I. INTRODUCTION

1. 1 Background

Indonesia is a country that has a diversity that is rich in flora. Compared to tropical American and African countries, biodiversity in Indonesia is much higher. More than 25,000 species of plants or more than 10% of the world's flora are recorded in Indonesia (Soemarwoto, 1983). According to Setiadi (1983), Indonesia has forests that consist of complex structures which can create diverse types of plants that can live in them. In general, these types of plants can be found in wet tropical forest areas, especially primary forests.

One of the forests that has the highest plant diversity in West Sumatra is located in the Biology Research and Research Forest (HPPB) area. According to Conservation International in 2006, HPPB Forest was included in an important forest located in the city of Padang with an area of 148 hectares and was made as a high biodiversity area of flora and fauna with a variety of protected biota. So that this forest can be used as a place to study plant diversity conservation.

Plant diversity can be disturbed by several factors including human factors and environmental factors such as the presence of invasive species that can reduce plant diversity and can replace native plants in the forest (Setiawati, 2013). According to Ardhian (2011) Invasive Alliance Species is an event where there are alien species that enter into a new ecosystem, which will later compete with other species in dominating the region with the ability to grow and spread rapidly.

Based on research conducted by Solfiyeni, Syamsuardi, Chairul, Yuranti and Yulia (2014) there are 28 types of invasive alien plants (Invasive Alliance Species) in the Limau Manis HPPB forest area, 15 of which belong to the Leguminosae family with the most number, 7 types, and are followed by other families such as Compositae (five species) family Poaceae, Melastomataceae, Piperaceae, Rubiaceae, Rosaceae, Vitaceae, Vebernaceae, and Oxalidaceae (1 species each). In a study conducted by Solfiyeni, Syamsuardi, Chairul, Yuranti and Yulia (2014) showed that invasive plant species that mostly grow in the HPPB area, namely the family of Melastomataceae, where there are 4 species of the family including *melastoma malabathricum* and *Bellucia pentamera* species

Bellucia pentamera is a biological invasive species that change ecosystems in many ways, namely competing with other species to get as many resources as possible so that one way is to grow and multiply as fast as possible. This is enough to eliminate native species from the competition for resources. In addition to growing and developing rapidly, they also carry out complex interactions with other species, so they can be endangered by competition or predation caused by invasive species.

To find out the spread of *Bellucia pentamers* we can use several techniques. Many analytical techniques can be used in determining the invasion of spatial distribution patterns (Rani, 2003). Hidayat's research (2012) used the Morishita index as his method in research on the results of invasive species distribution patterns in the Kamojang Nature Reserve area.

In this study also looked at the effect of distance on the distribution of the number of individual plants of *Bellucia pentamera* invasive species which were analyzed using linear regression and to determine the effect of light intensity on the distribution of the number of individual plants of invasive species on each 10 x 10 meter plot size in the HPPB sweet

lime forest. This research is expected to provide data and information on the pattern of the spatial distribution of *Bellucia pentamera* invasive plant species in the HPPB sweet lime forest area.

1. 2 Formulation Of The Problem

Based on this background, the problem formulation of this research is as follows:

1) What is the spatial pattern of invasive *Bellucia pentamers* plants in the Biological Education and Research Forest (HPPB)

2) How does the distance from the road affect the distribution of *Bellucia pentamers* invasive plant species in the Biology Education and Research Forest (HPPB)

3) How does the light intensity affect the distribution of *Bellucia pentamers* invasive plant species in the Biology Education and Research Forest (HPPB)

1. 3 Research Purposes

The purpose of this research is to:

1) Knowing the pattern of spatial spread of invasive plants *Bellucia pentamers* in the Forest of Biological Education and Research (HPPB)

2) Determine the effect of distance from the distribution of *Bellucia pentamers* invasive plant species in the Forest Biology Education and Research (HPPB)

3) Determine the effect of light intensity the distribution of *Bellucia pentamers* invasive plant species in the Forest Biology Education and Research (HPPB)

1. 4 Research Benefits

The benefits of this research can provide data and information on the pattern of spread of *Bellucia pentamers* invasive plant species in the Biology Education and Research Forest and increase knowledge especially in the field of plant ecology.