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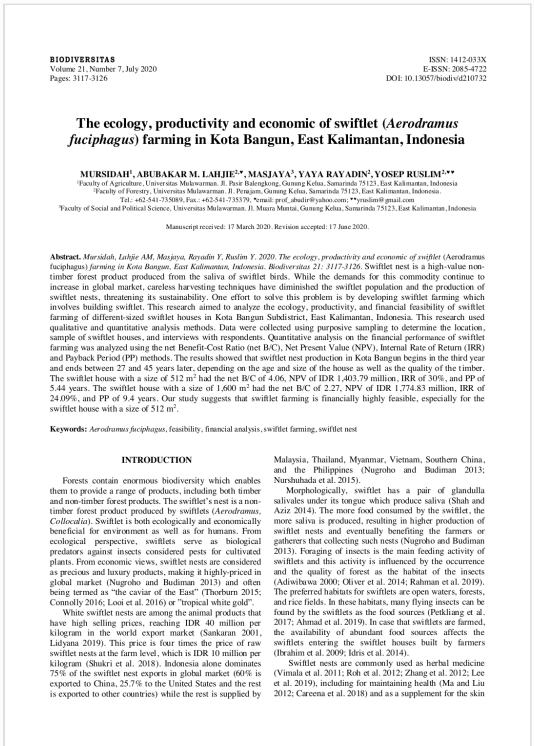

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The ecology, productivity and economic of swiftlet (*Aerodramus fuciphagus*) farming in Kota Bangun, East Kalimantan, Indonesia

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Abstract. *Mursidah, Lahjie AM, Masjaya, Rayadin Y, Ruslim Y. 2020. The ecology, productivity and economic of swiftlet* (Aerodramus fuciphagus) *farming in Kota Bangun, East Kalimantan, Indonesia. Biodiversitas 21: 3117-3126.* Swiftlet nest is a high-value non-timber forest product produced from the saliva of swiftlet birds. While the demands for this commodity continue to increase in global market, careless harvesting techniques have diminished the swiftlet population and the production of swiftlet nests, threatening its sustainability. One effort to solve this problem is by developing swiftlet farming which involves building swiftlet. This research aimed to analyze the ecology, productivity, and financial feasibility of swiftlet farming of different-sized swiftlet houses in Kota Bangun Subdistrict, East Kalimantan, Indonesia. This research used qualitative and quantitative analysis methods. Data were collected using purposive sampling to determine the location, sample of swiftlet houses, and interviews with respondents. Quantitative analysis on the financial performance of swiftlet farming was analyzed using the net Benefit-Cost Ratio (net B/C), Net Present Value (NPV), Internal Rate of Return (IRR) and Payback Period (PP) methods. The results showed that swiftlet nest production in Kota Bangun begins in the third year and ends between 27 and 45 years later, depending on the age and size of the house as well as the quality of the timber. The swiftlet house with a size of 512 m^2 had the net B/C of 4.06, NPV of IDR 1,403.79 million, IRR of 30%, and PP of 5.44 years. The swiftlet house with a size of 1,600 m^2 had the net B/C of 2.27, NPV of IDR 1,774.83 million, IRR of 24.09%, and PP of 9.4 years. Our study suggests that swiftlet farming is financially highly feasible, especially for the swiftlet house with a size of 512 m^2.

Keywords: *Aerodramus fuciphagus*, feasibility, financial analysis, swiftlet farming, swiftlet nest

INTRODUCTION

Forests contain enormous biodiversity which enables them to provide a range of products, including both timber and non-timber forest products. The swiftlet's nest is a non-timber forest product produced by swiftlets (*Aerodramus, Collocalia*). Swiftlet is both ecologically and economically beneficial for environment as well as for humans. From ecological perspective, swiftlets serve as biological predators against insects considered pests for cultivated plants. From economic views, swiftlet nests are considered as precious and luxury products, making it highly-priced in global market (Nugroho and Budiman 2013) and often being termed as "the caviar of the East" (Thoeburn 2015; Connolly 2016; Looi et al. 2016) or "tropical white gold".

White swiftlet nests are among the animal products that have high selling prices, reaching IDR 40 million per kilogram in the world export market (Sankaran 2001, Lidyana 2019). This price is four times the price of raw swiftlet nests at the farm level, which is IDR 10 million per kilogram (Shukri et al. 2018). Indonesia alone dominates 75% of the swiftlet nest exports in global market (60% is exported to China, 25.7% to the United States and the rest is exported to other countries) while the rest is supplied by Malaysia, Thailand, Myanmar, Vietnam, Southern China, and the Philippines (Nugroho and Budiman 2013; Nurshuhada et al. 2015).

Morphologically, swiftlet has a pair of glandulla salivales under its tongue which produce saliva (Shah and Aziz 2014). The more food consumed by the swiftlet, the more saliva is produced, resulting in higher production of swiftlet nests and eventually benefiting the farmers or gatherers that collecting such nests (Nugroho and Budiman 2013). Foraging of insects is the main feeding activity of swiftlets and this activity is influenced by the occurrence and the quality of forest as the habitat of the insects (Adiwibawa 2000; Oliver et al. 2014; Rahman et al. 2019). The preferred habitats for swiftlets are open waters, forests, and rice fields. In these habitats, many flying insects can be found by the swiftlets as the food sources (Petkliang et al. 2017; Ahmad et al. 2019). In case that swiftlets are farmed, the availability of abundant food sources affects the swiftlets entering the swiftlet houses built by farmers (Ibrahim et al. 2009; Idris et al. 2014).

Swiftlet nests are commonly used as herbal medicine (Vimala et al. 2011; Roh et al. 2012; Zhang et al. 2012; Lee et al. 2019), including for maintaining health (Ma and Liu 2012; Careena et al. 2018) and as a supplement for the skin