

Ephemeroptera Fauna of Nam Et National Biodiversity Conservation Area in Laos

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Abstract

Mayfly fauna was investigated from the Nam Et National Biodiversity Conservation Area, Houaphan Province in Laos. Qualitative sampling for larval and adult mayflies was conducted at six stream sites (St. 1-6: 601-793 m in altitude) in April 2010 using hand nets, sweeping nets, and light traps. As a result, 43 species of mayflies belonging to 31 genera and 12 families were collected. This is the first comprehensive investigation of mayfly fauna in northern Laos.

Key words: Ephemeroptera, fauna, Laos, mayfly, Nam Et National Biodiversity Conservation Area

Introduction

The Nam Et National Biodiversity Conservation Area (NBCA) is located in the northeastern part of Lao PDR and bordered on the north by Vietnam. This area covers an area of 170,000 ha and includes evergreen forest with well developed mountain streams.

In Southeast Asia, mayfly studies were initiated by Uéno (1931, 1969) and Ulmer (1939), and members of Vietnamese and Thailand mayflies have been investigated relatively recently (Sangpradub *et al.*, 2002; Nguyen, 2003; Nguyen and Bae, 2003a, 2003b, 2003c, 2004a, 2004b, 2004c, 2004d, 2004e; Boonsoong *et al.*, 2004; Tungpairojwong and Bae, 2006; Tungpairojwong, 2007; Braasch and Boonsoong, 2009). This is the first comprehensive investigation of mayfly fauna in northern Laos.

Materials and Methods

Field investigations were conducted from 25 April to 30 April in 2010. Larval and adult mayflies were qualitatively sampled using hand nets, sweeping nets, and light traps. They were identified to species or lowest taxonomic level using available references (Dudgeon, 1999; Sangpradub *et al.*, 2002; Nguyen,

2003; Nguyen and Bae, 2003a, 2003b, 2003c, 2004a, 2004b, 2004c, 2004d, 2004e; Boonsoong *et al.*, 2004; Jacobus *et al.*, 2004; Tungpairojwong and Bae, 2006; Tungpairojwong, 2007; Jacobus and McCafferty, 2008; Webb and McCafferty, 2008). All larval and adult materials were preserved in 80% ethanol and housed in the Entomological Museum of Korea University and Faculty of Science, National University of Laos.

Six sampling sites (St. 1-St. 6) were chosen from the river network in the Nam Et NBCA (Nam Sub River, Don Khoun River, Nam Hang River, and Nam Sat River) in northern Laos as follows.

St. 1 ($20^{\circ}12'07.7''N$, $103^{\circ}12'37.4''E$): Nam Sub River (793 m in altitude)

St. 2 ($20^{\circ}11'27.3''N$, $103^{\circ}12'10.4''E$): Nam Sub River (788 m in altitude)

St. 3 ($20^{\circ}10'12.7''N$, $103^{\circ}10'43.9''E$): Don Khoun River (601 m in altitude)

St. 4 ($20^{\circ}9'04.3''N$, $103^{\circ}16'10.6''E$): Nam Hang River (766 m in altitude)

St. 5 ($20^{\circ}06'51.6''N$, $103^{\circ}19'53.3''E$): Nam Sat River (773 m in altitude)

St. 6 ($20^{\circ}06'41.5''N$, $103^{\circ}19'56.2''E$): Nam Hang River (770 m in altitude)

Results

A total of 43 species of mayflies belonging to 31 genera and 12 families were identified from the Nam Et NBCA.

Family Leptophlebiidae

Genus *Choroterpes* Eaton, 1881

1. *Choroterpes trifurcate* Ueno, 1928

Material examined: St. 1: 4L; St. 3: 1L; St. 4: 2L.

2. *Choroterpes* sp.

Material examined: St. 5: 3L.

Genus *Choroterpides* Ulmer, 1939

3. *Choroterpides major* Ulmer, 1939

Material examined: St. 1: 4L; St. 2: 14L; St. 3: 4L; St. 4: 38L; St. 5: 30L; St. 6: 3L.

Genus *Habrophlebiodes* Ulmer, 1920

4. *Habrophlebiodes prominens* Ulmer, 1939

Material examined: St. 4: 3L.

Genus *Isca* Gilles, 1951

5. *Isca fascia* Nguyen & Bae, 2003

Material examined: St. 2: 1L; St. 4: 1L; St. 5: 3L.

6. *Isca* sp.

Material examined: St. 2: 1L.

Family Polymitarcyidae

Genus *Polyplocia* Lestage, 1921

7. *Polyplocia orientalis* Nguyen & Bae, 2003

Material examined: St. 2: 2L.

8. *Polyplocia* sp.

Material examined: St. 1: 3L; St. 3: 1L.

Family Potamanthidae

Genus *Potamanthus* Pictet, 1843

9. *Potamanthus formosus* Eaton, 1892

Material examined: St. 3: 6L; St. 4: 2L; St. 6: 5L.

Genus *Rhoenanthus* Eaton, 1881

10. *Rhoenanthus magnificus* Ulmer, 1920

Material examined: St. 1: 11L; St. 2: 4L; St. 3: 4L; St. 4: 37L; St. 5: 19L; St. 6: 20L.

Family Ephemeridae

Genus *Ephemera* Linnaeus, 1758

11. *Ephemera rufomaculata* Zhou & Zheng, 2003

Material examined: St. 1: 21L; St. 2: 14L; St. 3: 52L; St. 5: 3L; St. 6: 5L.

12. *Ephemera* sp.

Material examined: St. 3: 23L; St. 6: 1L.

Family Ephemerellidae

Genus *Cincticostella* Allen, 1971

13. *Cincticostella* sp.

Material examined: St. 1: 1L.

Genus *Eburella* Kang & Yang, 1995

14. *Eburella brocha* Kang & Yang, 1995

Material examined: St. 4: 2L; St. 6: 1L.

Genus *Ephemerella* Walsh, 1862

15. *Ephemerella* sp.

Material examined: St. 1: 2L; St. 2: 1L; St. 4: 2L.

Genus *Serratella* Edmunds, 1959

16. *Serratella* sp.

Material examined: St. 3: 4L; St. 4: 1L.

Genus *Torleya* Lestage, 1917

17. *Torleya coheri* (Allen & Edmunds), 1963

Material examined: St. 1: 1L; St. 2: 2L.

18. *Torleya naga* Jacobus & McCafferty, 2004

Material examined: St. 5: 1L.

19. *Torleya* sp.

Material examined: St. 2: 1L; St. 4: 3L.

Family Austremerellidae

Genus *Vietnamella* Tshernova, 1972

20. *Vietnamella* sp.

Material examined: St. 1: 3L; St. 2: 2L.

Family Caenidae

Genus *Caenis* Stephen, 1835

21. *Caenis* sp.

Material examined: St. 2: 1L; St. 3: 2L; St. 4: 2L; St. 5: 2L.

Family Prosopistomatidae**Genus *Prosopistoma* Latreille, 1833**22. *Prosopistoma* sp. 1

Material examined: St. 4: 1L.

23. *Prosopistoma* sp. 2

Material examined: St. 4: 4L.

Material examined: St. 5: 1L.

33. *Baetis* sp. 3

Material examined: St. 4: 1L; St. 5: 5L.

34. *Baetis* sp. 4

Material examined: St. 2: 4L; St. 4: 5L; St. 5: 1L; St. 6: 3L.

Family Neoephemeridae**Genus *Potamanthellus* Lestage, 1931**24. *Potamanthellus caenoides* (Ulmer), 1939

Material examined: St. 4: 4L.

Genus *Centroptella* Braasch & Soldán, 198035. *Centroptella* sp.

Material examined: St. 2: 1L; St. 6: 5L.

Family Isonychiidae**Genus *Isonychia* Eaton, 1871**25. *Isonychia* sp.

Material examined: St. 4: 1L.

Genus *Cloeon* Leach, 181536. *Cloeon* sp.

Material examined: St. 6: 1L.

Family Heptageniidae**Genus *Afronurus* Lestage, 1924**26. *Afronurus* sp.

Material examined: St. 1: 5L; St. 2: 17L; St. 5: 1L.

Genus *Gratia* Thomas, 199237. *Gratia* sp.

Material examined: St. 1: 1L.

Genus *Ecdyonurus* Eaton, 186827. *Ecdyonurus cervina* Braasch & Soldán, 1984

Material examined: St. 1: 10L; St. 3: 9L; St. 4: 15L; St. 5: 13L; St. 6: 13L.

Genus *Labiobaetis* Novikova & Kluge, 198738. *Labiobaetis* sp. 1

Material examined: St. 1: 1L.

39. *Labiobaetis* sp. 2

Material examined: St. 2: 1L.

Genus *Epeorus* Eaton, 188128. *Epeorus* sp.

Material examined: St. 2: 2L.

Genus *Nigrobaetis* Novikova & Kluge, 198740. *Nigrobaetis* sp.

Material examined: St. 4: 5L; St. 5: 1L.

Genus *Thalerosphyrus* Eaton, 188129. *Thalerosphyrus vietnamensis* (Dang), 1967

Material examined: St. 1: 15L; St. 2: 10L; St. 3: 7L; St. 4: 3L; St. 5: 2L; St. 6: 3L.

Genus *Platybaetis* Muller-Liebenua, 198041. *Platybaetis* sp.

Material examined: St. 5: 2L; St. 6: 1L.

Family Baetidae**Genus *Acentrella* Bengtsson, 1912**30. *Acentrella* sp.

Material examined: St. 4: 1L; St. 5: 1L.

Genus *Procloeon* Bengtsson, 191542. *Procloeon* sp. 1

Material examined: St. 1: 1L; St. 4: 4L.

43. *Procloeon* sp. 2

Material examined: St. 2: 3L; St. 6: 1L.

Genus *Baetis* Leach, 181531. *Baetis* sp. 1

Material examined: St. 1: 1L.

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