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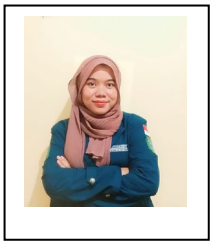
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COMPANIONSHIP ON EDUCATION AND INTRODUCTION TO BAT SPECIES IN BRAJA HARJOSARI AND LABUHAN RATU VII, EAST LAMPUNG

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Abstract: Under the HETI Project Program of Universitas Lampung 2023/2024, education and introduction to bats have been conducted in Braja Harjosari and Labuhan Ratu VII, East Lampung. Knowledge about bats and their ecological roles is essential as a conservation effort, particularly in residential areas adjacent to natural bat habitats. Information on bats, including their natural habitats, behaviors, and roles in supporting human life, as well as general species identification, was provided. The selection of locations, mist net installation, capture, handling, and release were demonstrated, including oral swab sample collection. The community's response and enthusiasm were very positive in understanding bats as wildlife and their roles in human life.

Keywords: bats, Braja Harjosari, Labuhan Ratu VII, Heti, East Lampung

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INTRODUCTION

Bats, the only mammals capable of sustained flight, have a wide distribution range and unique social structures. They inhabit various environments, including residential areas such as houses, barns, agricultural fields, and gardens, which provide suitable ecosystems for breeding (Platto *et al*., 2021). In Indonesia, there are 8 families comprising 72 species of the Suborder Megachiroptera (fruit-eating bats) and 133 species of the Suborder Microchiroptera (insect-eating bats) (Afifah *et al*., 2020). In Sumatra, there are 73 species of bats from 9 families (Colwell and Payne *et al.*, 2000), and in East Lampung, 10 species of bats have been identified e.g. *Cynopterus minutus, Cynopterus brachyotis, Cynopterus sphinx, Cynopterus titthaecheilus, Macroglossus sobrinus, Rousettus amplexicaudatus, Rousettus sp., Pipistrellus javanicus, Myotis muricola,* and *Megaderma spasma* (Santoso *et al.,* 2020).

Bats play a crucial role in ecosystems as pest controllers of agricultural pests and pathogen-carrying arthropods, as well as pollinators and seed dispersers that are ecologically, culturally, and economically significant (Kunz *et al*., 2011; Russo *et al*., 2018; Santoso *et al.*, 2020). Pandemic diseases are suspected to originate from wildlife, such as HIV, SARS, and COVID-19 (Wolfe *et al*., 2007). Bats are potential hosts of zoonotic pathogens, including the suspected coronavirus causing COVID-19. Infectious diseases result in over 7 million deaths annually, negatively impacting global health and causing economic losses (Morens *et al*., 2004). Seventy-five percent of emerging infectious diseases are zoonotic, originating from animals and transmissible to humans, typically from wildlife (Jones *et al*., 2008). The interface and interaction between human activities and bats are unavoidable and can trigger ecological infections. Understanding the potential presence of infectious diseases in bats can aid in preventing infections and their spread, thereby avoiding anthropogenic impacts. Genomic analysis of COVID-19 patients in China showed a 96% similarity with the coronavirus in bats (Zhou *et al*., 2020). Rustiati *et al*., (2024) indicated that bats' surveillance in Braja Harjosari and Labuhan Ratu VII, East Lampung, showed no presence of coronavirus. The introduction and understanding of bats and their habitats are highly significant, especially for the community, and bat introduction programs have been conducted in Braja Harjosari and Labuhan Ratu VII, which are buffer villages of Way

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Kambas National Park, a natural bat habitat. Bat diversity identification can be conducted morphologically.

METHODS

Companionship on bat introduction and its habitat characteristics have been conducted in Braja Harjosari and Labuhan Ratu VII, East Lampung, under the HETI Project 2023/2024. The program included the introduction of bat biology, its habitats, and ecological roles, as well as live trapping using mist nets and subsequent release. The identification of bat diversity was conducted morphologically (Susanto *et al*., 2020; Alimudin *et al*., 2020; Arianti *et al.*, 2017; Kingston, 2006). Demonstration on oral swab sampling was performed (Rustiati *et al*., 2024). The parameters introduced in the identification included morphometry measurements, gender determination, age categories, and reproductive status, concluded for fruit or insect eating bats.

RESULTS AND DISCUSSION

Permits and coordination for the companionship program were done in the village headquarters of both Labuhan Ratu VII and Braja Harjosari accordingly (Figure 1). The purpose and action plan were conveyed, followed by introducing the knowledge of bats biology. The wh a

(a) (b)

Figure 1. Permits and coordination for the companionship program in (a) Labuhan Ratu VII and (b) Braja Harjosari

Companionship was conducted directly outdoors, first of all, introducing characteristics of bats' natural habitats. as both villages are located directly adjacent to Way Kambas National Park (WKNP) (Figure 2). The locations chosen for life trapping were next to WKNP, separately by rubber plantations and settlements which have fruit trees.

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(a)

(b)

Figure 2. The introduction of bats' habitat characteristicsat (a) Braja Harjosari dan (b) Labuhan Ratu VII, East Lampung

Learning to set up the life trap using 2 mist nets (Figure 3). After sunset, when the bats as nocturnal animals started to be active, the mist nets were opened. The participants learned to handle the bats trapped on the mist net (Figure 4) and made sure of the safety and welfare.

Figure 3. Mist net setting for bat life trapping

Figure 4. Learning on handling bats

Showing to conduct the morphometric measurement was done to show the important characteristics to identify bats (Figure 5). In general, the participants acknowledged the differences between fruit eating bats and insects eating bats.

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Figure 5. Demonstration on morphometric measurement

To introduce the bats as sylvatic disease reservoirs, including the suspected coronavirus that causes COVID-19, a demonstration on oral and anal swab sampling on bats caught was done (Figure 6). The samples will then be analyzed molecularly.

Figure 6. Oral swab sampling demonstration

In the end, discussion was held to share the importance of bats' niche, threats and challenges due to emerging infectious disease might be carried out. The thoughts and understanding of the participants on bats were better. Participants (Figure 7) plan to continue learning on bats.

Figure 7. Participants from (a) Labuhan Ratu VII and (b) Braja Harjosari, East Lampung

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CONCLUSION

Companionship in introducing bats in Braja Harjosari and Labuhan Ratu VII resulted in a better understanding of bats' ecology and its important role in human-wildlife interface.

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