

# KOMPARASI PENGGUNAAN *PASSIVE ACOUSTIC MONITORING* DAN *POINT COUNTS* UNTUK SURVEI BIODIVERSITAS AVIFAUNA DI HUTAN KEMUNING, TEMANGGUNG, JAWA TENGAH

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## INTISARI

*Monitoring* biodiversitas avifauna merupakan kegiatan penting dalam upaya strategi konservasi. *Point counts* merupakan salah satu metode yang sering digunakan dalam *monitoring* biodiversitas avifauna. Namun, metode tersebut memiliki beberapa kelemahan yaitu pada saat pengamatan burung, burung dapat menanggapi kehadiran pengamat, pengamat sulit untuk mengidentifikasi spesies dalam waktu singkat dan ketersediaan pengamat yang ahli dalam melakukan survei masih sedikit. Penggunaan *passive acoustic monitoring* (PAM) diharapkan menjadi alternatif tambahan dalam memantau biodiversitas avifauna di Pulau Jawa. Namun, uji efektifitas penggunaan metode tersebut belum pernah dilakukan untuk di hutan sekunder. Penelitian ini bertujuan untuk: 1) Membandingkan penggunaan metode *passive acoustic monitoring* dan *point counts* untuk identifikasi jenis burung di Hutan Kemuning; 2) Mempelajari komposisi akustik dengan menggunakan *passive acoustic monitoring* di Hutan Kemuning. Penelitian ini dilakukan pada tanggal 1-9 Desember 2019 di Hutan Kemuning Temanggung Jawa Tengah. Metode yang digunakan yaitu *Passive Acoustic Monitoring* (PAM) dan *Point counts*. Data rekaman dianalisis dengan menentukan *low frequency* (Hz), *high frequency* (Hz), dan *peak frequency* (Hz). File rekaman suara kemudian di catat dan diberi kode tipe suara agar mempermudah identifikasi. Data dianalisis dengan menggunakan *software* Raven Pro 1.6 dan R statistic. Hasil penelitian ini menunjukkan bahwa terdapat 78 tipe suara avifauna dengan rentang *peak frequency* antara 258.398 Hz sampai dengan 7751.95 Hz. Kemudian dari 78 Tipe Suara tersebut teridentifikasi 47 spesies avifauna. Penggunaan *Passive Acoustic Monitoring* pagi hari di Hutan Kemuning memerlukan waktu 10 menit untuk mendapatkan jumlah spesies yang setara dengan *point counts*, namun pada sore hari membutuhkan waktu 20 menit perekaman.

Kata kunci:

*Passive acoustic monitoring*, *Monitoring* biodiversitas, Komposisi akustik, Avifauna, Hutan Kemuning.

## **COMPARATION OF PASSIVE ACOUSTIC MONITORING AND POINT COUNTS FOR AVIFAUNA BIODIVERSITY SURVEYS IN KEMUNING FOREST, TEMANGGUNG, CENTRAL JAVA**

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### **ABSTRACT**

Avifauna biodiversity monitoring is an important activity in conservation strategy efforts. Point counts are one of the methods often used in monitoring avifauna biodiversity. However, this method has several disadvantages such when observing birds, birds can respond to the presence of observers, observers find it difficult to identify species in a short time and the availability of observers who are experts in conducting surveys is still small. The use of passive acoustic monitoring (PAM) is expected to be an additional alternative in monitoring avifauna biodiversity in Java. However, testing the effectiveness of using this method has never been carried out in secondary forests. This study aims to: 1) Comparing the use of passive acoustic monitoring methods and point counts for the identification of bird species in the Kemuning Forest; 2) Studying acoustic composition using passive acoustic monitoring in the Kemuning Forest. This research was conducted on 1-9 December 2019 in the Kemuning Forest, Temanggung, Central Java. The method used is Passive Acoustic Monitoring (PAM) and Point counts. The recorded data were analyzed by determining the low frequency (Hz), high frequency (Hz), and peak frequency (Hz). The recorded voice files are then recorded and coded for sound types to make identification easier. Data were analyzed using Raven Pro 1.6 and R statistic software. The results of this study indicate that there are 78 types of avifauna sounds with a peak frequency range between 258,398 Hz to 7751.95 Hz. Then from the 78 sound types, 47 avifauna species were identified. The use of Passive Acoustic Monitoring in the morning in the Kemuning Forest takes 10 minutes to obtain the number of species equivalent to point counts, but in the afternoon it takes 20 minutes of recording.

**Keyword:** Passive acoustic monitoring, Secondary Forest, Acoustic composition, Avifauna monitoring, Kemuning Forest.