**Table S1.** List of lot number, voucher, and GenBank accession number for each taxon used in this study (with exception of Crenuchinae). Collections abbreviations follow Sabaj (2020). Gray highlight indicates sequences generated in this study.

|  |  |  |  |
| --- | --- | --- | --- |
| **Taxon** | **Lot number** | **Voucher** | **GenBank number (COI)** |
| **Crenuchid species** |  |  |  |
| **Characidiinae** |  |  |  |
| *Ammocryptocharax elegans* | LBP 14134 | LBP 59130 | KM229369 |
| *Characidium alipioi* | LBP 8378  LBP 8378  LBP 8378  LBP 8378  LBP 8378  LBP 8378 | LBP 36084 | KF914705 |
| *Characidium alipioi* | LBP 40201 | GU702090 |
| *Characidium alipioi* | LBP 40202 | GU702087 |
| *Characidium alipioi* | LBP 40203 | HM064986 |
| *Characidium alipioi* | LBP 40204 | HM064987 |
| *Characidium alipioi* | LBP 40205 | HM064988 |
| *Characidium* cf. *alipioi* | LBP 3408  LBP 3408  LBP 3408  LBP 3408  LBP 3408 | LBP 20415 | GU702199 |
| *Characidium* cf. *alipioi* | LBP 20416 | GU702200 |
| *Characidium* cf. *alipioi* | LBP 20417 | GU702201 |
| *Characidium* cf. *alipioi* | LBP 20418 | GU702134 |
| *Characidium* cf. *alipioi* | LBP 20419 | GU702202 |
| *Characidium gomesi* | LBP 1181 | LBP 10043 | JN988782 |
| *Characidium gomesi* | LBP 1320 | LBP 12126 | GU701839 |
| *Characidium gomesi* | LBP 6000 | LBP 28408 | JN988781 |
| *Characidium gomesi* | LBP 6723 | LBP 31106 | KF914694 |
| *Characidium gomesi* | LBP 8709  LBP 8709  LBP 8709  LBP 8709  LBP 8709 | LBP 33568 | GU701424 |
| *Characidium gomesi* | LBP 33569 | GU701427 |
| *Characidium gomesi* | LBP 33572 | GU701422 |
| *Characidium gomesi* | LBP 33592 | KF914699 |
| *Characidium gomesi* | LBP 33607 | GU701425 |
| *Characidium gomesi* | LBP 9022 | LBP 38541 | KF914707 |
| *Characidium gomesi* | LBP 9019 | LBP 37652 | KF914706 |
| *Characidium gomesi* | LBP 9607  LBP 9607 | LBP 41988 | JN988780 |
| *Characidium gomesi* | LBP 41989 | JN988779 |
| *Characidium lanei* | LBP 7888 | LBP 33730 | KF914702 |
| *Characidium lanei* | LBP 8700 | LBP 33505 | KF914697 |
| *Characidium lauroi* | LBP 8741 | LBP 35722 | KF914701 |
| *Characidium lauroi* | LBP 8741 | LBP 46417 | KM229366 |
| *Characidium oiticicai* | LBP 8703 | LBP 31207 | GU701448 |
| *Characidium oiticicai* | LBP 8703 | LBP 31212 | GU701449 |
| *Characidium oiticicai* | LBP 8703 | LBP 31213 | GU701446 |
| *Characidium oiticicai* | LBP 8703 | LBP 31214 | GU701447 |
| *Characidium oiticicai* | LBP 8703 | LBP 31218 | GU701445 |
| *Characidium pterostictum* | LBP 8700 | LBP 33509 | KF914710 |
| *Characidium pterostictum* | LBP 8701 | LBP 33516 | KF914709 |
| *Characidium pterostictum* | LBP 7367 | LBP 33636 | KF914700 |
| *Characidium pterostictum* | LBP 7367 | LBP 33671 | KF914708 |
| *Characidium schubarti* | LBP 8702 | LBP 31492 | GU701440 |
| *Characidium schubarti* | LBP 8702 | LBP 31498 | GU701439 |
| *Characidium schubarti* | LBP 8702 | LBP 31499 | KF914696 |
| *Characidium schubarti* | LBP 8702 | LBP 33512 | GU701437 |
| *Characidium schubarti* | LBP 8702 | LBP 33513 | GU701442 |
| *Characidium schubarti* | LBP 8702 | LBP 33526 | GU701441 |
| *Characidium serrano* | LBP 19038 | | KM229364 |
| *Characidium timbuiense* | LBP 18475 | LBP 69812 | KM229365 |
| *Characidium vidali* | LBP 19039 | | KM229367 |
| *Characidium xanthopterum* | LBP 7254 | LBP 34895 | GU701836 |
| *Characidium xanthopterum* | LBP 7254 | LBP 35896 | GU701835 |
| *Characidium xanthopterum* | LBP 7254 | LBP 34897 | GU701834 |
| *Characidium xanthopterum* | LBP 7254 | LBP 34898 | GU701837 |
| *Characidium zebra* | LBP 2959 | LBP 19560 | JN988788 |
| *Characidium zebra* | LBP 2959 | LBP 19561 | JN988789 |
| *Characidium zebra* | LBP 2959 | LBP 19562 | JN988790 |
| *Characidium zebra* | LBP 8718 | LBP 33541 | KF914698 |
| *Characidium zebra* | LBP 8711 | LBP 33739 | KF914703 |
| *Characidium zebra* | LBP 14907 | | KM229368 |
| *Characidium zebra* | LBP 36077 | | KF914704 |
| *Characidium* aff. *zebra* | LBP 8704  LBP 8704  LBP 8704 | LBP 31162 | GU701969 |
| *Characidium* aff. *zebra* | LBP 31216 | GU701970 |
| *Characidium* aff. *zebra* | LBP 31238 | GU701971 |
| *Characidium* aff. *zebra* | MZUSP 117689 | MZict 2990 | ON041209 |
| *Characidium* sp. | LBP 9607 | LBP 41974 | JN988787 |
| *Characidium* sp. | LBP 9607 | LBP 41975 | JN988786 |
| *Characidium* sp. | LBP 9607 | LBP 41981 | JN988785 |
| *Characidium* sp. | LBP 9607 | LBP 41982 | JN988784 |
| *Characidium* sp. | LBP 9607 | LBP 41990 | JN988783 |
| *Characidium* sp. | LBP 6818 | LBP 31414 | KF914695 |
| *Characidium* cf. *declivirostre* | MZUSP 122607 | MZict 6195 | ON067464 |
| **Non-crenuchid species** |  |  |  |
| **Erythrinidae** |  |  |  |
| *Hoplerythrinus unitaeniatus* | LBP 2379 | LBP 16065 | HM064996 |
| *Hoplias malabaricus* | LBP 6457 | LBP 29125 | GU702203 |