

ABSTRACT

AGUNG RAHMAT GUNAWAN. 2025. ***SPATIAL MODELING OF THE POTENTIAL DISTRIBUTION OF KI AKSARA ORCHID (Macodes petola (Blume) Lindl.) IN JAVA ISLAND USING THE MAXENT APPLICATION (A Quantitative Study for Biology Teaching Materials)***. Department of Biology Education. Faculty of Teacher Training and Education. Siliwangi University. Tasikmalaya.

Ki Aksara orchid (Macodes petola) is a terrestrial orchid species whose population is declining due to overexploitation and environmental pressures, making it vulnerable to extinction. This study aims to determine potential areas of Macodes petola presence in Java Island and identify environmental factors that affect its distribution. The method used is the Species Distribution Modeling (SDM) approach using the Maxent application. The population in this study includes all potential areas on Java Island, with samples in the form of coordinates of species discovery points obtained through direct observation in the Galunggung Mountain area, as well as secondary data from the GBIF website and literature studies. Environmental variables used include altitude, temperature, soil pH, rainfall, and land cover. The modeling results show very high accuracy with an AUC value > 0.9. Areas with high distribution potential are in mountainous areas such as Mount Gede Pangrango, Mount Ciremai, and Mount Salak. The environmental factors that most influence the distribution of Macodes petola are altitude, land cover type, temperature, and rainfall. From the results of this study, it can be concluded that the model produced by Maxent has a very good predictive ability in identifying suitable habitats for Macodes petola on Java Island.

Keywords: *Macodes petola, Spatial Modeling, Maxent, Java Island.*