diversity

MDPI

Table S1. Curation notes regarding the chironomid database: comments, corrections, additional literature and omitted sequences.

Branch Number	Consensus Identification	# of sequences removed	Name and/or sequence removed from database as a likely error	Curated Branch Annotation (A= adult; L=larva)
11	*Dicrotendipes lucifer agg.*	-	*Dicrotendipes lucifer*	Specimens were identified as *D. lucifer* (1 A) and *D. simpsoni* (3L). Both species are part of a complex known as *D. lucifer agg*. (Epler, 1987) and therefore combined under this single name.
26	*Cryptotendipes pseudotener*	1	*Cladopelma* sp.	Specimens were identified as *C. pseudotener* (1A) and *Cladopelma* sp. (1A). Closest genus level sequences in GenBank include *Cryptotendipes*, (10.5% distance), not *Cladopelma*. *Cladopelma* genera barcodes, including those in GenBank and this database, are >13% different from the removed sequence
35	*Harnischia curtilamellata*	1	*Cryptochironomus* sp.	Specimens were identified as *Harnischia* sp. (3L), *Harnischia* curtilamellata (1A), and *Cryptochironomus* sp. (1L). *Cryptochironomus* sp. did not agree with the consensus genus and was removed.
36	*Chironomus entis/plumosus*	2	*Chironomus crassicaudatus* *Chironomus magnus*	Specimens were identified as *Chironomus* sp. (3L6A), *Chironomus plumosus* gr. (2A), *Chironomus plumosus* (5A), *Chironomus entis/plumosus* (1A) *Chironomus crassicaudatus* (1A), and *Chironomus magnus* (1A). The last two did not agree with the consensus species and were removed.[1,2].
40	*Chironomus bifurcatus*	1	*Chironomus decorus*	Specimens were identified as 5A *C. bifurcatus*, 1A *Chironomus* sp., and 1A *C. decorus*. The one *C. decorus* did not agree with the consensus species and was removed.
42	*Chironomus crassicaudatus*	1	*Goeldichironomus* sp.	Specimens were identified as 4L *C. crassicaudatus*, 60L *Chironomus* sp., 5A *C. crassicaudatus*, 1A *Chironomus* sp., and 1L *Goeldichironomus* sp. The *Goeldichironomus* sp. did not agree with the consensus genus and was removed.[3,4].
43	*Paratanytarsus* sp.	1	*Micropsectra* sp.	Specimens were identified as 1A *Paratanytarsus* sp. and 1A *Micropsectra* sp. BLAST of the *Micropsectra* sequence gave more than 40 >96.5% matches—to *Paratanytarsus*! Thus, *Micropsectra* did not agree with the consensus identification and was removed.[5].
53	*Pseudochironomus* sp.	1	*Polypedilum halterale* gr.	Specimens were identified as 2L *Pseudochironomus* sp. and 1L *Polypedilum halterale* gr. Sequences were within 2.6% of another set of specimens (branch 52) that were 3L *Pseudochironomus* sp. and 1A *Pseudochironomus fulviventris*. *Polypedilum halterale* gr. did not agree with the consensus genus identification and was removed.[6].
54	*Polypedilum halterale* gr.	1	*Polypedilum scalaenum* gr.	Specimens were identified as 26L and 2A *Polypediulum halterale* gr., and 1L *Polypedilum scalaenum* gr. *Polypedilum scalaenum* gr. did not agree with the consensus species and was removed.
56	*Polypedilum halterale* gr.	1	*Polypedilum scalaenum* gr.	Specimens were identified as 17L *Polypedilum halterale* gr. and 1L *Polypedilum scalaenum* gr. . *Polypedilum scalaenum* gr. did not agree with the consensus species and was removed
58	*Cricotopus sylvestris*	1	*Cricotopus festivellus*	Specimens were identified as 7L and 1A *Cricotopus* sp., 1A *Cricotopus sylvestris*, and 1A *Cricotopus festivellus*. *C. festivellus* did not agree with the consensus GenBank sequences within 3.5% of the sequence and was >5.9% different from other specimens identified as *C. festivellus*. Therefore, *C. festivellus* was removed from this branch.[7-9].
78	*Procladius sublettei*	1	*Cladopelma viridulum*	Specimens were identified as 10L *Procladius* sp., 2A *Procladius sublettei*, and 1A *Cladopelma viridulum*. *Cladopelma viridulum* did not agree with the consensus genus and was removed.

83	*Coelotanypus scapularis*	2	*Chironomus* sp. *Procladius* sp.	Specimens were identified as 61L *Coelotanypus* sp., 1A *Coeloanypus scapularis*, 1L *Chironomus* sp., and 1L *Procladius* sp. *Chironomus* sp. and *Procladius* sp. did not agree with the consensus genus and was removed.
86	*Tanytarsus mendax*	1	*Procladius* sp.	Specimens were identified as. and 1A *Tanytarsus mendax* and 1A *Procladius* sp. BLAST of the *Procladius* sequence gave more than 100 >96.5% matches—to *Tanytarsus mendax*! Also, this sequence clusters within the Tanytarsini (see tree Fig. 2). Thus, *Procladius* did not agree with the consensus identification and was removed.[10].
91	*Rheotanytarsus exiguus* gr.	1	*Paratanytarsus* sp.	Specimens were identified as 3L *Rheotanytarsus exiguus* gr. and 1L *Paratanytarsus* sp. *Paratanytarsus* sp. did not agree with the consensus genus and was removed.[11,12].
93	*Stictochironomus devinctus*	1	*Polypedilum halterale* gr.	Specimens were identified as 13L *Stictochironomus* sp., 3A *Stictochironomus devinctus*, and 1L *Polypedilum halterale* gr. *Polypedilum* did not agree with the consensus genus and was removed.[13].
95	*Cladotanytarsus* sp.	3	*Coelotanypus* sp. *Cryptochironomus* sp. Stempellinella sp.	Specimens were identified as 27L *Cladotanytarsus* sp., 1L *Coelotanypus* sp., 1L *Cryptochironomus* sp., and 1L Stempellinella sp. *Coelotanypus* sp., *Cryptochironomus* sp., and *Stempellinella* sp. did not agree with the consensus genus and were removed.
99	*Micropsectra insignilobus*	-	*Cladotanytarsus* sp.	Failla et al. (2016) determined that this specimen's sequence, originally identified as *Cladotanytarsus* sp., was most likely a misidentified *Micropsectra insignilobus*. The sequence matches 100% to a large number of *Micropsectra insignilobus* in BOLD and is therefore renamed here as *Micropsectra insignilobus*.
100	*Paratanytarsus natvigi*	1	*Micropsectra* sp.	Specimens were identified as 1L *Paratanytarsus* sp., 1A *Paratanytarsus* sp., 2A *Paratanytarsus natvigi,* and 1A *Micropsectra* sp. *Micropsectra* sp. did not agree with the consensus genus and was removed.
	Total number of sequences removed from database as a likely error	21		

1. Sublette, J.E. Type specimens of Chironomidae Diptera in the Illinois Natural History Survey Collection, Urbana. *Journal of the Kansas Entomological Society* **1970**, *43*, 44-94.
2. Martin, J. North American species of the genus *Chironomus* as recognized by morphology and larval cytology (includes *Chaetolabis*, *Lobochironomus*, some *Einfeldia* (s.l.) and species included in *Tendipes* by Townes (1945) but now placed in other genera). *Chironomidae* **2020**.
3. Saether, O.A. Revision of *Hydrobaenus*, *Trissocladius*, *Zalutschia*, *Paratrissocladius* and some related genera Diptera Chironomidae. *Bulletin of the Fisheries Research Board of Canada* **1976**, 1-283.
4. Trond, A.; Cranston, P.S.; Epler, J.H. Chironomidae of the Holarctic Region: Keys and Diagnoses, Part 1: Larvae. *Entomologica Society of Lund, Sweden* **2013**, *66*, 573.
5. Reiss, F.; Sawedal, L. Keys to males and pupae of the Palearctic excluding Japan *Paratanytarsus* with descriptions of 3 new species Diptera Chironomidae. *Entomologica Scandinavica Supplement* **1981**, 73-104.
6. Spies, M. A contribution to the knowledge of Holarctic *Parachironomus* Lenz (Diptera: Chironomidae), with two new species and a provisional key to Nearctic adult males. *Tijdschrift voor Entomologie* **2000**, *143*, 125-143.
7. Cranston, P.S.; Oliver, D.R.; Saether, O.A. The adult males of Orthocladiinae (Diptera, Chironomidae) of the Holarctic region - keys and diagnoses. *Entomologica Scandinavica* **1989**, 165-352.

8. Simpson, K.W.; Bode, R.W.; Albu, P. Keys for the genus *Cricotopus* adapted from revision of the genus Cricotopus and related taxa Diptera Chironomidae by M. Hirvenoja. *New York State Museum Bulletin* **1983**, 1-23.
9. Soponis, A.R. Revision of Nearctic species of Orthocladius (Orthocladius) Van der Wulp (Diptera-Chironomidae). *Memoirs of the Entomological Society of Canada* **1977**, 1-187.
10. Ekrem, T.; Sublette, M.F.; Sublette, J.E. North American *Tanytarsus* I. Descriptions and keys to species in the *eminulus*, *gregarius*, *lugens* and *mendax* species groups (Diptera : Chironomidae). *Annals of the Entomological Society of America* **2003**, *96*, 265-328.
11. Kyerematen, R.A.K.; Andersen, T. *Rheotanytarsus* Thienemann et Bause (Diptera : Chironomidae) from Central America and Mexico. *Studies on Neotropical Fauna and Environment* **2002**, *37*, 23-51.
12. Saether, O.A.; Kyerematen, R.A.K. Towards phylogeny and zoogeography of the genus *Rheotanytarsus* Thienemann et Bause, 1913 (Diptera: Chironomidae). *Tijdschrift voor Entomologie* **2001**, *144*, 73-117.
13. Maschwitz, D.E.; Cook, E.F. Revision of the Nearctic species of the genus *Polypedilum* Kieffer (Diptera: Chironomidae) in the subgenera *P.* (*Polypedilum*) Kieffer and *P.* (*Uresipedilum*) Oyewo and Saether. *Bulletin of the Ohio Biological Survey* **2000**, *12*, I-vii, 1-131.