

Full Length Research Paper

Knowledge and attitude of peasants towards birds in church forests in Tigray region, Northern Ethiopia

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Residents who have lived in the same area for extended periods can provide valuable insights into changes that have taken place in the diversity and abundance of local wildlife. Birds are among the best known parts of the earth's biodiversity. This study was conducted in three selected church forests located in different agroclimate zones ("Kola", "Weyna Dega" and "Dega") in Tigray region, Northern Ethiopia to investigate the peasant's knowledge and attitude towards birds of Endakidanemeheret, Michael and Giorgis church forests in Tigray Region, Northern Ethiopia. Data collection was carried out between November 2011 and March 2012 using questionnaires' that contains both open and closed ended questions regarding their knowledge and attitudes of peasants on birds. The knowledge and attitude of local people living in and around the church forests towards the birds conservation varies from one church forest to the other church forests. The respondents of the residents of the three church forests indicated that birds were the dominant animals in the three church forests and almost all of them do not know the ecological significance of birds in the church forests. Finally, the respondents discussed that they will actively participate with the concerned bodies towards the conservation of birds.

Key words: Birds, Church forests, interview, Kola, peasants, Plants, Weyna Dega.

INTRODUCTION

Diversity can be defined as the variability among living organisms from all sources and the ecological systems of which they are apart; this includes compositional, structural and functional diversity at regional-landscape, ecosystem-community, species-population or genetic level (Gove et al., 1994). Ethiopia is one of the world's rich biodiversity countries and it deserves attention regionally and globally. It has a very diverse set of ecosystems ranging from humid forest and extensive wetlands to the desert of the Afar depression. This is due to the variation in climate, topography and vegetation. The diversity of the Ethiopian fauna is high owing to diverse climate,

vegetation and terrain. In terms of avifauna, Ethiopia is one of the most significant countries in mainland Africa and its diverse habitat types definitely contribute for the tremendously diverse avifauna. Studies by Shimelis and Dellelegn (2004) indicated that the occurrence of 860 species of birds in Ethiopia taxonomically grouped into 27 orders and 155 families. Out of those total species, at least 596 are resident and 224 are regular seasonal migrants, including 176 from the Pale arctic, 23 species are endemic to Ethiopia and a further 13 are shared only with Eritrea (Tilahun et al., 1996). In general, the birds of Ethiopia are grouped into three biome assemblage, the

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Afro tropical Highland Biome Species (it holds about 48 species of birds including 7 endemic birds), the Somali-Massai Biome Species (the richest biome in its species variety and holds over 97 bird species of which 6 are endemic) and The Sudan-Guinea Savannah Biome Species (though the area is poorly known biologically, it holds about 16 species of birds, Gambella is the richest area for this biome).

About 214 palarearctic migrants are also recorded from Ethiopia, of these, a large number of them have breeding populations in the country (Jeffery et al., 2004). However, the growing threats have made destruction of their habitats and extinction of the species itself. Accordingly, these days, the threatened bird fauna of Ethiopia are categorized as critical (2 species), endangered (5 species including 4 endemics), vulnerable (12 species) and near threatened (14 species with 2 endemics) (Collar et al., 1994) and NWNHS (1996). In general, 32 bird species are 'globally threatened'. Of these, no fewer than ten are Palearctic migrants.

Birds and church forests

Church forests are among the last places where Ethiopia's endangered native plant species have been left untouched (Sibanda, 1997). They provide important ecosystem services to local people, including fresh water, pollinators, honey, shade and spiritual value. There are an estimated 35,000 church forests in Ethiopia, most of which are located in the north of the country. Their size ranges from a few areas to 300 ha. For 1500 years, Ethiopian churches have protected these forests as recreations of the Garden of Eden, but today these forests are vanishing rapidly; with some estimates predicting their complete disappearance within 5 years (Sengupta and Dalwani, 2008). The plants are patched in churches and those churches possess many indigenous plant species, which are resources of great actual and potential local, national, regional and global importance. Church forests comprise local as well as global "hotspots" as critical conservation areas for a large portion of Ethiopia's remaining biodiversity. The ecosystems of Ethiopia are degrading rapidly due to human activities. Even though these ecosystems remain vastly understudied, vegetation surveys indicate that "church forests" house a large proportion of the endangered plant species of Ethiopia and have become priceless local, as well as global, "hotspots" or critical conservation areas for a large portion of Ethiopia's remaining biodiversity. Its ecology is vastly understudied and also degrading rapidly due to human activities. Much of the natural landscape has been cleared for agriculture, with one notable exception: the sacred landscapes surrounding churches. These church forests comprise local as well as global "hotspots" as critical conservation areas for a large portion of Ethiopia's remaining biodiversity (Clout and Hay, 1989). Church forests provide important

ecosystem services to local people, including fresh water, pollinators, honey, shade and spiritual value.

An increase in complexity of vegetation structure, floristic composition and heterogeneity can increase niche diversity of birds and vice versa (Leito et al., 2006). Both natural and human induced disturbances such as floods, drought, deforestation change in land use, natural resources and seasonal climatic changes affect vegetation and bird community structures.

Bird conservation in Ethiopia

Ethiopia has diverse and endemic wildlife species and unique ecosystems. The economic and environmental values of Ethiopia's biological diversity for the nation and the world at large are well recognized by the Federal Government of Ethiopia (Hillman, 1993; Leykun, 2000). The Ethiopian government has given due attention to biodiversity conservation and environmental protection through issuance of policies and strategies [Environmental Protection Authority (EPA, 1997)]. At macro level, the relevant government institutions that are related to the management and development of wildlife conservation are the Ministry of Agriculture and Rural Development, Institute of Biodiversity Conservation (IBC), Ethiopian Wildlife Development and Conservation Authority (EWDCA) and the Environmental Protection Authority (EPA). Recently, the government has declared a Wildlife Policy and has been endorsed to strengthen the sector with clear vision and to lead the wildlife development sector more appropriately in the country (Feyera Senbeta and Fekedu Tefera, 2001). The value of conserving the biodiversity is not only to maintain the diversity and integrity of the biological resources, but their benefit and services play important roles to sustain life and to meet the basic needs of all human kind. To conserve these diverse and important biological resources, 9 National Parks, 11 Wildlife Reserves, 3 Sanctuaries and 18 Controlled Hunting Areas have been established as refuge (Hillman, 1993). These protected areas represent only a small fraction of the total land mass (about 2% of the total area of the country) and represent only a few of the diverse ecosystems of the country.

In Ethiopia, 73 hot spots have been identified as important bird areas (IBAs). Of these, 30 sites (41% of the total) comprise wetlands, while the rest are representatives of other types of ecosystems. Nationally, Ethiopian IBA sites have been grouped into three conservation categories based on distribution and abundance as critical (19), urgent (23) and high (31) (Mengistu, 2003). In Ethiopia, the various ecosystems of high biological importance are threatened and need strong conservation action supported by undesirable plant species following flooding, shrinkage of lakes and wetlands due to industrial and agricultural development, the expansion of seasonal cultivation, and the negative attitude of people in

some areas towards birds particularly Cranes and Goose for the damage they cause to crops and burning to control long grasses. The birds are telling us that our current practices on agriculture, forestry, fishery, water management are not sustainable for the environment and biodiversity. Therefore, dramatic change in outlook and policy to reverse this dramatic change in countryside is required (Mengistu Wondafrash, 2003). Even though avian have a number of significant roles their life is threatened from time to time due to different factors (Fjeidsa, 1999). Some of the factors are deforestation, commercial logging, subsistent farming, plantation and mining. A decline in the quality of habitat through grazing by livestock and agricultural intensification leads to loss of habitats. In order to sustain the livelihood of avian, these habitats should be managed and protected.

Although, the government of Ethiopian wild life tried to conserve the Aves in the national parks and important bird areas, but no one considers conserving birds in the church forests of Ethiopia.

Birds and tourism in Ethiopia

Tourism involves the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes. It is the largest and fastest growing industry, which has the best possibility for generating many new, jobs worldwide (Rannersmann, 2003). It is also a featured component of Ethiopia's poverty reduction strategy that aims to combat poverty and encourage economic development. According to the World Tourism Organization (UNWTO, 2007), there were 846 million international tourist arrivals in 2006 only, which showed an increase of 5.4% over the previous year. The tourism potential of Ethiopia is diversified: natural attractions that include some of the highest and lowest places in Africa along with immense wild life including some endemic ones; a very old and well preserved historical traditions with fascinating stelae, churches and castles to witness that, an attractive cultural diversity of about 80 nations and nationalities; and various ceremonies and rituals of the Ethiopian Orthodox Church which open a window on the authentic world of the Old Testament (Minagawa and Tanaka, 1999). In Ethiopia, it accounts for 5.5% of the countries gross and government is proving its commitment and willingness to develop tourism through a number of initiatives. Ethiopia can without doubt be labeled a bird watcher's paradise where you can spot birds found nowhere else in the world. There are over 850 recorded bird species in this stunning country. What really sets Ethiopia apart is that it is home to more than 20 endemic species, the beautiful Bale mountains host 16 of these endemics and the Awash National Park is home to 6 of these endemics.

Senait Ethiopia tours is based in Ethiopia Organized by tourism professionals works on tourism related activities

mostly on ecotourism for the benefit of the local community in order to conserve the environment for the sustainable tourism of the country and provides services. In recent years, Ethiopia has rightly become one of Africa's leading birding destinations. Its avifauna represents an interesting mixture of east and West African, Pale arctic and some strikingly unusual endemic components. No other aspects of Ethiopia's Biology characterize its unique situation more than does its bird fauna. Ethiopia's position, an extensive highland-island surrounded by arid lands, has enabled the evolution of many birds in the region into unique forms and species. It benefits from the incredible variety and abundance of African bird life as well as the presence of species which have migrated from Europe. Broadly speaking, Ethiopia can be divided into a number of habitats with respect to bird life the Rift Valley lakes, the highland massifs, the lowlands and the arid semi- deserts. Each of these is in turn a complex mosaic of terrain, soils, vegetation, and human use, all of which govern the avifauna found there. Most bird watching itineraries are in the south of the country an itinerary in search of all of Ethiopia's endemic birds would take in Debre Libanos, north of Addis Ababa, the Jemma River valley, the escarpment north west of Addis Ababa, around Debre Berhan and Ankober and the descent to Melka Jedbu, the Awash National Park, the Rift Valley Lakes, Wondo Genet, Bale and the road south through the Haremma forest to Negele, the area near the border with Somalia near Bogol Manyo, west from there to Yabello, Konso and Fejej and Nech Sar National Park. Although, birds are the backbone of the Ethiopian tourism that attracts a lot of tourist's day today, but no one considers them in the church forests.

With all these potential advantages aforementioned, understanding the local resident's knowledge and attitude to birds is paramount importance in bird management and conservation. To this end, this research was conducted to assess the knowledge and attitude of peasant towards birds in church forest.

MATERIAL AND METHODS

STUDY AREA

The study was conducted in three church forests of Tigray region, namely: Endakidanemeheret church forest (in Abergelle, Central Zone) (13° 28' 02" N, 39° 10' 33" E, 1600 m a.s.l.), Michael church forest (in Hagereselam, South Eastern Zone) (11° 18' 12" N, 14° 11' 25" E, 2100 m a.s.l.) and Giorgis church forest (in Korem, Southern Zone) (13° 08' 07" N, 23° 20' 23" E, 2600 m a.s.l.) (Figure 1). Each of the church forests was intended to represent three different altitudinal ranges, lowland, mid-altitude and high-altitude. Purposive selection of these church forests was made based on information obtained from reconnaissance survey as there was no previous research conducted in the region in this regard. Endakidanemeheret church forest has an area of approximately 22500 m² with a red soil. The type of forest in this church is characterized by sparse forest trees including shrubs. The dominant tree in this church forest is *Euphorbia tirucalli*. The main rainy season runs from June



Figure 1. Map of Ethiopia (top right), map of Tigray (lower left) with the study sites (Google map).

to September but there is a considerable variation from year to year. The average annual rainfall in this church forest is 580 mm. The maximum and minimum average temperature is 26.72 and 19.1°C, respectively (National Meteorological Agency, 2012). This church forest is surrounded by agricultural fields. Michael church forest has an area of approximately 75000 m² with a black clay soil. The type of forest in this church is characterized by sparse forest trees including shrubs. The dominant tree in this church forest is *Euphorbia abyssinica*. The main rainy season runs from June to September but there is a considerable variation from year to year. The average annual rainfall in this church forest is 762 mm. The maximum and minimum average temperature is 17.16 and 7.42°C, respectively (National Meteorological Agency, 2012). This church forest is surrounded by agricultural fields in the west, east and north directions but forest of its south wards. Giorgis church forest has an area of approximately 75000 m² with a black soil. The type of forest in this church is characterized by highly dense forest trees including shrubs. The dominant tree in this church forest is *Juniperus procera*. The main rainy season runs from June to September but there is a considerable variation from year to year. The average annual rainfall in this church forest is 889 mm. The maximum and minimum average temperature is 18.26 and 3.64°C, respectively (National Meteorological Agency, 2012). This church forest is surrounded by agricultural fields in the west and forest of south, north and east directions. Within these agricultural fields, there is a waste disposal site.

RESULTS AND DISCUSSION

Plant composition

Giorgis church forest (Korem)

Ten (10) plant species belongs to 7 families and 9 orders which are utilized by the birds for roosting, nesting and foraging purposes were identified in Giorgis (Korem) church forest (Dega agroclimate) during the study period (Table 1). Of the recorded species, plants belongs to family Cupressaceae were highly diverse.

Michael church forest (Hagereselam)

Seven (7) plant species belongs to 6 families and 6 orders which are utilized by the birds for roosting, nesting and foraging purposes were identified in Michael (Hagereselam) church forest (Weyna Dega agroclimate) during the study period (Table 2). Of the recorded species, plants belong to family oaceaceae and euphorbiaceae were highly diverse.

Table 1. List of plant species identified in Giorgis church forest utilized by birds for nesting, roosting and foraging purposes.

Common name	Classification of the species		
	Scientific name	Family	Order
Awlie	<i>Olea europaea L.</i>	Oleaceae	Scrophulariales
Beles	<i>Ficus palmata Forssk.</i>	Moraceae	Urticales
Chia	<i>Acacia sieberiana</i>	Fabaceae	Fabales
Da'ero	<i>Ficus vasta Forssk.</i>	Moraceae	Rosales
Egam/Agam	<i>Carissa spinarum L.</i>	Apocynaceae	Gentianales
Bahrizaf	<i>Eucalyptus globulus</i>	Euphorbiaceae	Malpighiales
Kebkeb	<i>Maytenus senegalensis</i>	Celastraceae	Celastrales
Kulkhual	<i>Euphorbia abyssinica Gmel.</i>	Euphorbiaceae	Sapindales
Mebti'e	<i>Acokanthera schimperii</i>	Apocynaceae	Gentianales
Tsihdi Habesha	<i>Juniperus procera</i>	Cupressaceae	Pinales

Table 2. List of plant species identified in Michael church forest utilized by birds for nesting, roosting and foraging purposes.

Common name	Classification of the species		
	Scientific name	Family	Order
Awhi	<i>Cordia africana Lam.</i>	Boraginaceae	Sapindales
Awlie	<i>Olea europaea L.</i>	Oleaceae	Scrophulariales
Bahrizaf	<i>Eucalyptus globulus</i>	Euphorbiaceae	Malpighiales
Kebkeb	<i>Maytenus senegalensis</i>	Celastraceae	Celastrales
Kulkhual	<i>Euphorbia abyssinica Gmel.</i>	Euphorbiaceae	Sapindales
Metere	<i>Buddleja polystachya Fresen.</i>	Loganiaceae	Lamiales
Tsihdi Habesha	<i>Juniperus procera</i>	Cupressaceae	Pinales

Endakidanemeheret church forest (Abergelle)

Eight (8) plant species belongs to 5 families and 6 orders which are utilized by the birds for roosting, nesting and foraging purposes were identified in Endakidanemeheret (Abergelle) church forest (Kola agroclimate) during the study period (Table 3). Of the recorded species, plants belongs to family flacourtiaceae were highly diverse.

Response of interviews (KAP) of local people

Birds in the church forests

Giorgis church forest (Korem): Of the 40 questionnaires distributed, 87.5% of the respondents believed that birds were among the existing animals in this church forest. From the respondent's point of view, birds are the dominant animals. Birds were very significant for pollination (50%), seed dispersal (25%) and food (12.5%) but some of the respondents (12.5%) do not know the benefits of birds in this church forest. The respondents provided an answer that people living around the church forest were suffered due to the presence of birds in this

church forest being as predation on chicken (80%), as pest in the field crop (15%) and as pest in the house (7.5%). Most of the respondents (62.5%) respond that francolin is the edible animal present in this church forest. The local people (40%) strongly agree that birds were the important animal groups but others (60%) disagree on the benefits of birds. The majority (62.5%) of questionnaire respondents were reported that birds feed on fruits and unsure (12.5%). 52.5% of the respondents respond that birds eat crop from the church forests but some of them (5%) reported that they do not eat crops. As a result of this, most of the respondents of the questionnaire (45%) respond that farmers complain their crop are damaged by birds.

From the daily observations of the respondents (80%), church forests were used by birds for food, reproduction, shelter and roosting purposes. Out of the total respondents of the questionnaire, most of them (95%) report that the number of birds increased from time to time starting from the last five years but some of them (5%) do not know the status of birds.

Michael church forest (Hagereslam): Of the 40

Table 3. List of plant species identified in Endakidanemeheret church forest utilized by birds for nesting, roosting and foraging purposes.

Common name	Classification of the species		
	Scientific name	Family	Order
Chia	<i>Acacia sieberiana</i>	Fabaceae	Fabales
Egam	<i>Carissa spinarum</i> L.	Apocynaceae	Gentianales
Bahrizaf	<i>Eucalyptus globulus</i>	Euphorbiaceae	Malpighiales
Giba	<i>Zizipus spina-christi</i>	Flacourtiaceae	Rosales
Kenteftefe	<i>Pterolobium stellatum</i>	Fabaceae	Fabales
Kinchib	<i>Euphorbia tirucalli</i>	Flacourtiaceae	Violales
Kulkhual	<i>Euphorbia abyssinica</i> Gmel.	Euphorbiaceae	Sapindales
Seraw	<i>Acacia etbaica</i> Schweinf.	Fabaceae	Fabales

questionnaires distributed, 72.5% the respondents believed that birds are among the existing animals. From the respondent's point of view, birds are the dominant animals in the church forests. Birds are very significant for pollination (37.5%), seed dispersal (20%) and food (5%) but other respondents (22.5%) do not know the benefits of birds in the church forests. The respondents provided an answer that people living around this church forest were suffered due to the presence of birds being as predation on chicken (70%), as pest in the field crop (25%) and as pest in the house (5%). Most of the respondents (90%) respond that francolin is the edible animal present in the church forest. The local people (37.5%) strongly agree that birds were the important animal groups but some of them (87.5%) disagree on the benefits of birds. The majority (27.5%) of questionnaire respondents were reported that birds feed on fruits, on crops (22.5%), flowers (12.5%) and unsure (17.5%). 60% of the respondents respond that birds eat crop from the church forests but others (27.5%) reported that they do not eat crops.

As a result of this, most of the respondents of the questionnaire (12.5%) respond that farmers complain their crop damage by birds. From the daily observations of the respondents (32.5%), church forest was used by birds for food (43.5%), reproduction (15%), shelter and roosting (42.5%) purposes. Out of the total respondents of the questionnaire, majority of them (92.5%) report that they do not know whether the number of birds increased or not from time to time.

Endakidanemeheret church forest (Abergelle): Of the 40 questionnaires distributed, the respondents report that the presence of hayna (7.5%), birds (80%) and monkey (5%) were among the existing animals. From the respondent's point of view, birds are the dominant animals in the church forests. They believed that birds were very significant for pollination (45%), seed dispersal (50%) and food (5%); but some of the respondents (2.5%) unsure the benefits of birds in the church forest. The respondents provided an answer that people living around the

church forest were suffered due to the presence of birds being as predation on chicken (50%), as pest in the field crop (25%) and as pest in the house (10%). Most of respondents (95%) respond that francolin is the only edible animal present in the church forest. The local people (25%) strongly agree and agree (75%) that birds were the important animal groups. The majority (77.5%) of questionnaire respondents were reported that birds feed on fruits (12.5%), on crops (5%) and flowers (7.5%). 75% of the respondents respond that birds eat crop from the church forests but some of them (20%) opposed that they do not eat crops. As a result of this, most of the respondents of the questionnaire (87.5%) respond that farmers complain their crop damage by birds and they tried to protect them by scare by throwing stones.

From the daily observations of the respondents (55%), the church forest was used by birds for food purposes, but some of them (30%) do not know its significance for birds. From the total respondents of the questionnaire, most of them (80%) report that the number of birds in the church forest increased from time to time starting from the last five years; but some of them (15%) do not know the status of birds.

Plants in the church forest

Giorgis church forest (Korem): The largest part of the respondents believed that *Olea europica* (27.5%) and *Tsahidi adi* (*Juniperus procera*) (72.5%) were the dominant plants utilized by the birds for foraging, nesting and roosting. Some of the respondents (4%) also observed that shrubs are utilized by birds for nests and roosts. *Awlie* (*Olea euthopica*) and *Tsahidi-adi* (*Juniperus procera*) were the most preferable plants for food, *kulkual* (*E. abyssinica* Gmel.), *Chia* (*Acacia sieberiana*) and *Eukalyptus* (*Eukalyptus globulus*) were used by birds for nesting while *Kebkeb* (*Maytenus senegalensis*), *Kulkual* (*E. abyssinica* Gmel), *Mehtie* (*Acokanthera schimperi*) and *Tsahidi-adi* (*Juniperus procera*) were used for roosting.

Michael church forest (Hageresalam): Most of the respondents believed that Kulkual (*E. abyssinica* Gmel) (45%), *Olea europaea* (20%) and eukalyptus (*E. globulus*) (15%) are the dominant plants utilized by the birds for foraging, nesting and roosting. Some of the respondents (5%) also observed that shrubs are utilized by birds for roosts and nests. Awlie (*O. euthopica*) was the most preferable plant for food in the church forest, kulkual (*E. abyssinica* Gmel.), Chia (*A. sieberiana*), Tsihdi-adi (*J. procera*) and Eukalyptus (*E. globulus*) were used by birds for nesting while Kebkeb (*M. senegalensis*), Kulkual (*E. abyssinica* Gmel), Metere (*Buddleja polystachya* Fresen.) and Tsihdi-adi (*J. procera*) was used for roosting purpose.

Endakidanemeheret church forest (Abergelle): Most of the respondents believed that Kinchib (80%), giba (10%) and eukalyptus (5%) were the dominant plants utilized by the birds for foraging, nesting and roosting in the church forest. Some of the respondents (2%) also observed that shrubs were utilized by birds for nests and roosts. Giba (*Zizipus spina-christi*) (87.5%) was the most preferable plant for food in the church forest. kulkual (*E. abyssinica* Gmel.) (32.5%), Chia (*A. sieberiana*) (22.5%), Eukalyptus (*E. globulus*) (12.5%) and seraw (*Acacia etbaica* Schweinf) (32.5%) were used by birds for nesting while Kenteftefe (*Pterolobium stellatum*), Kinchib (*E. tirucalli*) Kulkual (*E. abyssinica* Gmel) and Seraw (*Acacia etbaica* Schweinf.) were used for roosting.

Biodiversity conservation

Giorgis church forest (Korem)

Peoples living in and around this church forest believed that some people (7.5%) cut trees from the church forest for fire wood purpose, but most of them (92.5%) report that people living in and around the church forests do not cut trees, cutting trees in those church forests is considered as sin by them. Others (20%) tried to hunt the edible bird (francolin) for the purpose of food but most of the people (70%) are not forced to hunt it from the church forest. Although, a considerable number of people were worshiping in the churches, only 12.5% of the respondents reported that the local people disturb birds while they make their nests, forage and roosts but most of the local people (87.5%) do not disturb them during the life time. The questionnaire respondents believed that they can conserve the biodiversity (plants and animals) of the church forest to the next generation by planting trees (72.5%) and protecting animals from being killed and hunted (27.5%); but others (5%) believed that they do not care about the biodiversity of churches. The questionnaire respondents also recommend that village administrators (25%) and the local people (55%) should be responsible for the conservation of plants and animals. From the total respondents of the questionnaire, most of them (80%) believe that they were benefited from the church

forests by collecting fodder for animals but no one considers its ecological balance of the biodiversity of the churches. People living in and around the church forest (82.5%) discussed that they are going to stop if a person come across killing birds in the church forests from killing by explaining the benefits of birds and they will inform to the village administrators but some of them (17.5%) believe that people never cut trees at all.

In general, all the respondents comment and recommend that church forests should have their own guards (should be two and above) and everyone should be responsible for the conservation of biodiversity found in the church forest and the churches by itself because conserving the churches means conserving all the biodiversity that contains within it.

Michael church forest (Hageresalam)

The local people living in and around the church forest believed that some people (12.5%) cut trees from the church forest for fire wood purpose but most of them (82.5%) report that people living in and around the church forest do not cut trees. Some of them (5%) tried to hunt the edible bird (francolin) for the purpose of food but most of the people (80%) were not tried to hunt it. Although, a considerable number of people were worshiping in the churches, only 5% of the respondents reported that the local people disturb birds while they make their nests, forage and roosts but majority of the local people (87.5%) does not disturb them during the life time. The local people believed that they can conserve the biodiversity (plants and animals) of the church forests to the next generation by planting trees (50%) and protecting animals from being killed and hunted (22.5%); but others (15%) believed that they do not care about the biodiversity of churches. The questionnaire respondents also recommend that village administrators (15%) and the local people (75%) should be responsible for the conservation of plants and animals in the church forest. From the total respondents of the questionnaire, most of them (60%) believe that they were benefited from the church forest by collecting fodder for animals. People living in and around the church forest (90%) discussed that they are going to stop if a person come across killing birds in the church forests from killing by explaining the benefits of birds and they will inform to the village administrators but others (2%) believe that people never cut trees in the church forest at all.

In general, all the local people participated in the questionnaire response comment and recommend that the church forest should have its own guards and fence. All the local people should be responsible for the conservation of biodiversity of the church forest.

Endakidanemeheret church forest (Abergelle)

Peoples living in and around the church forest believed that some people (5%) cut trees from the church forest

for fire wood purpose but most of them (85%) report that people living in and around the church forest do not cut trees. Some of them (2%) tried to hunt the edible bird (francolin) for the purpose of food but most of the people (90%) were not forced to hunt it from the church forest. Although, a considerable number of people are worshipping in the church, all of the respondents reported that the local people do not disturb birds while they make their nests, forage and roosts. The questionnaire respondents believed that they can conserve the biodiversity (plants and animals) of the church forests to the next generation by planting trees (80%), protecting animals from being killed and hunted (2%); but others (17.5%) believed that they do not care about the biodiversity of the church. The local people also recommend that village administrators (60%) and the local people (15%) should be responsible for the conservation of plants and animals in the church forests. From the total respondents of the questionnaire, most of them (62.5%) believe that they were benefited from this church forest by collecting fodder for animals.

People living in and around the church forest (97.5%) discussed that they are going to stop a person come across killing birds in the church forests from killing by explaining the benefits of birds and they will inform the village administrators immediately.

CONCLUSION AND RECOMMENDATION

From the peasant's response, they indicate that they know the presence of birds in those church forests but they do not know whether the birds have the right to live in the church forests as well as they do not know about their ecological significance. But almost all of the residents discussed that they will conserve the biodiversity including birds of the church by giving special emphasis to the church. To conserve the birds, the local people should be aware about the ecological benefits of birds in the church forests to increase the number of people who value biodiversity through seminars and it is advisable for government to work with elders.

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