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Bellucia pentamera, Naudin., in South Sumatra: Up Date of Distribution Data and Insect Host Role

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ABSTRACT

Distribution data of *B pentamera*, had been published, and it is found in Palembang, Ogan Ilir, Muara Enim and Pali residences. This month, December 2023, distribution data of this plant be up date by tracking the last samples and find the new trees. Survey, literature study and citizen information are collected and analysed in this article. Two trees, close to SMA 1 Indralaya , Ogan Ilir, and the other one, at Talang Taling roadside, Muara Enim, have died, no more trunk, may be are cut by the owners. But it is found 6 trees in Sigam, Muara Enim,; 4 trees at Bitis, Muara Enim; 2 trees at Indralaya, Ogan Ilir; some trees at Tanjung Baru village, Northern Lampung, some trees at Hutan Harapan, Jambi, some trees at Lais, Musi Banyuasin, some trees at Sungai Lilin,Musi Banyuasin, a tree at Green Paradise Hotel Park, Pagar Alam; at last at Lubuk Bintialo and Pangkalan Bulian villages, Musi Banyuasin, as published by a research institute. Investigation on the insects that use *B pentamera*as their host, found four species namely *Delichoderus thoracicus* (small black ant), *Xylocopa sp* (carpenter bee) and *Oecophylla smaragdina* (Asian weaver ant) and *Melanoplus diffrentialis* (spotted legs grasshopper).

KEYWORDS:

Distribution, host, insect.

INTRODUCTION

This is a kind of tree that can reach 2 to 12 m in height. It is originally native to the New World Tropics from southern Mexico to Bolivia and Brazil, but today it is also cultivated in other parts of the world. According to Dillis et al., (2017), in Gunung Palung National Park, Indonesia, *Bellucia pentamera* has a trunk covered by coffee-colored bark, smooth, oval-shaped leaves and scented, white flowers followed by edible, fleshy, yellowish fruits, with a sweet and slightly acidic taste. Ideal for tropical and warm-temperateclimates (Anonymous,2023).*Bellucia pentamera* was limited to gaps, regardless of canopy tree density. Furthermore, gaps created by selective logging supported significantly more *B. pentamera* individuals than natural gaps. Finally, natural treefall gaps in the disturbed area contained significantly more individuals than gaps in the undis- turbed forest. Therefore, it appears that selective logging not only created more gaps for B. pentamera,these gaps in particular promoted greater abundance of this invader and led to a population increase through- out the disturbed habitat.

Windiyanti et al., (2023) reported that fruit extract of this species could inhibite *Esceria coli* growth with 3.82 mm inhibition zone, during 24 hours treatment at 200 mg/l. The fruits also have high content of vitamin C; 2,200 – 3,500 mg/100g (Marisa and Salni, 2023). They also reported that at 2019, B *pentamera* is distributed among most of residences of South Sumatra province. In caring the continuously scientific informatioan, it is needed to check the plant distribution in 2023, even to neighbour provinces (Jambi, Lampung and Bengkulu), at a time, investigate the insects species that use *B pentamera* as their host.

METHODOLOGY

Surveys are made during November and December 2023, to find the trees, in Southern Sumatra provinces, base on the information of citizens and past published paper. Some students of Biolgy Department, Sriwijaya University, were requsted to help the survey work. Documentation on tree diameters, their position on globe by google map, be done. Picturing is used cellular phone camera, Samsung. Literature study also be done to find out the position of *B pentamera* plants. Data coolected is explained through table, distribution map, and pictures.

Picture 1. Measuring trunk diameter.

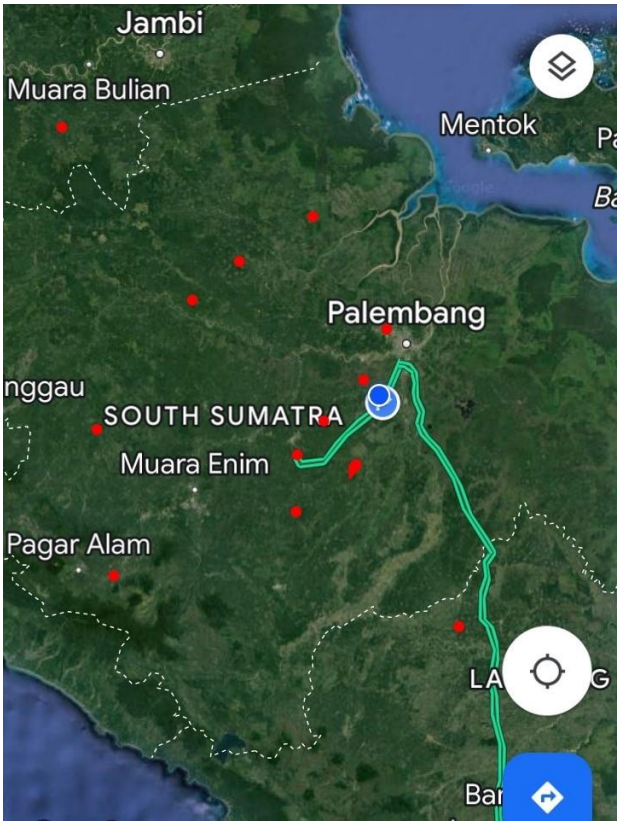
RESULT AND DISCUSSION

The results of investigation are written as below table and pictures.

Table 1. Distribution Data of *B pentamera* trees in South Sumatra In this table, most of data were got from survey, but some of them, got from scientific publication, like ZSL and Santoso (2021).

No Sample	Location	Position (Lat., Long.)	Data Source	Diameter Breast High (cm)
1	Indralaya, Ogan Ilir	-3.222435 104.646249	Survey	13
2	Indralaya, Ogan Ilir	-3.222614 104.646249	Survey	15
3	Burai, Tanjung Batu, Ogan Ilir	-3.282120 104.591615	Survey	5
4	Burai, Tanjung Batu, Ogan Ilir	-3.281863 104.591743	Survey	14
5	Sigam, Muara Enim	-3.256551 104.407248	Siurvey	5.5
6	Sigam, Muara Enim	-3,256590 104,407207	Survey	4
7	Sigam, Muara Enim	-3,256611 104,407210	Survey	6
8	Sigam, Muara Enim	-3,256438 104,407302	Survey	7
9	Sigam, Muara Enim	-3,257606 104,406944	Survey	1
10	Sigam, Muara Enim	-3,257978 104,407692	Survey	4
11	Bitis, Muara Enim	-3,228234 104,433016	Survey	5
12	Bitis, Muara Enim	-3,228255 104,432998	Survey	8
13	Bitis, Muara Enim	-3,228327 104,432993	Survey	5.5
14	Payaraman, Ogan Ilir	-3,466175 104,512061	Survey	17
15	Payaraman, Ogan Ilir	-3,466219 104,512063	Survey	15
16	Pagar Alam	-4,068575 103,191595	Survey	14
17	Tanjung Baru, Kemuning, Lampung	-4.890726 104.547432	Survey	7.5
18	Lubuk Bintialo, Muba		ZSL publication (Priawandiputra et al.,2020)	
19	Pangkalan Bulian,Muba		ZSL publication (Priawandiputra et al., 2020)	
20	Talang Kelapa, Banyu Asin	-2,895714 104,75165	Survey	18
21	Bentayan, Sungaililin, Muba	-2,548337 104,108968	Survey	4.5
22	Hutan Harapan, Jambi		PT REKI (Santoso, et al., 2021)	
23	Gelumbang,Muara Enim	-3,247441 104,442619	Survey	21

24	Gelumbang Muara Enim	-3,247540 104,442679	Survey	10
25	Gelumbang Muara Enim	-3,247617 104,442683	Survey	12
26	Dusun Tuo, Lembah Masurai, Jambi	-2.38102 101. 87856	Survey	7
27	Padang Bindu, Benakat, Muara Enim	-3.2616794 103.420018	Survey	11



Picture 2. Existing villages of *B pentamera,* Southern Sumatra (red dots)

Picture 2 above, shows existing of plant everywhere in South Sumatra, included all provinces, Jambi, Bengkulu and Lampung. It is mean, *B penramera* growth from western coast until eastern coast, from north province Jambi, until south point, Lampung. As Indonesian Ministry for Environmental and Forestry Regulation number P.94/MENLHK/SETJEN/KUM.1/12/2016 categorizes *Bellucia pentamera* Naudin is characterized as an invasive plant, that need a strict management and control. This result map, shows the increase of point distribution in a province and between province. The intensity on sampling survey and base data helpt, could cause this phenomena. While the time duration, between 2019 to 2024, five years changing, death and dispersal, of course have the effects. Solfiyeni e al., (2021) had published that the distance from the road has the effect on the existency, distribution, of this plants, while the light intensity not make impact the plant distribution on study area, in Southern Solok, West Sumatra.

Pictures 2 below, shows the insects animal, tah stay on *B pentamera* trees. There are black ant, asian ant, carpenter bee, and grasshopper. Scientific name for those insects are written under the pictures. As Mas Eko (2020) had been published, that some animals, noted as visitor and user of this plants, namely squirrel, monkey and birds; but no further information about the insect that use *B pentamera* as their host. Ants, usually use the trees as their nest and insect like carpenter bee, got pollen for

larvae feeds. Emil (2022) reported from Aceh, that the trees swith 4.6 m means height, are selectted by *O smaragdina* as theis nest host, and in Ar Raniry campus area, 16 species were found as the *O smaradiana* host. Grasshopper, usually eat the leaves as their food. Azmi et al., (2014) reported *Xylocopa confusa* Linn. Was an insect species that visit cucumber flower as the host, in West Sumatra.

Picture 2. a. *Xylocopa sp* b. *Delichoderus thoracicus* nest
(black colour, on flower) Hole in the trunk

c. *Melanoplus viridipes* on the leaf d. *Oecophylla smaragdina*
Eat the leaves issue. Picture in mating Ready to roll the leave for nest.

Related to *Melanoplus viridipes*, that catched by camera in mating activity, were found in Gelumbang, Muara Enim Residence, that have spotted legs, indeed preferences on woodland or margins of woodland as their habitat (Otte, 2009). Afdilah et al., (2020) had done an investigation on Grasshopper diversity at Liwa Botanical Garden, Lampung, hundreds kilometers southern Gelumbang, and found *Melanoplus differentialis* and 9 species others. At other hand, Jonas & Joern (2008), reported that *Melanoplus bivittatus*, select forbs as their food than grass, as could be seen in this study, *on B pentamera* leaves.

CONCLUSION

The investigation on updating distribution data of *B pentamera* in south Sumatra is found commonly existing of this plant at every residence of the province, include Jambi and Lampung; and it is recorded that four species of insects (*Delichoderus thoracicus, Xylocopa sp, Melanoplus differentialis* and *Oechophylla smaragdina*) use *B pentamera* as their host, could be for nest and foods. Five species with *Trigona sp,* as this insect is reported visit the flower of *B pentamera* in Banyu Asin.

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