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Inventory crustacea: Decapoda: Brachyura dan caridea in several habitats type Jambi Province

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Abstract

The aims of this study were to study the of crab and shrimp freshwater in the Regencies of Batanghari and Sorolangun of Jambi in several habitats type. The research was conducted from February until April 2017. The study was conducted in rubber plantations, oil palm plantations, community forests and secondary forests located at the Regencies of Batanghari and Sorolangun. The specimens were collected by using hand net and fish trap which were preserved in 70% alcohol. In result, the present study recorded four species of freshwater crabs that consisted of *P. batamensis*, *P. maindroni*, *P. maculata* and *Geosesarma* sp, and 9 species of freshwater shrimp consisted of *Caridina propinqua*, *C. excavatoides*, *C. sumatrensis*, *C. gracilipes*, *Caridina* sp., *Macrobrachium horstii*, *M. Pilimanus*, *M. Malayanum*, *M. lancasteri*.

Keywords: crustacea, crab, shrimp, freshwater, inventory

1. Introduction

Sumatra is the second largest island in the Sunda Shelf islands after Kalimantan. Many freshwater shrimp habitats and freshwater crabs in Sumatra such as rivers, lakes, and swamps in tropical forests, highland rivers have not been collected and identified by type [14, 18]. Jambi is one of the provinces in Sumatra with the potential for freshwater shrimp diversity and high freshwater crabs [14, 18].

Freshwater crabs occupy a tropical position in higher feeding webs than most other aquatic invertebrates [9]. These freshwater crabs are largely omnivorous that have a role in recycling nutrients by scavenging plant and animal material, both living and dead. Freshwater crabs are also an important food for many species of fish, birds, turtles and mammals [24].

Freshwater shrimps act as decomposers that maintain the balance of ecosystems, in addition some freshwater prawns have been cultivated [17, 21]. The existence of various types of freshwater shrimp in a common waters can also be used as a bioindicator of environmental quality of waters [20, 21].

Freshwater ecosystems are subject to many threats caused by human activities resulting in water quality degradation and loss of aquatic organisms [12]. Riparian plays an important role in river hydrology regulation, substrate character determination, water molecule, water chemistry factor, supply of organic matter entering the river [6, 21]. The loss of riparians will have an impact on the habitat of freshwater organisms and the ecological balance of river communities. The main limiting factors affecting the existence of freshwater organisms, especially the Order of Decapoda, among others, habitat characteristics, riparian and environmental quality [21]. Changes in freshwater ecosystems are partly due to changes in forest conversion and water pollution [10].

Jambi Province is an area with higher logging rates compared to other Asian regions [1]. Logging can change the ecosystem. [7] states that changes occurring in ecosystems can lead to habitat fragmentation, habitat degradation and water pollution, river diversion, and water flow management [3, 5, 8]. In addition, the introduction of foreign or non-native freshwater animals may affect these freshwater communities [20]. the purpose of the research is to know the types of freshwater shrimp and crab from several habitat types, Jambi Province.

2. Material and Methods

This research was conducted from february until april 2017 in Batanghari District and Sarolangun Regency Jambi Provinsi Sumatra Indonesia. Samples were taken and data were analyzed in Basic Laboratory of Zoology, Biology Education STKIP PGRI Sumatera Barat.

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Sampling of shrimp and freshwater crab was conducted in two locations, namely location 1 on the rivers contained in Batanghari District. Location 2 is located in Sarolangun Regency.

Determination of shrimp sampling location was done purposively and continued with road sampling to the upstream of 1 hour as far as 500 m^[15]. Sampling of shrimp and freshwater crabs is done using hand net, and / bubu. Bubu is used in waters that can not be used hand net^[9]. Freshly caught crabs and freshwater shrimp are preserved in 70% ethanol overnight, then moved into absolute ethanol.

The identification of freshwater crab refers of^[13], based on form and morphological features at the species level of the genus Parathelphusa, ie the presence or absence of thorns in the ambulatory meri, the direction of the postorbital crista, the shape of the carapace and, the fourth line of the abdomen. The character used to determine the species of the genus Geosesarma is a form of chelipeds, the sum of the tubercles at the top of the dactylus and the terminal form of the segment G1^[18].

Identification of shrimp used identification key according of^[21, 2] based on the characteristics of carapace morphology, the shape of the foot path, and body size. Identification of crab and freshwater shrimp conducted in Zoological Laboratory STKIP PGRI West Sumatra.

3. Results and Discussion

The present study found four species of freshwater crabs that consisted of *P. batamensis*, *P. maindroni*, *P. maculata* and *Geosesarma* sp, and 9 species of freshwater shrimp that consisted of *Caridina propinqua*, *C. excavatooides*, *C. sumatrensis*, *C. gracilipes*, *Caridina* sp., *Macrobrachium horstii*, *M. Pilimanus*, *M. Malayanum*, *M. lanchesteri*.

Parathelphusa batamensis was present in all habitat types studied. *P. batamensis* was first discovered in Batam Island Riau in the forest

the river water and the pondanya has a pH of about 5^[4].

Parathelphusa maindroni and *P. maculata* have distribution patterns

sympatric.^[10] stating that *P. maindroni* was first discovered in North Selangor and Johor Malaysia on rivers that have low pH ranges

3.5-5.5.

Geosesarma sp. It does not need water as its main habitat but rather in a humid terrestrial region^[12] *Geosesarma* sp. commonly found in the hujantropic forests of Southeast Asia, eastern Indonesia and Papua New Guinea. In addition *Geosesarma* sp. also found in Sumatra^[12].

Family Atyidae consists of *Caridina sumatrensis*, *C. excavatooides*, *C. propinqua* *C. gracilipes*, *Caridina* sp. These species are only found in rivers located in oil palm plantations and have aquatic plants. This is reinforced by research^[2] that the Atyidae Family can only be found on a plane that has aquatic, rocky, and underground vegetation. Species *C. Distribution* Sumatra, Malay Peninsula and the Philippines^[2] and habitat rivers and streams. *C. excavatooides* distribution Malay Peninsula and sumatra^[6]; *C. propinqua* in distribution Sri lanka, India, Malay Peninsular, Philipina, Jepang and China^[2]. Species *C. gracilipes* in distribution Sulawesi, Taiwan, Chinese mainland, the Philippines, Borneo and Malay Peninsula^[21]. Habitat *C. gracilipes* in lower reaches of rivers and streams with seawater influence.

Macrobrachium malayanum is the most abundant species of the rivers of South Malaya forest^[6]. This species is spread in Thailand, Sumatra to Borneo^[6, 23]. *Macrobrachium*

malayanum can be found in habitats with waters that have strong currents or slow currents.

Macrobrachium lanchesteri is found in pond and swamp habitats. This shrimp species can survive in extreme environments compared to other shrimp species and its presence can threaten various types of native shrimp. Species *Macrobrachium lanchesteri* in distribution Thailand^[22]. Species *Macrobrachium pilimanus* found in habitats that have strong currents, rocky substrates. Species *Macrobrachium pilimanus* is one of the freshwater shrimp that can live in the perimeter that has a heavy current both in the lowlands and highlands^[23].

4. Conclusion

The present research recorded 4 species of freshwater crabs that consisted of *P. batamensis*, *P. maindroni*, *P. maculata* and *Geosesarma* sp, and 9 species of freshwater shrimp that consisted of *Caridina propinqua*, *C. excavatooides*, *C. sumatrensis*, *C. gracilipes*, *Caridina* sp., *Macrobrachium horstii*, *M. Pilimanus*, *M. Malayanum*, *M. lanchesteri*. Further research suggestions are the identification of molecular-based freshwater shrimp and crabs with COI.

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