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Avifauna of Entoto Mountain Forest, Ethiopia: Diversity and Potential for Tourism Development

Addisu Asefa

Ethiopian Wildlife Conservation Authority
P. O. Box 386, Addis Ababa, Ethiopia; Email: aa.mitiku@gmail.com

Abstract

Information on ornithological significances of important bird areas is required to develop appropriate actions for conservation of the birds and their habitats and to untap their potential contribution to local and national economy through avitourism activities. This study was conducted between December 2016 and January 2017 to determine bird diversity in the Entoto Mountain and to examine the potential of the area for developing avitourism. Birds were surveyed at systematicaly designated counting points. Overall, 517 individual birds belonging to 49 species were recorded in the entire study area. Of the total species recorded: i) two species were endemic [Abyssinian Catbird (Parophasma galiniei) and Yellow-fronted Parrot (Poicephalus flavifrons)]; ii) 11 species were nearly endemic (shared with one or two other countries); iii) three were globally threatened; and, iv) 21 species (43% of such species known from Ethiopia) were Afro-tropical highland biome-restricted assemblage. These findings, coupled to its close proximity to Addis, the presence of several cultual/historical sites in the area and easy accessibility, suggest that Entoto mountain area can be considered as with high potential for developing avitourism as one segment of ecotourism in the area.

Keywords: Avitourism, Birds, Birding resources, Birdwatchers, IBAs.

INTRODUCTION

With 837 bird species, including 17 endemics, currently known to be occurring in Ethiopia, the country has been considered as one of the few countries hosting high diversity of birds in the African continent (Ash and Atkins, 2009; Redman *et al*., 2009). So far, 69 Important Bird Areas (IBAs) have been identified and described in the country to promote the conservation of birds and their habitats (EWNHS, 2001). However, most of these IBAs are currently under severe human pressure. Human-induced threats, including habitat destruction and degradation due to expansion of cultivation land, grazing and

urbanization, have been causing decline both in population number and distributional ranges of several bird species in the country, increasing the vulnerability of many of the rare and endemic species to extinction (BirdLife International, 2016).

Such population decline, or local disappearance, has several implications from conservation, ecological and socio-economic point of views. For example, it leads to decline or loss of ecosystem services (e.g. pollination, seed dispersal, pest control and environmental cleaning) that birds provide to human-beings (Şekercioğlu *et al*., 2002). Furthermore, several bird species have a number of cultural and direct economic (e.g. game hunting and economic gains through ecotourism) values (Şekercioğlu, 2002). Thus, extinction of species leads not only to loss of their socio-economic importance to the society, but also to loss of the society's culture (Asefa, 2015a). Consequently, having information on

ornithological significances of a given area is not only important to help decision makers understand the conservation importance and status of that area, but also is important to develop appropriate action plans needed to (i) conserve the birds and their habitats, and (ii) untap their contribution to local and national economy through avitourism initiatives (EWNHS, 2001; Asefa, 2014, 2015a).

Avitourism is a responsible travel for bird-watching (= birding), which is the act of observing and identifying birds in their natural habitat (Cordell *et al*., 1999; Şekercioğlu, 2002; Asefa, 2015a). It is becoming the most rapidly growing segment of ecotourism, making a significant contribution to the socio-economic development of many poor local communities and the protection and development of threatened natural areas around the world (Şekercioğlu, 2002; Conradie, 2010). However, only few countries [e.g. USA (Conradie, 2010), South Africa (BirdLife South Africa, 2008), and Rwanda (OTF, 2008)] have recognized the potential contribution of avitourism to their socio-economy and environmental protection, and thus are running bird watching tour programmes (Asefa, 2015a). Given the rapidly growing human population which often is accompanied by actions that cause biodiversity degradation, there is a need for organizations working in tourism and conservation sectors to take measures that ensures the use of avitourism as a tool for catalyzing conservation and socio-economic development. This is especially true for developing countries like Ethiopia where rich and unique avifauna is found, but many of the birds and their habitats are facing conservation threats, losing their ecological, social and economic values (Cordell *et al*., 1999; Conradie, 2010).

This paper presents results of a study conducted in the Entoto Mountain range to assess ornithological significances of the area and the potential of the area for developing avitourism as a segment of ecotourism activity. Entoto mountain area has been identified as one of the IBAs of Ethiopia. However, designation of the area as an IBA was made based on qualitative (species presence) information collected on an *ad hoc* basis and detailed ornithological studies have been lacking (EWNHS, 2001). To the researcher's knowledge, the only detailed study (species composition, relative abundance and distribution) of birds of the area has been that published by Esayas and Bekele (2011). These authors have reported 124 bird species from the area; however, most of the species (at least 50 species) included in their report are unlikely to be found in the Entoto range [for detail on distribution of each species reported in Esayas and Bekele (2011), see Ash and Atkins (2009) and Redman *et al*., (2009)].

Some of these species are either low land/savanna species or with known distributional ranges far away from Entoto [e.g. Prince Ruspoli's Turaco (*Turaco ruspolii*) which is locally endemic to Borena region of southern Ethiopia; Red-headed Lovebird (*Agapornis pullarius*), and Rose-ringed Parakeet (*Psittacula krameri*) which are restricted to north-western parts of Ethiopia; for detail on distribution of these species see Redman *et al*., (2009) and BirdLife International 2016)]. Other species are either with ranges only marginally extending to Ethiopia [e.g. Crested Lark (*Galerida cristata*)], or not known to be occurring in the country [e.g. Obbia Lark (*Spizocorys obbiensis*), a species endemic to Somalia] (Redman *et al*., 2009; BirdLife International, 2016). Such species mis-identification obviously entails the need for updated and reliable studies if the information derived from the studies is to be used as an input for effective management decision-making purposes.

Currently, part of the Mountain range has

been identified by the Addis Ababa City Bureau of Culture and Tourism as an Integrated Ecotourism Development Zone (Kios Development Consulting, 2012). Thus, scientifically sound and reliable data on birds of the area is needed to develop meaningful nature-based ecotourism and conservation activities in the area. The specific objectives of this paper were, therefore, (i) to determine the species richness, diversity and composition of bird community in Entoto mountain area, and (ii) to assess whether the area qualifies for developing avitourism as a segment of ecotourism activities in the area.

MATERIALS AND METHODS

The Study Area

This study was undertaken in the Entoto mountain range (geographical location: 9°04′ - 9°06′N, 38°44′ - 38°49′E) that has an area of 130 km^2 between altitudes of 2, 600 and 3,100 m a.s.l (EWNHS, 2001). Part of the Entoto Mountain that lies on the south-eastern slopes of the mountain between the northern limit of the city of Addis Ababa and the track along the mountain ridge has been identified by the City's Culture and Tourism Bureau as an Integrated Ecotourism Development Zone [the so called 'Entoto and Surrounding Areas Tourism. Destination Development Project' (ESATDDP)]. The site for proposed ecotourism development zone entirely falls inside the City's administration boundary and has an area of 40 km^2 (Kios Development Consulting, 2012). The natural vegetation of Mt Entoto can be classified as Dry Afro-montane forest which is dominated by *Juniperus procera* with groves of *Olea europaea*, scattered *Hagenia abyssinica*, *Podocarpus falcatus* and *Acacia abyssinica*. Common shrubby species include those that have fleshy fruits like *Rosa abyssinica* and *Carissa edulis*, which attract frugivore (fruit-eating) birds (EWNHS, 2001). However, most of this natural vegetation is heavily modified by anthropogenic activities, such as settlement encroachments and plantation of exotic plant species. As a result, most of the Entoto Mountain area is covered with *Eucalyptus globulus* plantation and natural forests occur only in small isolated patches mainly in and around church compounds (Esayas and Bekele, 2011).

Data Collection

Data collection was undertaken between December 2016 and January 2017 within the 40 km^2 area of the proposed ecotourism development project zone. The decision of limiting the study area to within the proposed project site boundary was made as the ultimate goal of the study was to provide information needed by the ESATDDP management office to develop plans for nature-based ecotourism segment. A preliminary assessment was undertaken to select sample sites and determine sampling procedures. Results of this assessment indicated that birds were less frequently encountered in the plantation forest as compared to in the natural habitats and, even, those species observed in the plantation were found to be subsets of species seen in the natural vegetation. Therefore, survey efforts were concentrated to areas where natural or semi-natural (mixed natural and plantation habitat) vegetation was dominant. Accordingly, three localities where such vegetation types occur were systematically selected: Washa Michael and its surrounding areas (Location: 37 UTM X = 478278, Y = 998975, altitude 2587 m a.s.l; hereafter referred to as: Locality 1), Entoto St Merry Church and its surrounding areas (X = 473682, Y = 1004683, altitude = 2982 m a.s.l; Locality 2) and Entoto St Raguel Church and its surrounding areas (X = 472500, Y = 1004768, altitude =3000 m a.s.l; Locality 3). At each locality, 16 (total = 48) sample sites were systematically selected for data collection.

Point counting method was used to record birds at each sample site and birds were recorded within average radius of ~100 m. Each sample site was surveyed twice and counting was carried out early in the morning between 07:00-10:00 hrs when most birds are thought to be more active (Gibbons *et al*., 1996). At all sampling sites, species identity of birds seen and/or heard and the number of individuals were recorded. Species identification was aided by binoculars and a field guidebook (Redman *et al*., 2009). In addition to bird data, information on accessibility and presence of other tourism products in the area were collected. Informal discussions were made with oportunistically met local pople and with ESATDDP staff to assess opportunities and constraints and to formulate priority actions needed for avitourism development in the area.

Data Analysis

Bird species richness, diversity and composition

Bird species richness was computed using EstimateS software based on individual-based sampling procedure that accounts for the effects of differences in species detectability among sites on the estimated richness (Colwell, 2012). Individual-based sampling method uses the number of individual birds of each species recorded at a given area or locality, rather than the number of individuals recorded at each sample units (*i.e.* point count/transects), as an input for species richness computations (Gotelli and Colwell, 2001). Chao 1 richness estimator, an appropriate estimator for individual-based data, was used to estimate the true species richness (*i.e.* total number of species expected to occur in the area, including those species not seen during the survey period).

In addition to giving estimation of the true number of species in a given locality, this estimator can also give a measure of the completeness of the inventory at that locality and allow for better comparison with the species richness of other localities. Sampling is considered to be adequate or completed if the observed richness accumulation curve approaches an asymptote or if it converges closely with an appropriate richness estimator (Chao 1 estimator in the present case). In this study, the difference between the observed and estimated (based on Chao 1) species richness values were used to assess sampling completeness (Asefa, 2013). Further, Shannon diversity index, which combines information from species richness and their relative abundance distribution, was also calculated in EstimateS software (Colwell, 2012). Both analyses (richness and diversity index) were carried out for each of the three localities separately and for combined localities.

To examine whether bird species recorded at each of the three localities were similar to or distinct from each other, similarity in species assemblage composition between each pair of the three localities was undertaken using Bray-Curtis similarity index in Primer software (Clarke and Gorley, 2006).

To further explore the ornithological importance of the area, five species-specific life-history and ecological traits were compiled from published sources for each bird species: occurrence, conservation status, biome assemblage membership, habitat preference and dietary requirement. Information on the occurrence, conservation status and biome membership of each species was obtained from EWNHS (2001) and Redman *et al*., (2009). Accordingly, species' occurrence status was classified into two groups as: resident (if a given species spends the whole year in Ethiopia), or migrant (if it occurs in the country only seasonally). Resident species were further classified into two subgroups as: endemic (or near endemic) or not. Based on their

global conservation status, species were classified into two broad categories as: threatened (if a species has been categorized by IUCN as a vulnerable, endangered, or critically endangered conservation status), or least concern (if otherwise).

Four biome-restricted species assemblages are known to occur in Ethiopia: Afrotropical highland, Sudan-Guinea, Somali-Masai and Sahel biomes (EWNHS, 2001). Thus, as expected, given that only highland biome species were encountered during the study, assemblage membership of bird species of the area was classified as: Afrotropical highland biome-restricted or not. Habitat affinity of each bird species was broadly determined following Redman *et al*., (2009) and Asefa (2015b), as: i) forest specialist (if a species is known to predominantly prefer forests and dense/closed woodlands as its primarily habitat), ii) woodland (if it is known to inhabit open woodlands), and iii) open land (if a species is known to prefer other habitat types other than forest and woodlands, including grassland, farmland, shrubland, etc.).

Following Gove *et al*., (2013) and Asefa (2015b), bird species were also categorized into six broad feeding guilds as: insectivores (those species that feed on invertebrates), carnivores (that feed predominantly on vertebrates), and granivores (that feed on seeds), nectarivores (that feed on flower nectars), frugivores (that feed on fruits), and omnivores (that feed on two or more dietary types) (for information on species-specific habitat and diet category, see the Appendix 1). Then, the relative contribution each habitat guild and each feeding guild makes to the total number of species recorded in the area was calculated and Chi-square test was used to examine if guilds, separately for each set of guilds, significantly differed in their relative contributions.

Potential of the area for avitourism development

Following BirdLife South Africa (2008), Conradie (2010) and Asefa (2015a), the potential of Entoto Mountain for avitourism development was assessed using three key criteria. These crieria are, relaive to other similar sites, i) presence of high bird diversity, and number of special bird species (*i.e.* species that are (near)endemic, rare and globally threatened, and/or range-restricted); ii) pesence of easy accessibility; and, iii) presence of other tourism products (*e.g.* cultual/historical sites) in the proposed area. Thus, data collected on birds, accessibility and presence of other tourism products in the area were evaluated against these three criteria to determine whether the Entoto mountain range would fulfill these criteria and potentially be consiedered for avitourism develoment.

RESULTS AND DISCUSSION

Avian Diversity and Composition

A total of 227 bird observations were recorded across the entire study area during the survey period, yielding 517 individual birds belonging to 49 species. Of these, 188, 205 and 124 of the individuals and 30, 34 and 26 of the species were recorded in locality 1, locality 2 and locality 3, respectively (Fig. 1a-c). The observed individual-based accumulation curves formed a plateau for all the three localities, as well for the entire area, and converged closely with the Chao 1 estimated species richness values (Fig.1 a-d). Chao 1 estimated species richness for the entire study area showed that a total of 50 species (*vs*. 49 observed species) would be expected to be found, indicating that 98 per cent (49 species) of the species pool of bird community of the area was sampled and only one species was missed. Similarly, when sampling completeness of each locality was considered separately, 94-100 per cent of the species present during the study period were sampled (Fig 1a-c). These results, thus, show that adequate samples were taken both for the whole area and at each locality and valid inferences could be

drawn from the dataset. However, it should be noted that the number of species would increase if wet season data were included, because most bird species are known to show seasonal shift in their habitat occupancy and there may be some species that visit the area only during wet season (Wiens, 1989).

The number of bird species reported from this study is comparable with what have been reported from other similar habitats elsewhere in Ethiopia; *e.g*. 55 species are reported from the nearby Gulelle Botanical Garden (Kios Development Consulting, 2012); 51 species from Abalo-Gunacho forest in the southern Ethiopia (Asefa, 2015b); and 52 and 41 species in disturbed and undisturbed Afromontane forests, respectively, in the northern Bale Mountains (Asefa, 2013). However, it is found to be lower compared with some other montane forests of Ethiopia. For example, 82 species are reported from Muktar Mountain forest (Asefa, 2014); and 106 species in Bonga forest (Gove *et al*., 2008).

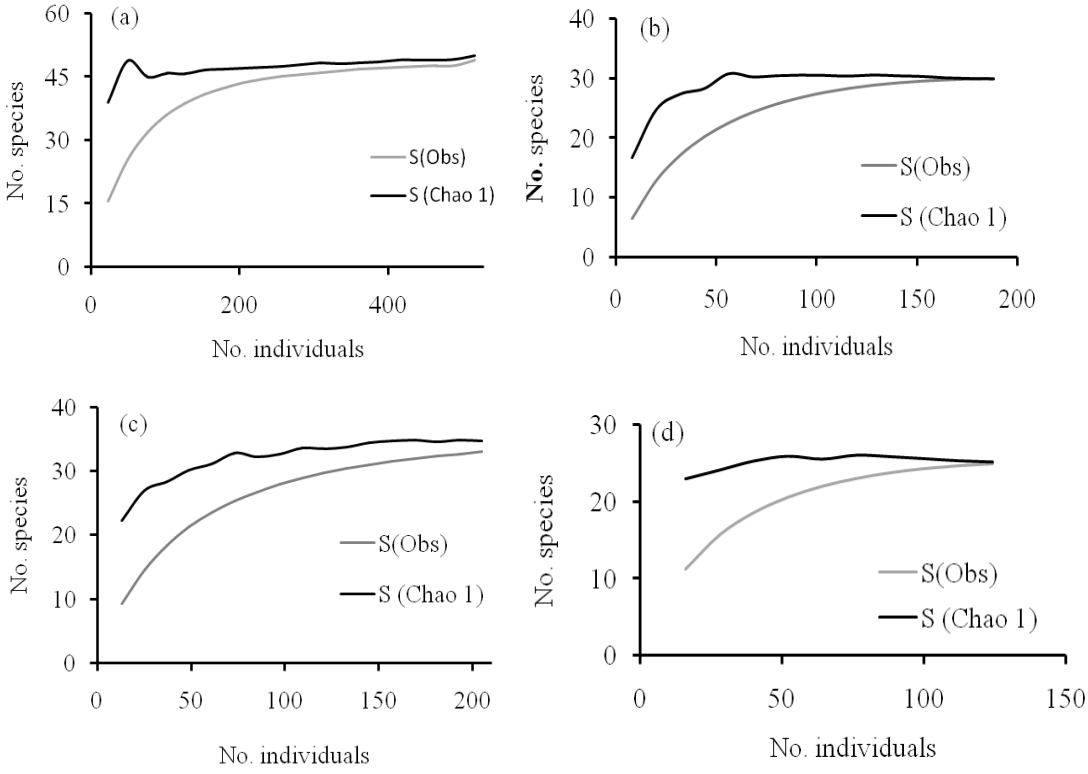

Fig. 1. Individual-based accumulation curves of observed [S (Obs)] and estimated based on Chao 1 estimator [S (Chao 1)] species richness of overall (a), Locality 1 (b), Locality 2 (c) and Locality 3 (d).

At least two main reasons may explain the differences in the bird species richness among the studies discussed here, including the present one. First, those forests where higher species have been reported are characterized by having larger sizes (ranges from 86 km² - 1440 km²) compared with the sites where relatively lower similar species richness have been reported, including from the present study area (Gove *et al*., 2008; Asefa, 2014). Such effects of habitat size difference on bird species richness is unsurprisingly expected and could be supported by the theory of 'Island biogeography' which states that, under

natural conditions, larger areas contain greater number of species compared to smaller areas (Wiens, 1989). And, second, unlike the case of the present study where birds were recorded solely in forest habitats, in most of these previous studies (*e.g.* Gove *et al*., 2008; Asefa, 2014) records from the farmland, pastureland and grassland areas found around their study forests are also included in their reports.

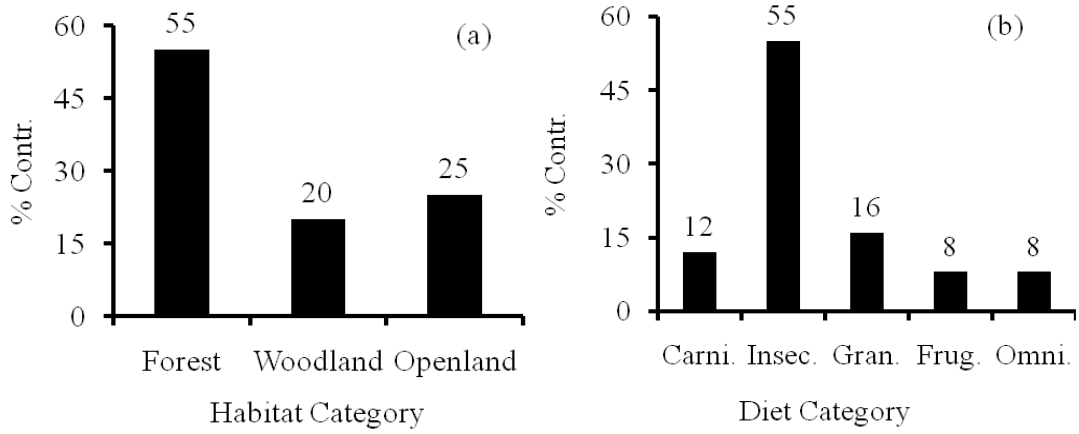

Fig. 2. Percentage contribution made by each habitat guilds (a) and feeding guilds (b) to the overall species recorded in the study area.

Species diversity, measured using Shannon index, of the three localities was nearly equal: 3.05, 3.02 and 2.99 for locality 1, locality 2 and locality 3, respectively, showing that the sites contain similar proportion of dominant and rare species. However, similarity in species composition among the sites appeared to be low, with similarity between locality 1 *vs*. locality 2 = 50%, locality 1 *vs*. locality 3 = 45%, and locality 2 *vs*. locality 3 = 45%. Both from conservation and avitourism point of views, these findings of compositional dissimilarity among sites are interesting as these sites could play complementary roles in both perspectives (Şekercioğlu, 2002). In general, the differences in species richness and composition among the localities could be attributed to variation in their vegetation structure (Wiens, 1989). The vegetation at locality 2, where higher number of species recorded, is relatively characterized by very dense cover of canopy trees and understory vegetation, while that of locality 3 has low tree canopy with poor understory growth.

Of the total species recorded: i) two of them [Abyssinian Catbird (*Parophasma galiniei*) and Yellow-fronted Parrot (*Poicephalus flavifrons*)] were endemic to Ethiopia and 11 more species were near-endemic (shared with one or two other neighboring countries, mostly with Eritrea) (Redman *et al*., 2009); ii) three were globally threatened (BirdLife International, 2016); iii) 21 (43% of the total species) were Afro-tropical highland biome-restricted species; and, (iv) four (8%) migrant species. These results indicate that, given that 39 and 48 of Ethiopia's bird species are (near)endemics and highland biome species, respectively (EWNHS, 2001; Redman *et al*., 2009), the bird fauna of Mt Entoto represents 33 per cent of the total (near)endemics and 44 per cent of Afro-tropical highland biome-restricted species known to occurring in the country.

Species considered to be forest inhabitants represented about 55 per cent of the total species, which was significantly higher than those that were categorized as woodland and shrubland species (Chi-square = 21.596,

df = 2, p <0.001) (Fig 2a). This relative contribution of forest-specialist species is disproportionately higher compared with the results found in other studies elsewhere in Ethiopia. For example, Gove *et al*., (2008) report 44 and 31 per cent in intact and disturbed Bonga forests, respectively; and Asefa (2013) reports 43 per cent in the undisturbed and 29 per cent in the disturbed forests in the Bale Mountains.

The discrepancy between the present study and previous studies could be attributed to the fact that sampling strategy in the present study was biased towards sampling in forest habitats unlike in the other studies that also sampled in shrubby and open habitats. Nonetheless, the present findings may also suggest that Entoto Mountain forest is of high importance in harboring bird species typical of tropical forests. When feeding guilds were considered, insectivore was the most dominant guild, with significantly greater contribution (27 species or 55%) to the entire species than the other guilds (Chi-square = 33.378, df = 4, p <0.001), followed by granivores (16%) (Fig. 2b).

Insectivore guilds have been known to be the most sensitive bird group to forest disturbances (Şekercioğlu *et al*., 2002; Asefa, 2013). Thus, such high dominance of insectivore guild in the present study area may reflect that the sampled forest localities are in good health status, as most of the sites are well-protected in church compounds.

Avitourism Potential of the Area

Generally, when selecting a trip destination, birders place the most value on the diversity and kind of bird species (Conradie, 2010; Asefa, 2015a). In addition, the presence of esily accessibile road networks and of other tourism products in the area are also determinant factors that inulence destination preferences of birdwatcher tourists (Asefa *et al*., 2013; Asefa, 2015a). In the Entoto mountain, compared with other potential sites in Ethiopia, such as the Bale Mountains, (i) bird diversity is high with several special species (*i.e.* endemic/near endemic, biome-restricted, forest specialist), (ii) road accessibility is relatively good and (iii) there are several historical/religeous sites in the area.

These findings show that the area fulfills the three key criteria required for a given site to be considered as a potential birdig destination site. Thus, it is safe to conclude that Entoto mountain has high potential for developing avitourism as one segment of ecotourism in the area. This conclusion can be further supported by the fact that the diversity of overall species and species considered to be special to bird watchers in the area are nearly similar to composition of avifaunal assemblage found in the Dry Afromontane forest of the Bale Mountains National Park which has been known to be the fourth top birding areas in Africa (African Bird Club, 2016). However, the following four key priority actions should be implemented properly in order to untap avitourism potential of the area.

Developing the most basic of birding resources

Almost all birders look for availability of specific resources at the destination areas to decide on their booking preferences (Conradie, 2010). Among the most highly relevant birding resources are: clearly defined map of birding routes (road networks connecting birding sites) and birding sites (localities where birdwatchers undertake their birding activities), species checklists, sign boards and birding guidebooks (OTF, 2008). Thus, all these resources should be made readily available if the desire of any relevant organization, including ESTDDP, is to run a successful avitourism program in the Entoto area. As also discussed above, birders wish to go to places where they can see most of the

species in close proximity to the destination site; hence, a similar survey for non-forest habitats around the area (encompassing the dry and wet seasons) is needed to complete bird checklist of the area.

Promotion and marketing

Depending on booking methods, birders are categorized into two broad types: direct birders (who plan their trips by their own) and channel birders (who plan their trips by the assistance of channel tour operator which are international tour operators working in partnership with local/national tour operators in the destination country) (Conradie, 2010; Asefa, 2015a). While website and friends/colleague's word-of-mouth are the two key most important sources of information for direct birders, tour operators (first), websites (second) and birding trade fairs (third) are the major sources of information for channel birders (OTF, 2008; Conradie, 2010).

It is, therefore, important that a detailed customer analysis should be undertaken to identify which types of bird watchers (*i.e.* direct *vs*. channel) prefer Ethiopia and from which countries they are. This analysis helps to develop a detailed marketing strategy to target those potential visitors to Entoto area.

Initiate community development programme

One way of involving local community in ecotourism development is by training people among them that would serve as bird guides. Avitourism, through the use of community bird guides, not only has the potential to generate significant income for the local communities but also promotes the important roles that local communities can play in conservation of birds and their habitats in such areas. Bird-watchers also need community bird guides for security and facilitation of logistics, and for their valuable information on where elusive and special bird species are found (BirdLife South Africa, 2008). In addition, local communities living at or around the Entoto Mountain can be involved in different types of economic activities that are directly linked to avitourism, including offering services to birders like community eco-lodge, local artifacts, coffee ceremony and traditional dancing.

Design a system for monitoring and evaluating the impacts of avitourism activities

While avitourism can clearly potentially bring enormous economic benefits to individuals, communities and nations, as well as the conservation and management of natural resources, there are drawbacks associated with an influx of relatively wealthy visitors to an area (Şekercioğlu, 2002). For example, avitourism overuse can degrade roads and tourist sites, produce waste and litter, cause bird disturbances and can have a detrimental impact on the culture and social wellbeing of communities (Şekercioğlu, 2002; Admasu *et al*., 2011). Therefore, developing and carrying out of avitourism monitoring (both positive and negative impacts) system in the Entoto area is of paramount importance to ensure that any potential negatives are identified earlier and actions curbing the impacts are implemented at the earliest appropriate time.

CONCLUSION

The present study reveals that over a quarter of the species recorded in the Entoto Mountain are endemic or nearly endemic to the country and 43 per cent of them are highland biome species, suggesting that the area has still retained its status of an IBA in Ethiopia. These findings, coupled to the presence of several cultual/historical sites in the area, also indicate that the potential for developing avitourism as one segment

of ecotourism in the area to be high. In general, this study has provided information needed to develop appropriate actions needed to conserve the birds and their habitats and to untap their contribution to local and national economy through avitourism initiatives.

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Appendix 1. List of bird species recorded in the Entoto Mountain forest, Ethiopia. Nomenclature follows the checklist of African Bird Club (2012).

Common name	Scientific name	Habitat	Diet	Occurrence[2]	Biome[3]
Abyssinian Catbird	*Parophasma galinieri*	Forest	Insectivore	R, E	HB
Abyssinian Ground Thrush	*Zoothera piaggiae*	Forest	Insectivore	R	HB
Abyssinian Slaty Flycatcher	*Melaenornis chocolatinus*	Forest	Insectivore	R, NrE	HB
Abyssinian Woodpecker	*Dendropicos abyssinicus*	Forest	Insectivore	R, NrE	HB
African Citril	*Serinus citrinelloides*	Openland	Granivore	R	HB
African Dusky Flycatcher	*Muscicapa adusta*	Forest	Insectivore	R	
African Harreier Hawk	*Polyboroides typus*	Forest	Carnivore	R	
African Paradise Flycatcher	*Terpsiphone viridis*	Forest	Insectivore	R	
African Rook	*Corvus capensis*	Openland	Omnivore	R	
African White-backed Vulture[1]	*Gypus africanus*	Woodland	Carnivore	R	
Alpine Chat	*Cercomela sordida*	Openland	Insectivore	R	
Augur Buzzard	*Buteo augur*	Woodland	Carnivore	R	
Baglafecht Weaver	*Ploceus baglafecht*	Forest	Insectivore	R	HB
Black Kite	*Milvus migrans*	Openland	Carnivore	M	
Black-headed Forest Oriole	*Oriolus monacha*	Forest	Insectivore	R, NrE	HB
Black-winged Lovebird	*Agapornis taranta*	Forest	Frugivore	R, NrE	HB
Blue-breasted Bee-eater	*Merops lafresnayii*	Woodland	Insectivore	R, NrE	
Bronze Mannikin	*Spermestes cucullata*	Woodland	Granivore	R	
Brown Woodland Warbler	*Phylloscopus umbrovirens*	Woodland	Insectivore	R	
Brown-rumped Seedeater	*Serinus tristriatus*	Openland	Granivore	R, NrE	
Cinnamon Bracken Warbler	*Bradypterus cinnamomeus*	Forest	Insectivore	R	HB
Common Chiff-chaff	*Phylloscopus collybita*	Forest	Insectivore	M	
Common Bulbul	*Pycnonotus barbatus*	Forest	Insectivore	R	
Common Fiscal	*Lanius collaris*	Woodland	Insectivore	R	
Dusky Turtle Dove	*Streptopelia lugens*	Forest	Granivore	R	HB
Feral Pigeon	*Columba livia*	Openland	Granivore	R	

Grey Woodpecker	*Dendropicos spodocephalus*	Forest	Insectivore	R	
Grey-headed Sparrow	*Passer swainsonii*	Openland	Granivore	R, NrE	HB
Ground Scraper Thrush	*Psophocichla litsitsirupa*	Forest	Insectivore	R	
Hooded Vulture[1]	*Necrosyrtes monachus*	Woodland	Carnivore	R, NrE	HB
Montane White-eye	*Zosterops poliogastrus*	Openland	Omnivore	R	HB
Olive Thrush	*Turdus olivaceus*	Forest	Insectivore	R	
Pied Crow	*Corvus albus*	Openland	Omnivore	R	
Red-billed fire Finch	*Lagonosticta senegala*	Woodland	Granivore	R	
Red-eyed Dove	*Streptopelia semitorquata*	Forest	Frugivore	R	
Rueppel's Robin-chat	*Cossypha semirufa*	Forest	Insectivore	R	HB
Speckled Mousebird	*Colius striatus*	Forest	Frugivore	R	
Streaky Seedeater	*Serinus striolatus*	Forest	Granivore	R	HB
Tacazze Sunbird	*Nectarinia tacazze*	Forest	Nectarivore	R	HB
Tawny-flanked Prinia	*Prinia subflava*	Forest	Granivore	R	
Thick-billed Raven	*Corvus crassirostris*	Openland	Omnivore	R, NrE	HB
Tree Pipit	*Anthus trivialis*	Woodland	Insectivore	M	
Tropical Boubou	*Laniarius aethiopicus*	Forest	Omnivore	R, NrE	HB
Wattled Ibis	*Bostrychia carunculata*	Openland	Insectivore	R, NrE	HB
White-backed Black Tit	*Parus leuconotus*	Forest	Insectivore	R, NrE	HB
White-headed Vulture[1]	*Trigonoceps occipitalis*	Woodland	Carnivore	R	
Willow Warbler	*Phylloscopus trochilus*	Forest	Insectivore	M	
Yellow-bellied Waxbill	*Estrilda quartinia*	Openland	Carnivore	R	
Yellow-fronted Parrot	*Poicephalus flavifrons*	Forest	Granivore	R, E	HB

[1] Globally threatened

[2] R = resident; E = endemic; NrE = near endemic; M = migrant.

[3] HB = Afro-tropical highland biome restricted.