

Bat cave vulnerability index (BCVI) as a holistic rapid assessment to determining cave conservation priorities in the Gunung Sewu Geopark area

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ABSTRACT

The identification of important habitats for wildlife is essential in order to plan and promote strategies for effective conservation. Caves are frequently overlooked habitats with diverse communities and high endemism in karst area or even a single cave. In cave habitats, bats are providers of energy for other cave dependent species. However, identifying caves for conservation priorities requires an understanding of cave-dwelling species diversity, endemic patterns, behavior, and conservation status, in addition to a standard mechanism for evaluating risk. This study aimed to determine the priority of cave conservation in the Gunung Sewu geopark area based on a holistic rapid assessment using the Bat cave vulnerability index (BCVI). This research was conducted from March to May 2022. Sampling was carried out purposively in five caves in the Gunung Sewu Geopark area, including Cerme cave, Ngingrong Cave, Pindul Cave, Semuluh Cave, and Sodong Cave. Data analyzed with Bat Cave Vulnerability Index statistic (BCVI). The index integrates the biotic potential and biotic vulnerability of the caves, which is represented mainly by bat species diversity and vulnerability to threats of the caves respectively. In this study, the cave with the highest priority level is Pindul (1A), followed Cerme (1B), Ngingrong (2C), Semuluh (3C) and the lowest priority is Sodong cave (4B). Therefore, recommendations can be given to the relevant authorities in prioritise conservation efforts in the cave habitats with the highest BCVI scores. Furthermore, the multiple and holistic criteria of the BCVI can be adapted to prioritise caves in a wider scale in the tropics, and in other area with diverse cave ecosystems.

Kata Kunci: Bat cave, Biotic vulnerability, Ecological indicators, Umbrella species, Gunung sewu