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**Sound management strategies in swiftlet ranching from Southern
Thailand**

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Abstract. Pongpattananurak N, Phumsathan S, Somleewong T, Rasri P. 2023. Sound management strategies in swiftlet ranching: An experiment from Southern Thailand. *Biodiversitas* 24: 6218-6228. Edible-nest swiftlets are well-known for the medicinal properties of their nests. With the global demand, swiftlet ranching has emerged as a vital industry. Swiftlet houses employ acoustic stimuli to entice wild swiftlets. However, the use of loud acoustic stimuli in swiftlet houses has inadvertently led to sound pollution in urban areas. This study investigates the interplay of acoustic stimuli, loudness, and environmental factors in attracting swiftlets while reducing noise. Our findings highlight the critical role of sound management in swiftlet ranching. Higher loudness, especially around 80-90 dB, significantly increases swiftlet activity and maximizes daily counts. Furthermore, optimizing loudness levels, particularly at around 80 dB, extends the swiftlet presence duration, offering valuable ranching benefits. Strategic loudness management is recommended to balance attraction and noise control. Timing acoustic stimulation during mornings and late afternoons aligns with swiftlets' natural behavior. Lowering loudness to under 70 dB during midday minimizes disturbances, especially in populated areas. Weather conditions, including outdoor absolute humidity and temperature, also influence swiftlet attraction. The study finally provides guidance for complying with environmental noise regulations, demonstrating that sound levels of 70-80 dB effectively control noise. These insights support swiftlet ranching while respecting urban communities and coexisting harmoniously.

Keywords: Southern Thailand, sound management, swiftlet ranching

INTRODUCTION

Edible-nest swiftlets (*Aerodramus fuciphagus* Thunberg 1812) create nests from their saliva, which are highly regarded for their nutritional and pharmaceutical benefits, particularly in traditional Chinese cuisine. Classified as functional food, they are rich in bioactive compounds, including proteins, essential amino acids, and simple sugars like sialic acid, which are crucial for various human biological processes (Hao and Rahman 2016; Yew et al. 2018; Mursidah et al. 2021; Yan et al. 2021). Due to the remarkable belief in the pharmaceutical attributes of Edible-nest swiftlets and limited natural supply, bird's nests have gained recognition as luxury agricultural products, commanding significant global demand, particularly among Chinese communities worldwide.

Edible-nest swiftlets are native to Southeast Asia, inhabiting regions such as the Nicobar and Andaman Islands, Hainan Islands in China, Palawan Islands in the Philippines, and the coasts of Vietnam, Cambodia, Thailand, the Burmese Peninsula, Peninsular Malaysia, and Indonesian islands (Koon and Cranbrook 2002; Robson 2008; Pongpattananurak et al. 2018; BirdLife International 2023). Traditionally, bird's nests were harvested from natural caves in the Southeast Asian archipelago. However,

over the last three decades, swiftlet ranching has gained prominence in ASEAN countries, including Indonesia, Malaysia, Vietnam, and Thailand. As reported in Malaysia, swiftlet farming contributes to nearly 95% of the national output's value, with the remaining 5% derived from traditional cave collections (Ito et al. 2021). China, with a growing population of health-conscious consumers, is the largest global importer of bird's nests as reported by Utusan Malaysia in 2012 (Aziz and Rahim 2022). In 2017, Alibaba's e-commerce platform alone recorded bird's nest sales exceeding 1.48 billion yuan (approximately \$200 million), with nearly half of the purchases made by working-age individuals with medium to high incomes seeking to boost their health (Department of International Economic Affairs 2021). In Thailand, the combined trade value of natural and farmed bird's nests is estimated at around THB 10 billion (USD 307 million) annually (Ito et al. 2021; Nation Thailand 2021). On a global scale, the industry's value is estimated to be around USD 5 billion (Ito et al. 2021). This trend presents an opportunity for bird's nest entrepreneurs worldwide to enhance product quality and access the lucrative Chinese market, the world's largest consumer of bird's nest products.

The increasing market value of bird's nests has led to a proliferation of swiftlet houses along the coastal regions of

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