**Appendix**

List of taxa used in the analysis, including GenBank accession numbers and host information.

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| --- | --- | --- | --- | --- |
| Specie | Family | Host | Accession number | Gen Region |
| *Aetheca wagneri* | Ceratophyllidae | *Peromyscus maniculatus* | EU336040 | 18S |
| *Ceratophyllus gallinae* | Ceratophyllidae | *Woodpecker nest* | EU336041 | 18S |
| *Ceratophyllus petrochelidoni* | Ceratophyllidae | *Petrochelidon pyrrhonota* | AF423888 | 18S |
| *Citellophilus tesquorum mongolicus* | Ceratophyllidae | *Citellus dauricus dauricus* | EU336103 | 18S |
| *Dactylopsylla bluei bluei* | Ceratophyllidae | *Thomomys bottae* | EU336124 | 18S |
| *Foxella ignota* | Ceratophyllidae | *Thomomys* sp*.* | EU336030 | 18S |
| *Jellisonia guerrerensis* | Ceratophyllidae | *Oryzomys alfaroi* | EU336107 | 18S |
| *Amphipsylla sibirica sibirica* | Leptopsyllidae | *Clethrionomys rutilus* | EU336061 | 18S |
| *Peromyscopsylla hamifer vigens* | Leptopsyllidae | *Microtus* sp*.* | EU336104 | 18S |
| *Peromyscopsylla selensis* | Leptopsyllidae | *Peromyscus maniculatus* | EU336043 | 18S |
| *Leptopsylla segnis* | Leptopsyllidae | Unknown | DQ298442 | 18S |
| *Ophthalmopsylla jettmari* | Leptopsyllidae | *Citellus dauricus dauricus* | EU336101 | 18S |
| *Ophthalmopsylla volgensis palestinica* | Leptopsyllidae | *Jaculus jaculus* | AF423895 | 18S |
| *Stenoponia americana* | Ctenophthalmidae | *Peromyscus leucopus* | AF423893 | 18S |
| *Stenoponia sidimi* | Ctenophthalmidae | *Clethrionomys rufocans* | EU336078 | 18S |
| *Stenoponia tripectinata medialis* | Ctenophthalmidae | *Gerbillus dasyurus* | EU336050 | 18S |
| *Catallagia borealis* | Ctenophthalmidae | *Clethrionomys gapperi* | EU336100 | 18S |
| *Catallagia decipiens* | Ctenophthalmidae | *Microtus* sp*.* | EU336058 | 18S |
| *Neopsylla bidentatiformis* | Ctenophthalmidae | *Cricetulus triton* | EU336074 | 18S |
| *Ctenophthalmus pseudagyrtes* | Ctenophthalmidae | *Condylura cristata* | AF423892 | 18S |
| *Ctenophthalmus sanborni* | Ctenophthalmidae | *Habromys lophurus* | EU336067 | 18S |
| *Megarthroglossus divisus* | Ctenophthalmidae | *Tamiasciurus hudsonicus* | AF286276 | 18S |
| *Conorhinopsylla stanfordi* | Ctenophthalmidae | *Glaucomys volans* | EU336127 | 18S |
| *Rhadinopsylla difficilis* | Ctenophthalmidae | *Vole nest* | EU336044 | 18S |
| *Rhadinopsylla masculana* | Ctenophthalmidae | *Gerbillus dasyurus* | EU336056 | 18S |
| *Jordanopsylla becki* | Ctenophthalmidae | *Neotoma lepida* | EU336071 | 18S |
| *Carteretta clavata* | Ctenophthalmidae | *Peromyscus eremiens* | EU336072 | 18S |
| *Corypsylla ornata* | Ctenophthalmidae | *Scapanus orarius* | EU336092 | 18S |
| *Anomiopsyllus amphibolus* | Ctenophthalmidae | *Peromyscus eremicus* | EU336036 | 18S |
| *Stenistomera alpina* | Ctenophthalmidae | *Neotoma lepida* | EU336037 | 18S |
| *Chiliopsylla allophyla allophyla* | Ctenophthalmidae | Unknown | EU336094 | 18S |
| *Ctenophthalmus formosanus* | Ctenophthalmidae | *Eothenomys melanogaster* | EU336131 | 18S |
| *Neotyphloceras crassispina chilensis* | Ctenophthalmidae | *Abrocoma bennetti* | EU336079 | 18S |
| *Dinopsyllus ellobius* | Ctenophthalmidae | *Mastomys natalensis* | EU336070 | 18S |
| *Corrodopsylla birulai* | Ctenophthalmidae | *Sorex araneus* | EU336063 | 18S |
| *Corrodopsylla curvata curvata* | Ctenophthalmidae | *Sorex* sp*.* | EU336064 | 18S |
| *Catallagia* sp*.* | Ctenophthalmidae | *Scapanus orarius* | AF423890 | 18S |
| *Epitedia wenmanni* | Ctenophthalmidae | *Thomomys bottae* | EU336033 | 18S |
| *Meringis dipodomys* | Ctenophthalmidae | *Dipodomys merriami* | EU336032 | 18S |
| *Meringis hubbardi* | Ctenophthalmidae | *Perognathus parvus* | AF423891 | 18S |
| *Nearctopsylla traubi* | Ctenophthalmidae | *Scapanus townsendii* | EU336093 | 18S |
| *Nannochorista dipteroides* | Nannochoristidae | Unknown | AF334796 | 18S |
| *Boreus coloradensis* | Boreidae | Unknown | AF286285 | 18S |
| *Echidnophaga* sp*.* | Pulicidae | *Oryctolagus cuniculus* | JN008922 | *Cox1* |
| *Echidnophaga gallinacea* | Pulicidae | *Oryctolagus cuniculus* | JN008921 | *Cox1* |
| *Echidnophaga myrmecobii* | Pulicidae | *Oryctolagus cuniculus* | JN008919 | *Cox1* |
| *Echidnophaga iberica* | Pulicidae | *Oryctolagus cuniculus* | KF479239 | *Cox1* |
| *Pulex irritans* | Pulicidae | *Meles meles* | KF479246 | *Cox1* |
| *Pulex irritans* | Pulicidae | *Meles meles* | KF479247 | *Cox1* |
| *Spilopsyllus cuniculi* | Pulicidae | *Felis silvestris catus* | JN008918 | *Cox1* |
| *Spilopsyllus cuniculi* | Pulicidae | *Oryctolagus cuniculus* | KF479234 | *Cox1* |
| *Spilopsyllus cuniculi* | Pulicidae | *Oryctolagus cuniculus* | KF479235 | *Cox1* |
| *Spilopsyllus cuniculi* | Pulicidae | *Oryctolagus cuniculus* | KF479236 | *Cox1* |
| *Spilopsyllus cuniculi* | Pulicidae | *Oryctolagus cuniculus* | KF479237 | *Cox1* |
| *Ctenocephalides felis* | Pulicidae | *Vulpes vulpes* | JN008917 | *Cox1* |
| *Xenopsylla cunicularis* | Pulicidae | *Oryctolagus cuniculus* | KF479238 | *Cox1* |
| *Ctenocephalides felis felis* | Pulicidae | *Canis lupus familiaris* | KF684891 | *Cox1* |
| *Ctenocephalides felis felis* | Pulicidae | *Canis lupus familiaris* | KF684890 | *Cox1* |
| *Ctenocephalides felis felis* | Pulicidae | *Canis lupus familiaris* | KF684912 | *Cox1* |
| *Ctenocephalides felis felis* | Pulicidae | *Canis lupus familiaris* | KF684909 | *Cox1* |
| *Ctenocephalides felis felis* | Pulicidae | *Canis lupus familiaris* | KF684878 | *Cox1* |
| *Ctenocephalides felis strongylus* | Pulicidae | *Canis lupus familiaris* | KF684875 | *Cox1* |
| *Ctenocephalides felis strongylus* | Pulicidae | *Canis lupus familiaris* | KF684874 | *Cox1* |
| *Ctenocephalides orientis* | Pulicidae | *Canis lupus familiaris* | KF684870 | *Cox1* |
| *Ctenocephalides orientis* | Pulicidae | *Canis lupus familiaris* | KF684869 | *Cox1* |
| *Acanthopsylla jordani* | Pygiopsyllidae | *Antechinus flavipes* | JN008916 | *Cox1* |
| *Pygiopsylla*  *tunney* | Pygiopsyllidae | *Perameles*  *bougainville* | JN008924 | *Cox1* |
| *Pygiopsylla hilli* | Pygiopsyllidae | *Bettongia penicillata* | JN008915 | *Cox1* |
| *Stephanocircus pectinipes* | Stephanocircidae | *Rattus fuscipes* | JN008923 | *Cox1* |
| *Stephanocircus dasyuri* | Stephanocircidae | *Rattus fuscipes* | JN008920 | *Cox1* |
| *Neopsylla sellaris* | Ctenophtalmidae | *Canis lupus familiaris* | KJ471029 | *Cox1* |
| *Neopsylla paranoma* | Ctenophtalmidae | *Canis lupus familiaris* | KJ471028 | *Cox1* |
| *Stenoponia tripectinata tripectinata* | Ctenophthalmidae | *Apodemus sylvaticus* | KF479241 | *Cox1* |
| *Stenoponia tripectinata tripectinata* | Ctenophthalmidae | *Apodemus sylvaticus* | KF479242 | *Cox1* |
| *Stenoponia tripectinata tripectinata* | Ctenophthalmidae | *Apodemus sylvaticus* | KF479243 | *Cox1* |
| *Stenoponia tripectinata tripectinata* | Ctenophthalmidae | *Apodemus sylvaticus* | KF479244 | *Cox1* |
| *Boreus elegans* | Boreidae | Unkonwn | HQ696579 | *Cox1* |
| *Microchorista philpotti* | Nannochoristidae | Unknown | HQ696580 | *Cox1* |