

*Short Communication*

# **Biodiversity loss and conservation challenges in Chimit Kolla, Gozamen District, East Gojam Zone, Amhara Region, Ethiopia**

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**A field study in Chimit Kolla, Gozamen District, Ethiopia was conducted in November, 2020. The study aimed to evaluate the biodiversity loss and major conservation challenges in the area. Direct sighting of the animals in the field and indirect evidences like scats, prey leftover and evidence from native key informants revealed higher wildlife potential of the area. However, intensive agricultural investment, deforestation and habitat degradation, uncontrolled charcoal production and induced fire for agricultural expansion remain the principal biodiversity conservation challenges. Although sustainable agriculture is part of the Sustainable Development Goals, in Chimit area intensive agriculture resulted ecosystem degradation and biodiversity loss in an alarming rate. Therefore, the area calls for active conservation intervention measures to harmonize the investment activities with biodiversity conservation priorities.**

**Key words:** Agricultural investment, biodiversity loss, charcoal production, conservation challenges, induced fire.

## **INTRODUCTION**

Due to the combination of climatic and geologic factors, Ethiopia is gifted with massive biological resources, and is listed as one of the biodiversity hotspots in the world (EBI, 2014). Although the country is known for the higher biological diversity and endemism, the status of biodiversity is highly threatened due to over exploitation, habitat degradation, agricultural expansion, settlement and infrastructure development (Mekonen et al., 2017; EBI, 2014; Zerubabel and Zerihun, 2020). Most of the threats are linked with the deep rooted rural poverty where survival of local communities is primarily

dependent on natural resource exploitations. Successful biodiversity conservation efforts require on-site investigation of the status of biodiversity and implement conservation education programs for local communities and stakeholders to enhance conservation and sustainable utilization of the resources. Chimit Kolla is one of the districts found in the lowlands of East Gojam zone, Amhara Regional State. The rich biodiversity and agricultural productivity potential, the serious conservation challenges (Misganaw et al., 2017), lack of ecological study in Chimit Kolla calls for documenting the

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biodiversity potential and the major anthropogenic pressures in the area. Therefore, this study aimed to assess biodiversity and to investigate the major anthropogenic threats influencing biodiversity conservation and sustainable utilizations in Chimit Kolla, East Gojam Zone, Amhara Region, Ethiopia.

## MATERIALS AND METHODS

Field observation to assess the biodiversity and major conservation challenges was conducted in Chimit Kolla in November, 2020. Chimit Kolla is one of the Kebeles (sub districts) in Gozamen District, East Gojam Zone, located between 10° 0' 0" to 10° 20' 0" N latitudes and 37° 30' 0" and 37° 40' 0" E longitudes, found 35 km away from Debre Markos, capital of East Gojam Zone. The climate of Chimit is considered as *Kolla* (Tropical) being found below 1800 m.a.s.l (Sileshi, 2018). The vegetation is dominated by grassland and dispersed acacia woodland, representing a savannah ecosystem.

Data was collected through direct sighting of the animals in the field and indirect evidences like scats, and prey leftover, as well as evidence from key informants (Zerubabel and Zerihun, 2020). Wild animal assessment was conducted in the morning (6:00 to 10:00 am) and in the afternoon (3:00 to 5:00 pm), by walking and driving through the different habitats (that is, farmland, bushland, grassland, and riverine habitat). Opportunistic sampling and visual encounter survey methods were also employed to assess herpetofauna potential of the area (Ehwan et al., 2016). Moreover, open ended interview guide questions were used to extract relevant data on the status of biodiversity and major biodiversity conservation challenges in the area. Natural resource experts in the district and elderly native community representatives were included for the key informant interview. During key informant interview open ended questions was administered to assess knowledge on the wildlife resources of the area, whether the presence of different wildlife species benefits the community, whether there is human-wildlife conflict exists; the major conservation challenges, the trend of wildlife population across time, and the desired conservation strategies for conservation and sustainable utilization of the wildlife resources around Chimit Kolla.

## RESULTS AND DISCUSSION

The direct evidences confirmed that the wooded grassland and the riverine ecosystem is rich in butterfly diversity, higher primate abundance, diverse lizard species, and rich in avian fauna, dominated by large and medium sized carnivores such as: lion (*Panthera leo*), golden jackal (*Canis aureus*), hyena (*Crocuta crocuta*), and caracal (*Felis caracal*). The area is also rich in small mammal diversity (that is, rodents, shrews, and hyrax) as well as bats. Chimit Kolla is crossed by Chemoga River which is an important source of drinking water as well as habitat for diverse herpetofauna and aquatic bird species. According to the native key informants the area was once dominated by large browsers and grazers like: buffalo (*Syncerus caffer*), greater kudu (*Tragelaphus strepsiceros*), lesser kudu (*Tragelaphus imberbis*), bushbuck (*Tragelaphus scriptus*), warthog (*Phacochoerus africanus*), and gazelle species. The natural resource

experts also reported that the savannah ecosystem was once dominated by diverse wildlife species, however, the severe anthropogenic activities resulted loss of habitat and wild animal species in Chimit Kolla.

## Major threats to biodiversity

Like other wilderness areas in Ethiopia, Chimit Kolla is highly threatened due to unsustainable resource exploitation, habitat loss and degradations. More significantly in Chimit there is a huge agricultural investment (Figure 1) mainly producing maize, sesame, Teff, and haricot bean. As noted in the field, there are around twenty licensed investors, and yet many more are processing their investment license from Gozamen District, Trade and Investment Office. Hence, more natural ecosystems will be converted into agricultural fields, resulting local extinction of wildlife populations and loss of ecosystem services in the area. Such intensive agriculture also use inputs like fertilizers, herbicides, and insecticides which either join the atmosphere or ground water bodies where it affects the ecosystem integrity and functioning.

Induced fire for agricultural expansion, settlement, and charcoal production is also a major concern in Chimit (Figure 2). Intense human-wildlife conflict is also a common phenomenon in the area, where crop raiding by primates, porcupine, rodents, warthog, and different bird species are the main incidences. Thus, intervention measures taken by investors to avoid crop loss are negatively affecting the wild animal populations. Moreover, agricultural expansion is also intensified even in peak mountainous areas by local communities, resulting habitat loss and fragmentation that can be used by the surviving wild animal populations.

## CONCLUSION AND RECOMMENDATIONS

The higher biodiversity especially amphibians, insects, reptiles, small and large mammals in Chimit reveals its potential to develop community based conservation area. However, the anthropogenic activities remain the major biodiversity conservation challenge in the area. In this regard, the Regional as well as Zonal Trade and Investment Offices should revise the agricultural investment policy and licensing procedures considering biodiversity conservation priorities without compromising local livelihoods. The extraordinary level of charcoal production demands urgent interventions, unless the remaining habitat patches will be lost very soon. More importantly, detailed, seasonal wildlife study should be conducted and urgent participatory biodiversity conservation intervention measures should be conducted in Chimit Kolla in order to safeguard the remaining ecosystem and surviving wild animal populations.



**Figure 1.** Maize investment in Chimit Kolla.



**Figure 2.** Induced fire for agricultural expansion and charcoal production by local communities in Chimit Kolla.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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