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Map distribution of *Rhinolophus canuti* (Canut's Horseshoe Bat) in Gunung Sewu Karst Area, Yogakarta

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ABSTRACT

***Rhinolophus canuti* is an insectivorous bat that endemic to Indonesia. They can be found on Java and Bali islands. Based on International Union for Conservation of Nature or IUCN, *Rhinolophus canuti* listed as vulnerable. Information shows that population in Bali may be the only remaining extant one. This research aimed to determine the distribution of *Rhinolophus canuti* in horizontal caves in Gunung Sewu karst area, Yogyakarta. Besides, to count Rhinolophus canuti that caught on the trap. This research use mist net method to trap the bats that are flying in and out from the cave. Mist net is set during twilight and dawn at the cave entrance, and spontaneously count the bats of *Rhinolophus canuti* that was trapped on mist net and then release them. Result shows that *Rhinolophus canuti* found in 6 of 26 horizontal caves sample. The caves dwelled by Rhinolophus canuti are Jlamprong, Toto, Gremeng, Ndilem, Trinting, and Groda. Highest number, there are 27 individuals of *Rhinolophus canuti* caught at Groda cave and at Gremeng cave only 1 individual that caught on the trap.**

Key words: Cave, Distribution, Gunung Sewu Karst, *Rhinolophus canuti*, Yogyakarta

INTRODUCTION

Bat is the only one mammal that can fly. Bats are animal that active to have an activity in the night or called as nocturnal animal (Suyanto, 2001). The habitats of bats are in caves, trees, or roosting in city buildings depend on its food. Bat's kingdom is Animal. In phylum of chordate, and in class of Mammals. It's belonging to order of Chiropteran. Chiropteran can be differentiated to be 2 Sub-Order; there are insectivorous bats (*Microchiroptera)* and bats that eat fruits called *Megachiroptera.* In ecosystem and human life. The flying mammals have an important function, there are; as distributors of seeds, can produce guano, etc (Tri Atmoko, 2013).

Insectivorous bats (*Microchiroptera*) mostly life in caves. Bats known as animal that sensitive with environmental changing. The changes are from nature or human activity, but now the huge threat for bat is a change from human activity, as illegal logging and cave tourism.

Microchiroptera rely on its auditory to know the environment with reflecting the ultrasonic sound from itself or called as echolocation. One of many species in *Michrochiroptera* Sub-Order is *Rhinolophus canuti.* This species in from Rhinolophidae family. According to ***International Union for Conservation of Nature* (IUCN),** the status of this species listed as **vulnerable**. The distributions of these bats are in Bali and Java exactly it is endemic in Indonesia. Information shows that population in Bali may be the only remaining extant one.

Information from IUCN, we haven't data that show its existence. Because of that, we must make an observational research about *Rhinolophus canuti* actualy about its distribution in Java, notably in Gunung Sewu Karst area. This research is not basic research, because in there already some research that observing the diversity of bats in some caves in this area, and they had have got *Rhinolophus canuti.*

Classification of *Rhinolophus canuti* bats is:

Kingdom	:	Animals
Phylum	:	Chordata
Sub Phylum	:	Vertebrata
Class	:	Mamalia
Order	:	Chiroptera
Sub Order	:	Microchiroptera
Family	:	Rhinolophidae
Genus	:	*Rhinolophus*
Species	:	*canuti*

Gunung Sewu Karst is one of seven karst area in Indonesia that located in Java Island. This area is an outstretch hill near south beach "pantai selatan" or in Bantul in province of Yogyakarta to Pacitan in province of East Java. Until now we have very limited data about Biodiversity in Gunung Sewu Karst Area, notably for bats (chiroptera). As we know that bats is very functional for ecosystem and human life, so we must make a map distribution of *Rhinolophus canuti,* in Gunung Sewu Karst Area, Yogyakarta.

Research aim

This research have aims to determine the distribution of ***Rhinolophus canuti*** in horizontal caves in Gunungs Swu karst area, Yogyakarta. To count ***Rhinolophus canuti*** that had caught on the trap.

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Research usage

This research can use: in research this data can be a basic data for other concerned research especially about *Rhinilophus canuti* bats and exactly about its distribution in java notably in Gunung Sewu Karst Area, in Gunungkidul, Yogyakarta. In education this research expected can give an information to teacher, lecture, or for student, that the important of bats conservation in an ecosystem and human life, especially *Rhinolophus canuti* that have status vulnerable from ***red list*** **IUCN**. And the last for government, it can help them to make a policy especially in conservation of bats and Karst area in Indonesia.

MATERIALS AND METHODS

The instrument or material that uses in this research are: Standard Operational Procedures (Helm, Boot, Headlamp, Coverall), Mist net, camera, GPS, book, pen, Counter*, Blacu,* and Caliper. This research done in some horizontal cave sample in Gunung Sewu Karst Area, Gunungkidul, Yogyakarta, and this research done in five months.

Method that used in this observation is, *fly in fly out* method. This method use mist net that set (make a trap). ***"Mist net is set during twilight and dawn at the cave entrance"*** or other location in the cave that possible to set a mist net until the bats that fly in or fly out in the cave in this track get caught. Mist net set in afternoon (17.00-19.00) and in the morning (03.00-06.00) GMT+7. That time bats have an activity that flying in from feeding or flying out from its roosting area for feeding. And then count *Rhinolophus canuti* bats that caught in mist net with counter then release them.

Identifying of bats using identification book according to Suyanto (2001) in "*Buku Panduan Lapangan Jenis-Jenis Kelelawar di Indonesia*". The data that got then analyzed by descriptive analysis.

The geographic place every sample of caves that observed, is an coordinates points used GPS (*Global Positioning System*). The coordinates data processing use a computer software and we get the map distribution of *Rhinolophus canuti* (Canut's Horseshoe Bat) in Gunung Sewu Karst Area, Yogyakarta**.**

RESULTS AND DISCUSSION

This research activity done in 26 horizontal cave samples in all area of Gunung Sewu Karst Area, in province of Yogyakarta (D.I.Y) from march until June 2014. This research aimed to determine the distribution of ***Rhinolophus canuti*** in horizontal caves in Gunung Sewu karst area, Yogyakarta.

The *Rhinolophus canuti* bats that counted after caught in trap entered into this table.

Table 1. The Rhinolophus canuti bats that counted after caught in trap

No	Name	Latitude	Longitude	Individual(s)
1	Ngreneng	-8,02254	110,66965	0
2	Jlamprong	-8,00676	110,40661	6
3	Gesing	-8,00967	110,67755	0
4	Luweng Buntet	-8,01020	110,67722	0
5	Sinden	-8,01547	110,67928	0
6	Toto	-8,02064	110,65894	6
7	Kali Suci	-8,03720	110,38200	0
8	Gremeng	-7,94205	110,72033	1
9	Gilap	-7,95761	110,76005	0
10	Saptoargo	-7,91730	110,73669	0
11	Lowo	-7,94897	110,73169	0
12	Pindul	-7,92626	110,64867	0
13	Sriti	-7,92679	110,64316	0
14	Ndilem	-7,95086	110,48448	4
15	Trinting	-7,95901	110,48257	2
16	Pengilen	-8,02176	110,65810	0
17	Greng	-7,92717	110,62179	0
18	Jothak	-8,01781	110,45928	0
19	Song Lipar	-8,03101	110,46138	0
20	Groda	-7,91585	110,73913	27
21	Gogor	-8,01745	110,51274	0
22	Klepo	-8,01798	110,52770	0
23	Ngeleng	-8,02232	110,54961	0
24	Tlogo Ngrandu	-8,06300	110,48810	0
25	Gelatik	-8,03720	110,38200	0
26	Seropan	-7,92159	110,73719	0

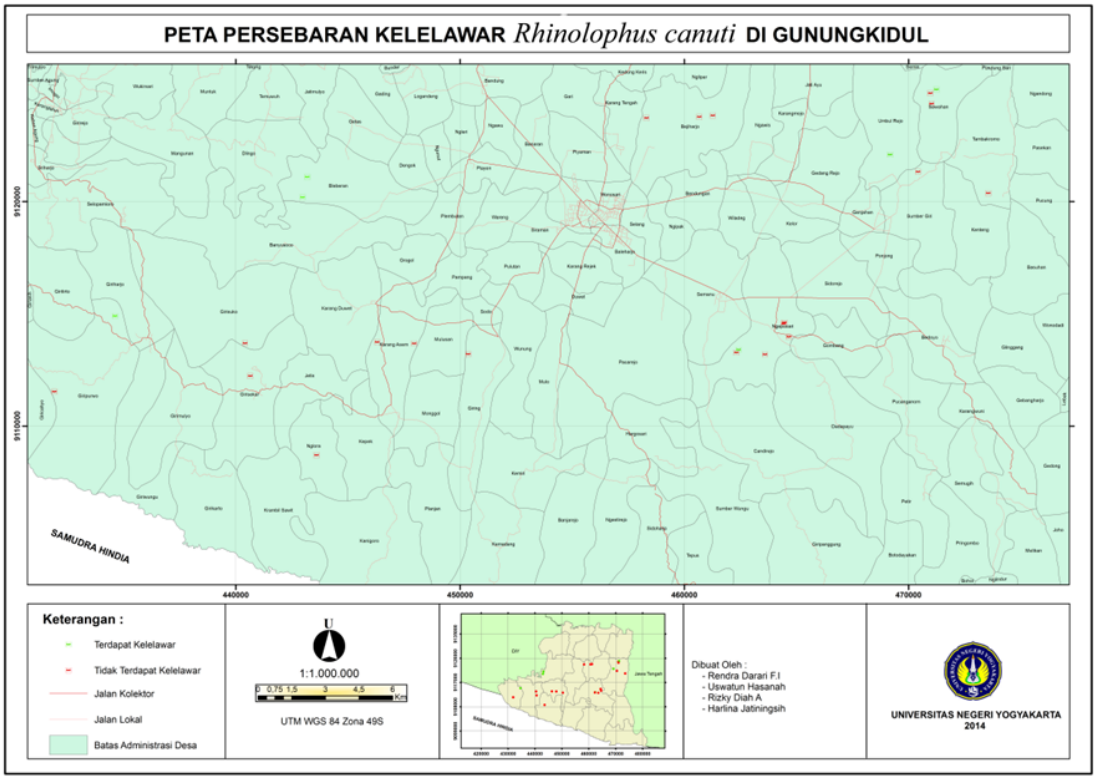

Figure 1. Map distribution of *Rhinolophus canuti,* in Gunung Sewu Karst Area, Yogyakarta.

Result shows that ***Rhinolophus canuti*** found in 6 of 26 horizontal caves sample. The caves dwelled by ***Rhinolophus canuti*** are Jlamprong, Toto, Gremeng, Ndilem, Trinting, and Groda. Highest amount, there are 27 individuals of ***Rhinolophus canuti*** caught at Groda cave and at Gremeng cave only 1 individual that caught on the trap.

The bats that trapped in mist net is placed on cave that have same characteristic in climate condition, cave morphology like chamber and cave wall that same, it can be a place that used as a roosting site of *Rhinolophus canuti.* From the data we can make a map distribution of *Rhinolophus canuti,* in Gunung Sewu Karst Area, Yogyakarta.

We can found this bats not only in Bali but also in Java especially in Gunung Sewu Karst, it is a new data according to the last data from IUCN that written just found in Bali. From the data of *Rhinolophus canuti* that count, and the geographic coordinates data from GPS we make a map that show the distribution of *Rhinolophus canuti*. This map can help another research about cave, biodiversity of Gunung Sewu Karst Area and absolutely research about bats and *Rhinolophus canuti.*

CONCLUSION

From the research, can be conclude that *Rhinolophus canuti* bats still found in Java island, especially in Gunung Sewu Karst area, Yogyakarta, there are in some horizontal caves in there. Result shows that *Rhinolophus canuti* found in 6 of 26 horizontal caves sample. The caves dwelled by *Rhinolophus canuti* are Jlamprong, Toto, Gremeng, Ndilem, Trinting, and Groda. Highest amount, there are 27 individuals of *Rhinolophus canuti* caught at Groda cave and at Gremeng cave only 1 individual that caught on the trap.

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REFERENCES

Chairunnisa. 1997. *Studi komparatif morfologi saluran pencernaan kelelawar pemakan serangga (**Scotophilus kuhli**) dan kelelawar pemakan buah (**Cynopterus brachyotis**)*. Tesis. Progam Studi Biologi. Sekolah Pasca Sarjana IPB. Bogor.

Hutson, A.M., Kingston, T. & Csorba, G. 2008. *Rhinolophus canuti*. In: IUCN 2013. **IUCN Red List of Threatened Species**. Versi 2013.1. <www.iucnredlist.org>. Diunggah 03 Oktober 2013.

Suyanto, A. 2001. *Kelelawar di Indonesia*. Puslitbang-LIPI. Bogor.

Tria Atmoko. 2013. *Kelelawar "Mamalia Terbang". Majalah Swara Sambora* Vol. II No. 1 Tahun 2013.