

INVENTORY OF HERPETOFAUNA IN REGIONAL GERMPLASM PRESERVATION IN PULP AND PAPER INDUSTRY OGAN KOMERING ILIR REGENCY SOUTH SUMATRA

Deny Noberio¹, Arum Setiawan², Doni Setiawan²

¹Student of Biology department FMIPA Sriwijaya university

²Lecture of Biology department FMIPA Sriwijaya universitas

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ABSTRAK

Penelitian bertujuan untuk mengetahui jenis-jenis herpetofauna yang ada di Kawasan Pelestarian Plasma Nutfah, PT. Bumi Mekar Hijau, Ogan Komering Ilir, Sumatera Selatan. Penelitian ini telah dilaksanakan pada bulan Mei sampai Juni 2015, dilakukan pada 4 transek pengamatan yang ditentukan secara *purposive* dengan mempertimbangkan tipe habitat herpetofauna dan hasil survei pendahuluan. Metode yang digunakan dalam penelitian ini adalah *Visual Encounter Survey* (VES). Pengamatan dilaksanakan pada pagi hari dan malam hari. Jumlah seluruh herpetofauna yang ditemukan saat pengamatan yaitu sebanyak 15 Jenis dari 9 famili. Jumlah jenis amfibi yang berhasil ditemukan sebanyak 6 jenis dari 3 famili dan reptil sebanyak 9 jenis dari 6 famili. Terdapat 2 spesies yang termasuk kategori terancam/*vulnerable* IUCN 2015 dan Appendik II CITES yaitu *Siebenrockiella crassicollis* dan *Cuora amboinensis cuoro*.

Kata kunci : Inventarisasi, herpetofauna, kawasan pelestarian plasma nutfah, hutan tanaman industri

ABSTRACT

The research aims to determine of herpetofauna in Regional Germplasm Preservation, PT. Bumi Mekar Hijau, Ogan Komering Ilir Regency, South Sumatra. The research was conducted in May until June 2015, conducted on 4 transect observation purposively determined by considering the type of habitat herpetofauna and the results of a preliminary survey. The method used in this research is the *Visual Encounter Survey* (VES). Observations carried out in the morning and evening. The total number of herpetofauna were found during the observation as many as 15 species of 9 families. The number of amphibians was found as many as 6 species of 3 families and reptiles as many as 9 species of 6 families. There are two species categorized as *Vulnerable* in IUCN 2015 and Appendix II CITES which are the *Siebenrockiella crassicollis* and *Cuora amboinensis cuoro*

Key words : Inventory, herpetofauna, regional germplasm preservation, industrial plantation forest

INTRODUCTION

Herpetofauna a vertebrate animal group consisting of reptiles and amphibians. Both include poikilotherm and animals that are sensitive to temperature, humidity and changes in the environment. In addition, they also have habitat and way of life that is almost similar. Common examples of reptiles of which are snakes, lizards and crocodiles, while the animals are classified as amphibians for example, frogs and salamanders.

Indonesia has a fairly high herpetofauna diversity. Reptile species overall are fourth world that is as much as 7.3% (511 species, 150 endemic), while amphibians (270 species, 100 endemic) in the sixth of the world (Bappenas, 2003). Although Indonesia is rich in herpetofauna, but the research on herpetofauna in Indonesia is still very limited. One of them is the island of Sumatra, as one large island that has not done much research on herpetofauna.

PT. Bumi Mekar Hijau (BMH) is a company engaged in the field of Hutan Tanam Industri (HTI) with the main plant acacia. The area of PT. BMH amounted to 250 370 ha, located in Ogan Ogan Ilir, South Sumatera. PT. BMH has several protected areas in it, one of which the Treasury Office (Germplasm Conservation Area) with an area of 448 ha. Protected areas specified in the spatial planning is an area that is required by the government, due to protect biodiversity and ecological functions within the concession area (Ekologika, 2013).

KPPN existence will be very useful for survival herpetofauna considering their impact due to the influence of HTI as forest conversion activities, the manufacture of the canal, acacia harvesting and so on. However, knowledge and attention to herpetofauna in the Treasury Office is still lacking. This is evident from the lack of information regarding the types of animals. These animals are also highly vulnerable to global extinction, due to changes in habitat that is so necessary collection of data and information that existence, benefits and functions in nature may be considered.

MATERIALS AND METHODS

This study was conducted in May-June 2015. The research location in the Treasury Office PT. BMH, Ogan Ogan Ilir, South Sumatera. The method used is

Visual Encounter Survey (Heyer et al., 1994) and trap (drift fence pitfall traps and glue traps) on the line transect made as many as four transects. Transect 1,2, and 3 are placed on terrestrial habitat with each length of 800 m, within 100 m between transects. While the Transect 4 placed on aquatic habitats (channel) with a length of 1 km.

Observations were made on the morning and evening to explore how each transect. Time observation morning at 8:00 am. to 11:00 am. and in the evening at 8 pm. to 23:00 pm.

The data obtained from the field types are then displayed in tabular form, followed by a descriptive appropriate description of the catch and comparing morphological features of the specimen with the guidebook and comes with documentation in the form of photos of each species herpetofauna found.

RESULTS AND DISCUSSION

3.1. Type Herpetofauna The Found at the Treasury Office PT. BMH

The total number of herpetofauna found as many as 15 Type of nine families (Table 4.1). Number of amphibians have been found as many as six types of 3 family consisting of Dicoglossidae (3 species), Ranidae (2 species) and Rhacophoridae (1 species).

All types are obtained, entered in the order Anura. While the number of reptiles found as many as nine species of 6 families. The number of each family among Colubridae (2 species), Gekkonidae (2 species), Scincidae (1 species), Lacertidae (1 species), Geoemydidae (2 species), and Varanidae (1 species).

The results showed that the number of species of amphibians and reptiles at the Treasury Office PT. BMH is relatively low when compared to other studies in Sumatra as Darmawan (2008) and Joseph (2008) on the location of the ex-HPH PT RKI Bungo district in Jambi, Darmawan find amphibians as many as 37 types, and Joseph managed to find as many as 31 species of reptiles. Additionally, Enderwin (2006) has collected as many as 51 species of reptiles in Bukit Barisan Selatan National Park, Teynie et al (2010) noted the number of types herpetofauna with each number as many as 17 species of amphibians and 38 species of reptiles.

Tabel 4.1. List Herpetofauna type found in the Treasury Office PT. BMH

Family	Species	Local names	i	LT1	LT2	LT3	LT4	IUCN (2015)
Dicroglossidae	<i>Fejervarya limnocharis</i>	Katak Tegalan	7	-	-	-	✓	LC
	<i>Fejervarya cancrivora</i>	Katak Sawah	10	-	-	-	✓	LC
	<i>Limnonectes sp</i>	Katak Bangkong	5	-	-	-	✓	LC
Ranidae	<i>Hylarana baramica</i>	Kongkang Baram	1	-	-	-	✓	LC
	<i>Hylarana erythraea</i>	Kongkang Gading	15	-	-	-	✓	LC
Rhacophoridae	<i>Polypedates leucomystax</i>	Katak Pohon Bergaris	6	-	-	-	✓	LC
Colubridae	<i>Ptyas korros</i>	Ular Jali	1	-	-	-	✓	NE
	<i>Homalopsis buccata</i>	Ular Kadut	1	-	-	-	✓	LC
Gekkonidae	<i>Hemidactylus frenatus</i> (*)	Cicak Kayu	4	-	-	-	-	LC
	<i>Cryptodactylus marmoratus</i>	Cicak Hutan	3	-	✓	-	-	LC
Scincidae	<i>Eutropis multifasciata</i>	Bengkarung	9	✓	✓	-	✓	NE
Lacertidae	<i>Takydromus sexlineatus</i>	Kadal Rumput	2	-	-	✓	✓	LC
Geoemydidae	<i>Siebenrockiella crassicollis</i>	Kura-kura Pipi Putih	1	-	✓	-	-	VU
	<i>Cuora amboinensis cuoro</i>	Kura Batok	1	-	-	-	✓	VU
Varanidae	<i>Varanus salvator</i>	Biawak Air Asia	1	-	-	-	✓	LC
The Entire Amount Individuals			67					

Description: (*) species are found outside the transect, IUCN = International Union for Conservation of Nature and Natural Resources, LC = Least Concern, NE = Not evaluated, VU = Vulnerable, i = Number of Individuals, LT = Line Transect, (✓) = observed, (-) = Not observed

It is causing number of species in each different place that is caused by several factors including altitude (masl) and search efforts. The study was conducted at an altitude of 20-32 meters above sea level which is lowland. While research on the ground in Sumatra conducted at varying heights such as research Darmawan (2008) and Joseph (2008) at an altitude of 375-501 meters above sea level, even Enderwin (2006) with an altitude of 1,200 meters above sea level.

Number of individuals of all species were found during the observation that as many as 67 individuals. The amount represents a total of 44 individuals and 23 individuals amphibian reptiles including one individual reptiles were found outside the observation path.

A total of 44 individuals from 6 species of amphibians are found, relatives Dicroglossidae has a number of 22 individuals (50%) with the species composition *Fejervarya cancrivora* (22.73%), *Fejervarya limnocharis* (15.91%), and *limnonectes* sp (11.36%) the next Ranidae has a number of 16 individuals (36.36%) with the species composition *Hylarana erythraea* (34.09%), and *Hylarana baramica* (2.27%) and the last family Rhacophoridae the number 6 individuals (13.64%) in *leucomystax Polypedates* types (Figure 4.1).

A total of 23 individuals of nine species of reptiles are found, the family Scincidae has a number of 9 individuals (39.13%) on the type *Eutropis multifasciata*. Furthermore, the family Gekkonidae have a number of 7 individuals (30.43%) with the composition of species *Hemidactylus frenatus* (17.39%) and *Cryptodactylus marmoratus* (13.04%). Family Colubridae (8.69%) had the number 2 individuals on the type *Ptyas korros* (4.35%), and *Homalopsis buccata* (4.35%).

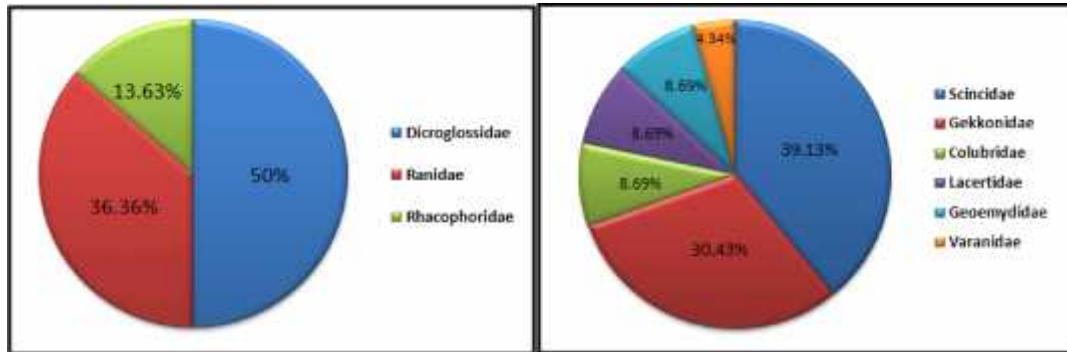


Figure 4.1. Diagram percentage of the number of individuals of each family of amphibians found in the Treasury Office PT. BMH

Figure 4.2. Diagram percentage of the number of individuals of each family of reptiles found in the Treasury Office PT. BMH

Family Lacertidae has a number of 2 individuals (8.69%) on the type *Takydromus sexlineatus*. Geoemydidae family also has a number of 2 individuals (8.69%) with the species composition *Siebenrockiella crassicollis* (4.35%), and *Cuora amboinensis* (4.35%). And the last Varanidae (4.34%) found only one individual on the type of *Varanus salvator* (Figure 4.2). *Siebenrockiella crassicollis* found SVL has a length of 19 cm and an adult species. According to Iskandar (2000) turtle white cheek including small species and the largest size is only reached 20 cm.



Figure 4.3. (A) small canal where the discovery *Siebenrockiella crassicollis*. (B) Pieces of abdominal shielding (plastron) of *Cuora amboinensis cuoro*

Tabel 4.2. Time encounter species with *Visual Encounter Survey* methods

CLASS	Species	Time encounter	
		Morning	Night
AMFIBI	<i>Fejervarya limnocharis</i>	-	✓
	<i>Fejervarya cancrivora</i>	-	✓
	<i>Limnonectes</i> sp	-	✓
	<i>Hylarana erythraea</i>	-	✓
	<i>Hylarana baramica</i>	-	✓
	<i>Polypedates leucomystax</i>	-	✓
REPTIL	<i>Ptyas korros</i>	-	✓
	<i>Homalopsis buccata</i>	✓	-
	<i>Cryptodactylus marmoratus</i>	-	✓
	<i>Hemidactylus frenatus</i> *)	-	✓
	<i>Eutropis multifasciata</i>	✓	✓
	<i>Takydromus sexlineatus</i>	✓	✓
	<i>Siebenrockiella crassicollis</i>	✓	-
	<i>Cuora amboinensis cuoro</i>	✓	-
	<i>Varanus salvator</i>	✓	-

Description: (✓) = Observed, (-) = Not observed (*) Species found outside the transect

Herpetofauna has not been unfolding at location using drift fence pitfall traps caused by several factors including time. It takes a long and regular monitoring of at least once a day to see the trap. According Kusrini (2009) that this trap requires time, effort and considerable expense. When observations were made in a short period of time, then the making of the trap may not be effective. This method is suitable for long-term monitoring because the hole (pitfall) can be reused if necessary. Moreover, according Eekhout (2010) that the species into the trap will be easy to come out like a large snake and frog tree so that the need for modifications to the pitfall trap.

As for glue trap is constrained by the current weather observations. weather conditions rain causes the glue that has been installed over plywood boards to become less attached to the maximum, so the possibility of specimens through the boards can escape. In addition, the need for bait varied to be more interesting animals, especially reptiles, to get stuck in the trap.

3.2. Physical and Chemical Research On Location

Based on measurements of environmental factors in the whole plot observations, temperatures ranging from 25,3-31,30 °C in the morning and in the

evening ranging 24,3-26,90 °C. While the water temperature ranges from 24,6-28,90 °C. This is in accordance with the opinion of Berry (1975) which states that amphibians can tolerate the optimum temperature between 26°-33° °C while the optimum temperature for a reptile that is at a temperature of 20°-40 °C (Van Hoeve, 2003 in Widyananto, 2009).

Tabel 4.3. Physical-Chemical Research On Each Track

No.	Observations track	Air temperature average (°C)		Water temperature average (°C)	Relative humidity average (%)	pH Water	Height (mdpl)
		Morning	Night				
1	Transect 1	27,80	25,07	-	78,38	-	22
2	Transect 2	26,95	25,55	25,40	80,52	3,31	32
3	Transect 3	25,92	24,95	-	79,70	-	25
4	Transect 4	29,17	25,92	27,57	72,60	3,51	20

Data obtained by the water pH of 3.31 at transect 2 and 3.51 transect 4 which shows that the acidic water conditions. According to Payne (1986) in Darmawan (2008) that the pH range is in the tropical waters are between 4.3 to 7.5. The pH of the size of a fairly good condition and can be tolerated for the life of herpetofauna, especially amphibians (Anura), although only certain species are able to adapt to environmental conditions like that.

3.3. Disruption and Threats Against Sustainability Herpetofauna

Conversion of natural forests into plantations may lead to changes in the composition of herpetofauna there, this situation could become one of the threats to the preservation of wildlife, especially herpetofauna, because changing the structure and composition of heterogeneous (wooded) becomes homogeneous (monoculture). Besides activities wildlife poaching and forest fires can affect the quality and quantity of herpetofauna.

Reptile is one of the wild animals that are used by people as food, traditional medicines and pets. Retrieval directly from nature is a threat to the survival of reptiles, especially turtles are very sensitive when taken from the wild, because a group of turtles have a risk of dying eggs and chicks are high and require a long time to reproduce (TRAFFIC Southeast Asia 2001 in Joseph, 2008).

Amphibians are very dependent on wetlands for breeding process. In 2004, IUCN released a report on global extinction of amphibian populations. Mentioned that more than a third of amphibian populations in the world are being or have decreased. Amphibian conservation threats caused by various aspects such as the reduction of wetland habitat, pollution, introduction of exotic species, diseases and parasites, as well as the arrest of excess (Stuart et al, 2005 in Kusrini, 2013).

Several types of amphibians and reptiles have a distribution area that is narrow and limited, sometimes only found in specific habitat types, so that the species has specific habitat very well be used as a kind of indicator of environmental change. Down or loss of population of a specific habitat type that indicates changes in environmental quality at that location, even though the changes may not be too visible. Therefore, the existence of amphibians and reptiles is very useful to provide early warning of environmental changes (Mistar, 2008).

CONCLUSIONS

Inventory results herpetofauna in Germplasm Conservation Area PT. Blooming Green Earth is the discovery:

1. 15 types herpetofauna consists of 6 types coming from 3 families and 9 species of amphibians are from 6 reptile families.
2. 2 types namely *Cuora amboinensis* Family *Geoemydidae* *cuoro* (tortoise shell) and *Siebenrockiella crassicollis* (tortoise white cheeks) are known, including the type of reptile that are in the verge of extinction (Vulnerable) based on the International Union for Conservation of Nature (IUCN) year 2015.

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