FISH DIVERSITY IN SMALL STREAMS OF SUNGKAI WILDLIFE RESERVE, PERAK, MALAYSIA

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ABSTRACT

The diversity of fishes recorded from several small streams within Sungkai Wildlife Reserve (SWR), Perak is presented here. A total of 26 species from 12 families were recorded during the 3-day survey. Fishes from family Cyprinidae were the most common with 11 species, followed by Channidae with four and Osphronemidae two species. We added seven species to the checklist of fishes of SWR, bringing the total number of fishes known to this area to at least 41 species. Here, we update the name of previously reported fish species found at SWR by comparing the checklist to the recently published materials. However, the taxonomic status of four species mentioned in the previous publication was doubtful and we cannot assign them to any valid taxa known to us. Nonetheless, the fish fauna inhabiting the small streams here is diverse and requires further research to obtain more data to validate the checklist that is useful for conservation and planning future management program.

Keywords: Inland fishes, New records, Checklist, Cyprinidae, Stream

INTRODUCTION

Freshwater fishes within Sungkai Wildlife Reserve (SWR), Perak has been previously studied and a series of publication was published (Mohd-Sham et al., 2001, 2002, 2005). A total of 45 species were reported from various streams in this area (Mohd-Sham et al., 2005). There are several streams flowing within SWR, however only a few can be accessed easily. Despite there were studies being done on fishes living in those streams, we urge that another survey should be done here. This paper presents an updated checklist of native freshwater fish species of streams in SWR and updating the taxonomic disparities from the previously published checklist.

METHODOLOGY

Fishes were caught from Sungai Bikam, Sungai Suar and Sungai Ped in SWR using electrofishing technique within a 100 m distant. Stunt fishes were collected using a long handle scoop-net and a 3-m seine net, with a mesh size of 3 mm, was used to retain drifted fish. To reduce fish mortality, all captured fishes were placed in 3 mm collapsible loop-nets and immersed in flowing water. Small fishes were placed in an aerated bucket filled with stream water separately.

The majority of the fish species were identified in situ and released upon identification but specimens of several unconfirmed species were preserved in 10% formalin for further examination. Fish will
remain in fixative for at least two weeks. Specimens were later immersed in tap water to remove the fixative before transferring them into 70% ethanol for further identification and long term preservation. Preserved specimens were kept temporarily at the Ichthyological Collections of Universiti Malaysia Terengganu (UMT) in Kuala Terengganu and will be sent to Institute Biodiversity, Bukit Rengit, Pahang for permanent storage. Fishes were identified using Kottelat et al. (1993), Rainboth (1996), Ng and Ng (1998), and Tan and Kottelat (2009). Nomenclature for the fish family follows Kottelat (2013).

RESULTS AND DISCUSSION

A total of 26 species from 12 families were recorded during the three days survey on three streams at SWR. Fishes from family Cyprinidae were the most common with 11 species, followed by Channidae (four) and Osphronemidae (two). Other families made up the rest of the composition. Of the 26 species recorded in this study, seven species were additional records to SWR. We update the checklist of fish previously reported from SWR by comparing the checklist to the previously published materials (see Mohd-Sham et al., 2005). From the previous study, at least four species were considered doubtful because based on our best knowledge, these species either not inhabiting small streams like what was found at SWR or totally a different species (see below). After considering all species, the heuristic checklist of fish of SWR was produced that brings the total number of fishes known to this area to at least 41 species.

Additional fish species

Family Cyprinidae

*Mystacoleucus obtusirostris*

Remarks. This species was collected at Sungai Bikam. Not common here but usually abundant elsewhere. Locally known as “ikan sia”.

*Rasbora bankanensis*

Remarks. Several individuals were collected at stagnant water on the side of Sungai Bikam. Not common but widely distributed species.

*Rasbora trilineata*

Remarks. A few specimens were collected from Sungai Bikam. This small size scissor-tail rasbora sometimes is confused with the larger but relative rare, *Rasbora caudimaculata*. The former species is common throughout Peninsular Malaysia and frequented slow flowing streams.

Family Mastacembelidae

*Macrognathus circumcinctus*

Remarks. Specimens collected in this study come from Sungai Bikam having body marking beneath the belly which similar to *Macrognathus circumcinctus*. Locally known as “ikan tilan”.
Family Osphronemidae

Luciocephalus pulcher

Remarks. This species was collected from Sungai Ped. Common in swampy water bodies throughout the country but has been collected from streams elsewhere. Locally known as “ikan tumbuk lembing”.

Family Channidae

Channa gachua

Remarks. This dwarf snakehead is the smallest of all snakeheads found in Peninsular Malaysia frequented forested streams with a lot of covers. Common throughout the country. Locally known as “ikan kedak or pecat”.

Channa melasoma

Remarks. A medium size snakehead with white distal margins on unpaired fins can be found in many streams and swamps throughout Peninsular Malaysia. This fish found in abundant at Sungai Ped. Locally known as “ikan haruan palas”.

Species inquirenda in Mohd-Sham et al. (2005)

Rasbora cephalotaenias

Remarks. It was reported as Rasbora cephalotaenia in Mohd-Sham et al. (2001). Although the descriptions given by the authors close to the description of this species, for now, we tentatively removed it from the list. This species is common in acidwater swamp in Peninsular Malaysia.

Rasbora dorsicellata

Remarks. Uncertain. May be referable to Brevibora dorsiocellata which was reported from several places in southern Peninsular Malaysia but prefer slow flowing swampy habitat. The presence of this species here is questionable but could be referable to Rasbora bankanensis. The two species can be differentiated from one another in the presence of black marking on dorsal fin for the former but on the anal fin of the latter.

Acanthopsis inchosoma

Remarks. Could be a species from the genus Acanthopsis, i.e., A. dialuzona but the species epithet could referring to Acrochordonichthys septentrionalis which in the past was referred to as A. ischnosoma. We tentatively removed this species from the list because, i. Acrochordonichthys ischnosoma does not occurred in Peninsular Malaysia, ii. species in this genus has shown a very restricted distribution in Peninsular Malaysia and so far has only been recorded from large rivers like Sungai Kelantan and Sungai Pahang, and iii) the descriptions given by Mohd-Sham et al. (2001; pg. 71) did not fit the descriptions of any of the two species found in Peninsular Malaysia (for details, see Ng, 2010).

Chanda siemensis

Remarks. The correct identity could be Parambassis siamensis but this fish prefer lentic habitat.
Problems with inaccurate fish list

Many ichthyological surveys either for ecological studied or merely done for “the need to know what is there?” which get published (especially papers in the recent past) has a considerable setback. The most crucial one is that authors often rely on outdated guide to identify the collected specimens. The outcome was just another compilation of inaccurate and often incompatible information of fish fauna of a given area. Subsequently, errors are thus propagated over and over again (Kottelat & Freyhof 2007). Since the work by Mohd Sham et al. (2005) has been published as an updated and systematic checklist of fishes of an inadequately known area like Sungkai, the paper is vital for one to examine the changes in fish community over time of the similar area in the future.

In this context, we think that some of the results presented by Mohd-Sham et al. (2005) are ambiguous and need further discussion and consideration before it can be used further. The paper has several cases of taxonomic inaccuracies and redundant information that the authors have apparently unnoticed or unaware while preparing the manuscript. We took this opportunity to highlight some of the issues and shortcomings in this paper, to prevent future authors from citing inappropriate information, as well as assist the relevant authorities that might be interested in the information to be used in conservation and management of the area. We briefly pointed out the inaccuracy or oversight and provided potential explanation and suggestion to rectify the problem (see Table 1).

Nevertheless, Mohd Sham et al. (2005) paper is considered an important ichthyological work for SWR especially on the data of species richness covering a larger areas, that include more microhabitats and probably comprising higher elevation stream plus the very important additional information on species specific rarity analysis. We do hope that the current findings plus the previous results of freshwater fishes of SWR is beneficial and valuable for the management planning and conservation of the SWR. Compared to the regional species richness, the number of species reported at SWR is marginal but it may be important to freshwater fish diversity since species at SWR may act as ‘gene source’ to local diversity as the entire basin which getting increasingly disturbed.

CONCLUSION

The fish fauna living in the small streams at Sungkai Wildlife Reserved is diverse. Effort should be made to protect these species and further research should be carried out to relate their occurrence, abundance and health status to the surrounding environment that may be important for future management and conservation program.

ACKNOWLEDGEMENT

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REFERENCES


Table 1. Freshwater fishes known to Sungkai Wildlife Reserve, Perak. Familial arrangement and nomenclature of species follow Kottelat (2013). Asterisk (*) indicate additional species collected in the present study. Remarks were made to the fish species reported by Mohd-Sham *et al.* (2005).

<table>
<thead>
<tr>
<th>No.</th>
<th>Species</th>
<th>Remarks</th>
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<tbody>
<tr>
<td></td>
<td><strong>Cyprinidae</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td><em>Accrosocheilus deauratus</em></td>
<td>Referable to <em>Poropuntius smedleyi</em> that commonly found in headwater streams throughout Peninsular Malaysia.</td>
</tr>
<tr>
<td></td>
<td><em>Poropuntius deauratus</em></td>
<td></td>
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</table>
| 2.  | *Accrosocheilus hexagonolopis* | Referable to *Neolissocheilus tweediei*. Kottelat (2013) resurrected the status of this species that was previously synonymized with *N. soroides*. Locally known as “ikan tengas”.
| 3.  | *Cyclocheilichthys apogon* | A common species in the country. Locally known as “ikan temperas”.

4. *Epalzeorynchus siamensis*  
   *Epalzeorychus kalopterus*
   Both species may be referred to *Epalzeorychus kalopterus* but this species is rarely found in shallow streams. This species frequented fast flowing streams with rock and boulders as the main substrate. Not recorded in the present study.

5. *Hampala macrolepidota*
   A common predatory species inhabiting both small streams and rivers. Locally known as “sebarau”.

6. *Labiobarbus lineatus*  
   *Labiobarbus fasciatus*
   Both species are referable to *Labiobarbus leptochilus* although *L. fasciatus* is a valid species, it has a limited distribution in Peninsular Malaysia and can be differentiated from other species in the genus by the presence of black marginal markings at the outer part and bright red coloration on the inner caudal fin lobes. The former has been collected in small stream elsewhere but the latter usually found in large stream with deeper water and river. Locally known as “ikan kawan”. Not collected in the present survey.

7. *Mystacoleucus obtusirostris*

8. *Osteochillus vittatus*  
   *Osteochilus hasseltii*
   Both species have been synonymised as *Osteochilus vittatus* and commonly found in Peninsular Malaysia. Locally known as “ikan terbul”.

9. *Puntius binotatus*
   Referable to *Barbodes binotatus*

10. *Puntius lateristriga*
    Referable to *Barbodes lateristriga*

11. *Rasbora bankanensis* *

12. *Rasbora sumatrana*
    Referable to *Rasbora vulgaris*. It northernmost distribution is probably as far as south of Seberang Perai, Penang and south to Negeri Sembilan. Further north, it was replaced by *Rasbora paviana*. Locally known as “ikan seluang”.

13. *Rasbora trilineata* *

14. *Tylognathus caudimaculatus*
    May be referable to *Cirrhinus caudimaculatus* and subsequently was recognised as *Gymnostomus caudimaculatus* (Fowler, 1934) in Kottelat (2013) but the species has never been reported to occur in Peninsular Malaysia. *Tylognathus caudimaculatus* has been referred to *Lobocheilos rhabdoura* in several publications. The presence of *Lobocheilos rhabdoura* at the study area cannot be ruled out but we did not record this fish in the current survey.
**Botiidae**

15. *Botia hymenophysa* Referable to *Syncrossus hymenophysa*. Although we are sceptical about the presence of this species here, we kept in in the list since it was previously mentioned in Mohd-Sham *et al.* (2001) and Mohd-Sham *et al.* (2002) from Sungai Suar and Sungai Bikam but was not recorded in the current study.

**Cobitidae**

16. *Acanthopsis choiorynchus* Referable to *Acanthopsis dialuzona* but was not collected in the recent survey. This species prefer sandy bottom and the microhabitat at Sungai Bikam suit the habitat type of this species.

**Balitoridae**

17. *Homaloptera orthogoniata* Referable to *Homaloptera parclitella* but was not found in the current work. Although we are sceptical about the occurrence of this species here, we currently include this fish in the list. This species prefer rocky bottom stream with fast flowing water.

18. *Homaloptera weberi* Small size holopteriid fish previously reported under the genus ‘*Homaloptera*’ s.s. should be referred to *Homalopteroides* and the species previously reported at SWR could be *H. smithi* but it was not recorded this time.

**Nemacheilidae**

19. *Nemacheilus selangoricus* A common bottom-dwelling species that prefer sandy bottom stream.

**Sisoridae**

20. *Glyptothorax major* Referable to *Glyptothorax callopterus*, a common sisorid fish throughout Peninsular Malaysia.

**Siluridae**

21. *Silurichthys hasseltii* Referable to *Silurichthys scheneideri* a more common species frequented fast flowing water but the former inhabit swampy habitat.
**Clariidae**

22. *Clarias batrachus*  
Not recorded in the present study. Locally known as “ikan keli”.

23. *Propaghorus nieuhofii*  
This species could be *Clarias leiacanthus* that frequented small stream.

**Bagridae**

24. *Mystus nemurus*  
*Mystus baramensis*  
Large catfishes previously placed under the genus *Mystus* has been transferred currently under the genus *Hemibagrus*. Both species may be representing *Hemibagrus capitulum*. Locally known as “ikan baung”.

25. *Mystus micracanthus*  
Referable to *Mystus castaneus* but was not collected in the current survey.

26. *Leiocassis leiacanthus*  
Species known as “*Leiocassis leiacanthus*” is valid but the generic name could possibly be a species known as *Leiocassis poecilopterus* but the species epithet may represent a fish known as *Pseudomystus leiacanthus*. Either species or at least the former could be found in the study area as it occurred sympatrically elsewhere.

**Hemiramphidae**

27. *Hemirhamphodon pogonognathus*  
A common species inhabiting forested stream. Dwelling the surface of slow flowing or stagnant water feeding on the allochthonous insects. Locally known as “ikan julong”.

**Belonidae**

28. *Xenentodon canciloides*  
A common fish but never found in abundant in small stream. Locally known as “ikan todak”

**Syngnathidae**

29. *Doryichthys martensii*  
A common fish in small stream but not abundantly found.

**Synbranchidae**

30. *Monopterus albus*  
Referable to *Monopterus javanensis*, locally known as “ikan belut”.
### Mastacembelidae

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<thead>
<tr>
<th>No.</th>
<th>Species</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>31</td>
<td><em>Macrognathus circumcinctus</em></td>
<td>Both species may be referred to <em>Macrognathus maculatus</em> but the species collected by us comparable to the previous species. Locally known as “ikan tilan”.</td>
</tr>
<tr>
<td>32</td>
<td><em>Mastacemelus maculatus</em></td>
<td>The species previously reported could be referred to <em>Mastacembelus favus</em> but the former is usually found in large river. Not recorded in this study.</td>
</tr>
<tr>
<td>33</td>
<td><em>Mastacembelus notophthalmus</em></td>
<td>This species frequented rocky bottom stream. Not recorded in the present study.</td>
</tr>
<tr>
<td>34</td>
<td><em>Mastacembelus unicolor</em></td>
<td></td>
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### Osphronemidae

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<th>No.</th>
<th>Species</th>
<th>Details</th>
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<tbody>
<tr>
<td>35</td>
<td><em>Betta pugnax</em></td>
<td>Both species could be referred to <em>Betta pugnax</em>. Common to many headwater streams.</td>
</tr>
<tr>
<td>36</td>
<td><em>Luciocephalus pulcher</em></td>
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### Channidae

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<th>No.</th>
<th>Species</th>
<th>Details</th>
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<tbody>
<tr>
<td>37</td>
<td><em>Channa gachua</em></td>
<td>A common predatory fish in many water bodies. Locally known as “ikan bujuk”.</td>
</tr>
<tr>
<td>38</td>
<td><em>Channa lucius</em></td>
<td></td>
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<tr>
<td>39</td>
<td><em>Channa melasoma</em></td>
<td>Although we are doubtful on the presence of this species in the study area, we kept it in the list until proven otherwise. Mohd-Sham et al. (2001) collected 23 specimens of juvenile fish and remarks “.. with beautiful yellow coloration and longitudinal black stripes” could possibly referable to the juvenile of another species, i.e., <em>Channa striata</em> as well. <em>Channa micropeltes</em> prefer lakes and large rivers. Not recorded in the present study. Locally known as “ikan toman”.</td>
</tr>
<tr>
<td>40</td>
<td><em>Channa micropletes</em></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td><em>Channa striata</em></td>
<td>A common species. Locally known as “ikan haruan”.</td>
</tr>
</tbody>
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