

POPULATION VIABILITY ANALYSIS TO MANAGE LOCAL PROBOSCIS MONKEY (*NASALIS LARVATUS*) POPULATIONS

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Population viability analysis (PVA) is a predictive management tool producing models which can be used towards the development of management plans. Proboscis monkeys live in some of the most threatened habitats in Borneo, a top producer of palm oil and supplier of timber. The main objectives of this study were to use the PVA program VORTEX v9.95 to determine the current status of proboscis monkeys in selected fully and partially protected areas, and which variables can be modified to improve current population trends. Over a 50 year period, although both populations decline, the probability of extinction (PE) for metapopulations in the Lower Kinabatangan Wildlife Sanctuary (LKWS) and Danau Sentarum National Park (DSNP) was 0; however in Balikpapan Bay, PE=1 in 14 years. Sensitivity testing examining the influence of data variability revealed hunting and mortality rates as most sensitive. Management scenarios were run to determine their influence on population trends and final population size. Strategies examined were: eliminating hunting, eliminating fires, eliminating deforestation, reducing deforestation, and reducing deforestation along with the frequency of fires. Habitat availability was the biggest determinant in population survival, through reforestation in LKWS, reducing deforestation in Balikpapan Bay, and halting deforestation in DSNP. As information regarding mortality and hunting rates are scarce, further research into these areas are essential to improve the model's accuracy. Immediately addressing deforestation however, extends the time to extinction, thereby allowing for plans to be remodeled and new strategies developed as the situation changes.

Keywords: Borneo, extinction, management, VORTEX.