

DIVERSITY AND DISTRIBUTION OF AQUATIC INSECTS
OF RIVERS IN RELATION TO WATER QUALITY IN
SEMI-URBAN RECREATIONAL FOREST RESERVE

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DIVERSITY AND DISTRIBUTION OF AQUATIC INSECTS COMMUNITY IN
RELATION TO WATER QUALITY IN SEKAYU RECREATIONAL FOREST
TERENGGANU

By

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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: DIVERSITY AND DISTRIBUTION OF AQUATIC INSECTS COMMUNITY IN RELATION TO WATER QUALITY IN SEKAYU RECREATIONAL FOREST IN TERENGGANU oleh Raja Noor Balqhis binti Raja Shahruzzaman no. matrik: UK 7871 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah SARJANA MUDA SAINS GUNAAN – PEMULIHARAAN DAN PENGURUSAN BIODIVERSITI, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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LIST OF ABBREVIATION

ANOVA	-	analysis of variance
DO	-	Dissolve Oxygen
KUSTEM	-	Kolej Universiti Sains dan Teknologi Malaysia
LS	-	Lower stream
MBU	-	Makmal Biologi umum
MS	-	Middle stream
MVSP	-	Multivariate Statistic Package
SPSS	-	Statistical Package for Social Science
US	-	Upper stream

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ABSTRACT

A total of 3675 individuals of aquatic insects from 40 families belonging to eight orders have been recorded from lower stream (LS), middle stream (MS) and upper stream (US) of Sungai Sekayu headstream. There were eight common orders of aquatic insects recorded which were Trichoptera (31%), Ephemeroptera (25%), Plecoptera (16%), Odonata (14%), Hemiptera (8%), Coleoptera (4%), Diptera (2%) and Megaloptera (0.3%). In term of family, Perlidae (Order Plecoptera) was the most dominant family as 578 individuals were successfully collected and abundantly found at all sites. However, Trichoptera was identified as the most dominant order in all sampling sites while Sialidae (order Megaloptera) was recorded as rare distribution. Based on the total abundance and distribution of Ephemeroptera, Plecoptera and Trichoptera (EPT) orders, LS presented the highest abundance of Plecoptera followed by Trichoptera and Ephemeroptera. Interestingly, Trichoptera was found to have the highest abundance at MS followed by Ephemeroptera and Plecoptera. In contrast, US was found dominant with Ephemeroptera and Trichoptera but rare with Plecoptera. From the biological perspective, The Family Index (FBI), Biological Monitoring Working Party (BMWP) and Ephemeroptera, Plecoptera and Trichoptera (EPT) index indicated that all sites were categorized as excellent water quality and free organic enrichment. However, the Average Score Per Taxon (ASPT) index for both LS and MS were classified as dirty water due to many of human activities such as recreation and agriculture that occurred along the stream.

**KEPELBAGAIAN DAN TABURAN KOMUNITI SERANGGA AKUATIK
DALAM HUBUNGANNYA TERHADAP KUALITI AIR DI HUTAN
REKREASI SEKAYU, TERENGGANU**

ABSTRAK

Sejumlah 3675 individu serangga akuatik daripada 40 famili mewakili lapan order telah direkodkan daripada kawasan hilir sungai (LS), kawasan pertengahan sungai (MS) dan kawasan hulu sungai (US). Terdapat lapan order serangga akuatik yang biasa ditemui telah direkodkan iaitu, Trichoptera (31%), Ephemeroptera (25%), Plecoptera (16%), Odonata (14%), Hemiptera (8%), Coleoptera (4%), Diptera (2%) dan Megaloptera (0.3%). Berdasarkan kepada famili, Perlidae merupakan famili yang paling dominan iaitu 578 individu telah Berjaya dikumpulkan di setiap kawasan kajian. Walau bagaimanapun, Trichoptera telah dikenalpasti sebagai order yang paling dominan di kesemua kawasan kajian dan Sialidae (order Megaloptera) telah juga direkodkan sebagai famili yang mempunyai taburan yang sedikit. Berdasarkan kepada taburan dan kelimpahan order Ephemeroptera, Plecoptera dan Trichoptera (EPT), kawasan hilir sungai menunjukkan taburan Plecoptera yang tinggi diikuti oleh Trichoptera dan Ephemeroptera. Menariknya, Trichoptera telah ditemui sebagai order yang dominan di MS dan diikuti oleh order Ephemeroptera dan Plecoptera. Sebaliknya, di US didominasi dengan Ephemeroptera dan Trichoptera tetapi Plecoptera dikenalpasti mempunyai taburan yang sedikit. Daripada perspektif biologi, The Family Index (FBI), Biological Monitoring Working Party (BMWP) and Ephemeroptera, Plecoptera and Trichoptera (EPT) index telah menunjukkan ke semua kawasan kajian telah dikategorikan sebagai kawasan yang bebas daripada kekayaan

organik dan mempunyai kualiti air yang sangat baik. Namun begitu, Average Score Per Taxon (ASPT) index pula menunjukkan LS dan MS telah dikategorikan mempunyai air yang kotor disebabkan oleh kewujudan pelbagai aktiviti manusia seperti rekreasi dan pertanian yang wujud di sepanjang kawasan sungai.