

Ecography

**ECOG-04665**

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**Supplementary material**

## Appendix 1.

**Table A1.** The native continent and the number of occurrence records for 115 nonnative freshwater fish species compiled from the Global Biodiversity Information Facility (GBIF), FishBase, published records (Published) and the International Union for Conservation of Nature range maps (IUCN) [accessed on December 2016]. Total<sub>PCA</sub> is the number of environment-filtered occurrences used *in fine* to calibrate the species distribution models. Species are clustered into four groups based on introduction pathways and species status: current aquaculture, current ornamental, potential aquaculture, potential ornamental.

Species	Group	Native continent	GBIF	FishBase	Published	IUCN	Total <sub>PCA</sub>
<i>Abramis brama</i>	Current aquaculture	Europe	3508	894	2	189679	4969
<i>Acipenser gueldenstaedtii</i>	Current aquaculture	Europe	17	-	-	23198	3382
<i>Acipenser nudiiventris</i>	Current aquaculture	Europe	1	-	-	7081	1058
<i>Acipenser stellatus</i>	Potential aquaculture	Europe	6	-	-	25952	3299
<i>Aequidens pulcher</i>	Potential ornamental	South America	61	-	-	-	54
<i>Alburnus chalcoides</i>	Potential aquaculture	Europe	9	-	-	7260	1663
<i>Alosa sapidissima</i>	Potential aquaculture	North America	261	-	-	28268	1497
<i>Amatitlania nigrofasciata</i>	Potential ornamental	North America	179	-	-	-	154
<i>Ameiurus melas</i>	Current aquaculture	North America	2519	-	-	141246	3290
<i>Ameiurus nebulosus</i>	Current aquaculture	North America	1797	-	1	65716	1939
<i>Amphilophus citrinellus</i>	Potential ornamental	North America	45	2	-	-	40
<i>Anabas testudineus</i>	Potential ornamental	Asia	88	19	-	1622	768
<i>Anguilla anguilla</i>	Current aquaculture	Europe	7162	-	2	104962	2758
<i>Anguilla australis</i>	Potential aquaculture	Oceania	251	-	-	-	167
<i>Anguilla rostrata</i>	Current aquaculture	North America	647	-	-	76115	1727
<i>Aplocheilichthys lineatus</i>	Potential ornamental	Asia	16	12	-	105	98
<i>Astronotus ocellatus</i>	Potential ornamental	South America	202	35	-	-	161
<i>Barbonymus gonionotus</i>	Potential aquaculture	Asia	47	-	-	-	39
<i>Barbonymus schwanenfeldii</i>	Current ornamental	Asia	48	-	-	-	40
<i>Betta splendens</i>	Potential ornamental	Asia	36	2	-	-	35
<i>Bidyanus bidyanus</i>	Potential aquaculture	Oceania	60	-	-	-	48

<i>Brycinus longipinnis</i>	Potential ornamental	Africa	146	-	-	21937	2517
<i>Campylomormyrus elephas</i>	Potential ornamental	Africa	15	-	-	5600	883
<i>Carassius cuvieri</i>	Current aquaculture	Asia	4	29	4	-	31
<i>Chalceus macrolepidotus</i>	Potential ornamental	South America	130	-	-	-	102
<i>Chitala chitala</i>	Potential ornamental	Asia	9	6	-	579	264
<i>Cichla ocellaris</i>	Potential ornamental	South America	165	-	-	-	135
<i>Cichlasoma trimaculatum</i>	Potential ornamental	North America	118	5	-	-	111
<i>Cirrhinus mrigala</i>	Current aquaculture	Asia	13	-	16	1573	710
<i>Clarias batrachus</i>	Potential aquaculture	Asia	312	-	-	-	125
<i>Clarias gariepinus</i>	Current aquaculture	Africa	271	303	48	116255	4142
<i>Colossoma macropomum</i>	Potential aquaculture	South America	78	-	-	-	56
<i>Coregonus artedi</i>	Potential aquaculture	North America	466	-	-	5986	838
<i>Coregonus muksun</i>	Current aquaculture	Europe	-	-	1	47141	2718
<i>Coregonus nasus</i>	Current aquaculture	Europe	84	-	1	96157	2495
<i>Coregonus peled</i>	Current aquaculture	Europe	4	-	5	64581	2091
<i>Corydoras aeneus</i>	Potential ornamental	Asia	73	24	-	-	85
<i>Danio rerio</i>	Potential ornamental	Asia	31	-	-	2697	752
<i>Devario malabaricus</i>	Potential ornamental	Asia	35	8	-	-	42
<i>Epalzeorhynchus bicolor</i>	Potential ornamental	Asia	1	-	-	60	59
<i>Gambusia affinis</i>	Current ornamental	North America	4490	1065	48	24949	1723
<i>Geophagus brasiliensis</i>	Potential ornamental	South America	585	-	-	-	442
<i>Gibelion catla</i>	Potential aquaculture	Asia	1	6	-	1107	320
<i>Gymnocorymbus ternetzi</i>	Potential ornamental	South America	37	17	-	-	45
<i>Hemichromis bimaculatus</i>	Potential ornamental	Africa	178	27	-	22582	1207
<i>Hemichromis elongatus</i>	Potential ornamental	Africa	99	10	-	41298	2385
<i>Hemigrammus ocellifer</i>	Potential ornamental	South America	253	20	-	-	146
<i>Hephaestus fuliginosus</i>	Current aquaculture	Oceania	173	-	-	-	139
<i>Herichthys cyanoguttatus</i>	Potential ornamental	North America	658	7	-	1358	567
<i>Heros severus</i>	Potential ornamental	South America	97	6	-	-	80
<i>Heterotis niloticus</i>	Potential ornamental	Africa	58	12	-	17807	2103
<i>Huso huso</i>	Potential aquaculture	Europe	7	-	-	10325	1129
<i>Hyphessobrycon eques</i>	Potential ornamental	South America	117	4	-	-	103
<i>Hypomesus nipponensis</i>	Current aquaculture	Asia	37	9	4	-	39
<i>Ictalurus furcatus</i>	Current aquaculture	North America	451	-	-	31707	1890
<i>Ictalurus punctatus</i>	Current aquaculture	North America	1722	197	18	149046	3483
<i>Ictiobus cyprinellus</i>	Current aquaculture	North America	144	-	-	48121	1648
<i>Jordanella floridae</i>	Potential ornamental	North America	291	15	-	-	211
<i>Labeo calbasu</i>	Potential aquaculture	Asia	28	-	-	1240	590
<i>Labeo rohita</i>	Current aquaculture	Asia	17	8	13	1234	521
<i>Labeotropheus fuelleborni</i>	Potential ornamental	Africa	36	7	-	-	40
<i>Lepisosteus oculatus</i>	Current ornamental	North America	548	-	2	-	328

<i>Lepomis auritus</i>	Current ornamental	North America	1760	-	-	26862	1609
<i>Lepomis cyanellus</i>	Current aquaculture	North America	4399	-	2	94134	3291
<i>Lepomis macrochirus</i>	Current aquaculture	North America	5944	-	1	106675	3275
<i>Lepomis megalotis</i>	Current ornamental	North America	2539	-	-	61095	3479
<i>Leporinus fasciatus</i>	Potential ornamental	South America	241	21	-	-	207
<i>Lutjanus argentimaculatus</i>	Potential ornamental	Asia	134	51	-	-	158
<i>Maccullochella peelii</i>	Potential aquaculture	Oceania	67	-	-	-	59
<i>Micropterus salmoides</i>	Current aquaculture	North America	7027	-	10	118975	3045
<i>Morone chrysops</i>	Potential aquaculture	North America	827	-	-	45007	2142
<i>Morone saxatilis</i>	Potential aquaculture	North America	766	-	-	21133	1109
<i>Oncorhynchus aguabonita</i>	Potential aquaculture	North America	214	-	-	-	109
<i>Oncorhynchus kisutch</i>	Current aquaculture	North America	679	-	1	-	417
<i>Oncorhynchus mykiss</i>	Current aquaculture	North America	7968	-	16	-	2164
<i>Oreochromis andersonii</i>	Potential aquaculture	Africa	43	-	-	14719	1291
<i>Oreochromis aureus</i>	Current aquaculture	Africa	601	-	7	-	315
<i>Oreochromis mossambicus</i>	Current aquaculture	Africa	698	-	22	23822	1502
<i>Osfronemus goramy</i>	Potential ornamental	Asia	28	5	-	-	31
<i>Osteoglossum bicirrhosum</i>	Potential ornamental	South America	64	17	-	-	68
<i>Oxyeleotris lineolata</i>	Potential aquaculture	Oceania	163	-	-	-	137
<i>Oxyeleotris marmorata</i>	Current aquaculture	Asia	64	-	1	-	51
<i>Parachromis managuensis</i>	Current ornamental	North America	108	-	-	-	70
<i>Parambassis ranga</i>	Potential ornamental	Asia	51	-	-	8810	1384
<i>Parambassis siamensis</i>	Current ornamental	Asia	114	-	-	-	89
<i>Pelvicachromis pulcher</i>	Potential ornamental	Africa	5	1	-	2194	787
<i>Perca flavescens</i>	Potential aquaculture	North America	2571	-	-	42290	2059
<i>Perca fluviatilis</i>	Current aquaculture	Asia	10905	-	1	340696	3789
<i>Poecilia latipinna</i>	Potential ornamental	North America	453	43	-	8878	546
<i>Poecilia sphenops</i>	Potential ornamental	South America	674	38	-	-	532
<i>Poecilia velifera</i>	Current ornamental	North America	41	-	-	-	25
<i>Polyodon spathula</i>	Current aquaculture	North America	45	-	2	34630	2704
<i>Pomoxis nigromaculatus</i>	Current aquaculture	North America	1786	-	-	81397	2581
<i>Prochilodus lineatus</i>	Current aquaculture	South America	97	-	2	-	86
<i>Pterophyllum scalare</i>	Potential ornamental	South America	65	20	-	-	81
<i>Pterygoplichthys multiradiatus</i>	Current ornamental	South America	82	-	1	-	56
<i>Pungitius platygaster</i>	Current ornamental	Europe	5	-	-	31350	2493
<i>Pygocentrus nattereri</i>	Current ornamental	South America	250	-	-	-	160
<i>Rasbora borapetensis</i>	Potential ornamental	Asia	65	2	-	-	61
<i>Rasbora trilineata</i>	Potential ornamental	Asia	52	4	-	-	55
<i>Salmo salar</i>	Current aquaculture	North America	3669	-	-	36411	1925
<i>Salmo trutta</i>	Current aquaculture	Europe	32082	-	-	108439	3437
<i>Sander lucioperca</i>	Current aquaculture	Europe	2166	-	2	153011	4506

<i>Sander vitreus</i>	Potential aquaculture	North America	1426	-	-	55034	2358
<i>Sarotherodon galilaeus</i>	Current aquaculture	Africa	230	-	3	-	179
<i>Sarotherodon melanotheron</i>	Potential aquaculture	Africa	120	-	-	-	75
<i>Scleropages leichardti</i>	Potential ornamental	Oceania	30	-	-	-	21
<i>Scortum barcoo</i>	Current aquaculture	Oceania	31	-	-	-	29
<i>Silurus glanis</i>	Current aquaculture	Europe	725	-	-	160301	4487
<i>Thorichthys meeki</i>	Potential ornamental	North America	240	2	-	-	196
<i>Tilapia buttikoferi</i>	Potential ornamental	Africa	11	-	-	2229	523
<i>Tilapia zillii</i>	Current aquaculture	Africa	200	93	-	-	212
<i>Tinca tinca</i>	Current aquaculture	Europe	4257	-	3	256747	4063
<i>Xiphophorus hellerii</i>	Current ornamental	North America	361	-	-	-	235
<i>Xiphophorus maculatus</i>	Potential ornamental	North America	184	3	-	-	143

**Table A2.** Comparisons of predictive performance for species distribution models (SDMs) incorporating occurrences derived from the International Union for Conservation of Nature (IUCN) range maps (Range model) or not (Point model) [Mean (S.D.)] using four evaluation indices. AUC: area under the receiver operating characteristic curves. TSS: true skill statistics. TSS<sub>native</sub>: TSS of SDMs calibrated using only occurrences in the native range. TSS<sub>introduced</sub>: TSS of SDMs calibrated using only occurrences in the introduced range. N<sub>species</sub>: the number of species with more than 30 occurrences used in the comparison. *p* is the significance of paired *t*-test between Range model and Point model.

Index	N <sub>species</sub>	Range model	Point model	<i>p</i>
AUC	37	0.94 (0.02)	0.87 (0.03)	< 0.01
TSS	37	0.76 (0.04)	0.65 (0.03)	< 0.01
TSS <sub>native</sub>	32	0.85 (0.10)	0.76 (0.15)	< 0.01
TSS <sub>introduced</sub>	18	0.80 (0.12)	0.78 (0.16)	0.48

**Table A3.** The description of 19 bioclimatic variables (available in WorldClim; Hijmans et al. 2005) and the contribution of each variable to the first six components (Axis 1-6) of the Principal Component Analysis performed using the full set of 19 variables under current climate scenario.

Variable	Description	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6
Bio1	Annual mean temperature (°C)	0.98	< 0.01	0.01	0.01	< 0.01	< 0.01
Bio2	Mean diurnal temperature range (°C)	0.09	0.42	0.04	0.01	< 0.01	0.43
Bio3	Isothermality (Bio2/Bio7) ( $\times 100$ )	0.71	0.08	< 0.01	0.06	0.03	0.04
Bio4	Temperature seasonality (Standard deviation $\times 100$ )	0.78	0.10	0.01	0.10	0.01	< 0.01
Bio5	Max temperature of warmest month (°C)	0.65	0.14	< 0.01	0.16	0.03	< 0.01
Bio6	Min temperature of coldest month (°C)	0.94	0.03	0.02	< 0.01	< 0.01	< 0.01
Bio7	Temperature annual range (Bio5-Bio6) (°C)	0.65	0.19	0.02	0.11	0.02	0.01
Bio8	Mean temperature of wettest quarter (°C)	0.52	< 0.01	0.07	0.22	0.12	0.03
Bio9	Mean temperature of driest quarter (°C)	0.85	< 0.01	0.06	0.01	0.05	< 0.01
Bio10	Mean temperature of warmest quarter (°C)	0.74	0.07	0.01	0.15	0.02	0.01
Bio11	Mean temperature of coldest quarter (°C)	0.97	0.01	0.01	< 0.01	< 0.01	< 0.01
Bio12	Annual precipitation (mm)	0.01	0.87	0.07	< 0.01	0.03	< 0.01
Bio13	Precipitation of wettest month (mm)	0.04	0.71	0.21	< 0.01	0.02	< 0.01
Bio14	Precipitation of driest month (mm)	0.08	0.68	0.13	0.05	0.01	0.01
Bio15	Precipitation seasonality (Coefficient of variation)	0.09	0.11	0.62	0.02	0.04	0.02
Bio16	Precipitation of wettest quarter (mm)	0.02	0.74	0.19	< 0.01	0.03	< 0.01
Bio17	Precipitation of driest quarter (mm)	0.08	0.75	0.09	0.04	< 0.01	0.01
Bio18	Precipitation of warmest quarter (mm)	0.02	0.68	0.14	0.02	0.09	0.01
Bio19	Precipitation of coldest quarter (mm)	0.01	0.61	0.15	0.01	0.14	< 0.01

**Table A4.** The relative importance [Mean (S.D.)] of PCA axes (Axis 1-6) in ensemble modelling for each of four groups (Total explained variance = 100%). The six axes corresponding to the first six components of the Principal Component Analysis performed using the full set of 19 variables under current climate scenario. Species are clustered into four groups based on introduction pathways and species status: current aquaculture species, current ornamental species, potential aquaculture species, potential ornamental species.

Group	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6
Current aquaculture	0.21 (0.11)	0.17 (0.07)	0.14 (0.05)	0.17 (0.08)	0.14 (0.07)	0.17 (0.08)
Current ornamental	0.24 (0.11)	0.15 (0.06)	0.13 (0.06)	0.16 (0.08)	0.16 (0.11)	0.17 (0.1)
Potential aquaculture	0.19 (0.1)	0.18 (0.06)	0.14 (0.08)	0.17 (0.1)	0.15 (0.07)	0.16 (0.08)
Potential ornamental	0.19 (0.1)	0.17 (0.1)	0.15 (0.05)	0.14 (0.07)	0.14 (0.07)	0.21 (0.12)



**Table A5.** Species-specific establishment threat expressed as the percentage (%) of China’s fresh waters predicted to be suitable for the species under current and future (2050s and 2070s) climatic conditions. Species are ordered by the establishment threat under current climate condition.

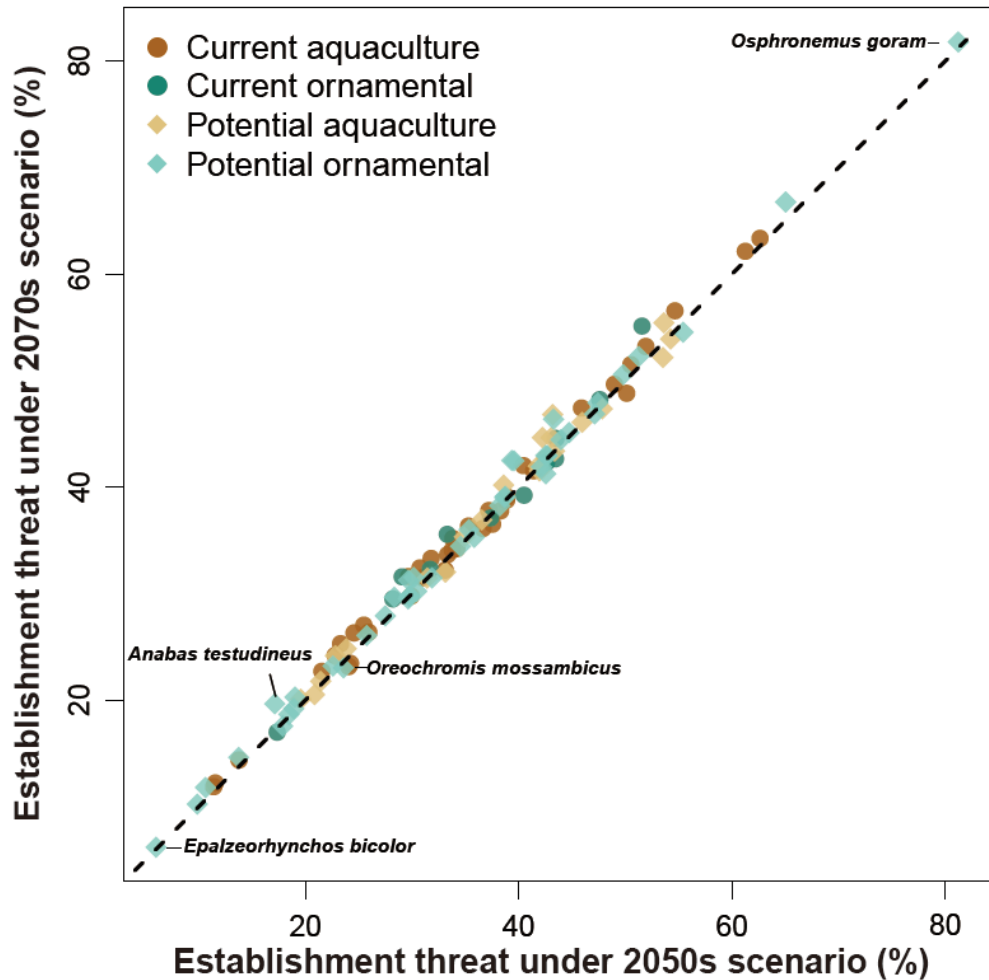
Species	Native continent	Current	2050s	2070s
<i>Osphronemus goramy</i>	Asia	79.59	81.21	81.78
<i>Leporinus fasciatus</i>	South America	61.15	65.03	66.76
<i>Sarotherodon galilaeus</i>	Africa	60.42	62.62	63.34
<i>Salmo salar</i>	North America	59.37	61.24	62.13
<i>Poecilia latipinna</i>	North America	58.37	55.4	54.52
<i>Perca flavescens</i>	North America	55.21	54.23	53.88
<i>Sarotherodon melanotheron</i>	Africa	54.52	53.52	52.15
<i>Hypomesus nipponensis</i>	Asia	53.37	50.11	48.8
<i>Morone saxatilis</i>	North America	50.42	53.61	55.4
<i>Ameiurus melas</i>	North America	50.17	54.64	56.53
<i>Ameiurus nebulosus</i>	North America	49.64	51.92	53.2
<i>Pterophyllum scalare</i>	South America	48.1	51.25	52.25
<i>Colossoma macropomum</i>	South America	48.07	47.84	47.34
<i>Lepomis auritus</i>	North America	47.88	51.55	55.11
<i>Hypheosobrycon eques</i>	South America	47.15	49.79	50.53
<i>Hephaestus fuliginosus</i>	Oceania	46.89	48.96	49.64
<i>Jordanella floridae</i>	North America	46.89	47.11	46.86
<i>Oncorhynchus aguabonita</i>	North America	46.8	45.93	46.07
<i>Abramis brama</i>	Europe	46.47	50.5	51.48
<i>Corydoras aeneus</i>	Asia	46.23	47.41	47.9
<i>Lepisosteus oculatus</i>	North America	45.86	47.59	48.2
<i>Devario malabaricus</i>	Asia	45.08	42.53	41.25
<i>Pygocentrus nattereri</i>	South America	43.82	43.44	42.65
<i>Acipenser stellatus</i>	Europe	43.42	41.92	41.51
<i>Geophagus brasiliensis</i>	South America	43.29	44.72	45.11
<i>Pterygoplichthys multiradiatus</i>	South America	43.19	42.61	42.32
<i>Oxyeleotris lineolata</i>	Oceania	42.65	43.35	43.38
<i>Brycinus longipinnis</i>	Africa	42.33	42.13	41.89
<i>Ictalurus furcatus</i>	North America	42.32	42.48	42.62
<i>Chalceus macrolepidotus</i>	South America	42.24	43.95	44.44

<i>Bidyanus bidyanus</i>	Oceania	42.16	41.81	41.95
<i>Hemichromis bimaculatus</i>	Africa	42.01	42.68	42.93
<i>Parachromis managuensis</i>	North America	41.91	43.5	44.56
<i>Poecilia velifera</i>	North America	41.75	40.5	39.23
<i>Hemigrammus ocellifer</i>	South America	41.22	42.52	42.96
<i>Acipenser gueldenstaedtii</i>	Europe	41.17	41.4	41.51
<i>Lepomis macrochirus</i>	North America	40.06	45.88	47.41
<i>Sander vitreus</i>	North America	39.62	43.04	44.63
<i>Ictiobus cyprinellus</i>	North America	39.56	38.89	39.07
<i>Anguilla anguilla</i>	Europe	38.67	36.65	36.1
<i>Xiphophorus hellerii</i>	North America	38.6	37.35	37.1
<i>Tinca tinca</i>	Europe	38.56	37.54	36.5
<i>Silurus glanis</i>	Europe	38.5	38.3	37.76
<i>Pomoxis nigromaculatus</i>	North America	38.35	38.86	38.76
<i>Amphilophus citrinellus</i>	North America	38.21	35.83	35.27
<i>Betta splendens</i>	Asia	38.09	38.66	39.01
<i>Morone chrysops</i>	North America	37.98	42.21	44.63
<i>Tilapia buttikoferi</i>	Africa	37.45	38.22	38.24
<i>Hemichromis elongatus</i>	Africa	37.44	38.73	39.13
<i>Tilapia zillii</i>	Africa	37.14	40.44	42.01
<i>Alosa sapidissima</i>	North America	36.21	43.18	46.8
<i>Gymnocorymbus ternetzi</i>	South America	36.14	43.26	46.37
<i>Coregonus artedi</i>	North America	35.75	36.53	36.91
<i>Maccullochella peelii</i>	Oceania	35.43	38.57	40.17
<i>Alburnus chalcoides</i>	Europe	35.18	34.89	35.31
<i>Prochilodus lineatus</i>	South America	35.03	37.19	37.79
<i>Astronotus ocellatus</i>	South America	34.52	35.32	35.99
<i>Aequidens pulcher</i>	South America	34.1	34.54	34.44
<i>Clarias gariepinus</i>	Africa	34.1	33.75	34.07
<i>Oncorhynchus kisutch</i>	North America	33.36	34.19	34.22
<i>Clarias batrachus</i>	Asia	33.21	33.12	32
<i>Oreochromis aureus</i>	Africa	33.11	35.28	36.33
<i>Sander lucioperca</i>	Europe	32.94	33.1	32.21
<i>Anguilla rostrata</i>	North America	32.92	33.33	33.65
<i>Lutjanus argentimaculatus</i>	Asia	32.72	39.55	42.45
<i>Xiphophorus maculatus</i>	North America	32.57	31.86	31.46
<i>Cichlasoma trimaculatum</i>	North America	31.22	39.33	42.49
<i>Heterotis niloticus</i>	Africa	30.34	29.79	29.8
<i>Micropterus salmoides</i>	North America	30.14	33.81	35.16
<i>Parambassis ranga</i>	Asia	30.09	30.42	30.2
<i>Lepomis cyanellus</i>	North America	29.95	31.78	33.28

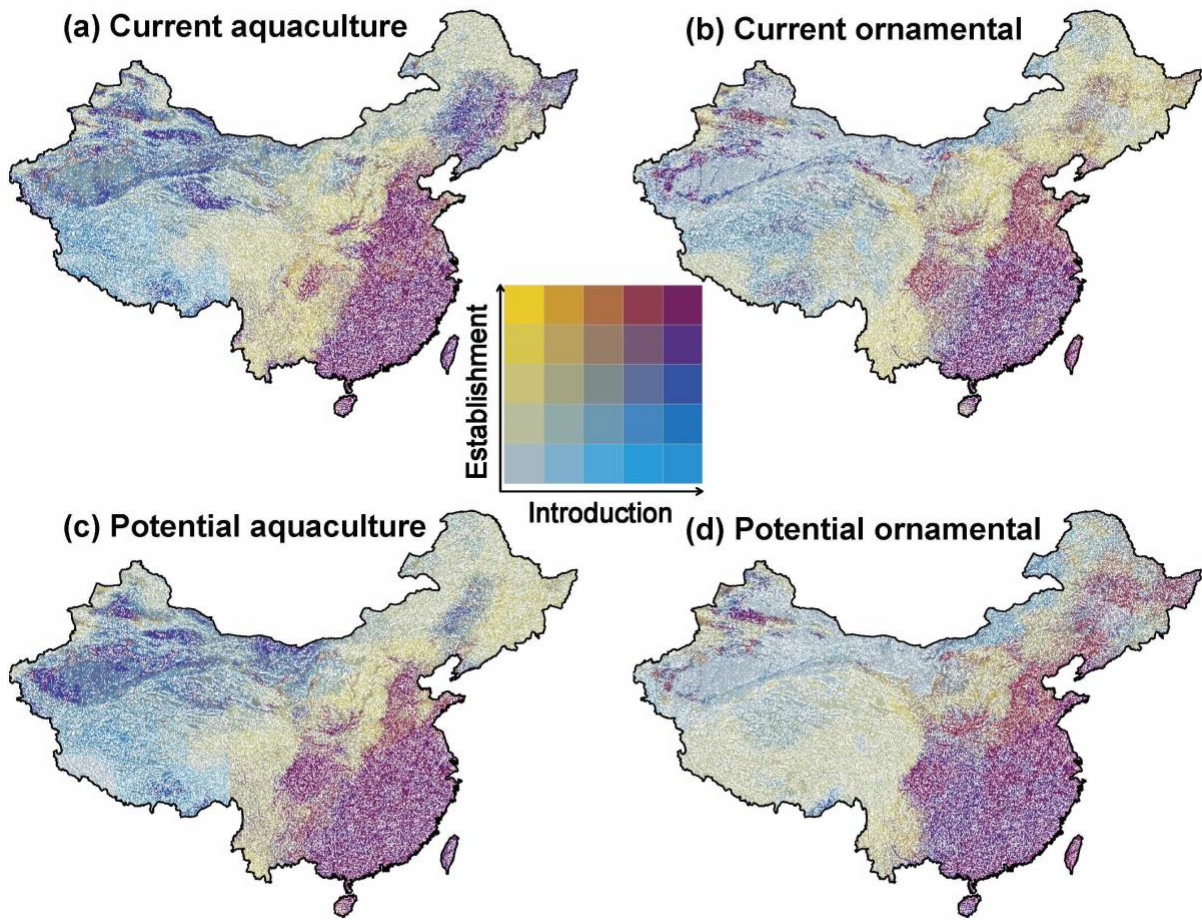
<i>Scortum barcoo</i>	Oceania	29.86	31.01	31.48
<i>Oreochromis andersonii</i>	Africa	29.77	31.41	31.45
<i>Heros severus</i>	South America	29.58	29.61	29.48
<i>Campylomormyrus elephas</i>	Africa	29.57	29.73	29.69
<i>Perca fluviatilis</i>	Asia	29.24	29.89	29.75
<i>Lepomis megalotis</i>	North America	29.19	33.3	35.56
<i>Pungitius platygaster</i>	Europe	28.97	31.7	32.27
<i>Ictalurus punctatus</i>	North America	28.33	30.74	32.4
<i>Acipenser nudiiventris</i>	Europe	28.03	29.66	31.58
<i>Herichthys cyanoguttatus</i>	North America	26.92	30.14	31.51
<i>Barbonymus schwanenfeldii</i>	Asia	26.16	28.19	29.48
<i>Pelvicachromis pulcher</i>	Africa	26.02	27.49	27.9
<i>Salmo trutta</i>	Europe	25.9	24.22	23.44
<i>Osteoglossum bicirrhosum</i>	South America	25.84	29.66	31.26
<i>Cichla ocellaris</i>	South America	25.54	25.74	26.06
<i>Oreochromis mossambicus</i>	Africa	25.43	24.06	23.15
<i>Oxyeleotris marmorata</i>	Asia	25.43	25.93	26.37
<i>Gambusia affinis</i>	North America	25.08	29.06	31.57
<i>Amatitlania nigrofasciata</i>	North America	24.92	23.57	23.02
<i>Polyodon spathula</i>	North America	24.15	24.54	26.29
<i>Thorichthys meeki</i>	North America	23.25	28.33	29.66
<i>Gibelion catla</i>	Asia	22.13	23.82	24.82
<i>Poecilia sphenops</i>	South America	21.78	22.58	23.19
<i>Carassius cuvieri</i>	Asia	21.37	25.46	27.04
<i>Oncorhynchus mykiss</i>	North America	21.06	23.29	25.29
<i>Anguilla australis</i>	Oceania	20.89	20.84	20.51
<i>Labeotropheus fuelleborni</i>	Africa	20.5	18.91	19.2
<i>Labeo calbasu</i>	Asia	20.38	21.43	21.76
<i>Labeo rohita</i>	Asia	19.9	22.77	24.18
<i>Huso huso</i>	Europe	19.68	22.8	24.15
<i>Cirrhinus mrigala</i>	Asia	18.57	21.53	22.69
<i>Rasbora borapetensis</i>	Asia	18.16	17.86	17.55
<i>Barbonymus gonionotus</i>	Asia	17.79	19.55	20.07
<i>Rasbora trilineata</i>	Asia	17.73	18.44	18.65
<i>Parambassis siamensis</i>	Asia	17.7	17.33	16.97
<i>Danio rerio</i>	Asia	17.23	19.01	20.28
<i>Coregonus muksun</i>	Europe	13.1	13.77	14.36
<i>Coregonus nasus</i>	Europe	12.05	11.39	11.86
<i>Anabas testudineus</i>	Asia	12	17.12	19.65
<i>Chitala chitala</i>	Asia	11.78	13.74	14.61
<i>Coregonus peled</i>	Europe	11.25	11.54	12.22

<i>Aplocheilus lineatus</i>	Asia	9.53	9.85	10.23
<i>Scleropages leichardti</i>	Oceania	7.87	10.62	11.78
<i>Epalzeorhynchus bicolor</i>	Asia	5.38	5.99	6.18

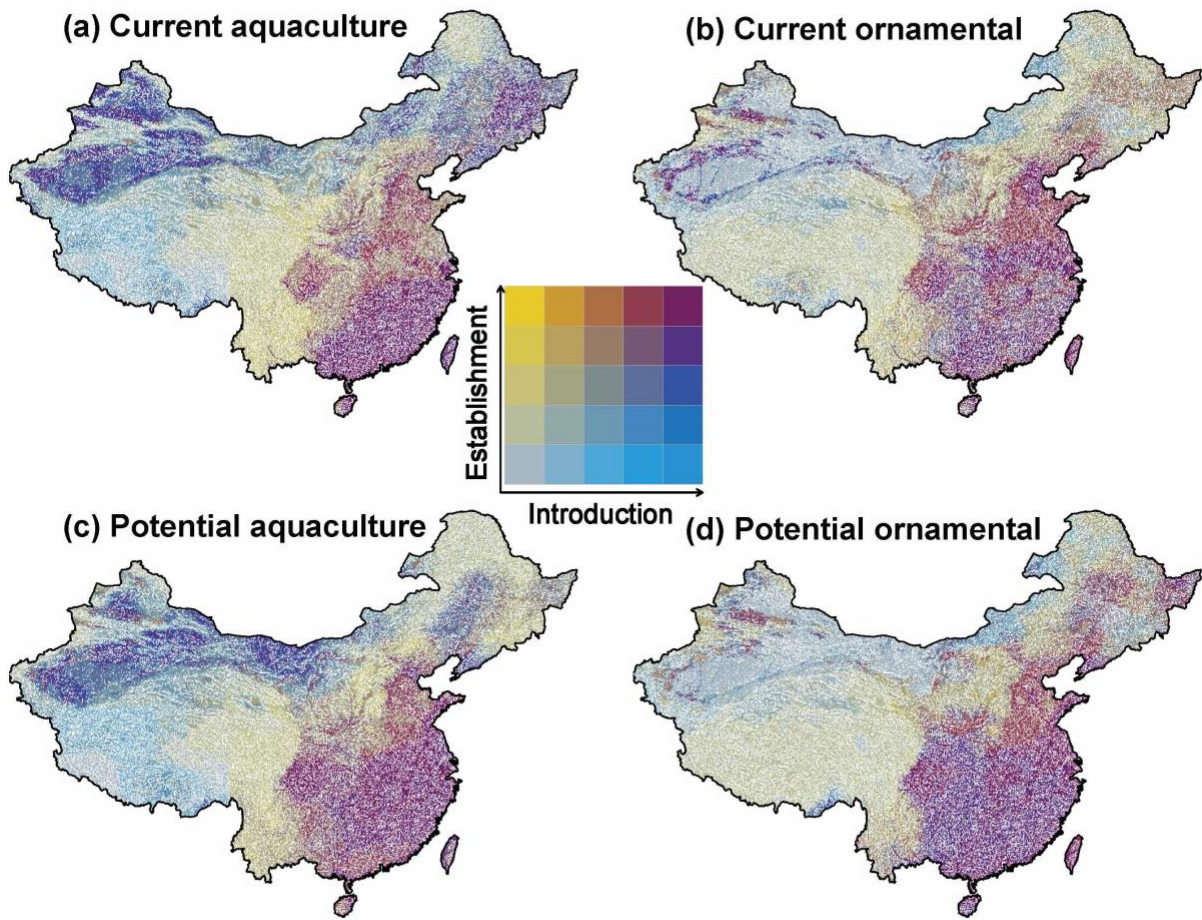
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**Fig. A1.** Comparison of establishment threats under 2050s and 2070s climatic scenarios for four species groups. Establishment threat is expressed as the percentage (%) of the total area of China’s fresh waters predicted to be suitable for the species. Species are clustered into four groups based on introduction pathways and species status: current aquaculture species, current ornamental species, potential aquaculture species, potential ornamental species. Points located above the 1:1 line indicate species displaying an increase in establishment threat under 2070s climate change scenario, and points below the 1:1 line indicate species displaying a decrease in establishment threat.



**Fig. A2.** Geographic patterns of invasion risk under current climatic conditions defined by overlaying the threats of introduction and establishment for (a) current aquaculture species, (b) current ornamental species, (c) potential aquaculture species, and (d) potential ornamental species. Color gradients represent the variables broken into their respective percentile classes.



**Fig. A3.** Geographic patterns of invasion risk under future (2070s) climatic conditions defined by overlaying the threats of introduction and establishment for (a) current aquaculture species, (b) current ornamental species, (c) potential aquaculture species, and (d) potential ornamental species. Color gradients represent the variables broken into their respective percentile classes.