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Documentation and Description of the Ethnobotany and Ethnozoology of the Zay Ethnolinguistic Group

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Documentation and Description of the

Ethnobotany and Ethnozoology of

the Zay Ethnolinguistic Group

A thesis submitted in partial fulfillment of the requirements for the Degree of Master of Arts in Documentary Linguistics and Culture

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ADDIS ABABA UNIVERSITY

The undersigned hereby certify that they have read and recommend for acceptance of a thesis entitled "Documentation and Description of Ethnobotany and Ethnozoology of Zay Ethnolinguistic Group" by Fekadu Beshah in partial fulfillment of the requirements for the degree of Master of Arts in Documentary Linguistics and Culture.

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Abstract

The Zay people are known for their interaction with plants and animals in which their traditional knowledge, culture and language are expressed. However, despite the existence of rich indigenous practices related to the ethnobotany and ethnozoology of this ethnolinguistic group, this people remain unexplored and no comprehensive account of their plant and animal utilization is available. In addition, due to lack of sufficient land for residence and farming, many members of the Zay community are migrating from their area to the nearby towns (Endashaw 2010:4). Therefore, the situation calls for an urgent action to collect and document their indigenous knowledge and practices including those plants and animals. Hence, the aim of this study is to describe and document the ethnobotany and ethnozoology of the Zay ethnolinguistic group.

Ethnobotanical and ethnozoological fieldwork was conducted using relevant data collection tools including interview guides, audio recorder and photography. The fieldwork was conducted in five islands, namely: Fundurro, Tsedecha, Debra Tsiyon (Tullu Guddo), Gelilla and Debre Sina from mid of January to end of April, 2014. Permits for conducting the research, collecting, and export of voucher specimen were obtained from the authorities of the area and the Zay community.

The findings of this study indicate that the Zay ethnolinguistic group has a wide range of utilization of plants and animals for several purposes. However, the influence of migration and modernization is putting significant negative impact on the indigenous knowledge of the study area. At the same time, the linguistic analysis on naming indicated that a significant number of plants and animals are named in other languages. Therefore, it is recommended to perform more language revitalization work including the commencement of community radio in Zay. There are wild animals and fish species that are endangered. Thus, serious attention needs to be given.

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Chapter One
Introduction

1.1 The Zay People and their language

The Zay people are one of the minority ethnic groups in Ethiopia. They live on two relatively large islands and two shore areas of Lake Ziway[1] (7^0 52'N, 38^0 47'E), located about 160 km south of Addis Ababa, with an area of 437 km^2. Lake Ziway is one of the seven lakes situated along the Ethiopian Rift Valley (Tesfaye, 1988:7). According to the current administrative divisions, most Zay people now live in the East Shewa and Arsi zones of Oromiya Region.

The Zay people are known for their use of traditional medicine among many different Ethiopian ethnic groups. However, in relation to their usage of plants, particularly on medicinal plants, these people remain unexplored and no comprehensive account of their animal utilization is available so far.

According to Linda et al. (2011:5), the initial survey of Zay, conducted by SIL Ethiopia and the Institute of Ethiopian Studies, found the Zay population in the following areas: Herera, Mek'i, Boch'eessa (near Bojji), Ziway (Ziway Town), Fundurro Island, Tsedecha Island, and Debra Tsiyon Island (Tullu Guddo). Gardner and Siebert (1994:9) discovered that a few Zay were also living on Gelilla Island and Debre Sina Island of the Oromia Region. In relation to the size of the islands, Spliethoff et al. (2009:14) stated that: Tulu Gudo 4.8 km^2, Tsedecha 2.1 km^2, Funduro 0.4 km^2, Debre Sina 0.3 km^2 and Galila 0. 2 km^2. Currently Tulu Gudo, Tsedecha, Funduro and Galila are inhabited.

[1] Alternative spellings for "Ziway" are numerous, some being: Ziway, Ziway, Zuwai, Zuai, Suai, Swai and Zwai (Michael 2005:7). However, the spelling used here will be "Ziway," as Leslau (1951:214) used it.

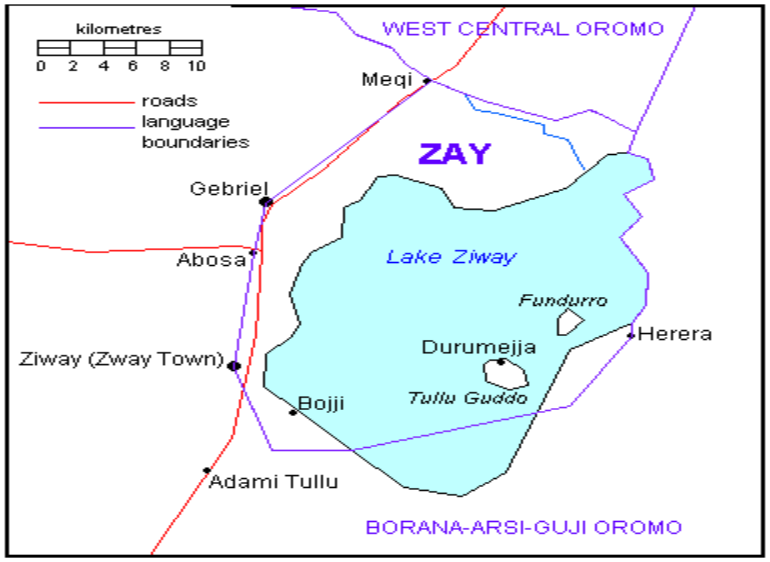

Figure 1: Lake Ziway and its surrounding area Source: Linda et al. (*2011:5). A Sociolinguistic Survey Report of the Zay People in Ethiopia,* SIL International

The 1994 and again the 2007 Population and Housing Census of Ethiopia contain no information on the Zay language. The Zay language was also not listed in Ethnic Group and Mother Tongue survey of the Ethiopian Censuses of 1994 and 2007, (Hudson 2012: 207-208). However, during these surveys, there were estimated to be 4,880 mother-tongue speakers of Zay.

1.1.1 Origin

According to the local traditions, as compiled by Nadamo (1982:13), the Zay people are a result of a three streams of people that across the water to the island of the Lake Ziway sometime between the early 10th and the middle of the 17th century. Elders of Zay believe that their ancestors came to the islands from the northern part of Ethiopia all the way through separate movement. According to Meyer (2002:10), the first movement towards the islands took place during the time of Queen Judith in the 10th century. At that time, she burns a lot of churches and killed the Christians. Therefore, in order to protect the religious heritage, many priests took the arks of their churches and some important books and utensils and migrated via Menz to Ziway.

The Zay have a very strong Orthodox Christian tradition. It seems for that reason that each islands host a church or monastery that are believed to be resting place for the Ark of the Covenant. For Gordon (2005:12) it the Amhara priests who brought in to serve and subsequently brought the Ge'ez language to the Zay people, who use it as their foremost language of religious activities. However, the Zay language is still widely spoken on the islands despite the fact that they live in a strongly Oromo area and schooling is conducted in the Oromo language. The Zay language is classified with the Harari and East Gurage languages of the Ethio-Semitic subfamily (Gordon 2005:13).

Several articles, including Michael (2005) suggested different oral traditions about the etymology of Zay. According to Michael (2005:18), the Zay, who inhabit the islands of Lake Ziway, as well as lakeside towns and villages, claim to have first settled in the area in the 9th century, when, religious refugees were fleeing queen Yodit who was destroying churches and church property in Aksum. However, Meyer (2002:36) stated the following oral traditions as the etymololgy of Zay:

> When in queen Judith times, the first refugees from the north reached the shore of the lake and they found the place, especially the island that is very suitable for hiding and tried to enter them. As they did not know how to build canoes they simply stepped on big pieces of swimming grass which suddenly sunk down a little bit so that they stood in the water up to their knees. They were afraid of their lives and in panic they say "way way", which is an exclamation of surprise or sorrow. The people on the shore were crying zi zi, which is similar to Ge'ez 'this' and pointed with their finger toward the islands. The people on the shores as well as on the sinking grass were crying together and so the name of the lake was invented Zi-way. In accordance to the name of the lake the people who entered the island called themselves Zay.

1.1.2 The Zay Language

Zay belongs to the East Gurage group of Ethio-Semitic languages. It is spoken on Lake Ziway and its shores. Zay is an Ethiosemitic language and Meyer (2006) further

classified it as East Gurage language within Transversal South Ethiosemitic. According to Meyer, it is genetically close to Silt'e and Wolane, on the one hand, and Harari, on the other. Meyer (2006:3) further said that it was believed that Zay is genetically closely related to Tigre or Tigrinya in former times. On the other hand, the close genetic relationship between Zay, Silt'e and Harari on morpho-syntactic grounds further evidenced by a lexical comparison of 320 items (Gardner and Siebert 1994:97). Gutt and Hussen (1997: 509), based on Gardner and Siebert (1994), proposes that Silt'e, Wolane and Zay are varieties of a single language, which he calls Silt'e-group. In contrast, Girma (2001:58) considers Zay not as a close relative to Silt'e or Wolane, but groups it Harari, Zay and Silt'e/Wolane on their own, i.e. he does not consider Zay a member of East Gurage (Meyer 2006:3).

A project by the Alliance for Linguistic Diversity, on its endangered languages list classified the Zay language as follows: Afro-asiatic, North Afroasiatic, Semitic, West Semitic, Ethiosemitic, South Ethiosemitic, Transversal South Ethiopian, and East Gurage.

The Zay people also found to have positive attitude towards Oromo and Amharic, which was the language of instruction in their schools. According to interviewees, the Zay people believe Oromo and Zay to be equally important languages to use and to pass along to their children.

Consonant phonemes of the Zay language

According to Meyer (2006:6), not all phonemes in Table 1 below have the same status with regard to distribution or frequency. The glottal stop *ʔ* is restricted to the word-initial or -medial position: *ʔāyi* 'mother' *dāʔɛ* 'crowd of cattle or people'. It also occurs in

the final position of a syllable but never word finally: *suʔbē* 'crowd'. The implosive ɗ is a marginal phoneme. It appears only in loanwords from Cushitic languages.

Table 1 Consonant PHONEMES

	Voicing[2]	Labial	Alveo-Palatal	Palatal	Velar	Glottal
Plosives	voiceless		t ṭ[3]		k q	ʔ
	voiced	b	d		g	
Implosive	voiceless					
	voiced		ɗ			
Affricates	voiceless		č č̣ šˇ			
	voiced		ǧ			
Fricatives	voiceless	f[4]	s	ʃ		h / h^{w}
	voiced		z			
Nasals	voiceless					
	voiced	m	n	ɲ		
Trill	voiceless					
	voiced		r			
Lateral	voiceless					
	voiced		l			
Approximant	voiceless					
	voiced	w		y		

Adopted from Meyer (2006:6)

The vowel phonemes of Zay

The distribution of vowels is restricted to the nucleus of a syllable, i.e. every word in Zay starts in a consonant. The phoneme /a/ is the most frequent vowel in Zay. It has the allophones zero, [a] and [ɛ]. The pronunciation of /a/ as [a] is restricted to word-initial syllables either with the glottal stop ʔ or the glottal fricative *h* in the onset: *hatɛr* 'forbid' but *tɛhɛtɛr* 'be forbidden'. In word-final position, the short vowel /a/ is not audible: /*nɛqɛl-ɛ* / > *n ɛq ɛl* 'he took'. In all other positions, the phoneme /a/ is pronounced as [ɛ]. The phone [ɛ] word-finally represents an allophone of the long vowel /a¯ /: /*gɛba-ɛ* / > *g ɛ b ɛ* 'he entered' (Meyer 2006:9).

[2] The voicing column is added by the researcher

[3] /t'//k'//ʧ'/∫//ʧ/and /ʧ/ are represented on Meyer's consonant phonemes chart as /ṭ//č̣//q//šˇ//ǧ//č/

[4] In the IPA charts including in International Phonetic Alphabet (2005) /f/ is indicated as labio-dental consonant phoneme

Table 2 Vowel PHONEMES

	Front	Central	Back
High	i		u
Mid	e		o
Low		a	

Source Meyer (2006:9)

According to Meyer, in addition to these five cardinal vowels, Zay possesses an epenthetic vowel ə or schwa. As the occurrence of this vowel is predictable, it cannot be considered as a phoneme. The main function of schwa is to break non-permissible consonant clusters. [5]

1.1.3 "Zay" serves as the name of the People and the Language

Leslau (1951:214) refers to the Zay people and their language as "Ziway". But, Meyer (2006:6) argues that the term Ziway is restricted to designate the lake and the town Ziway. The surrounding Oromo often refer to the Zay as "Laaqi" (Tesfaye 1988:14). Acording to Tesfaye, *Laaqi* is cognate with Oromo *laaq-uu* 'to paddle, to stir' and is connected to the movement of the paddle which can be observed when the Zay are going by canoe. In former times the Oromo also called the Zay as 'worm-eater' because they ate fish, which was a taboo-food for the Oromo (Tesfaye 1988:14). Meyer (2006:4) also said that the Zay call their language 'mouth of the Zay' or more Amharic-like *zayiŋŋɛ*. It seems that there is no convincing etymology for the term Zay. The Zay speakers, however only use "Zay" to refer to themselves and to their language.

Similar to Silt'e or Kistane, Zay do not consider themselves as Gurage but as Zay, Meyer (2006:5). Like in other Ethiosemitic languages, the order of constituents in a Zay clause is subject-object-verb. The head of a phrase follows the modifying elements, like relative clause, adjectives or genitives. The verb morphology is based on the root and pattern

[5] The vowel ɨ is used in some transcription for words that are borrowed from Amharic. Loan words are considered to be loan because they follow the Amharic vowel system.

principle using non-linear morphology. However, Zay also shares features with Cushitic languages. Like Silt'e, it has a five vowel-system (i, e, a, u, o) with phonemic length (Meyer 2006:14).

1.2 Background

Documentation and description of traditional knowledge and traditional cultural expressions have significant role in order to preserve the culture of a specific community and keep it to the next generation. As a result, it is attracting increasing attention in recent years from government and cultural institutions as well as from local communities, in parallel with the growing recognition of the cultural and economic value of traditional knowledge and traditional cultural expressions, (World Intellectual Property Organization, 2011).

Despite the existence of rich indigenous practices related to traditional knowledge both in plant and animal interaction of ethnic groups, the documentation practice seems to be under satisfactory level in Ethiopia. Mariye et al. (2010:12) elaborated the practice as follows:

> Ethiopia has lost documented knowledge though the country is still recognized as one of the earlier civilizations. The ignorance on this local, indigenous knowledge has dispossessed the country in particular (and the world in general) of a rich knowledge base.

One of the academic practices that that is taken as a response to this gap is conducting studies on endangered cultures and languages that serve as preservation of indigenous knowledge (World Intellectual Property Organization, 2011). The present study which specifically pays attention to the ethnobotanical and ethnozoological knowledge of the Zay ethno-linguistic group is part of that effort.

Ethiopia is believed to be very rich in different indigenous knowledge systems such as architecture, medicine, agriculture and cottage industry (Ib et al: 11). However, an indigenous knowledge system in the country still needs to be identified, studied, documented, and utilized to improve the quality of the peoples' life. As Alevtina and Zerihun (2009:27) described, among the indigenous knowledge that is most popular in Ethiopia is plant based medicine that is an indispensable source of medicinal preparations, both preventative and curative.

This practice is common worldwide. The World Health Organization's (WHO) Traditional Medicine Strategy (2013:15) indicates that 80% of the world's population relies on traditional medicine to meet their daily health requirements. However, according to the strategy, reliance on such traditional medicines is partly owing to the high cost of modern drugs and inaccessibility of modern health institutions in Africa. But, still, traditional systems are more culturally acceptable and are able to meet psychological needs in a way western medicine does not, (WHO 2013:16).

According to Alevtina and Zerihun (2009:22), today this huge traditional knowledge of medicinal plants is playing an important role in the development of new drugs. Similarly, humanbeings use animals for medicinal purpose. Animals have also been used as medicinal resources for the treatment and alleviation of a myriad of illnesses and diseases in practically every human culture (Alves and Alves 2011:31). Although considered by many as superstition, the pertinence of traditional medicine based on animals cannot be denied since it is methodically tested by pharmaceutical companies as sources of drugs to the modern medical science. In relation to this, Mario (2005:71) stated that:

> The phenomenon of zootherapy represents a strong evidence of the medicinal use of animal resources. The use of animals' body parts as folk medicines is relevant. However, research on zootherapy should be

> compatible with the welfare of the medicinal animals, and the use of their by-products should be handled in a sustainable way.

In addition to medicinal use, it is also common to use plants and animals for religious ceremonies in Ethiopia. However, both usages and the knowledge have been passed on by word of mouth from one generation to the next by herbalists and knowledgeable elders (Tsegazeabe 2012:299).

The Zay are among the Ethiopian ethnolinguistic groups who have knowledge and practice of using plants and animals for the above indicated purposes. Nevertheless, due to the geographical location, migration and economic factors, their knowledge of traditional medicine and use of animals and plants is somehow preserved only in oral form (Tilahun and Mitutse 2007:4). In addition, the general plant potential of the area and plant and animal use of that particular ethnic group has not yet been investigated and documented. This thesis, therefore, describes and documents the plant names in general and medicinal plant names in particular that are used by the Zay People. On top, this study will also look into the ethnozoology of the Zay ethno-linguistic group with special reference to fishing and cattle keeping.

1.3 Statement of the Problem

As it is the case elsewhere in the country, both the traditional knowledge and the plants utilized by the Zay people are under threat due to reasons mainly attributed to degradation, deforestation and overharvesting of rare species. In addition, due to lack of sufficient land for residence and farming, many members of the Zay community are migrating from their area to the nearby towns. In favor of this argument, Endashaw (2010:4) stated that:

> In spite of the shortage of cultivable land among the Zay people, there was no labor migration or human migration for a long time. The people used to earn their means of subsistence in agriculture and fishing as well

> as weaving. However these days such activities are minimized and undertaken to a lesser extent being determined by different factors.

This calls for an urgent action to describe and document this indigenous knowledge and practices of this community in relation to plants in general and medicinal plants in particular and use of animals for both purposes. The objective of the recent study is to compile and document the type of plants and traditional medicinal plants and to analyze the naming of the medicinal plants used by the Zay people. Besides, it also explores the ethnozoology of the Zay people.

Therefore, my main research questions are the following:

1. What body of knowledge is encoded in the language, regards plant and animal names?
2. How strong is the association between people and plant and animal life?
3. How do the Zay people deploy indigenous knowledge in order to produce plant and animal based medicine?
4. How do they apply nomenclature?

1.4 Objectives of the Study

The current socio-economic profile of the Zay people particularly related to fishing, farming and trade, which is still the core elements of livelihood in Zay history, have now declined and deteriorated even to the extent of pushing the people to migrate to neighboring towns and villages. As a result, the inhabited islands of Lake Ziway are currently populated mainly by elders whose number is getting less and less through time.

Therefore, it is appropriate and very important to study and document the ethnobotany and ethnozoology of the Zay ethnolinguistic group. In relation to this, the general

objective of the research is to describe and document the role of indigenous/traditional systems of the Zay ethnolinguistic group. This particularly focuses on the plant and animal utilization and application of plant and animal based medicine and analyze the naming.

The study has the following specific objectives:

a) To document the plant and animal related indigenous knowledge of the Zay ethnolinguistic group,

b) To document the unique features of plant and animal based medicine of the Zay ethnolinguistic group,

c) To document the plant and animal utility and system of naming of the Zay people and

d) Provide data for any further research purpose.

1.5 Significance of the Study

This study, which is conducted to document and describe the ethnobotany and ethnozoology of the Zay ethnolinguistic group, involves in the identification of plants and animals used by that particular community. Understanding of the cultural concepts around the perception of plants and animals and transcription of local terms and understand native morphology and semantics is also part of this study. Therefore, the documentation process is believed to give hands for the preservation effort of the indigenous knowledge of the Zay community.

As the study also covers the ethnobotanical aspect, it has significance in revealing locally important plant species. In fever of this, Flaster (1996:565) also argued that Ethnobotanical studies are often significant in revealing locally important plant species

especially for the discovery of crude drugs. It is because, as Flaster says, right from its beginning, the documentation of traditional knowledge, especially on the medicinal uses of plants, has provided many important drugs of modern day.

Like it is the same case in Africa, traditional medicine still remains the main resource for a large majority (80%) of the people in Ethiopia for treating health problems and a traditional medical consultancy (Dawit et al 2003:11). It is because; the consumption of the medicinal plants has a much lower cost than modern medical attention (Abebe 1991:35). Therefore, documentation of this traditional medicinal knowledge of the Zay, I believe will enhance knowledge and provide important drugs for the modern use of medicine.

Linda et al. (2011:22) and Endeshaw (2011:8) indicated that the language and culture of the Zay ethnolinguistic group is under threat due to several factors. For that reason, the domain of traditional knowledge of plant utility and medicinal plant use, in particular, is under threat due to two processes (Linda et al. 2011:23). As Linda states, firstly, it is due to the increasing access to 'western' medicine and encouragement to seek 'professional' medical treatment. This intern, as Linda says, contributed to the exclusion of traditional treatment that may cause people to lose confidence in traditional medicine and thereby ignore the ethnobotanical knowledge, which has to be passed on to the future generations. Secondly, as Linda says, the preservation and also the terminologies of plant and animal are threatened by the increasing preference of Amharic, and use of Oromiffa as the language of instruction in the elementary level of education. Therefore, documentation of traditional ethnobotanical and ethnozoological knowledge can help to counter these two threats of the Zay ethnobotanical knowledge and terminologies. In addition, documentation of the traditional ethnobotanical and ethnozoological

knowledge can also contribute to the Zay language maintenance by providing an impetus to the language revitalization.

The current study, in addition to giving hands to the efforts that are being made to preserve the Zay language and culture, will also promote awareness on the importance of local ethnobotanical and ethnozoological knowledge among the members of the Zay ethnolinguistic group.

1.6 Limitations of the Study

According to one of the informants of this study, Ato Semeneh Kabeto, who is also a member of a committee that is formed to promote the cultural identity of Zay, the Zay people is highly concerned in renascence of the Zay language and promoting its culture. However, some respondents were reluctant to state their views openly, particularly, in sharing of their medicinal plants knowledge. Thus, the number of respondents was limited to a few. Shortage of time has consistently been one of the constraints of this study.

Interviewing with leaders of the Zay ethnolinguistic group was part of the data collection process. Getting these respondents for interview was also a daunting challenge. Finding relevant documents that are reviewed for this research was also one of the challenges.

1.7 Review of Related literature and conceptual framework

1.7.1 Traditional Taxonomy

Taxonomy is the theory and practice of describing, naming and classifying of organisms (Lincoln et al. 1998:32). Particularly, the rural people have a practise of traditional systems of plant classification. For Levetin (2008:123) these people mostly have a system of classifying cultivated plants and agricultural crop plants.

As Pavord (2005:21) states, it is Theophrastus (370-285 BC) who is the first person in the European tradition of plant taxonomy. According to Pavord, Theophrastus was concerned with identifying the essential features of plants-what aspect consistently differentiated one plant from another.

In support of Pavord (2005:21), Bensen (1979:525) further argued that it was Theophrastus who had grouped plants on the basis of their habit and duration, recognizing trees, shrubs, annual, biennial, and perennial herbs. Bensen (1979:526) further elaborated about Theophrastus that:

> He must have been a keen observer because, in his book, he described 480 kinds of plant, recognizing the difference between inflorescences in which flowering occurred from the outside inward as different from those in which it occurred in the reverse direction (i.e., centripetal versus centrifugal flowering), differences in ovary position, and in corollas with united petals versus those with separate petals. These seem minor items now, but to recognize them as somehow significant when everyone else simply says plant A is different from plant B is not easy.

For numerous scholars of Taxonomy, including Pavord (2005:21) and Bensen (1979:525), grouping plants on the basis of their habit and duration is a very important aspect in plant classification. However, Levetin (2008:124) defines plant taxonomy as a science of naming and classifying plants.

1.7.2 Medicinal plants used to treat ailments of human and livestock in Ethiopia

Several Scholars of ethnobotany including Balcha (2014:23) referred Ethiopia as one of the six centers of biodiversity in the world with several topographies, climatic conditions and various ethnic cultures. For Kelbessa et al. (2000:38) Ethiopia is endowed with a diverse biological resources including about 6, 500 species of higher plants, with approximately 12% endemic, hence making it one of the six plant biodiversity rich regions. According to Yineger et al. (2010:11) more than 62.5% of the forest area are

found in southwest region of Ethiopia, where most of the medicinal plants are confined and have been used as a source of traditional medicine to treat different human and livestock ailments.

As Yineger et al. (2010:12) states, it is impossible to pinpoint the birth of medicine in Ethiopia, but certainly the evolution of curative practices closely follows the path of a disease. However, traditional medical practitioners of these days, as Yenger further explained, mostly use herbs, spiritual healing, bone-setting and minor surgical procedures in treating disease. But still, the Ethiopian traditional medicine is vastly complex and diverse and varies greatly among different ethnic groups. As Dawit et al. (2003:81) states, this complex and diverse practice is rely on an explanation of disease that draws on both the "mystical" and "natural" causes of an illness and employ a holistic approach to treatment.

This traditional medicinal practice was dominated during the time of Menelik (1865-1913) when Western medicine became significantly incorporated into the Ethiopian medical system (Pankhurst, 1998:20). During that time, as Pankhurst further explained, numerous medical envoys from abroad, starting with the Italians and Russians, were influential in building hospitals, providing medical training and participating in vaccination campaigns. However, most medical establishments primarily served the urban elites and foreign missionaries and were concentrated in the major cities (Pankhurst, 1998:34).

Despite Western medicine becoming more widespread in Ethiopia, as Kelbessa et al. (2000:39) indicated, Ethiopians are still tend to rely more on traditional medicine. It is because; as Kelbessa said conventional medical services remain concentrated in urban areas and have failed to keep pace with the growing population, keeping health care access out of reach for most Ethiopians living in Ethiopia. As a result, traditional

medicine still remains culturally entrenched, accessible, and affordable. That is why as Kebebew and Addis (1996:48) said up to 80% of the Ethiopian population still relies on traditional remedies as a primary source of health care. Moreover, Western medicine has become more focused on preventative measures and people seeking curative practices still rely on indigenous medicine as the primary source for health care (Pankhurst 1998:22).

The same way, traditional medicines have been used for nearly 90% of livestock populations in Ethiopia where complimentary remedies are required to the modern health care system (Yared et al. 2014:56). A large number of farmers rely on a range of ethnoveterinary knowledge to keep their livestock healthy and have been used for preventing and treating livestock ailments for several generations (Mirutse and Amini 2003:127). As Mirutse and Amini states, diversity of plant species which have pharmacological activities are identified by Ethiopian farmers so far and the active ingredients are extracted mainly from the root, stem, and leaf parts that processed to administer through appropriate routes.

1.7.3 Traditional knowledge and its transfer

Several scholars, including Belay (2010:1031) witnessed that, in most developing countries, including Ethiopia, traditional knowledge on the medicinal uses of plants has been passed down from generation to generation as part of an oral tradition. As Belay further elaborates, elder men usually share their knowledge orally with one of their sons, most often to the first-born. This particular son may be chosen because the father loves him very much or the son is especially keen and interested in traditional medicine.

Literatures indicated that there are very few female healers in Ethiopia. The stated reason by Belay (2010:1032) was that women have less interest in the practice and men are reported to take it seriously, and for some it is even used as a base for supporting

their family. The second reason as it is stated by Alevtina and Zerihun (2009:10) is members of communities believe that male healers have better knowledge than women, and hence the medicine prescribed by them is perceived to be more powerful. Such believes have resulted in the transfer of traditional knowledge mostly between the healer (men) and his children, mostly sons (Belay 2010:1032).

Whoever practice and transfer it, as one can learn from the daily practice, the country interest towards utilizing traditional medicine is diminishing among the younger generation. Legese (1995:27) further explains the diminishing interest towards the utilization of traditional medicine as follows:

> By and large, in all of the parts of the country interest towards utilizing traditional medicine is diminishing among the younger generation. Some of the reasons mentioned include: the tendency to modern education, the migration to cities for profitable jobs, the decline of the medicinal plant population due to deforestation, and the introduction of modern medicines. Similarly, some elder people were becoming reluctant to take traditional medicines when they have already experienced severe side effects. Due to these factors, the practice is now becoming more and more outdated.

Kebebew and Addis (1996:48) have also cited lack of incentive as one of the case which diminishes interest towards the practice of traditional medicine. They further suggested the concerned bodies to make an incentive to the traditional healers and promote it among the younger generation if they want to stimulate utilization of medicinal plants.

It is also mentioned in another study (Wesen 2006:17) that many individuals are not willing to share their information with their children, except for the knowledge related to livestock medicines. In the recent study, more information is being obtained from elderly informants than from the young ones. This could indicate lack of interest which ultimately results in loss of knowledge. Similar studies, conducted in the country including Tsegazeabe (2012:299) also support such findings.

1.7.4 Ethnobotany and why it matters

There are scholars including Young (2007:12), who consider ethnobotany relatively as a young field of study. Officially it has only been recognized as an academic discipline for about a hundred years (Richard 1994:4).

Differing to that, Giovannini (2009:6) indicates the investigation of plants and their uses is one of the most primary human concerns, which has been practiced by all cultures for tens, if not hundreds of thousands of years - it's just that it wasn't called 'Ethnobotany' then.

However, Richard (1994:4) defines Ethnobotany as the study of the relationship between people and plants and most commonly refers to the study of indigenous uses of plants. He has further called it a marriage between cultural anthropology and botany, a study that investigates the roles of plants as medicine, nourishment, natural resources or gateways to the gods.

An article of Botanical dimensions (2013:2) defines ethnobotany differently as ethno and botany separately:

> Ethno (as in 'ethnic') refers to people, culture, a culture's collective body of beliefs, aesthetic, language, knowledge, and practice. Botany is the study of plants—from the tiniest fern or blade of grass to the tallest or oldest tree. Botany includes all the wild plants and the domesticated species. Domesticates are species that we humans have selected over time from the wild plant species, then tamed and trained to optimally produce for us: food, fibers, medicine, materials, and more.

The term Ethnobotany comes from the Greek word *Ethnos*, which means 'people' (Harshberger 1896:3). According to Giovannini (2009:1) the term ethnobotany was coined in 1895 by American taxonomic botanist John W. Harshberger as 'the study

of the utilitarian relationship between human beings and vegetation in their environment, including medicinal uses.

Nevertheless, the plant use knowledge is clearly understudied for all human groups across eco-regions and countries all over the world. As a result, that traditional knowledge is vastly under-documented across eco-regions, countries, and human groups (Rodrigo et al. 2014:14). It is suggested that the use of standardized data-collecting protocols in wide-ranging ethnobotanical fieldwork is a promising approach for filling critical information gaps.

The documentation of ethnobotany, as Rodrigo et al. (2014:14) describes, encompasses both wild and domesticated species, and is rooted in observation, relationship, needs, and traditional ways of knowing. Such knowledge evolves over time, and is therefore always changing and adding new discoveries, initiative and methods.

Ethnobotanical study matters because it helps to preserve the culture and language of a specific ethnolinguistic group through documenting ethnobotanical knowledge (Rechard 1994:23). It is mainly because the impacts of modern human societies on traditional cultures and natural habitats have caused huge losses of individual species, and profoundly disrupted communities of species (Rodrigo et al. 2014:15). Displaced or dispersed peoples—who may have passed along hundreds of generations of observations and customs via oral tradition—lose their languages, the names of things, and their place in the web of relationships. Therefore, the documentation process could also help to prevent language lose (Botanical dimensions 2013:3).

1.7.5 Ethnobotany in Ethiopia

Ethnobotanical studies are often significant in revealing locally important plant species especially for the discovery of crude drugs (Rodrigo et al. 2014:18). Right from its

beginning, the documentation of traditional knowledge, especially on the medicinal uses of plants, has provided many important drugs of modern day (Cox and Balick 1996:12). Traditional medicine still remains the main resource for a large majority of the people in Ethiopia and the medicinal plants has a much lower cost than modern medical attention (Abebe and Hagos 1991:7).

Out of the total flowering plants reported worldwide, more than 50,000 are used for medicinal purposes (Govaerts 2001:17). Ethiopia has also several plant species used for medicinal and other purposes. In relation to this, Tilahun and Mirutse (2007:12) stated that there are about 800 species of plants in Ethiopia that are used in the traditional health care system to treat nearly 300 mental and physical disorders. The wide spread use of traditional medicine among both urban and rural population in Ethiopia could be attributed to cultural acceptability, efficacy against certain type of diseases, physical accessibility and economic affordability as compared to modern medicine. For Tilahun and Mirutse (2007:13) Ethiopian traditional medical system is characterized by variation and is shaped by the ecological diversities of the country, socio-cultural background of the different ethnic groups as well as historical developments, which are related to migration, introduction of foreign culture and religion. However, the traditional knowledge related to these locally important plant species are believed to be in risk. The same way, Tilahun and Mirutse (2007:14) have indicated the possible loss of indigenous knowledge of medicinal plants as follow:

> In Ethiopia, though there has been some organized ethnomedicinal studies, there is limited development of therapeutic products and the indigenous knowledge on usage of medicinal plants as folk remedies are getting lost owing to migration from rural to urban areas, industrialization, rapid loss of natural habitats and changes in life style. In addition, there is a lack of ethnobotanical survey carried out in most parts of the country.

In view of these, documentation of the traditional uses of medicinal plants and plant use in general is an urgent matter and important to preserve the knowledge.

1.7.6 Plant Nomenclature

Scholars, including Fountain, (2011:14) believe Botanical nomenclature is a relatively young science when compared to other sciences as it arose out of the need for a universal system of naming plants and other organisms. According to Fountain, some very different plants share common name and other plants have many different common names for the same type of plant.

Referring to Berlin (1972:68), Zelealm (2011:43) indicated that any systematic and comprehensive study of plant life should include identification, nomenclature and classification of plants in a particular society. The systematic study of nomenclature describes the linguistic principles underlying the naming of plants and the conceptually recognized classes of plants in a particular society. Like Zelalem (2011:45) states, the study of the structure and meaning of plant names is central in ethnobotany because as Zelalem said, its role for the inventory and classification of plants as well as for the correct pronunciation, written documentation and etymology of plant names in vernacular language.

1.7.7 Ethnozoology

There is evidence that human being is familiar with use of animals and plants for food, cloth, medicine, etc., since time immemorial (Gaski et al., 1994:300). According to Young (2007:114), in recent times the study of this long stayed interrelationship between human and their biotic resources has evolved into different disciplines under the umbrella of ethnobiology. However, all these disciplines are aimed at documenting the time-tested knowledge of ethnobotany and ethnozoology rooted in the culture of different societies (Young 2007:114).

Animals have always been used by the human society for its survival. The use has been for edible and non-edible products, other than as a source of recreation. Animals, in all its forms, from the mammals to the invertebrates, have also been used for various end uses like food and medicine (Romulo and Nobrega 2012:78). It is also used for non-edible purposes like ornaments, clothing, and tools and in religious functions.

The human society has also used its traditional medical knowledge of therapeutics for treating human health problems and livestock. The healing of human ailments by using therapeutics based medicines obtained from animals is called zootherapy (Costa-Neto, 2005:37). Traditional medicines have been found to be an invaluable guide in present day to the screening of important modern drugs such as digitoxin, reserpine, tubocurarine, and ephedrine (Anyinam, 1995:323). According to Anyinam, of the 252 essential chemicals selected by the World Health Organization, 8.7% came from animals.

People in Ethiopia, including in Zay used various animal species located in their immediate surroundings and remote areas for several purposes and to cure their diseases and improve their health (Giday 2011:318).

In contrast, the biodiversity in the universe is said to be declining due to various reasons like loss/fragmentation of habitats, population pressure, shortening resource base, increasing demand, etc. Many species of animals and animal products/derivatives are declining gradually and many species are categorized as endangered or threatened (Easa et. al., 2001:24). Therefore, the associations that human being has with animals as Romulo and Nobrega (2012:78) suggest has to be documented in terms of the cultural, aesthetic, medicinal, economic and social values. In order to make this documentation effective, Mario (2005:12) suggests the ethnozoological approach that helps to document the traditional use of animals for food, medicine and other purposes. Therefore, because

of the endangerment, the recent study is also intended to document and describes the traditional use of animals of the Zay ethnolinguistic group for various purposes.

1.7.8 Ethnozoological Nomenclature

Exemplified by English "bull" and "cow", special terms distinguishing members of animal categories by sex is a common feature of languages all over the world (Berlin, 1972:68). Folk names for fundamental ethnobiological categories have been shown to be governed by regular nomenclatural principles. According to Gregory, (2004:432) there are two principles at work in ethnozoological nomenclature with one less understood principle:

> The two ethnozoological nomenclatures at work are onomatopoeia and metaphorical description. These principles of some observable property of the organism – are fairly well established as the basis for naming many folk genera. A third but less understood principle is that associated with what has been called sound symbolism.

In the languages of traditional peoples, semantically opaque names for animals often exhibit sound-symbolic properties that humans unconsciously recognize as capturing. For Berlin (1994:6) this is explained, in spite of the changes that have taken place in human verbal communication since the beginnings of what one might call full-blown language? In what ways are these principles related to more general principles of natural classification based on shape and movement? If verbal mimesis represents a critical stage in the evolution of human cognition, what informed speculations can be brought to bear on what might be called the Ethnozoological Nomenclature? *(*Berlin 2006:34).

Köhler, (1929: 142) believes that there are some similarities between the experiences we have through different sense organs and that in primitive languages one finds much evidence for assuming that the names of things and events often originate according to this similarity between their properties in vision or touch, and certain sounds or

acoustical wholes. The use of naming for animals are still debatable as there are people who still believe it is useless if they will not answer to the callers. However, having name of animals is most useful for people that name them (Berlin 2006:39).

1.7.9 The linguistic relevance of Ethnobotanical and Ethnozoological studies

Description and documentation of the terminologies of plant and animal species, together with the system of traditional knowledge believed to protect a threatened domain of language use.

In most African countries comprehensive ethnobotanical knowledge is not widespread throughout the community, but is rather the domain of specialists of the field (Nicolle 2004:89). However, though it not in a comprehensive manner, most members of the rural communities do have some ethnobotanical and ethnozoological knowledge. For example, in a Zay community, usage of medicinal plants, trees for the agriculture use and building of traditional boat is a common practice. The same way, the Zay community use animals for several purposes including animal based medicine. However, in relation to the ethnobotanical knowledge, the domain of medicinal plant knowledge is under threat. Not only that, the Zay ethno-linguistic community is also losing its cultural values and historical heritage that was supposed to be documented. Commenting on the threat, Endeshaw (2010:7) stated that:

> The Zay people are the only Semitic-speaking groups of people on the islands of Lake Ziway maintaining their own culture, tradition and language for several centuries. They have maintained their own historical heritage in spite of the strong influence of the surrounding Cushitic speaking peoples. However, nowadays the Zay people are suffering and losing their cultural values and historical heritage due to the influence of the surrounding community

The other reason that has created threat for the domain of the ethnobotanical and ethnozoological knowledge is the language dominance. As it is stated by Endeshaw

(2010) and other scholars, the preservation of Zay plant and animal terminology and ethnobotanical knowledge is threatened by the increasing dominance of Amharic, and in particular by the use of Oromiffa as the language of instruction in the initial years of education to the exclusion of Zay.

Correspondingly, Endeshaw (2010:11) referring to the article of Henze (1972) 'Lake Ziway and Its islands' has stated that

> ...The Zay still use their language among themselves. …. After the next generation has passed through the new school on Tullu Guddo, Amharic will be well on its way to replacing Zay. The Zay still retains much traditional oral history, but already this knowledge is confined primarily to older men and is not being absorbed by the upcoming generation

There is a risk that children whose initial education is not in their mother tongue will see this as intellectually inferior to the language of education, and thereby develop negative attitude towards traditional knowledge and practices which are expressed primarily or exclusively through the medium of the mother tongue (Steve 2004:23).

Therefore, I believe, documentation of traditional ethnobotanical and ethnozoological knowledge with a linguistics touch can partly help to counter these two threats to the Zay ethnolinguistic group. It is also recognized that most ethnobotanical and zoological knowledge is stored and transmitted through the medium of local languages. The relation between ethnobotanical knowledge and local languages is expressed by Carlson (2001: 490) as follows:

> There is a strong interrelationship between botanical resources, language, and ethnobiological knowledge. … In many tropical rural cultures the ethnobotanical information is not written but is passed on orally from generation to generation in the local languages. When the local languages and cultures become endangered or extinct, the knowledge of how to use plants as medicines is lost or diminished. Therefore it is essential to conserve the cultures and languages.

Given this perspective, the preservation of the local language is a necessary by-product of the preservation of ethnobotanical and ethnozoological knowledge. Secondly, as Gregory (2004:45) said documentation of traditional ethnobotanical knowledge can contribute to language maintenance by providing an impetus to mother tongue education. Batibo (2001:320) suggests that where minority languages are used as the language of instruction (as in the Mother Tongue Education policies that have been adopted and are being implemented in Ethiopia), indigenous knowledge should be used as the basis for teaching environmental sciences, geography, history, and other subjects. It is suggested also to develop the curriculum out of the community's experience to give the languages a new purpose and brighter future.

1.7.10 Documentation of Language and Culture

People of the world have rich ethnobiological knowledge because of their livelihood dependencies on the surrounding biological resources (Carlson 2001:490). This ethnobiological knowledge includes the knowledge of ethnobotany and ethnozoology that describes how people of a particular culture and region make use of indigenous plants and animal.

Documentation of language and culture is a theoretical base of compiling endangered language and culture (Himmelmann and Nikolaus 2010:11). Endangered Languages Archive (http://www.elar-archive.org) stated that documentary Linguistics and culture is a field that focuses on the methods, tools and theoretical bases for compiling a representative and lasting record of endangered languages and cultures that can be used both by researchers and by community members. It also focuses on supporting speakers of these languages in their desire to maintain them. The idea of documenting language and culture was fuelled by developments in information and media technologies and the need for preservation and dissemination of language materials

(including audio and video recordings, annotations and visual material (Himmelmann and Nikolaus, 2010:12).

The possibility of language revitalization brings up a question often asked about language loss and its impact on the identity of a particular speech community and its culture. Why does it matter if a language dies? is the commonly raised point whenever the issue of language loss is mentioned? It matters because it is a loss of identity and culture (Steve 2004:45). In strengthening of Steve's argument, Maureen (2009:14) elaborated that: From a purely physical standpoint, losing a language will not kill the people who once spoke it. Despite all of this, however, something very valuable (cultural identity) is lost whenever a language dies.

Several articles suggested that the Zay people are the only Semitic-speaking group of people on the islands of Lake Ziway maintaining their own culture, tradition and language for several centuries. They have maintained their own historical heritage in spite of the strong influence of the surrounding Cushitic speaking peoples. However, nowadays the Zay people are suffering and losing their cultural values and historical heritage due to the influence of the surrounding community.

According to Endeshaw (2005:11), one of the factors that are contributing to the loss of culture is the marginalization process of the Zay language. He has further explained that:

> Due to the excessive influence of the surrounding Cushitic and Semitic-speaking people, nowadays there are monolingual Orromiffa speakers of Zay. Therefore, language contact meant that languages with a great role or position tend to dominate languages having a weak role like minority languages through socialization, which would probably lead to language substratum. So, one can clearly argue that Zay is a highly marginalized language with no writing system and no level of standardization. Apart

> from migration, there are also different factors that are accelerating language shift of Zay people.

Therefore, the endangered position of the Zay language due to the above stated factors has also significant contribution for a culture loss. Language plays a major role in defining ourselves in relation to, and in contrast with, others. The loss of language also causes the loss of other culturally significant practices that are dependent on the language. Oral histories are lost if no one can speak the language any more. Likewise, traditional songs, poetry, and other verbal art forms are lost. Even if the language has been written down, language loss may cause written tales to be lost as well, if they were not translated into another language first (Batibo 2001:322). According to Maureen (2009:3) when a community loses its language, it also loses many other aspects of its culture. Language loss has a significant impact on both the collective and the individual identities of a community.

The limitedness of the number of the Zay ethnolinguistic group is estimated to be about 3,000 in certain published articles including Miruts's (2001:3). However Endeshaw (2005:3) resizes the number of this people as follows:

> No appropriate census has been taken for the people. A certain unpublished paper gives an estimate of about 3,000 people. However, in this research the approximate figure given by the informants for the three inhabited islands reaches to 980, where Tullagudo consists about 500, Tsedecha 400 and Fundurrro about 80. The remaining islands: Gallila and Dabre Sina are inhabited by one person each.

The limited size of this ethnolinguistic group is further threatened by migration due to several factors. These factors further stated by Endeshaw (2005:7) as follows:

> Fishing among the Zay is given a special consideration for which it had been the most important part of their subsistence economy. It was a major food source throughout their history. It was also important as a means of commercial income. However, in recent years the Zay economy and their life has declined and threatened by the scarcity of fish resource.

> Therefore, this situation has contributed its own effect for the new pattern of life, which is characterized by migration and language shift.

According to Endeshaw (2005:7) In addition to that, the occurrence of drought situation repeatedly in recent years made the Zay people's life difficult. It has also seriously affected the lives of Zay and made most of them migrate to neighboring lands.

The documentation process of knowledge particularly helps to preserve the endangered culture and language of a specific ethnolinguistic community. Therefore, this study, as a description and documentation of the Zay, is believed to give hands to efforts that are geared towards the preservation of culture and language.

1.8 Conceptual framework of the study

This section of the study starts with brief definition of ethnobotany and ethnozoology. Then it moves to the discussion of their scope. This is done based on the suggestion of Ulysses and Hurrell, (2009:134), that suggests to put the definition of terms prior to reflect on the theoretical orientation in the study of the relationship between human being and plants and animals (ethnobotany and ethnozoology).

The term "ethnobotany" is particularly varied, and the historical use of this term has serious implications for current scientific practices. Michael (2007:24) recognized three positions regarding the place and time that ethnobotany emerged as a field:

> the "universal pathway" suggests that ethnobotany begins when plants and people came into contact; the "endogenous pathway", which considers that this discipline was constructed in a country by local researchers; and the "exogenous pathway," which incorporates that ethnobotany was created by researchers in other countries, such as France and the United States where the first concepts of ethnobotany have been originated.

It is therefore more important to give more attention to the contact between the people and the plant which is also one of the focus areas of the recent study.

Ethnozoology deals with the study of relationship between the human societies and the animal resources around them, (Solvan et al., 2004:199). Similar to the relationship between people and plant, there is evidence that human beings are familiar with the use of animals for food, cloth, medicine, etc. since ancient times. Ethnozoology is referred to as the specialization of present and past interrelationships in the environment between human cultures and animals. It generally studies how animals and their by-products are used by cultures, (http://www.definition-of-ethnozoology). As Alves and Souto (2011:24) describe, Ethnozoology falls under ethnobiology and shares methodologies and theories with ethnobotany.

Ethnobotanical and ethnozoological studies help to preserve the culture and language of a specific ethnnlinguistic group through documenting the knowledge. A large percentage of any traditional language is related to plant and animal names (Pawley 2001: 236). And describing and documenting animal and plant and utilization level is the appropriate step to preserve language and culture. The nature of the recent study involves several disciplines, namely: ethnobotany, ethnozoology and linguistics. This study incorporates the three approaches in order to address both the culture and language aspects of the Zay ethnolinguistic group. Nevertheless, I prefer to base on two theoretical areas: symbolic Anthropology and embodied approach to cognition. These two conceptual frameworks are selected mainly because they help to systematically describe and document cultural and language related works.

Referring to Clyde Kluckhohn's *Mirror of Man*, Geertz (1973:23) lists potential meanings of culture. Among those meanings of culture, "the total way of life of a people" is the fitting meaning to this cultural documentation and description work. I believe that, it is

people or individuals who live the culture and the culture doesn't exist without people. The same way, theoretical school of Symbolic Anthropology also assumes that culture does not exist beyond individuals. Rather, culture lies in individuals' interpretations of events and things around them. With a reference to socially established signs and symbols, people shape the patterns of their behaviors and give meanings to their experiences (Geertz 1974: 3).

The goal of Symbolic Anthropology is analyzing how people give meanings to their reality and how this reality is expressed by their cultural symbols (Mc Gee et al. 2004:36). The same way, this study also focuses on the way that the Zay ethnolinguistic community expresses its traditional knowledge in relation to ethnobotany and ethnozoology.

Geertz (1973:12) view culture as an organized collection of symbolic system and saw people's cultural behaviors based on these signs and symbols. With a reference to socially established signs and symbols, people shape the patterns of their behaviors and give meanings to their experiences. In other words, people rely on meanings in order to sustain their social life. According to Geertz, (1973:5) man is an animal suspended in webs of significance he himself has spun; and culture to be those webs. The embodied approach to cognition suggests that the meanings of linguistic objects (words, phrases, and sentences) are tied to perceptual experience, rather than derived from relationships among abstract, modal symbols (Barsalou 1999:577). According to such a view, language comes to have meaning because we can index words to the real world; language is grounded in our sensorimotor experience (Glenberg & Robertson 2000:407).

1.9 Research Methods

Ethnobotanical and ethnozoological fieldwork was mainly conducted in the five islands namely: Fundurro, Tsedecha, Debra Tsiyon (Tullu Guddo), Gelilla and Debre Sina from mid of January to end of April, 2014. Additional fieldwork was carried out in the Ziway town to get additional data from members of the community of Zay who are temporarily live in the Ziway town. Permits for conducting the research, collecting, and export of voucher specimen were obtained from the authorities of the area and concerned members the Zay community.

1.9.1 Data Collection Techniques

1.9.1.1 Ethnobotanical and ethnozoological Data

Ethnobotanical data was collected through a semi-structured questionnaire and open interviews as Martin (1995:41) suggests. A series of individual interviews was carried out to gather information regarding local names of plants. For each reported plant species that is known by the informants, specimen have been collected, pressed, dried, and identified by the National Herbarium of Ethiopia, Addis Ababa University.

In the first phase of the field research, conducted from 14 to 17 of January, 2014, 18 research participants were asked to list plants they know that are used for day to day practices and medicinal purpose. During the second round of the field data collection, that took place from March 3 to 6, 2014, 20different research participants were asked to list and indicate plants they know and explain the usage level of those plants. Among the total participants, that are 38, 28 participants were also involved in citing medicinal plants. During this period, 88 plants were listed by participants and among those listed plants from the five islands 34 plants were collected and transported to the Ethiopian National Herbarium for specimen identification. These plants are used for medicine and other purposes as it is indicated in the finding presentation section of the current study.

Among the 38 participants, 20 (62 percent) of the respondents are male while 19 (38 percent) are female. 8 percent are from the age group of under 18 and 32 percent from 19 to 30, 38.7 percent from 31 to 45 and the remaining 21.3 percent are 46 and above. Among the participants 39% are in the category of below elementary level education while 32% of the participants have completed high school. 19.4% are diploma holders and 9% have not attended formal education.

Regarding the occupation of the participants, 41% of the respondents are farmers while 29% are involved in weaving and fishery. 13% are students, 8% unemployed and involved in other businesses and 9% are retired. 71% of the participants are the residents of the islands, the majority of them from *Debre tsion (Tullu guddo)* and *Tsedecha.* The remaining 29% reside out of the island, in Ziway and Meki. Zay is the first language for almost all participants of this study. All the *Tsedecha* and *Debre tsion* interviewees can speak Zay, Oromo, and Amharic. In Gelela, most of the interviewees speak Zay as their first language, but there are participants (14%) whose first language is Oromo.

Traditional knowledge regarding ethnobotany, in general, and medicinal plants in particular was assessed using standard ethnobotanical tools, which is free-listing exercise, as it is suggested by Alexiades and Sheldon (1996:53–94). Participant observation (Martin 1995:96), and interview techniques were also applied. In order to gather data related to medicinal plants ten participants were randomly selected and interviewed. These participants were asked to list plants used for medicine, their threats for the disappearance of those plants and management, part (s) used, preparation methods, route of remedy administration and diseases treated. The same method was also used to collect data on conservation practice of the reported medicinal plants with the assistance of local guides and informants.

Most of the language community is believed to own 'ethnobotanical taxonomy', that is, the way in which speakers of a language classify botanical taxa (Nicolle 2004:87). Therefore, the researcher attempted to identify the ethnobotanical taxonomy used by the Zay linguistic group. However, the community has no its own classification to botanical taxa. Therefore, the researcher has deployed subdividing according to botanical taxa, particularly the English distinction between TREE, SHRUB and GRASS particularly for plant utility.

In order to collect the data and carryout language and culture documentation, the application of photography, audio and video recordings are advised by several scholars. Gordon (2013:3) elaborated the significance of applying photo, audio and video recordings as follows:

> Language and culture documentation apply audio and video recordings of speech acts of various genres, including wordlists spontaneous speech, and planned speech events (e.g. storytelling genres, poetry, speeches, songs, proverbs, etc.), with appropriate metadata. The researcher also collect video recordings and still photos of cultural practices (e.g. dance art, crafts, etc.). Researchers also use archive materials, with thorough metadata, in appropriate digital formats in secure, accessible archives.

This study has applied photo, video and audio after obtaining appropriate agreements for recording data. According to the publication of SIL International (2013), in addition to usage of audio and video, language and culture documentation also requires the use appropriate software that helps to process recorded data, record appropriate metadata and organize the collected and processed materials for publication and archiving. As a result, the recent study has also used SIL IPA for linguistic transcription.

In order to gather the ethnozoological information about animal utilization, questionnaire has been used and interviews were conducted. The interview was done with purposely selected members of the Zay community. The name of animal and other ethnozoological information are collected also using photographs and discussions.

The fieldwork for the ethnozoological data collection was conducted from May 1 to 5, 2014. During this period, participants were asked to identify and list the name of aquatic and terrestrial animals that are known and used by the Zay community. The interviews were conducted in Tshedecha, Debere tsion, Famat and Ziway. In-depth knowledge about the use animals was obtained through semi structured and structured interviews base on the suggestion of (Schensul et al. 1999:17). For the ethnozoological data, 24 elderly (average 69 years old) and young inhabitants of the Zay area have participated.

In addition to data on animal use, data on fauna-based traditional medicinal practice (local names of animals or/and their parts,) were also collected. The data were collected through the questionnaire and interviews from randomly selected residents of Tsedecha and Famat. These 10 selected respondents (7 men and 3 women), were used to collect information about traditional knowledge regarding the use of animals and their products for traditional zootheauptics. These respondents were local herbalists, healers, farmers and church intellectuals between 26-65 years of age. The selection of informants was based on their experience and recognition as "knowledgeable members" concerning traditional zootheauptics (called 'expert' by the local people).

Most of the interviews both for ethnobotany and ethnozoology data collection were conducted in Amharic, the official language of the country and few (4%) in Oromiffa and Zay languages with the help of a translator. The respondents, (4%) prefer the interview to be conducted in Oromiffa and Zay for two reasons; one, members of this group that are Oromiffa speakers do not speak and understand Amharic. Two, the Zay speakers of this group are not interested to be interviewed in another language. As a

data collection method, the researcher has also deployed video recording and photography.

1.9.1.2 Ethnobotanical and Ethnozoological Description

Zelealem (2011:14), referring to Berlin (1994), indicated that there are two well-established ways of systematically gathering basic data for ethnobotanical description. In the first method, researchers use prepared specimens that have either been recently collected or fully dried voucher specimens and informants to see and name each specimen. The second method requires the use of different informants to identify plant species in their natural environment at the time of collection without seeing the full set of the collection. Zelealem (2011:14) has also advised to deploy the most valuable and most frequently applied technique to systematically gather qualitative ethnobotanical data through the walk in the woods approach. According to him, this technique, pursued with the assistance of key informants, enabled the researcher to accurately identify plants in their natural habitat.

Thus, in order to get the accurate naming of each specimen, the researcher has deployed two methods: one, the use of different informants to describe plant species in their natural environment at the time of collection and two, the walk in the woods approach. For ethnozoological description; I have deployed the use of different informants to describe animals in a place where they are located. All participants of this section of the study were asked to see and name the animals.

1.9.1.3 Data Sources

In order to get direct evidence about the community relationship with animals and plants, this study relied on members of the Zay community as a primary data source. In order to gather the data for ethnobotany, different segments of the community have been approached. For ethnozoological data, young and elderly people and community leaders of the area have been approached. All data sources were selected using

probabilistic sampling. This technique is preferred, because it helps to identify specific target groups who either possess characteristics or live in circumstances relevant to the social phenomenon being studied (Mays & Pope, 1995:115).

During the field work, a total of 72 members of the Zay ethnolinguistic group have been interviewed for both ethnobotanical and ethnozoological data. Among the total informants, 38 were in the ethnobotany group and the remaining 34 in the ethnozoological group.

As a secondary source, the recent study used materials produced on the Zay ethnolinguistic group. This includes books and articles that are indicated in the reference section of the study which contain information on history, culture and language of the Zay ethnolinguistic group and other related subjects.

Chapter two:
Findings and discussion of the Ethnobotany of the Zay Ethnolinguistic Group

2.1 Plant Utility (Ethnobotany)

Plants are almost everything to people as human being is heavily dependent on them. They improve our climate and they are used to made many things that we need such as food, medicines, clothes and shelter. In places like Zay islands, trees are the primary fuel used by members of the community to cook their meals and heat their homes during the cold seasons. Animals of this area live in, on, or under plants. Trees and shrubs are also used for shelter. Herbs are used for adding flavour to food or as a medicine. Climbers, which are a versatile group of plants, are used to cover fences, walls, trellis, arches or obelisks. Ferns that are leafy plants and grow in moist areas, promote the flow of water and nutrients (Winslow and Fellows： 2011:129).

According to Flaster (1996:569), plants are the backbone of all life on earth and essential resource for human well-being. As to Flaster (1996:569) it is because everything we eat comes directly or indirectly from plants. Bensen (1978:524) states that, approximately 7,000 different plant species have been used as food by people throughout human history. Plants regulate the water cycle. They help distribute and purify the planet's water. They also help move water from the soil to the atmosphere through a process called transpiration. One-quarter of all prescription drugs also come directly from or are derivatives of plants. Additionally, four out of five people around the world today rely on plants for primary health care (Bensen 1979:524).

2.1.1 Medicinal Plants

Among the members of the Zay community, *fəynəʧ* 'health' is perceived as special asset provided by 'God' or *igzer*. From discussions made with elders, several poems and

proverbs which reflect the values of health to the local people were recorded. To cite few of these:

fəynəʧ	*b-ɛləh*	*huləmɛ-ɛləh*
'health	in-have.3SG	everything have.3SG'

'If you have health, you have everything.'

gədir	*sənɛn*	*fəynəʧ-in*
'great	wealth	health-have'

'Health is the greatest wealth.'

From the sayings that are listed above it is clear that health is considered as a great asset, and a life engine for any aspect of life activities among the Zay.

2.1.1.1 Comparison of knowledge of medicinal plants between age groups

In order to compare knowledge of medicinal plants, two age groups (18 to 35 and 36 and above) were considered. The sample size for the age group of 18 to 35 was 12 and 16 for the other age group.

The finding revealed that members of the age group, 36 and above listed more medicinal plants than the other age group. Among people, who are categorized in this group, 14 (87.5 %) cited at least one medicinal plant that is used by the Zay community. Half of the members of this group also listed two plants each. This age group has listed a total of 16 medicinal plants. Almost all members of this group who reported to have knowledge of medicinal plants knew in which islands the plant species that they cited are located and its preparation and way of administration.

Among the other age group, 18 to 35, 7 of the interviewees (58%) cited at least one medicinal plant. However, three of the interviewees of this group were not sure about

the location where the plant originated and the plant part used and modes of preparation. The remaining participants of this group that are five, (41.6%) reported that they have no knowledge of medicinal plants. From the above data, one can learn that, the knowledge of medicinal plants is mostly in the hands of people who are at the age of 35 and above.

Among the 23 medicinal plants listed/collected (see Appendix 1), 7 species (28. 17%) were from 'Tsedecha', where most of the Zay ethnolinguistic group live in. 6 (26.6%) from 'Debre tseon/Tulugudo', 4 (17.39%) from Aysoot, 3 (13.4%) from 'Debere Sina' and 3 (13.4%) from Famat. This finding shows that most plants of medicinal value (about 69.5%) are harvested from the wild, while few (about 28.17%) are kept near the home. Although these plants were kept near homes and are used medicinally, they are not deliberately cultivated for medicinal value, but mainly for other purposes like shade, live fence, food, spice and others. Out of these 23 medicinal plants reported as a home garden species, only 5 species (21.73%) were cultivated for medicinal propose. From this, it can be said that in the study area, there is less practice of cultivating medicinal plants in the home garden. This is in line with finding, of Mirutse (2001:13), which also indicated that medicinal plants cultivated in home gardens were few, about 18%.

2.1.1.2 Naming of medicinal plants in Zay

Informants of the study have listed medicinal plants that have Zay, Amharic and Oromiffa name. The following Table 3 indicates the Zay name plants and literal analysis of plant name. Table 4 indicates Amharic or Oromiffa named plants.

Table 3: List of Zay named medicinal Plants used by Zay against human ailments

Zay name	literal analysis of plant name in Zay	Botanical name	Plant part used	Application
ʔambəʧʼirɛɛrɛ (MP12)[6]	*ʔambə* means 'similar to' and *ʧʼirɛɛrɛ* means 'tail' (tail like plant)	*Heliotropium cinerascens*	leaves	Dandruff
ʔambulɛlɛ (MP4)	a plant that has clustered flowers	*Commicarpus*	leaves	Skin wound
ʧʼək'uɲ (MP)	*ʧʼə-* is definite marker and *k'uɲ* means 'stinky' (the stinky)	-	leaves	Skin wound
ʧʼəməmərɛru (MP)	*ʧʼə̰-* is definite marker and *məmərɛru* means 'bitter' (the bitter)	*Hagenia abyssinica*	bulb	Tapeworm
ʔi:rɛ(MP20)	a leaf of sunburn	*Cordial monoica Roxb*	leaves	Febrile disease
ʔi:biʧɛ (MP)	*ʔi:-*is copula and *biʧɛ* means 'strong' (strong wood)	*Vernonia amygdalina*	leaves	Skin wound
kobo (MP45)	shield	*Gossypium hirsutum*	leaves	Wound (head)
k'urk'urɛ (MP)	a plant against *kɔ:rəkɔ:r* (dandruff) ailment	*Ziziphus mauritiana*	leaves	Dandruff
silibo (MP16)	*si-* is definite marker and *libo* means 'scratch' (that scratches)	*HeLSolanum incanum*	herb	Tonsillitis

Table 4: List of Amharic (Amh.) or Oromiffa (Or.) named plants used by Zay against human ailments

Plant name	Botanical name	Plant part used	Application
agamsa (Or.)	*Carissa edulis.*	Root	Rheumatism
məkanisa (Or.)	*Croton macrostacbyus.*	Leaves	Retained placenta
galo ayfitu (Or.)	*Pavetta gardeniifolia*	Leaves	Snake bite
guri (Or.)	*Euphorbis crotonoides Boisss.*	Root	Stomach problems
hiddi (Or.)	-	Root	Stomach problems
holobido (Or.)	-	Whole plant	Chest pain
k'əraru (Or.)	*Acokanthera schimperi Schweinf.*	Leaves	Tonsillitis
seriti (Or.)	*Asparagues africanus.*	Cladodes	Skin lesions
nəʧʼ ʃənkurt (Amh.)	*Alium sativum.*	Bulb	Influenza
t'ena adam (Amh.)	*Ruta chalepenisis.*	Leaves	Stomach problems
t'obiyaw (Amh.)	*Calotropis procera.*	Stem	Hemorrhoids
yəməʧ k'it'əl (Amh.)	*Cynoglossum lanceolatum Forssk.*	Leaves	A febrile disease
yəamara yəməʧ k'it'əl (Amh.)	-	Leaves	A febrile disease
zəngada (Amh.)	*Sorghum bicolor*	Seed	Diarrhea
neem[7] *(Amha, Or.)*	*Azadirachta indica*	Leaves and fruits	Malaria, pressure and diabetics

[6]MP stands for Medicinal Plants and the number besides MP indicates that MP has reference number at the Appendix section

[7] Oxford dictionary also defines neem as an English term-a tropical old world tree native to India and is also found in other southeast countries

As it is indicated in the above two tables, most of the listed medicinal plants (60.8%) are Oromiffa and Amharic named plants other than Zay. Still among the Zay named nine plants, 3 (33.3%) are also listed by participants with Oromiffa names. These plants are the following :(see Table 5)

Table 5: Medicinal plants listed in Zay and Oromiffa

Zay name of the plant	Oromiffa name of the Plant	Botanical name
ʔambulɛlɛ	*dergu*	*Commicarpus.*
ʔir	*mənerra*	*Cordial monoica Roxb.*
k'obo	*gulo*	*Gossypium hirsutum.*

Figure 2*:* Participants of the study providing information on medicinal plants

2.1.1.3 Application of the medicinal plants

During the ethnobotanical data collection, participants were asked about the practice of cultivating medicinal plants in the area they live. The finding shows that the medicinal plants cultivation practice of the Zay community is minimal. Most of the medicinal plants that the community uses (78%) are therefore harvested from the wild, particularly from the islands where few Zay people are located.

Figure 3: Finger length

Figure 4: Pinch

The Zay ethnolinguistic group uses various units of measurement (see Figure 3 and 4) and duration of administration to determine the dosage. Local units such as finger length (e.g., for bark, root, stem,), pinch (e.g., for powdered plant medicine) and numbers (e.g., for leaves, seeds, fruits, bulbs, rhizomes, flowers and latex) are used to estimate and fix the amount of medicine.

Recovery from the disease, disappearance of the symptoms of the diseases, fading out of the disease sign and judgment of the healer to stop the treatment were some of the criteria used in determining duration in the administration of the dosage. However, from the interviews made during the field work, it was learned that there was disagreement among the key informants concerning the dosage system used. For

example, 65% of the informants suggested that four or five leaves of '*ʔambəʧʼiraara*' to treat dandruff, while 30% suggested that only two leaves are enough for the same problem. Still some others (5%) suggested that they apply the leaves randomly without such measuring system. Although the full dose determination is varying from healer to healer, the dose given depends on age, physical strength and heath conditions.

2.1.1.4 Conservation of medicinal plants and indigenous knowledge

Among the Zay ethnolinguistic group, there are various local beliefs and cultural traditions that contribute to the conservation of medicinal plants and indigenous knowledge. In relation to this, 89% of the informants reported the following during the field data collection:

- During the collection of plants for medicinal use, it is common to make various actions in order to save the life of the mother plant. For instance; taking the lateral root without damaging the main root, and/or transplanting the part (root, stem or leaf) left behind and taking only small portion at a time.
- For some ailments such as *səlibo* which is a stomachache, once a plant or its part is used as a remedy, there is restriction on a person not to eat and cut the plant any more. However, if a person failed to do so, he/she will develop the disease again. The patient there after, never cuts the plant (and even never calls up on the name of the plant). This finding shows that the mentioned plant species are being conserved at least by patients treated for these ailments.
- Informants reported that most plant remedies are only collected on days that have no religious value. This is believed to maintain the efficacy of the remedies. The practice could reduce the rate of harvesting medicinal plants.
- The healers never show the plant or disclose the name of the medicinal plant to their patients. It is because; there is a belief that if the patient knows the medicinal plant, the medicine becomes powerless in curing the patient.

Besides the traditional beliefs, most informants also raised the impact of modernization on indigenous knowledge. They reported that expansion of businesses, and health facilities around the islands forced the new generation to ignore traditional medicine. The new generation is also not interested in traditional knowledge. Informants reported that they use medicinal plants mostly for temporary treatment as it took two hours on average to travel from *Tsedecha* Island to Ziway on motor boat. But still, under these circumstances, there are people in Zay, mostly young generation who refuse the traditional medicinal treatment. In line with this finding, Cunningham (1993:40) discussed that religious beliefs, modernization, modification in culture and environmental changes can affect the knowledge of the young generation in using medicinal plants and traditional medicine. The study indicates that there are both indigenous and exotic (modernization) factors to threat the indigenous knowledge.

2.1.2 Plants used for weaving

According to the informants, weaving in the Zay ethnolinguistic group has been a way of life for centuries; in the old era, all the traditional clothing was made from hand woven textiles. Commonly these outfits are white and prepared from locally grown cotton, as the weather of the islands are suitable for cotton cultivation. They also usually feature a decorative border called 'tʼiβəb'. In the Zay weaving system, 'tʼiβəb' is marked by highly elaborate patterns and different colors, mostly dominated by white and black colors. There are still members of the Zay community who weave for their daily bread. These people produce different products. According to the informants, the Zay weavers produce four kinds of cloth: *'yək'əmisi nət'əlɛ'*, is the name for women's dresses which are usually worn together with a *'nət'əlɛ'*. The latter is a shawl, which may also be worn with other types of clothing.

Figure 5: ***yək'əmisi nət'əlɛ***

The third item is a *'hoy βəlɛ'*, a large cloth worn by both women and men in bed or in cold weather. The *'rɛz ʃəʃt məkɛʃ'ɛ'* is also a clothes that was listed by the informants. It is a thicker and bigger cloth used as a blanket in bed.

Figure 6: ***rɛz ʃəʃt məkɛʃ'ɛ***

Except for the decorative borders the material used in these clothes is in-house produced cotton.

Traditionally weavers in Zay are men. They commonly use two different types of weaving equipment. With one type, the *'məwərwəra'*, the weaver throws the bobbin that

is made up of '*k'əmbərɛ'* plant side to side. The other type is the ground loom. With the ground loom, a hole is dug on the ground and the weaver moves the shuttle, '*aʃən mərgəʧ'ɛ'* that is made up of '*gəbərirɛ'* (PL[8] 37) plant with his feet alternately up and down to interweave the threads. The Zay ethnolinguistic group use plants to produce almost all of weaving equipments (see Table 3 on page 52).

Figure 7: *məwəwərɛ*

The processes of spinning and weaving have traditionally been carried out through a division of labour between the sexes; the women cleaning the cotton filaments and spinning the thread which was then woven by the men. First the raw cotton, '*t'ɨt''*(PL 44) is cleansed of its seeds by being rolled on a stone under an iron rod or '*mədaməʧ'a*' then it is further stripped of debris by means of a bow-shaped instrument called a '*dəgan'* the catgut string of which is vibrated against the pile of half-cleaned cotton until the finer filaments are left on top and the dust and heavier matter have shifted to the bottom.

The clean cotton fibres are then twisted around the '*dəgan'* into rough strands, wound into skins, and set aside till needed for spinning. This process is carried out with the assistance of a spindle about 20 centimetres long ending in a disc. The spindle,'ʔ *ɨnz ɨrti'*

[8] PL stands for Plant

in Zay is made up of *'k'əməbɛrɛ' (PL_)* plant and the disk like ending of the *'ʔɨnzɨrti'* is made up of *'ʔule'* plant.

Figure 8: One of the key informants weaving under the *wɛnt'ɛ'* east African yellow-wood plant that is used as a shade. It is common in the Zay area to make weaving in the shade due to the hot weather

The *'t'ɨt''* (cotton) is held in the left hand, while the right holds the spindle steady on the spinner's thigh and allows it to rotate. On the top of the *'ʔɨnzɨrti*, 'spinning material' there is a part called the *'k'ələm'* that is made up of *'ʧələgədɛ'* plant (PL 32). The *'k'ələm'* is shaped like a small cone and acts as a bobbin for the thread to spool around. Once enough *'k'ələm'* have been filled, the yarn is ready to be given to a weaver.

't'ɨt'', as the locally grown cotton, has a peculiar strength that allows the weaver to vary his fabric from a transparent cheesecloth weight to cloth with the heavy texture of drapery material. Thus the range of Zay traditional clothe, from *yək'əmis nət'əlɛ* to *rɛz ʃəʃət mək'ɛʧ'ɛ*, is based on one staple thread given variation by spinning and weaving techniques handed down from generation to generation. The thread are usually made of cotton, however, the informants reported that as the weaving has become more evolved, silk and rayon are widely used as well.

2.1.2.1 *ʔerɛzərb* 'weaving equipment' and plants used for weaving

As it is indicated in the table below (see Table 6), the weaving equipments that are used by the Zay community have Zay name. The same way, several plants that have Zay name are used for weaving (see Table 7)

Table 6: Weaving equipments in Zay and their function

Zay name	Meaning	function
dəfɛ	heddle	one of the sets of vertical cords or wires in the frame on a loom that guides the warp threads
mək	reed	used for beating in weft thread inserted while forming the opening of the upper and lower edges of the warp, and it is also used to set the density of texture of the piece of cloth
ʔaʃən mərgətʃ'ɛ	footing	used for balance the heddle
hoybəlɛ	pedal	a lower string connects to the tip portion of a piece of *k'əmbara* or a stick used as pedal
k'ələm	small cone	used for spinning a weft and winding cotton weft shaped
məwərwərɛ	spinner	a tool that the weaver throws the bobbin side to side
ʔinzərti	spindle	the winding tool
dəgɛn	cotton blender	is made up of wood and tendon and used to twist the clean cotton fibbers

Table 7: Plants used for weaving

Zay name of Plant	Amharic or Oromo name	Botanical name	Utility	Plant part used
ʧɛləgədɛ	*k'awa* (Oromiffa)	*Poaceae*	1. Act as a bobbin for the thread to spool around. 2.For production of pipe like material that is used for spinning	stem
gəbərirɛ	*uluga* (Oromiffa)	-	1. Used as a shuttle. The weaver with his feet alternately up and down it to interweave the threads 2. Used to beat in weft threads	stem
k'əmbɛrɛ	*məka* (Amharic)	*Botánica junco masculino*	1. Spindle, *ʔinzərti* in zay is made up of *kəmbara* plant 2.For spinning a weft	steam
t'it'	*t'it'* (Amharic)	*Gossypium hirsutum*	For the production of clothes	flower
ʔawwɛre	fɨla (Amharic)	-	Used as a shade during waving	-
ʔule	-	-	Used for disk like ending of the *ʔinzərti* (spindle)	skin
bahər zaf	*bahər zaf* (Amharic)	*Eucalyptus citriodora*	Used as a stick for warping the thread	branch

2.1.3 Plants used for building of traditional boat

Boat riding and swimming is a common practice among the Zay ethnolinguistic group. According to the informants and the observation made during the data collection period, almost every man in the Zay community uses reed boats as means of transportation from the islands to the land and for fishing purpose. A reed plant, which is called '*ʔəmbillɛ'* in Zay is a plant with tall thin stems growing near the lake is used to make a traditional boat which also called '*ʔəmbillɛ'*. In order to connect the '*ʔəmbillɛ'* stems another, they also use a plant called '*ʔʊrurʧilɛ'*(PL 108) that has a thread kind of nature. At the middle of the interwoven '*ʔəmbillɛ'* steams, as it is seen in a Figure 10, they use *'tungolu' (PL 06)* plant as a basement of the boat. They use *'tungolu'* plant because it is not weighty.

Figure 9: A traditional boat made of *ʔəmbillɛ*, 'papyrus', *ʔʊrurʧəlɛ* 'Hibiscus sp.' and *tungolu* plants

As it seen in Figure 11, the Zay ethnolinguistic group also builds another type of traditional boat. According to the informants, this boat is called *yəmərəb ʧəlba*, which is made from *zigba*, 'east African yellow-wood' *wɛnt'ɛ'* Cordia Africana' *(PL 34)* and *bahir zaf 'Eucalyptus citriodora Hook.'(PL 32)* plants. In order to propel both traditional boats, they make oars from *wədessɛ 'Wedelia trilobata* syn' plant because the plant is light

naturally. It is also the *ʔombbɛ* '*Ipomea sp.*' plant they use for connection of woods as it has a nature of fiber.

Figure 10: A traditional boat that is built up from *zəgba*, *want'ɛ* 'Cordia Africana' and *bahɨr zaf* '*Eucalyptus citriodora Hook*' plants

2.1.4 Fishing and Plant used for production of traditional fishnet

Informants of the recent study indicate that fishing is given as a special consideration among the Zay ethnolinguistic group, for it had been the most important part of their subsistence economy. They indicated that it was a major food source throughout their history. It is still important as a means of income. However, in recent years the Zay economy and their life have declined due to the scarcity of fish resource. Almost half of the informants indicated that the shortage is occurring because of maximum utilization by other ethnic groups that are located around the lake. To the contrary, half of the informants believe that the lake's resource is deteriorated following the introduction of a new fish species, known by the name Catfish into the lake.

Figure 11: One of the informants with Catfish that is trapped with traditional fishnet

The fact that this fish preys up on tilapia, it made the indigenous fish scarce. Moreover, Zay people believe in their religion that eating this Catfish is strongly condemned. Endeshaw (2011:8) has also indicated this factor is subjected for Zay people to look for another way of living. Therefore, this situation is contributing its own effect for the new pattern of life, which is characterized by migration and language shift.

Members of the Zay ethnolinguistic group have a practice of making handmade fishnet called *'mərəb'*(see Figure 13). In order to make a simple circular or a full size net that helps to unhook a fish, the Zay fishnet makers use different plants that are available in the area. This includes *t'ɨt'*, *Gossypium hirsutum* (PL 36), *wɛnt'ɛ* (PL 11) and *ʔʊrurʧəlɛ* (PL 108) plants. A dip net building process is a little more complicated.

Figure 12*:* A Zay man producing traditional fishnet

As it is seen in Figure 12, the informant start making it from twisted *t'ɨt'* or cotton fibbers by lifting each hanging strand and tying its other end directly opposite on the hoop; the hanging strands then resemble a net. Then the informant ties a short strand about 1" below the first hanging string and makes square knots moving along each long string until he is back at the beginning. Then he moves down about an inch and starts again, continuing this process until he hits the bottom. In order to cast the net, the informant also ties a rock to each corner. For the purpose of pulling out the net that has trapped fish, the Zay people use a kind of thread called *'ʔyəwɛnt'ɛ lit'' (PL 34)* that is made up of *'wɛnt'ɛ''*Cordia africana' (PL 34) and *'ʔʊrurʧəlɛ' (PL 36)* plants.

Figure 13*:* Handmade deep-net, ready for fishing

For the Zay ethnolinguistic group, having a fishnet is compulsory for each member of the community. A person in Zay without having a fishnet considered as valueless. This is described in the Zay proverb:

mərəb	*yələy*	*mərbɛ*	*yləy*
fishnet	not owned	profit	has no

'A person without fishnet is a person without profit'

This shows that fishing is the base of life for members of the Zay ethnolinguistic group. As the activities of the Zay were limited and confined to the islands, the society had to depend on its own islands and the fish resources of the lake to secure the life of every member of Zay community.

2.1.5 Plant used for making farming equipment

The islands of Zay are characterized by rocky mountains and stony nature. However, the available small land is used for cultivation, and the people are able to harvest a good product. The principal crops grown on the island used to be cotton that is used for weaving and grains like *dɛgussɛ* 'finger millet', *t'ɛfi (t'eff)*, and *gɛbs* 'Barley'. However, the current socio-economic profile of the Zay people particularly with reference to

farming, which had been one of the core elements of activities in Zay history, have now declined and deteriorated even to the extent of leading the people to migrate to neighboring towns and villages due to scarcity of farm land. In the meantime, members of the Zay ethnolinguistic group express their wishes of first-rate harvest through a song:

mərɛy bɛhaho mərɛye

yə-ɛzmərɛy ungɛ ɛrɛye

bə-ʃərk'ɛ mni mrɛye

bə-tibɛ mni məraye

yɛ-zəmərɛ ungɛ ɛrɛye

mərɛy bɛhuho mərɛye

'direct me please direct'

'Please direct me (God)'

yə-ɛzmərɛy ungɛ ɛrɛye

'art-harvest way show'

'Show me the way of good harvest'

bə-ʃərk'ɛ məni mərɛye

'in-mud journey direct'

'Direct my journey in the mud'

bə-tibɛ məni mərɛye

'in-dust journey direct'

'Direct my journey in the dust'

yɛ-zəmərɛ ungɛ ɛrɛye

'art-harvest way show me'

'Show me the way of good harvest'

The traditional cultivation of Zay depends on plough with oxen. The only technique used for land preparation and planting is the traditional plough or '*mɛrəʃɛ'* in Zay, the traditional ox-drawn ard plough. ' *mɛrəʃɛ'* is a pointed, steel-tipped tine attached to a draught pole at an adjustable shallow angle. Narrow wooden wings attached on each side of the tine push soil to either side but do not invert it. According to the informants, the *'mɛrəʃɛ*' has certain advantages. Apart from the metal point and the hook, it is entirely homemade; it is light and can easily be carried to and from the fields.

The '*mɛrəʃɛ'* has a handle called *hərf in* Zay that is produced from the *t'oy* plant *(PL 21)*. It has also a part like wings called *'dəgəri'* in Zay that is also the product of the *t'oy* plant. The beam called *nuwi* is also prepared from the *wɛnt'ɛ* 'Cordia africana' plant *(PL 34)* and the yoke, which is called *ʔərk'ut* in Zay is prepared from the g*əbərirɛ* plant *(PL 37)*. Neck holder sticks are also prepared from the *gəbərirɛ* plant.

The Zay ethnolinguistic group uses plants for appropriate purpose. The proverb below indicates that how appropriate use of plant is useful:

yə-k'ɛk'ɛ digəri
yɛ-yhan yə-səb mərin
ʔayhan lə-wəri

yə-k'ɛk'ɛ digəri
'art. made wing'

'The wing made from *'k'ɛk'ɛ'* plant, *Opuntia ficus-indica* (weakest plant)'

yɛ-yhan yə-səb mərin

'no-being art.-man friend'

'And a friend with no friendship value'

ʔayhan lə-wəri
'(never) remain for-(one) month'

'Will never remain even for one month'

Participants also reported that '*ʔumuga'* plant (PL 86) is used for the construction of traditional storage of crops. According to the informants, the traditional store, this is called '*təgugu'*, is only opened with the permission of a head of a house, mostly men. Women of Zay are not allowed to get out and use crops that are stored in the *'təgugu'*.

2.1.1 Plant used for food

The Zay ethnolinguistic group has a culture of farming and traditional fishing. Agriculture is a major economic base of this community. The Zay people produce crops for their consumption and market supply.

Table 8: Edible aquatic and terrestrial plants

Name of the fruit	Type of Plant	Edible part	Description
ʔaysuy	aquatic	root	The root part of '*ərbit' 'nymphaea'* (PL 34) that has a potato like fruit. Informants of this study declared that this plant is used for the era of famine that has occurred in the Zay area many years ago.
nəbɛrɛ	aquatic	root	The root part of *əmbilla 'grewia'* (PL 39) plant that is used for the production of traditional boats.
ʧɛləgədɛ	aquatic	root	The root part of '*ʧɛləgədɛ'* that is similar to sugarcane and use as food plant.
ʔawɛrɛ	aquatic	root	The root of '*ʔawɛrɛ*' 'Cyperus sp.' (PL 33) plant used as food plant
mək'əlk'u	terrestrial	fruit	Fruit part of '*zənəbi'Euphorbia tirucalli.* (PL 39). This plant is located on 'Debre Tsion' island.
murməʧi	terrestrial	fruit	Fruit part of *'wɛnt'ɛ' Acacia tortilis* (PL 34) that is located on all islands
subəlɛ	terrestrial	fruit	Fruit part of '*subəlɛ* ' *Ficus Shoal* plant (PL 113) that is located on all islands
k'ərɛru	terrestrial	fruit	A fruit part of a '*k'ərərə'* plant (PL -) that is located on Gelila Island
bussi	terrestrial	fruit	A fruit part of *'bussi'* plant (PL -) that is located on all islands
'lomi' (lemon)	terrestrial	fruit	*(PL 51)*
ʔənkuyi	terrestrial	fruit	A fruit part of the *'ʔənkuyi' Ximenia Americana.* plant that is placed in Gelela Island

Among those crops, sorghum, maize, finger millet, *'t'ef '*, pepper and barley are frequently cultivated. In addition to these, the community uses aquatic and terrestrial plants for the purpose of food. See (Table 8) that shows edible aquatic and terrestrial plants that are used for food in the Zay community.

Figure 14: *ʔankuyi* 'Ximenia Americana. '

2.1.2 Plant used for house construction

The Zay community lives in a *Tukul* kind of house that is a traditional thatched roof hut found in almost all islands. It is basically with a circular floor and wall, and conical shaped roof. Any type of available wood, *wɛnt'ɛ* planks commonly is used for roof support called *'məkʼəzu'* in Zay. The wall is reinforced with stone (see Figure 15) and is usually plastered with mud mortar sometimes mixed with ash and fresh cow dung for the second coating. It is lighter plant materials, like *bɛwɛ* (PL -) and *ʔawɛrɛ, Cyperus sp.* (PL33) combined with thin *kʼɛkʼɛ (PL 41), tʼoy (PL3)* and *kʼəməbɛrɛ (PL -)* wood planks used for roof construction. The floor is plain earth and simply fuddle with mud. Grasses like *bɛwɛ* (PL -) are used also for thatching.

Figure 15*:* typical hose of Zay in *Tulu gudo* (source: www.flickr.com)

A Proverb related to house construction:

gɛrətisunɛ

mɛgər ʃimit

gɛrəti-sunɛ

'(during) making-house'

'while making house'

mɛgər ʃimit

'wall reinforcing wood-hide'

'She hides the wood that is used for wall reinforcing '

2.1.3 Plant used for firewood

gəgrɛ-ʔənt'ɛt (fire-wood) in Zay is mostly obtained from the forest where trees are grown for fuel and other purposes. However, firewood is a scarce resource particularly in the *Tsedecha* Island where the majority of members of the Zay community live. Almost all participants of the recent study, 97% are concerned about the practicality and sustainability of the firewood resources in the island. See Table 9 for plants used for firewood.

Table 9: Plants used for firewood

Zay name of the plant	Botanical name	meaning
t'ɛt'əsɛ	-	loud sounding when it is in fire
wɛnət'ɛ	*acacia tortilis.*	
əndɨb	*euphorbia tirucalli.*	bloody plant
t'oy	*grewa sp.*	strong
k'ɛk'ɜ	-	lengthy plant
kombəlʧɛ	*senna sp.*	full-size tree

Collecting and handling the firewood is the task given for the women in the Zay community. Women are also responsible to keep the fire long heating by applying different techniques. It is '*t'ɛt'essɛ'* which is reported as a long lasting firewood. Women of Zay use a small pile of this plant in order to keep the heat for the next day. Informants of this study stated that the woman who went to the neighborhoods to bring fire is considered as unwise person as she has to have it at home. The following description of Zay supports this idea:

ʧ'ərɛ yɛ-yɛtɛtnədər set

yə-gɛrɛbunənɛ ɛt-ɛtindər

ʧ'ərɛ yɛ-yɛtɛtnədər set

'keep (fire heating) no-dwell women'

'A women that has no wisdom to keep the fire alive'

yə-gɛrɛbunənɛ ɛt-ɛtindər

'her-husband unable-handle'

'Cannot handle her husband with wisdom'

2.1.4 Plants used for shade

The Zay community, like it is a common practice in other cultures, uses plants for shade. It is under the plant shade members of the Zay community make their weaving. According to the informants and the observations I made, they use plant shade during the traditional conflict resolution processes. It is mostly under the *wɛnt'ɛ (PL 34)* plant shade the Zay community performs its weaving and reconciliation. The Zay

ethnolinguistic group also uses *ʔɛware (PL -)* plant for making shade that is used during feast and other similar events.

Figure 16*:* interview with informants under the *wɛnt'ɛ 'Acacia tortilis* shade

2.1.5 Plants used for faith

Members of the Oromo ethnic group that are located in the Zay area have a yearly religious ceremony called *korma ʤima.* For this particular ceremony they collect *khat, ʧ'at (PL 135)* from one of the Zay islands, Debre tseon/Tulu gudo. However, despite the presence of the plant in the area, informants of this study indicated that the Zay community has no culture of using *khat* for any faith based ceremony.

2.1.6 Plant used for washing cloth

Informants of the recent study reported that a plant called *rəʤi, 'senna sp'* (PL.14) that is mostly found near the lake area is used for washing clothes as a detergent.

2.1.7 Endangered plants

All the Zay islands are unique historically and ethnobiologically important. The people inhabiting this area are cut off from the mainstream population and therefore lack the basic social and economic facilities. Informants reported and the researcher has also observed that amenities, such as schools and health facilities, do not exist in the area and they are far in between the land and the island. For this reason, the local populations are closely attached to their cultures and the natural environment around

them. However, most of the plants found in the five islands of Zay, particularly in Tsedecha island seem to be endangered. According to the informants, it is due to competition brought about by the increasing inconsistent land use and shortage of rainfall. As a result, many of these plants are getting depleted or are in danger of extinction. Informants reported that the following plants are endangered: *wɛnt'ɛ*, *t'oy*, *k'ɛk'ɛ*, *ʔɛwɛre*, *subəla* and *murməʧi*. They have also reported that the plant called *aware* which is used for shade constriction and has an ecological impact is endangered because the newly inserted fish species are eating its root as a food.

2.1.8 Uses categories of plants

Participants of the recent study indicated that the Zay ethnolinguistic group uses plants mainly for about eight purposes (see Table 9). The Zay ethnolinguistic group has great utilization of plants and their interaction with plants is significant. From the listed plants by informants of this survey, it is medicinal plants (25.1 %) that have higher number. The community has also a culture of using aquatic and land plants for food. It is 13.6 % of plants that are reported as a food plant. Members of the Zey ethnolinguistic group use also six plants each for weaving equipments and house construction.

Table 10: uses categories of plants

Uses categories	% of the total
Medicinal	26.1
Weaving	6.8
Building of traditional boat	5.6
Fishnet production	4.5
Farming equipment	5.6
Food	13.6
House construction	6.8
Firewood	4.5
Shade	3.4
Detergent	1.1
Utilization not listed plants	21.5
Total	100
Plants used for more than one purposes	11(not in percentage)

It is also reported that, 19 plants that account for 21.5% have no significant use. These plants are listed in Table 11 and their language source and meanings are stated as it is reported by the informants:

Table 11: Plants that have no significant use

Name of the plant	Botanical name	Language	meaning
bələs	*Opuntia ficus-indica*	Amharic[9]	-
yə ʧɛnɛwəru k'it'əy	-	Zay	fruit of snake
ʔaʧ''nɛ k'osu	*Barleria eranthemoides*	Zay	painful thorn
k'ənt'əfɛ	*Ziziphus hamur*	Zay/Amharic	gluey
ʔambəʧ''ərɛrɛ	*Heliotropium cinerascens*	Zay	-
ʔənʤeb	*Euphorbia tirucalli*	Zay	-
lɛm ɛymət'ɔbɛ	*Solanum incanum*	Zay	a stick not allowed to beat a caw with
neem	*Melia azedarach*	Amharic/other	-
yəwəf k'olo	*Sida sp.*	Amharic	-
unnamed	-	-	-
ʔamekelɛ	-	Amharic	
yəwuha sar	-	Amharic	
unnamed	-	-	-
ʔaləʃɪt	*Ipomea sp.*	Zay	-
ʤɛrsu	-	Oromiffa	grows and ages quickly
ʧ'ilɛ	-	Zay	grass
unnamed	-	-	-
ʔalbɛytu	-	Zay	hard
kombolʧɛ	-	-	big tree
unnamed	-	-	-

2.1.9 Unnamed plants

Among the listed plants, nine plant species were found to be unnamed. The pictures of these plants are indicated in the Appendix section as P04, P13, P21, P25, P27, P33, P45, P46 and P52. Among the four yet unnamed plants, one is aquatic (P52) while the rest eight are terrestrial. Among the unnamed plants, P52 is reported by 85% of the participants as a newly introduced species to the area.

[9] The Amharic version of Wikipedia-the free encyclopaedia (http://am.wikipedia.org/wiki) defines *bələs* as an Amharic term (a shrub tree that has numerous minutely barbed hairs that are easily dislodged when the plant is touched)

Both unnamed terrestrial plants are found in Tulu Gudo area and all of the informants reported that these plants have no use. Those plant species are unnamed, because they are not familiar to the respondents (83 percent) and the community has no interest in them (17 percent).

Chapter three

Findings and Discussion on the Ethnozoology of the Zay ethnolinguistic group

3.1 Animal Utility

Animal resources have played a wide range of roles in human life from the earliest days of recorded history (Ikeya 1994:123). In addition to their practical importance, animals have been recognized in religion, art, music and literature and other different cultural manifestations of mankind (Romulo and Nobrega 2012:37). According to Alves and Souto, (2011:27), the variety of interactions (both past and present) that human cultures maintain with animals is the subject matter of ethnozoology, a science that has its roots as deep within the past as the first relationships between humans and other animals. Ethnozoological studies can be a valuable asset to increase our understanding of the cultural, economic, social, and traditional roles played by animals (Bagniewska and Mackdonald 2010:17). In this context, documenting and describing of the animal utilization of a particular community would have critical contribution for the preservation of culture and language as they have central role in the day to day life of members of the community. This chapter provides a description of the main forms of interactions between the Zay ethnolingudtic group and animals that are aquatic and terrestrial.

3.1.1 Aquatic Animals

Tulum, Fish and others aquatic animals

The Zay ethnolinguistic group uses fish as a common meal since the distant past. As informants described, the fish species of the lake Ziway are divided into two: indigenous and non-indigenous. According to the informants, the indigenous fishes are the ones that are known in the area for long. These "indigenous" fishes are *minʃ'i*

(F.3[10]*),'k'oroso' Tilapia (Oreochromis niloticus) (F.1)* and *bole (F.-)*. The other fish species are "non-indigenous" because they are cultivated and introduced in the lake recently. The informants reported that this fish species was introduced in the area after the former Fish Resource Development Agency of the Ethiopian Ministry of Agriculture situated the fishes in the lake. The recently introduced fish species includes; *ambaza* 'catfish' (Clarias gariepinus),*(F.4), barbo* (Cyprinusbarbus), *dube (F3)* and *ɗarbe* 'Crucian carp'*(F2).*

In addition to the fish species that are listed above, there are also other aquatic animals. These animals include *'gumәri'* hippopotamus (aqa1), *'yәmɛy wәst' t'ay'* (meaning; sheep of the water as it looks like a sheep) and *wәru*(dragon).

3.1.2 Birds

There are a variety of aquatic and arboreal bird species on Zay islands, shoreline, and neighbouring forests. Some birds and parts of birds are used for different purposes.

Figure 17: *kabiri* 'Maribu' and other birds in the local fish processing area

[10] F stands for Fish that is indicated in the Appendix section of the recent study

For example, a bird called *kɛbiri,* 'Maribu' serves as a cleaner of the shore of the lake. *kɛbiri* eats the waste products of fish that the fishermen throw away to the lake and this way it keeps the area clean (see Figure 17).

Not only that, bag of skin of *kɛbiri* that hangs from its beak and is used for storing the fish it kills also used to keep weaving equipments called *lit'o* after it gets dried. The following are birds that are listed by the informants as birds of that particular area and also observed by the researcher.

Table 12: Birds of the Zay area

locally-named bird species	Oromo or Amharic name	English name	Bird Type/family
dɛbənɛ (B[11]-)	*k'ura (Or, Am)*	crow	*Corvus*
ʧ'ulule (B-)	*/ ʧ'ilffit/ (Am.)*	eagle	*Accipitridae*
Kɛbiri (B1)	-	pelican	*Pelecanidae*
lit'o (B-)	-	-	-
abakoda(B4)	-	african Marabous	*Leptoptilos crumeniferus*
ʔandəri (B-)	-	-	-
yɛrut unf(B-)	*yələlit wof (Am.)*	bat	*Monnaie mint*
gɛgɛnu (B8)	*gagano (Am.)*	-	-
səbəkokŋ (B2)	*yəlos (Am.)*		-
k'urut (B3)	-	egret	*Ardeidae*
unknown (B5)	-	ibis	*Threskiornithidae*
unknown (B6)	*yəwənz amәte (Am.)*	eccentric hammerkop	*Scopus umbretta*
unknown (B7)	-	stork	*Ciconiidae*

3.1.3 Terrestrial animals

It is in the *Tsedecha* Island most of land animals inhabit as the island is the residence of almost all of the members of the Zay community. In Zay, in addition to different kinds of fishes, cattle and calves, goat, sheep and lambs are the most common animals that are used for meat and other purposes. Similarly, *heen*, *sololiʧɛ* (a type of hen) and *k'ok'* (a

[11] B stands for Bird. The numbers besides 'B' are sequential numbers given to identify them in the Appendix

type of woodpecker) serve as a food. *'fərəz'*(horse), *ʔəmɛr* (donkey) and *bək'olu* (mule) are also reported by the informants as land animals of the Zay.

Figure 18: Cattle around *Tsedecha* area

3.1.4 Traditional Zootheauptics

Informants were asked to name animals that are used for medicine in Zay. 11 animals and/or their parts are reported to be used in traditional medicine. Among these, aquatic animals constitute the highest number of animal parts and/or their product (36.3 %), followed by birds (27.2 %) used for fauna-based traditional medicinal practice in the Zay community (see Table 12). Furthermore, other animals that account (27.2 %) have been reported to be used in the traditional medicinal practice of the area.

The animal's body part or by-products like organ, flash, bile, bone etc., are used for the treatment of different kinds of human ailments including asthma, weakness, muscular pain, stomach ache etc., (see Table 12).

Table 13: Animals used for traditional medicine in Zay

Zay name of the animal	Parts used	Zoological name	Ailment treated	Mode of application
wəru (serpent)	fleshy meat	-	Ear ailment	-
təlum (a kind of fish)	fleshy meat	*Pomacanthus imperator*	Stomach ache (children)	-
bole (a kind of fish)	bile	*Pomacanthus imperator*	Asthma	-
minəʧ'i(fish)	the whole part	*Pomacanthus imperator*	Stomach ache	-
yɛrut unf (bat)	the whole part	-	Leaver disease	powder
ʤəntɛk'u(hen)	egg	*Gallus gallus domesticus*	Night blindness	-
ʧ'uləle(eagle)	leg bone		Breast swelling	powder of leg bone
lɛmi(cow)	meat	*Bos primigenius* bojanus	Anemia/weakness	raw meat eaten with spinach
nəhabi(bee)	honey	*Apis mellifica*	Several diseases	
təli(goat)	milk	*Capra aegagrus hircus*	Muscular pain	used as massage cream in muscular pain
səb(human being)	urine	Homo sapiens	Wound/cut	applied on the wound/fresh cut skin

3.1.5 Animal used for transportation

The Zay ethnolinguistic group uses animals specifically for the transportation of people and/or cargo. As there is no other means of transportation inside the island areas, the community has frequent use of animals. Due to the fact that other transportation options are limited and the animal species are already used for other reasons i.e. food; the community uses male animal as transport animal, and the female as dairy animal or meat animal. Animals for transportation include *fərəz* (horse), *ʔəmɛr* (donkey) and '*bəkolu*'(mule). According to the informants, donkey and horses have traditionally been used for pulling loads (see Fig. 19)

Figure 19: Horses are traditionally used for pulling load including firewood

3.1.6 Parts of animals used for different purposes

According to the informants, the community uses the skin of animals for agricultural purposes. The ox's and cow's skins are used in the Zay community for several purposes. The strap or rope that is made from the skin of an ox is used to attach wings and poles. The leather rope is also used for making a traditional bed, to tie holders of crop on the back of the animal (donkey and horse) that is used for transportation and tie the neck holder sticks. It is also a common practice in Zay to present a well prepared ox's leather for a bride of Zay to use it as a bedstead (see Table 13).

the Zay people use closed storage containers made of dung, often mixed with mud, which is known as*'təgugu'* for the storage of sorghum, maize, pulses, *t'ef* and peanuts. The storage containers have a capacity of containing about three quintal of crop. This traditional storage has an outlet opening called *ʔaysərk'u* (meaning: a thing would never steal) that is only unlocked by the man. Women of Zay are not allowed to unlock the storage and take crops for household consumption by themselves. If a wife unlocks and steals anything that is stored, she is automatically detached from that particular family. And the following song is to describe her as dishonest and squander.

yəɛy-bəl məslo ləkʼəmkʼəm
yəɛy-bəsu dərgəm

yəɛy-bəl məslo ləkʼəmkʼəm

'not- eat seem glean'

'Shy person like who seems never eats'

yəɛy-bəsu dərgəm

'waste-everything consume'

'But, consume and waste everything'

The following table shows also other utility of animals of Zay for the agricultural related purposes:

Table 14: utility of animal products and parts

Zay name of the object	Meaning	Part of animal	use
təgugu	storeroom	dung	grain container
yɛy	measuring device (bigger)	dung	measure 25 kg of crops
yɛygət	measuring device (medium)	dung	measure half of a *yɛy*, approximately 12.5 kg
ʔabəlkʼit	measuring device (smaller)	dung	measures half of a *yɛygət*, approximately 6 or 7 kg
kʼəlkʼəlɛ	grain container	skin of goat	a suck that contains about 50 Kg. It also serves as a measurement.
mɛs	bed	skin of ox	sleeping on
yohat kʼurkʼu	storage	cranium of ox	storage of weaving equipment
litʼo	storage	a dried beak of pelican	storage of weaving equipment

3.1.7 Endangered wild animals

Informants of the recent study reported that the Zay Islands were known for its diverse and varied wildlife. According to the informants, people from all over the country used to visit wild animals of Zay in order to watch, take pictures of, or hunt. However, the

situation has completely changed in the area now. It is six animals (see Table 14) listed by 16 participants of the recent study. The remaining participants, who account 33.4 %, are only able to list one or two wild animals.

According to the informants, wild animals of the area are hunted, slaughtered and sold for petty gains. Thus, the number of wild animals is very minimal in the area. There are also animal species among this few number who have been placed by the informants in the list of endangered creatures. The species are also suffering a population decline due to deforestation and habitat loss.

Table 15: Wild animals and extinction level

Zay name of the wild animal	**Zoological name**	**Level of extinction (as reported by informants)**	**Reason for extinction**
wərbɛ **(leopards)**	*Panthera pardus*	high	High mortality rate which results from inbreeding and deforestation
kumʃɛri **(monkey)**	*Pan troglodytes*	medium	Killed by inhabitants as they are a threat for crops in the farm
ʧɛnə wəru **(snake)**	*Elaphe obsoleta obsoleta*	-	-
yəmɛy wəstʼ tʼɛy **(meaning: a sheep of water)**	-	medium	Due to accidental catching with fish net that is trapped for fish
səs **(*hyraxes*)**	*Procaviidae*	medium	Due to habitat loss (forest destruction) and hunting.
yɛrut unəf **(*bat*)**	*Chiroptera*	medium	Some people believe the '*yɛrut unəf*' brings bad luck and kill the animal whenever they encounter it.

Among the endangered animal species of the study area, few of the fish species are reported to be endangered. This includes *bole* and *bɛrbo* (Barbus barbus). According to the informants, these resources are declining mainly because of overexploitation. Felegeselam (2003:33) also considered the lake as one of the main lakes that are over-exploited. He further explains the reason as: "the lake overexploitation may be

attributed to favorable infrastructure, its vicinity to the capital of the country that opens market availability and harboring fish, which is highly preferred by consumers". According to the informants, the resource scarcity mainly occurred due to high number of fishers and use of small mesh size, which captures juveniles and breeding stocks.

Almost all informants of the recent study (98%) have a worry on the declination of the resource. Therefore, it is quite advisable to take possible measures in order to save from harm the endangered fish resource of the area.

Chapter Four
Conclusion and Recommendations

4.1 Conclusion

The findings of the recent study indicate that The Zay ethnolinguistic group has wide range of utilization of plant life and animals for several purposes. The ethnobotanical section of the recent study indicates that the utilization of these plants for the top-ranked uses (medicine, construction and equipment) is linked with the daily life activities of the community and the complete termination of their usage is impossible. However, there is a possibility of termination mostly due to less interest of usage by members of the community and the scarcity occurred in plant life.

The area is relatively rich in plant diversity. The overall plant species identified and collected were 88 (12 from domestic plants and 76 from the wild plant, and both species were collected from the five islands of the Zay) of which 23 (26.1%) are medicinal plants. The Zay ethnolinguistic group has great utilization of plants and its interaction with plants is significant. From the listed plants by informants of the recent study, it is the medicinal plants (25.1%) that have the highest usage level. Among the 23 medicinal plants listed/collected, 7 species (28.17%) were from *Tsedecha*, where most of the Zay ethnolinguistic group is located. 6 (26.6%) from *Debre tseon*/*Tulugudo*, 4 (17.39%) from *Aysoot*, 3 (13.4%) from *DebereSina* and 3 (13.4%) from *Famat*. This finding shows that most plants of medicinal value (about 69.5 %) are harvested from the wild, while few of those (about 28.17%) are kept near the home. Although these plants were kept near homes and are used medicinally, they are not deliberately cultivated for medicinal value, but mainly for other purposes like shade, live fence, food, spice and others.

The community has also a culture of using plants for several purposes and day to day activities; this includes weaving, building of traditional boats, production of traditional fishnet, making of farming equipments, house construction, firewood and cleaning clothes. The community also uses aquatic and land plants for food. It is 13.6% of plants that are reported as food plant. The community uses six plants each for weaving equipment and house construction. It is reported and listed by informants that, 19 plants that account for 21.5 % have no significant use.

However, the influence of modernization is putting significant impact on the indigenous knowledge of the study area both in the knowledge of medicinal plants and other plants use. It is reported that expansion of business establishment and health institutions around the islands influenced the new generation to ignore traditional medicine. The new generation is not also interested in traditional knowledge.

The ethnozoology section of this study has also revealed a significant interaction between animals and the Zay community. There are variety of aquatic and arboreal bird species (13) on Zay islands, shoreline, and adjacent forests. The study has revealed momentous usage of animals for traditional medicine purpose. 11 animals and/or their parts are reported to be used in traditional medicine in the Zay ethnolinguistic group. Among these, aquatic animals constitute the highest number of animal parts and/or their product (36.3%), followed by birds (27.2%) used for fauna-based traditional medicinal practice in the Zay community. Furthermore, other animals, that accounts for 27.2% have been reported to be used in the traditional medicinal practice of the area.

Even though, the islands of Zay were known for its diverse and varied wildlife, it is only four animals listed by 16 participants of the recent study. The remaining participants, who account for 33.4%, are only able to list one or two wild animals.

The studied community has a practice of Zay-naming of plants and animals with a contextual meaning. However, linguistic analysis indicated that due to several factors, including the influence of the languages of the surrounding community, mostly Oromiffa and Amharic, a significant number of plants and animals are named in other languages. For instance, most of the listed medicinal plants (60.8%) are Oromiffa and Amharic named plants other than Zay. Still among the Zay named 9 plants, 3 (33.3%) are also listed by participants with Oromiffa names.

The cultural importance of these plant species is shown in the usage level and transmission of plant names and their associated use in the area. These plant species have the same use in both the traditional medicine and other utilities in the area; therefore, highly likely the continuous use of at least some aquatic food plant species helps the community in the transmission of knowledge of these plants since long time. Consequently, this study provides an evidence for plant use of the area. It also provides some hints to better understand the plant knowledge and the oral transmission of knowledge in the area. Overall, this study offers an opportunity to document the plant and animal interaction of the community under study.

4.2 Recommendations

- The utilization of plants for several purposes is linked to the daily activities of the community. However, due to deforestation, there are several plants reported to be endangered. In order to have a sustainable utilization of these plants, the best practical solution is to launch conservation measures. This could be done by encouraging the plantation of other trees (non-medicinal plants) using agro-forestry practices in degraded areas. This would help to reduce the pressure on these medicinal plants considerably. In Cunninghum (1992), it is suggested that

natural resources could be utilized best in sustainable ways if management practices are complete. This includes the management of natural resources such as land, water, soil, plants and animals, with a particular focus on how the way they manage affects the quality of life for both present and future generations. In fact such valuable activities require appropriate action, and changes by the full range of societies and stakeholders involved in the conservation, production and management, and use of medicinal plants and their derivatives.

- There are wild animals and fish species reported to be endangered. Thus, serious attention needs to be given. Particularly, to protect the endangered fish species, drastic measures need to be taken that help these animals from vanishing. If proper measures are not taken in a timely manner, most of the animals mentioned would be wiped off in a matter of few decades.

- There are significant numbers of Amharic and Oromiffa named plants and animals in the language of Zay. This shows that the Zay language in general is endangered. As Endeshaw (2010:11) indicated, it is due to the excessive influence of the surrounding Cushitic and Semitic-speaking peoples. Therefore, it is recommended to perform more language revitalization work including broadcasting of community radio in Zay.

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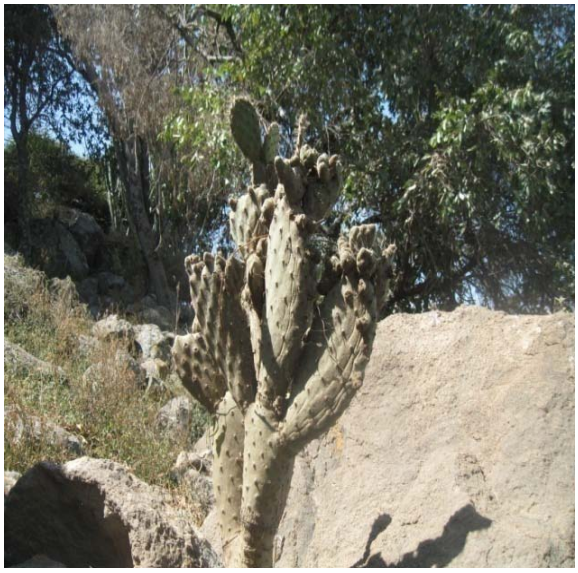
Appendix 1: Plant name and brief descriptions

(P 01) *tungolu (Aeschynomene elaphroxylon.)*

It is a tree that has yellow flowers and mostly found closer to a lake area.



(P 02) *ʔak'ulk'uɛli (Opuntia ficus-indica)*

It is herb alternatively known as *bələs.* Informants disclose no use of the herbs.

(P 03) *t'oy (Grewa sp.)*

This tree is believed to have a strong wood. It is used to make plough and firewood.

(P 04) unnamed

It is a tree that is unnamed; thus its usage is not listed by informants of this study.

(P 05) *yəʧɛnwəru k'ət'ɛ*

It is a shrub that is called fruit of the snake. No use of this plant is indicated by participants

(P 06) *kɨtkəta (Dodonaea angustifolia)*

It is a shrub with a red fruit. The shrub has same name also in Amharic

(P 07) *ʔaʧ'nɛk'osu (Barleria eranthemoides)*

It is a climber with thorn and pink leaves.

(P 08) *ʔambulɛlɛ (Commicarpus plumbagineus)*

It is a deciduous climber used as a medicinal plant. Its leaves is used to cure stomach-ache

(P 09) *k'ənt'əfa (Ziziphus hamur Engl.)*

It is thorny climber plant. The plant is used as a fence.

(P 10) *bah ir zaf (Eucalyptus citriodora Hook.)*

It is a tree plant that is used for firewood, shade and making of agricultural equipment

(P 11) *t'ɛt'əsɛ (Syzigium guineense)*

It is a tree used for firewood and charcoal. The name *t'ɛt'əsɛ* is given for the plant after its *t'at'a* sound during burn.

(P 12) *wɛnt'ɛ (Cordia abyssinica)*

It is a tree plant used for several purposes including firewood, house building, making of agricultural equipment and shade

(P 13) unnamed (*Capparis sp.)*

It is a shrub which has green leaves. As it is unnamed the use is not described by the informants of this study

(P 14) *ʔambɛʃʃ' ərɛrɛ (Heliotropium cinerascens*

It is herb plant which uses are not indicated by the informants

(P 15) *gəbərirɛ (Sphaeranthus ukambesis gbsn)*

It is a shrub plant that has strong wood. It is used for firewood, house building, making of agricultural equipment and shade

(P 16) *rəgi (Senna sp.)*

It is an evergreen herb used as detergent.

(P 17) *əngəb (Euphorbia tirucalli L.)*

It is a herb that has multiple trunks which support succulent, thick branches with tiny leaves that shed early and easily. The use of this plant is not described by the informants

(P 18) *sɨlɨbo (Solanum sp.)*

It is a shrub plant that is used for medicinal purpose. The watery part of the fruit of *sɨlɨbo* used to cure tonsillitis

(P 19) *bik'ɛ (Aristolochia bracteata)*

It is a tree plant that has red wood. The plant is used as firewood and shade

(P 20) *Iɛm ɛymət'ubɛ (Solanum incanum L.)*

It is a shrub which has green leaves and white flowers. No use was mentioned by the informants

(P 21) unnamed (*Senna sp.)*

It is a shrub with yellow flower. No use hence no name

(P 22) *t'ɨt' (Gossypium hirsutum)*

It is a shrub plant used for making of traditional cloth.

(P 23) *ʔirɛ*
It is a deciduous tree plant used to cure sunburn.

(P 24) *neem (Melia azedarach).*

It is a deciduous tree that is used for pest control.

(P 25) *unnamed (Capparis tomentosa Lam.)*

It is a climber plant with yellow flower. It is not known by the informant's hens the utility also not indicated.

(P 26) *yəwəf k'olo (Sida sp.)*

It is a deciduous herb plant with yellow flower.

(P 27) unnamed (*Peristrophe paniculata)*

It is a deciduous climber plant and utilization not indicated by the informants

(P 28) *ombɛ (Ipomea sp.)*

It is a deciduous shrub with brown fruit. Used for tying things together.

(P 29) *papaya (Carica papaya L.)*

It is a deciduous plant with spherical or cylindrical shape edible fruit.

(P 30) *aməkela (Argemone mexicana L.)*

It is a self-fertile herb with yellow juice and showy yellow flowersthat is used to treat headache.

(P 31) *umuga (Justicia schimperiana.)*

It is a herb plant. Used as tying of partition of house and grain storage.

(P 32) *k'oyusut (Hyparrhenia rufa)*

It is a species of grass and it is widespread in the lake area. It is used as fodder for livestock

(P 33) *unnamed (Senna didymobotrya)* It is leafy branched plant with inflorescences. Used as a medicinal plant for the treatment of abdominal pains.

(P 34) *rəʧi (Vernonia sp.)*

It is a deciduous shrub with purple like flower seen growing along the lake area.

(P 35) *ʧɛləgədɛ*

It is a shrub used for making of pipe that is used for spinning. It also acts as a bobbin for the thread to spool around.

(P 36) *ʔawɛrə (Cyperus sp.)*

It is a shrub used to make a shade

(P 37) *ərəbit (Nymphaea sp)*

It is a climbing plant. Its root is used as a food

(P 38) *ʔaləʃit(Ipomea sp.)*

It is a flowering climber plant used for ornament.

(P 39) *ururʧʼəlɛ(Hibiscus sp.)*

It is a shrub with yellow flower. It is used for making of traditional fishnet

(P 40) *ɬɛrəsu*

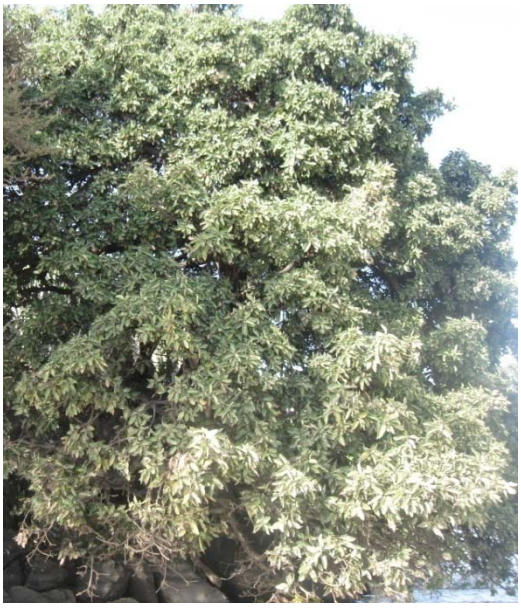
It is a tree plant that is used as a shade and firewood.

(P 41) *ʧ'əlɛ(Cyprus papyrus)*

It is aquatic plant used for ground ornament during a holiday.

(P 42) *zəmbi*

It is evergreen tree that has edible fruit.



(P 43) *subəlɛ (Ficus sp)*

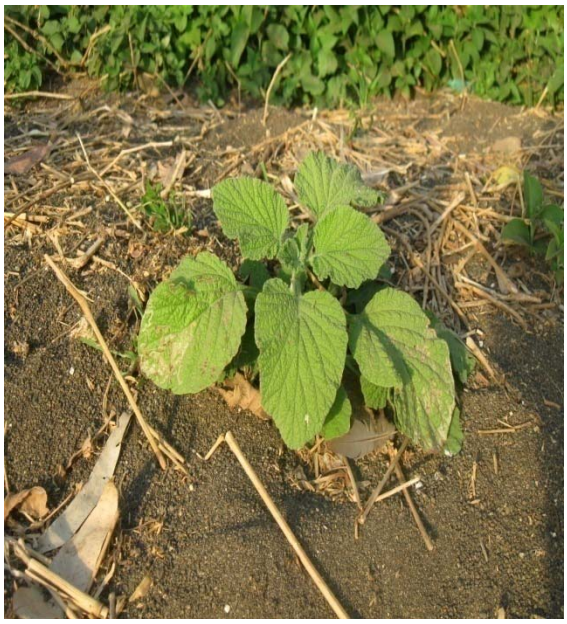
It is a deciduous tree used as food (fruit). It is also used as a shade during the traditional reconciliation

(P 44) *eməbilɛ (Typha sp.)*

It is a shrub with white flower. It is used for making of traditional boat.

(P 45) unnamed

It is a deciduous shrub. It is unnamed and its utility is not described.



(P 46) unnamed *(Lamiaceal)*

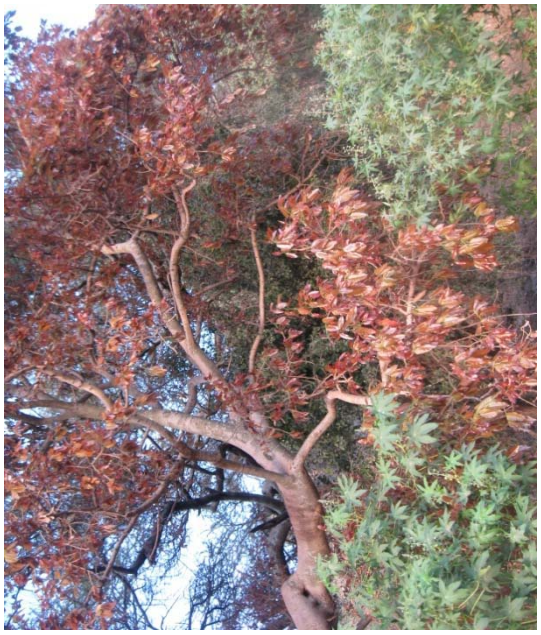
It is a deciduous shrub. It is unnamed and its utility is not described.

P 47 *ʔalәbәyәtu (Urtica simensis)*

It is a non-branched, wild-growing nettle shrub plant. No use of this plant indicated.

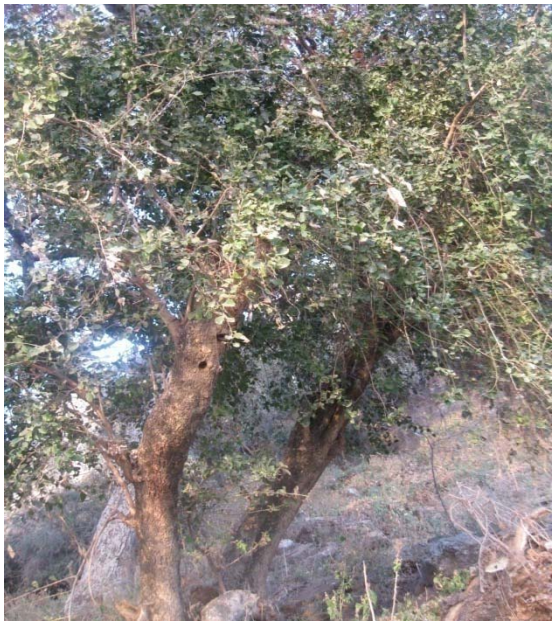
P 48 *k'obo (Ricinus communis)*

It is a deciduous shrub used to treat head wound.



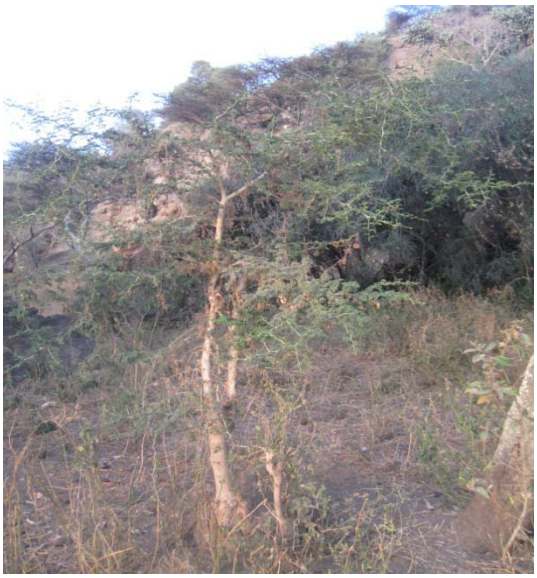
P 49 *zəməbi*

It is a tree with brown leaves. It is used for, firewood and food (fruit)



P 50 *kom əbolʧʼɛ*

It is a deciduous tree used as shade and firewood



P 51 *kəʤi (acacia-disambiguation)*

It is a thorn tree used for firewood and making of shade

P 52 unnamed

It is aquatic plant which utility is not known.

(P53) *ʧ'at (Catha edulis)*

It is a green flowering plant that is a stimulant drug derived from a shrub

(P54) *lomi* zɛf *(Citrus limon)*

It is a tree with glossy leaves and spiky branches that is widely cultivated to produce lemons

Appendix 2: Aquatic animals in the area of Zay ethnolinguistic group

F.1 k'orosi (Tilapia)

One of the "indigenous" fish of the study area of the cichlid family, introduced and cultivated in the area long ago

F.2 garebə, Crucian carp (Caracius caracius)

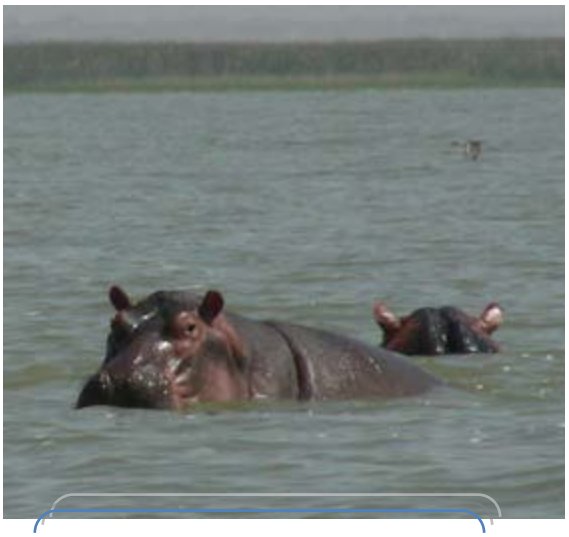
One of the "non-indigenous" fish of the study area

F.3 dụbə

One of the "non-indigenous" fish of the study area

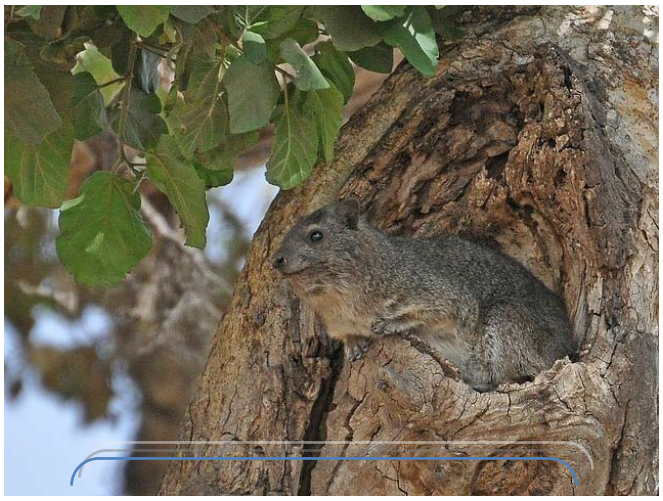
F.3 ambaza catfish'(Clarias gariepinus),

One of the "non-indigenous" fish of the study area



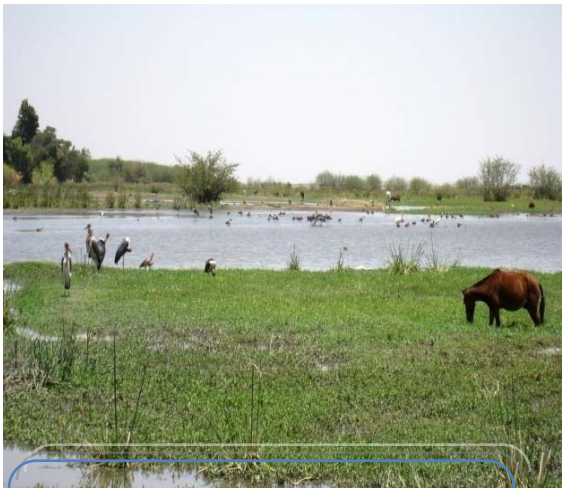
Aqa.1
gu̱mɛri (hippopotamuses)

Appendix 3: Terrestrial animals



***Ter.1 osələy* (Hyraxes)**

It is one of the wild animals in the island usually find at the entrance to holes in large trees



***Ter.2 fərəz* (horse)**

A saddle horse is also use for transportation

***Ter.3 emɛr* (donkey)**

A donkey is used for transportation of agricultural products for the Islands to Ziway

***Ter.4 t'ɛy* (sheep)**

It is a domestic animal used for food

***Ter.5 lɛm* (cow)**

Used for milk production and its skin is used as a bed

***Ter.6 bərɛ* (bull)**

It is used for plough and as a food (meat)

Appendix 4: Birds of the area of Zay

B1: *kaβiri* (*Accipitridae*)

It is a large bird of prey with a hooked beak and broad wingspan that hunts by day

B2: *səbɛkokɲ* (*Haliaeetus vocifer)*

It is a large species of eagle that is found in the lake

B3: *ʧɔːrɔːt*

It is a large bird with a long neck, long legs, and a curved beak that lives near water in hot countries

B4: *abakɔːda* (*Leptoptilos crumeniferus)*

It is a large stork that has dark gray feathers and a short naked neck with a pink pouch at the front

B5: Unknown*(Threskiornithidae)*

It is a wading bird with exquisite combination of radiantly white

B6: unknown (*Ardeidae)*

It is a small, white heron that produces long drooping ornamental feathers on the lower part of the back at the start of the breeding season.

B7: Unnamed

Scopus umbretta

It is a large brown wading bird with a prominent crest on the back of its head.

B8: *gegenʊ* (*Leptoptilos crumeniferus)*

It is a large stork that has dark gray feathers and a short naked neck with a pink pouch at the front

Appendix 4: interview guides

Interview guide, ethnobotanical section

I. <u>Demographic Information</u>

1. Sex

1.1) Male 1.2) Female

2. Age

2.1) 14-17 2.2) 18-30 2.3) 31-45 2.4) above 46

3. Occupation

3.1) Farmer 3.2) fishery 3.3) weaving

3.4) Student 3.5) retired 3.6) others, please specify ……..

4. Educational level

4.1) Elementary school 4.2) High school 4.3) diplomas 4.4) First degree

4.5) No formal education

5. Place of birth

5.1) Debre tsion/Tullu guddo 5.2) Tsedecha 5.3)Famat/Funduro 5.4) Gelila 5.5)Debre sina 5.6) Ziway

6. Place of residence

6.1) Debre tsion/Tullu guddo 6.2) Tsedecha 6.3)Famat/Funduro 6.4)Gelila 6.5)Debre sina 6.6) Ziway

7. What is your first language?

7.1) Zay7.2) Amharic 7.3) Oromiffa

8. If you are a Zay speaker which other languages do you speak and understand?

8.1) Amharic 8.2) Oromiffa 8.3) both

9) Religion

9.1) Orthodox 9.2) Muslim 9.3) protestant 9.4) others, please specify ……

II. <u>Botanical knowledge</u>

1. List and identify plants that are used for several purposes?
2. Can you mention the medicinal plants you use namely?
3. For how long you have worked as a traditional Hiller?
4. How do you get the knowledge of the traditional medicine?
5. Who are your customers of traditional medicine?
6. To what type of diseases are the medicines used?

7. How do you name your medicinal plant?
8. From where do you get the medicinal plants
9. Why do you think people are using medicinal plants rather than using modern medicine?
10. Are you willing in sharing of your knowledge to others, like to members of your family?
11. If you are willing in sharing the knowledge, in which way are you willing to share? Is it in oral form or in written form?
12. Do you think all plants you have mentioned are available sufficiently? If not why not?
13. Which plants are mainly in scarce? Why?
14. Do you think the tendency of usage of traditional knowledge of plant declining this time?

Interview guide, ethnozoological section of the study

III. Demographic Information

1. Sex

1.1) Male 1.2) Female

2. Age

2.1) 14-17 2.2) 18-30 2.3) 31-45 2.4) above 46

3. Occupation

3.1) Farmer 3.2) fishery 3.3) weaving

3.4) Student 3.5) retired 3.6) others, please specify ……..

4. Educational level

4.1) Elementary school 4.2) High school 4.3) diplomas 4.4) First degree

4.5) No formal education

5. Place of birth

5.1) Debre tsion/Tullu guddo 5.2) Tsedecha 5.3)Famat/Funduro 5.4) Gelila 5.5)Debre sina 5.6) Ziway

6. Place of residence

6.1) Debre tsion/Tullu guddo 6.2) Tsedecha 6.3)Famat/Funduro 6.4)Gelila 6.5)Debre sina 6.6) Ziway

7. What is your first language?

7.1) Zay7.2) Amharic 7.3) Oromiffa

8. If you are a Zay speaker which other languages do you speak and understand?

8.1) Amharic 8.2) Oromiffa 8.3) both

9) Religion

9.1) Orthodox 9.2) Muslim 9.3) protestant 9.4) others, please specify ……

IV. Zoological knowledge

1. Please talk about name of terrestrial animals of the area?
2. Please mention the use of terrestrial animals for different purposes?
3. Please mention names of aquatic animals of the area?
4. Please list the use of aquatic animals for different purposes?
5. Can you namely mention animals that are used for medicine?
6. Which parts of the animals are used for medicinal purpose?
7. Who is your source of knowledge of animal utility?
8. To what type of diseases are the animals used?

9. Please mention animals that have only Zay name
10. Please mention animals that have Amharic or Oromo name
11. Are you willing to share your zoological knowledge to others, like to members of your family?
12. If you are willing to share the knowledge, in which way you are interested to share? Is it in oral form or in written form?
13. Do you think all animals you have listed are available sufficiently? If not why not?
14. Please list names of wild animals of the area.
15. Which domestic and wild animals are mainly in scarce? Why?
16. Do you think the tendency of usage of traditional knowledge of animals by members of the community declining this time?