2007). Among these, seven species were new to the Flora of Ethiopia (**Paper IV** and Friis and Vollesen 2007) while one species was new to science (**Paper III**). These studies have increased the total number vascular plants known in the woodland vegetation of western Ethiopia to 1102 species. The number of endemic species reported in **Paper I** was also increased by one, i.e. from 27 to 28 (**Paper III**).

The vascular plants in BGRS are mainly flowering plants where dicots and monocots accounted for about 70% and 29%, respectively (Table 1). The lower vascular plants (lycophodiophyta) were represented by one species - *Selaginella kraussiana* (Kze.) A. Br. (Selaginellaceae). Ferns (Polypodiophyta) were also represented by one species - *Nephrolepis undulata* (Sw.) J. Sm. (Oleandraceae).

The vascular plant species in the woodland vegetation of western Ethiopia were represented by about 117 families. About 10 families that contain more than 20 species and their ratio to the Flora of Ethiopia and Eritrea were given in Table 2. About 13 families

contain 10 to 19 species, 65 families with two to nine species and 24 families were with one species each. Family Poaceae and Fabaceae were with the highest number of genera, 46 and 44, respectively (Table 2). About 10 families contain more than 11 genera, 57 families from two to 10 genera and 50 families were represented by a single genus. Thus, a total of 474 genera were represented where 10 genera contain more than 10 species (Table 3), 177 genera containing two to nine species and 287 genera were represented by one species each.

The woodland vegetation of western Ethiopia is characterized by small to moderately sized trees, herbs, grasses and sedges (Figure 1). The ground cover is dominated by herbaceous geophytes at the beginning of rainy season (May and June). Toward the end of the rainy season (September to November) tall strata of perennial grasses become dominant.

Table 1. Taxonomic diversity of vascular plants in BGRS, western Ethiopia.

Class	Family	Genera	Species
Dicots	92	363	776
Monocots	23	109	324
Ferns	1	1	1
Lycopods	1	1	1
Total	117	474	1102

Table 2. Families of flowering plants with more than 20 plant species in BGRS, western Ethiopia.

S. No.	Family	No. of genera in BGRS	No. of species in BGRS	No. of species in Flora of Ethiopia & Eritrea	%
1	Asteraceae	27	48	440	10.91
2	Convolvulaceae	10	32	132	24.24
3	Cyperaceae	12	75	185	40.54
4	Euphorbiaceae	17	39	209	18.66
5	Fabaceae	44	159	607	26.19
6	Malvaceae	9	30	139	21.58
7	Orchidaceae	14	50	154	32.47
8	Poaceae	46	117	580	20.17
9	Rubiaceae	30	49	101	48.51
10	Tiliaceae	3	21	47	44.68

Table 3. Genera of flowering plants containing more than 10 species in BGRS, western Ethiopia.

S. No.	Genera	Family	No. of Species
1	<i>Cyperus</i>	Cyperaceae	46
2	<i>Crotalaria</i>	Fabaceae	26
3	<i>Indigofera</i>	Fabaceae	21
4	<i>Habenaria</i>	Orchidaceae	16
5	<i>Ipomoea</i>	Convolvulaceae	16
6	<i>Acacia</i>	Fabaceae	14
7	<i>Chlorophytum</i>	Anthericaceae	13
8	<i>Eulophia</i>	Orchidaceae	13
9	<i>Hibiscus</i>	Malvaceae	12
10	<i>Hyparrhenia</i>	Poaceae	11

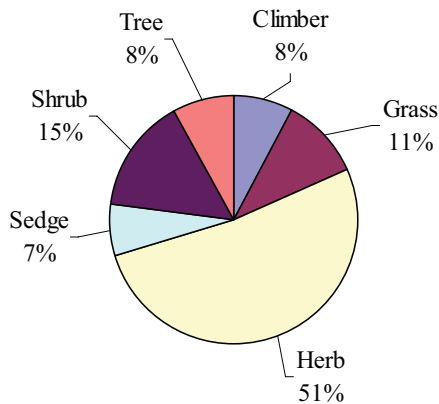


Figure 1. Proportion of life form classes of vascular plants in BGRS, western Ethiopia.

Vegetation classification and ordination (Paper II)

The woodland vegetation in BGRS was classified into five plant communities: (1) *Hyphaene thebaica-Pterocarpus lucens*, (2) *Boswellia papyrifera-Pterocarpus lucens* (Figure 2), (3) *Securidaca longepedunculata-Albizia malacophylla* (Figure 3), (4) *Croton macrostachyus-Albizia malacophylla* and (5) *Breonadia salicina-Phoenix reclinata*. The distribution of plants recorded in this study extends from Ethiopia to Senegal in the western Africa and to

Mozambique in the southeastern and Angola in the southwestern Africa. Of 232 species sampled in this study, 19% were shared with flora of Zambeziaca in southern Africa, 18% with flora of Tropical West Africa and 37% with both. The rest 26% of the species were restricted to Eastern African Flora, of which 13 species are endemic. Thus, the plant communities in BGRS are composed of plant species assemblages that have been formed by overlap of three phytogeographical regions in Africa; Afromontane, Sudanian and Zambeziac regions.

Ordination identified two main gradients that are structuring the woodland vegetation in BGRS. The first gradient is long (4.235 S.D. units) and separated the dry woodland at lower altitude in one end and the riparian woodlands at higher altitudes in the other end. Among 26 environmental variables measured, five of them were significant (at $P < 0.05$) in explaining variation in the species composition along the first gradient. The second gradient separated the plant communities at higher altitudes, where the *Securidaca longepedunculata* dominated woodland was in one end and *Croton macrostachyus* dominated woodland in the other end. Potassium was the only environmental variable which was found significant (at $P < 0.05$) in explaining variation in the species composition along the second gradient. In general, altitude was found to be the most important environmental gradient to which other variables were correlated either positively or negatively.

Escape of introduced ornamentals (Paper V)

Discussion made with local people in areas where *T. patula* was found as escape revealed that so far there is no negative impact on their daily life, except for a minimum of weeding in farm lands. In the species association analysis, *T. patula* was mainly found in semi-natural woodland vegetation (Figure 4) which was characterized by trees and also species that demands some shade and moisture (Edwards et al. 1995, 1997 and 2000; Hedberg and Edwards 1989; Phillips 1995; Hedberg et al. 2003 and 2006; Mesfin Tadesse 2004). It was less frequent in open and drier habitat types.



Figure 2. *Boswellia papyrifera*-*Pterocarpus lucens* community in woodland vegetation of BGRS, western Ethiopia (Photo: Tesfaye Awas July 2004, 83 km along the road from Asosa to Kurmuk).



Figure 3. *Securidaca longepedunculata*-*Albizia malacophylla* community in woodland vegetation of BGRS, western Ethiopia (Photo: Tesfaye Awas July 2004, 22 km along the road from Asosa to Kurmuk).

The study on some biological characters of *T. patula* revealed that the species has several characters that might facilitate invasiveness. It produces a large number of relatively small diaspores, has a seed bank and grazing/trampling stimulates growth of side shoots. It is well known that most invasive plants turning weedy, share these characters (Grime 1979).

The result of fire treatment experiment revealed that the diaspores of *Bidens prestinaria* were not affected by the different heat treatments. Being an indigenous species in fire prone area, *B. prestinaria* might have been adapted to woodland fire regimes through evolution. *Zinnia elegans* showed a higher germination frequency except the highest temperature treatment. This suggests that *Z. elegans* diaspores have a higher fire resistance, which might be connected to the fact that it has thick cypsela wall. The diaspores of *T. patula* were not affected by fire, unless the heat becomes excessive. Based on these findings, the pristine woodlands, which are adapted to fire, may not be at risk of invasion.



Figure 4. Escape population of *Tagetes patula* in semi-natural woodland vegetation of BGRS, western Ethiopia (Photo: Agnethe B. Salvesen October 2005, 82 km along the road from Chagni to Wembera).

Ethnobotany of Berta and Gumuz People (Paper VI)

A total of 185 plant species that are used in the daily life of Berta and Gumuz people have been recorded. About 30% of these plants are cultivated while 70% were collected from the wild. Two species (*Dioscorea bulbifera* and *Ricinus communis*) were found both in cultivation and in the wild. There are also three more plants, *Abelmoschus ficulneus* (Figure 5), *Hibiscus cannabinus* and *Corchorus olitorius*, which are very common in the wild stand but also tolerated in farmlands and homegardens. These plant species represent the wild-semi-wild-domesticated continuum of wild edibles of Ethiopia as described by Zemedu Asfaw and Mesfin Tadesse (2001).

Berta and Gumuz have very few plant names in common (see appendix I, which is extracted from **Paper VI** to make easy identification of plants while working with Berta and Gumuz people). They share the local name of very few introduced plants and only one indigenous tree – *Boswellia papyrifera*. Both Berta and Gumuz follow similar pattern of plant naming, where they refer to color, habitat, origin of germplasm in the case of cultivated plants and relationship among plants. Plant naming and use were found to be more localized to districts among Gumuz than Berta people. Both among Berta and Gumuz the elderly person knows a higher number of plants used for commercial purpose, construction, fuel wood and medicine. Youngsters know more food plants. There is a negative relationship between the educational level of informants and their ethnobotanic knowledge, where those people who go to school know less number of useful plants.

Ethnobotany of medicinal plants of Kafficho people (Paper VII)

Ethnobotanical study of medicinal plants used by Kafficho people was carried out in Kafa zone, Southern Nations, Nationalities and People's Regional States in Southwestern Ethiopia. Informants were asked to rank medicinal plants used to cure a specific disease. A total of 124 medicinal plants were identified. Medicinal plant use among Kafficho is localized and dependent on plants that are found around them. The ethnobotanical knowledge on medicinal plants also varies among various social groups. Kafficho people obtain a significant proportion of their medicinal plants from the wild (about 74%) and only cultivate a few selected species (about 26%) in the *Ensete ventricosum* dominated homegarden (Figure 6).



Figure 5. *Abemoschus ficulneus* under domestication in BGRS, western Ethiopia (Photo: Tesfaye Awas October 2005, Guba).

The medicinal plants are always cultivated on the upper slope of the homegarden, specifically behind the house. Kafficho people give four reasons for this: to prevent contamination by discharge of animal waste in the lower slope of their house, protection from livestock and to grow them out of human sight. The latter is related to traditional belief. The fourth reason is related to plant nutrition and the consequent plant performance. If medicinal plants are grown in homegarden quarters with high soil nutrient, they grow faster, complete their life cycle within a relatively shorter period and then die – a situation not appreciated by farmers. Instead, the farmers want the medicinal plants to remain longer in their gardens so as to ensure a prolonged harvest, and they achieve this by maintaining the plants under stressed conditions that subdue plant growth.

Kafficho people name medicinal plants by using the disease treated followed by ‘ato’. The plant naming system is mainly at species level. Medicinal plant use among Kafficho is site specific where people living close to forest depend on trees. There was also difference in medicinal plant knowledge between women and men of Kafficho people where, women know more about medicinal plants cultivated in homegarden. The older person knows high number of medicinal plants than youngsters.

The forest vegetation in Kafa zone was relatively intact a few decades ago, but recently faced heavy pressure from human activities (Kumelachew Yeshitela and Tamrat Bekele 2002; Kumelachew Yeshitela and Taye Bekele 2003). With the present ecological and socio-economical changes, medicinal plants together with the associated ethnobotanical knowledge of Kafficho are under serious threat and may be lost faster than imagined. Under such circumstances the use of plants for medicinal purposes will also decline and consequently the once effective traditional health care system will also be lost. Some ways to conserve the medicinal plants and associated knowledge were recommended in **Paper VII**.



Figure 6. *Ensete ventricosum* dominated homegarden of Kafficho people in southwestern Ethiopia (Photo: Tesfaye Awaw June 2004, 8 km along the road from Wacha to Bonga).

Conclusions and Implications for Conservation

Relatively, the woodland vegetation in western Ethiopia is still perhaps the least affected of all vegetation types in Ethiopia. However, the increasing population pressure leads to an increasing demand for agricultural land and plant products, thus forcing the people to clear woodlands for settlement and expansion of farmlands. In particular, the resettlement program that was undertaken in 1984 and the influx of refugees from Southern Sudan have led to the sharp increase in human population, thus triggering the encroachment pressure on vegetation

in BGRS. In general the threat on woodland vegetation in BGRS was found to increase with altitude, which was the most important environmental gradient in structuring vegetation in the region. Beside the existing pressure, implementation of other new development activities (Ministry of Information 2001), without conservation will lead to significant loss of vegetation. Establishment of conservation sites in the region is necessary to mitigate developments that may disrupt plant assemblage formed by the overlap of three big phytogeographical regions in Africa. Assemblage of sessile biota like the plant communities reflect the patterns in the underlying ecological process that are very important for management, and they are therefore, very important for prioritizing conservation activities. In areas like BGRS where the ecological processes are complex and poorly understood, conservation targeted to plant communities is the most recommended option. Under such situation, the findings reported in this thesis are very important basis for initiation of conservation in BGRS. The plant communities identified in **Paper II** could be used as biodiversity surrogates for conservation planning. In such process the involvement of local people is curial as they are the key generators, custodians and promoters of local biodiversity. The findings reported in **Paper VI** showed the dependence of indigenous people on diverse plants around them. In this regard, the list of plant local names along with the corresponding Latin is valuable tool for professionals to communicate with local people about the plants in BGRS. Similarly, the findings reported in **Paper III** along with the list of medicinal plants are valuable for communication with Kafficho people. It is hoped that this thesis will contribute to the efforts towards biodiversity conservation and sustainable development in the study sites in particular and Ethiopia in general.

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Appendix I. Local names of plants used by Berta and Gumuz people in Benishangul Gumuz Regional State, western Ethiopia.

Local Name§	Botanical Name (Family)
Abanga (Berta)	<i>Cordia africana</i> Lam. (Boraginaceae)
Abegeru (Berta; B,H,S)	<i>Colocasia esculenta</i> (L.) Schott. (Araceae)*
Abegeru (Berta; B,H,S)	<i>Xanthosoma sagittifolium</i> (L.) Schott (Araceae)*
Abendu (Berta)	<i>Andropogon schirensis</i> Hochst. ex A. Rich. (Poaceae)
Abershewa (Gumuz; K)	<i>Celosia trigyna</i> L. (Amaranthaceae)
Abombuqo (Berta)	<i>Strychnos innocua</i> Del. (Loganiaceae)
Aburmereree (Berta; S)	<i>Bidens prestinaria</i> (Sch. Bip.) Cufod. (Asteraceae)
Achegua (Gumuz; D,G,M)	<i>Ensete ventricosum</i> (Welw.) Cheesman (Musaceae)**
Achiquwa (Gumuz; G)	<i>Leonotis nepetifolia</i> (L.) R. Br. (Lamiaceae)
Adegella (Berta)	<i>Annona senegalensis</i> Pers. (Annonaceae)
Ades (Berta)	<i>Cajanus cajan</i> (L.) Millsp. (Fabaceae)*
Adihun (Berta)	<i>Pennisetum glaucum</i> (L.) R. Br. (Poaceae)*
Adimish (Berta)	<i>Lagenaria</i> sp. (Cucurbitaceae)*
Adundurutse (Berta)	<i>Solanum dasyphyllum</i> Schum. & Thonn. (Solanaceae)
Adundurutse (Berta)	<i>Solanum incanum</i> L. (Solanaceae)
Aebosiya (Gumuz; K)	<i>Solanum alatum</i> Moench. (Solanaceae)
Afud (Berta)	<i>Lonchocarpus laxiflorus</i> Guill. & Perr. (Fabaceae)
Agamo (Berta; B,H,S)	<i>Phragmites karka</i> (Retz.) Steud. (Poaceae)
Agembang (Berta)	<i>Corchorus olitorius</i> L. (Tiliaceae)**
Ageraa (Berta)	<i>Combretum molle</i> R. Br. ex G. Don (Combretaceae)
Agero (Berta)	<i>Maytenus senegalensis</i> (Lam.) Exell (Celastraceae)
Agnagnsheqe (Berta; B,H,S)	<i>Flacourtia indica</i> (Burm.f.) Merr. (Flacourtiaceae)
Agolgolo (Berta)	<i>Boswellia papyrifera</i> (Del.) Hochst. (Bursaceae)
Agu (Berta; B,H,S)	<i>Cucurbita pepo</i> L. (Cucurbitaceae)*
Agungulees (Berta)	<i>Adansonia digitata</i> L. (Bombacaceae)
Aguqasi (Berta)	<i>Lagenaria siceraria</i> (Molina) Standl. (Cucurbitaceae)*
Ajzenbil (Berta)	<i>Zingiber officinale</i> Roscoe (Zingiberaceae)*
Akala (Gumuz; K)	<i>Vigna subterranea</i> (L.) Verdc. (Fabaceae)*

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Akomkom (Berta; H)	<i>Indigofera garckeana</i> Vatake. (Fabaceae)
Albabaya (Berta)	<i>Carica papaya</i> L. (Caricaceae)*
Albafra (Berta; K,S)	<i>Manihot esculenta</i> Crantz (Euphorbiaceae)*
Albun (Berta)	<i>Coffea arabica</i> L. (Rubiaceae)*
Alful (Berta)	<i>Arachis hypogaea</i> L. (Fabaceae)*
Alilintsewa (Berta; H)	<i>Aframomum alboviolaceum</i> (Ridl.) K. Schum. (Zingiberaceae)
Alkola (Gumuz; G)	<i>Senna obtusifolia</i> (L.) Irwin & Barneby (Fabaceae)
Almoz (Berta)	<i>Musa x paradisiaca</i> L. (Musaceae)*
Ambenattur (Berta)	<i>Lycopersicum esculentum</i> Mill. (Solanaceae)*
Amberta (Gumuz; G)	<i>Andropogon schirensis</i> Hochst. ex A. Rich. (Poaceae)
Amblish (Berta; B,H,S)	<i>Erythrina abyssinica</i> Schweinf. (Fabaceae)
Amhorson (Berta)	<i>Ziziphus mauritiana</i> Lam. (Rhamnaceae)
Amhulee (Berta)	<i>Zea mays</i> L. (Poaceae)*
Amroro (Berta)	<i>Pterocarpus lucens</i> Guill. & Perr. (Fabaceae)
Andamenu (Berta; B,H,S)	<i>Ficus ovata</i> Vahl (Moraceae)
Andegila (Gumuz; D,G,K)	<i>Stereospermum kunthianum</i> Cham. (Bignoniaceae)
Andeha (Gumuz)	<i>Abelmoschus esculentus</i> (L.) Moench. (Malvaceae)*
Andeha Yiza (Gumuz; D,G,M)	<i>Abelmoschus ficulneus</i> (L.) Wight & Arn. (Malvaceae)**
Anderkukuwa (Gumuz; G)	<i>Strychnos spinosa</i> Lam. (Loganiaceae)
Andidekuwa (Gumuz; M)	<i>Hyparrhenia anthistirioides</i> (Hochst. ex A. Rich.) Stapf (Poaceae)
Andidiha (Gumuz; K,M)	<i>Ochna leucophloeos</i> Hochst. ex A. Rich. (Ochnaceae)
Andowa (Gumuz; D,M)	<i>Sarcocephalus latifolius</i> (J. E. Smith) E. A. Bruce. (Rubiaceae)
Andukhabiya (Gumuz; M)	<i>Strychnos spinosa</i> Lam. (Loganiaceae)
Angeled (Berta; B)	<i>Clerodendrum alatum</i> Gürke (Verbenaceae)
Angesho (Berta; B,H,S)	<i>Leonotis nepetifolia</i> (L.) R. Br. (Lamiaceae)
Anguga (Gumuz; D,G,M)	<i>Ziziphus abyssinica</i> Hochst. ex A. Rich. (Rhamnaceae)
Ankerphapha (Gumuz; M)	<i>Hibiscus cannabimus</i> L. (Malvaceae)**
Ansisiwa (Gumuz; D,M)	<i>Albizia malacophylla</i> (A. Rich.) Walp. (Fabaceae)
Antsiqina (Gumuz)	<i>Ampelocissus schimperiana</i> (Hochst. ex A. Rich.) Planch. (Vitaceae)

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Antsiqina Guanja (Gumuz; D,G)	<i>Cissus cornifolia</i> (Bak.) Planch. (Vitaceae)
Antutiya (Gumuz; G)	<i>Solanum alatum</i> Moench. (Solanaceae)
Anzum (Berta)	<i>Syzygium guineense</i> (Willd.) DC. subsp <i>macrocarpa</i> (Myrtaceae)
Aqenda (Berta)	<i>Gardenia ternifolia</i> Schum. & Thonn. (Rubiaceae)
Aqulqa (Berta; B,H)	<i>Stereospermum kunthianum</i> Cham. (Bignoniaceae)
Aranguawayya (Gumuz; D,M)	<i>Phaseolus vulgaris</i> L. (Fabaceae)*
Arenguya (Gumuz; G)	<i>Phaseolus vulgaris</i> L. (Fabaceae)*
Arezruzu (Berta; H,S)	<i>Cleome gynandra</i> L. (Capparidaceae)
Asandiya (Gumuz; D)	<i>Acacia seyal</i> Del. (Fabaceae)
Ashada Bugudo (Berta)	<i>Dioscorea dumetorum</i> (Kunth) Pax (Dioscoreaceae)
Ashetta (Berta)	<i>Capsicum annum</i> L. (Solanaceae)*
Ashihur (Berta)	<i>Terminalia laxiflora</i> Engl. & Diels (Combretaceae)
Ashumshumar (Berta)	<i>Anethum graveolens</i> L. (Apiaceae)*
Aterash (Berta; S)	<i>Cassia arereh</i> Del. (Fabaceae)
Athehol (Berta; B,H,S)	<i>Coriandrum sativum</i> L. (Apiaceae)*
Atsegeda (Berta; S)	<i>Tamarix nilotica</i> (Ehrenb.) Bunge (Tamaricaceae)
Atsisa (Gumuz)	<i>Oncoba spinosa</i> Forssk. (Flacourtiaceae)
Atsoda (Berta)	<i>Vitex doniana</i> Sweet. (Verbenaceae)
Atteettee (Berta; B,H,K)	<i>Faurea speciosa</i> Welw. (Proteaceae)
Attettashza (D,M)	<i>Vernonia hochstetteri</i> Sch.-Bip. (Asteraceae)
Awushenshe (Berta; B)	<i>Bidens prestinaria</i> (Sch. Bip.) Cufod. (Asteraceae)
Babegoha (Gumuz; G)	<i>Terminalia macroptera</i> Guill. & Perr. (Combretaceae)
Babenga (Gumuz; G)	<i>Hyphaene thebaica</i> (L.) Mart. (Arecaceae)
Bafuchochuwa (Gumuz; K)	<i>Luffa cylindrica</i> (L.) M. J. Roem. (Cucurbitaceae)*
Bafukacha (Gumuz; K)	<i>Zea mays</i> L. (Poaceae)*
Baga (Gumuz; G,K)	<i>Brassica carinata</i> A. Br. (Brassicaceae)*
Bambaya (Gumuz; G,M)	<i>Ipomoea batatas</i> L. (Convolvulaceae)*
Bambee (Berta)	<i>Ipomoea batatas</i> L. (Convolvulaceae)*
Bambeluwa (G)	<i>Entada africana</i> Guill. & Perr. (Fabaceae)
Bambutta (Gumuz)	<i>Annona senegalensis</i> Pers. (Annonaceae)

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Banja (Gumuz)	<i>Cordia africana</i> Lam. (Boraginaceae)
Banjazaka (Gumuz; M)	<i>Syzygium guineense</i> (Willd.) DC. subsp <i>guineense</i> (Myrtaceae)
Banshezgona (Gumuz; G)	<i>Wissadula rostrata</i> (Schum. & Thonn.) Hook.f. (Malvaceae)
Bebdaja (Gumuz; G)	<i>Tragia doryodes</i> M. Gilbert (Euphorbiaceae)
Beda (Gumuz)	<i>Momordica foetida</i> Schum. (Cucurbitaceae)
Bedanjila (Gumuz; M)	<i>Lycopersicum esculentum</i> Mill. (Solanaceae)*
Beella (Gumuz; K)	<i>Portulaca</i> sp. (Portulacaceae)*
Beewa (Gumuz)	<i>Lonchocarpus laxiflorus</i> Guill. & Perr. (Fabaceae)
Begene (Berta; S)	<i>Pennisetum unisetum</i> (Nees) Benth. (Poaceae)
Begiya (Gumuz; D,G,M)	<i>Strychnos innocua</i> Del. (Loganiaceae)
Begnigira (Gumuz; G)	<i>Pennisetum schweinfurthii</i> Pilg. (Poaceae)
Beguha (Gumuz; M)	<i>Terminalia laxiflora</i> Engl. & Diels (Combretaceae)
Beguha (Gumuz; M)	<i>Terminalia macroptera</i> Guill. & Perr. (Combretaceae)
Beguwa (Gumuz; K)	<i>Terminalia laxiflora</i> Engl. & Diels (Combretaceae)
Bekiya (Gumuz; K)	<i>Sarcocephalus latifolius</i> (J. E. Smith) E. A. Bruce. (Rubiaceae)
Bembeda (Gumuz; G)	<i>Maytenus senegalensis</i> (Lam.) Exell (Celastraceae)
Benjer (Berta; B,H,S)	<i>Beta vulgaris</i> L. (Chenopodiaceae)*
Berantutia (Gumuz; K)	<i>Physalis peruviana</i> L. (Solanaceae)
Berendula (Gumuz; G,K)	<i>Lycopersicum esculentum</i> Mill. (Solanaceae)*
Besheella (Gumuz; K)	<i>Anethum graveolens</i> L. (Apiaceae)*
Beshuwe (Berta; B,H)	<i>Ocimum basilicum</i> L. (Lamiaceae)*
Betita (Gumuz; G)	<i>Portulaca</i> sp. (Portulacaceae)*
Bibi (Berta)	<i>Ximenia americana</i> L. (Olacaceae)
Bidigua (Gumuz; G)	<i>Hyparrhenia anthistirioides</i> (Hochst. ex A. Rich.) Stapf (Poaceae)
Biilga (Gumuz)	<i>Lannea welwitschii</i> (Hiern) Engl. (Anacardiaceae)
Bilga (Gumuz; G)	<i>Lannea fruticosa</i> (Hochst. ex A. Rich.) Engl. (Anacardiaceae)
Bilia Beegneni (Berta)	<i>Allium cepa</i> L. (Alliaceae)*
Bilia Fudi (Berta)	<i>Allium sativum</i> L. (Alliaceae)*
Bilza (Gumuz; G)	<i>Guizotia abyssinica</i> (L.f.) Cass (Asteraceae)*
Birbira (Gumuz; D)	<i>Capsicum frutescens</i> L. (Solanaceae)*
Bisa (Gumuz; D,M)	<i>Cymbopogon caesius</i> (Hook. & Arn.) Stapf. (Poaceae)

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Bishqor (Berta)	<i>Saba comorensis</i> (Boj.) Pichon (Apocynaceae)
Biyangua (Gumuz)	<i>Ocimum canum</i> Sims. (Lamiaceae)
Bogonda (Gumuz; G)	<i>Jatropha curcas</i> L. (Euphorbiaceae)*
Bogonda (Gumuz; G)	<i>Ricinus communis</i> L. (Euphorbiaceae)**
Bohzikuna (Gumuz; D,M)	<i>Wissadula rostrata</i> (Schum. & Thonn.) Hook.f. (Malvaceae)
Boqa (Gumuz; D,G,M)	<i>Dioscorea cayenensis</i> Lam. (Dioscoreaceae)*
Bora (Gumuz; G)	<i>Terminalia laxiflora</i> Engl. & Diels (Combretaceae)
Bosiya (Gumuz; D,M)	<i>Solanum alatum</i> Moench. (Solanaceae)
Bululitu (Berta; B,H)	<i>Linum usitatissimum</i> L. (Linaceae)*
Bulumtsee (Berta; B,H,S)	<i>Syzygium guineense</i> (Willd.) DC. subsp <i>guineense</i> (Myrtaceae)
Chaya (Gumuz; D,G,M)	<i>Pterocarpus lucens</i> Guill. & Perr. (Fabaceae)
Chelatiya (Gumuz; D,M)	<i>Ruta chalepensis</i> L. (Rutaceae)*
Chicha (Gumuz; K)	<i>Strychnos spinosa</i> Lam. (Loganiaceae)
Chicha (Gumuz; K)	<i>Acacia hecatophylla</i> Steud. ex A. Rich. (Fabaceae)
Chicha (Gumuz; K)	<i>Acacia polyacantha</i> Willd. (Fabaceae)
Chicha (Gumuz; K)	<i>Acacia seyal</i> Del. (Fabaceae)
Chichariya (Gumuz; K)	<i>Amaranthus spinosus</i> L. (Amaranthaceae)
Chintta (Gumuz; D,K,M)	<i>Linum usitatissimum</i> L. (Linaceae)*
Dadiha (Gumuz; D,M)	<i>Acanthus polystachyus</i> Del. (Acanthaceae)
Degig (Berta; B,H)	<i>Manihot esculenta</i> Crantz (Euphorbiaceae)*
Derguya (Gumuz; K,M)	<i>Asystasia gangetica</i> (L.) T. Andress. (Acanthaceae)
Dhafa (Gumuz; D,K,M)	<i>Eragrostis tef</i> (Zucc.) Trotter (Poaceae)*
Dheberi (Berta)	<i>Phaseolus vulgaris</i> L. (Fabaceae)*
Dheberimugu (Berta; H,S)	<i>Vigna membranacea</i> A. Rich. (Fabaceae)
Digle (Berta)	<i>Breonadia salicina</i> (Vahl) Heppehr & Wood (Rubiaceae)
Dijiha (Gumuz; D,G,K)	<i>Breonadia salicina</i> (Vahl) Heppehr & Wood (Rubiaceae)
Dirtsegn (Berta)	<i>Entada africana</i> Guill. & Perr. (Fabaceae)
Diwa (Gumuz; D,G,K)	<i>Syzygium guineense</i> (Willd.) DC. subsp <i>guineense</i> (Myrtaceae)
Dhoga (Gumuz; G,M)	<i>Tamarindus indica</i> L. (Fabaceae)

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Donga (Gumuz; D)	<i>Piliostigma thonningii</i> (Schum.) Milne-Redh. (Fabaceae)
Dur (Berta; B,H,S)	<i>Borassus aethiopum</i> Mart. (Arecaceae)
Ebeya (Gumuz; D,M)	<i>Ficus sur</i> Forssk. (Moraceae)
Ebicha (K)	<i>Vernonia hochstetteri</i> Sch.-Bip. (Asteraceae)
Eboba (Gumuz; D,G,M)	<i>Rottboellia cochinchinensis</i> (Lour.) Clayton (Poaceae)
Echa (Gumuz)	<i>Dioscorea praehensilis</i> Benth. (Dioscoreaceae)
Edeeduwa (Gumuz; K)	<i>Protea gagedi</i> J. F. Gmel. (Proteaceae)
Edimba (Gumuz; K)	<i>Lannea fruticosa</i> (Hochst. ex A. Rich.) Engl. (Anacardiaceae)
Egaguwa (Gumuz; D)	<i>Phaseolus vulgaris</i> L. (Fabaceae)*
Egidima (Gumuz; D,K,M)	<i>Vernonia theophrastifolia</i> Schweinf. ex Oliv. & Hiern (Asteraceae)
Egile (Gumuz; M)	<i>Bidens prestinaria</i> (Sch. Bip.) Cufod. (Asteraceae)
Eimplametsumu (Berta; B)	<i>Aframomum alboviolaceum</i> (Ridl.) K. Schum. (Zingiberaceae)
Ejegaha (Gumuz; D)	<i>Hibiscus corymbosus</i> A. Rich. (Malvaceae)
Ejekuya (Gumuz; D,M)	<i>Physalis peruviana</i> L. (Solanaceae)
Ejesiya (Gumuz)	<i>Dombeya torrida</i> (J. F. Gmel.) P. Bamps (Sterculiaceae)
Ejisiya (Gumuz; G)	<i>Physalis peruviana</i> L. (Solanaceae)
Ejimbaya (Gumuz; D,K,M)	<i>Ozoroa pulcherrima</i> (Schweinf.) R. & A. Fernand. (Anacardiaceae)
Ejjiga (Gumuz; D,K,M)	<i>Bridelia scleroneura</i> Muell. Arg. (Euphorbiaceae)
Elangiya (Gumuz; D,G, K)	<i>Justicia ladanooides</i> Lam. (Acanthaceae)
Eliya (Gumuz)	<i>Asparagus flagellaris</i> (Kunth) Baker (Asparagaceae)
Emandeela (Gumuz; D,K)	<i>Ipomoea batatas</i> L. (Convolvulaceae)*
Embawuza (Gumuz; M)	<i>Capsicum frutescens</i> L. (Solanaceae)*
Engifa (Gumuz; G)	<i>Combretum collinum</i> Fresen. (Combretaceae)
Enquha (Gumuz; M)	<i>Combretum hartmannianum</i> Schweinf. (Combretaceae)
Enquha (Gumuz; M)	<i>Combretum molle</i> R. Br. ex G. Don (Combretaceae)
Enta (Gumuz)	<i>Oxytenanthera abyssinica</i> (A. Rich.) Munro (Poaceae)
Ephegahya (Gumuz; M)	<i>Hibiscus corymbosus</i> A. Rich. (Malvaceae)
Ephtseya (Gumuz; M)	<i>Combretum collinum</i> Fresen. (Combretaceae)

Appendix I. Continued...

Local Nameş	Botanical Name (Family)
Ephuwa (Gumuz; D,G,M)	<i>Sterculia africana</i> (Lour.) Fiori (Sterculiaceae)
Eqephaqiwa (Gumuz; D,M)	<i>Triumfetta annua</i> L. (Tiliaceae)
Eskophinja (Gumuz; M)	<i>Acacia seyal</i> Del. (Fabaceae)
Etissayaqua (Gumuz)	<i>Pennisetum thunbergii</i> Kunth (Poaceae)
Etsebulandi (Berta; B)	<i>Clerodendrum alatum</i> Güerke (Verbenaceae)
Ewuya (M)	<i>Entada africana</i> Guill. & Perr. (Fabaceae)
Eyampisah (Gumuz; M)	<i>Rumex abyssinicus</i> Jacq. (Polygonaceae)
Eyguyeguya (D)	<i>Entada africana</i> Guill. & Perr. (Fabaceae)
Ezerticha (Gumuz; D,M)	<i>Corchorus olitorius</i> L. (Tiliaceae)**
Ezeshiga (Gumuz; K)	<i>Ziziphus abyssinica</i> Hochst. ex A. Rich. (Rhamnaceae)
Ferenji Bilza (Gumuz; G)	<i>Helianthus annuus</i> L. (Asteraceae)*
Ferentseon (Berta; H)	<i>Tacca leontopetaloides</i> (L.) O. Ktze. (Taccaceae)
Feeferentseon (Berta; S)	<i>Tacca leontopetaloides</i> (L.) O. Ktze. (Taccaceae)
Fesh (Berta; B,H,S)	<i>Momordica foetida</i> Schum. (Cucurbitaceae)
Feya (Gumuz; D,M)	<i>Ximenia americana</i> L. (Olacaceae)
Fidhensia (Gumuz; K)	<i>Capsicum annuum</i> L. (Solanaceae)*
Fikahanshza (Gumuz; M)	<i>Capsicum annuum</i> L. (Solanaceae)*
Firzsha (Gumuz; D)	<i>Capsicum annuum</i> L. (Solanaceae)*
Fitiya (Gumuz; K)	<i>Clematis hirsuta</i> Perr. & Guill. (Ranunculaceae)
Fodog (Berta)	<i>Dombeya torrida</i> (J. F. Gmel.) P. Bamps (Sterculiaceae)
Funishza (Gumuz; G)	<i>Capsicum frutescens</i> L. (Solanaceae)*
Fuqa (Gumuz; D,G,M)	<i>Ficus sycomorus</i> L (Moraceae)
Gagojia (Gumuz; K)	<i>Phaseolus vulgaris</i> L. (Fabaceae)*
Gagu (Berta)	<i>Oxytenanthera abyssinica</i> (A. Rich.) Munro (Poaceae)
Gaguwa (Gumuz; G)	<i>Phaseolus vulgaris</i> L. (Fabaceae)*
Gasha (Berta; B,H,S)	<i>Eragrostis tef</i> (Zucc.) Trotter (Poaceae)*
Gaze (Berta; S)	<i>Ensete ventricosum</i> (Welw.) Cheesman (Musaceae)**
Gebeba (Gumuz)	<i>Gossypium arboreum</i> L. (Malvaceae)*
Gebugur (Berta)	<i>Terminalia macroptera</i> Guill. & Perr. (Combretaceae)
Gediya (Gumuz)	<i>Grewia mollis</i> A.Juss. (Tiliaceae)

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Gendher (Berta)	<i>Albizia malacophylla</i> (A. Rich.) Walp. (Fabaceae)
Gesebe Sukar (Berta; S)	<i>Saccharum officinarum</i> L. (Poaceae)*
Gideya (Gumuz; D,G,M)	<i>Grewia velutina</i> (Forssk.) Vahl (Tiliaceae)
Gilu (Berta; H,S)	<i>Cissus populnea</i> Guill. & Perr. (Vitaceae)
Gira (Gumuz; D)	<i>Trigonella foenum-graecum</i> L. (Fabaceae)*
Gisa (Gumuz; G)	<i>Sorghum bicolor</i> (L.) Moench (Poaceae)*
Gisinaba (Gumuz; G)	<i>Zea mays</i> L. (Poaceae)*
Gisiraba (Gumuz; M)	<i>Zea mays</i> L. (Poaceae)*
Gizimpha (Gumuz; D,M)	<i>Andropogon schirensis</i> Hochst. ex A. Rich. (Poaceae)
Giziqua Eimpuchichima (Gumuz; K)	<i>Sesamum indicum</i> L. (Pedaliaceae)*
Giziqua Hoha (Gumuz; M)	<i>Senna obtusifolia</i> (L.) Irwin & Barneby (Fabaceae)
Giziqua Kifa (Gumuz; D)	<i>Sesamum indicum</i> L. (Pedaliaceae)*
Giziqua Mehichima (Gumuz; K)	<i>Guizotia abyssinica</i> (L.f.) Cass (Asteraceae)*
Gnera Woni (Berta)	<i>Cymbopogon caesius</i> (Hook. & Arn.) Stapf. (Poaceae)
Gnera Mekosh (Berta; B,H)	<i>Pennisetum thunbergii</i> Kunth (Poaceae)
Goha (Gumuz; D,G,M)	<i>Phoenix reclinata</i> Jacq. (Arecaceae)
Gohigmenza (Gumuz; M)	<i>Vitex doniana</i> Sweet. (Verbenaceae)
Gokhen (Gumuz; D,M)	<i>Hyphaene thebaica</i> (L.) Mart. (Arecaceae)
Golgola (Gumuz; D,G,M)	<i>Boswellia papyrifera</i> (Del.) Hochst. (Burseraceae)
Golgolofale (Berta; H,K,S)	<i>Commiphora pedunculata</i> (Kotschy & Peyr.) Engl. (Burseraceae)
Gora (Berta; H,S)	<i>Hyphaene thebaica</i> (L.) Mart. (Arecaceae)
Gushel (Berta)	<i>Combretum collinum</i> Fresen. (Combretaceae)
Gzimisse (Gumuz; D,M)	<i>Pennisetum schweinfurthii</i> Pilg. (Poaceae)
Gziquwa Raba (Gumuz; M)	<i>Helianthus annuus</i> L. (Asteraceae)*
Hadhigni (Berta; S)	<i>Crossopteryx febrifuga</i> (Afzel. ex G. Don) Benth. (Rubiaceae)
Hafa (Gumuz; K)	<i>Combretum collinum</i> Fresen. (Combretaceae)
Hafa (Gumuz; K)	<i>Combretum molle</i> R. Br. ex G. Don (Combretaceae)
Halale (Berta; B,H,S)	<i>Clerodendrum cordifolium</i> (Hochst.) A. Rich. (Verbenaceae)
Haphani (Berta)	<i>Gossypium arboreum</i> L. (Malvaceae)*

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Harangafinasignee (Berta; B,H)	<i>Triumfetta annua</i> L. (Tiliaceae)
Hargjelo (Berta; B,H,K)	<i>Bridelia scleroneura</i> Muell. Arg. (Euphorbiaceae)
Hattab (Berta; B,H,S)	<i>Grewia flavescens</i> Juss. (Tiliaceae)
Hazra Mili (Berta; K)	<i>Guizotia abyssinica</i> (L.f.) Cass (Asteraceae)*
Heeneshemish (Berta; S)	<i>Helianthus annuus</i> L. (Asteraceae)*
Heephuya (Gumuz; K)	<i>Sterculia africana</i> (Lour.) Fiori (Sterculiaceae)
Heeraba (Gumuz; D)	<i>Lycopersicum esculentum</i> Mill. (Solanaceae)*
Heesha Mili (Berta; B,H,S)	<i>Guizotia abyssinica</i> (L.f.) Cass (Asteraceae)*
Heeshansaaro (Berta; B,H)	<i>Helianthus annuus</i> L. (Asteraceae)*
Heshe Fudi (Berta)	<i>Sesamum indicum</i> L. (Pedaliaceae)*
Hesiniya (Gumuz; G)	<i>Hyparrhenia filipendula</i> (Hochst.) Stapf. (Poaceae)
Heya (Gumuz; G,K)	<i>Ximenia americana</i> L. (Olacaceae)
Hiji Seteena (Gumuz; K)	<i>Clerodendrum alatum</i> Gürke (Verbenaceae)
Hinush (Berta; S)	<i>Cadaba farinosa</i> Forssk. (Capparidaceae)
Hoqosha (Gumuz; G)	<i>Sesamum indicum</i> L. (Pedaliaceae)*
Hornotse (Berta)	<i>Grewia mollis</i> A.Juss. (Tiliaceae)
Hornotse Gelu (Berta)	<i>Grewia velutina</i> (Forssk.) Vahl (Tiliaceae)
Ibeshanta (Gumuz; M)	<i>Commelina imberbis</i> Ehrenb. ex Hassk. (Commelinaceae)
Iwe (Gumuz)	<i>Cissus populnea</i> Guill. & Perr. (Vitaceae)
Iyang (Berta)	<i>Carissa spinarum</i> L. (Apocynaceae)
Janjibil (Gumuz)	<i>Zingiber officinale</i> Roscoe (Zingiberaceae)*
Jigawuha (Gumuz; K)	<i>Cucumis pustulatus</i> Naud ex Hook.f. (Cucurbitaceae)
Jiggnewiya (Gumuz; G,M)	<i>Clerodendrum alatum</i> Gürke (Verbenaceae)
Jipiwa (Gumuz; G)	<i>Combretum hartmannianum</i> Schweinf. (Combretaceae)
Kafee (Berta; H)	<i>Ensete ventricosum</i> (Welw.) Cheesman (Musaceae)**
Kakime (Gumuz; D,G,M)	<i>Justicia ladanoides</i> Lam. (Acanthaceae)
Kaze (Berta; B)	<i>Ensete ventricosum</i> (Welw.) Cheesman (Musaceae)**
Kebanit (Berta)	<i>Capsicum frutescens</i> L. (Solanaceae)*
Kerkedee (Berta)	<i>Hibiscus sabdariffa</i> L. (Malvaceae)*
Kibuwa (Gumuz; M)	<i>Lagenaria siceraria</i> (Molina) Standl. (Cucurbitaceae)*

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Kifa (Gumuz; D)	<i>Cynodon nlemfuensis</i> Vanderyst (Poaceae)
Kima (Gumuz; D,M,K)	<i>Portulaca</i> sp. (Portulacaceae)*
Kompha (Gumuz)	<i>Xanthosoma sagittifolium</i> (L.) Schott (Araceae)*
Kompha (Gumuz)	<i>Colocasia esculenta</i> (L.) Schott. (Araceae)*
Kota (Gumuz)	<i>Gardenia ternifolia</i> Schum. & Thonn. (Rubiaceae)
Kuancha (Gumuz; D,K,M)	<i>Sorghum bicolor</i> (L.) Moench (Poaceae)*
Laliqa (Gumuz; G)	<i>Corchorus olitorius</i> L. (Tiliaceae)**
Lefura (Gumuz)	<i>Arachis hypogaea</i> L. (Fabaceae)*
Lelentsewa (Berta; B)	<i>Aframomum alboviolaceum</i> (Ridl.) K. Schum. (Zingiberaceae)
Lemuna (Gumuz)	<i>Citrus aurantifolia</i> Swingle (Rutaceae)*
Lifa (Berta, Gumuz; G)	<i>Luffa cylindrica</i> (L.) M. J. Roem. (Cucurbitaceae)*
Machanchiga (Gumuz; G,K)	<i>Lagenaria siceraria</i> (Molina) Standl. (Cucurbitaceae)*
Mamusa (Gumuz; G)	<i>Cymbopogon caesius</i> (Hook. & Arn.) Stapf. (Poaceae)
Manchiga (Gumuz; D)	<i>Lagenaria siceraria</i> (Molina) Standl. (Cucurbitaceae)*
Mangal Hindi (Berta)	<i>Mangifera indica</i> L. (Anacardiaceae)*
Mangal Mesri (Berta)	<i>Mangifera indica</i> L. (Anacardiaceae)*
Mangu (Berta)	<i>Ampelocissus schimperiana</i> (Hochst. ex A. Rich.) Planch. (Vitaceae)
Mecha (Gumuz; G,M)	<i>Piliostigma thonningii</i> (Schum.) Milne-Redh. (Fabaceae)
Meela (Gumuz; G)	<i>Acacia seyal</i> Del. (Fabaceae)
Megel (Berta)	<i>Piliostigma thonningii</i> (Schum.) Milne-Redh. (Fabaceae)
Mejira (Gumuz; G,M)	<i>Trigonella foenum-graecum</i> L. (Fabaceae)*
Mejiru Gneero (Berta)	<i>Dioscorea bulbifera</i> L. (Dioscoreaceae)**
Mejiru Tayo (Berta)	<i>Dioscorea bulbifera</i> L. (Dioscoreaceae)**
Mekhima Giziqua (Gumuz; D)	<i>Guizotia abyssinica</i> (L.f.) Cass (Asteraceae)*
Mela (Berta)	<i>Tamarindus indica</i> L. (Fabaceae)
Meme (Berta; B,H,S)	<i>Cissus cornifolia</i> (Bak.) Planch. (Vitaceae)
Menga (Berta)	<i>Mangifera indica</i> L. (Anacardiaceae)*
Menzimiyo (Berta; S)	<i>Feretia apodanthera</i> Del. (Rubiaceae)
Metiya (Gumuz; K)	<i>Phoenix reclinata</i> Jacq. (Arecaceae)
Metseeeya (G,K)	<i>Tristemma mauritianum</i> J.F. Gmel. (Melastomataceae)

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Mim (Berta)	<i>Melia azedarach</i> L. (Meliaceae)*
Miwa (Gumuz; K)	<i>Pterocarpus lucens</i> Guill. & Perr. (Fabaceae)
Moro (B,S)	<i>Asparagus flagellaris</i> (Kunth) Baker (Asparagaceae)
Morqoqo (Berta)	<i>Ziziphus abyssinica</i> Hochst. ex A. Rich. (Rhamnaceae)
Murqe (Berta)	<i>Diospyros mespiliformis</i> A. DC. (Ebenaceae)
Muza (Gumuz)	<i>Musa x paradisiaca</i> L. (Musaceae)*
Neyisha (Berta)	<i>Ficus sycomorus</i> L (Moraceae)
Obdaja (Gumuz; D,M)	<i>Tragia doryodes</i> M. Gilbert (Euphorbiaceae)
Odanjuwa (Gumuz; M)	<i>Stereospermum kunthianum</i> Cham. (Bignoniaceae)
Offee (Berta)	<i>Lablab purpureus</i> (L.) Sw. (Fabaceae)*
Ola (Gumuz; K)	<i>Aframomum alboviolaceum</i> (Ridl.) K. Schum. (Zingiberaceae)
Opa (Gumuz)	<i>Lablab purpureus</i> (L.) Sw. (Fabaceae)*
Papaya (Gumuz)	<i>Carica papaya</i> L. (Caricaceae)*
Patuwa (Gumuz; D,K,M)	<i>Cucurbita pepo</i> L. (Cucurbitaceae)*
Pepe (Gumuz; D,M)	<i>Leonotis nepetifolia</i> (L.) R. Br. (Lamiaceae)
Phiriwa (Gumuz; D)	<i>Capsicum frutescens</i> L. (Solanaceae)*
Pille (Gumuz; D,M)	<i>Pennisetum unisetum</i> (Nees) Benth. (Poaceae)
Piwe (Gumuz; G,K,M)	<i>Crossopteryx febrifuga</i> (Afzel. ex G. Don) Benth. (Rubiaceae)
Qaha (Berta)	<i>Balanites aegyptiaca</i> (L.) Del. (Balanitaceae)
Qashi (S)	<i>Acacia seyal</i> Del. (Fabaceae)
Qashi Fudi (B,K)	<i>Acacia seyal</i> Del. (Fabaceae)
Qedeber (B,H)	<i>Protea gaguedi</i> J. F. Gmel. (Proteaceae)
Qenqetse (Berta)	<i>Abelmoschus esculentus</i> (L.) Moench. (Malvaceae)*
Qenqetse Melejida (Berta)	<i>Abelmoschus ficulneus</i> (L.) Wight & Arn. (Malvaceae)**
Qeqelo (Berta; B,H,S)	<i>Costus spectabilis</i> (Fenzl) K. Schum. (Zingiberaceae)
Qey (Berta)	<i>Anogeissus leiocarpa</i> (A. DC.) Guill. & Perr. (Combretaceae)
Qeyeda Gneero (Berta)	<i>Dioscorea praehensilis</i> Benth. (Dioscoreaceae)
Qokora (Gumuz; K)	<i>Vitex doniana</i> Sweet. (Verbenaceae)
Qombo (Berta)	<i>Sterculia africana</i> (Lour.) Fiori (Sterculiaceae)
Qosha (Gumuz; D,K,M)	<i>Ricinus communis</i> L. (Euphorbiaceae)**

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Qoshish Sudana (Gumuz; D,K)	<i>Jatropha curcas</i> L. (Euphorbiaceae)*
Qoshish Turka (Gumuz; M)	<i>Jatropha curcas</i> L. (Euphorbiaceae)*
Qota (Gumuz; D,G,M)	<i>Balanites aegyptiaca</i> (L.) Del. (Balanitaceae)
Qota (Gumuz; M)	<i>Ziziphus mauritiana</i> Lam. (Rhamnaceae)
Quatsirqa (Gumuz; D,G,M)	<i>Acacia hecatophylla</i> Steud. ex A. Rich. (Fabaceae)
Qudu (Berta)	<i>Acacia hecatophylla</i> Steud. ex A. Rich. (Fabaceae)
Quwa (Berta)	<i>Lannea fruticosa</i> (Hochst. ex A. Rich.) Engl. (Anacardiaceae)
Quwa hurhodu (Berta)	<i>Lannea welwitschii</i> (Hiern) Engl. (Anacardiaceae)
Qeyeda Tayo (Berta)	<i>Dioscorea alata</i> L. (Dioscoreaceae)*
Reba (Berta; B,H,S)	<i>Pavetta gardeniifolia</i> A. Rich. (Rubiaceae)
Sambila (Gumuz; D,M)	<i>Lepidium sativum</i> L. (Brassicaceae)*
Sanemerta (Berta; S)	<i>Stereospermum kunthianum</i> Cham. (Bignoniaceae)
Sasiqida (Gumuz; G)	<i>Cynodon nlemfuensis</i> Vanderyst (Poaceae)
Shala (Gumuz; D,M)	<i>Anethum graveolens</i> L. (Apiaceae)*
Shanduka (Gumuz; D)	<i>Terminalia laxiflora</i> Engl. & Diels (Combretaceae)
Shanduka (Gumuz; D)	<i>Terminalia macroptera</i> Guill. & Perr. (Combretaceae)
Shangur (Berta)	<i>Dalbergia melanoxylon</i> Guill. & Perr. (Fabaceae)
Shaqadona (B,H,S)	<i>Crassocephalum rubens</i> (Jacq.) S. Moore. (Asteraceae)
Shasha (Berta)	<i>Brassica carinata</i> A. Br. (Brassicaceae)*
Shawa (Gumuz)	<i>Syzygium guineense</i> (Willd.) DC. subsp macrocarpa (Myrtaceae)
Sheegee (Berta; H)	<i>Saccharum officinarum</i> L. (Poaceae)*
Shenafich (Gumuz; K,M)	<i>Brassica nigra</i> (L.) Koch (Brassicaceae)*
Shenshemuq (Berta)	<i>Ricinus communis</i> L. (Euphorbiaceae)**
Sheqee (Berta; B)	<i>Saccharum officinarum</i> L. (Poaceae)*
Sheqet (Berta)	<i>Securidaca longepedunculata</i> Fresen. (Polygalaceae)
Shibee (Berta; B,H,S)	<i>Phoenix reclinata</i> Jacq. (Arecaceae)
Shimbira (Gumuz; D,G,M)	<i>Cicer arietinum</i> L. (Fabaceae)*
Shininchawa (Gumuz; K)	<i>Capsicum frutescens</i> L. (Solanaceae)*
Shiqi (Berta; B,H)	<i>Kotschya africana</i> Endl. (Fabaceae)
Shittetta (Gumuz; G)	<i>Capsicum annum</i> L. (Solanaceae)*

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Shuri (Berta)	<i>Hibiscus cannabinus</i> L. (Malvaceae)**
Sigah (Gumuz)	<i>Anogeissus leiocarpa</i> (A. DC.) Guill. & Perr. (Combretaceae)
Sikwaha (Gumuz; D, M)	<i>Carissa spinarum</i> L. (Apocynaceae)
Silbilo (Berta; S)	<i>Sorghum bicolor</i> (L.) Moench (Poaceae)*
Silgalo (Berta; B,S)	<i>Rhus ruspolii</i> Engl. (Anacardiaceae)
Sili (Berta; H)	<i>Sorghum bicolor</i> (L.) Moench (Poaceae)*
Silmitso (Berta; H)	<i>Rhus ruspolii</i> Engl. (Anacardiaceae)
Simah (Gumuz; G)	<i>Carissa spinarum</i> L. (Apocynaceae)
Sipe (Gumuz; D,G,M)	<i>Acacia polyacantha</i> Willd. (Fabaceae)
Siqida (Gumuz)	<i>Securidaca longepedunculata</i> Fresen. (Polygalaceae)
Sirah (Gumuz; D)	<i>Ziziphus mauritiana</i> Lam. (Rhamnaceae)
Siyamuduqa (Gumuz; D,K)	<i>Hibiscus cannabinus</i> L. (Malvaceae)**
Songah (Gumuz; G)	<i>Ziziphus mauritiana</i> Lam. (Rhamnaceae)
Suwiyah (Gumuz; K)	<i>Carissa spinarum</i> L. (Apocynaceae)
Tanga (Gumuz; M)	<i>Cynodon nlemfuensis</i> Vanderyst (Poaceae)
Tanqa (Gumuz)	<i>Eleusine coracana</i> (L.) Gaertn. (Poaceae)*
Tari (Berta; S)	<i>Dichrostachys cinerea</i> (L.) Wight & Arn. (Fabaceae)
Teja (Gumuz; D)	<i>Vitex doniana</i> Sweet. (Verbenaceae)
Tekihinenuwa (Gumuz; D,M)	<i>Amaranthus spinosus</i> L. (Amaranthaceae)
Tiba (Gumuz; D,M)	<i>Brassica carinata</i> A. Br. (Brassicaceae)*
Timbaq (Berta)	<i>Nicotiana tabacum</i> L. (Solanaceae)*
Timbaqa (Gumuz)	<i>Nicotiana tabacum</i> L. (Solanaceae)*
Tinkosa (Gumuz)	<i>Coriandrum sativum</i> L. (Apiaceae)*
Tirmenzuwa (Gumuz; D)	<i>Clematis hirsuta</i> Perr. & Guill. (Ranunculaceae)
Tisha (Gumuz; D,K,M)	<i>Maytenus senegalensis</i> (Lam.) Exell (Celastraceae)
Tisha (Gumuz; G)	<i>Hibiscus cannabinus</i> L. (Malvaceae)**
Tisheza (Gumuz; G)	<i>Vitex doniana</i> Sweet. (Verbenaceae)
Tiweega (Gumuz; M)	<i>Phaseolus vulgaris</i> L. (Fabaceae)*
Tiyoka (K)	<i>Albizia malacophylla</i> (A. Rich.) Walp. (Fabaceae)
Tiyoka (K)	<i>Entada africana</i> Guill. & Perr. (Fabaceae)

Appendix I. Continued...

Local Name§	Botanical Name (Family)
Tongo (Gumuz; M)	<i>Breonadia salicina</i> (Vahl) Heppehr & Wood (Rubiaceae)
Tsaba (Berta)	<i>Dalbergia boehmii</i> Taub. (Fabaceae)
Tsabi (K)	<i>Cucurbita pepo</i> L. (Cucurbitaceae)*
Tseera (Berta)	<i>Ficus thonningii</i> Blume (Moraceae)
Tseign (Berta; B,H,S)	<i>Tephrosia interrupta</i> Hochst. & Steud. ex Engl. (Fabaceae)
Tseyia Fudi (Berta; H,K,S)	<i>Sapium ellipticum</i> (Krauss) Pax (Euphorbiaceae)
Tsetsaqa (Gumuz; M)	<i>Bidens pilosa</i> L. (Asteraceae)
Tsunta (Berta)	<i>Amaranthus hybridus</i> L. (Amaranthaceae)
Tufa (Gumuz; D)	<i>Helianthus annuus</i> L. (Asteraceae)*
Ufiwacha (Gumuz; D)	<i>Zea mays</i> L. (Poaceae)*
Ugutsey (Berta; S)	<i>Flueggea virosa</i> (Willd.) Voigt. (Euphorbiaceae)
Una (Gumuz)	<i>Dioscorea alata</i> L. (Dioscoreaceae)*
Waga (Gumuz; K)	<i>Piliostigma thonningii</i> (Schum.) Milne-Redh. (Fabaceae)
Wasqenda (Gumuz; D)	<i>Bidens pilosa</i> L. (Asteraceae)
Weele (Gumuz)	<i>Flueggea virosa</i> (Willd.) Voigt. (Euphorbiaceae)
Weqneniwa (Gumuz; G,M)	<i>Cucumis pustulatus</i> Naud ex Hook.f. (Cucurbitaceae)
Wequsha (Gumuz; M)	<i>Sesamum indicum</i> L. (Pedaliaceae)*
Werekuya (Gumuz; K)	<i>Terminalia macroptera</i> Guill. & Perr. (Combretaceae)
Wobilza (Gumuz; M)	<i>Guizotia abyssinica</i> (L.f.) Cass (Asteraceae)*
Wobiza (Gumuz; M)	<i>Clematis hirsuta</i> Perr. & Guill. (Ranunculaceae)
Wofchacha (Gumuz; D,M)	<i>Luffa cylindrica</i> (L.) M. J. Roem. (Cucurbitaceae)*
Wublanda (Gumuz; D,M)	<i>Celosia trigyna</i> L. (Amaranthaceae)
Yecha (Gumuz; K)	<i>Ficus sycomorus</i> L (Moraceae)
Yedinkuwa (Gumuz; G)	<i>Celosia trigyna</i> L. (Amaranthaceae)
Yehoba (Gumuz; D,M)	<i>Hyparrhenia filipendula</i> (Hochst.) Stapf. (Poaceae)
Yempedema (Gumuz; G,K,M)	<i>Costus spectabilis</i> (Fenzl) K. Schum. (Zingiberaceae)
Yempite (Gumuz; G,M)	<i>Lannea fruticosa</i> (Hochst. ex A. Rich.) Engl. (Anacardiaceae)
Yenegasha (Gumuz; D)	<i>Rumex abyssinicus</i> Jacq. (Polygonaceae)
Yetsegeda (Gumuz; D)	<i>Ochna leucophloeos</i> Hochst. ex A. Rich. (Ochnaceae)
Zazuqambiya (Gumuz; G)	<i>Ocimum basilicum</i> L. (Lamiaceae)*
Zeshima (Gumuz; D,K,M)	<i>Ocimum basilicum</i> L. (Lamiaceae)*
Zilbabenee (Berta; B)	<i>Sorghum bicolor</i> (L.) Moench (Poaceae)*
Zilqilign (Berta; K)	<i>Sorghum bicolor</i> (L.) Moench (Poaceae)*

§When local name is specific to certain district(s), the district name(s) was/were indicated in parenthesis, where for:

Berta names: B = Bambasi, H = Homosha, K = Kumruk and S = Sherkole.

Gumuz names: D = Dibate, G = Guba, K = Kemashi and M = Mandura.

*Cultivated plants

**Plants found both under cultivation and in the wild stand

