# I. INTRODUCTION

## 1.1 Research Background

Indonesia was a country that has high biodiversity (Mega biodiversity), both flora and fauna, one of which was the diversity of insect species (Santoyo, 2010). Siregar et al. (2014) mentioned that Indonesia has around 250,000 species of 751,000 species of insects found on earth. This was because Indonesia has a stable climate, and geographically Indonesia was an archipelagic country with a tropical climate, making it possible for various flora and fauna to live and breed.

According to Fakhar (2016), insects have the most significant number of species of all species on earth, which have various functions and roles. Their presence was ubiquitous, which makes the role of insects vital in ecosystems and human life. Borror et al. (1996) explain that insects lived on earth about 350 million years ago, longer than humans, who lived less than two million years ago. During this period, they have undergone many evolutionary changes. They have adapted life to almost all habitat types which causes them to have high diversity on earth consisting of various species and different characteristics in insects (Haryono et al., 2021).

Insect diversity was important in several sectors, such as agriculture, ecology, human health, natural resources and other scientific developments (Meilin & Nasamir, 2016). The role of insects for humans was very diverse, including pollinators, pest controls, producers of trade products, and eaters of decaying organic matter. (Soesanthy & Trisawa, 2011; Monita et al., 2017). Apart from their beneficial role, insects can also harm humans. This detrimental trait occurs directly or indirectly

(Balfas & Mustika, 2004). It was directly like parasitic insects that use the human body to live. In contrast, the destructive nature of insects indirectly occurs in agriculture/plantations managed by humans because it can cause damage to the plantation and agricultural products (Rumini et al., 2007).

The diversity of insects in several places varies. Nayak et al. (2021) mention that low diversity was found in communities with extreme environmental conditions, for example, dry and high mountainous areas, while high diversity was found in areas with optimum environmental conditions. One example of an optimal environment was fertile areas, rich soils, and mountainous areas (Khaliq et al., 2014). Insects were found in almost all ecosystems. The more places with various ecosystems, there were various types of insects (Haryono et al., 2021).

According to Khaliq et al. (2014), the optimum environment was a supportive environment for developing insects for living and foraging needs and has environmental factors such as temperature, humidity, wind speed, and optimum light intensity. The optimum temperature for insects was 15-25°C, and the optimum humidity required by insects was 50-90% (Wardani, 2017). Wind speed and light intensity influence each insect differently, including insects that were inversely proportional to wind speed. That is, if the wind speed was getting stronger, the number was getting less like in flies because solid winds can interfere with their motor, while for ticks jumping wind speed was very necessary because it will help their motor, as well as for light intensity (Hidayaturrohmah et al., 2020).

Ecotourism was a natural tourism activity in the area responsible for considering the elements of education, understanding, and support for natural resource

conservation efforts, as well as increasing the income of local communities. Ecotourism, in general, takes place in protected and conservation areas, remote areas with experiential natural beauty, ecological areas and cultural areas (Nafi & Supriadi, 2017). Those who develop ecotourism have the assumption that there will be no physical impact on the development of ecotourism. In line with the increasing prevalence of ecotourism, it was undeniable that there will slowly be an impact of ecotourism.

The Silokek Geopark ecotourism area was included in one of the areas along Kanagarian Muaro Silokek and Durian Gadang with an area of 300 km in Sumpur Kudus District, Sijunjung Regency (Atdrian, 2016). Silokek Geopark has an area of ± 1300 $km^2$ in total (Kusuma, 2017). Silokek National Geopark has much unique geological diversity, and the age of the rocks was ancient, which was about 350 million years ago (Muharram et al., 2020). Silokek Geopark has a high diversity of fauna and flora. Based on research by Elliott et al. in Rahman (2013), several prominent florae were found in the Silokek Geopark area, namely carrion and leaf flowers. A leaf flower (*Monophyllaea horsifieldii*) was a flower that was useful for improving the fitness and health of toddlers (Rahman, 2013). Meanwhile, the fauna that stands out in this area was based on research conducted by Ayunda et al. (2022), namely hornbills (*Buceros vigil*), Siamang (*Symphalangus syndactylus*), and Ancient fish (*Bagarius bagarius*). In addition, in the area were still found Porcupine (Rodentia), Pangolin (*Manis javanica*), Sumatran Tiger (*Panthera tigris sumatrae*) and Forest Goat (*Capricornis sumatraensis*). Although research on flora and fauna in the Silokek Geopark has been widely carried out, the richness of insects in this area was still unknown. Therefore,

this was the main reason for collecting data on the diversity of insects found in the Silokek Geopark, Sijunjung Regency.

## 1.2 Research Problem

The problem of the research in this study is:

1. How was the entomological inventory in the Silokek geopark ecotourism area?
2. How was the ecological aspect of insects in the Silokek geopark ecotourism area?

## 1.3 Research Objective

The objectives of this study are:

1. To determine the entomological inventory in the Silokek geopark ecotourism area
2. To analyze the ecological aspect of insects in the Silokek geopark ecotourism area

## 1.4 Research Significant

The benefit of the research was to provide information about the types of insects, insect composition, and diversity of insects in the Silokek Geopark area, which can later become a guideline for maintaining the biodiversity of the Silokek geopark area.