

## SUPPLEMENTARY INFORMATION

# A new genus and two new species of freshwater mussels (Unionidae) from western Indochina

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Habitat of *Yaukthwa paiensis* **sp. nov.**, Pai River basin, northwestern Thailand (Photo: Zachary S. Randall)

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Supplementary References

**Supplementary Table 1.** List of sequences used in this study, including the species, locality and NCBI's GenBank accession numbers

Species	Locality	Specimen Voucher	COI	16S rRNA	28S rRNA
<b>PSEUDODONTINAE Frierson, 1927</b>					
<b>Pseudodontini Frierson, 1927</b>					
<i>Pseudodon avae</i> (Theobald, 1873)	Myanmar: Ayeyarwady River basin, a tributary of Lake Indawgyi	biv110_5	KX865858	KX865629	KX865730
<i>P. avae</i> (Theobald, 1873)	Myanmar: Ayeyarwady River basin, a tributary of Lake Indawgyi	biv110_10	KX865859	KX865630	KX865731
<i>P. avae</i> (Theobald, 1873)	Myanmar: Ayeyarwady River basin, a tributary of Lake Indawgyi	biv110_11	KX865860	KX865631	KX865732
<i>P. bogani</i> Bolotov, Kondakov & Konopleva, 2017	Myanmar: Sittaung River basin, Kanni River	biv 241/4	MF352216	MF352290	MF352348
<i>P. bogani</i> Bolotov, Kondakov & Konopleva, 2017	Myanmar: Sittaung River basin, Kanni River	biv 241/5	MF352217	MF352291	MF352349
<i>P. bogani</i> Bolotov, Kondakov & Konopleva, 2017	Myanmar: Sittaung River basin, Kanni River	biv 241/8	MF352218	MF352292	MF352350
<i>P. manueli</i> Konopleva, Kondakov & Vikhrev, 2017	Myanmar: Sittaung River basin, Pyowne River	biv 246/1	MF352228	MF352300	MF352358
<i>P. manueli</i> Konopleva, Kondakov & Vikhrev, 2017	Myanmar: Sittaung River basin, Pyowne River	biv 246/3	MF352229	MF352301	MF352359
<i>P. manueli</i> Konopleva, Kondakov & Vikhrev, 2017	Myanmar: Sittaung River basin, Pyowne River	biv 246/8	MF352230	MF352302	MF352360
<b>Pilsbryconchini Bolotov, Vikhrev &amp; Tumpeesuwan, 2017</b>					
<i>Bineurus</i> aff. <i>mouhotii</i> (Lea, 1863) sp.1	Laos: Mekong River basin, Nam Long River	biv_182/2	KX865876	KX865647	KX865747
<i>B.</i> aff. <i>mouhotii</i> (Lea, 1863) sp.2	Thailand: Mekong River basin, Loei River	biv_119/1	KX865879	KX865650	KX865750
<i>B.</i> aff. <i>mouhotii</i> (Lea, 1863) sp.3	Laos: Mekong River basin	UMMZ:304649	KP795026	KP795051	KP795009
<i>Monodontina cambodjensis</i> (Petit de la Saussaye, 1865)	Cambodia: Mekong River basin, Tonle Sap River: Pursat River	UMMZ:304350	KP795028	KF011262	KP795011
<i>M.</i> aff. <i>vondembuschiana</i> (Lea, 1840) sp.1	Thailand: Mekong River basin, Phong River	biv122	KX865861	KX865632	KX865733
<i>M.</i> aff. <i>vondembuschiana</i> (Lea, 1840) sp.2	Laos: Mekong River basin	UMMZ:304650	KP795029	KP795052	AF400694
<i>Pilsbryconcha compressa</i> (Martens, 1860)	Thailand: Mekong River basin, artificial pond near the Ban Nong-Bua village	biv_116/1	KX865872	KX865643	KX865744
<i>P.</i> aff. <i>exilis</i> (Lea, 1838) sp.1	Cambodia: Mekong River basin	UMMZ:304647	KP795024	KP795049	KP795007
<b>PARREYSIINAE Henderson 1935</b>					
<b>Indochinellini Bolotov, Pfeifer, Vikhrev &amp; Konopleva, 2018</b>					
<i>Indochinella pugio</i> (Benson, 1862)	Myanmar: Ayeyarwady River basin, Lake Nant Phar	biv_258/1	MF352261	MF352325	MF352386
<i>I. pugio</i> (Benson, 1862)	Myanmar: Ayeyarwady River basin, Lake Nant Phar	biv_258/2	MF352262	MF352326	MF352389
<i>I. pugio</i> (Benson, 1862)	Myanmar: Ayeyarwady River basin, Lake Myaung	biv_268/1	MF352285	n/a	n/a

Species	Locality	Specimen Voucher	COI	16S rRNA	28S rRNA
<i>I. pugio</i> (Benson, 1862)	Myanmar: Ayeyarwady River basin, Lake Myaung	biv_268/2	MF352286	MF352346	MF352403
<i>I. pugio</i> (Benson, 1862)	Myanmar: Ayeyarwady River basin, Lake Myaung	biv_268/4	MF352287	MF352347	MF352404
<i>I. pugio</i> (Benson, 1862)	Myanmar: Ayeyarwady River basin, Chindwin River: Paukin Lake	UA<USA-AL>:20739.1	JN243899	KP795046	JN243879
<i>I. pugio</i> (Benson, 1862)	Myanmar: Tavoy River	biv_147/3	KX865852	KX865623	KX865724
<i>I. pugio</i> (Benson, 1862)	Myanmar: Tavoy River	biv_147/10	KX865853	KX865624	KX865725
<i>I. pugio</i> (Benson, 1862)	Myanmar: Tavoy River	biv_147/18	KX865854	KX865625	KX865726
<i>I. pugio</i> (Benson, 1862)	Myanmar: Tavoy River	biv_148/4	KX865855	KX865626	KX865727
<i>I. pugio</i> (Benson, 1862)	Myanmar: Tavoy River	biv_148/7	KX865856	KX865627	KX865728
<i>I. pugio</i> (Benson, 1862)	Myanmar: Tavoy River	biv_148/15	KX865857	KX865628	KX865729
<i>I. pugio</i> (Benson, 1862)	Myanmar: Sittaung River basin, Myit Kyi Pauk stream	biv_251/1	MF352242	MF352312	MF352370
<i>I. pugio</i> (Benson, 1862)	Myanmar: Sittaung River basin, Myit Kyi Pauk stream	biv_251/2	MF352243	MF352313	MF352371
<i>I. pugio</i> (Benson, 1862)	Myanmar: Sittaung River basin, Myit Kyi Pauk stream	biv_251/3	MF352244	MF352314	MF352372
<i>Indonaia caerulea</i> (Lea, 1831)	India: Krishna River basin, fish pond	RRc1	KT869141	n/a	n/a
<i>I. andersoniana</i> (Nevill, 1877)	Myanmar: Ayeyarwady River basin, Lake Indawgyi	biv_108/1	KX865835	KX865606	KX865709
<i>I. aff. khadakvaslaensis</i> (Ray, 1966) sp.1	India	SBM7	KF690124	n/a	n/a
<i>I. lima</i> (Simpson, 1900)	India: Krishna River, Nagarjuna Sagar	RR11	KP268827	n/a	n/a
<i>I. subclathrata</i> (Martens, 1899) <b>comb. nov.</b>	Myanmar: Manipur River	biv_338/1	MH700479	n/a	n/a
<i>I. subclathrata</i> (Martens, 1899) <b>comb. nov.</b>	Myanmar: Chindwin River	biv_347/1	MH700480	n/a	MH697870
<i>Radiatula mouhoti</i> Vikhrev, Bolotov & Konopleva, 2017	Myanmar: Sittaung River near Taungoo	biv_248/1	MF352234	MF352305	MF352363
<i>R. cf. bonneaudii</i> (Eydoux, 1838) sp.1	Myanmar: Ayeyarwady River basin, Tar Pein River	biv_260/5	MF352266	MF352330	MF352390
<i>R. myitkyinae</i> (Prashad, 1930)	Myanmar: Ayeyarwady River basin, Lake Indawgyi	biv_107/1	KX865838	KX865609	KX865710
<i>Scabies humilis</i> (Lea, 1856)	Thailand: Mekong River basin, Chi River	biv_126/1	KX865844	KX865615	KX865716
<i>S. phaselus</i> (Lea, 1856)	Thailand: Mekong River basin, Chi River	biv_124/1	KX865850	KX865621	KX865722
<i>S. aff. humilis</i> (Lea, 1856) sp.3	Cambodia: Mekong River basin	UMMZ:304646	KP795023	KP795048	KP795006
<b>RECTIDENTINAE Modell, 1942</b>					
<b>Contradentini Modell, 1942</b>					
<i>Contradens contradens</i> (Lea, 1838)	West Malaysia: Pahang River	ANSP:389059	DQ191411	n/a	AF400692
<i>C. contradens</i> (Lea, 1838)	Malaysia	X076	KX051294	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1787	KX051270	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1789	KX051269	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1765	KX051265	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1638	KX051259	n/a	n/a

Species	Locality	Specimen Voucher	COI	16S rRNA	28S rRNA
<i>C. contradens</i> (Lea, 1838)	Malaysia	X054	KX051251	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	X060	KX051250	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	X072	KX051247	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	biv_211_2	MF352289	n/a	MF352406
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1767	KX051253	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1695	KX051249	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	X132	KX051257	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	X100	KX051246	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	X208	KX051258	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1764	KX051254	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1777	KX051262	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1748	KX051244	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1709	KX051267	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1757	KX051243	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1710	KX051268	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1839	KX051266	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1639	KX051264	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	X231	KX051261	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1714	KX051256	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	BIV1758	KX051255	n/a	n/a
<i>C. contradens</i> (Lea, 1838)	Malaysia	X43	KX051252	n/a	n/a
<i>C. aff. contradens</i> (Lea, 1838) sp.1	Cambodia: Mekong River basin	UMMZ:304652	KP795034	KP795054	KP795016
<i>C. eximius</i> (Lea, 1856)	Thailand: Mekong River basin, Chi River	biv_127_1	KX865936	n/a	KX865807
<i>C. eximius</i> (Lea, 1856)	Thailand: Mekong River basin, Chi River	biv_127_2	KX865937	n/a	KX865808
<i>C. eximius</i> (Lea, 1856)	Thailand: Mekong River basin, Chi River	biv_127_3	KX865938	KX865686	KX865809
<i>C. eximius</i> (Lea, 1856)	Thailand: Mekong River basin, Phong River	biv_121_1	KX865939	KX865687	KX865810
<i>C. eximius</i> (Lea, 1856)	Thailand: Mekong River basin, Phong River	biv_121_2	KX865940	KX865688	KX865811
<i>C. eximius</i> (Lea, 1856)	Thailand: Mekong River basin, Phong River	biv_121_3	KX865941	KX865689	KX865812
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Thailand: Mekong River basin, Loei River	biv_119_5	KX865928	KX865682	KX865799
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Thailand: Mekong River basin, Loei River	biv_119_6	KX865929	KX865683	KX865800
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Laos: Mekong River basin, Nam Long River	biv_182_3	KX865930	KX865684	KX865801
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Laos: Mekong River basin, Nam Long River	biv_182_12	KX865931	KX865685	KX865802
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Laos: Mekong River basin, Nam Long River	biv_182_10	KX865932	n/a	KX865803
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Laos: Mekong River basin, Nam Pe River	biv_184_1	KX865933	n/a	KX865804

Species	Locality	Specimen Voucher	COI	16S rRNA	28S rRNA
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Laos: Mekong River basin, Nam Pe River	biv_184_3	KX865934	n/a	KX865805
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Laos: Mekong River basin, Nam Pe River	biv_185_2	KX865935	n/a	KX865806
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Cambodia: Mekong River basin, Tonle Kong River	ICH-00471	MH345973	MH346013	MH345993
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Cambodia: Mekong River basin, Tonle Kong River	ICH-00474	MH345974	MH346014	MH345994
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Cambodia: Mekong River basin, upstream of fishing village near the confluence of Tonle Sap River	ICH-00576	MH345975	MH346015	MH345995
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Cambodia: Mekong River basin, upstream of fishing village near the confluence of Tonle Sap River	ICH-00577	MH345976	MH346016	MH345996
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Thailand: Mekong River basin	ICH-00750	MH345977	MH346017	MH345997
<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Thailand: Mekong River basin	ICH-00752	MH345978	MH346018	MH345998
<i>C. misellus</i> (Morelet, 1865) <b>comb. nov.</b>	Thailand: Chao Phraya River basin, Ping River	2014-0685	MH345986	MH346026	MH346006
<i>C. misellus</i> (Morelet, 1865) <b>comb. nov.</b>	Thailand: Chao Phraya River basin, Ping River	2014-0687	MH345987	MH346027	MH346007
<i>C. pallegoixi</i> (Sowerby, 1867) <b>comb. nov.</b>	Thailand: Mekong River Basin, Mun River drainage, Pao river	2014-0613	MH345988	MH346028	MH346008
<i>C. pallegoixi</i> (Sowerby, 1867) <b>comb. nov.</b>	Thailand: Mekong River Basin, Mun River drainage, Pao river	2014-0614	MH345989	MH346029	MH346009
<i>C. pallegoixi</i> (Sowerby, 1867) <b>comb. nov.</b>	Thailand: Mekong River Basin, Mun River drainage, Pao river	2014-0616	MH345990	MH346030	MH346010
<i>C. sp.</i> 'Vieng Phou Kha'	Laos: Mekong River basin, a tributary of Nam Fa River near Vieng Phou Kha	biv202_2	KY561630	KY561645	KY561662
<i>C. sp.</i> 'Vieng Phou Kha'	Laos: Mekong River basin, a tributary of Nam Fa River near Vieng Phou Kha	biv203_5	KY561631	KY561646	KY561663
<i>C. sp.</i> 'Vieng Phou Kha'	Laos: Mekong River basin, a tributary of Nam Fa River near Vieng Phou Kha	biv203_4	KY561632	KY561647	KY561664
<i>Trapezoides foliaceus</i> (Gould, 1843)	Thailand: Mae Klong river basin, Pracham Mai River	2012-0443	MH345979	MH346019	MH345999
<i>T. foliaceus</i> (Gould, 1843)	Thailand: Mae Klong river basin, Pracham Mai River	2012-0445	MH345980	MH346020	MH346000
<i>T. foliaceus</i> (Gould, 1843)	Thailand: Mae Klong river basin, Song Karia River	2012-0457	MH345981	MH346021	MH346001
<i>T. foliaceus</i> (Gould, 1843)	Thailand: Mae Klong river basin, Song Karia River	2012-0458	MH345982	MH346022	MH346002
<i>T. foliaceus</i> (Gould, 1843)	Thailand: Mae Klong river basin, Tributary of Pracham Mai River	ICH-02059	MH345983	MH346023	MH346003
<i>T. foliaceus</i> (Gould, 1843)	Thailand: Mae Klong river basin, Pachee River	ICH-02104	MH345984	MH346024	MH346004
<i>T. foliaceus</i> (Gould, 1843)	Thailand: Mae Klong river basin, Pachee River	ICH-02105	MH345985	MH346025	MH346005
<i>Physunio modelli</i> Brandt, 1974	Thailand: Mekong River basin, Chi River	biv_125_2	KX865883	KX865654	KX865754
<i>P. modelli</i> Brandt, 1974	Thailand: Mekong River basin, Chi River	biv_125_3	KX865884	KX865655	KX865755

Species	Locality	Specimen Voucher	COI	16S rRNA	28S rRNA
<i>P. modelli</i> Brandt, 1974	Thailand: Mekong River basin, Chi River	biv_131_1	KX865885	n/a	KX865756
<i>P. modelli</i> Brandt, 1974	Thailand: Mekong River basin, Chi River	biv_131_2	KX865886	n/a	KX865757
<i>P. modelli</i> Brandt, 1974	Thailand: Mekong River basin, Chi River	biv_131_3	KX865887	n/a	KX865758
<i>P. modelli</i> Brandt, 1974	Thailand: Mekong River basin, Chi River	biv_131	KX865888	n/a	KX865759
<i>P. modelli</i> Brandt, 1974	Thailand: Mekong River basin, Phong River	biv205_1	KY561627	n/a	KY561659
<i>P. modelli</i> Brandt, 1974	Thailand: Mekong River basin, Phong River	biv205_2	KY561628	n/a	KY561660
<i>P. modelli</i> Brandt, 1974	Thailand: Mekong River basin, Phong River	biv205_3	KY561629	n/a	KY561661
<i>P. sp.</i> 'Contradens'	Cambodia: Mekong River basin	UMMZ:304653	KP795035	KP795055	KP795017
<i>P. sp.</i> 'Trapezoideus'	Laos: Mekong River basin, Nam Ou River	UMMZ:304347/U MMZ:MC:304347	KP795036	KF011265	KP795018
<i>P. superbus</i> (Lea, 1843)	Malaysia	X180	KX051282	n/a	n/a
<i>P. superbus</i> (Lea, 1843)	Malaysia	BIV1699	KX051280	n/a	n/a
<i>P. superbus</i> (Lea, 1843)	Malaysia	X236	KX051277	n/a	n/a
<i>P. superbus</i> (Lea, 1843)	Malaysia	X239	KX051276	n/a	n/a
<i>P. superbus</i> (Lea, 1843)	Malaysia	BIV1776	KX051278	n/a	n/a
<i>P. superbus</i> (Lea, 1843)	Malaysia	BIV1698	KX051281	n/a	n/a
<i>P. superbus</i> (Lea, 1843)	Malaysia	BIV1756	KX051279	n/a	n/a
<i>P. superbus</i> (Lea, 1843)	Malaysia	X246	KX051275	n/a	n/a
<i>Yaukthwa nesemanni</i> (Konopleva, Vikhrev & Bolotov, 2017) <b>gen. &amp; comb. nov.</b>	Myanmar: Sittaung River basin, Thauk Ye Kupt River	biv_144_14	KX865906	KX865663	KX865777
<i>Y. nesemanni</i> (Konopleva, Vikhrev & Bolotov, 2017) <b>gen. &amp; comb. nov.</b>	Myanmar: Sittaung River basin, Thauk Ye Kupt River	biv_144_25	KX865907	KX865664	KX865778
<i>Y.a nesemanni</i> (Konopleva, Vikhrev & Bolotov, 2017) <b>gen. &amp; comb. nov.</b>	Myanmar: Sittaung River basin, Thauk Ye Kupt River	biv_144_19	KX865908	KX865665	KX865779
<i>Y. nesemanni</i> (Konopleva, Vikhrev & Bolotov, 2017) <b>gen. &amp; comb. nov.</b>	Myanmar: Sittaung River basin, Thauk Ye Kupt River	biv_255_2	MF352254	n/a	MF352379
<i>Y. nesemanni</i> (Konopleva, Vikhrev & Bolotov, 2017) <b>gen. &amp; comb. nov.</b>	Myanmar: Sittaung River basin, Thauk Ye Kupt River	biv_255_3	MF352255	n/a	MF352380
<i>Y. nesemanni</i> (Konopleva, Vikhrev & Bolotov, 2017) <b>gen. &amp; comb. nov.</b>	Myanmar: Sittaung River basin, Thauk Ye Kupt River	biv_255_4	MF352256	n/a	MF352381
<i>Y. panhai</i> (Konopleva, Bolotov & Kondakov, 2017) <b>comb. nov.</b>	Myanmar: Sittaung River basin, Kyan Hone River	biv_138_4	KX865909	KX865666	KX865780
<i>Y. panhai</i> (Konopleva, Bolotov & Kondakov, 2017) <b>comb. nov.</b>	Myanmar: Sittaung River basin, Kyan Hone River	biv_138_7	KX865910	KX865667	KX865781
<i>Y. panhai</i> (Konopleva, Bolotov & Kondakov, 2017) <b>comb. nov.</b>	Myanmar: Sittaung River basin, Kyan Hone River	biv_155_4	KX865911	KX865668	KX865782
<i>Y. panhai</i> (Konopleva, Bolotov & Kondakov, 2017) <b>comb. nov.</b>	Myanmar: Sittaung River basin, Kyan Hone River	biv_155_25	KX865912	KX865669	KX865783

Species	Locality	Specimen Voucher	COI	16S rRNA	28S rRNA
<i>Y. panhai</i> (Konopleva, Bolotov & Kondakov, 2017) <b>comb. nov.</b>	Myanmar: Sittaung River basin, Kyan Hone River	biv_138_12	KX865913	KX865670	KX865784
<i>Y. panhai</i> (Konopleva, Bolotov & Kondakov, 2017) <b>comb. nov.</b>	Myanmar: Sittaung River basin, Kyan Hone River	biv_155_11	KX865914	KX865671	KX865785
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Inle Lake Channel	biv_114_1	KX865915	KX865672	KX865786
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Inle Lake Channel	biv_114_3	KX865916	KX865673	KX865787
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Mway Stream	biv_143_2	KX865917	KX865674	KX865788
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Inle Lake Channel	biv_114_2	KX865918	KX865675	KX865789
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Inle Lake Channel	biv_115_1	KX865919	n/a	KX865790
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Inle Lake Channel	biv_115_3	KX865920	n/a	KX865791
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Inle Lake Channel	biv_115_2	KX865921	n/a	KX865792
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Mway Stream	biv_139_7	KX865922	KX865676	KX865793
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Mway Stream	biv_139_15	KX865923	KX865677	KX865794
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Mway Stream	biv_139_18	KX865924	KX865678	KX865795
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Nam Pilu River	biv_140_22	KX865925	KX865679	KX865796
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Nam Pilu River	biv_140_24	KX865926	KX865680	KX865797
<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar: Salween River basin, Nam Pilu River	biv_140_25	KX865927	KX865681	KX865798
<i>Y. paiensis</i> <b>sp. nov.</b>	Thailand: Salween River basin, Khong River	ICH-00638	MH345970	MH346011	MH345991
<i>Y. paiensis</i> <b>sp. nov.</b>	Thailand: Salween River basin, Khong River	ICH-00639	MH345971	MH346012	MH345992
<i>Y. paiensis</i> <b>sp. nov.</b>	Thailand: Salween River basin, Khong River	ICH-00640	MH345972	n/a	n/a
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Nanyinhka Chaung River	biv_111_2	KX865889	KX865656	KX865760
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Nanyinhka Chaung River	biv_111_21	KX865890	KX865657	KX865761
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Nanyinhka Chaung River	biv_111_43	KX865891	KX865658	KX865762
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Pan Khai stream	biv_101_4	KX865892	n/a	n/a
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Nam Shu River	biv_105_24	KX865893	n/a	n/a
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Pan Khai stream	biv_101_5	KX865894	KX865659	KX865763
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Pan Khai stream	biv_101_6	KX865895	n/a	KX865764
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Mansakun River	biv_103_17	KX865896	n/a	KX865765



Species	Locality	Specimen Voucher	COI	16S rRNA	28S rRNA
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Mansakun River	biv_103_18	KX865897	n/a	KX865766
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Mansakun River	biv_103_19	KX865898	n/a	KX865767
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Nam Balak River	biv_102_7	KX865899	KX865660	KX865768
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Nam Balak River	biv_102_11	KX865900	KX865661	KX865769
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Nam Balak River	biv_102_14	KX865901	KX865662	KX865770
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Nam Shu River	biv_105_31	KX865902	n/a	KX865771
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Nam Shu River	biv_105_32	KX865903	n/a	KX865772
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, unnamed stream	biv_104_34	KX865904	n/a	KX865773
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, unnamed stream	biv_104_35	KX865905	n/a	KX865774
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Pan Khai stream	biv_101_1	n/a	n/a	KX865775
<i>Y. cf. dalliana</i> (Frierson, 1913)	Myanmar: Ayeyarwady River basin, Mali Hka River basin, Nam Shu River	biv_105_22	n/a	n/a	KX865776
<b>Rectidentini Modell, 1942</b>					
<i>Ensidens cf. ingallsianus</i> (Lea, 1852)	Laos: Mekong River basin	NCSM84889	KX822641	n/a	KX822598
<i>E. sp.1</i>	Laos: Mekong River basin	NCSM84902	KX822642	n/a	KX822599
<i>E. aff. sagittarius</i> (Lea, 1856) sp.1	Cambodia: Mekong River basin	UMMZ:304651	KP795033	KP795053	KP795015
<i>E. aff. sagittarius</i> (Lea, 1856) sp.2	Thailand: Mekong River basin, artificial pond near the Ban Nong-Bua village	biv_117_1	KX865942	KX865690	KX865813
<i>E. aff. sagittarius</i> (Lea, 1856) sp.2	Thailand: Mekong River basin, artificial pond near the Ban Nong-Bua village	biv_117_2	KX865943	KX865691	KX865814
<i>E. aff. sagittarius</i> (Lea, 1856) sp.2	Thailand: Mekong River basin, artificial pond near the Ban Nong-Bua village	biv_117_3	KX865944	KX865692	KX865815
<i>E. aff. sagittarius</i> (Lea, 1856) sp.3	Thailand: Mekong River basin, Chi River	biv_128_1	KX865945	KX865693	KX865816
<i>E. aff. sagittarius</i> (Lea, 1856) sp.3	Thailand: Mekong River basin, Chi River	biv_128_2	KX865946	KX865694	KX865817
<i>E. aff. sagittarius</i> (Lea, 1856) sp.3	Thailand: Mekong River basin, Chi River	biv_128_3	KX865947	n/a	KX865818
<i>E. aff. sagittarius</i> (Lea, 1856) sp.3	Thailand: Mekong River basin, Chi River	biv_123_1	KX865948	n/a	KX865819
<i>E. aff. sagittarius</i> (Lea, 1856) sp.3	Thailand: Mekong River basin, Chi River	biv_123_2	KX865949	KX865695	KX865820
<i>E. aff. sagittarius</i> (Lea, 1856) sp.3	Thailand: Mekong River basin, Chi River	biv_123_3	KX865950	KX865696	KX865821
<i>Hyriopsis gracilis</i> Haas, 1910*	Thailand: Mekong River basin	n/a	KX822643	n/a	KX822600
<i>H. gracilis</i> Haas, 1910*	Thailand: Mekong River basin, Chi River	biv_130_1	KX865951	KX865697	KX865822
<i>H. gracilis</i> Haas, 1910*	Thailand: Mekong River basin, Chi River	biv_130_2	KX865952	KX865698	KX865823
<i>H. gracilis</i> Haas, 1910*	Thailand: Mekong River basin, Chi River	biv_130_3	KX865953	n/a	KX865824

Species	Locality	Specimen Voucher	COI	16S rRNA	28S rRNA
	River				
<i>H. sp.1</i>	Thailand: Chao Phraya basin	839512HbB	KX383948	n/a	n/a
<i>H. bialatus</i> Simpson, 1900	Malaysia	BIV1775	KX051273	n/a	n/a
<i>H. myersiana</i> (Lea, 1856)	Thailand	n/a	KX822645	n/a	KX822602
<i>H. desowitzi</i> Brandt, 1974	Thailand	n/a	KX822644	n/a	KX822601
<i>Rectidens sumatrensis</i> (Dunker, 1852)	Malaysia	n/a	KX822664	n/a	KX822620
<i>R. sumatrensis</i> (Dunker, 1852)	Malaysia	biv 211_1	MF352288	n/a	MF352405
<b>Margaritiferidae (outgroup)</b>					
<i>Gibbosula laosensis</i> (Lea, 1863)	Laos: Mekong River basin, Nam Long River	biv 186_1	JX497731	KC845943	KT343741
<i>Margaritifera dahurica</i> (Middendorff, 1850)	Far East of Russia: Amur River basin, Ilistaya River	biv 92_6	KJ161516	KJ943526	KT343747

\*Do et al.<sup>1</sup> recommended using this name for what has been historically listed as *Hyriopsis bialatus* Simpson, 1900 only for the Mekong River basin populations.

## Supplementary Table 2. List of species in the tribe Contradentini Modell, 1942 (Unionidae: Rectidentinae)

Genus	Species	Type locality	Distribution range
<i>Trapezoides</i> Simpson 1900	<i>T. foliaceus</i> (Gould, 1843) [type species]	Tavoy, British Burmah	Mae Klong Basin, Thailand. The type series is reported from "Tavoy" (see Taxonomic Account)
<i>Yaukthwa</i> <b>gen. nov.</b>	<i>Y. nesemanni</i> (Konopleva, Vikhrev & Bolotov, 2017) <b>gen. &amp; comb. nov.</b> [type species]	Thauk Ye Kupt River, Sittaung Basin, Myanmar	Thauk Ye Kupt River, Sittaung Basin, Myanmar
	* <i>Y. dalliana</i> (Frierson, 1913) <b>comb. nov.</b>	Lashio River near Lashio, Ayeyarwady Basin, northern Shan State, Myanmar	Ayeyarwady Basin, Myanmar
	<i>Y. inlenensis</i> <b>sp. nov.</b>	Myanmar, Salween River drainage, Mway Stream, a tributary of Nam Pilu River	Lake Inle Region, Salween Basin, Myanmar
	<i>Y. paiensis</i> <b>sp. nov.</b>	Thailand, Salween River Drainage, Pai District, Mae Hong Son Province, Khong River, tributary of Pai River	Pai River, Salween Basin, Thailand
	<i>Y. panhai</i> (Konopleva, Bolotov & Kondakov, 2017) <b>comb. nov.</b>	Kyan Hone River, Sittaung Basin, Myanmar	Kyan Hone River, Sittaung Basin, Myanmar
	* <i>Y. peguensis</i> (Anthony, 1865) <b>comb. nov.</b>	Pegu	Bago River, Myanmar
	<i>Y. zayleymanensis</i> (Preston, 1912) <b>comb. nov.</b>	Bhamo	Ayeyarwady Basin, Myanmar
<i>Contradens</i> Haas, 1911	<i>C. contradens</i> (Lea, 1838) [type species]	Java	Malaysia and probably Greater Sunda Islands
	<i>C. comptus</i> (Deshayes & Jullien, 1874) <b>comb. nov.</b>	Peam Chelang, Cambodia	Mekong Basin, Laos, Thailand and Cambodia
	<i>C. eximius</i> (Lea, 1856)	Siam	Mekong Basin, Thailand
	<i>C. misellus</i> (Morelet, 1865) <b>comb. nov.</b>	Siam	Chao Phraya Basin, Thailand
	<i>C. pallegoixi</i> (Sowerby, 1867) <b>comb. nov.</b>	Siam	Mun River, Mekong Basin, Thailand
	* <i>C. fulvaster</i> (Drouet & Chaper, 1892)	Borneo	Borneo

Genus	Species	Type locality	Distribution range
	* <i>C. inaequalis</i> (Rochebrune, 1881)	Sombor Rapids, Cambodia	Mekong Basin, Cambodia
	* <i>C. peninsularis</i> (Simpson, 1900) <b>comb. nov.</b>	Sumatra	Sumatra, Indonesia
	* <i>C. semmelinki</i> (Martens, 1891)	Tanah Laut, South Borneo	Borneo
	* <i>C. graciosus</i> (Philippi, 1843) [ <i>Unio anceps</i> Deshayes in Deshayes & Jullien, 1874 was removed from the synonymy of <i>C. graciosus</i> to the genus <i>Scabies</i> by Pfeiffer et al. <sup>2</sup> ]	“New Holland” [erroneous]	Unknown
	* <i>C. subcircularis</i> (Brandt, 1974) [most likely not a <i>Contradens</i> member, but a representative of the <i>Leoparreiysiini</i> <sup>2</sup> ]	Mekong River between Takek and Nakon Panom in Laos	Mekong Basin, Laos
	** <i>C. aff. contradens</i> (Lea, 1838)	n/a	Mekong Basin, Cambodia
	** <i>C.</i> “Vieng Phou Kha”	n/a	Mekong Basin, Laos
<i>Physunio</i> Simpson, 1900	<i>P. superbus</i> (Lea, 1843) [type species]	“New Holland” [erroneous; most probable type locality: the coast of Malacca, in the river Souzi]	Malaysia
	<i>P. modelli</i> Brandt, 1974	Thailand: Maenam Pong at Pong Nip Dam; Province Khon Kaen	Mekong Basin, Thailand
	* <i>P. cambodiensis</i> (Lea, 1856)	Tackrong River, at Korat, Cambodia	Mekong Basin, Cambodia
	* <i>P. inornatus</i> (Lea, 1856)	Siam	Mekong Basin, Thailand
	* <i>P. micropterus</i> (Morelet, 1866)	Cambodia	Mekong Basin, Cambodia
	* <i>P. friersoni</i> Simpson, 1914 [most likely a <i>Lamellidens</i> member]	Assam, India	Assam, India
	** <i>P. sp.</i> “Contradens”	n/a	Mekong Basin, Cambodia
	** <i>P. sp.</i> “Trapezoideus”	n/a	Mekong Basin, Laos

“\*\*” indicates nominal taxa with an uncertain status that are in need of a further integrative revision; and “\*\*\*” indicates species-level phylogenetic lineages that are still not attributed to a certain Linnean name. This table is compiled using the MUSSELP database<sup>3</sup>. n/a – not available.

### Supplementary Table 3. Habitat characteristics for *Yaukthwa* spp.

Species	Habitat	Flow in microhabitat	Substrate
<i>Y. paiensis</i> <b>sp. nov.</b>	Mountain stream with rapids and runs	Slow	Sand, clay
<i>Y. inlenensis</i> <b>sp. nov.</b>	Mountain streams	Slow, moderate	Clay, gravel
<i>Y. nesemami</i> <b>gen. &amp; comb. nov.</b>	Mountain river	Moderately strong	Sand, gravel
<i>Y. panhai</i> <b>comb. nov.</b>	Mountain river	Moderately strong	Sand, gravel
<i>Y. cf. dalliana</i>	Mountain rivers and streams	Moderately strong	Sand, gravel

### Supplementary Table 4. Primer sequences for PCR amplification and sequencing

Gene fragment	Primer's name	Direction	Sequence (5'-3')	Reference
<i>COI</i>	LoboF1	Forward	kbtchacaaycayaargayathgg	Ref. 4
	LoboR1	Reverse	taaacytcwggrtgwccraaraayca	
<i>16S rRNA</i>	16Sar	Forward	cgctgtttatcaaaaacat	Ref. 5
	16sar-L-myt	Forward	cgactgtttaacaaaacat	Ref. 6
	16sbr-H-myt	Reverse	ccgttctgaactcagctcatgt	
<i>28S rRNA</i>	C1	Forward	accgctgaatttaagcat	Ref. 7
	D2	Reverse	tccgtgtttcaagacgg	

**Supplementary Table 5.** Alignment length prior to and after treatment for length variability in GBlocks v. 0.91b<sup>8</sup>

Partition	Original length of alignment (bp)	Fraction selected by GBlocks (%)	Final length of alignment (bp)
<i>COI</i>	660	100	660
<i>28S rRNA</i>	845	92	775
<i>16S rRNA</i>	513	87	445

**Supplementary Table 6.** Models of sequence evolution for each partition based on corrected Akaike Information Criterion (AICc) of MEGA6<sup>9</sup>

Partition	Model	Gamma	Invariant
<i>COI</i>			
1st codon of <i>COI</i>	HKY	n/a	n/a
2nd codon of <i>COI</i>	GTR	2.056	n/a
3rd codon of <i>COI</i>	TN93	0.894	0.542
<i>28S rRNA</i>	GTR	0.620	0.395
<i>16S rRNA</i>	GTR	0.619	0.426

n/a – not available.

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