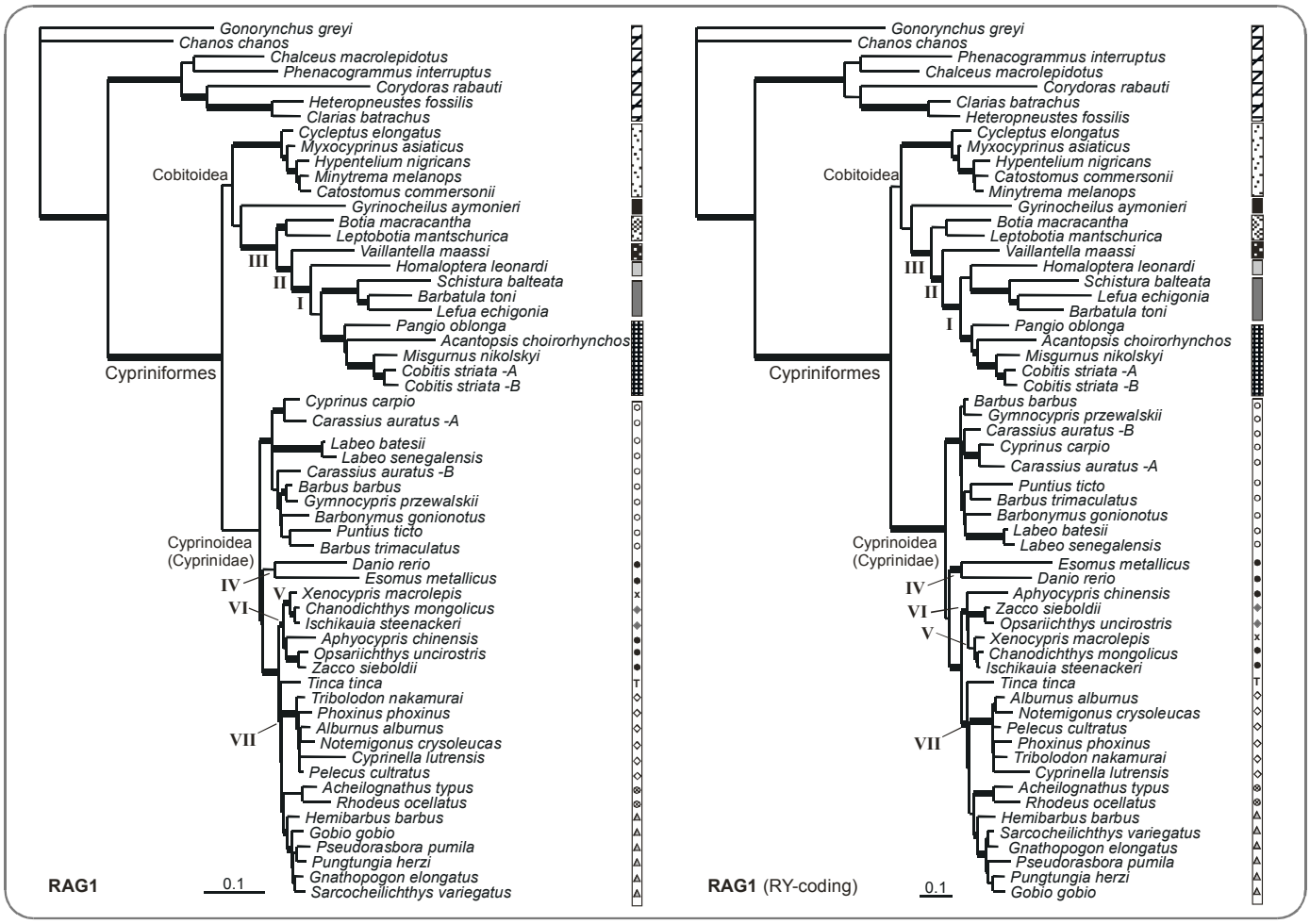
SUPPLEMENTARY MATERIALS

Individual gene trees inferred from the datasets of four nuclear loci used in this study. Trees were constructed using partitioned ML method implemented in RAxML (version 7.04) through the Cipres portal with both equal-weighting (left) and RY-coding (right) analyses. Branch lengths are proportional to inferred character substitutions under GTR+G+I model. Bold branches on topology indicate resulting ML bootstrap values ≥ 80%. Roman numerals denote recurrent clades among independent gene/genome trees (see Table 3 in main text). Symbol bar on the right side of tree topology indicates higher taxonomic category for the corresponding species. Symbols used are the same as those in Figures 1-3 in the paper.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Heteropneustes fossilis
Clarias batrachus
Cycleptus elongatus
Myxocyprinus asiaticus
Hypentelium nigricans
Minytrema melanops
Catostomus commersonii
Gyrinocheilus aymonieri
Botia macracantha
Leptobotia mantschurica
Vaillantella maassi
Homaloptera leonardi
Schistura balteata
Barbatula toni
Lefua echigonia
Pangio oblonga
Acantopsis choirorhynchos
Misgurnus nikolskyi
Cobitis striata -A
Cobitis striata -B
Cobitoidea
Cypriniformes
III
II
I
Cyprinus carpio
Carassius auratus -A
Labeo batesii
Labeo senegalensis
Carassius auratus -B
Barbus barbus
Gymnocypris przewalskii
Barbonymus gonionotus
Puntius ticto
Barbus trimaculatus
Cyprinoidea
(Cyprinidae)
Danio rerio
Esomus metallicus
IV
V
VI
Xenocypris macrolepis
Chanodichthys mongolicus
Ischikauia steenackeri
Aphyocypris chinensis
Opsariichthys uncirostris
Zacco sieboldii
Tinca tinca
Tribolodon nakamurai
Phoxinus phoxinus
Alburnus alburnus
VII
Notemigonus crysoleucas
Cyprinella lutrensis
Pelecus cultratus
Acheilognathus typus
Rhodeus ocellatus
Hemibarbus barbus
Gobio gobio
Pseudorasbora pumila
Pungtungia herzi
Gnathopogon elongatus
Sarcocheilichthys variegatus
RAG1
0.1
Gonorynchus greyi
Chanos chanos
Phenacogrammus interruptus
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Cycleptus elongatus
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Vaillantella maassi
Homaloptera leonardi
Schistura balteata
Lefua echigonia
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Acantopsis choirorhynchos
Misgurnus nikolskyi
Cobitis striata -A
Cobitis striata -B
Cobitoidea
Cypriniformes
III
II
I
Barbus barbus
Gymnocypris przewalskii
Carassius auratus -B
Cyprinus carpio
Carassius auratus -A
Puntius ticto
Barbus trimaculatus
Barbonymus gonionotus
Labeo batesii
Labeo senegalensis
Cyprinoidea
(Cyprinidae)
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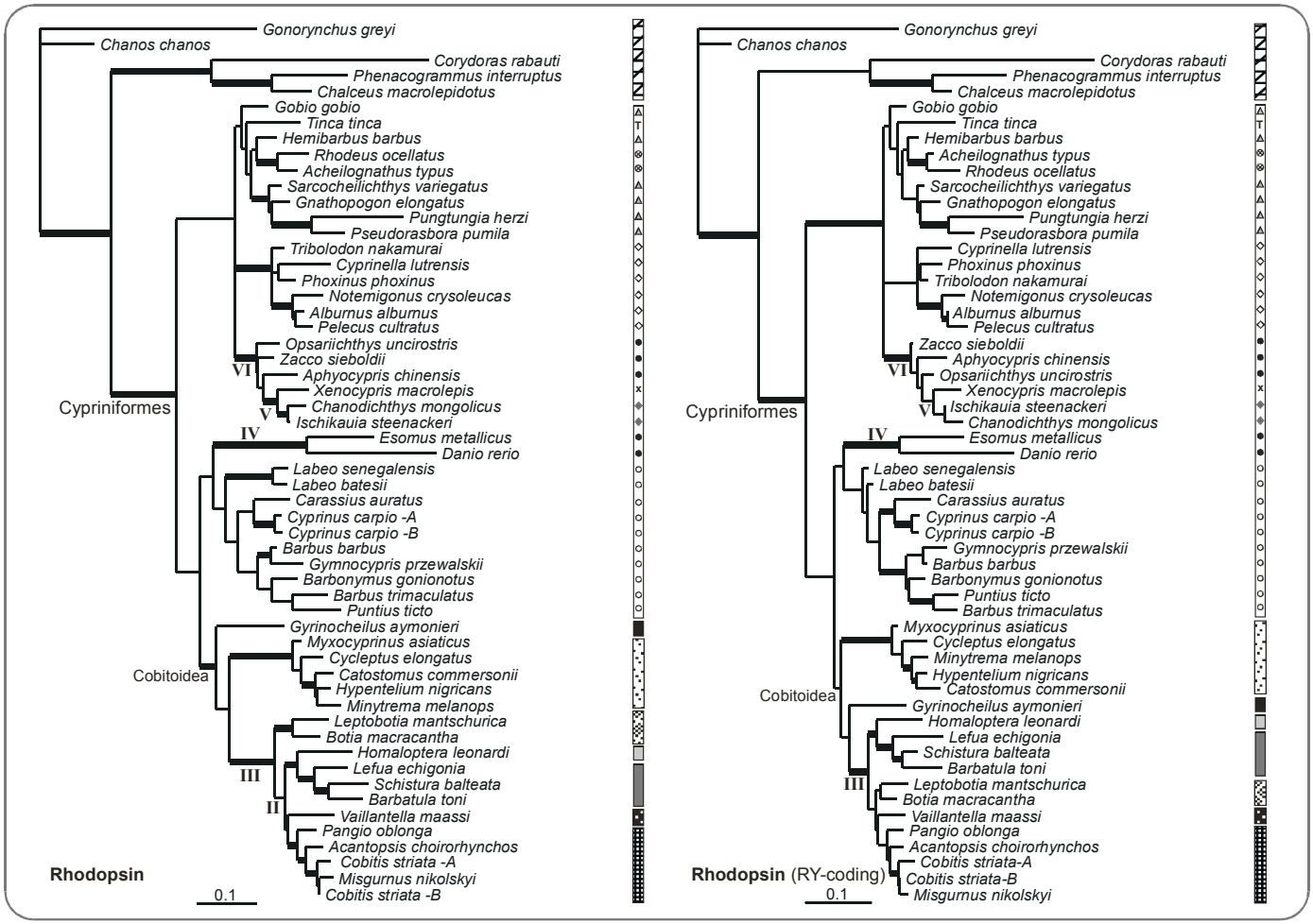
Cyprinella lutrensis
Acheilognathus typus
Rhodeus ocellatus
Hemibarbus barbus
Sarcocheilichthys variegatus
Gnathopogon elongatus
Pseudorasbora pumila
Pungtungia herzi
Gobio gobio
RAG1 (RY-coding)
0.1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Corydoras rabauti
Phenacogrammus interruptus
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Esomus metallicus
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Cyprinus carpio -B
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Barbonymus gonionotus
Barbus trimaculatus
Puntius ticto
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Cycleptus elongatus
Cobitoidea
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Hypentelium nigricans
Minytrema melanops
Leptobotia mantschurica
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Homaloptera leonardi
Lefua echigonia
III
Schistura balteata
Barbatula toni
II
Vaillantella maassi
Pangio oblonga
Acantopsis choirorhynchos
Cobitis striata -A
Misgurnus nikolskyi
Cobitis striata -B
Rhodopsin
0.1
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Phenacogrammus interruptus
Chalceus macrolepidotus
Gobio gobio
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Hemibarbus barbus
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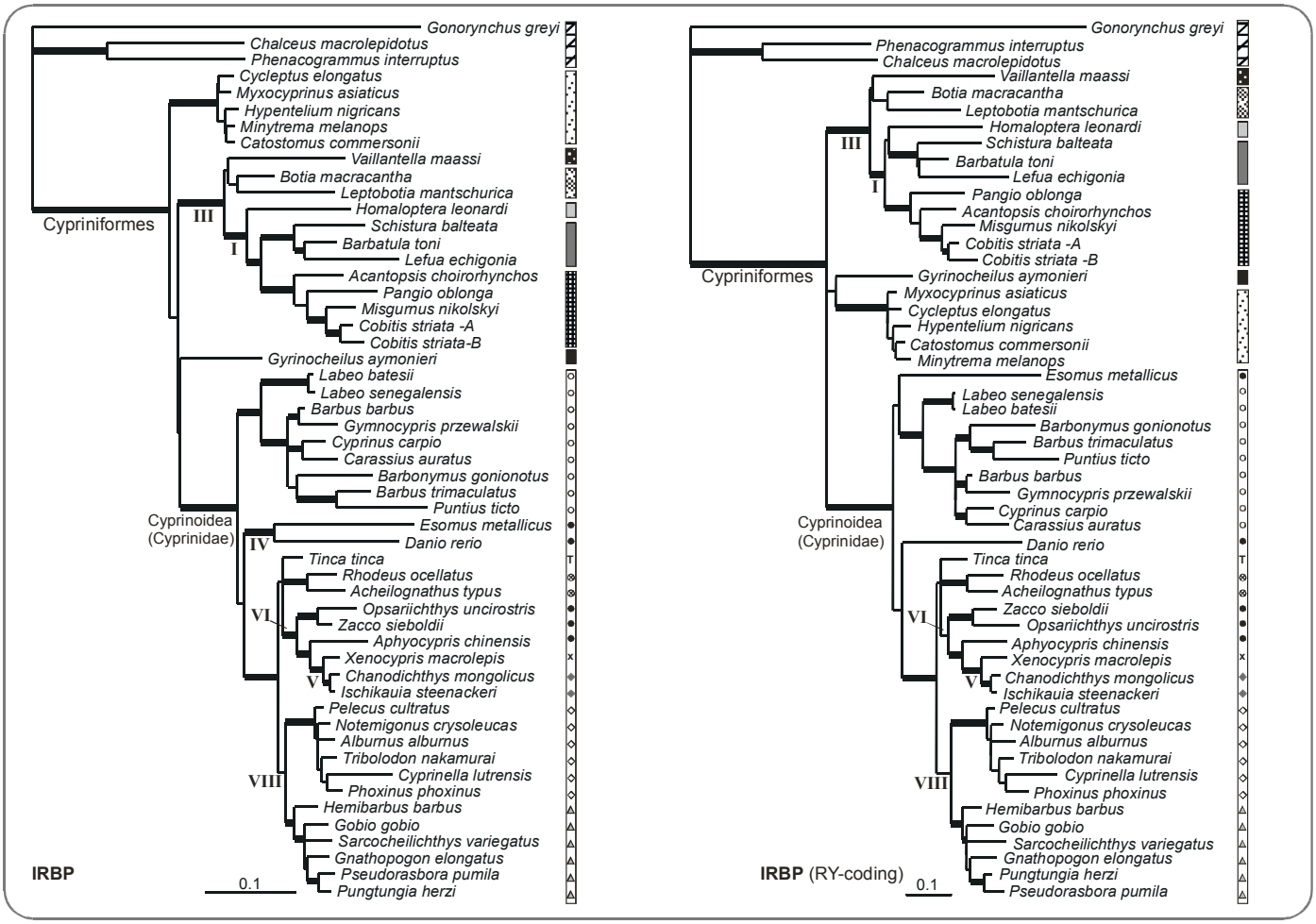
Vaillantella maassi
Pangio oblonga
Acantopsis choirorhynchos
Cobitis striata-A
Cobitis striata-B
Misgurnus nikolskyi
Rhodopsin (RY-coding)
0.1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Phenacogrammus interruptus
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Hypentelium nigricans
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Catostomus commersonii
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Homaloptera leonardi
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Barbatula toni
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Misgurnus nikolskyi
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Cobitis striata-B
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Phoxinus phoxinus
Hemibarbus barbus
Gobio gobio
Sarcocheilichthys variegatus
Gnathopogon elongatus
Pseudorasbora pumila
Pungtungia herzi
Cypriniformes
Cyprinoidea (Cyprinidae)
I
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VIII
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IRBP (RY-coding)
Gonorynchus greyi
Phenacogrammus interruptus
Chalceus macrolepidotus
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Botia macracantha
Leptobotia mantschurica
Homaloptera leonardi
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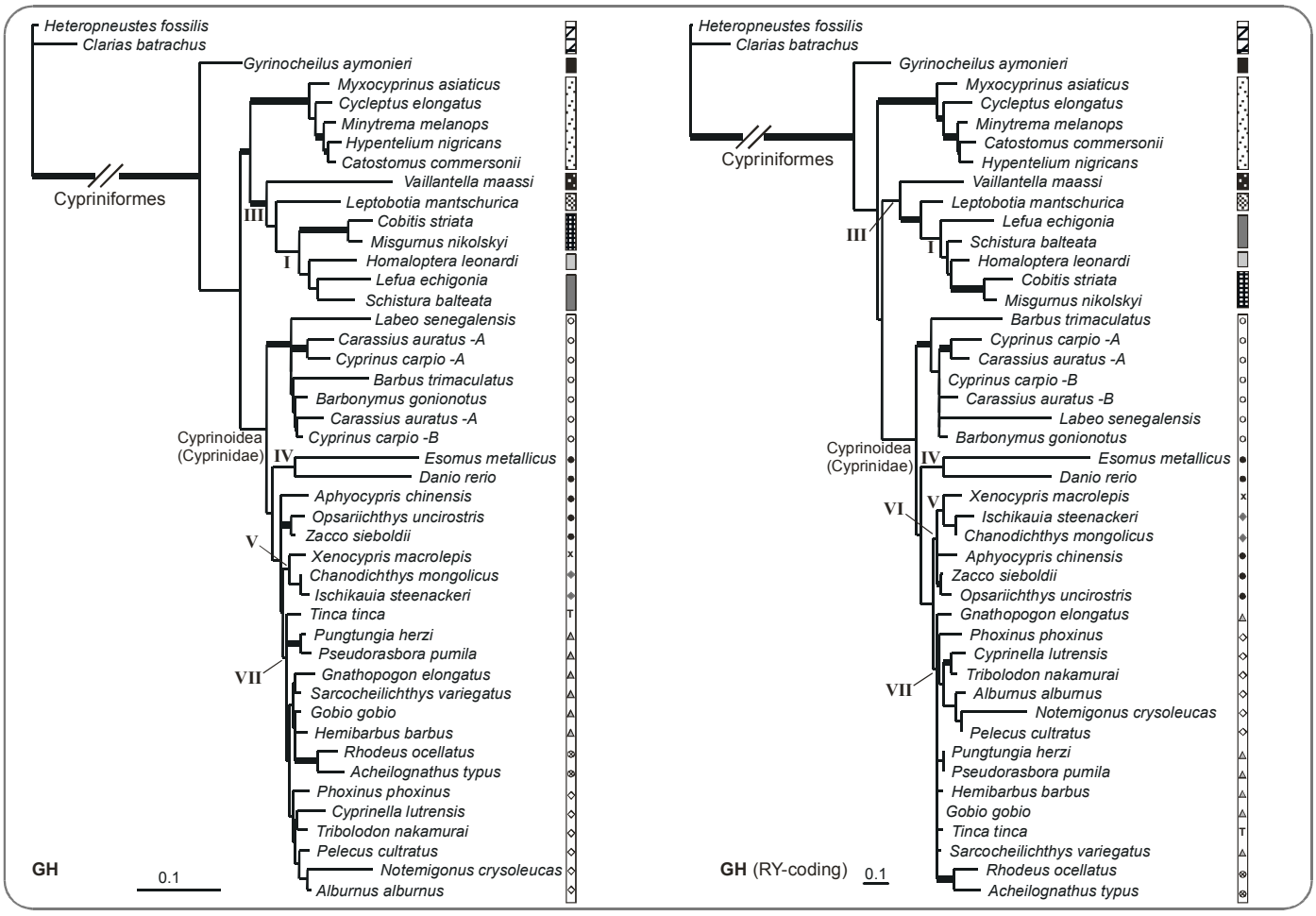
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Rhodeus ocellatus
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Cypriniformes
Cyprinoidea (Cyprinidae)
III
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V
VI
VII
0.1