

Supplementary Materials

Table S1. Summary of Central American freshwater fishes conservation status under IUCN Red List Categories: Critically Endangered (CR), Endangered (EN), and Vulnerable (VU). Tolerance to salinity is included as primary (Pri), secondary (Sec), and peripheral (Per). Countries of distribution and endemism are shown as Guatemala (G), Belize (B), El Salvador (EL), Honduras (H), Costa Rica (CoR), Nicaragua (N), and Panama (P).

Family	Species	Tolerance to salinity	List of countries present	Country of endemism	Red-list category	Population trend	Year of assessment
Sphyrnidae	<i>Sphyrna lewini</i>	Per	G, ES		CR	Decreasing	2018
Pristidae	<i>Pristis pectinata</i>	Per	G, H, N, CoR		CR	Decreasing	2012
	<i>Pristis pristis</i>	Per	G, N, CoR,P		CR	Decreasing	2013
Megalopidae	<i>Megalops atlanticus</i>	Per	B, G, ES, H, N, CoR,P		VU	Decreasing	2018
Anguillidae	<i>Anguilla rostrata</i>	Per	B, G, H, N, CoR,P		EN	Decreasing	2013
Characidae	<i>Astyanax anai</i>	Pri	CoR,P		EN	Decreasing	2019
	<i>Astyanax kompi</i>	Pri	P	P	CR	Unknown	2020
	<i>Astyanax petenensis</i>	Pri	G		VU	Unknown	2018
	<i>Carlana eigenmanni</i>	Pri	N, CoR		VU	Unknown	2019
	<i>Eretmobrycon bayano</i>	Pri	P	P	VU	Unknown	2019
	<i>Eretmobrycon gonzalezi</i>	Pri	CoR,P		EN	Unknown	2019
	<i>Eretmobrycon terrabensis</i>	Pri	CoR	CoR	VU	Unknown	2019
	<i>Hyphessobrycon bussingi</i>	Pri	CoR,P		EN	Decreasing	2019
	<i>Hyphessobrycon panamensis</i>	Pri	P	P	VU	Unknown	2019
	<i>Hyphessobrycon savagei</i>	Pri	CoR	CoR	VU	Unknown	2019
	<i>Odontostilbe mitoptera</i>	Pri	P	P	VU	Unknown	2020
	<i>Pseudocheiroduon terrabae</i>	Pri	CoR	CoR	VU	Unknown	2019
	<i>Pterobrycon myrnae</i>	Pri	CoR	CoR	EN	Decreasing	2019
	<i>Roebooides ilseae</i>	Pri	CoR	CoR	VU	Stable	2019
Bryconidae	<i>Brycon obscurus</i>	Pri	P	P	VU	Unknown	2019
Lebiasinidae	<i>Lebiasina boruca</i>	Pri	CoR	CoR	VU	Unknown	2019
Loricariidae	<i>Rineloricaria altipinnis</i>	Pri	P	P	VU	Unknown	2019

Heptapteridae	<i>Imparfinis lineatus</i>	Pri	CoR	CoR	EN	Unknown	2019
Ariidae	<i>Notarius cookei</i>	Per	CoR,P		VU	Decreasing	2007
Gymnotidae	<i>Gymnotus panamensis</i>	Pri	P	P	CR	Unknown	2019
Lacantunidae	<i>Lacantunia enigmatica</i>	Pri	G		VU	Unknown	2018
Atherinopsidae	<i>Atherinella guija</i>	Per	G, ES, H		VU	Unknown	2019
	<i>Atherinella jilaoensis</i>	Per	N	N	CR	Decreasing	2007
	<i>Atherinella sardina</i>	Per	N, CoR		VU	Unknown	2019
Rivulidae	<i>Cynodonichthys birkhahni</i>	Sec	P	P	EN	Unknown	2019
	<i>Cynodonichthys fuscolineatus</i>	Sec	CoR	CoR	EN	Unknown	2019
	<i>Cynodonichthys glaucus</i>	Sec	CoR	CoR	EN	Unknown	2019
	<i>Cynodonichthys kuelpmanni</i>	Sec	P	P	CR	Unknown	2019
	<i>Cynodonichthys montium</i>	Sec	P	P	EN	Unknown	2019
	<i>Cynodonichthys rubripunctatus</i>	Sec	CoR,P		EN	Decreasing	2019
	<i>Cynodonichthys siegfriedi</i>	Sec	CoR	CoR	EN	Unknown	2019
	<i>Cynodonichthys uroflammeus</i>	Sec	CoR,P		EN	Unknown	2019
	<i>Cynodonichthys wassmanni</i>	Sec	P	P	EN	Unknown	2019
	<i>Cynodonichthys weberi</i>	Sec	P	P	VU	Unknown	2019
Profundulidae	<i>Profundulus guatemalensis</i>	Sec	G, ES, H		VU	Unknown	2019
	<i>Profundulus kreiseri</i>	Sec	G, ES, H		VU	Unknown	2019
	<i>Tlalo portillorum</i>	Sec	H	H	EN	Unknown	2020
Poeciliidae	<i>Brachyrhaphis rhabdophora</i>	Sec	CoR	CoR	VU	Unknown	2019
	<i>Hiatirhaphis parismina</i>	Sec	N, CoR		VU	Unknown	2019
	<i>Phallichthys quadripunctatus</i>	Sec	CoR, P		EN	Decreasing	2019
	<i>Phallichthys tico</i>	Sec	N, CoR		VU	Unknown	2019
	<i>Poecilia rositae</i>	Sec	G	G	EN	Unknown	2020
	<i>Poecilia teresae</i>	Sec	B	B	EN	Unknown	2019
	<i>Poeciliopsis paucimaculata</i>	Sec	CoR	CoR	EN	Unknown	2020
	<i>Poeciliopsis retropinna</i>	Sec	CoR,P		VU	Unknown	2019
	<i>Poeciliopsis santaelena</i>	Sec	CoR	CoR	VU	Unknown	2020

	<i>Priapichthys puetzi</i>	Sec	P	P	CR	Unknown	2019
	<i>Pseudoxiphophorus attenuatus</i>	Sec	G	G	CR	Unknown	2019
	<i>Pseudoxiphophorus cataractae</i>	Sec	G	G	VU	Unknown	2019
	<i>Pseudoxiphophorus diremptus</i>	Sec	G	G	VU	Unknown	2019
	<i>Scolichthys iota</i>	Sec	G	G	VU	Unknown	2019
	<i>Xenophallus umbratilis</i>	Sec	N, CoR		VU	Unknown	2019
	<i>Xiphophorus signum</i>	Sec	G	G	VU	Unknown	2019
Serranidae	<i>Epinephelus itajara</i>	Per	B		VU	Decreasing	2016
Lutjanidae	<i>Lutjanus cyanopterus</i>	Per	N		VU	Decreasing	2015
Cichlidae	<i>Amatitlania kanna</i>	Sec	CoR,P		EN	Decreasing	2019
	<i>Amatitlania myrnae</i>	Sec	CoR,P		EN	Decreasing	2019
	<i>Amatitlania sajica</i>	Sec	CoR	CoR	VU	Unknown	2019
	<i>Amphilophus amarillo</i>	Sec	N	N	VU	Stable	2019
	<i>Amphilophus astorquii</i>	Sec	N	N	CR	Decreasing	2019
	<i>Amphilophus chancho</i>	Sec	N	N	CR	Decreasing	2019
	<i>Amphilophus flaveolus</i>	Sec	N	N	CR	Decreasing	2019
	<i>Amphilophus globosus</i>	Sec	N	N	CR	Decreasing	2019
	<i>Amphilophus lyonsi</i>	Sec	CoR,P		EN	Unknown	2019
	<i>Amphilophus margaritifer</i>	Sec	G	G	EN	Decreasing	2007
	<i>Amphilophus sagittae</i>	Sec	N	N	VU	Stable	2019
	<i>Amphilophus superciliosus</i>	Sec	N	N	CR	Decreasing	2019
	<i>Amphilophus tolteca</i>	Sec	N	N	VU	Stable	2020
	<i>Amphilophus viridis</i>	Sec	N	N	VU	Stable	2020
	<i>Amphilophus xiloaensis</i>	Sec	N	N	VU	Stable	2019
	<i>Amphilophus zaliosus</i>	Sec	N	N	CR	Decreasing	2019
	<i>Chiapaheros grammodes</i>	Sec	G		VU	Unknown	2019
	<i>Chortiheros wesseli</i>	Sec	H	H	VU	Unknown	2020
	<i>Cribroheros altifrons</i>	Sec	CoR,P		VU	Unknown	2019
	<i>Cribroheros bussingi</i>	Sec	CoR,P		EN	Unknown	2019

	<i>Cribroheros diquis</i>	Sec	CoR	CoR	VU	Unknown	2019
	<i>Cribroheros rhytisma</i>	Sec	CoR,P		EN	Decreasing	2019
	<i>Darienheros calobrensis</i>	Sec	P	P	VU	Unknown	2019
	<i>Isthmoheros tuyrensis</i>	Sec	P	P	VU	Unknown	2019
	<i>Rocio spinosissima</i>	Sec	G	G	EN	Decreasing	2019
Gobiidae	<i>Ctenogobius claytonii</i>	Per	G, N, P		VU	Unknown	2019
	<i>Gobiosoma hildebrandi</i>	Per	P	P	VU	Decreasing	2015
	<i>Gobiosoma homochroma</i>	Per	P	P	EN	Decreasing	2015
	<i>Sicydium adelum</i>	Per	CoR		EN	Decreasing	2020
	<i>Sicydium altum</i>	Per	CoR		VU	Unknown	2020
Loricariidae	<i>Sturisomatichthys dariensis</i>	Pri	P	P	EN	Unknown	2019

Table S2: Global IUCN Red List Status of Central American freshwater fishes by taxonomic family.

Family	Total	DD	LC	NT	VU	EN	CR	% Threatened
Anguillidae	1					1		100
Lacantunidae	1				1			100
Megalopidae	1				1			100
Pristidae	2						2	100
Rivulidae	19	6	3		1	8	1	52
Profundulidae	6	1	2		2	1		50
Serranidae	2		1		1			50
Sphyrnidae	2		1				1	50
Lebiasinidae	3		2		1			33
Cichlidae	80	15	37	3	12	7	6	31
Characidae	46	6	22	4	9	4	1	30
Gymnotidae	4		3				1	25
Poeciliidae	70	15	35	4	10	4	2	23
Atherinopsidae	14	1	9	1	2		1	21
Heptapteridae	7		6			1		14

Loricariidae	15		11	2	1	1	13
Gobiidae	38	4	29		3	2	13
Bryconidae	8		5	2	1		13
Lutjanidae	10	1	7	1	1		10
Ariidae	22	4	17		1		5
Acanthuridae	1		1				0
Achiridae	11		11				0
Aetobatidae	1			1			0
Albulidae	2	1		1			0
Anablepidae	2		2				0
Apteronotidae	1		1				0
Atherinidae	1		1				0
Auchenipteridae	2		2				0
Batrachoididae	4		4				0
Belonidae	5		5				0
Blenniidae	2	1		1			0
Callichthyidae	1			1			0
Carangidae	16		16				0
Carcharhinidae	3		1	2			0
Catostomidae	1	1					0
Centropomidae	11		11				0
Chaetodontidae	1		1				0
Chanidae	1		1				0
Clupeidae	13		12	1			0
Crenuchidae	1		1				0
Ctenoluciidae	1		1				0
Curimatidae	1		1				0
Cynoglossidae	3		3				0
Cyprinodontidae	3		3				0
Dactyloscopidae	2		2				0
Eleotridae	19	6	13				0

Elopidae	2	1	1			0
Engraulidae	21	2	19			0
Erythrinidae	2		2			0
Gasteropelecidae	1		1			0
Gerreidae	21		21			0
Gobiesocidae	5	2	3			0
Haemulidae	9	3	6			0
Hemiramphidae	6	1	5			0
Hypopomidae	1		1			0
Kyphosidae	1		1			0
Labridae	2	1	1			0
Labrisomidae	1		1			0
Lepisosteidae	1		1			0
Lobotidae	1		1			0
Microdesmidae	2	1	1			0
Mugilidae	9	1	8			0
Ophichthidae	2		2			0
Paralichthyidae	8		8			0
Parodontidae	1		1			0
Pimelodidae	1		1			0
Polynemidae	3		3			0
Pomacentridae	1	1				0
Pristigasteridae	2		2			0
Sciaenidae	18	2	16			0
Scombridae	1		1			0
Sparidae	1		1			0
Sphyraenidae	2		2			0
Spratelloididae	1		1			0
Synbranchidae	2		2			0
Syngnathidae	7	1	6			0
Synodontinae	1		1			0

Tetraodontidae	5		5				0
Trichomycteridae	1		1				0
Grand Total	602	78	409	24	47	29	15

Table S3. List of non-native species by country. Countries of distribution and endemism are shown as Guatemala (G), Belize (B), El Salvador (EL), Honduras (H), Costa Rica (CoR), Nicaragua (N), and Panama (P). * Denotes translocations

	Species	B	G	EL	H	N	CoR	P	Source
1	<i>Cichla ocellaris</i>	X						X	[134]
2	<i>Cichla monoculus</i>							X	[138]
3	<i>Oreochromis aureus</i>		X	X		X	X	X	[69, 140, 145]
4	<i>Oreochromis niloticus</i>		X	X	X				[69, 121, 146 147]
5	<i>Oreochromis mossambicus</i>		X	X	X	X	X	X	[69, 140, 146]
6	<i>Oreochromis urolepis</i>		X						[69]
7	<i>Oreochromis sp.</i>		X						[122]
8	<i>Parachromis dovii</i> *		X	X					[69, 142]
9	<i>Parachromis managuensis</i> *		X	X				X	[69, 122, 142]
10	<i>Pterygoplichthys sp.*</i>		X				X		[69, 140]
11	<i>Pterygoplichthys disjunctivus</i>		X						[69, 122]
12	<i>Pterygoplichthys pardalis</i>		X				X		[69, 122, 145]
13	<i>Hypostomus sp.</i>		X			X	X		[69, 137, 145]
14	<i>Hypostomus plecostomus</i>					X			[136]
15	<i>Cyprinus carpio</i>		X	X	X	X	X		[69, 122, 140, 145]
16	<i>Ctenopharyngodon idella</i>		X		X		X	X	[69, 122, 140, 146]
17	<i>Hypophthalmichthys molitrix</i>				X		X	X	[140, 146]
18	<i>Hypophthalmichthys nobilis</i>						X	X	[140]
19	<i>Carassius auratus</i>		X				X		[69, 140, 145]
20	<i>Salmo trutta</i>		X					X	[69]
21	<i>Oncorhynchus mykiss</i>		X		X		X		[69, 140, 145]
22	<i>Poecilia reticulata</i>		X				X		[69, 140]
23	<i>Colossoma macropomum</i>		X				X		[69, 140]

24	<i>Piaractus brachypomus</i>		X						[69, 140]
25	<i>Ictalurus punctatus</i>		X		X				[69, 116, 146]
26	<i>Pangasianodon hypophthalmus</i>						X		[145]
27	<i>Gobiomorus dormitor</i> *					X			[160]
28	<i>Micropterus salmoides</i>		X	X	X		X	X	[145, 146]
29	<i>Lepomis gibbosus</i>		X						[69]
30	<i>Lepomis macrochirus</i>		X						[69]
31	<i>Pomoxis nigromaculatus</i>		X						[69]