**Table S2.** Summary of K2P distances to the nearest-neighbour for the 668 species.

|  |  |  |
| --- | --- | --- |
|   |   | Number of species |
| Order  | Family  | barcoded | < 0.1  | 0.1 - 1.0  | 1.0 - 2.7  | > 2.7 |
| Perciformes  | Labridae  | 67 | 0 | 8 | 0 | 59 |
|   | Acanthuridae  | 29 | 0 | 0 | 2 | 27 |
|   | Apogonidae  | 37 | 0 | 0 | 0 | 37 |
|   | Chaetodontidae  | 34 | 0 | 6 | 6 | 22 |
|   | Carangidae  | 13 | 0 | 0 | 2 | 11 |
|   | Pseudochromidae  | 4 | 0 | 0 | 0 | 4 |
|   | Scaridae  | 15 | 0 | 2 | 0 | 13 |
|   | Serranidae  | 37 | 0 | 0 | 0 | 37 |
|   | Gobiidae  | 56 | 0 | 0 | 2 | 54 |
|   | Pinguipedidae  | 2 | 0 | 0 | 0 | 2 |
|   | Microdesmidae  | 6 | 0 | 0 | 0 | 6 |
|   | Pomacentridae  | 60 | 0 | 2 | 4 | 54 |
|   | Pomacanthidae  | 12 | 0 | 0 | 0 | 12 |
|   | Siganidae  | 5 | 0 | 0 | 0 | 5 |
|   | Haemulidae  | 4 | 0 | 0 | 0 | 4 |
|   | Blenniidae  | 30 | 0 | 0 | 0 | 30 |
|   | Mullidae  | 13 | 0 | 0 | 2 | 11 |
|   | Plesiopidae  | 2 | 0 | 0 | 0 | 2 |
|   | Tripterygiidae  | 4 | 0 | 0 | 0 | 4 |
|   | Caesionidae  | 5 | 0 | 0 | 0 | 5 |
|   | Callionymidae  | 3 | 0 | 0 | 0 | 3 |
|   | Cirrhitidae  | 8 | 0 | 0 | 0 | 8 |
|   | Eleotridae  | 2 | 0 | 0 | 0 | 2 |
|   | Lethrinidae  | 7 | 0 | 0 | 0 | 7 |
|   | Kuhliidae  | 4 | 0 | 0 | 0 | 4 |
|   | Lutjanidae  | 12 | 0 | 0 | 0 | 12 |
|   | Creediidae  | 2 | 0 | 0 | 0 | 2 |
|   | Pempheridae  | 4 | 0 | 0 | 0 | 4 |
|   | Scombridae  | 1 | 0 | 0 | 0 | 1 |
|   | Gerreidae  | 1 | 0 | 0 | 0 | 1 |
|   | Polynemidae  | 1 | 0 | 0 | 0 | 1 |
|   | Nemipteridae  | 4 | 0 | 0 | 0 | 4 |
|   | Cichlidae  | 1 | 0 | 0 | 0 | 1 |
|   | Kyphosidae  | 2 | 0 | 0 | 2 | 0 |
|   | Zanclidae  | 1 | 0 | 0 | 0 | 1 |
|   | Caproidae  | 1 | 0 | 0 | 0 | 1 |
|   | Priacanthidae  | 2 | 0 | 0 | 0 | 2 |
|   | Monodactylidae  | 1 | 0 | 0 | 0 | 1 |
|   | Centropomidae  | 1 | 0 | 0 | 0 | 1 |
|   | Malacanthidae  | 1 | 0 | 0 | 0 | 1 |
| Scorpaeniformes  | Scorpaenidae  | 18 | 0 | 0 | 0 | 18 |
|   | Dactylopteridae  | 1 | 0 | 0 | 0 | 1 |
|   | Caracanthidae  | 3 | 0 | 0 | 0 | 3 |
|   | Platycephalidae  | 3 | 0 | 0 | 0 | 3 |
|   | Synanceiidae  | 1 | 0 | 0 | 0 | 1 |
| Anguilliformes  | Congridae  | 5 | 0 | 0 | 0 | 5 |
|   | Muraenidae  | 33 | 0 | 0 | 0 | 33 |
|   | Ophichthidae  | 10 | 0 | 0 | 0 | 10 |
|   | Anguillidae  | 2 | 0 | 0 | 0 | 2 |
|   | Chlopsidae  | 1 | 0 | 0 | 0 | 1 |
|   | Moringuidae  | 3 | 0 | 0 | 0 | 3 |
| Tetraodontiformes  | Ostraciidae  | 2 | 0 | 0 | 0 | 2 |
|   | Monacanthidae  | 8 | 0 | 0 | 0 | 8 |
|   | Balistidae  | 13 | 0 | 0 | 0 | 13 |
|   | Tetraodontidae  | 10 | 0 | 0 | 2 | 8 |
|   | Diodontidae  | 1 | 0 | 0 | 0 | 1 |
| Beryciformes  | Holocentridae  | 19 | 0 | 3 | 5 | 11 |
| Syngnathiformes  | Syngnathidae  | 5 | 0 | 0 | 0 | 5 |
|   | Aulostomidae  | 1 | 0 | 0 | 0 | 1 |
|   | Fistulariidae  | 1 | 0 | 0 | 0 | 1 |
| Pleuronectiformes  | Samaridae  | 1 | 0 | 0 | 0 | 1 |
|   | Bothidae  | 3 | 0 | 0 | 0 | 3 |
|   | Soleidae  | 5 | 0 | 0 | 0 | 5 |
| Albuliformes  | Albulidae  | 1 | 0 | 0 | 0 | 1 |
| Ophidiiformes  | Carapidae  | 2 | 0 | 0 | 0 | 2 |
|   | Bythitidae  | 2 | 0 | 0 | 0 | 2 |
|   | Ophidiidae  | 1 | 0 | 0 | 0 | 1 |
| Mugiliformes  | Mugilidae  | 3 | 0 | 0 | 0 | 3 |
| Lophiiformes  | Antennariidae  | 1 | 0 | 0 | 0 | 1 |
| Beloniformes  | Belonidae  | 1 | 0 | 0 | 0 | 1 |
|   | Exocoetidae  | 1 | 0 | 0 | 0 | 1 |
| Cyprinodontiformes  | Poeciliidae  | 1 | 0 | 0 | 0 | 1 |
| Clupeiformes  | Clupeidae  | 1 | 0 | 0 | 0 | 1 |
| Aulopiformes  | Synodontidae  | 6 | 0 | 0 | 0 | 6 |
| Carcharhiniformes  | Carcharhinidae  | 1 | 0 | 0 | 0 | 1 |
| Rajiformes  | Dasyatidae  | 1 | 0 | 0 | 0 | 1 |
| Torpediniformes  | Torpedinidae  | 1 | 0 | 0 | 0 | 1 |
| Gonorynchiformes  | Chanidae  | 1 | 0 | 0 | 0 | 1 |
| Siluriformes  | Plotosidae  | 1 | 0 | 0 | 0 | 1 |
|   | Total | 668 | 0 | 21 | 27 | 620 |