



ISBN: 978-602-0860-13-8

# Proceedings of 3<sup>rd</sup> International Wildlife Symposium October 18-20, 2016

*“Conserving Sumatran Wildlife Heritage  
for Sustainable Livelihood”*



Institute for Research and Community Service  
University of Lampung

# 3<sup>rd</sup> INTERNATIONAL WILDLIFE SYMPOSIUM



*"Conserving Sumatran Wildlife Heritage for Sustainable Livelihood"*

## PROCEEDING

ISBN: 978-602-0860-13-8

Organized by:



RESEARCH AND DEVELOPMENT CENTER OF ENVIRONMENT  
INSTITUTE FOR RESEARCH AND COMMUNITY SERVICE  
UNIVERSITY OF LAMPUNG

2016

**PROCEEDING IWS 2016**

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Published by:

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ISBN: 978-602-0860-13-8

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# PHYTOTELMATA SPECIES AND ITS DISTRIBUTION IN SOUTH PRINGSEWU, LAMPUNG

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## ABSTRACT

Phytotelmata is a unique morphological characteristic plant, it can keep waterbody that is use as breeding site for insect like mosquito. This research was done to identify phytotelmata and its distribution in South Pringsewu Village, Lampung on March 2016. Plant identification was in Botani Laboratory Biology Department Lampung University. Five phytotelmata species of 31 individuals were identify with two different types node (Ketiak Daun, KD) and tree holes (Lubang Pohon, LP). Value distribution and dispersal patterns of five species of plants have a value  $I_p > 0$  belonging to the clumped distribution patterns.

Keywords : node (Ketiak Daun, KD), phytotelmata, pringsewu, tree holes (Lubang Pohon, LP)

## 1. INTRODUCTION

Indonesia is one country that has a high biological wealth of flora and fauna (Suryana, 2008). The high level of biodiversity causes traits and characteristics which are different in each region (Nandika, 2006). The existence of living beings in a place to be related to habitat and ecological niches. Living creatures that are in a habitat will be distributed to the appropriate areas for survival (Kramadibrata, 1996). Distribution can be interpreted as spread of any organism in a habitat. Spreading that occurs will cause patterns of spread of, ie the spread in various ways, random and clumped. Pattern - the pattern of spread can occur in both animals and plants, including plants phytotelmata (Indriyanto, 2008). Phytotelmata is a plant that can hold water in the body that can serve as habitat for breeding grounds by a variety of organisms, including insects (Kitching, 1971; Sota, 1996; Fish 1983).

Pringsewu is one of the districts with fairly rapid development and population growth are quite large. Increased population growth will be accompanied by development, particularly in housing construction. The existence of gardens around the housing will have an impact on the number of plant species that grows mainly phytotelmata types used by mosquitoes as breeding places naturally. Until now there has been no research on the distribution of plants phytotelmata and types of mosquitoes found in the District Pringsewu. Therefore, research is needed in order to know the type and distribution of phytotelmata in Districts South Pringsewu Village, Lampung in the hope of providing information to the public about the type and distribution of phytotelmata and the types of mosquitoes that inhabit it, and as a reference for relevant agencies in the efforts to control disease-carrying mosquitoes.

## 2. MATERIALS AND METHODS

This research was conducted in March 2016 South Pringsewu Village, Lampung. Identification phytotelmata conducted at the Botany Laboratory, Biology Department, Faculty of Mathematics and Natural Sciences, Lampung University. The tools will be used in this research is the 3200D NIKON cameras, thermometers, measuring cups, data sheets, stationery, sample bottles, large plastic, paper label, GPS, pH paper, volumetric pipette and hygrometer. Materials used are plant phytotelmata found. Location research is using *purposive sampling*. Sampling plant belonging to the plant criteria phytotelmata done directly. Data obtained from observations later in the analysis. To determine the distribution phytotelmata using the formula Morista Index (Krebs, 1989) are as follows:

$$Id = n \frac{\sum x^2 - \sum x}{(\sum x^2) - \sum x}$$



Information :

Id	: Deployment Index Morista
n	: Number of plots
$\Sigma x$	: Number of individuals of a species per sample plots
$\Sigma x^2$	: The sum of squares of each individual species plots
$X^2_{0,975}$	= 0,216
$X^2_{0,025}$	= 9,348

With the following provisions:

1. If the value of  $I_p < 0$  then a uniform distribution pattern
2. If the value  $I_p = 0$ , the pattern of random distribution
3. If the value  $I_p > 0$  then the distribution pattern of clump

### 3. RESULTS AND DISCUSSION

#### a. Type and amount phytotelmata found in South Pringsewu Village, Lampung

Observance of the kind phytotelmata in the village of South Pringsewu District of Pringsewu found three tribes and five types of plants phytotelmata. Phytotelmata types most commonly found are the type (LP) as many as 17 individuals. The average volume of water being stored in phytotelmata the highest type of tree holes (LP) of 30.52 ml (Table 1). The number of plant species most commonly found are *Gigantochloa atroviolacea* of Poaceae tribes of nine individuals who are able to accommodate a puddle of 160 individuals were found.

Table 1. Type and amount phytotelmata found in the village of South Pringsewu Pringsewu Subdistrict, Regency of Lampung Pringsewu

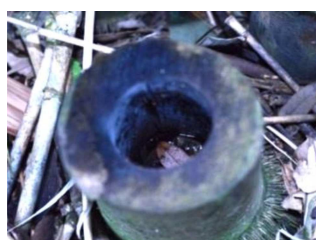
No.	Family	Plant Type	Type of Phytotelmata	Water Volume (ml)	Number of individuals	The total number of plants (individual)
1	Araceae	<i>C. esculenta</i>	KD	23	4	41
		<i>A. macrorrhiza</i>	KD	32,2	5	17
2	Musaceae	<i>M. paradisiaca</i>	KD	42	5	57
3	Poaceae	<i>G. apus</i>	LP	32,87	8	160
		<i>G. atroviolacea</i>	LP	28,4	9	160
<b>Jumlah</b>			<b>-</b>	<b>158,47</b>	<b>31</b>	<b>435</b>

Note: KD : Node ;  
LP : Tree Hole

The observation of the type phytotelmata, found two types, namely the type KD phytotelmata (a) and type LP (b) (Figure 1).



(a)



(b)

Figure 1. Types of phytotelmata found, (a) type phytotelmata node (Ketiak Daun, KD) and (b) type phytotelmata tree holes (Lubang Pohon, LP)

### b. Distribution and dispersal patterns phytotelmata

Value distribution of five types phytotelmata found, on average, have a distribution value  $> 0$ . This value indicates that the distribution of phytotelmata found in the Southern District of Pringsewu Pringsewu village belonging to the type of clustered distribution patterns (Table 2).

Table 2. Results of the value of the distribution and pattern of spread in the village Pringsewu phytotelmata Southern District of Pringsewu

No.	Plant type	Distribution Value	spread pattern
1.	<i>C. esculenta</i>	1	Clump
2.	<i>A. macrorrhiza</i>	1	Clump
3.	<i>M. paradisiaca</i>	1	Clump
4.	<i>G. apus</i>	1	Clump
5.	<i>G. atrovioleacea</i>	1	Clump

The identification results that have been committed against phytotelmata plants, plant species most commonly found are the type *Gigantochloa apus* (apus bamboo) and *G. atrovioleacea* (black bamboo) of Poaceae tribes that as many as 160 individuals (Table 1). A large number of these plants is suspected because of the environmental conditions in accordance with the District Pringsewu environmental factors required by the bamboo plants to grow and reproduce. According to Sutyono and friends (1996), bamboo plants will breed well if the air temperature ranges between 8.8°C-36°C and the humidity ranges between 40-85%. Temperatures in the village of South Pringsewu District of Pringsewu range 26-31°C and humidity ranging from 63-78%. It can be argued that the factor of temperature and humidity in the village of South Pringsewu District of Pringsewu suitable for the development of the bamboo plant. In addition to the temperature and humidity, soil type and texture is suspected to be a factor optimal plant growth bamboo. Sutyono and friends (1996) adds that the bamboo plants can grow in all types of soil except soils located near the beach.

If seen from the history, the name of District Pringsewu from Javanese namely "Pringsewu" which means "Thousand Bamboo", so the District Pringsewu dubbed the City of Thousand Bambu. This may formerly District Pringsewu overgrown with dense bamboo plants and these conditions are still to be found (District Pringsewu, 2015).

*M. paradisiaca* plant species of the tribe Musaceae also found that as many as five people from 57 individuals (Table 1). This is likely due to environmental factors in the District Pringsewu support for the life of the banana plant, where the air temperature of about 26-31°C and the texture of the soil in such studies are clay and silty clay. According to Nakasone and Paull (1998), the banana can grow in an environment with a temperature of 15-31°C and the optimum temperature of around 27°C as well as soil texture can be planted banana plants in the form of clay, sand to heavy clay. Due to the environmental conditions that support, society deliberately planted banana plants so the plant is to be one of the featured commodities.

This is supported by data from Badan Pusat Statistics of Pringsewu that kind of fruits that lots produced in the District Pringsewu are bananas (BPS, 2015). Pringsewu a district whose land is quite widely used in the agricultural sector.

If seen from the numbers, the number of individuals that can hold stagnant water is fairly low when compared with the total number of plants, of which five species of plants found there are 31 people can accommodate a puddle of 435 individuals were found (Table 1). But suspected this amount can be increased if at the time of taking and observations in conjunction with the rainy season and the plants was not damaged by the activity of animals and humans.

To determine the distribution patterns phytotelmata, obtained from the analysis of the value of the distribution. Distribution value derived from analysis Morista Index (Katili, 2013), in this study the average - average  $> 0$  showing the clumped distribution patterns. According to Indriyanto (2008) distribution patterns are common in both animals and plants are clustered pattern. Katili (2013) also



says that the distribution pattern mengolompok a pattern that often occurs in nature, this is due to the need for the same environmental factors. Plants will be clustered (grouped) in a region when soil and environmental conditions conducive to the growth (Campbell, 2010).

The distribution pattern of plants which groups can also be caused due to the reproduction the plants, such as plants that reproduce both by seeds wherein seed does not fall far from its parent and reproductive vegetative bud formation, where the shoots that grow not far from its parent (Campbell, 2000) , As the plant *G. atrovioacea* (black bamboo) and *G. apus* (apus bamboo) is the most abundant in this study had a vegetative reproduction (asexual) is a way of breeding involving only one parent and new individuals that appear to originate from the parent body , Vegetative reproduction is divided into two, namely natural and artificial. Vegetative reproduction is naturally there are several kinds, one of which is by way of the formation of buds. One such example is bamboo (Abdurahman, 2008).

#### 4. COCLUSION

The conclusions that can be drawn from this study are:

1. The species most commonly found are the type *G. artoviolacea* and *G.apus*.
2. South Pringsewu village, sub-district administrative Pringsewu plant species are found to have a distribution value > 0 means have adequate clustered distribution patterns.
3. Type phytotelmata most abundant and capable of accommodating a puddle of water that is the type Node (KD)

#### ACKNOWLEDGEMENTS

the author would like to thank the government Pringsewu southern village, friends who have provided advice, criticism and suggestions in this study and those who have helped in the implementation of this study. Thank you very much.

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