I. INTRODUCTION

1.1 Background

Tropical rain forest biome in the form of forest that is always wet or damp which can be found in the area around the equator. Forest condition of tropical rain forests we are called not heterogeneous forests because they have heterogeneous species compositions with diverse tree age structures at each site unit (Wahyuni and Kafiar,2017). Although High rainfall and coruscation to sunlight throughout the year makes Indonesia's forests rich in diverse species but sometimes disturbed by human activity that affects the forest occurring degradation or deforestation. (Juminarti, 2011). Deforestation and degradation of tropical forests caused by human activities has the potential to cause biodiversity extinction (Dent and Wright, 2009; Laurance, Sayer and Cassman, 2014; Pryde *et al.,* 2015).

Secondary forest is a form of forest in the succession process that colonizes areas previously damaged by natural or human causes, and whose succession is not affected by native vegetation around it because of the extent of the damaged area. The following forms of vegetation formation can be formed: empty land / artificial grasslands / new logged-over areas / older logged areas. Secondary forests can be used as a place to conserve biodiversity (Chazdon et al.2009). Instead Barlow et al. (2007) suggest secondary forests that regenerate naturally can provide conservation services as primary forests but cannot match their biodiversity values. Secondary forests in Indonesia cover 24.2% of Indonesia's land area which according to Margono et al. (2014).

As for knowing the various factors influenced by the canopy cover, this needs to be done research using the Hemispherical Photography method. Calculation of the

value of the previous canopy cover can be done in a conventional way, namely the spherical densiometer method whose calculation is not as accurate as using Hemispherical Photography. The use of the Hemispherical Photography method using the GLAMA application found on this smartphone makes it easy to calculate the condition of a forest based on open light or sky that appears through a forest canopy without having to use a high resolution camera and Hemisherical Photograph has obvious benefits in facilitating the research process on forest conditions Canopy cover or tree canopy cover in the Secondary Forest area, this application was only published through international journals in 2015 because this application is new and in Indonesia the use of this application has only been used by Permana, (2017) Therefore the use of this method and application to observation conditions forests based on canopy cover need to be done one of the secondary forests in Indonesia is in the City of Padang, West Sumatra Province, namely the Forest of Education and Research in Biology (HPPB).

The Biological education and Research Forest (HPPB) is an educational facility consisted of natural forest and biodiversity garden. This facility adjacently situated to main campus area of Andalas University located in the western edge of Bukit Barisan Mountain at Limau Manis, Padang, West Sumatra Province. (Rizaldi *et al,* 2008). Fadillah (2009) reported that the soil fertility rate in this area is still stable between the top, middle and valley areas due to the forest canopy which is able to withstand heavy rainfall from the forest floor. In the HPPB area there are also several streams in the valley which make the surrounding area moist.

1.2 Formulation of The Problem

The formulation of the problem from this study is

1. What is the canopy cover using the GLAMA application in the Unand, Padang, West Sumatra Forest of Education and Research Forest (HPPB)?

2. How is the influence of each density and canopy cover using the GLAMA application with dominant Species in the Unand, Padang, West Sumatra Forest of Education and Research Forest (HPPB)?

3. How is the influence of each Basal Area and canopy cover using the GLAMA application in the Unand, Padang, West Sumatra Forest of Education and Research Forest (HPPB)?

1.3 Research Objectives

1. To explain canopy cover by using the GLAMA application in the Biology Research and Education Forest (HPPB) area of Unand, Padang, West Sumatra.

2. To expalin the effect of density and area of upright on canopy cover by using the tree GLAMA application in the Biology Research and Education Forest (HPPB) area of Unand, Padang, West Sumatra.

3. To explain the effect of basal area on canopy cover by using the tree GLAMA application in the Biology Research and Education Forest (HPPB) area of Unand, Padang, West Sumatra.

1.4 Benefits of Research

The benefit of this study is to provide information on canopy cover in a permanent forest plot of the Foret Conditon and Biological Research (HPPB) area of Andalas University, Padang, West Sumatra.