Research Article

Oriental Hydrocyphon (Coleoptera: Scirtidae: Scirtinae): Seven New Species from Indonesia, Thailand, Malaysia, and India

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Application Specific Instruction-set Processors (ASIPs) expose to the designer a large number of degrees of freedom. Accurate and rapid simulation tools are needed to explore the design space. To this aim, FPGA-based emulators have recently been proposed as an alternative to pure software cycle-accurate simulator. However, the advantages of on-hardware emulation are reduced by the overhead of the RTL synthesis process that needs to be run for each configuration to be emulated. The work presented in this paper aims at mitigating this overhead, exploiting a form of software-driven platform runtime reconfiguration. We present a complete emulation toolchain that, given a set of candidate ASIP configurations, identifies and builds an overdimensioned architecture capable of being reconfigured via software at runtime, emulating all the design space points under evaluation. The approach has been validated against two different case studies, a filtering kernel and an M-JPEG encoding kernel. Moreover, the presented emulation toolchain couples FPGA emulation with activity-based physical modeling to extract area and power/energy consumption figures. We show how the adoption of the presented toolchain reduces significantly the design space exploration time, while introducing an overhead lower than 10% for the FPGA resources and lower than 0.5% in terms of operating frequency.

1. Introduction

The genus Hydrocyphon Redtenbacher is represented by 100 species divided into 13 species groups from the Palaearctic and the Oriental Regions (see, e.g., [1, 2] and Tables 1 and 2). The larvae of this genus inhabit running water, for example, small rivers and streams, and the adults are frequently collected by sweeping around the larval habitat. The genus is well defined by certain characteristics (e.g., small body, deeply notched anterior margin of the mesosternum, well-developed parameres and parameroids), and has been comparatively well studied taxonomically [1, 2]. In the present paper, I describe seven new species from Indonesia, Thailand, Malaysia, and India. In addition, new combination and additional specimens examined are presented.

This is the twelfth part of my comprehensive study of “Scirtidae of the Oriental Region” [2–12].

2. Materials and Methods

This study was conducted based on the dried specimens preserved in the following public collections.

Ehime University Museum, Matsuyama (EUMJ).
Systematic Entomological Laboratory, Hokkaido University (SEHU).
Staatliches Museum für Naturkunde Stuttgart (SMNS).

The methodology was as shown in a previous study [2]. The photographs in Figure 1 were taken under a Leica MZ95 and produced by automontage software Combine ZM.

The abbreviations used in the present paper are as follows: PL: length of pronotum; PW: width of pronotum; EL: length of elytra; EW: width of elytra; TL: total length (PL plus EL). The average value is given in parentheses after the range.

3. Description of the New Species

3.1. Hydrocyphon jogjaensis sp.n. (See Figures 1(a), 1(b), 2, and 11(a))

Type Material. Holotype male (EUMJ): “Ngaglik, Yogyakarta 7°42’28.34”S 110°24’45.34”E Java, INDONESIA 28. II. 2010 H. Yoshitomi leg.”
Paratype female (EUMJ): same data as for the holotype.
| No. | Species          | Description | Distribution | ZooBank LSID                                                                 | Species group                |
|-----|------------------|-------------|--------------|------------------------------------------------------------------------------|------------------------------|
| 1   | altaicola        | (Klausnitzer, 1976) | Bhutan: Gogona, India | urn:lsid:zoobank.org:act:F8C20A8C-A3AA-4D0A-9B03-57F5A54EFA8F44 | Kambariidae                  |
| 2   | amauros          | (Klausnitzer, 1980) | India | urn:lsid:zoobank.org:act:BE1C-F1D0-E1-5D6C-B20E79D01A | Kambariidae                  |
| 3   | aritai           | Yoshitomi, 2001 | Taiwan | urn:lsid:zoobank.org:act:F953-22BD-2C-3C20-438C-E55162CCEC | Kambariidae                  |
| 4   | bicolor          | Yohitomi and Satô, 2003 | Laos | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 5   | bhutanensis      | Klausnitzer, 1976 | Bhutan: Tongsa, Nepal | urn:lsid:zoobank.org:act:55404EFA-F485-4608-80E1-2208B26A6B | Kambariidae                  |
| 6   | bicolor          | Yohitomi and Satô, 2003 | Laos | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 7   | deflexicollis    | (Müller, 1821) | Europe | urn:lsid:zoobank.org:act:4C58-C074-4959-9694-9961-4D76-3A65BAAF | Kambariidae                  |
| 8   | deformis         | Nyholm, 1977 | Turkey | urn:lsid:zoobank.org:act:B18F-9431-4BCF-EBF | Kambariidae                  |
| 9   | dentatus         | Yoshitomi and Satô, 2003 | Laos | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 10  | dispar           | Yoshitomi and Satô, 2003 | Thailand | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 11  | doiinthanonensis | Yohitomi, in present study | Thailand | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 12  | dubius           | Klausnitzer, 1980 | India | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 13  | elongatus        | Nyholm, 1981 | S. Italy, Sicily | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 14  | fuscatus         | Klausnitzer, 1970 | Albania, Kosovo | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 15  | forficulatus     | Nyholm, 1981 | Burma | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 16  | hydrocyphonoides | Tournier, 1868 | S. Italy, Sicily | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 17  | illiesi          | Klausnitzer, 1991 | Algeria | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 18  | inquisitorius    | Nyholm, 1977 | Spain | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 19  | indonesianus     | Yohitomi and Satô, 2005 | Indonesia | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 20  | macrosparsus     | Yoshitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 21  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 22  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 23  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 24  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 25  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 26  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 27  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 28  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 29  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 30  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 31  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 32  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 33  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 34  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| 35  | macrosparsus     | Yohitomi and Klausnitzer, 2003 | China | urn:lsid:zoobank.org:act:5AEE-78C5-FA2D-4BCF-EBF | Kambariidae                  |
| No. | Species group | Species | Description | Distribution | Zoobank LSID |
|-----|---------------|---------|-------------|--------------|-------------|
| 37  | deflexicollis | 36i      | interrogationis | Pakistan | urn:lsid:zoobank.org:act:5022A70A-8612-415C-B192-2B25AE35FF60 |
| 38  | deflexicollis | 37i      | interrogatio | Japan | urn:lsid:zoobank.org:act:65E85E5A-F8A3-4D21-9B4C-95C9B1C7F70B |
| 39  | deflexicollis | 38i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:E25B37A8-469B-404D-9D20-F6910E0C7097 |
| 40  | deflexicollis | 39i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:80EB904A-C464-4D9C-9D20-F6910E0C7097 |
| 41  | deflexicollis | 40i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:9F601E5A-F8A3-4D21-9B4C-95C9B1C7F70B |
| 42  | deflexicollis | 41i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:A060F8B4-7C80-4E5B-869F-95C9B1C7F70B |
| 43  | deflexicollis | 42i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:3C24B7A8-469B-404D-9D20-F6910E0C7097 |
| 44  | deflexicollis | 43i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:7C63C8B4-469B-404D-9D20-F6910E0C7097 |
| 45  | deflexicollis | 44i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:23A5B7A8-469B-404D-9D20-F6910E0C7097 |
| 46  | deflexicollis | 45i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:D824B7A8-469B-404D-9D20-F6910E0C7097 |
| 47  | deflexicollis | 46i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:39B4B7A8-469B-404D-9D20-F6910E0C7097 |
| 48  | deflexicollis | 47i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:419F7B7A8-469B-404D-9D20-F6910E0C7097 |
| 49  | deflexicollis | 48i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:5124B7A8-469B-404D-9D20-F6910E0C7097 |
| 50  | deflexicollis | 49i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:6154B7A8-469B-404D-9D20-F6910E0C7097 |
| 51  | deflexicollis | 50i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:7184B7A8-469B-404D-9D20-F6910E0C7097 |
| 52  | deflexicollis | 51i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:81B4B7A8-469B-404D-9D20-F6910E0C7097 |
| 53  | deflexicollis | 52i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:91C4B7A8-469B-404D-9D20-F6910E0C7097 |
| 54  | deflexicollis | 53i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:01D4B7A8-469B-404D-9D20-F6910E0C7097 |
| 55  | deflexicollis | 54i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:11E4B7A8-469B-404D-9D20-F6910E0C7097 |
| 56  | deflexicollis | 55i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:21F4B7A8-469B-404D-9D20-F6910E0C7097 |
| 57  | deflexicollis | 56i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:31C4B7A8-469B-404D-9D20-F6910E0C7097 |
| 58  | deflexicollis | 57i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:41D4B7A8-469B-404D-9D20-F6910E0C7097 |
| 59  | deflexicollis | 58i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:51E4B7A8-469B-404D-9D20-F6910E0C7097 |
| 60  | deflexicollis | 59i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:61F4B7A8-469B-404D-9D20-F6910E0C7097 |
| 61  | deflexicollis | 60i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:71G4B7A8-469B-404D-9D20-F6910E0C7097 |
| 62  | deflexicollis | 61i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:81H4B7A8-469B-404D-9D20-F6910E0C7097 |
| 63  | deflexicollis | 62i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:91I4B7A8-469B-404D-9D20-F6910E0C7097 |
| 64  | deflexicollis | 63i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:01J4B7A8-469B-404D-9D20-F6910E0C7097 |
| 65  | deflexicollis | 64i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:11K4B7A8-469B-404D-9D20-F6910E0C7097 |
| 66  | deflexicollis | 65i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:21L4B7A8-469B-404D-9D20-F6910E0C7097 |
| 67  | deflexicollis | 66i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:31M4B7A8-469B-404D-9D20-F6910E0C7097 |
| 68  | deflexicollis | 67i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:41N4B7A8-469B-404D-9D20-F6910E0C7097 |
| 69  | deflexicollis | 68i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:51O4B7A8-469B-404D-9D20-F6910E0C7097 |
| 70  | deflexicollis | 69i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:61P4B7A8-469B-404D-9D20-F6910E0C7097 |
| 71  | deflexicollis | 70i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:71Q4B7A8-469B-404D-9D20-F6910E0C7097 |
| 72  | deflexicollis | 71i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:81R4B7A8-469B-404D-9D20-F6910E0C7097 |
| 73  | deflexicollis | 72i      | interrogationis | Indonesia | urn:lsid:zoobank.org:act:91S4B7A8-469B-404D-9D20-F6910E0C7097 |
| No. | Species     | Description         | Distribution        | Zoobank LSID                                      | Species group         |
|-----|-------------|---------------------|---------------------|--------------------------------------------------|-----------------------|
| 74  | pulchellus  | Klausnitzer, 1980   | Nepal               | urn:lsid:zoobank.org:act:C7793CC3-C759-4CD8-B843-FF36EE5987A7 | deflexicollis         |
| 75  | rectangulus | Klausnitzer, 1991   | Algeria             | urn:lsid:zoobank.org:act:BE470234-B4AB-4860-AE6A-EF17BA092ABF | paalidicollis         |
| 76  | renati      | Nyholm, 1981        | Burma               | urn:lsid:zoobank.org:act:408CCB76-42A7-4094-B4CA-50F686FB3107 | renati                |
| 77  | rivulorum   | Nyholm, 1977        | Turkey              | urn:lsid:zoobank.org:act:3DA3840B-6A2D-4BA-8833-84DFD043E15 | deflexicollis         |
| 78  | rufihorax   | (Gemminger, 1869)   | India/Sri Lanka     | urn:lsid:zoobank.org:act:4D9F8CA-E157-4039-A17B-C34F6396F9A | paalidicollis         |
| 79  | saagiensis  | Yoshitomi and Satô, 2005 | Myanmar        | urn:lsid:zoobank.org:act:3DB291D-9F48-4348-BA10-EOEF7015A6F | paalidicollis         |
| 80  | sagitiger   | Yoshitomi, in present study | Indonesia   | urn:lsid:zoobank.org:act:4A679CAE-4C32-417A-B498-8F1B4B2167 | paalidicollis         |
| 81  | sakaii      | Yoshitomi and Satô, 2003 | Laos          | urn:lsid:zoobank.org:act:67DD979-4676-484E-A7F0-FBEE4B516A16 | renati                |
| 82  | sarawakensis | Yoshitomi and Klausnitzer, 2003 | Malaysia     | urn:lsid:zoobank.org:pub:53354344-8857-4500-8FE1-C3E00092BE0 | paalidicollis         |
| 83  | satoi       | Yoshitomi, 2001     | Japan, Taiwan, Korea | urn:lsid:zoobank.org:act:3BD8291D-9F48-4348-BA10-EOEF7015A6F | paalidicollis         |
| 84  | schoenmanni | Yoshitomi and Klausnitzer, 2003 | China        | urn:lsid:zoobank.org:act:3BD8291D-9F48-4348-BA10-EOEF7015A6F | paalidicollis         |
| 85  | segrex      | Nyholm, 1972        | Turkey, Anatolia, Iran, Caspian Sea | urn:lsid:zoobank.org:act:1D970446-0F80-4967-B9FD-CF69C165C32 | australis             |
| 86  | serratibialis | Yoshitomi, in present study | India        | urn:lsid:zoobank.org:act:1E9F878B-737F-4B31-99B7-FA7663EFFF3C | deflexicollis         |
| 87  | sieberi     | (Klausnitzer, 2010) | India               | urn:lsid:zoobank.org:act:888A77DB-C779-46C1-BE0C-069DFC296A53 | deflexicollis         |
| 88  | similis     | Ruta, 2004          | Vietnam             | urn:lsid:zoobank.org:act:7795153-13B9-4F4-A41-B6E4A53BB6F | kambaiticus           |
| 89  | sinica      | Pic, 1934            | China               | urn:lsid:zoobank.org:act:2408AC80-0038-414E-8834-CFEEBCA978 | kambaiticus           |
| 90  | spinosus    | Yoshitomi and Satô, 2005 | India        | urn:lsid:zoobank.org:act:9390299-F337-490A-9EA-BF4C6D08FC9 | kambaiticus           |
| 91  | steueri     | Klausnitzer, 2006   | India               | urn:lsid:zoobank.org:act:468B82B-8178-4B3F-7F0D1D5C2E1 | kambaiticus           |
| 92  | stupendus   | Nyholm, 1981        | Burma               | urn:lsid:zoobank.org:act:1115B1D-1947-4199-92FA-75AC4BAA401 | kambaiticus           |
| 93  | subcelatus  | Yoshitomi and Satô, 2005 | India        | urn:lsid:zoobank.org:act:95BAB60F-C4C7-42F7-B75C-01827FD | paalidicollis         |
| 94  | submalaysianus | Yoshitomi and Satô, 2005 | Malaysia     | urn:lsid:zoobank.org:act:4C5DFEA7B-4B31-481B-9F2-CF687C1299E | deflexicollis         |
| 95  | subrotundus | Yoshitomi and Satô, 2005 | Thailand     | urn:lsid:zoobank.org:act:4EB51544-94BF-4305-ABF-8F9A4E97A97C1 | deflexicollis         |
| 96  | subtrilobus | Yoshitomi and Satô, 2005 | Indonesia    | urn:lsid:zoobank.org:act:5CD0CE1E-4D2-481B-9F2-CF687C1299E | deflexicollis         |
| 97  | sumatrensis | Yoshitomi and Satô, 2005 | Indonesia    | urn:lsid:zoobank.org:act:5CD0CE1E-4D2-481B-9F2-CF687C1299E | deflexicollis         |
| 98  | taiwanus    | Yoshitomi, 2001     | Taiwan              | urn:lsid:zoobank.org:act:3A5B6F9-A586-4BC8-9FA-9F687B9A4EF | renati                |
| 99  | takizawai   | Yoshitomi, in present study | Malaysia     | urn:lsid:zoobank.org:act:9BB1C1B6-492-41D-8F9-58C3FDC883F | paalidicollis         |
| 100 | tamilenis   | Yoshitomi and Satô, 2005 | India        | urn:lsid:zoobank.org:act:9C01DBD-2538-48C-8AB-CC5BACF9B42 | tamilenis             |
| 101 | thailandicus | Yoshitomi and Satô, 2005 | Thailand     | urn:lsid:zoobank.org:act:984DD9E-4D8-49C5-BF37-3F75D1A0F | renati                |
| 102 | triforius   | Yoshitomi and Satô, 2005 | Malaysia, Thailand | urn:lsid:zoobank.org:act:6BBD3361-AD78-430E-880E-66201594 | renati                |
| 103 | tribus      | Yoshitomi and Satô, 2005 | Thailand     | urn:lsid:zoobank.org:act:DBBB0C2-5B88-45C0-A3AD-8A72C1D42E6 | paalidicollis         |
| 104 | uenoi       | Yoshitomi and Klausnitzer, 2003 | China        | urn:lsid:zoobank.org:act:A48E5C2-38F1-4C0-A832-CE4B41C9F4 | kambaiticus           |
| 105 | vicinans    | Nyholm, 1972        | Turkey, Israel     | urn:lsid:zoobank.org:act:DB707751-48A-B638-A863-8671E0DCFDC | australis             |
| 106 | wakaharai   | Yoshitomi and Satô, 2003 | Laos          | urn:lsid:zoobank.org:act:8A75EBCF-66F9-4E52-B555-A6F4A61557E9 | renati                |
| 107 | wangi       | Yoshitomi, 2008     | China               | urn:lsid:zoobank.org:act:C64D881-7074-4993-83F6-61CE898A954 | kambaiticus           |
| 108 | yoshitomii  | Klausnitzer, 2002   | Nepal               | urn:lsid:zoobank.org:act:690CF7A-9E10-4D0-8FD-558279A45203 | yoshitomii            |
Figure 1: Habitus of *Hydrocyphon* spp., holotypes, male (a, c, e–i) and paratypes, female (b, d). (a, b) *H. jogjaensis* sp.n.; (c, d) *H. takizawai* sp.n.; (e) *H. sagittiger* sp.n.; (f) *H. serratibasialis* sp.n.; (g) *H. doiinthanonensis* sp.n.; (h) *H. klapperichi* sp.n.; (i) *H. deformis* sp.n. Scale = 1.0 mm.

Table 2: The list of the species excluding from the genus *Hydrocyphon*. An Excel file version is also available at the following URL: https://sites.google.com/site/waterbeandlesofjapan/home/support-files-on-articles/Appendix 2.xls.

| No. | Species         | Description                                                                 | Distribution | Zoobank LSID                                                                 | Transferred | Referenced Genus |
|-----|-----------------|-----------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------|-------------|------------------|
| 1   | *Hydrocyphon*   | Motschulsky, 1863                                                          | Ceylon       | urn:lsid:zoobank.org:act:7CE1145A-0783-4196-A201-B0397235AE5                 | Cyphon      |                  |

Male Description. Body oval, well-convex dorsally, shiny, closely covered with short yellowish-white setae. Coloration of body blackish-brown, but antennal segments I–V, lateral part of pronotum and legs yellowish-brown. Head moderate in size, lightly convex dorsally, finely punctuate, with straight front margin of clypeus; the distance between eyes about 1.9 times as long as the maximum diameter of an eye. Eyes moderate in size, prominent. Antennae short, slender, reaching at basal part of elytra. Pronotum punctuate as in head, lightly convex dorsally, lightly depressed ventrally in lateral parts; front margin almost straight; anterolateral corners obtuse; posterolateral corners right-angle; lateral and posterior margins gently arcuate; PW/PL 2.69. Scutellum small, equilateral-triangular, punctuate as in head. Elytra oval, convex dorsally, broadest at basal 1/3, punctuate as in head; humeral parts indistinct; EL/EW 1.22; EL/PL 4.80; EW/PW 1.47; TL/EW 1.47. Legs relatively long, slender.
Caudal margin of sternite VII gently arcuate. Tergites VIII—IX moderately sclerotized, trapezoidal. Tegmen short, well sclerotized; proximal part short, fan-shaped, arcuate in basal margin; parameres stout, gently expanded laterally in basal parts, arrow-like shape in apical parts. Penis long, well sclerotized, asymmetrical, about 1.7 times as long as tegmen; pala subtrapezoidal, widest at base; parameroids long and slender, slightly asymmetrical, gently widened and punctuate in apical parts, obtuse at apices; trigonium with one long and slender projection, a little shorter than parameroids, obtuse at apex; median plate indistinct.

Female. Similar to male; pronotum yellow (probably teneral specimen); antennae relatively stout; PW/PL 2.55; EL/EW 1.23; EL/PL 4.25; EW/PW 1.35; TL/EW 1.52.

Caudal margin of sternite VII slightly pointed. Tergite VIII moderately sclerotized, trapezoidal, bearing short setae in caudal parts, with long apodemes; sternite VIII slightly sclerotized, oblong, bearing short setae along caudal margin. Ovipositor relatively short; relative length of stylus, coxite, and baculus \( n = 1 \) as 1.0 : 4.0 : 15.3. Prehensor small, well sclerotized, oblong, bearing short spines in mesal part.

**Measurements.** Male \( n = 1 \): TL 2.03 mm; PW 0.94 mm; PL 0.35 mm; EL 1.68 mm; EW 1.38 mm. Female \( n = 1 \): TL 2.10 mm; PW 1.02 mm; PL 0.40 mm; EL 1.70 mm; EW 1.38 mm.

**Remarks.** The species belongs to the *pallidicollis* species group. It is similar to *H. trilobus* Yoshitomi and Satô and *H. subtrilobus* Yoshitomi and Satô with respect to the shape of...
Figure 3: Hydrocyphon takizawai sp.n., holotype, male (a–e) and paratype, female (f–h). (a, f) Sternites V–VII; (b) tergite VIII; (c) sternite IX; (d) tegmen; (e) penis; (g) ovipositor; (h) prehensor.

the penis, but differs from them by the apices of the parameres which have an arrow-like shape.

Biological Notes. The type locality was a small river situated halfway up Mount Merapi (Figure 11(a)). The river was somewhat polluted by waste water flowing from cichlid fish farms.

Etymology. The species is named after the type locality.

3.2. Hydrocyphon takizawai sp.n. (See Figures 1(c), 1(d), 3, 4, 5, and 11(b))

Type Material. Holotype male (EUMJ): “Kinabalu Park, HQ Sabah, MALAYSIA 2–4. V. 2010 H. Yoshitomi leg.”

Paratypes 2 females (EUMJ): same data as for the holotype.

Male Description. Body oval, well convex dorsally, shiny, closely covered with yellowish white short setae. Coloration of head, mouth parts, antennal segments I–IV, prothorax and legs yellowish-brown, but posterior part of head and tarsi infuscate; antennal segments V–XI, scutellum, elytra, meso- and metaventrites, and abdominal segments brown.

Head moderate in size, slightly convex dorsally, finely punctuate; clypeus rather long, straight in front margin; the distance between eyes about 1.7 times as long as the maximum diameter of an eye. Eyes moderate in size, prominent. Antennae short, reaching about proximal 1/6 of elytra. Pronotum punctuate as in head, slightly convex dorsally, depressed ventrally in lateral parts; front margin straight; antero- and posterolateral corners obtuse; lateral and posterior margins gently arcuate; PW/PL 2.51. Scutellum small, equilateral-triangular. Elytra oval, convex dorsally, broadest at the middle; humeral parts gently projecting dorsally; EL/EW 1.41; EL/PL 4.83; EW/PW 1.36; TL/EW 1.70.

Caudal margin of sternite VII arcuate. Tergite VIII moderately sclerotized, transversal trapezoidal, bearing short spines in caudal part, with a pair of short apodemes. Sternite IX well sclerotized, consisting of a pair of hemisternites, with pointed at apices. Tegmen large, well sclerotized; proximal part short, subparallel-sided; parameres long, minutely serrate in apical 1/3 of inner parts, distinctly protruding
postero-interiorly in postero-lateral corners, projecting anteriorly in anterolateral corners. Penis asymmetrical, short, well sclerotized, about 0.8 times as long as tegmen; palp oblong, widest near base, tapered in proximal 2/3; parameroids short and almost straight, obtuse at apices, finely punctuate, left one long and slender, right one short and stout; trigonium consisting of a small lobe.

**Female.** Sexual dimorphism indistinct, but mesal part of pronotum infustate in paratype; PW/PL 2.24; EL/EW 1.42; EL/PW 4.59; EW/PW 1.45; TL/EW 1.73.

Caudal margin of sternite VII arcuate. Ovipositor relatively short; stylus with two pairs of apical setae; coxite bearing short spines; baculus without branch; relative length of stylus, coxite and baculus \( (n = 1) \) as 1.0 : 2.3 : 7.5. Prehensor small, slightly sclerotized, Y-shaped, bearing short spines in inner margins of apices.

**Measurements.** Male \((n = 1)\): TL 2.04 mm; PW 0.88 mm; PL 0.35 mm; EL 1.69 mm; EW 1.20 mm. Female \((n = 1)\): TL 2.07 mm; PW 0.83 mm; PL 0.37 mm; EL 1.70 mm; EW 1.20 mm.

**Larvae.** Body about 4.0 mm length in fully expanded specimens, subparallel-sided in thorax and abdomen which bearing short and long setae on lateral and posterior margins. Coloration of body right brown.

Head slightly protruding laterally, with three pairs of nonmelanized stemmata situated near anterolateral corners. Antennae relatively long, reaching at abdominal segment I; scape slightly curved posteriorly; flagellum 51–73 (64) segmented \((n = 4)\). Labrum transverse, covered with long setae on dorsal surface; ventral lobes projecting anteriorly, with 12 pairs of stout and short setae on inner margins. Maxillary palpi long and slender; 1st segment covered sparsely with short and long setae on dorsal surface; 3rd rounded at apex, with widely apical sensory area; relative length of each segment \((n = 1)\) as 1.0 : 1.0 : 1.3. Mandibles and hypopharynx typical for the genus. Thorax widest at posterior margin of mesothorax. Abdomen subparallel-sided, widest at segment V, then gently tapering posteriorly, bearing two (II–V) or one (VI–VII) pairs of short setae on lateral part. Tergite VIII trapezoidal, shallowly concave in posterior margin, with a pair of very long setae protruding from posterolateral corners. Sternite VIII semicircular, bearing long setae on lateral and posterior margins, two of those very long. Tergite IX semicircular, convex at apex, with a pair of long setae at apex, bearing pectinate short setae on lateral margin. Sternite IX transversal semicircular, with pectinate setae on posterior margin.
Measurements of Larvae \((n = 3)\). TL 5.40–6.50 (5.80) mm; HW 0.80–0.90 (0.83) mm; PL 0.50–0.55 (0.52) mm; PW 1.05–1.20 (1.15) mm; TW 1.20–1.40 (1.33) mm.

Specimens Examined of Larvae. 29 exs. (mature larvae), Kinabalu Park, HQ Sabah, Malaysia, 2–4. V. 2010, H. Yoshitomi leg.; 5 exs. (mature larvae), Liwagu river, Kinabalu Park, HQ, Sabah, Malaysia, 28. II. 2009, H. Uno leg.

Remarks. The species belongs to the pallidicollis species group. Judging from the shape of the penis, it is similar to \(H.\) palawanensis Yoshitomi and Satô, \(H. javanicus\) Yoshitomi and Satô, \(H. baliensis\) Yoshitomi and Satô, \(H. manfredi\) Yoshitomi and Satô, and \(H. sarawakensis\) Yoshitomi and Satô, but differs from them by the shape of the parameres projecting posteriorly and serrate in the inner margin.

The larva of this species is distinguished from the three previously known species of the larvae in the genus \(H.\) deflexicollis \([13]\), \(H. satoi\) \([14]\), \(H. sp.\) \([4]\) by the following characteristics: (1) segment III of maxillary palpi somewhat short (about 1.5 times as long as segment I in \(H.\) deflexicollis and \(H. satoi\)); (2) the short setae on the lateral and posterior margins of tergite IX and sternite IX pectinate (simple setae in \(H. satoi\) and \(H. sp.\)).

Biological Notes. The type locality was a small stream in the Kinabalu National Park (Figure 11(b)). The stream was clear, and many aquatic insects were collected with this species.

Etymology. The species is named after Dr. H. Takizawa.

3.3. *Hydrocyphon sagittiger* sp.n. (See Figures 1(e) and 6)

**Type Material.** Holotype male (EUMJ):“(Indonesia) West Sumatra Batipuh 26. XI. 1974 T. Kobayashi,” “Egyptian kidney bean.”

Holotype male (EUMJ):“(Indonesia) West Sumatra Batipuh 26. XI. 1974 T. Kobayashi,” “Egyptian kidney bean.”

**Male Description.** Body oval, well convex dorsally, shiny, closely covered with yellowish-white setae. Coloration of body blackish-brown, but anterior part of head, lateral parts of pronotum, antennal segments I–V, and legs right-brown.
Head moderate in size, flat in dorsally, finely punctuate; clypeus short, straight in front margin; the distance between eyes about 2.1 times as long as the maximum diameter of an eye. Eyes moderate in size, prominent. Antennae short, reaching about proximal 1/8 of elytra. Pronotum punctuate as in head, slightly convex dorsally, depressed ventrally in lateral parts; front margin straight; antero- and postero-lateral corners obtuse; lateral and posterior margins gently arcuate; PW/PL 2.57. Scutellum small, equilateral-triangular. Elytra oval, strongly convex dorsally, broadest at the middle; humeral parts gently projecting dorsally; EL/EW 1.26; EL/PL 4.65; EW/PW 1.43; TL/EW 1.54.

Tegmen large, well sclerotized; proximal part long, peg-like; parameres wide, distinctly projecting anteriorly in antero-lateral corners, projecting subtriangularly in inner and outer corners of apices. Penis long, slightly asymmetrical, well sclerotized, about 1.5 times as long as tegmen; pala short, oblong, widest at proximal 1/3 of pala; parameroids very long, asymmetrical, almost straight, left one slightly longer than right one, excised at inner margin of left apex; trigonium consisting of a long lobe, straight, shorter than parameroids, obtuse at apex; median plate indistinct.

Female. Unknown.

Measurements. TL 2.09 mm; PW 0.95 mm; PL 0.37 mm; EL 1.72 mm; EW 1.36 mm.

Remarks. The species belongs to the pallidicollis species group, and is related to H. jogaensis sp.n., H. trilobus Yoshitomi and M. Satô, 2005, and H. subtrilobus Yoshitomi and M. Satô, 2005. It differs from them by the following characteristics: inner corner of parameres projecting interiorly; left parameroid excised at apex; pala oblong.

Etyemology. The species name refers to the shape of the apices of the tegmen.

3.4. Hydrocyphon serratibasialis sp.n. (See Figures 1(f) and 7)

Type Material. Holotype male (SEHU): “INDIA: KERALA Dhony Hills 180–450 m 7 DEC 1978 JAP-IND CO TR”.

Male Description. Body oval, well convex dorsally, shiny, closely covered with yellowish-white setae. Coloration of head, scutellum, elytra, and ventral surface of thorax and abdomen blackish-brown; pronotum, legs, and antennae yellowish-brown.

Head moderate in size, slightly convex dorsally, finely punctuate; clypeus short, straight in front margin; the distance between eyes about 2.2 times as long as the maximum diameter of an eye. Eyes moderate in size, prominent. Antennae rather stout. Pronotum punctuate as in head, lightly depressed ventrally in lateral parts; front and lateral margins straight; antero-lateral corners about 120°; postero-lateral corners right-angle; posterior margin gently arcuate; PW/PL
2.78. Scutellum small, equilateral triangular. Elytra oval, strongly convex dorsally, broadest at the middle; humeral parts gently projecting dorsally; EL/EW 1.21; EL/PL 4.59; EW/PW 1.36; TL/EW 1.48.

Caudal margin of sternite VII gently arcuate. Tergite VIII moderately sclerotized, trapezoidal, bearing short spines along caudal margin, sparsely covered with short setae in caudal part, with a pair of slender apodemes. Sternites IX slightly sclerotized, upturned in postero-lateral parts, with a pair of long apodemes. Tegmen long, well sclerotized; proximal part short, expanded antero-laterally; parameres long, minutely serrate in mesal part of inner margin, distinctly protruding postero-laterally in apical parts, projecting anteriorly in antero-lateral corners. Penis asymmetrical, long, well sclerotized, about 0.9 times as long as tegmen; palpa oblong, widest at basal 1/6; parameroids longer than trigonium, finely punctuate; trigonium consisting of two lobes, longer one forked, shorter one slender; median plate indistinct.

Female. Unknown.

Measurements. TL 2.07 mm; PW 1.03 mm; PL 0.37 mm; EL 1.70 mm; EW 1.40 mm.

Remarks. The species belongs to the *deflexicollis* species group, but is a distinct species having a characterized tegmen.

**Etymology.** The species name refers to the shape of the tegmen: “serrati-” = serrate + “basialis” = basal.

3.5. *Hydrocyphon doiinhanonensis* sp.n. (See Figures 1(g) and 8)

**Type Material.** Holotype male (EUMJ): “[North THAI] Maeo Khun klang 1350 m, Doi Inthanon 19. X. 1983 M. Sakai”.

**Male Description.** Body oval, well convex dorsally, weakly shiny, closely covered with yellowish-white setae. Coloration of body brown, but antennae, apical part of femora, tibiae, and tarsi pale brown.

Head moderate in size, slightly convex dorsally, finely punctuate; clypeus short, straight in front margin; the distance between eyes about 2.3 times as long as the maximum diameter of an eye. Eyes moderate in size, prominent. Antennae rather stout. Pronotum punctuate as in head, slightly depressed ventrally in lateral parts; front and lateral margins straight; antero-lateral corners about 120°; postero-lateral corners almost right-angle; posterior margin gently arcuate; PW/PL 2.45. Scutellum small, equilateral triangular. Elytra oval, broadest at basal 1/4; humeral parts indistinctly projecting; EL/EW 1.28; EL/PL 4.63; EW/PW 1.48; TL/EW 1.55.

Caudal margin of sternite VII gently arcuate. Tergite VIII moderately sclerotized, trapezoidal, bearing short spines along caudal margin, sparsely covered with short setae in (a) Sternites V–VII; (b) tergite VIII; (c) sternite IX; (d) tegmen; (e) penis.
Figure 8: *Hydrocyphon dointhanonensis* sp.n., holotype, male. (a) Sternites V–VII; (b) tergite VIII; (c) tergite IX; (d) sternite IX; (e) tegmen.

caudal part, with a pair of short apodemes. Sternite IX slightly sclerotized, bearing irregular setae in caudal part, with a pair of long apodemes. Tergite IX slightly sclerotized, trapezoidal, concave and bearing short spines in caudal margin, upturned in posterolateral parts, bearing short setae in caudal part, with a pair of long apodemes. Tegmen large, well sclerotized; proximal part short, subparallel-sided; parameres long, projecting laterally in apices, projecting subtriangularly in anterior corners. Penis missing.

**Female.** Unknown.

**Measurements.** TL 2.25 mm; PW 0.98 mm; PL 0.40 mm; EL 1.85 mm; EW 1.45 mm.

**Remarks.** The species belongs to the *deflexicollis* species group. This species is distinguished from the previously known species by the concave posterior margin of the sternite and tergite IX and the shape of the parameres of the tegmen.

**Etymology.** The species is named after the type locality.

3.6. *Hydrocyphon klapperichi* sp.n. (See Figures 1(h) and 9)

**Type Material.** Holotype male (SMNS): “INDONESIEN: Sumatra, Prov. Aceh-Selatan, Babahrot 15–20. 8. 1983 leg. J. KLAPPERICH”.

Paratypes 2 female (SMNS): same data as for the holotype.

**Male Description.** Body oval, convex dorsally, shiny, closely covered with yellowish-white setae. Coloration of body blackish-brown, but lateral parts of pronotum and legs paler.

Head moderate in size, flat in dorsal surface, finely punctuate; clypeus short, straight in front margin; the distance between eyes about 2.2 times as long as the maximum diameter of an eye. Eyes relatively large, prominent. Pronotum punctuate as in head, slightly depressed ventrally in lateral parts; front and lateral margins straight; antero-lateral corners 120°; postero-lateral corners right-angle;
Figure 9: Hydrocyphon klapperichi sp.n., holotype, male. (a) Sternites V–VII; (b) tergite IX; (c) tegmen; (d) penis.

posterior margin gently arcuate; PW/PL 2.53. Scutellum relatively large, equilateral triangular. Elytra oval, rather convex dorsally, broadest at basal 1/3; humeral part indistinctly projecting; EL/EW 1.20; EL/PL 4.27; EW/PW 1.41; TL/EW 1.48.

Caudal margin of sternite VII gently arcuate. Tergite VIII moderately sclerotized, trapezoidal, with a short apodemes. Tergite IX slightly sclerotized, bearing short setae in apical part, with a pair of long apodemes. Tegmen relatively large, moderately sclerotized; proximal part peg-like, short; parameres obscure, serrate at lateral margins, projecting and bifid in antero-lateral corners, punctuate; lateral projections very long, as long as parameres. Penis asymmetrical, long, well sclerotized, about 2.1 times as long as tegmen; palpal oblong, gently tapered anteriorly; parameroids distinctly asymmetrical, closely punctuate, almost straight, left one wider and longer than right one; trigonium consisting of a long lobe, shorter than parameroids, obtuse at apex; median plate indistinct.

Female. Sexual dimorphism indistinct in external features, but body is somewhat larger; PW/PL 2.50–2.67 (2.58); EL/EW 1.46–1.47 (1.47); EL/PL 4.05–4.56 (4.30); EW/PW 1.10–1.17 (1.13); TL/EW 1.79–1.84 (1.81).

Measurements. Male (n = 1): TL 1.58 mm; PW 0.76 mm; PL 0.30 mm; EL 1.28 mm; EW 1.07 mm. Female (n = 2): TL 2.02 & 2.50 mm; PW 1.00 & 1.20 mm; PL 0.40 & 0.45 mm; EL 1.62 & 2.05 mm; EW 1.10 & 1.40 mm.

Remarks. The shape of the tegmen of this species is similar to that of the mirabilis, the tamiensis, the kinabalis, and the renati species groups, but this species is easily distinguished from the latter by the serrate parameres and the shape of the penis. Judging from the shape of the penis (e.g., asymmetrical parameroids and single projection of trigonium), this species probably belongs to the pallidicolis species group.

Etymology. The species is named after Dr. J. Klapperich, who was the collector of the holotype.

3.7. Hydrocyphon deformis sp.n. (See Figures 1(i) and 10)

Type Material. Holotype male (SEHU): “INDIA: KERALA Dhony Hills 180–450 m 7 DEC 1978 JAP-IND CO TR.”

Male Description. Body oval, well convex dorsally, strongly shiny, closely covered with yellowish-white setae. Coloration blackish-brown, but lateral parts of pronotum, mouth parts, antennae, and legs paler.

Head moderate in size, flat in dorsal surface, finely punctuate; clypeus relatively long, straight in front margin; the distance between eyes about 2.5 times as long as the maximum diameter of an eye. Eyes moderate in size, prominent. Antennae short and stout, reaching about proximal 1/3 of elytra. Pronotum strongly transverse, punctuate as in head, depressed ventrally in lateral parts; front and lateral margins straight; antero-lateral corners obtuse, posterolateral corners almost right-angle; posterior margin arcuate; PW/PL 2.80. Scutellum relatively large, equilateral triangular. Elytra semicircular, well convex dorsally, broadest at basal 1/3; humeral parts slightly projecting dorsally; EL/EW 1.14; EL/PL 4.57; EW/PW 1.43; TL/EW 1.39. Legs relatively long.

Caudal margin of sternite VII gently arcuate. Tergite VIII moderately sclerotized, trapezoidal, bearing short setae and spines along caudal margin, with a pair of short apodemes. Tergite IX membranous, with a pair of long and slender apodemes. Sternite IX slightly sclerotized, oblong, bearing short setae in posterolateral parts. Tegmen moderately sclerotized; proximal part peg-like, short; parameroids short, obtuse at
Figure 10: *Hydrocyphon deformis* sp.n., holotype, male. (a) Sternites V–VII; (b) tergite VIII; (c) tergite IX; (d) sternite IX; (e) tegmen; (f) penis.

Figure 11: Habitats of *Hydrocyphon* spp. (a) Ngaglik, Yogyakarta (type locality of *H. jogiaensis* sp.n., 28. II. 2010, photo by H. Yoshitomi); (b) Kinabalu Park, Sabah (type locality of *H. takizawai* sp.n., 4. V. 2010, photo by H. Yoshitomi).
Apices; lateral projections long. Penis asymmetrical, long, about 2.1 times as long as tegmen; pala oblong, subparallel-sided, arcuate in caudal margin; parameroids distinctly asymmetrical, left one wide and closely punctuate, diagonal in apical margin, right one distinctly curved inwardly, slender, with rather pointed apex; trigonium a little shorter than parameroids, serrate at apex; median plate short.

**Female.** Unknown.

**Measurements.** TL 1.95 mm; PW 0.98 mm; PL 0.35 mm; EL 1.60 mm; EW 1.40 mm.

**Remarks.** Judging from the shape of the penis in having an asymmetrical trigonium projection, this species belongs to the *pallidicollis* species group; however, the shape of the tegmen of this species is similar to that of the *mirabilis*, the *tamilensis*, and the *renati* species groups. This species is also similar to *H. kinabalensis* Yoshitomi and Satô, 2005 [2] in the shape of the tegmen and the left parameroid of the penis, but differs from it by the presence of trigonium and plate-like sternite IX.

**Etymology.** The species name refers to the shape of the tegmen.

### 4. New Combination of the Species

4.1. *Hydrocyphon sieberi* [15], Comb.n

**Remarks.** Judging from the original description and figures [15], this species clearly belongs to the *pallidicollis* species group of the genus *Hydrocyphon*. It is closely similar to *H. guangxiensis* Yoshitomi and Klausnitzer, 2003 [1], known from China, and differs from it by the shape of the right parameroid which has small projections at the inner margin of the apex (lacking projection in *guangxiensis*).

**Distribution.** India.

### 5. Additional Specimens Examined

5.1. *Hydrocyphon sakaii* Yoshitomi and Satô, 2003 [4]

**Additional Specimens Examined.** 9 Males (EUMJ), “(LAOS) Ban Saleui Xam Neua 30-31. III. 2005 J. Yamasako leg.; 1 female (EUMJ), “Mt. Phu Pan, 1500–1800 m, N20°11′E104°01′ Hounaphan Prov. N. E. Laos 21–25. V. 2004 T. Mizusawa”; 1 male (EUMJ), “Phu Pan (Mt.) alt. 1500–1800 m N20°11′/E104°01′ Laos 25. IV–V. 2004”; 2 males (EUMJ), ditto, but “16–19. V. 2004, M. Sato leg.”

**Distribution.** Laos.

5.2. *Hydrocyphon wakaharai* Yoshitomi and Satô, 2003 [4]

**Additional Specimens Examined.** 1 Male (EUMJ), “[N. Laos] Phu-Pan Alt. ca. 1600–1750 m Xam Neua Pref. Houaphan province 21. V. 2005 T. Kurihara leg.;” 3 males (EUMJ), “[N-VIETNAM: Tam Dao 21°28′N 105°38′E 19. 5.–13.6., 800–1000 m leg. Malicky 1995,” genit. s. nos. HY 857, 878, 882; 1 male, “Mt. Phu Bia Saisombun Laos 21-III-2005 M. Sato leg.”

**Distribution.** Laos, Vietnam.

5.3. *Hydrocyphon javanicus* Yoshitomi and Satô, 2005 [2]

**Additional Specimens Examined.** 3 Males and 3 females (EUMJ), “(Indonesia) Ciburum alt. 1,600 m Mt. Gede, Jawa Barat VII. 27. 1977 Shinji Nagai leg.;” 1 male (EUMJ), ditto but “20. VII. 1997.”

**Distribution.** Indonesia (Java Isl.).

5.4. *Hydrocyphon triforius* Yoshitomi and Satô, 2005 [2]

**Additional Specimen Examined.** 1 Male (EUMJ), “Ban A Chia 890 m Lai Chau N. Vietnam 8-V-1995 Y. Nishikawa”, genit. s. no. HY 1098.

**Distribution.** Malaysia, Thailand, Vietnam (new record).

5.5. *Hydrocyphon tamilensis* Yoshitomi and Satô, 2005 [2]

**Additional Specimens Examined.** 2 Males & 1 female (SEHU), “INDIA: TAMIL N. Coonoor 1700–1900 m 29 NOV 1978 JAP-IND CO TR.”

**Distribution.** India.

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### References

[1] H. Yoshitomi and B. Klausnitzer, “Scirtidae: world check list of *Hydrocyphon* Redtenbacher, and revision of the Chinese species,” in *Water Beetles of China*, M. A. Iäch and L. Ji, Eds., vol. 3, pp. 519–537, Zoologisch-Botanische Gesellschaft and Wiener Coleopterologenverein, Wien, Austria, 2003.

[2] H. Yoshitomi and M. Satô, “Scirtidae of the Oriental region, part 8. New species and additional record of the genus...
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Hydrocyphon (Coleoptera: Scirtidae),” *Entomological Review of Japan*, vol. 60, no. 1, pp. 153–206, 2005.

[3] H. Yoshitomi, “Scirtidae of the Oriental region part 1. A new species of the genus *Elodes* (Coleoptera, Scirtidae) from Laos, with a species list of the genus *Elodes* known from the Oriental region,” *Special bulletin of the Japanese Society of Coleopterology*, no. 6, pp. 227–231, 2003.

[4] H. Yoshitomi and M. Satô, “Scirtidae of the Oriental region, part 2. The genus *Hydrocyphon* (Coleoptera, Scirtidae) of Laos,” *Japanese Journal of Systematic Entomology*, vol. 9, no. 1, pp. 223–235, 2003.

[5] H. Yoshitomi and M. Satô, “Scirtidae of the Oriental regions, part 3. A new species of the genus *Prionocyphon* (Coleoptera: Scirtidae) from Laos, with a world check list of the species,” *Entomological Review of Japan*, vol. 58, no. 2, pp. 187–190, 2003.

[6] H. Yoshitomi and M. Satô, “Scirtidae of the Oriental regions, part 4. Genus *Elodes* (Coleoptera: Scirtidae) of Nepal,” *Entomological Review of Japan*, vol. 58, no. 3, pp. 191–199, 2003.

[7] H. Yoshitomi and M. Satô, “Scirtidae of the Oriental regions, part 5. Genus *Elodes* (Coleoptera: Scirtidae) of Vietnam,” *Entomological Review of Japan*, vol. 59, no. 1, pp. 81–86, 2004.

[8] H. Yoshitomi and M. Satô, “Scirtidae of the Oriental regions, part 6. A revision of the species-group of *Cyphon hashimotorum* (Coleoptera, Scirtidae),” *Japanese Journal of Systematic Entomology*, vol. 10, no. 1, pp. 89–105, 2004.

[9] H. Yoshitomi and M. Satô, “Scirtidae of the Oriental regions, part 7. A new species of the genus *Sacodes* (Coleoptera, Scirtidae) from Taiwan,” *Japanese Journal of systematic Entomology*, vol. 10, no. 2, pp. 211–214, 2004.

[10] H. Yoshitomi, “Scirtidae of the Oriental region, part 9. Three new species of the genus *Hydrocyphon* (Coleoptera, Scirtidae) from China,” *Japanese Journal of systematic Entomology*, vol. 14, no. 1, pp. 77–82, 2008.

[11] H. Yoshitomi, “Scirtid beetles (Coleoptera, Scirtidae) of the Oriental region part 10. New species and new record of *Cyphon variabilis* species-group,” *Elytra*, vol. 37, no. 1, pp. 87–97, 2009.

[12] H. Yoshitomi, “Scirtidae of the Oriental region, part 11. Notes on the *Cyphon coarctatus* species group (Coleoptera), with descriptions of new species,” *Japanese Journal of systematic Entomology*, vol. 15, no. 1, pp. 101–128, 2009.

[13] U. Hannappel and H. F. Paulus, “Arbeiten zu einem phylogenetischen System der Helodidae (Coleoptera)—Feinstrukturuntersuchungen an europäischen Larven,” *Bonner Zoologische Beiträge*, vol. 31, pp. 77–150, 1987.

[14] H. Yoshitomi, “Taxonomic study of the genus *Hydrocyphon* (Coleoptera, Scirtidae) of Japan and her adjacent regions,” *Elytra*, vol. 29, no. 1, pp. 87–107, 2001.

[15] B. Klausnitzer, “Eine neue Art der Gattung *Cyphon* Paykull, 1799 aus Nordindien (Coleoptera, Scirtidae),” *Entomologische Nachrichten und Berichte*, vol. 54, no. 1, pp. 123–125, 2010.