

Article

## Butterfly diversity and abundance at two different habitat types of Gozamen woreda, Amhara regional state, Ethiopia

**Gebreegziabher Hailay, Yihew Biru, Abeje Kassie**

Animal Biodiversity Directorate, Ethiopian Biodiversity Institute, P.O. Box 30726, Addis Ababa, Ethiopia

E-mail: gere31280@gmail.com

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### Abstract

Assessment of butterfly biodiversity at different habitat types of Gozamen woreda, Amhara regional state, Ethiopia, studied from mid-June 2021 to mid-July 2021. There were 44 butterfly species from five families, with a total of 1023 individuals identified. The Nymphalidae family had the most diversity, while the Papilionidae and Hesperiidae families had the least diversity. The diversity and abundance of butterflies reported at Gozamen woreda varied between the forest habitat and the mosaic habitat. The largest diversity and abundance of butterflies were found in the forest habitat, with 41 species and 680 individuals, and the lowest were found in the mosaic habitat, with 22 species and 343 individuals. The Simpson diversity indices were higher in the forest habitat (0.96) than in the mosaic habitat (0.94). The evenness index of butterflies was higher in the forest habitat (3.5) than in the mosaic habitat (3.0). The evenness and equitability index were highest in the mosaic habitat, with 0.88 and 0.96 respectively. The diversity and abundance of butterflies were significant, with  $\chi^2 = 10.43$  and  $p = 0.001$ . The Jaccard index of similarity revealed that forest habitat and mosaic habitat were 43.2% similar. Accumulation curves for mosaic habitat and forest habitat showed an increase until the 200th and 300th individuals were captured.

**Keywords** accumulation curves; butterfly diversity; Gozamen woreda.

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### 1 Introduction

Insects are among the most vital members of the ecosystem (Regier et al., 2013; Yang and Gratton, 2014). Among insects butterflies are one of the most studied insect groups on the globe (Robinson et al., 2012). Like other insects species, butterflies serve a critical part in the proper functioning of a healthy ecosystem for humans and other species (Dangles and Casas, 2019). They are useful indicators for monitoring environmental effects on biodiversity in many habitat types because of their sensitivity to changes in environmental parameters such as temperature, humidity, light, and rainfall patterns, as well as their short generation time and great mobility (Bonebrake et al., 2010). Furthermore, they are used in biological research, including navigation,





















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