Species Diversity of Freshwater Prawns, Crabs, and Mollusks in Huai Chorakhe Mak Reservoir, Muang District, Buriram Province

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บทคัดย่อ

การศึกษาความหลากหลายของชนิดและการแพร่กระจายของกุ้ง ปู และหอยน้ำจืดในอ่างเก็บน้ำห้วยจระเข้มาก อำเภอเมือง จังหวัดบุรีรัมย์ ในระหว่างเดือนมีนาคม พ.ศ. 2551 ถึงเดือนกุมภาพันธ์ พ.ศ. 2552 ผลการศึกษาพบกุ้งน้ำจืด 1 วงศ์ (Family Palaemonidae) 3 ชนิด คือ *Macrobrachium lanchesteri*, *M. yui* และ *M. rosenbergii* ปูน้ำจืด 1 วงศ์ (Family Parathelphusidae) 2 ชนิด คือ *Siamthelphusa paviei* และ *Somanniathelphusa Dugasti* ส่วนหอยน้ำจืดพบหอยกาบเดี่ยว 5 วงศ์ (Family Viviparidae, Ampullariidae, Bithyniidae, Thiaridae และ Lymnaeidae) 12 ชนิด คือ *Filopaludina martensi cambodjensis*, *F. martensi munensis*, *F. sumatrensis polygramma*, *Pila polita*, *P. ampullacea*, *Pomacea canaliculata*, *P. bridgesii*, *Eyriesia eyriesi*, *Trochotaia trochoides*, *Bithynia siamensis siamensis*, *Melanoides tuberculata*, และ *Lymnaea auricularia rubiginosa* พบหอยกาบคู่ 1 วงศ์ (Family Amblemidae) 3 ชนิด คือ *Scarbies crispata*, *S. phaselus*, และ *Pilsbryoconcha exilis exilis*

คำสำคัญ : กุ้ง ปู หอยน้ำจืด ความหลากหลายของชนิด ห้วยจระเข้มาก

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Abstract

Species diversity and distribution of freshwater prawns, crabs, and mollusks were studied in Huai Chorakhe Mak Reservoir, Muang District, Buriram Province, during March 2008 to February 2009. Three species in Family Palaemonidae of freshwater prawns were found as *Macrobrachium lanchesteri, M. yui, and M. rosenbergii.* Two species in Family Parathelphusidae of freshwater crabs were found as *Siamthelphusa paviei,* and *Somanniathelphusa dugasti.* Freshwater mollusks were found as follows: 12 species in 5 families (Family Viviparidae, Ampullariidae, Bithyniidae, Thiaridae, and Lymnaeidae) of gastropods as *Filopaludina martensi cambodjensis, F. martensi munensis, F. sumatrensis polygramma, Pila polita, P. ampullacea, Pomacea canaliculata, P. bridgesii, Eyriesia eyriesi, Trochotaia trochoides, Bithynia siamensis siamensis, Melanoides tuberculata,* and *Lymnaea auricularia rubiginosa;* 3 species in Family Amblemidae of bivalves as *Scarbies crispata, S. phaselus,* and *Pilsbryoconcha exilis exilis* were also found.

Keyword : Freshwater Prawn, Crab Mollusk, Species Diversity, Huai Chorakhe Mak

Introduction

Huai Chorakhe Mak Reservoir is the large freshwater resource in Muang District, Buriram Province, Northeast Thailand (figure 1). The capacity of reservoir is 27 million cubic meters. Freshwater prawns, crabs, and mollusks are important protein-food sources for the people in Northeast Thailand, especially prawns are preserved as Kungjom, the famous food product of One Tumbon One Product (OTOP) in Prakhonchai District, Buriram Province.

In Thailand, Suvatti (1937) reported 5 species of freshwater prawns, Naiyanetr (1994) reported 3 new genera of ricefield crabs as Sayamia, Esanthelphusa, Chulathelphusa, as well as Kovitvadhi & Kovitvadhi (2000) investigated 15 species of freshwater mussels (Family Amblemidae) in Mun River Basin. Recently, Rodmongkoldee, P., Rodmongkoldee, C. & Ogaddee (2008) reported 3 species of freshwater prawns, 2 species of crabs, 4 species of gastropods, and 6 species

of bivalves in Mun River, Phutthaisong District, Buriram Province.

The species diversity and the distribution of these organisms in Huai Chorakhe Mak Reservoir have not been recorded. The results of this research will be useful for the natural resource conservation, and sustainable utilization by local community.

The objectives of this research, the species diversity, and the distribution of freshwater prawns, crabs, and mollusks, as well as some parameters of water quality in Huai Chorakhe Mak Reservoir, Muang District, Buriram Province were investigated.

Materials and Methods

The specimens or samples were collected twice a month from Haui Chorakhe Mak Reservoir in Ban Haui Chorakhe Mak, Ban Salakdi, Ban Khokpet, and Ban Nongmakua, Muang District, Buriram Province, during March 2008 to February 2009. The shells of gastropods and bivalves were collected and cleaned. Freshwater prawns and crabs were collected, cleaned, and preserved in 10 % formalin solution. They were deposited in the Science and Applied Science Center, Faculty of Science, Buriram Rajabhat University, Buriram Province. The specimens of prawns and crabs were identified by following Jayachandran (2001), and Chuensri (1973), respectively, and mollusks were identified by following Brandt (1974), and Thompson (2004).

Some parameters of chemical and physical water qualities were measured as pH, dissolved oxygen (DO), Secchi depth, and temperature, by using pH meter, DO meter, and Secchi disc.

Figure 1 Huai Chorakhe Mak Reservoir, Ban Huai Chorakhe Mak, Muang District, Buriram Province

Results

Three species in 1 family (Family Palaemonidae) of freshwater prawns were identified as *Macrobrachium lanchesteri, M. yui,* and *M. rosenbergii* (figure 2). Freshwater crabs were identified 2 species in 1 family (Family Parathelphusidae) as *Siamthelphusa paviei,*

and *Somanniathelphusa dugasti* (figure 3). Freshwater mollusks were identified as follows : 12 species in 5 families (Family Viviparidae, Ampullariidae, Bithyniidae, Thiaridae, and Lymnaeidae) of gastropods as *Filopaludina martensi cambodjensis, F. martensi munensis, F. sumatrensis polygramma, Pila polita, P. ampullacea, Pomacea canaliculata, P. bridgesii, Eyriesia eyriesi, Trochotaia trochoides, Bithynia siamensis siamensis, Melanoides tuberculata, Lymnaea auricularia rubiginosa* (figure 4); 3 species in 1 family (Family Amblemidae) of bivalves as *Scabies crispata, S. phaselus*, and *Pilsbryoconcha exilis exilis* (figure 5). The classification, distribution, and abundance of prawns, crabs, and mollusks were shown in Table 1.

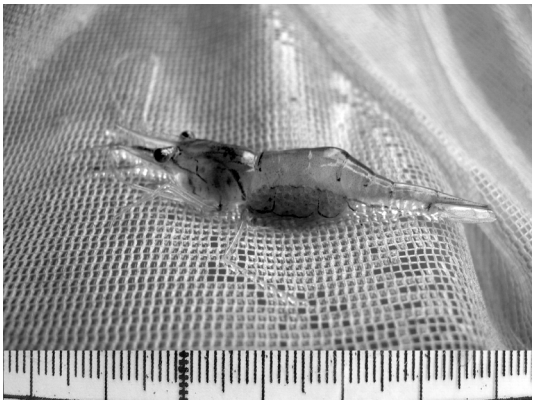
Some parameters of water quality, which related to the distribution and the survival of aquatic animals, were measured as follows: pH 6.1–7.9, DO 6.1–7.3 mg/l, Secchi depth 28–79 cm, water temperature 24–30° C. All areas of Huai Chorakhe Mak Reservoir were generally natural ecosystem and found many species of prawns, crabs and mollusks.

Table 1 The classification, distribution, and abundance of freshwater prawns, crabs, and mollusks in Huai Chorakhe Mak Reservoir, Muang District, Buriram Province. Abbreviations were as follows: H = Ban Huai Chorakhe Mak, S = Ban Salakdi, K = Ban Khokpet, N = Ban Nongmakua, +++ = abundant, ++ = common, + = rare

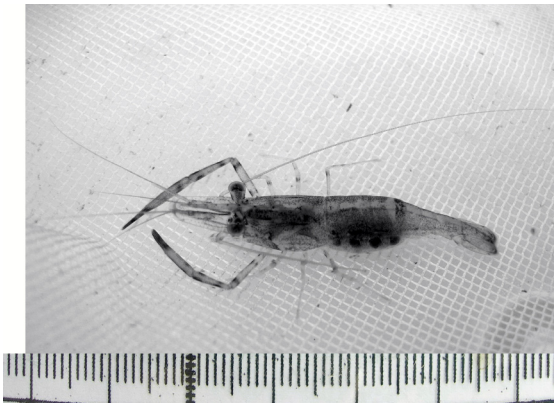
Classification	Distribution	Abundance
Phylum Arthropoda		
Class Crustacea		
Order Decapoda		
Family Palaemonidae		
Macrobrachium lanchesteri	H, S, K, N	+++
M. yui	H, S, K, N	+++
M. rosenbergii	S	+
Family Parathelphusidae		
Siamthelphusa paviei	H, S, K, N	+

Table 1 (cont.)

Classification	Distribution	Abundance
Somanniathelphusa dugasti	H, S, K, N	+
Phylum Mollusca		
Class Gastropoda		
Order Mesogastropoda		
Family Viviparidae		
Filopaludina martensi cambodjensis	H, S, K, N	++
F. martensi munensis	H, S, K, N	+++
F. sumatrensis polygramma	H, S, K, N	+
Eyriesia eyriesi	H, S, K, N	++
Trochotaia trochoides	H, S, K, N	++
Family Ampullariidae		
Pila polita	H, S, K, N	+
P. ampullacea	H, S, K, N	+
Pomacea canaliculata	H, S, K, N	+++
P. bridgesii	H, S, K, N	++
Family Bithyniidae		
Bithynia siamensis siamensis	H, S, K, N	+
Family Thiaridae		
Melanoides tuberculata	H, S, K, N	++
Family Lymnaeidae		
Lymnaea auricularia rubiginosa	H, S, K, N	+++
Class Pelecypoda		
Order Schizodonta		
Family Amblemidae		
Scarbies crispata	S	+
S. phaselus	S	+
Pilsbryoconcha exilis exilis	H, S, K, N	+++



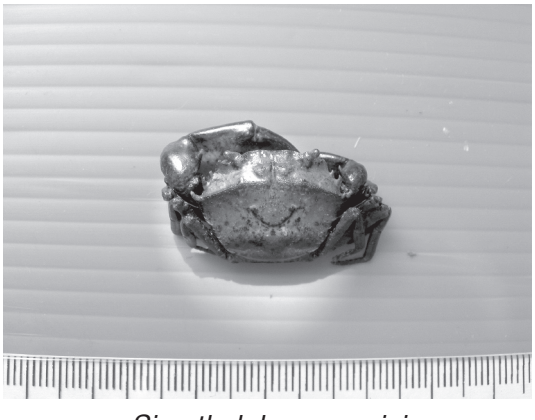
Macrobrachium lanchesteri



Macrobrachium yui

Macrobrachium rosenbergii

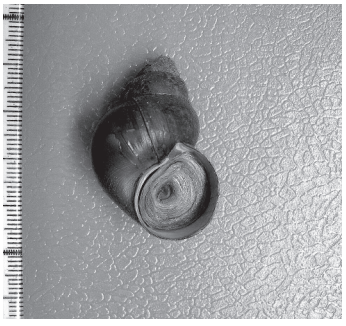
Figure 2 Three species of prawns in Huai Chorakhe Mak Reservoir, Muang District, Buriram Province



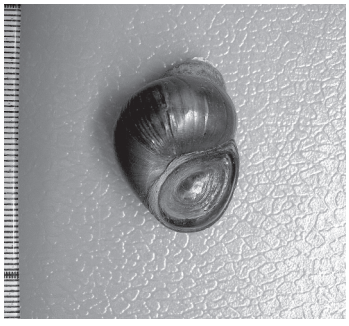
Siamthelphusa paviei

Somanniathelphusa dugasti

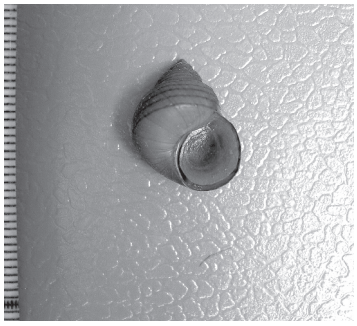
Figure 3 Two species of crabs in Huai Chorakhe Mak Reservoir, Muang District, Buriram Province



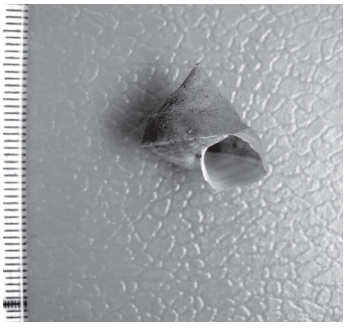
Filopaludina martensi cambodjensis



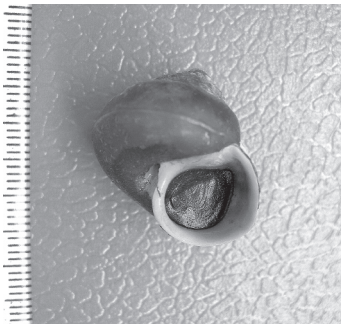
Filopaludina martensi munensis



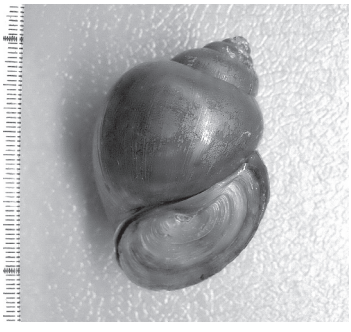
Filopaludina sumatrensis polygramma



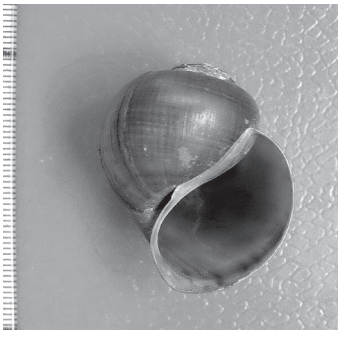
Eyriesia eyriesi



Trochotaia trochoides

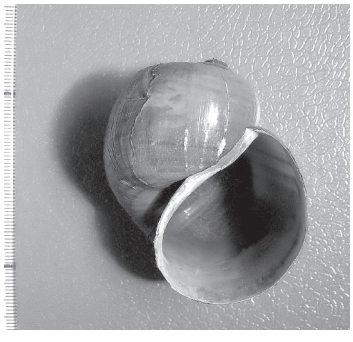


Pila polita

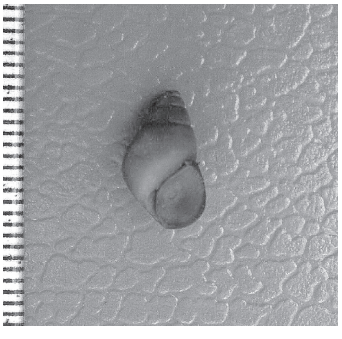


Pila ampullacea

Pomacea canaliculata

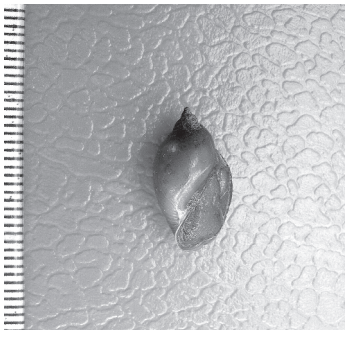


Pomacea bridgesii



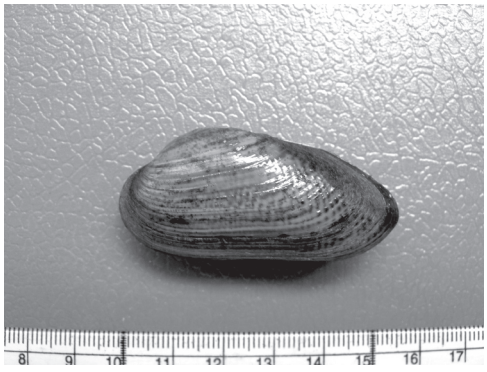
Bithynia siamensis siamensis

Melanoides tuberculata



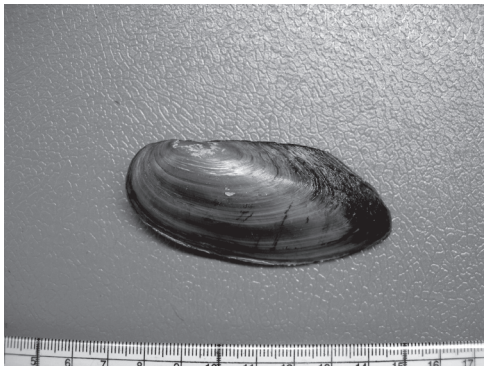
Lymnaea auricularia rubigirosa

Figure 4 Twelve species of gastropods in Huai Chorakhe Mak Reservoir, Muang District, Buriram Province



Scabies crispata

Scabies phaselus



Pilsbryoconcha exilis exilis

Figure 5 Three species of bivalves in Huai Chorakhe Mak Reservoir, Muang District, Buriram Province

Discussions and Conclusions

Three species in 1 family (Family Palaemonidae) of freshwater prawns were identified as *Macrobrachium lanchesteri, M. yui,* and *M. rosenbergii.* Freshwater crabs were identified 2 species in 1 family (Family Parathelphusidae) as *Siamthelphusa paviei,* and *Somanniathelphusa dugasti.* Freshwater mollusks were identified as follows : 12 species in 5 families (Family Viviparidae, Ampullariidae, Bithyniidae, Thiaridae, and Lymnaeidae) of gastropods as *Filopaludina martensi cambodjensis, F. martensi munensis, F. sumatrensis polygramma, Eyriesia eyriesi, Trochotaia trochoides, Pila polita, P. ampullacea, Pomacea canaliculata, P. bridgesii, Bithynia siamensis siamensis, Melanoides tuberculata*, and *Lymnaea auricularia rubiginosa;* 3 species in 1 family (Family Amblemidae) of bivalves as

Scarbies crispata, S. phaselus, and *Pilsbryoconcha exilis exilis*.

The abundant species in Huai Chorakhe Mak Reservoir were *Macrobrachium lanchesteri, M. yui, Filopaludina martensi munensis, Pomacea canaliculata, Lymnaea auricularia rubiginosa,* and *Pilsbryoconcha exilis exilis*. Whereas *Macrobrachium rosenbergii, Siamthelphusa paviei, Somanniathelphusa dugasti. Filopaludina sumatrensis polygramma, Pila polita, P. ampullacea, Bithynia siamensis siamensis, Scabies crispata,* and *S. phaselus* were rarely found. The research reported 2 species of bivalves that similar to Kovitvadhi & Kovitvadhi (2000) studied in Mun River Basin as Scabies phaselus, and Pilsbryoconcha exilis exilis, likewise, 9 species of animals were similar to Rodmongkoldee, Rodmongkoldee & Ogaddee (2008) investigated in Mun River, Phuthaisong District, Buriram Province, as *Macrobrachium lanchesteri, M. yui, M. rosenbergii, Siamthelphusa paviei, Somanniathelphusa dugasti, Filopaludina martensi cambodjensis, F. sumatrensis polygramma, Pila polita,* and *Scarbies phaselus*.

The species diversity in Huai Chorakhe Mak Reservoir have not been recorded, therefore all species of these animals were new record. The results of research were useful for the natural resource conservation, and sustainable utilization by local community.

The water quality in Huai Chorakhe Mak Reservoir was generally cleaned and suitable for aquatic animals base on some chemical and physical parameters.

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