

Supplemental list of species

Cottus dataset

species	no. of ambiguities	taxgroup I	taxgroup II	LSU fragment length (bp)	remarks	GB acc.no. LSU	GB acc.no. COX
<i>Cottus aleuticus</i>		Teleostei	Vertebrata	1030	#	EF417196	EF416965
<i>Cottus aturi</i>		Teleostei	Vertebrata	1030	#	EF417197	EF416966
<i>Cottus bairdi</i>		Teleostei	Vertebrata	1030	#	EF417198	EF416967
<i>Cottus durani</i>		Teleostei	Vertebrata	1030	#	EF417199	EF416968
<i>Cottus girardi</i>		Teleostei	Vertebrata	1030	#	EF417200	EF416968
<i>Cottus gobio</i> (1x)		Teleostei	Vertebrata	981° -1030	#	EF417201 - EF417207	EF416970 - EF416976
<i>Cottus hispaniolensis</i>		Teleostei	Vertebrata	1030	#	EF417208	EF416977
<i>Cottus peritretum</i> (5x)		Teleostei	Vertebrata	1016° -1030	#	EF417209 - EF417214	EF416978 - EF416983
<i>Cottus perplexus</i>		Teleostei	Vertebrata	1031	#	EF417215	EF416984
<i>Cottus rhenanus</i> (4x)		Teleostei	Vertebrata	981° -1030	#	EF417216 - EF417219	EF416985 - EF416988
<i>Cottus ricei</i>		Teleostei	Vertebrata	991°	#	EF417220	EF416989
<i>Cottus sibiricus</i>		Teleostei	Vertebrata	1030	#	EF417221	EF416990

Aphyosemion dataset

species	no. of ambiguities	taxgroup I	taxgroup II	LSU fragment length (bp)		GB acc.no. LSU	GB acc.no. COX
<i>Aphyosemion anhi</i> (24x)	1	Teleostei	Vertebrata	1169-1172	#	EF417222 - EF417245	EF416991 - EF417014
<i>Aphyosemion australe</i> (5x)		Teleostei	Vertebrata	1169-1175	#	EF417249 - EF417253	EF417015 - EF417019
<i>Aphyosemion caliurum</i> (14x)	1	Teleostei	Vertebrata	1166-1170	#	EF417254 - EF417267	EF417020 - EF417033
<i>Aphyosemion celiae</i> (4x)	1	Teleostei	Vertebrata	1186-1192	#	EF417268 - EF417271	EF417034 - EF417037
<i>Aphyosemion edeanum</i> (2x)		Teleostei	Vertebrata	1169	#	EF417246 - EF417247	EF417038 - EF417039
<i>Aphyosemion festivum</i> (2x)		Teleostei	Vertebrata	1179	#	EF417272 - EF417273	EF417040 - EF417041
<i>Aphyosemion franzwerneri</i> (3x)		Teleostei	Vertebrata	1166	#	EF417274 - EF417276	EF417042 - EF417044
<i>Aphyosemion heinemanni</i>		Teleostei	Vertebrata	1170	#	EF417248	EF417045
<i>Aphyosemion pascheni</i>		Teleostei	Vertebrata	1183	#	EF417277	EF417046

Metazoan sequence-data

species	no. of ambiguities	taxgroup I	taxgroup II	LSU fragment length (bp)		GB acc.no. LSU
<i>Dina punctata</i>		Hirudinea	Annelida	982	rev2	EF417047
<i>Erpobdella octoculata</i>		Hirudinea	Annelida	1028		EF417048
<i>Erpobdella vilnensis</i>		Hirudinea	Annelida	1034		EF417049
<i>Helobdella stagnalis</i>		Hirudinea	Annelida	1003		EF417050
<i>Theromyzon tessulatum</i>		Hirudinea	Annelida	954	rev2	EF417051
<i>Avicularia versicolor</i>		Araneae	Chelicerata	1066		EF417052
<i>Lampetra planeria</i>		Agnatha	Chordata	1138		EF417053
<i>Artemia</i> sp.		Anostraca	Crustacea	928		EF417054
<i>Branchipus schaefferi</i>		Anostraca	Crustacea	899	rev2	EF417055
<i>Atyaephyra desmaresti</i>	1	Decapoda	Crustacea	1048		EF417056
<i>Asellus aquaticus</i>		Isopoda	Crustacea	991		EF417057
<i>Porocephalus</i> sp.	2	Pentastomida	Crustacea	1221		EF417058
<i>Agabus sturmi</i>		Coleoptera	Insecta	1058		EF417059
<i>Anacaena lutescens</i>		Coleoptera	Insecta	1051		EF417060
<i>Elodes marginata</i>		Coleoptera	Insecta	1136		EF417061
<i>Gyrinus substriatus</i>		Coleoptera	Insecta	1241		EF417062
<i>Haliplus flavicollis</i>		Coleoptera	Insecta	1142		EF417063
<i>Haliplus heydeni</i>		Coleoptera	Insecta	1074		EF417064
<i>Haliplus immaculatus</i>		Coleoptera	Insecta	1074		EF417065
<i>Hydaticus seminiger</i>		Coleoptera	Insecta	1009	rev2	EF417066
<i>Hydrobius fuscipes</i>		Coleoptera	Insecta	992	rev2	EF417067
<i>Laccobius striatulus</i>		Coleoptera	Insecta	1038		EF417068
<i>Limnius perrisi</i>		Coleoptera	Insecta	1006	rev2	EF417069
<i>Limnius volckmari</i>		Coleoptera	Insecta	1053		EF417070
<i>Orectochilus villosus</i>		Coleoptera	Insecta	1232		EF417071
<i>Platambus maculatus</i>		Coleoptera	Insecta	1042	rev2	EF417072
<i>Liponeura cinerascens minor</i>	1	Diptera	Insecta	1067		EF417073
<i>Opodontha viridula</i>		Diptera	Insecta	981		EF417074
<i>Simulium reptans</i>	2	Diptera	Insecta	946	rev2	EF417075
<i>Simulium variegatum</i>	3	Diptera	Insecta	945	rev2	EF417076
<i>Acheta domesticus</i>		Ensifera	Insecta	1296		EF417077
<i>Gryllidae</i> sp.	1	Ensifera	Insecta	1302		EF417078
<i>Baetis rhodani</i>		Ephemeroptera	Insecta	1065		EF417079
<i>Caenis robusta</i>		Ephemeroptera	Insecta	1067		EF417080
<i>Cloeon dipterum</i>		Ephemeroptera	Insecta	1075		EF417081
<i>Ecdyonurus insignis</i>		Ephemeroptera	Insecta	1059		EF417082
<i>Ephemerella notata</i>		Ephemeroptera	Insecta	1084		EF417083
<i>Habroleptoides confusa</i>		Ephemeroptera	Insecta	1073		EF417084
<i>Heptagenia sulphurea</i>		Ephemeroptera	Insecta	1082		EF417085
<i>Paraleptophlebia submarginata</i>	1	Ephemeroptera	Insecta	1070		EF417086
<i>Potamanthus luteus</i>		Ephemeroptera	Insecta	1066		EF417087
<i>Serratella ignita</i>		Ephemeroptera	Insecta	1090		EF417088
<i>Torleya major</i>		Ephemeroptera	Insecta	1041	rev2	EF417089
<i>Aphelocheirus aestivalis</i>		Heteroptera	Insecta	1083		EF417090
<i>Aquarius najas</i>		Heteroptera	Insecta	1043	rev2	EF417091
<i>Aquarius paludum</i>		Heteroptera	Insecta	1091		EF417092
<i>Cymatia coleoptrata</i>		Heteroptera	Insecta	1078		EF417093
<i>Gerris lacustris</i>		Heteroptera	Insecta	1090		EF417094
<i>Hydrometra stagnorum</i>	3	Heteroptera	Insecta	1109		EF417095
<i>Ilyocoris cimicoides</i>	3	Heteroptera	Insecta	1036	rev2	EF417096
<i>Micronecta scholtzi</i>		Heteroptera	Insecta	1090		EF417097
<i>Nepa cinerea</i>		Heteroptera	Insecta	1097		EF417098
<i>Notonecta glauca</i>		Heteroptera	Insecta	1082		EF417099
<i>Ranatra linearis</i>		Heteroptera	Insecta	1099		EF417100
<i>Sigara falleni</i>		Heteroptera	Insecta	1084		EF417101
<i>Panorpa communis</i>	1	Mecoptera	Insecta	1069		EF417102
<i>Sialis lutaria</i>		Megaloptera	Insecta	1180		EF417103
<i>Osmylus fulvicephalus</i>		Neuroptera	Insecta	1360		EF417104
<i>Sisyra nigra</i>		Neuroptera	Insecta	1261		EF417105
<i>Calopteryx splendens</i>		Odonata	Insecta	1098		EF417106
<i>Erythromma najas</i>		Odonata	Insecta	1049	rev2	EF417107
<i>Onychogomphus forcipatus</i>		Odonata	Insecta	1056	rev2	EF417108
<i>Platycnemis pennipes</i>		Odonata	Insecta	1049	rev2	EF417109
<i>Brachyptera risi</i>		Plecoptera	Insecta	1054		EF417110
<i>Leuctra albida</i>		Plecoptera	Insecta	994	rev2	EF417111
<i>Nemoura cinerea</i>		Plecoptera	Insecta	1032		EF417112
<i>Protonemura intricata</i>		Plecoptera	Insecta	1032		EF417113
<i>Anabolia nervosa</i>		Trichoptera	Insecta	1049	rev2	EF417114
<i>Athripsodes cinereus</i>		Trichoptera	Insecta	1063	rev2	EF417115
<i>Brachycentrus subnubilus</i>		Trichoptera	Insecta	1050	rev2	EF417116
<i>Ceraclea dissimilis</i>	2	Trichoptera	Insecta	1061	rev2	EF417117
<i>Cheumatopsyche lepida</i>	5	Trichoptera	Insecta	1091		EF417118
<i>Cyrnus flavidus</i>	2	Trichoptera	Insecta	1111	rev2	EF417119
<i>Hydropsyche angustipennis</i>		Trichoptera	Insecta	1056		EF417120
<i>Lepidostoma hirtum</i>	2	Trichoptera	Insecta	1041	rev2	EF417121
<i>Molanna angustata</i>		Trichoptera	Insecta	1106		EF417122
<i>Mystacides azurea</i>	1	Trichoptera	Insecta	1111		EF417123
<i>Notidobia ciliaris</i>		Trichoptera	Insecta	1055	rev2	EF417124
<i>Odontocerum albicorne</i>		Trichoptera	Insecta	1119		EF417125
<i>Polycentropus flavomaculatus</i>		Trichoptera	Insecta	1176		EF417126
<i>Potamophylax rotundipennis</i>		Trichoptera	Insecta	1097		EF417127
<i>Psychomyia pusilla</i>	1	Trichoptera	Insecta	1173		EF417128
<i>Musculium lacustre</i>		Bivalvia	Mollusca	986		EF417129
<i>Sphaerium corneum</i>		Bivalvia	Mollusca	986		EF417130

<i>Bathymophalus contortus</i>		Gastropoda	Mollusca	990	EF417131
<i>Hippeutis complanatus</i>		Gastropoda	Mollusca	1000	EF417132
<i>Physa fontinalis</i>		Gastropoda	Mollusca	990	EF417133
<i>Planorbis carinatus</i>		Gastropoda	Mollusca	1000	EF417134
<i>Potamopyrgus antipodarum</i>	1	Gastropoda	Mollusca	995	EF417135
<i>Radix ovata</i>		Gastropoda	Mollusca	1005	EF417136
<i>Valvata cristata</i>		Gastropoda	Mollusca	1003	rev2 EF417137
<i>Acrobeloides maximus</i>		Nematoda	Nematoda	967	EF417138
<i>Acrobeloides nanus</i>		Nematoda	Nematoda	965	EF417139
<i>Caenorhabditis briggsae</i>		Nematoda	Nematoda	836	EF417140
<i>Caenorhabditis elegans</i>		Nematoda	Nematoda	836	EF417141
<i>Cephalobidae</i> sp. PS1146		Nematoda	Nematoda	965	EF417142
<i>Diplogaster inerti</i>		Nematoda	Nematoda	960	EF417143
<i>Panagrolaimus</i> sp. (Brauweiler)	4	Nematoda	Nematoda	955	EF417144
<i>Panagrolaimus</i> sp. (Brombeer Bornheim)		Nematoda	Nematoda	954	EF417145
<i>Panagrolaimus</i> sp. (K1b)	6	Nematoda	Nematoda	957	EF417146
<i>Plectus aquatilis</i>	9	Nematoda	Nematoda	975	EF417147
<i>Plectus minimus</i>		Nematoda	Nematoda	977	EF417148
<i>Rhabditis belari</i>	1	Nematoda	Nematoda	791	EF417149
<i>Rhabditis dolichura</i>		Nematoda	Nematoda	807	EF417150
<i>Rhabditis remanei</i>		Nematoda	Nematoda	836	EF417151
<i>Rhabditis terricola</i>		Nematoda	Nematoda	796	EF417152
<i>Romanomermis culicivorax</i>		Nematoda	Nematoda	1017	EF417153
<i>Rhabditidae</i> sp. (<i>Therimax</i> ?)		Nematoda	Nematoda	815	EF417154
<i>Alburnoides bipunctatus</i>		Teleostei	Vertebrata	1052	EF417161
<i>Alburnus alburnus</i>		Teleostei	Vertebrata	1052	EF417162
<i>Anguilla anguilla</i>		Teleostei	Vertebrata	1129	EF417155
<i>Pterolebias longipinnis</i>		Teleostei	Vertebrata	1064	EF417191
<i>Aplocheilichthys panchax</i>		Teleostei	Vertebrata	1051	EF417190
<i>Astyanax</i> sp.		Teleostei	Vertebrata	1068	EF417191
<i>Barbatula barbatula</i>		Teleostei	Vertebrata	1042	EF417163
<i>Barbus barbus</i>		Teleostei	Vertebrata	1063	EF417164
<i>Benitochromis ufermanni</i>		Teleostei	Vertebrata	1059	EF417185
<i>Benthophilus</i> sp.		Teleostei	Vertebrata	1044	EF417173
<i>Brachydanio rerio</i>	1	Teleostei	Vertebrata	1086	EF417169
<i>Brachygalaxias bullocki</i>		Teleostei	Vertebrata	1103	EF417156
<i>Brachygalaxias gothei</i>		Teleostei	Vertebrata	1104	EF417157
<i>Epiplatys bifasciatus</i>	3	Teleostei	Vertebrata	1186	EF417193
<i>Galaxias occidentalis</i>	1	Teleostei	Vertebrata	1139	EF417158
<i>Gasterosteus aculeatus</i>		Teleostei	Vertebrata	1055	EF417178
<i>Gobio gobio</i>		Teleostei	Vertebrata	1082	EF417170
<i>Gymnocephalus cernuus</i>		Teleostei	Vertebrata	1042	EF417181
<i>Hemichromis elongatus</i>		Teleostei	Vertebrata	1051	EF417183
<i>Jordanella floridae</i>		Teleostei	Vertebrata	1041	EF417184
<i>Lepomis gibbosus</i>		Teleostei	Vertebrata	1052	EF417165
<i>Leuciscus cephalus</i>		Teleostei	Vertebrata	1054	EF417166
<i>Leuciscus leuciscus</i>		Teleostei	Vertebrata	1104	EF417188
<i>Marosatherina ladigesii</i>		Teleostei	Vertebrata	1050	EF417171
<i>Misgurnus fossilis</i>		Teleostei	Vertebrata	1044	EF417179
<i>Neogobius syrmian</i>		Teleostei	Vertebrata	1091	EF417175
<i>Neolebias kerguelinae</i>		Teleostei	Vertebrata	1067	EF417186
<i>Oryzias latipes</i>		Teleostei	Vertebrata	1059	EF417184
<i>Pelvicachromis taeniatus</i>		Teleostei	Vertebrata	1051	EF417168
<i>Phoxinus phoxinus</i>	2	Teleostei	Vertebrata	1131	EF417176
<i>Phractura</i> sp.		Teleostei	Vertebrata	1053	EF417195
<i>Plataplocheilichthys aff. ngaensis</i>		Teleostei	Vertebrata	1044	EF417180
<i>Proterothorinus marmoratus</i>		Teleostei	Vertebrata	1055	EF417192
<i>Rivulus xiphidius</i>	6	Teleostei	Vertebrata	1052	EF417167
<i>Rutilus rutilus</i>		Teleostei	Vertebrata	1049	EF417172
<i>Sabanejewia romanica</i>		Teleostei	Vertebrata	1051	EF417159
<i>Salmo salar</i>		Teleostei	Vertebrata	1051	EF417160
<i>Salmo trutta</i>	1	Teleostei	Vertebrata	1143	EF417177
<i>Silurus glanis</i>		Teleostei	Vertebrata	1108	EF417189
<i>Thelmatetherina bonti</i>		Teleostei	Vertebrata	1064	EF417187
<i>Xenopoecilus sarasinorum</i>		Teleostei	Vertebrata	1064	EF417187

Sequenced environmental contaminations of DNA samples

Contamination <i>Acheta domesticus</i>	8		Hypotrachia	not complete	EF417278
Contamination <i>Agabus sturmi</i>			Ciliophora	not complete	EF417279
Contamination <i>Asellus aquaticus</i>		96% <i>Vaucheria bursata</i> *	Stramenopiles	not complete	EF417280
Contamination <i>Cleon dipterum</i>			Ciliophora	not complete	EF417283
Contamination <i>Cottus</i>		93 % <i>Gyrodactylus salaris</i> *	Monogea	not complete	EF417281
Contamination <i>Habroileptoides contusa</i>		98% <i>Nitzschia fusiformis</i> *	Stramenopiles	not complete	EF417282
Contamination <i>Radix ovata</i>		96% <i>Aspharyngostrigea cornu</i> *	Trematoda, Digei	not complete	EF417284

Remarks:

rev2 = sequenced with rev2, 48 bp shorter as those sequenced with rev1

= at 3' and 5' differently trimmed than the metazoan dataset

= single sequences at 3' or 5' end not complete

* = percent sequence similarity according to blast search in GenBank